



Masterworks Online Help

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MASTERWORKS
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1. Masterworks

1.1. Introduction

1.1.1. Introduction to Masterworks

The Masterworks solution suite is a fully integrated cloud-based business process automation solution and the best-in-class capital program and project lifecycle management solution for all stakeholders in a capital program lifecycle. The software suite is an end-to-end solution that automates every phase of the capital project construction lifecycle from capital planning, bidding, contract management, mobile inspection, right of way management, and out-year asset maintenance. Masterworks can be used by both internal and external stakeholders using the latest web and mobile technologies.

Masterworks is a robust and versatile solution that uses cloud, mobile, and GPS technologies to provide enhanced business integration. Its estimation, project, and contract management modules support worksite business processes to help construction companies of any size and its stakeholders to operate efficiently, reduce costs, and increase profits.

Masterworks is built to automate multiple phases of construction to provide absolute control over project management. It comprises a flexible data access layer that supports database technologies such as Microsoft SQL Server and Oracle, and a Web architecture. It enables users to access information from anywhere and anytime to efficiently execute complex workflows in the project lifecycle. It also seamlessly integrates its database with other third-party software applications using Web services and XML technologies. This flexible, customizable, and scalable application enables users to streamline installation and update the application. The secure SSAE 16 Type II Level Encryption provides uncompromising security of all business transactions and integrity of data.

This cloud-based capital project management application enables:

- Effective execution of projects through communication and collaboration
- Efficient response and action with the availability of the latest project information
- Enhanced interaction within the entire team that includes owners, contractors, and stakeholders
- Excellent visibility of projects in all statuses of the project lifecycle

1.1.2. Benefits of Masterworks

The Masterworks application enables you to efficiently carry out complex functions to manage a project throughout its lifecycle.

Flexible and Easy Deployment

Masterworks is a modular platform that enables you to deploy the entire application as one solution and deploy additional process modules to the core application based on requirements and capital investment.

Competent Project Planning

Masterworks presents a proven method of using historic data of completed and ongoing projects to plan, estimate, and budget future projects. Its vast asset library comprising catalogs and lists helps you manage projects efficiently.

Masterworks streamlines the task of creating estimates for project implementation from start to finish. The entire process of cost estimation and maintaining a reliable cost history is automated and centralized. Estimates can be created using asset libraries and archived data of unit prices.

Masterworks enables you to manage funds and fund availability for projects for improved planning. Track funds from multiple sources and allocate them to projects in varying percentages with Aurigo's flexible funds allocation capabilities.

With efficient scheduling and monitoring capabilities, plan project tasks and resources effectively for every activity's tasks. Manage timeframes, personnel allocation, and track any deviations from the schedule.

Instant Access to Information

Masterworks provides instant access to project information, irrespective of time and location, to stakeholders and project management teams without compromising on data security. In addition, the Masterworks integrated search engine allows you to quickly filter data if needed.

Complete Project Management

Masterworks is a flexible platform with capabilities to manage the entire lifecycle of projects, from project planning to project closure.

The Project Management module streamlines construction project processes to a central location. Each project in the enterprise can be tracked and managed efficiently. Project tasks, including budget estimation, document management, contract management, and project closure can be performed quickly and easily. Dashboards provide real-time information to make informed decisions and maximize management efficiency.

Bid Estimation Management

With the Masterworks application, you can easily manage bid analysis with the automated tabulation and reporting features. You can also award the items of an estimate to a contractor.

Intelligent Contract Management

The Masterworks Contract Management module provides access to contract information at any time and from any place, enabling better collaboration between teams and providing a clear project view to make effective decisions. This module facilitates contract administration and provides features to create contracts, manage contractors and contract items, issue change orders, track project implementation progress, and generate pay estimates. Predefined, standardized forms support contract management. Various reports are available that provide insights into the contract information for key projects.

Document Management

The Masterworks Documents module is a repository used to store and track documents in electronic form. It also stores scanned images of paper documents. There is no restriction on the number or the size of documents that can be uploaded to Masterworks. This well-designed module enables you to organize and store content logically and hierarchically, in folders and subfolders, to ensure consistency across the enterprise.

Easy Administration

The Masterworks Administration module is a true enterprise class feature, with tools to set up the Masterworks user interface and manage multiple users. It provides the administrator with complete control to define user access to the system, define user roles, and assign permissions to access the features of each module based on the role a user is assigned to in a project. In addition, the administrator can manage email settings, report logos and modules, upload reports, and create workflows, forms, and user-defined fields.

Masterworks Mobile App

The Masterworks mobile app enables field workers to update and transfer data remotely from a construction site to the Masterworks central server. Data transfer is through the Internet using mobile devices, such as iPads, laptops, or Android devices.

The Masterworks app improves the efficiency of field inspectors by allowing data capture on forms with pre-populated fields, standard text notes, and remarks. This helps reduce manual errors, maintain consistency and accuracy in reporting, and provides real-time project information to all project stakeholders.

1.2. Getting Started

1.2.1. Introduction to the Masterworks User Interface

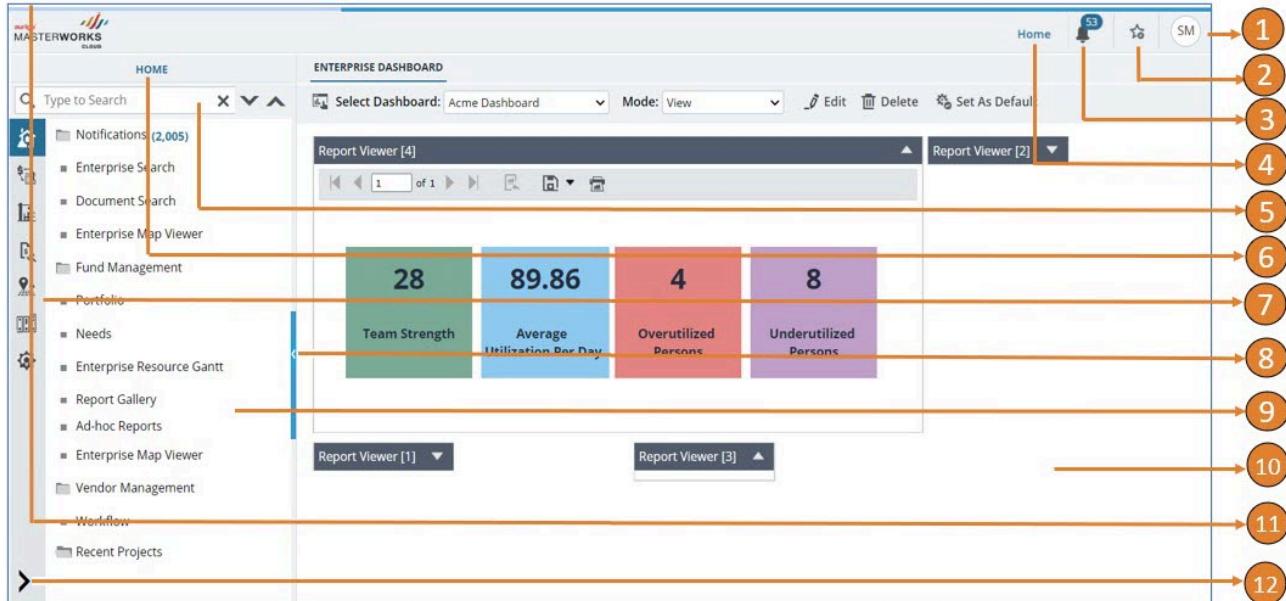
Every time you log in, you are navigated to the Masterworks Home page.

In the application, the modules and information available to you are based on the following factors:

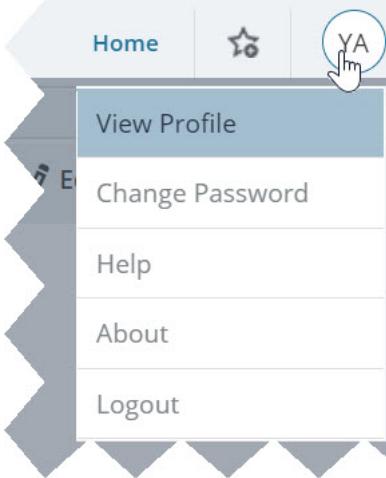
- Roles assigned to you
- Projects to which you are invited
- Current workflow status of the form

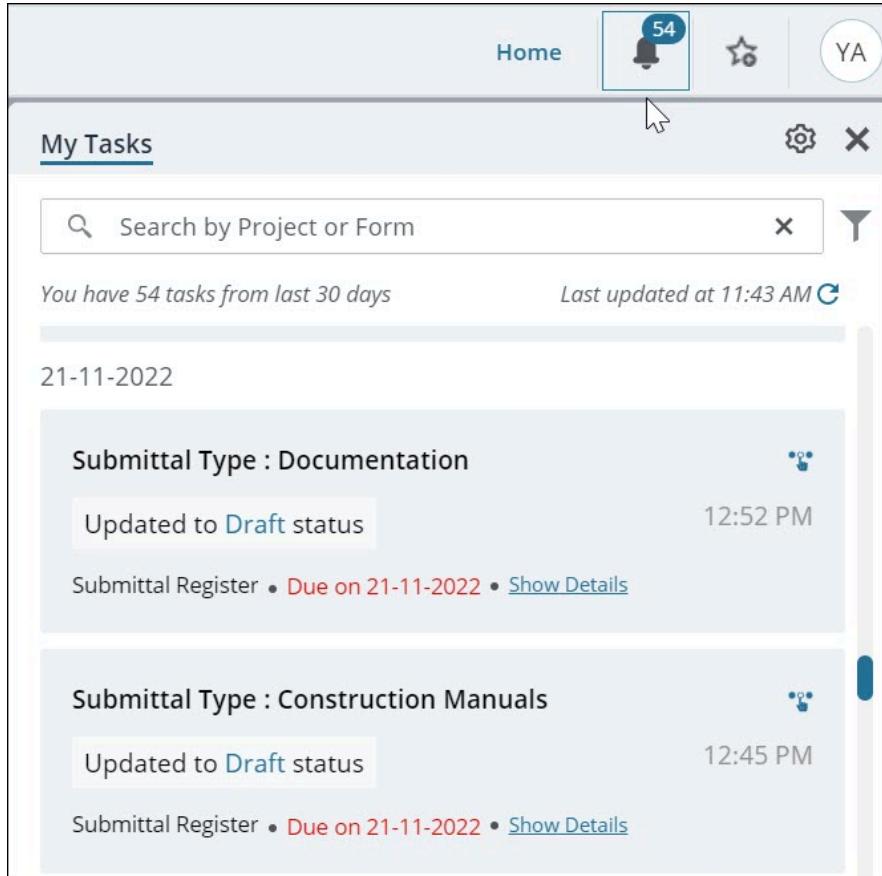
The high-level modules, elements, and features available in Masterworks User Interface (UI) is illustrated in the following figure:

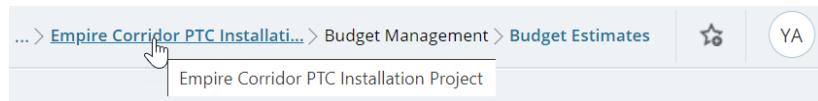
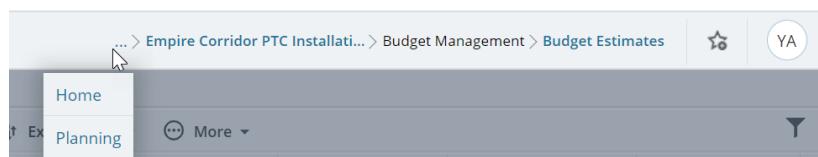
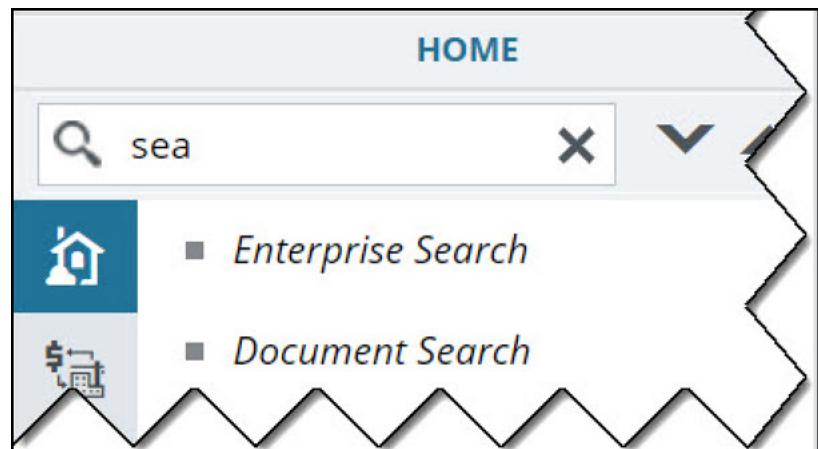
Masterworks UI



The UI of Masterworks contains various elements that are described as follows:

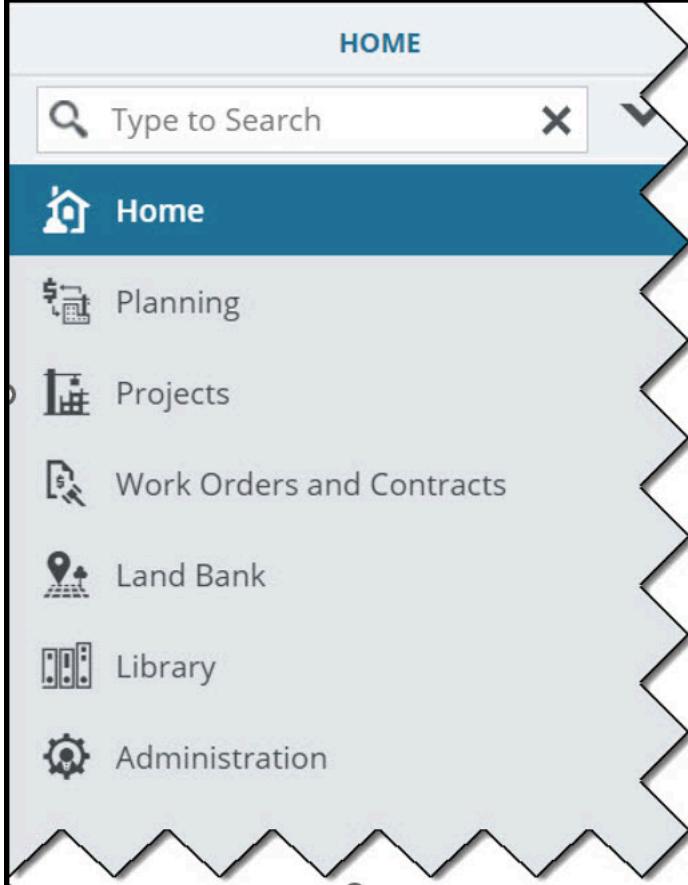
Number	Item	Description
1	Profile menu	<p>You can view your profile, change your application password, log out, access the application Online Help, and view the application version information.</p> <p>Click your initials to view the options.</p> <p>Profile Menu</p>  <p>Note: The logout option is not available if the application is configured for ADFS.</p>
2	Favorites	<p>You can bookmark frequently used pages for easy and quick access from anywhere in the application.</p> <p>For information on accessing and managing your favorites, see Managing Favorites.</p>

Number	Item	Description
3	Notification icon	<p>The tasks awaiting your action are displayed for easy and quick access from anywhere in the application.</p> <p>Click  to view the list of tasks awaiting your action.</p> <p>My Tasks</p>  <p>The number displayed on the notification icon is the number of unread tasks awaiting your action.</p> <p>The number of tasks listed is based on the value defined in the Filter Window Range (in Days) field in the Application Settings of the Administration module.</p> <p>In the My Tasks page, you can view the tasks awaiting your action, perform workflow actions, and filter and search the tasks based on projects or forms.</p> <p>Note: The tasks displayed are based on the most recent tasks awaiting your action.</p> <ul style="list-style-type: none">To search the tasks for a respective project or form, enter the appropriate project or form in the Search bar.To filter the tasks by project or form, click .To perform the workflow action for a task, click .

Number	Item	Description
4	Page navigation trail/ Breadcrumbs	<p>Displays the trail of page navigation links to track your location within the application.</p> <ul style="list-style-type: none">Click a link to open the page. <p>Breadcrumb</p>  <ul style="list-style-type: none">Expand the breadcrumb trail to access the whole trail. <p>Breadcrumbs Trail</p> 
5	Form finder	<p>You can quickly search any form in the navigation pane.</p> <p>Form Finder</p>  <p>Enter the name of the form or part of the form name to easily find the form.</p>
6	Module name	Displays the name of the module you are currently in.
7	Module menu	Buttons to access the various modules of Masterworks.

Note: The availability of modules is based on the roles assigned to you.

Number	Item	Description
8	Toggle button – Pane	<p>Button to show, hide, and re-size application panes.</p> <p>Docking the left pane provides more space to view information in the right pane.</p> <ul style="list-style-type: none">• Click  to hide the left navigation pane.• Click  to view the left navigation pane.
9	Left navigation pane	Links to the forms available in the module.
10	Right action pane	Displays the work area for forms and modules.
11	Loading bar	Displays in motion when the page is loading.

Number	Item	Description
12	Toggle button – Modules	<p>Button to show the module names in Masterworks.</p> <ul style="list-style-type: none">Click the toggle button  to view the module names. Module Menu Click the toggle button  to hide the module names.

1.2.2. Common Screen Icons and Controls

The following tables provide a quick reference of tasks that you can perform in a form using common screen options and controls. Information, screen icons, and controls available to you in the application are based on the following:

- Roles assigned to you in the enterprise
- Projects you are invited to
- Roles assigned to you in a project

The following option groups are described:

- [Toolbar options](#)
- [Navigation pane controls](#)

- [Page navigation controls](#)
- [Others](#)

Toolbar Options

Options available to you in the toolbar are contextual. On the list page of a form, all global functionalities are available when no records are selected. Record-specific functionalities are available based on the number of records (single or multiple) selected on the list page.

Tool	Icon	Function
New	 New	Create a new form.
Edit	 Edit	Edit form information.
View	 View	View form information.
Delete	 Delete	Delete the record.
Copy	 Copy	Create a new form by copying specific information from a selected form.
History	 History	<p>View the workflow history of the selected form.</p> <p>Display the attachments added or linked to the form on a workflow transition.</p> <p>For information on workflow history, see Viewing the Workflow History.</p>
Associate	 Associate	<p>Change the default workflow of a form.</p> <p>For information on changing the workflow, see Associating a Workflow.</p>

Tool	Icon	Function
Workflow User(s)	 Workflow User(s)	Select specific users to mandatorily take a workflow action. For information on selecting users, see Selecting Workflow Users .
Show Pending on User(s) / Hide Pending on User(s)	 Show Pending On User(s)	Show/hide the Pending On User(s) column on the list page. The Pending On User(s) column displays the users names of stakeholders on whom the workflow action is pending. For information on workflows, see Workflow Status Transitions on page 71.
Select Actions	 Select Actions ▾	Perform a workflow action to transition a record from its current workflow status to the subsequent workflow status. For information on workflows, see Performing a Workflow Action .
Reports	 Reports ▾	View reports related to the form. For information on reports, see Working with Reports .

Tool	Icon	Function
Customize List	 Customize List	<p>Customize the available columns in a list page.</p> <ul style="list-style-type: none">• Select or clear column names to display or hide the columns.• Edit the Caption to change the display name of columns.• Hover over the column name, and then drag and drop the column to rearrange the columns.• In the Page Size text box, enter the number of records to be displayed in the list page.• The following options are available to users with the Administrator role:<ul style="list-style-type: none">■ Use the Set for All option to apply changes as the default setting for all users for that form's list page.■ The Set for Me option indicates the changes will only be applied for you. You can override the default setting using the Set for Me option. <p>Click Save to save the changes made to the list page settings.</p>

Tool	Icon	Function
Attachment		<p>Access files that are attached to the records of a form.</p> <p>For information on attachments, see Attachments.</p>
Ball In Court	 Ball In Court	<p>Route form information to a specified user.</p> <p>For additional information on Ball in Court, see Ball in Court.</p>
Audit Log	 Audit Log	<p>View the following information for each form:</p> <ul style="list-style-type: none">• Addition of a record• Deletion of a record• Modification of a record <p>For additional information on viewing the audit log, see Form Audit Log.</p>
Filters		<p>Search for specific records that match the criteria you provide.</p> <p>For additional information on filters, see Using Filters.</p>
Previous Record		Displays the previous record.
Next Record		Displays the next record.
Reorder	 Reorder	Reorder items to move within the container or to other containers.

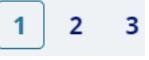
Tool	Icon	Function
Refresh Line Number	 Refresh Line Number	Sets line numbers of items in a sequential order. Primarily used after deleting an item.
Flat List	 Flat List	View the items as a list without the grouping of containers or groups.
Records Selection	 2 Selected X	View the number of records selected in a list page. Also, to deselect all selected rows, click X.
More	 More ▾	View additional features available in the toolbar.

Navigation Pane Controls

Icon	Function
	Expands the group in the navigation pane to view the nodes in the group.
	Collapses the group in the navigation pane.
	Expands the tree structure in the navigation pane.
	Collapses the tree structure in the navigation pane.
	Expands the folder in the navigation pane to view the nodes in the folder.

Page Navigation Controls

Control	Description
	Navigate to first page
	Navigate to previous page

Control	Description
	Current page
	Pages
	Navigate to next page
	Navigate to last page

Others

Term	Description	Function
Sort and Filter	General sort and filter options	<p>Sort or search for specific records that match the criteria you provide in tables.</p> <p>Sort:</p> <p>Click the appropriate column name to sort records in that column. Click once to sort the column in ascending order, click twice to sort the column in descending order, click thrice to reset to the default order.</p> <p>Filter:</p> <ol style="list-style-type: none">1. Enter the search criteria in the filter text box in the appropriate column.2. Click Filter .3. Click the appropriate filter option for the specified filter criteria. For additional information on filter options, see Using Filters.4. To use a filter expression, select the appropriate logical operator and then click Filter.

Term	Description	Function
Contextual Menu Options	Toolbar options at the record	<p>On selecting a record in a list page, the contextual menu  option is made available in the first or third column.</p> <p>When you click this menu, the list of contextual functions you can perform is displayed.</p>
Page load	Page load indicator	Indicates that information in the page is loading. It is recommended that you perform any action in the application only after the page completes loading.
Session time out	Pop-up with session time out details	<p>The session timeout notification is displayed after the specified time duration before the application logs off automatically.</p> <p>Click Continue to continue the current session.</p> <p>For information on setting the session time out period, see Application Settings.</p>
Tooltip 	Additional information about an UI element, such as text box, drop-down, or check box.	When you hover over the mouse pointer or click the  icon, a brief description or hint about the particular UI element is displayed.

2. Common Application Features

2.1. Common Application Features

This section describes the key features of the application that are commonly available in most forms. These features enable you to perform routine tasks.

2.2. Attachments

2.2.1. Attachments

You can upload attachments, or link files in the Documents folders to every form and workflow transition. There is no limitation on the number of attachments or the size of attachments that you can upload in a form or during workflow transition.

Additionally, using the DocuSign feature, you can send the attachment for e-signature and get it signed by the required project user.

See the following topics to upload or link, and access attachments:

- [Attaching Files to a Form](#)
- [Accessing Attachments](#)

Additionally, you can perform the following tasks:

- [Annotate attachments.](#)
- [Delete attachments.](#)
- [Send an attachment for signature.](#)
- [Cancel a request for signature.](#)
- [Sign an attachment.](#)
- [Get the signed copy.](#)

2.2.2. Attaching a File to a Form

You can upload files to a form or during a workflow transition. You can also link a file in the **Documents** folders to a form or during a workflow transition.

- To upload files, perform the following steps in the **ATTACHMENTS** section:
 1. Click **Upload Document**.
The **Open** dialog box is displayed.
 2. To upload a single file, click the required file.
Alternatively, to upload multiple files, press and hold CTRL, and then click the required files.
 3. Click **Open**.
The files are uploaded to the form and are displayed in the **ATTACHMENTS** section.
 4. The name of the file is updated in the **Title** column. Optionally, in the **Title** column, enter the titles for the files attached.
 - To link a file available in the **Documents** folders, perform the following steps:
 1. In the **ATTACHMENTS** section, click **Link Document**.
The **Link Document** dialog box is displayed.
 2. Click **Masterworks Document**.
 3. In the **Folder** drop-down list, select the required folder where the files exist.
The list of files in that folder is displayed.
 4. Perform either of the following steps:
 - From the list of files, select the required files.
 - To search for a file, in the box, enter any search criteria for the file, click **Search**, and then select the required files.
You can specify search criteria, such as the extension of the file type of the file, the date or time the file was uploaded, the name or title of the file, or the username of the user who uploaded the file.
Optionally, to view all the files in the selected folder, click **Clear Search**.
 5. Click **OK**.
The files are linked to the form and are displayed in the **ATTACHMENTS** section.
- Note:** The Url/Link column displays the path to the folder where the document is available. Click the folder path to open the folder.
6. In the **Title** column, enter the titles for the linked files.

- To upload a file to a folder in the **Documents** folder structure and then link the file, perform the following steps:

1. In the **ATTACHMENTS** section, click **Link Document**.

The **Link Document** dialog box is displayed.

2. Click **Upload and Link New Document**.

3. In the **Folder** drop-down list, select the appropriate folder to upload files.

4. Click **OK**.

A confirmation message is displayed.

5. Click **OK**.

The **NEW DOCUMENT** page is displayed.

6. Upload the appropriate files. For information on uploading files, see [Uploading Documents](#).

On uploading and saving the files, the files are uploaded to the folder selected in the **Folder** drop-down list and are linked to the form.

7. In the **Title** column, enter the titles for the linked files.

- To link a file in an external storage system, perform the following steps:

1. In the **ATTACHMENTS** section, click **Link Document**.

2. Click **External Document**.

3. In the **URL/Link** box, enter the URL to the file in the external storage system.

4. In the **Title** box, enter the title for the linked file.

5. Click **OK**.

The file is linked to the form and is displayed in the **ATTACHMENTS** section.

2.2.3. Accessing Attached Files

You can access files that are attached to forms and workflows.

- To access files attached to a form (from the list page):

1. In the navigation pane, click the required form.

The form list page is displayed.

2. In the toolbar, click **More**, and then click **Attachments**.

The attachments of all the records are listed.

Alternatively, to view files attached to a record, select the appropriate record, and then click **Attachments**.

Various document management features are available for attachments. For information on document management features, see [Document Management](#).

- To access documents attached to a record (from the details page):
 1. In the navigation pane, click the required form.
The form list page is displayed.
 2. In the list page, select the appropriate record, and then click **View**.
The form details page is displayed.
 3. In the **ATTACHMENTS** section, select the appropriate documents, and then click .
- To access files attached to a workflow:
 1. In the navigation pane, click the required form.
The form list page is displayed.
 2. In the list page, select the appropriate record.
 3. In the **WORKFLOW** group, click **History**.
The **Workflow Status & History** dialog box is displayed.
 4. To view all the attachments and complete workflow history, click **More Details**.
The **History** page is displayed.
 5. In the **ATTACHMENTS** section, select the appropriate documents, and then click .

For more information on viewing the history of workflow transitions of the record, see [Viewing the Workflow History](#).

2.2.4. Deleting Attached Files

- You can delete a file only if you have attached it.

You can delete files that are attached to forms.

1. To access the appropriate file to be deleted, perform the following steps:
 - a. In the navigation pane, click the appropriate form.
The form list page is displayed.
 - b. In the toolbar, click **More**, and then click **Attachments**.
The attachments of all the forms are listed.
Various document management features are available for attachments. For information on document management features, see [Document Management](#).
2. To delete an attachment, select the appropriate file, and then click .

2.3. Ball in Court

2.3.1. Ball in Court

Using the Ball in Court feature, you can forward form information to a user of the project to obtain more information or approvals. The Ball in Court feature is primarily used when a stakeholder at a particular workflow status of a form needs to send form information to a user who is not a stakeholder at the workflow status of the form. The user receiving the forwarded form information can then respond to the initiator with the appropriate information.

On initiating the ball in court utility in a form, a notification email is sent to the recipient, a notification is saved in the **INBOX** page of the recipient, and a task created in the application **MY TASKS** page of the recipient.

The recipient can then respond to the initiator from the form from which the ball in court utility was initiated. On responding to the ball in court notification in a form, a notification email is sent to the initiator and a notification is saved in the **INBOX** page of the initiator.

The notification email sent from the initiator and the response notification email sent from recipient are configurable in the workflow associated with the form. The notification email templates can be configured to contain custom information, and also form information.

The high-level task sequence for the ball in court utility is as follows:

1. Configure notification templates in the **Mail Body Template** library catalog. For information on configuring the Mail Body Template, see [Creating Mail Body Templates](#).
2. Select the notification template to be sent to the recipient and the notification template to be sent to the initiator of the ball in court notification in the workflow of the form at the appropriate workflow status. For information on configuring email templates, see [Configuring Ball in Court Notifications](#).
3. Create the appropriate form, and save the form.
4. Use the Ball in Court notification in the form. The initiator template configured in the workflow is sent to the recipient.
5. Use the Respond notification in the form that was used to initiate the Ball in Court notification. The recipient template configured in the workflow is sent to the initiator.

To illustrate the working of the Ball in Court feature, the **Expenses Form** is used as an example. The following topics describe the process of initiating a Ball in Court notification and responding to the notification:

- [Initiating a Ball in Court notification](#)

- [Responding to a Ball in Court notification](#)

2.3.2. Initiating a Ball in Court Notification

- Notifications templates are configured for the form in the workflow status when the notifications is being initiated. For more information, see [Configuring Ball in Court Notifications](#).

You can share form information with a user invited to the project but not have access to the form or not be a stakeholder at the workflow status of the form when the notification is being initiated.

On initiating a Ball in Court notification, an email is sent to the recipient and the notification is saved in the **INBOX** page of the recipient.

The following procedure uses the **Expenses** form as an example to describe the procedure to initiate the Ball in Court notification.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder, expand the **Commitments & Expenses** folder, and then click **Expenses Form**.
4. Click **New**.
5. Click **Miscellaneous Expenses**, specify the expense details, and then click **Save**.
6. Select the saved form, and then click **Edit**.
7. Click **Workflow**, and then click **Ball in Court**.

The feature is available only if the form is in the workflow status for which a template is selected in the **Ball In Court Request Email Template** list in the workflow definition of the form. For more information, see [Configuring Ball in Court Notifications](#).

8. From the **Route To** drop-down list, select the user to share the information of the appropriate form.
Available options are users invited to the project.
9. In the **Notes** box, enter any notes to be sent to the recipient.

10. In the **Set Days To Complete for Next status** box, enter the number of days by when the task must be completed.
11. Click **OK**.

A notification email is sent to the recipient, and a notification is saved in the **INBOX** page of the user.

The recipient can now respond to the Ball in Court notification.

Information that is shared is based on the template selected in the **Ball In Court Request Email Template** list in the workflow definition of the form.

2.3.3. Responding to a Ball in Court Notification

- A Ball in Court notification is received by the recipient.

The recipient of the Ball in Court notification can respond to the notification. On responding to a Ball in Court notification, an email is sent to the initiator of the notification and the notification is saved in the **INBOX** page of the initiator.

The following procedure uses the **Expenses** form as an example to describe the procedure to respond to the Ball in Court notification.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder, expand the **Commitments & Expenses** folder, and then click **Expenses**.
4. Select the appropriate record, and then click **Edit**.
5. Click **Workflow**, and then click **Respond**.

The feature is available only if a Ball in Court notification is received by the recipient.

6. In the **Notes** box, enter any notes to be sent to the recipient.
7. In the **Set Days To Complete for Next Stage** box, enter the number of days before which the recipient must complete the task.

8. Click **OK**.

An email notification is sent to the initiator of the Ball in Court notification.

The content of the response notification is based on the template selected in the **Ball In Court Response Email Template** list in the workflow definition of the form.

2.4. Checklists

2.4.1. Checklist Management

A checklist is a collection of activities categorized into stages. A stage comprises multiple activities, with each activity having a defined timeline for completion.

You can add checklists at a project level, contract level, and form level.

- At a project or contract level, you can import pre-defined checklists to a project or contract, as applicable, from the library. You can also configure the imported checklist by adding or removing stages and activities.
- At a form level, you can associate a checklist with every record of a form. You can also configure workflows to ensure mandatory activities defined in a checklist are marked completed during workflow status transitions.

Once a checklist is created, you can mark completed activities, add notes, and upload attachments.

The functional flow for checklist management is as follows:

1. [Create a project or contract checklist](#).
2. [Complete a project or contract checklist](#).
3. [Create a form checklist](#).
4. [Complete a form checklist](#).
5. [Validate checklist completion](#).

2.4.2. Accessing Attachments in a Checklist

You can access attachments uploaded or linked to an activity.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.

4. Perform any of the following steps, as applicable:

- To access attachments in a checklist at the project level, in the project navigation pane, click **Checklists**.
- To access attachments in a checklist at the contract level, perform the following steps.
 - a. In the project navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - b. Expand the **Progress Tracking** folder, and then click **Checklists**.

The **CHECKLISTS** page is displayed.

5. In the **Attachments** column of the appropriate activity row, click the **Attachments** hyperlink.

Attachments

CHECKLISTS								
New Edit Delete Save								
Checklist Name : Project closure (2)								
Pre-Construction (3 Activitie(s))								
Activity Name	Start Date	End Date	Requires Escalation	Completed	Completed By	Notes	Attachments	Owner
Point of Contact	10/05/2023	10/05/2023	<input type="checkbox"/>	<input type="checkbox"/>			Attachments	
Project schedule -Consultant	10/05/2023	10/05/2023	<input type="checkbox"/>	<input type="checkbox"/>			Attachments	

The **ACTIVITY ATTACHMENTS** page is displayed.

The **ATTACHMENTS** section displays the attachments to the activity.

You can either view or delete the attachments.

- To view an attachment, in the **Document Name** column of the appropriate attachment, click the document name.
The file is displayed in the Masterworks Document Viewer.
- To delete an attachment, perform the following steps:
 - a. Select the attachment, and then click  [Delete](#).
A confirmation message is displayed.
 - b. Click **OK**.
 - c. Click **Save**.

2.4.3. Attaching Files to a Checklist

You can attach files only for activities of stages.

Note: You can attach files to the activities of stages only from the **CHECKLISTS** page.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder.

4. Perform any of the following steps, as applicable:

- To attach files to a checklist at the project level, in the project navigation pane, click **Checklists**.
- To attach files to a checklist at the contract level, perform the following steps:
 - a. In the project navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - b. Expand the **Progress Tracking** folder, and then click **Checklists**.

The **CHECKLISTS** page is displayed.

5. In the **Attachments** column of the appropriate activity row, click the **Attachments** hyperlink to upload files related to the activity.

Attachments

The screenshot shows a table with columns: Activity Name, Start Date, End Date, Requires Escalation, Completed, Completed By, Notes, Attachments, and Owner. Two rows are visible: 'Point of Contact' and 'Project schedule -Consultant'. The 'Attachments' column for both rows contains a blue link labeled 'Attachments'.

Checklist Name : Project closure (2)								
Pre-Construction (3 Activitie(s))								
Activity Name	Start Date	End Date	Requires Escalation	Completed	Completed By	Notes	Attachments	Owner
Point of Contact	10/05/2023	10/05/2023	<input type="checkbox"/>	<input type="checkbox"/>			Attachments	
Project schedule -Consultant	10/05/2023	10/05/2023	<input type="checkbox"/>	<input type="checkbox"/>			Attachments	

The **ACTIVITY ATTACHMENTS** page is displayed.

6. In the **ATTACHMENTS** section, upload or link related files to the activity.

For more information on attachments, see [Attachments](#) on page 41.

7. Click **Save**.

The file is uploaded or linked to the selected activity.

2.4.4. Creating a Project or Contract Checklist

- Checklists are defined in the library for the form.

For information on the **Checklist** library catalog, see [Checklists](#).

You can create a checklist to structure your project or contract effectively and ensure its completeness.

You can create project or contract checklists using any of the following methods:

- Import a pre-defined checklist from the library with all its stages and activities.
- Modify an imported, pre-defined checklist by adding activities and stages.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder.

4. Perform any of the following steps, as applicable:

- To create a checklist at the project level, in the project navigation pane, click **Checklists**.
- To create a checklist at the contract level, perform the following steps:
 - a. In the project navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - b. Expand the **Progress Tracking** folder, and then click **Checklists**.

The **CHECKLISTS** page is displayed.

5. In the **CHECKLISTS** page, click **New**.

The **NEW CHECKLIST** page is displayed.

New Checklist Page

The screenshot shows the 'New Checklist' page with the following fields and sections:

- Header:** NEW CHECKLIST, Save, Cancel
- Name:** A text input field with a red asterisk indicating it is required. It contains the placeholder 'Name *:'.
- Description:** A text input field containing the placeholder 'Description :'. It includes a small icon resembling a document with a checkmark.
- Start Date:** A date picker set to '10/12/2023'.
- End Date:** A date picker set to '10/12/2023'.
- STAGES & ACTIVITIES:** A section with a message 'No Data To Display'.
- Action Buttons:** Add, Edit, Delete.

6. In the **Name** field, click to import a pre-defined checklist from the library.

The **SELECT CHECKLIST** page is displayed.

Available options are checklists defined in the **Checklist** library catalog. For more information on checklists, see [Checklists](#).

7. Click the appropriate checklist, and then click **Done**.

The following information is displayed.

Section	Field	Description
-	Name	The name of the selected checklist as defined in the Checklist library catalog.
-	Description	The description of the selected checklist as defined in the Checklist library catalog. Optionally, you can modify the description as necessary.
STAGES & ACTIVITIES	-	The stages and activities of the selected checklist as defined in the Checklist library catalog.

8. From the **Start Date** calendar drop-down list, select the start date of the checklist.
9. From the **End Date** calendar drop-down list, select the completion date of the checklist.
10. To add a stage to the checklist, perform the following steps:

- a. In the **STAGES & ACTIVITIES** section, click **Add**.

The **Stages/Activities** section is displayed.

- b. In the **Stages/Activities** section, perform the following steps:

- i. In the **Stages/Activity** field, click **Stage**.

- ii. In the **Name** field, enter the name of the stage.

Alternatively, to add a stage from the library, perform the following steps:

- a) Adjacent to the **Name** field, click .

The **SELECT STAGES** page is displayed.

Available options are stages defined in the **Stages** library catalog.

- b) Click the appropriate stage, and then click **Done**.

- iii. Click **Save**.

The stage and its associated activities are added to the **STAGES & ACTIVITIES** section.

11. To add an activity to a stage in the checklist, perform the following steps:

- a. In the **STAGES & ACTIVITIES** section, click **Add**.

The **Stages/Activities** section is displayed.

- b. In the **Stages/Activities** section, perform the following steps:

- i. In the **Stages/Activity** field, click **Activity**.

- ii. From the **Stage** drop-down list, select the stage to which the activity must be added.

Available options are stages added to the checklist in the **STAGES & ACTIVITIES** section.

- iii. In the **Name** field, enter the name of the activity.

Alternatively, to select an activity from the library, perform the following steps:

- a) Adjacent to the **Name** field, click .

The **SELECT ACTIVITIES** page is displayed.

Available options are activities defined in the **Activities** library catalog.

- b) Click the appropriate activity, and then click **Done**.

- iv. From the **Start Date** calendar drop-down list, select the start date of the activity.

- v. From the **End Date** calendar drop-down list, select the completion date of the activity.

- vi. Based on the status of the activity, select the **Completed** or **Requires Escalation** check boxes, as applicable.

- vii. In the **Notes** field, enter appropriate notes relevant to the activity.

- viii. From the **Owner** drop-down list, select the name of the owner of the activity. Available options are users invited to the project.

Note: Alternatively, you can enter the first few characters of the user name to narrow the search result and select the appropriate owner.

- ix. Click **Save**.

The activity is added to the selected stage in the **STAGES & ACTIVITIES** section.

12. Optionally, perform the following steps, as applicable:

- To edit the details of a stage or an activity, perform the following steps:
 - In the **STAGES & ACTIVITIES** section, click the appropriate stage or activity row, and then click **Edit**.

Using Edit Option for a Stage

NEW CHECKLIST

Save Cancel

Name *	Project closure
Description	Project Closure
Start Date	10/05/2023
End Date	10/31/2025

STAGES & ACTIVITIES

Pre-Construction (2 Activitie(s))							
Activity Name	Start Date	End Date	Requires Escalation	Completed	Notes	Owner	IsMandatory
Point of Contact	10/05/2023	10/05/2023	<input type="checkbox"/>	<input type="checkbox"/>		Administrator	<input type="checkbox"/>
Project schedule - Consultant	10/05/2023	10/05/2023	<input type="checkbox"/>	<input type="checkbox"/>		Administrator	<input type="checkbox"/>

Review (2 Activitie(s))							
Activity Name	Start Date	End Date	Requires Escalation	Completed	Notes	Owner	IsMandatory
To Address Project Progress-Public at	10/05/2023	10/05/2023	<input type="checkbox"/>	<input type="checkbox"/>	To Address Project Progress-Public at large	Administrator	<input type="checkbox"/>

Add Edit Delete

Using Edit Option for an Activity

NEW CHECKLIST

Save Cancel

Name *	Project closure
Description	Project Closure
Start Date	10/05/2023
End Date	10/31/2025

STAGES & ACTIVITIES

Pre-Construction (2 Activitie(s))							
Activity Name	Start Date	End Date	Requires Escalation	Completed	Notes	Owner	IsMandatory
Point of Contact	10/05/2023	10/05/2023	<input type="checkbox"/>	<input type="checkbox"/>		Administrator	<input type="checkbox"/>
Project schedule - Consultant	10/05/2023	10/05/2023	<input type="checkbox"/>	<input type="checkbox"/>		Administrator	<input type="checkbox"/>

Review (2 Activitie(s))							
Activity Name	Start Date	End Date	Requires Escalation	Completed	Notes	Owner	IsMandatory
To Address Project Progress-Public at	10/05/2023	10/05/2023	<input type="checkbox"/>	<input type="checkbox"/>	To Address Project Progress-Public at large	Administrator	<input type="checkbox"/>

Add Edit Delete

The **Stages/Activities** section is displayed.

- Make the necessary changes.

- c. To edit the information for a stage, see steps **10.b.ii** and **10b.iii**.
To edit the information for an activity, see steps **11.b.ii** to **11.b.ix**.
- To delete a stage or an activity, perform the following steps:
 - a. In the **STAGES & ACTIVITIES** section, click the appropriate stage or activity row, and then click **Delete**.

Note: You can perform this action only if the checklist has more than one stage and the available stages have more than one activity.

- b. Click **OK**.

A confirmation message is displayed.

13. Click **Save**.

A new checklist is created for the project or contract, as applicable.

For more information on completing a project or contract checklist, see [Completing a Project or Contract Checklist](#) on page 55.

14. Optionally, to attach files to the checklist, see [Attaching Files to a Checklist](#) on page 49.

2.4.5. Completing a Project or Contract Checklist

- Checklists are configured for the form. For information on configuring checklists for a form, see [Checklists](#).

You can complete checklists configured for a project or contract to ensure all activities defined for the project or contract are complete.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder.

4. Perform any of the following steps, as applicable:

- To complete a checklist at the project level, in the project navigation pane, click **Checklists**.
- To complete a checklist at the contract level, perform the following steps:
 - a. In the project navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - b. Expand the **Progress Tracking** folder, and then click **Checklists**.

The **CHECKLISTS** page is displayed.

5. In the **CHECKLISTS** page, click the appropriate activity row, and then perform any of the following options, as applicable:

- Select the **Requires Escalation** check box if the activity requires escalation.
- Select the **Completed** check box if the activity is completed.

Upon saving the checklist, the **Completed By** column displays the user name who marked the activity as completed.

Alternatively, perform the following steps:

- a. In the **CHECKLISTS** page, click the appropriate activity row, and then click **Edit**. The **EDIT CHECKLIST** page is displayed.
 - b. In the **STAGES & ACTIVITIES** section, select the **Requires Escalation** or the **Completed** check box for the appropriate activity row, as applicable. Upon marking the activity as completed, the **Completed By** column displays the user name who performed the action.
6. Click **Save**.

2.4.6. Creating a Form Checklist

You can associate a checklist with every record of a form.

For information on steps to create a checklist for a form, see [Checklists](#).

2.4.7. Completing a Checklist of a Form

- Checklists are configured for the form. For information on configuring checklists for a form, see [Checklists](#).

You can complete checklists configured for a form to ensure all activities defined for the form are complete.

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.

4. Perform any of the following steps, as applicable:

- To complete a form checklist at the project level, in the project navigation pane, click the appropriate form.
- To complete a form checklist at the contract level, perform the following steps:
 - a. In the project navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - b. Click the appropriate form.

The selected form list page is displayed.

5. In the list page, select the appropriate record to fill in the checklist.

6. In the toolbar, click **CheckList**.

The **CheckList(s)** dialog box is displayed.

7. From the **Associated Checklist(s)** drop-down list, select the appropriate checklist to be filled in for the form.

Available options are checklists configured for the form in the **Checklist** library catalog.

For information on configuring checklists for a form, see [Checklists](#).

Upon selecting the associated checklist, the activity-related information is displayed.

Associated Checklist(s)

The dialog box has a title bar "CheckList(s)" and a close button "X". Below it, a dropdown menu shows "Associated Checklist(s) : Review Checklist". The main area is a table with the following data:

	Activity Name	Is Mandatory?	Requires Escalation	Completed	Notes
▼	Stage - Closure				
	CIP Project Number:	Y	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Point of Contact	N	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

A "Save" button is located at the bottom right of the dialog box.

8. In the **Requires Escalation** column, select the check box if the activity requires escalation.

9. In the **Completed** column, select the check box if the activity is completed.

Upon saving the checklist, the **Completed By** column displays the user name who marked the activity as completed.

10. In the **Notes** column, enter appropriate notes for the activities.

Note:

- If the associated workflow is configured to validate the completion of mandatory activities at a workflow status, you cannot transition the record to the next workflow status without marking the mandatory activities as **Completed**.
- If an activity in a checklist is mandatory, then you must first select the check box in the **Completed** column, and then transition the record to the next workflow status. It means if the **Is Mandatory** column displays **Y** corresponding to an activity, then select the **Completed** check box to enable workflow transition of the form to the next workflow status. For more information on checklists, see [Checklists](#) on page 199.

11. Click **Save**.

2.4.8. Validating Checklist Completion

- You are assigned the Administrator role.
- Checklists with activities marked as mandatory are defined in the library for the form. For more information on the **Checklist** library catalog, see [Checklists](#).
- A checklist is configured for the workflow.

You can configure workflows to display an information message if mandatory activities of a form checklist are not marked as completed before the record is moved to the subsequent workflow status.

The following procedure describes the steps to configure a workflow to validate mandatory activities of a form checklist are marked as completed during a workflow status transition. To create a new workflow with checklists, see [Creating a Workflow](#).

Note: The workflow transitions to the subsequent workflow status even if mandatory activities of a form checklist are not marked as completed.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **Configuration Toolkit**, and then click **Workflow Management**.

The **WORKFLOW LIST** page is displayed.

3. Create or edit a workflow.

For information on workflows, see [Workflow Management](#).

4. To configure the checklist completion validation, perform the following steps:

- a. From the **Actions** pane, drag-and-drop the **Activities** control to the **Workflow** tab.
- b. From the **Actions** pane, drag-and-drop the **Set Checklist** control into the **Activities** control.
- c. Click the **Set Checklist** control.

The properties of the **Set Checklist** control are displayed in the right pane.

- d. In the **Name** box, enter the name of the checklist.
- e. From the **Associate Checklist** drop-down list, select the appropriate checklist.

Available options are checklists defined for the form in the **Checklist** library catalog. For information on configuring checklists for a form, see [Checklists](#).

- f. In the **Perform Operation After** section, click the required option:

- **Any user completes action:** To specify that if any of the action stakeholders mark the mandatory activities as **Completed**, then transition the record to the next workflow status.
- **All user(s) complete action:** To specify that all the action stakeholders must mark the mandatory activities as **Completed** for the record to move to the next workflow status.

- g. Click **Apply**.

5. Click **Save** to save the changes.

6. Publish the workflow.

To publish a workflow, perform the following steps:

- a. In the **WORKFLOW LIST** page, select the edited workflow.
- b. Click **Publish**.

New instances of the form are created with the new definition of the workflow.

For information on filling out the form checklist, see [Completing a Form Checklist](#).

2.5. Form Filters

2.5.1. Filters

In a list page of a form in the application, you can search for specific records that match the criteria you provide. Records that match the criteria defined are displayed on the list page. You can also define and save search criteria as pre-defined filters.

If you apply multiple filters successively, the results are based on the collective search criteria. That is, if you apply a filter, then follow it up with another filter on a different column, then the second filter is applied on the results of the first filter.

You can search for records using either of the following ways:

- [Enter search criteria.](#)
- [Use a pre-defined filter.](#)

See the following topics to manage filters:

- [Saving a Filter](#)
- [Setting a Filter as the Default](#)
- [Editing a Filter Name](#)
- [Deleting a Filter](#)

2.5.1.1. Filtering Using Search Criteria

The following procedure describes the steps to search for records by defining the search criteria. The **PROJECTS** list page is used here as an example.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. Enter the search criteria in the filter text box in the appropriate columns.

For example, if you are searching for projects with **Project Type** as TYPE-A, then in the **Project Type** column, in the filter text box, enter TYPE-A.

3.

Click **Filter**.



Various filter options are displayed to filter information on the column.

The following image displays the filter options that are available for selection.

Filter Options

Project Name	Project Code	Owner
KA-6/6-1		
KA-6/2-1		
KA-5/26-10		
CJ_52622		
5-26 NP2		es
5-26 NP1		es
5-26 NP1 Inf		es
5-25-Ph2c		es
5-25-Ph2		es
5-25-Ph1c		es

No Filter

Contains

Does Not Contain

Starts With

Ends With

Equal To

Not Equal To

IsEmpty

IsNotEmpty

Clear All Filter

The following table describes the available filter options.

Filter Option	Description
No Filter	Removes the filter criterion in that column.
Contains	Displays records that contain the characters as specified in the criterion.

Filter Option	Description
DoesNotContain	Displays records that do not contain the characters as specified in the criterion.
StartsWith	Displays records that contain the characters as specified in the criterion at the beginning of the column value.
EndsWith	Displays records that contain the characters as specified in the criterion at the end of the column value.
EqualTo	Displays records that exactly match the characters as specified in the criterion.
NotEqualTo	Displays records that do not match the characters as specified in the criterion.
IsEmpty	Displays records that do not have data in the column being filtered.
IsNotEmpty	Displays records that have data in the column being filtered.
Clear All Filter	Deletes filter criterion in all the columns and displays all records.

- Click the appropriate filter option for the specified filter criterion.

Once the filter is applied, the  filter icon indicates the columns on which the records are filtered.

2.5.1.2. Saving a Filter

You can pre-define and save filters for future use. The following procedure describes the steps to define and save filter criteria as a pre-defined filter. The **PROJECTS** list page is used here as an example.

- In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- Enter the search criteria in the filter text box in the appropriate columns, and then click .

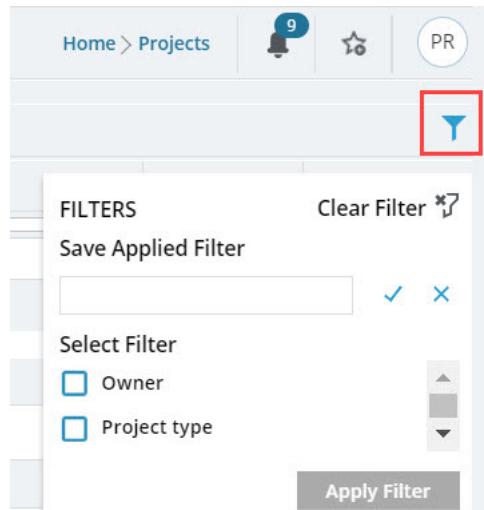
Various filter options are displayed to filter information on the column.

For information on filtering using search criteria, see [Filtering Using Search Criteria](#) on page 60.

- Click the appropriate filter option for the specified filter criterion.

4. In the toolbar, click .

Filters Dialog Box



The **FILTERS** dialog box is displayed.

5. In the **Save Applied Filter** field, enter the name of the filter.
6. Click .

2.5.1.3. Using a Pre-Defined Filter

- At least one saved filter exists. For information on saving a filter, see [Saving a Filter](#).

The following procedure describes the steps to use a pre-defined filter. The **PROJECTS** list page is used here as an example.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the toolbar, click .

The **FILTERS** dialog box is displayed.

3. In the **Select Filter** section, select the appropriate filter.

Available options are filters defined for the page. For information on defining a filter, see [Saving a Filter](#).

Select Filter

FILTERS Clear Filter

Save Applied Filter

Select Filter

Active Projects

Project Type

Status Filter

Apply Filter

4. Click **Apply Filter**.

The filter is applied, and the color of the filter icon



in the toolbar changes to blue.

5. Optionally, to clear the filter, in the toolbar, click



and then click **Clear Filter**.

2.5.2. Editing Filter Details

You can modify the name of a filter, and replace the search criteria of a filter.

2.5.2.1. Updating the Filter Name

You can update a filter name. The following procedure describes the steps to update the filter name. The **PROJECTS** list page is used here as an example.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- 2.

In the toolbar, click .

The **FILTERS** dialog box is displayed.

3. In the **Select Filter** section, select the appropriate filter.

Available options are filters defined for the page. For information on defining a filter, see [Saving a Filter](#).

4. Click  to edit the name of the filter.
5. In the text box, rename the filter, and then click .

2.5.2.2. Replacing a Filter

- At least one saved filter exists. For information on saving a filter, see [Saving a Filter](#).

You can replace the search criteria of a filter with different search criteria. The following procedure describes the steps to replace existing filter criteria with new filter criteria.

The **PROJECTS** list page is used here as an example.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. Enter the search criteria in the filter text box in the appropriate columns.

For information on filtering using search criteria, see [Using Form Filters](#).

3. In the toolbar, click .

The **FILTERS** dialog box is displayed.

4. In the **Select Filter** section, select the appropriate filter.

Available options are filters defined for the page. For information on defining a filter, see [Saving a Filter](#).

5. Click .

The filter criteria of the selected filter is replaced with the new criteria defined.

2.5.3. Setting a Filter as the Default Filter

- At least one saved filter exists. For information on saving a filter, see [Saving a Filter](#).

In the list page of a form, you can set a filter as default. On opening the list page, the page displays only records that match the filter criteria.

The following procedure describes the steps to define a default filter. The **PROJECTS** list page is used as an example.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the toolbar, click .

The **FILTERS** dialog box is displayed.

3. In the **Select Filter** section, select the appropriate filter.

Available options are filters defined for the page. For information on defining a filter, see [Saving a Filter](#).

4. Click  to set the selected filter as default.

On loading the page, the default filter is automatically applied.

2.5.4. Deleting a Filter

- At least one saved filter exists. For information on saving a filter, see [Saving a Filter](#).

You can delete the saved filter. The following procedure describes the steps to delete a filter. The **PROJECTS** list page is used here as an example.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the toolbar, click .

The **FILTERS** dialog box is displayed.

3. In the **Select Filter** section, select the appropriate filter.

Available options are filters defined for the page. For information on defining a filter, see [Saving a Filter](#).

4. Click  to delete the selected filter.

A confirmation message is displayed.

5. Click **OK**.

2.6. Mail Merge

2.6.1. Mail Merge

The **Mail Merge** feature enables you to attach mail merge documents to a specific record of a form, download mail merge documents from a specific record of a form, and send email notifications with specific form information as an email attachment to specific recipients. For example, you can send details of a budget estimate as an email attachment to a set of configured recipients. You can configure the notification and the attachment to include budget estimate details, such as the budget estimate ID, type, current workflow status, and so on.

You can design a mail merge document and create mail merge templates and email body templates.

You can design a mail merge document in the Microsoft Word format with objects that are placeholders to include specific form information.

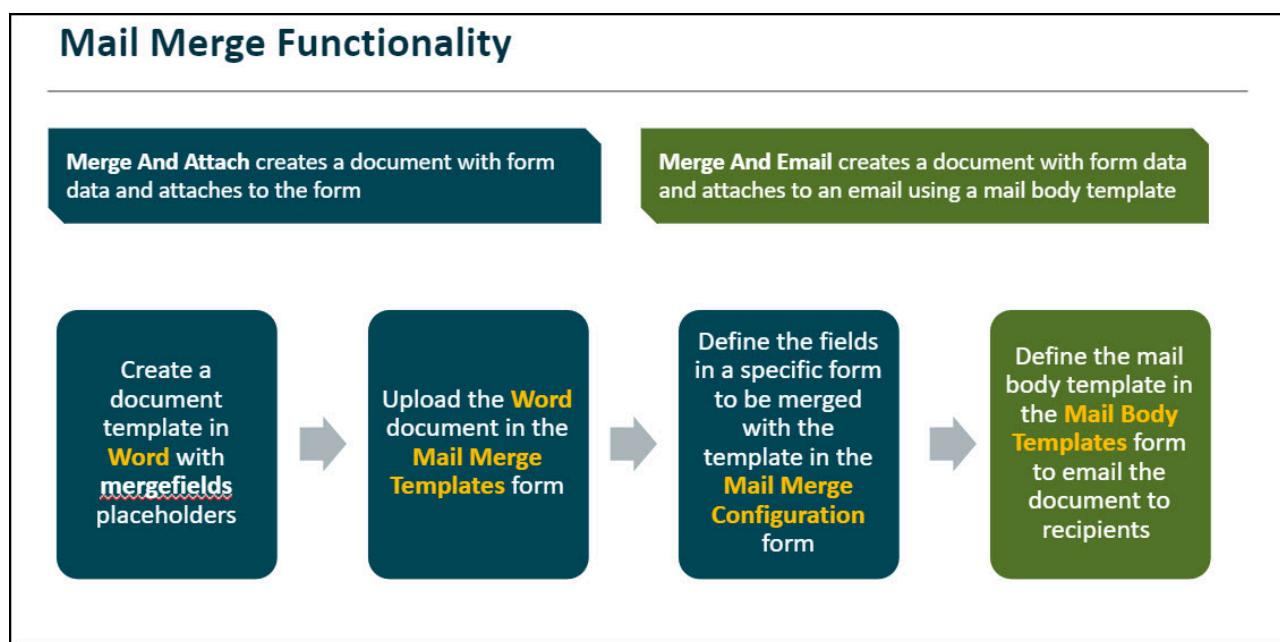
You can then create a mail merge template by uploading the designed mail merge document. The mail merge template is configured in the **Library** module for a form by mapping the objects in the mail merge document with the fields in the form. For more information on creating mail merge templates, see [Mail Merge Templates](#) on page 217.

When the mail merge document is sent to configured recipients, the mapped objects are replaced with the actual field values defined in the selected record of the form. The mail merge document is sent as an email attachment to the recipients. You can also attach the mail merge document to a record of the associated form.

You can also design an email body template by defining the subject and message for the email notifications. These mail body templates are used when sending emails to recipients. For more information on designing an email body template, see [Mail Body Templates](#) on page 215.

Additionally, you can download the mail merge document from the records of the associated form.

Mail Merge Process Overview



The functional flow for mail merge is as follows:

1. [Create mail merge documents with objects](#).
2. [Create mail merge templates](#).
3. [Configure mail merge for a form](#).
4. [Create mail body templates](#).
5. [Attach mail merge documents to a form](#).

6. [Download mail merge documents from a form.](#)
7. [Send mail merge documents to recipients.](#)

2.6.2. Creating Mail Merge Documents

A mail merge document is created in a Microsoft Word format with objects that are placeholders to include specific information of a record of a form. This document is then associated with a mail merge template, configured for a record of a form, and sent as an email attachment to the appropriate recipients.

1. Open a new document in Microsoft Word.
2. Enter the appropriate content for the mail merge document.
3. Place the cursor where you want to insert an object as a placeholder for the actual content of the form.
4. On the **Insert** tab, in the **Text** group, click **Quick Parts**, and then click **Field**.

The **Field** dialog box is displayed.

5. In the **Field names** list, click **MergeField**.
6. In the **Field** name box, enter the name of the object.
7. Click **OK**.

The object is inserted in the document.

8. Click **Save**.

2.6.3. Attaching Mail Merge Documents to a Record of a Form

- Mail merge is configured for the selected form.
For additional information, see [Configuring Mail Merge](#).
- You are invited to the project and provided with the **Edit** permission.

You can attach a mail merge document to a specific record of a form.

1. On the appropriate list page of a form, select a record for which the notification has to be attached.
2. Click **Mail Merge**, and then click **Merge and Attach**.

The **Merge and Attach** dialog box is displayed.

3. From the **Mail Merge Configuration** drop-down list, select the appropriate configuration.

Available options are all the configurations associated with the form. For more information, see [Configuring Mail Merge](#).

4. To convert the mail merge document to PDF, select the **Convert to PDF** check box. If the check box is cleared, then the mail merge document is attached in Word format.

Note: If the **Convert to PDF** check box is selected at the time when the mail merge is configured, then this check box is selected. Clear the check box to attach the mail merge document in PDF format.

5. Click **Attach**.

The mail merge document is attached to the record and available in the **ATTACHMENTS** section of the record.

2.6.4. Downloading Mail Merge Documents from a Record of a Form

- Mail merge is configured for the selected form.
For additional information, see [Configuring Mail Merge](#).
- You are invited to the project and assigned with the **View** permission.

You can download a mail merge document from a specific record of a form.

1. On the appropriate list page of a form, select a record from which the document must be downloaded.
2. Click **Mail Merge**, and then click **Merge and Download**.

The **Merge And Download** dialog box is displayed.

3. From the **Mail Merge Configuration** drop-down list, select the appropriate configuration.

Available options are the configurations associated with the form. For more information, see [Configuring Mail Merge](#).

4. To convert the mail merge document to PDF, select the **Convert to PDF** check box. If the check box is cleared, then the mail merge document is downloaded in Word format.

Note: If the **Convert to PDF** check box is selected at the time when the mail merge is configured, then this check box is selected. Clear the check box to download the mail merge document in PDF format.

5. Click **Download**.

The mail merge document is downloaded to the local hard drive.

2.6.5. Sending Email to Recipients

- Mail merge is configured for the form. For more information, see [Configuring Mail Merge](#).
- Mail body templates are available in the **Mail Body Templates** library catalog. For more information, see [Creating Mail Body Templates](#).
- You must be invited to the project and assigned with the **View** permission.

You can send email notifications after configuring Mail Merge for the form. The mail merge document is sent as an attachment.

1. On the appropriate list page, select the records the details of which must be sent to recipients.
2. Click **Mail Merge**, and then click **Merge and Email**.

The **Merge and Email** dialog box is displayed.

3. In the **Recipient(s)** box, perform the following steps to select email recipients:

- a. Click  to select the appropriate recipients.

The **Recipients** dialog box is displayed.

The dialog box lists all the users of the application. For more information, see [Creating a User Account](#).

- b. Select the appropriate recipients, and then click **Select**.

Alternatively, you can enter the email addresses of the recipients. You can enter multiple email addresses separated by a semicolon (;).

- c. From the **Mail Merge Configuration** drop-down list, select the appropriate configuration.

The available options are all the mail merge configurations associated with the form. For more information, see [Configuring Mail Merge](#).

- d. From the **Mail Body Template** drop-down list, select the appropriate template.

Available options are mail body templates defined in the **Mail Body Templates** library catalog.

For additional information, see [Creating Mail Body Templates](#).

- e. To send the mail merge document in PDF format, select the **Convert to PDF** check box to convert the mail merge document to PDF. If the check box is cleared, then the mail merge document is sent in the Word format.

Note: If the **Convert to PDF** check box is selected at the time mail merge is configured, then this check box is selected by default. Clear the check box if conversion of the mail merge document to PDF is not required.

4. Click **Send**.

The email with the mail merge document as attachment is sent to the selected recipients. If multiple records are selected, then separate emails for each record is sent to the recipients.

2.7. Workflow Management

2.7.1. Workflow Status Transitions

A workflow automates a business process for stakeholders to evaluate a form, make decisions, and then take appropriate action. Workflows comprise various statuses, and each status is transitioned to the following workflow status through actions taken by

stakeholders of the current status. Transitioning a workflow status to the subsequent workflow status is performed in the way of a workflow action.

For more information on workflows, see [Workflow Management](#).

The following topics describe the various workflow-related tasks:

- [Performing Workflow Status Transitions](#)
- [Viewing the Workflow History](#)
- [Selecting Workflow Users](#)
- [Associating a Workflow](#)

2.7.2. Performing a Workflow Action

- A workflow is associated with the record.
- You are invited to the project.
- You have edit permission for the form or document.
- You are an action stakeholder for the particular status in the workflow.
- The workflow action is pending on you.

Performing a workflow action in a record transitions the record from its current workflow status to the subsequent workflow status based on the definition of the workflow.

Note: A workflow status is transitioned to the subsequent workflow status based on the workflow action conditions defined. For more information, see [Creating a Workflow Using Simple Mode](#) on page 1213.

1. Open a form list page or document list page.

Note: You can view the workflow status of a record in the **Workflow Status** column of the list page.

2. Perform one of the following steps:

- Select the appropriate record.
- Select multiple records that are in the same workflow status and have the same workflow associated with them.
- Select the appropriate record, and then click **Edit**.

3. Click **Select Actions**, and then click the appropriate workflow action.

Available actions are based on the definition of the associated workflow.

A dialog box is displayed.

4. In the **Notes** box, enter the notes for the workflow transition.

You can access these notes from the **Workflow History** dialog box. For more information, see [Workflow History](#).

5. In the **Set Days To Complete for Next Stage** box, enter the number of days before which an action must be performed in the next workflow status.

Note: This will override the default days defined for the status in the form's workflow.

6. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

7. Click **OK**.

Note:

- You cannot revert certain workflow status to the previous workflow status.
- You cannot edit certain fields in a form based on the current workflow status of the record.

You can access the documents attached during workflow transitions from the **Workflow History** dialog box. For more information, see [Workflow History](#).

2.7.3. Viewing the Workflow History

- A workflow is associated with the record.

You can view the business process progression of a record in the workflow history of the record. The following details are available in the workflow history of every record:

- Action taken at every workflow status
- Date the workflow action was performed
- Notes entered when the workflow action was performed
- User name and user ID of the users who performed a workflow action
- Documents attached during workflow transitions

1. In the list page of a form, select the appropriate record.
2. Click **Workflow**, and then click **History**.

The **Workflow Status & History** dialog box is displayed.

The **Workflow Status** section displays the current and the previous workflow statuses.

The **Workflow History** section displays the details of the workflow statuses.

3. To view the complete workflow history, click **More Details**.

The **History** page is displayed.

The **Workflow Status** section displays the progression of the workflow through the various statuses.

The **Workflow History** section displays the details associated with each of the workflow statuses.

The **ATTACHMENTS** section displays the list of documents attached when users performed workflow actions on the selected record.

4. To view details associated with any of these workflow statuses, click the appropriate workflow transition record in the **Workflow Status** section.

The **Workflow History** section displays the details associated with the selected workflow statuses.

The **ATTACHMENTS** section displays the files uploaded during the workflow transition of the selected workflow statuses.

5. To open an attachment, in the **ATTACHMENTS** section, in the **Document Name** column, click the appropriate file name.

The document is opened in the application viewer.

For information on document management, see [Document Management](#).

6. To view the workflow history as a report, click **Show Workflow History Report**.

2.7.4. Selecting Workflow Users

- Workflows are published for the form.
- You have the appropriate permissions to view and use the feature.

At any workflow status, you can select specific users to mandatorily take an action at the workflow status. These selected users must perform an action at the defined workflow status to transition the workflow to the subsequent workflow status. Only selected workflow users will need to perform the workflow action.

For document folders in the document management module, user selection defined at a folder level is applicable to all sub-folders and document records within it. Also, user selection is possible at a sub-folder level and also at document record level.

1. To select users in a workflow of a module, or document folder, perform the following steps:

a. In the list page of a form or list page of document folder, click **Workflow**, and then click **Workflow User(s)**.

b. From the **Available Workflows** drop-down list, select a workflow.

The published workflows associated with the form are displayed.

The **Workflow User(s)** table is displayed.

The list of stakeholders for each status and role is displayed.

2. Alternatively, to select users in a workflow of a record of a form or a document, perform the following step:

- Select a record, click **Workflow**, and then click **Workflow User(s)**.

The **WORKFLOW USER(S)** page with the associated workflow of the record is displayed.

Only workflow statuses following the current workflow status are displayed, and the list of stakeholders for each status is displayed.

3. Select the users in each status to add to the workflow.

Optionally, you can filter the users using the following filters:

- Status
- Role
- User Name
- First Name
- Last Name

For more information on using filters, see [Filters](#) on page 59.

4. Click **Save**.

Based on the workflow definition, any or all selected users must perform the workflow action on the selected record.

The **WORKFLOW HISTORY** page displays the workflow actions performed by all users across all statuses of the workflow. For information on workflow history, see [Viewing the Workflow History](#).

2.7.5. Associating a Workflow

- Workflows are published for the form.

Once a workflow is published as the default workflow for a form, every record of the form that is created in every project is associated with its default workflow. You can change the default workflow of a form. The newly associated workflow is effective for this form only in

this project. New records created for this form in this project are associated with the newly selected workflow.

1. In the navigation pane, click a form to open.
2. Click **Workflow**, and then click **Associate**.

The **Workflow Association** dialog box is displayed.

The **Default Workflow** section displays the current associated default workflow of the form as defined for the form in the application. For information on workflow definitions, see [Workflow Management](#).

The **Workflow override for this page** section lists the current workflow that is associated with the form for the project.

3. To associate a different workflow to the form in the project, from the **Apply a new Workflow for this List Page and Module** drop-down box, select the workflow to associate with the form for the project.

Alternatively, to reset the workflow of the form for the project to the default workflow, as defined for the form in the application, in the **Workflow override for this page** section, click **Remove**.

4. Click **Apply** to save the changes.

The workflow properties are associated with the form.

New records created for this form, for the project, are associated with the selected associated workflow.

2.8. Standard Form Functions

2.8.1. Standard Form Functions

Viewing, editing, deleting information in forms, and generating reports from all forms are similar in procedure throughout the application.

All tasks that you can perform are based on the roles assigned to you in a project and the permissions granted to the roles. For information on roles and permissions, see [Security Roles](#).

The following form-related tasks are common in the procedure for all forms in the application:

- [Bookmarking Frequently Used Pages](#)
- [Editing Form Details](#)
- [Generating a Report](#)
- [Using the Excel Import and Export Feature](#)
- [Viewing the Form Audit Log](#)

- [Viewing Form Details](#)
- [Deleting a Form Record](#)

2.8.2. Enabling a Form for a Project

Masterworks enables you to select appropriate modules that you require to manage a project. If a module is not available in the project navigation pane, you can add the module to the project.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. Click the **PROJECT DETAILS** tab, and then click **Edit**.
4. Expand **MODULES**, and then select the modules appropriate for the project.
5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The modules are added to the project.

2.8.3. Accessing Recent Projects and Forms

In the **Home**, **Planning**, and **Projects** modules, you can quickly access the projects and forms that are recently visited.

Note: Recent projects are not displayed to the users on their first login.

1. To access the recently visited projects from the **Home** module, perform the following steps:
 - a. In the module menu, click **Home**.
 - b. In the navigation pane, expand **Recent Projects**, and then click the appropriate project.

Note: From the **Home** module, you cannot access the recently used forms.

2. To access the recently visited projects from the **Planning** module, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

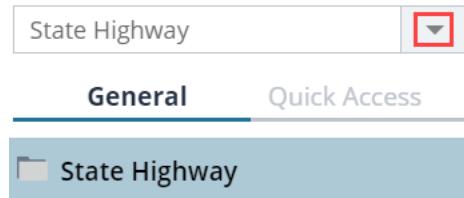
- c. In the **PLANNED PROJECTS** list page, double-click the appropriate project.

The selected project's folder is displayed in the **General** tab.

Additionally, the project is added to the **Recent Projects** list.

- d. To switch to a recently accessed project, click and expand the drop-down list, as shown in the following figure:

Recent Projects



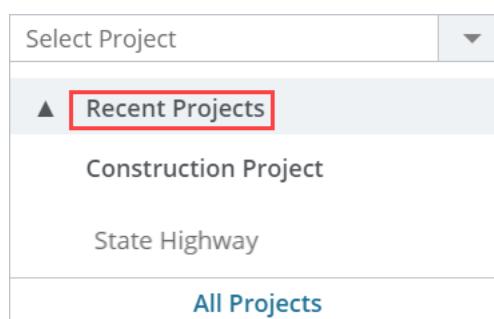
- e. Expand the **Recent Projects** drop-down list.

A list of recently visited projects is displayed.

- f. Optionally, click **All Planned Projects** from the drop-down list to navigate to the **PLANNED PROJECTS** list page.

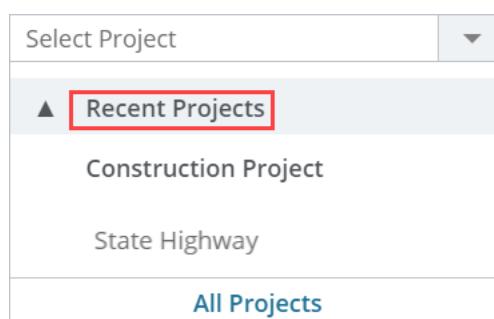
3. To access the recently visited projects from the **Projects** module, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the navigation pane, expand the **Recent Projects** drop-down list, and then select the appropriate project, as shown in the following figure:

Recent Projects



A list of the 10 most recently accessed projects is displayed.

The selected project's folder is displayed in the **General** tab.

3. To access the recently visited projects from the **Projects** module, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the navigation pane, expand the **Recent Projects** drop-down list, and then select the appropriate project, as shown in the following figure:


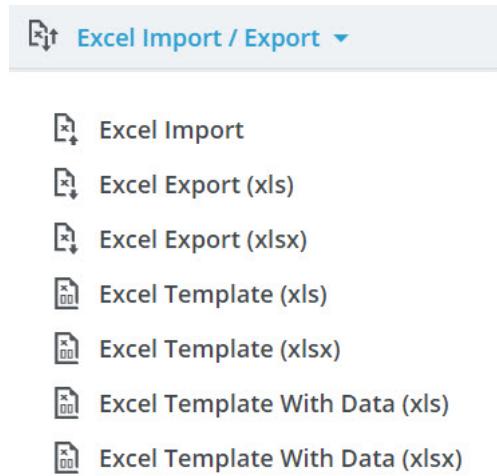
A list of the 10 most recently accessed projects is displayed.
The selected project's folder is displayed in the **General** tab.

 - c. Optionally, click **All Projects** from the drop-down list to navigate to the **PROJECTS** list page.
4. In the **Planning** or **Projects** module, to view the list of the recently viewed forms, perform the following steps:
 - a. In the project navigation pane, click the **Quick Access** tab, and then expand the **Most Viewed Forms** folder.
A list of the 15 most recently accessed forms is displayed.
 - b. Click the appropriate form.
The list page of the form is displayed.

2.8.4. Using Excel Import and Export

In Masterworks, the **Excel Import / Export** feature in the toolbar enables you to perform the following functionalities:

Excel Import / Export



Option	Function
Excel Import	To upload the Excel workbook into the application. The Excel template workbook is updated with the record information and is uploaded to the list page of the form.
Excel Export	To download details of records of a form.
Excel Template	The template to upload information of multiple records to a form.
Excel Template with Data	The template to upload or update information of multiple records to a form.

In the Microsoft Excel workbook template, the **Instructions** tab provides information on updating the template for uploading multiple records. To upload or update the information of a form correctly, validate the following points:

- For lists and selection options, ensure the correct spelling of the option as defined in the application is entered.
- For Yes/No options, enter Yes or No in the relevant columns.
- For updating form information, ensure the **Internal ID** refers correctly to the intended record.
- You cannot delete records or upload attachments using an Excel workbook.
- Auto calculated fields in the template are not required to be updated.

- Validation rules for data entered in the template and the values entered in the form are the same.

You can perform the following tasks using a Microsoft Excel workbook:

- [Creating multiple records simultaneously](#)
- [Updating details of multiple records simultaneously](#)
- [Downloading Information of Multiple Records](#) on page 84

2.8.4.1. Uploading Form Details in Bulk

You can create multiple form records by importing form information from a Microsoft Excel workbook to the form.

1. In the navigation pane, click a form.
The selected form list page is displayed.
2. In the toolbar, click **Excel Import / Export**.
3. To export the form template to an Excel workbook, click **Excel Template**.
The Excel workbook template is downloaded to the local storage.
4. Open the saved Excel workbook template, enter form details in the various columns, and save the updated Excel workbook. For information on column details, refer to the corresponding topic on creation of the form.

Note: Do not enter any details in the first column **Internal ID**.

5. In the list page, click **Excel Import / Export**, and then click **Excel Import**.
The **IMPORT DETAILS FROM EXCEL FILE** page is displayed.
6. Click **Browse** to select the workbook with updated form information.
The **Choose File to Upload** dialog box is displayed.
7. Select the required workbook, and then click **Open**.
8. Click **Upload** to import form information from the Excel workbook to the form.
On successful import, the success message is displayed.

9. On encountering errors while importing an Excel workbook, perform the following steps:
 - a. In the toolbar, click **Error Log**.

The error log workbook is downloaded to your local storage.
 - b. Open the error log workbook to view the errors in the various columns.

Error messages in the cells are highlighted in red. Tabs in the workbook are also highlighted to indicate the presence of errors.
 - c. Open the Excel workbook and modify the details as specified in the error log workbook.

Optionally, you can make relevant corrections in the error log workbook and upload it.
 - d. Save and upload the Excel workbook to import the updated information.

10. Click **Save**.

11. Click **Back**.

The items in the Excel workbook are uploaded to the list page.

2.8.4.2. Updating Form Details in Bulk

You can update form information of multiple records simultaneously by importing form information from a Microsoft Excel workbook to the form.

1. In the navigation pane, click a form.

The selected form list page is displayed.
2. In the toolbar, click **Excel Import / Export**.
3. Click **Excel Template with Data** to export the form details to an Excel workbook.

The Excel workbook template is downloaded to the local storage.

4. To update existing information, perform the following steps:

- a. Open the saved Excel workbook.

The first column named **InternalID** displays the unique identification code for the corresponding record of the form.

- b. Update form details in the various columns, and delete the records that need not be updated. For information on column details, refer the corresponding topic on creation of the form.

Note: Deleting a record from the Excel workbook does not delete the record in the form.

- c. Save the updated Excel workbook.

Note: To create new form records, in the same Excel workbook, do not enter information in the **Internal ID** column, and enter all other required and mandatory columns.

5. In the list page, click **Excel Import / Export**, and then click **Excel Import**.

The **IMPORT DETAILS FROM EXCEL FILE** page is displayed.

6. Click **Browse** to select the workbook with updated form information.

The **Choose File to Upload** dialog box is displayed.

7. Select the required workbook, and then click **Open**.

8. Click **Upload** to import form information from the Excel workbook to the form.

On successful import, the success message is displayed.

9. On encountering errors while importing an Excel workbook, perform the following steps:
 - a. In the toolbar, click **Error Log**.

The error log workbook is downloaded to your local storage.
 - b. Open the error log workbook to view the errors in the various columns.

Error messages in the cells are highlighted in red. Tabs in the workbook are also highlighted to indicate the presence of errors.
 - c. Open the Excel workbook and modify the details as specified in the error log workbook.

Optionally, you can make relevant corrections in the error log workbook and upload it.
 - d. Save and upload the Excel workbook to import the updated information.

10. Click **Save**.

11. Click **Back**.

The items in the Excel workbook are uploaded to the list page.

2.8.4.3. Downloading Information of Multiple Records

You can download details of records of a form to an Excel file.

If you apply a filter on the list page of a form and then download the records, only details of the filtered records of the form are downloaded to the Excel file.

1. In the navigation pane, click a form.

The list page of the selected form is displayed.

2. In the list page, click **Excel Import / Export**, and then click **Excel Export**.

The records in the list page with all details are downloaded to an Excel workbook and saved in the local storage.

Note: If you have filtered records, only the records that match the filter criteria are available in the downloaded file.

2.8.5. Editing Form Details

- Required permissions to edit form information.
- Workflow status allows edits to information.
- Permissions to edit information in a particular workflow status.

You can modify form details based on the workflow status of the selected form. It may not be possible to edit records in a particular workflow status depending on the workflow definition of the form. Form information is editable based on the roles assigned to the user.

You can also update form details in bulk. For information on editing details of multiple form records, see [Importing Form Details from an Excel Workbook](#).

1. In the navigation pane, click a form.

The selected form list page is displayed.

2. Select the appropriate record from the list page.
3. Click **Edit**.
4. Make changes as appropriate.
5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

2.8.6. Bookmarking Frequently Used Pages

You can create shortcuts to access a form rather than having to navigate through menus and forms. The Favorites utility is used to bookmark any form for quick and easy access to these forms from anywhere in the application.

2.8.6.1. Bookmarking a Form

You can bookmark forms for easy and quick accessibility.

1. In the navigation pane, click the appropriate form.

The form is displayed in the right pane.

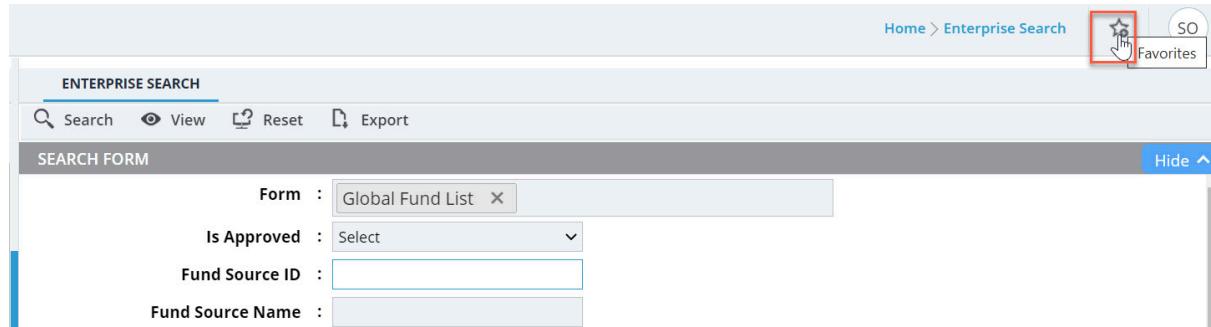
- 2.

Click **Favorites**.



The following image displays a sample form to add a bookmark.

Favorites Icon



3. In the **Title** box, enter the name of the link to be displayed in the **Favorites** tab.

4. Optionally, to categorize bookmarks, perform either of the following steps:
 - To create a folder, select the **New Folder** check box, and in the **Folder** box, enter the name of the folder.
 - From the **Folder** drop-down list, select the folder in which the link must be available.
5. Click **Add** to bookmark the page.

The page is bookmarked and is available in the bookmarks list.

2.8.6.2. Accessing a Bookmarked Form

Bookmarked forms are available in the **Favorites** tab in the navigation pane of the application.

1. Click **Favorites**.

The **FAVORITE LIST** section displays all the bookmarks to forms.

Favorite List

The screenshot shows the application's administration interface. On the left, there's a sidebar with several menu items: Application Settings (with a wrench icon), User Management (with a user icon), Workflow Management (with a gear icon), and Form Builder (with a document icon). On the right, a modal window titled "FAVORITE LIST" is open. It contains a search bar with the placeholder "Type to Search". Below the search bar is a list with one item: "Enterprise Search". At the bottom of the modal are two buttons: "Manage Favorites" and "ADD TO FAVORITES". The overall layout is clean and modern, typical of enterprise software.

2. In the **FAVORITE LIST** section, click the appropriate bookmark.

Alternatively, perform either of the following steps:

- Click a folder, and then click the appropriate bookmark.
- In the **Type to Search** box, enter the name of the bookmark, and then click the bookmark.

The form is opened on the right pane.

2.8.7. Managing Bookmarks

You can manage the following activities:

- [Edit a bookmark name](#).
- [Delete a bookmark](#).
- [Add a bookmark category](#).

- [Edit a bookmark category.](#)
- [Delete a bookmark category.](#)

2.8.7.1. Editing a Bookmark Name or Folder Name

1. Click **Favorites**  , and then click **Manage Favorites**.
The **FAVORITE MANAGEMENT** page is displayed.
2. Select the appropriate category, and then click **Edit**.
The bookmarks in the category are displayed.
3. To change the category name, in the **Category Name** box, modify the category name.
4. To modify the bookmark name, perform the following steps:
 - a. In the **FAVORITE-LINKS** section, click the appropriate bookmark, and then click **Edit**.
The **Edit Favorite-Links** dialog box is displayed.
 - b. In the **Link Title** box, enter the name of the bookmark.
 - c. Click **Save**.
5. Click **Save**.

2.8.7.2. Deleting a Bookmark

1. Click **Favorites**  , and then click **Manage Favorites**.
The **FAVORITE MANAGEMENT** page is displayed.
2. Select the appropriate category, and then click **Edit**.
The bookmarks in the category are displayed.
3. In the **Favorite-Links** section, click the appropriate bookmark, and then click **Delete**.
A confirmation message is displayed.
4. Click **OK**.
5. Click **Save**.

2.8.7.3. Deleting a Bookmark Category

1. Click **Favorites**  , and then click **Manage Favorites**.
The **FAVORITE MANAGEMENT** page is displayed.
2. Select the appropriate category, and then click **Delete**.
A confirmation message is displayed.
3. Click **OK**.

4. Click **Save**.

The category and the bookmarks in the category are deleted.

2.8.8. Completing a Checklist of a Form

You can fill in checklists for a record that are configured for the form. For information on completing a form checklist, see [Completing a Form Checklist](#).

2.8.9. Generating a Report

For information on generating a report and performing various report related functions, see [Standard Report Functions](#).

2.8.10. Working with List Page Elements

You can perform these tasks on list page of a form.

- **Sorting on List Page Columns**

To sort records on a list page, click the appropriate column name to sort records in that column.

- Click once to sort the column in ascending order.
- Click twice to sort the column in descending order.
- Click thrice to reset to the default order.

Sorting on List Page

A screenshot of a 'GLOBAL FUND LIST' table. The table has columns: Fund Source ID, Fund Source Name, and Fund Source Code. The first row shows a red box around the 'Fund Source ID' column header, which has a pink cursor icon pointing to it. A tooltip 'Click here to sort by Fund Source ID' is displayed below the header. The second row contains data: Fund Source ID 'GFL-148', Fund Source Name 'Test0123', and Fund Source Code '123456'.

		Fund Source ID	Fund Source Name	Fund Source Code
		GFL-148	Test0123	123456

- **Grouping Records in List Pages**

You can group records based on the values in a column. To group records, right-click the appropriate column, and then click **Group By**. To ungroup, right-click the appropriate column, and then click **Ungroup**.

Grouping Records in List Page

The screenshot shows a table titled "GLOBAL FUND LIST". The first column is "Fund Source ID", which has a dropdown arrow icon indicating it's a filterable column. A context menu is open over this column, with the "Group By" option highlighted. Other options in the menu include "Ungroup". The table contains three rows of data: one row with Fund Source ID "GFL-148", another with "GFL-145", and a third with "TECH" in all columns.

- **Viewing Pending On Users**

To view the users on whom the next workflow action is pending, click **Show Pending On User(s)**.

Show Pending on User(s)

The screenshot shows a table titled "PROJECT FUND TRANSACTION". The top navigation bar includes a "Workflow" button with a dropdown arrow. The dropdown menu is open, showing three options: "Associate", "Workflow User(s)", and "Show Pending On User(s)". The "Show Pending On User(s)" option is highlighted with a blue background and a hand cursor icon.

- To hide the **Pending On User(s)** column, click **Hide Pending On User(s)**.

Hide Pending on User(s)

The screenshot shows a table titled "PROJECT FUND TRANSACTION". The top navigation bar includes a "Workflow" button with a dropdown arrow. The dropdown menu is open, showing three options: "Associate", "Workflow User(s)", and "Hide Pending On User(s)". The "Hide Pending On User(s)" option is highlighted with a blue background and a hand cursor icon.

2.8.11. Viewing the Form Audit Log

The Audit Log feature records information of operations performed in a module in the application.

- Field information inserted on creation of a record.

- Field information deleted on deletion of a record.
- Field information updated, inclusive of the following:
 - Field information inserted to a record of a form.
 - Field information updated in a record of a form.
 - Field information deleted in a record of a form.
- User name of the user who performed the action.
- Date and time the action was performed.

You can also filter the log to view only specific information.

Additionally, you can download the audit log information to an Excel workbook.

1. In the project navigation pane, click the appropriate form to open it.
2. To view the audit log of all records, in the toolbar, click **Audit Log**.

Alternatively, to view the audit log of a specific record, select the record, and then click **Audit Log**.

Note: If **Audit Log** is not available, click **More**, and then click **Audit Log**.

3. Optionally, to filter audit log information, use any of the following filters:

Filter	Description
Duration	<p>Select the duration to be specified to filter audit log information based on specified time periods. Based on the option selected, perform the following steps:</p> <ul style="list-style-type: none">• If the selected option is By Date, then perform the following steps:<ol style="list-style-type: none">a. Corresponding to From Date, click  , and select the date from which the audit log information must be displayed.b. Corresponding to To Date, click  , and select the date until which the audit log information must be displayed.• If the selected option is By Month, then perform the following steps:<ol style="list-style-type: none">a. From the Month drop-down box, select the month for which the audit log information must be displayed.b. From the Year drop-down box, select the year for which the audit log information must be displayed.• If the selected option is By Quarter then perform the following steps:<ol style="list-style-type: none">a. From the Quarter drop-down box, select the quarter for which the audit log information must be displayed.b. From the Year drop-down box, select the year for which the audit log information must be displayed.

Filter	Description
Action	Select any of the following options: <ul style="list-style-type: none">• Select Delete to view details of fields that were deleted.• Select Insert to view details of fields that were inserted.• Select Update to view details of fields that were updated.
Action By	Select users who performed the selected actions. Available user names are of users who have created, modified, or deleted a record of the form.
Form Fields	Select the fields on which an action was performed.

4. Click **View.**

Alternatively to download the audit log information to an Excel workbook, click **Excel Export**.

2.8.12. Viewing Form Details

You can view form details based on the workflow status of the selected record, and the roles assigned to you in the project. It may not be possible to view records in a particular status depending on the workflow definition of the form.

You can view form details in two ways:

- [Information of a single form record in the application](#)
- [Information of all form records in a Microsoft Excel workbook](#)

2.8.12.1. Viewing Information of a Single Record

- Required permissions to view information.
- Permissions to view information in a particular workflow status.

1. In the project navigation pane, click a form.

The list page of the selected form is displayed.

2. Select the appropriate record from the list page.

3. Click **View.**

The details page of the form is displayed.

You can view form details based on the workflow status of the selected record, and the roles assigned to you.

4. Click **Cancel** to return to the list page.

2.8.12.2. Downloading Information of Multiple Records

- Required permissions to view information.
 - Permissions to view information in a particular workflow stage.
1. In the navigation pane, click a form.

The list page of the selected form is displayed.
 2. In the toolbar, click **Excel Import/Export**.
 3. Click **Excel Export** to export the form details to an Excel workbook.

The Excel workbook is downloaded to the local storage.

2.8.13. Deleting a Form Record

- Required permissions to delete records.
- Workflow status allows record deletion.

You can delete records in a list page based on the workflow status of the selected record. It may not be possible to delete records in a particular workflow status based on the workflow definition of the form. Records can be deleted based on the roles assigned to the user.

For example, it is not possible to delete a **Contract Change Order** record if the workflow status of the record is set to **Approved**.

1. In the navigation pane, click a form.

The list page of the selected form is displayed.
2. Select the appropriate records from the list page.
3. Click **Delete**.

The delete confirmation message is displayed.
4. Click **OK**.

2.9. Standard Report Functions

2.9.1. Standard Report Functions

Performing all report-related activities is similar in procedure throughout the application.

All tasks that you can perform are based on the roles assigned to you in a project and the permissions granted to the roles. For information on roles, see [Security Roles](#).

The standard report functions include the following:

- [Generating a report](#)

- [Printing a report](#)
- [Saving a report in various formats](#)
- [Updating report to view the latest information](#)
- [Subscribing to a report](#)
- [Unsubscribing to a Report](#)

2.9.2. Generating and Viewing Reports

You can generate reports for different information views for all the forms in the application.

Masterworks enables you with report filters to generate reports with specific information.

The standard report functions include the following:

- [Generate a report](#).
- [Print a report](#).
- [Save a report in various formats](#).
- [Update report to view the latest information](#).

2.9.2.1. Generating a Report

You can generate various reports that comprise information based on the roles assigned to you and the various projects to which you are invited.

For a few reports, you can use the filter criteria to select information for the relevant fields and generate the reports.

1. Perform either of the following as applicable:
 - In the form list page, click **Reports**, and then click the appropriate report.
 - In the navigation pane, click **Report Gallery**, and then double-click the appropriate report.
2. If filtering options are necessary, select the appropriate information in the relevant fields, and then click **View Report**.

The report is generated and displayed.

2.9.2.2. Printing a Report

You can print the pages in a report.

Also, you can select a printer and change print settings, such as pages to be printed and number of pages per sheet.

1. Generate the required report.

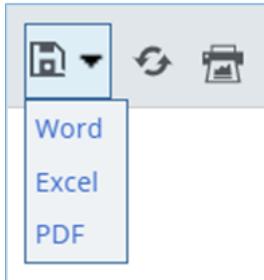
2. In the report toolbar, click **Print Report**. 

The **Print** dialog box is displayed.

2.9.2.3. Saving a Report

Once a report is generated, you can save the report in appropriate format.

1. Generate the required report.
2. Click **Export**, and then click the required option.



2.9.2.4. Viewing Latest Information in a Report

You can refresh the report to view the most updated information.

1. Generate the required report.
2. In the report toolbar, click **Refresh**. 

The report data is refreshed.

2.9.3. Subscribing to Reports

- You must have access to the report. Before you can subscribe to a report, you must have permission to generate it.

You can subscribe to reports, and subscribed reports will be delivered to the specified email addresses or will be saved in the specified file location. You can configure subscriptions such that reports can be delivered periodically in the format specified.

Also, you can create multiple subscriptions for a single report with varied subscription options.

You can subscribe to a report by either of the following methods:

- Email - The report is delivered by email to the specified email addresses in the specified formats.
- File Share - The reports are saved to the specified location in the specified formats.

Note: Any user with permission can subscribe themselves or others to a report. Only users with the **Administrator** role can remove or end an active subscription once created.

1. Open a report, and then click **Subscribe**.

The subscription dialog box is displayed.

2. In the **Please select the delivery option** section, perform either of the following steps:

- Click **E-Mail** to get the report delivered by email.
- Click **Windows File Share** to save the report to the specified location.

3. Based on the delivery option selected, perform the following steps:

E-Mail	Windows File Share
<p>a. In the To box, enter the email addresses of the recipients of the report.</p> <p>b. In the Reply-To box, enter the email addresses of the recipients to whom the reply email must be delivered.</p> <p>c. In the Subject box, enter the name of the report or any other appropriate subject for the email.</p> <p>d. From the Priority drop-down list, select the priority of the email. If the selected priority is High, the email will be sent as a High Priority notification.</p> <p>e. In the Comment box, enter any comment for the email. Comments are included in the body of the email.</p> <p>f. Select the Include Report check box to deliver the report in the selected format as an email attachment.</p> <p>g. Select the Include Link check box to deliver the link to the report in the report delivery email. The recipient can view the report on the application only if the recipient has the required permissions on the report.</p> <p>h. From the Report Format drop-down list, select the format in which the report must be generated and delivered to the specified email addresses.</p> <p>i. From the Start Date list, click the date from when the report must be delivered.</p> <p>j. Select the Stop this schedule on check box, and then select the date until when the report must be delivered.</p>	<p>a. In the File Name box, enter the file name for the report.</p> <p>b. Select the Add a file extension when the file is created check box to save the report file name with the extension of the file format as required for the report.</p> <p>c. In the Path box, enter the path of the shared file location where the report must be saved.</p> <p>d. From the Report Format drop-down list, select the format in which the report must be generated and saved.</p> <p>e. In the Credentials used to access the file share section, enter the credentials to access the shared location and save the report.</p> <p>f. From the Overwrite options section, click any of the following options:</p> <ul style="list-style-type: none">• Overwrite an existing file with a newer version - When saving the report at the file location at the scheduled time, if a file with the same name exists, then the existing file is overwritten by the latest report.• Do not overwrite the file if a previous version exists - When saving the report at the file location at the scheduled time, if a file with the same name exists, then the report is not overwritten by the latest report, and the report is not saved at the file location.• Increment file names as newer versions are added - When saving the report at the file location at the scheduled time, if a file with the same name exists,

4. To set the frequency of report delivery, click the **Schedule Details** tab.
5. From the delivery frequency options, click the appropriate option:

Option	Description	Steps
Hourly	The report is delivered every preset number of hours.	<ol style="list-style-type: none">a. Click Hourly in the delivery options list.b. In the Run the schedule every section, enter the frequency of report delivery:<ol style="list-style-type: none">i. In the hours and minutes boxes, enter the time period in hours and minutes the report must be periodically delivered.ii. In the Start time (hh:mm) box, enter the time (in 24-hour format) the report delivery must begin.
Daily	The report is delivered once on preset days, or periodically as defined.	<ol style="list-style-type: none">a. Click Daily in the delivery options list.b. In the schedule definition section, enter the frequency of report delivery:<ul style="list-style-type: none">• Click Every Weekday to get the report delivered on all weekdays, from Monday to Friday.• Click Repeat after this number of days, and then, then in the box, enter the number of days to get the report delivered periodically once every specified number of days.c. In the Start time (hh:mm) box, enter the time (in 24-hour format) the report must be delivered.
Weekly	The report is delivered every preset number of weeks on preset days of the week.	<ol style="list-style-type: none">a. Click Weekly in the delivery options list.b. Click Repeat after this number of weeks, and then in the box, enter the number of weeks to get the report delivered periodically once every specified number of weeks.c. In the On day(s) section, select the days on which the report must be delivered.d. In the Start time (hh:mm) box, enter the time (in 24-hour format) the report must be delivered.

Option	Description	Steps
Monthly	The report is delivered monthly on preset days of a selected week.	<ol style="list-style-type: none">a. Click Monthly in the delivery options list.b. Select the months when the report must be delivered.c. Click one of the following options to schedule the delivery of the report:<ul style="list-style-type: none">• On week of the month<ol style="list-style-type: none">i. From the list of weeks, select the week the report must be delivered.ii. In the On day(s) section, select the days the report must be delivered in the week previously selected.• On Calendar day(s)<ul style="list-style-type: none">■ In the box, enter the number of days of the month the report must be delivered, starting from the current day. For example, if the current day is the 12th of a month, and the calendar days set is 10, then the report is sent for 10 days from the 12th of every selected month.d. In the Start time (hh:mm) box, enter the time (in 24-hour format) by when the report must be delivered.
Once	The report is delivered once on the current day.	In the Start time (hh:mm) box, enter the time (in 24-hour format) by when the report must be delivered.

6. Click **Subscribe**.

The report is delivered as scheduled.

Note: User with the **Administrator** role can unsubscribe to reports. For information on unsubscribing to reports, see [Unsubscribing to a Report](#).

2.9.4. Unsubscribing to Reports

For information on unsubscribing to reports, see [Unsubscribing to a Report](#).

2.10. Standard Dashboard Functions

2.10.1. Dashboards

Dashboards provide a quick view of enterprise, project, and contract information that is configured to your preferences. Dashboards are configurable both at the enterprise level and at the project level for individual projects and associated contracts. There is no limit on the number of dashboards that you can create and use.

Dashboard information is organized in various pre-defined layouts that are selectable. You can configure dashboards in the various presentation layouts and add widgets to them. Web part zones are organized based on the selected layout. Widgets are added to these web part zones that display relevant information.

Information displayed in dashboards is based on the following criteria:

- Roles assigned to the user.
- Projects to which the user is invited.
- Contracts to which the user is invited.

The following sections describe how to work with dashboards:

- [Configuring a Dashboard](#)
- [Adding Widgets to a Dashboard](#)
- [Customizing a Widget](#)
- [List of Widgets](#)
- [Viewing a Dashboard](#)
- [Setting a Dashboard as the Default Dashboard](#)
- [Modifying Dashboard Details](#)
- [Deleting a Dashboard](#)

2.10.2. Configuring a Dashboard

Configuring a dashboard involves selecting the dashboard layout, and then adding widgets to the dashboard. The dashboard layout is a collection of web parts organized in various patterns.

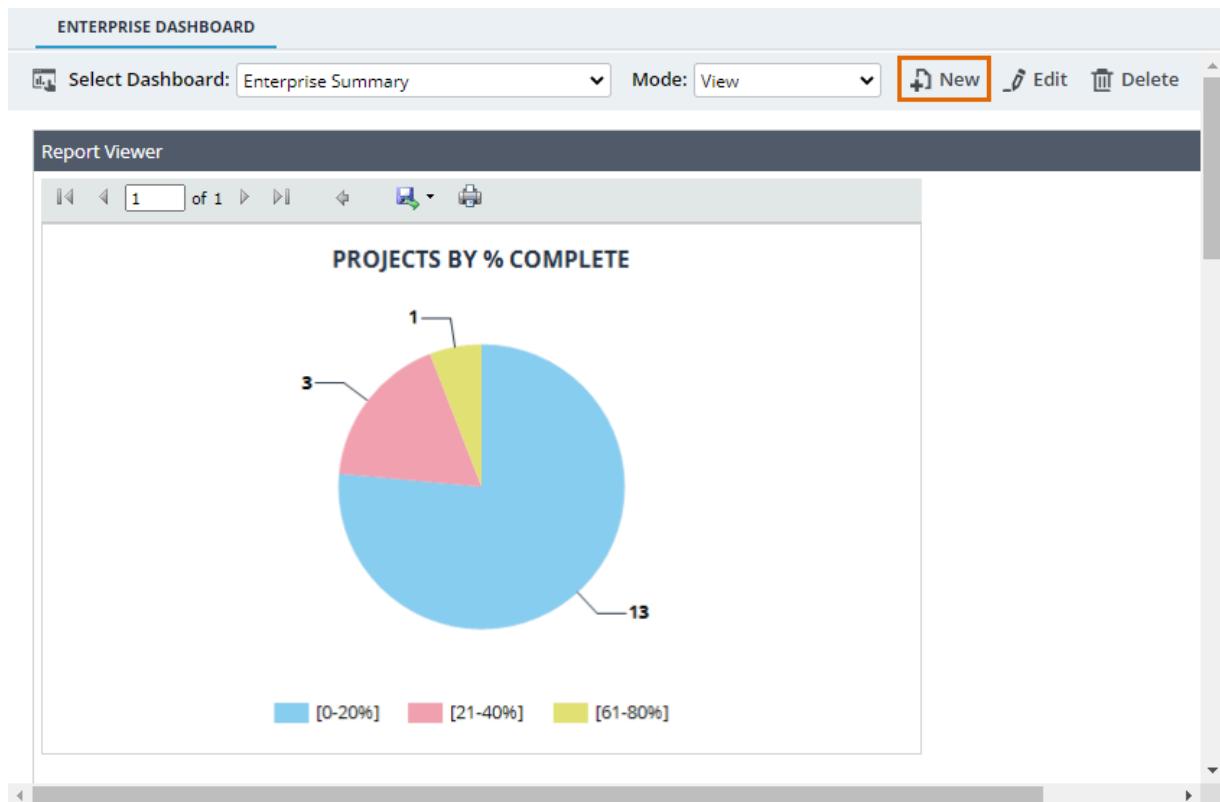
The following procedure describes the steps to configure a dashboard. The **ENTERPRISE DASHBOARD** is used here as an example.

1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** page is displayed.

2. Click **New**.

Enterprise Dashboard



The **New Dashboard** dialog box is displayed.

New Dashboard

The 'New Dashboard' dialog box is shown. It has fields for 'Name' (with a red asterisk) and 'Description'. Under 'Visible To', 'Me' is selected. Under 'Roles', there's a 'Select Roles' button. The 'Layout' section shows four layout options with the first one selected. At the bottom are 'Save', 'Save & Design', and 'Cancel' buttons.

Name *	Description

Visible To : Me Roles

Roles * :

Layout :

3. In the **Name** box, enter the name for the dashboard.
4. In the **Description** box, enter a brief description of the dashboard.

5. From the **Visible To** options, perform either of the following steps:

Note: This option is available to users with the **Administrator** role.

- Click **Me** if the dashboard is only for your viewing.
- Click **Roles** to select roles for which the dashboard is made available.

If **Roles** is selected, then in the **Roles** box, enter the role name and select the role name. Users assigned to the selected roles can view the created dashboard.

6. From the **Layout** options, click the appropriate layout.

7. To save the dashboard, click **Save**.

Alternatively, click **Save & Design** to start adding widgets to the dashboard. For information on adding widgets, see [Adding Widgets to a Dashboard](#).

2.10.3. Adding Widgets to a Dashboard

Based on the roles assigned to you, you can add specific widgets to the web part zones in the dashboards. Certain widgets enable drill-down and drill-through options to view detailed information. Also, you can toggle between tabular and graphical representations of information.

The following procedure describes the steps to add widgets to a dashboard. The **ENTERPRISE DASHBOARD** is used here as an example.

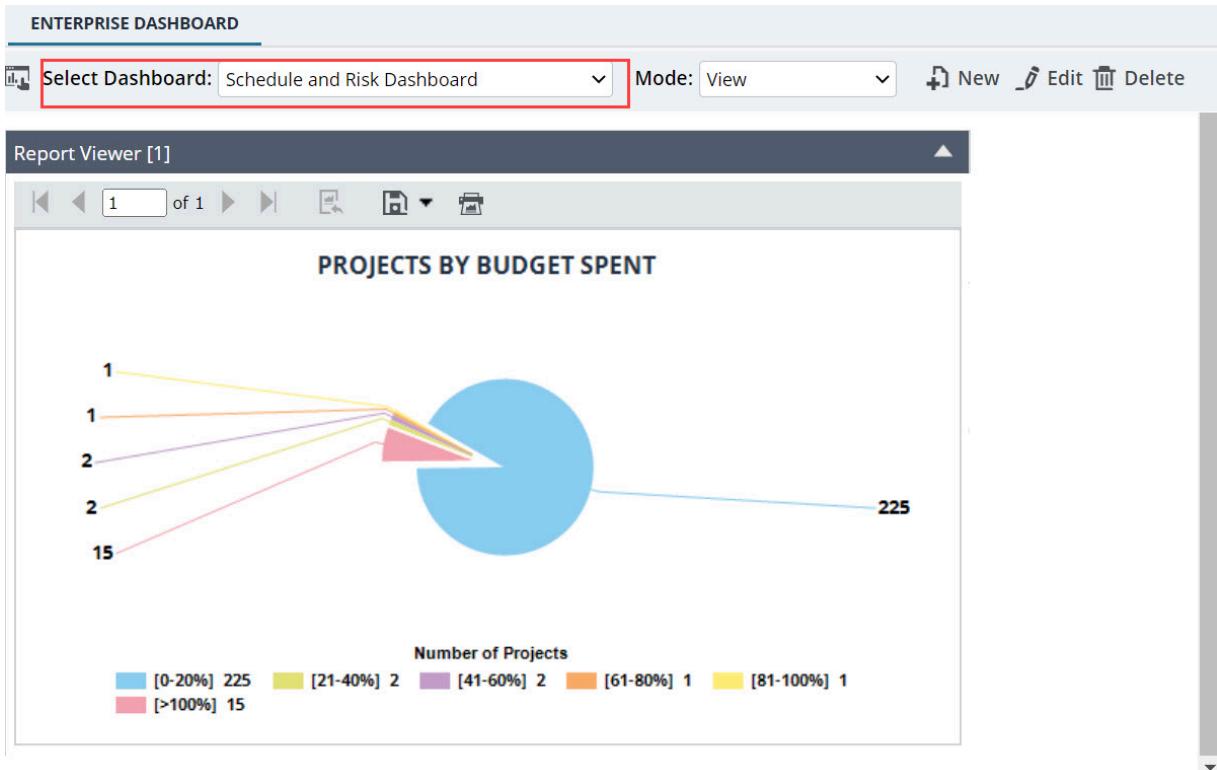
1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** page is displayed.

- From the **Select Dashboard** drop-down list, select the appropriate dashboard to add a widget.

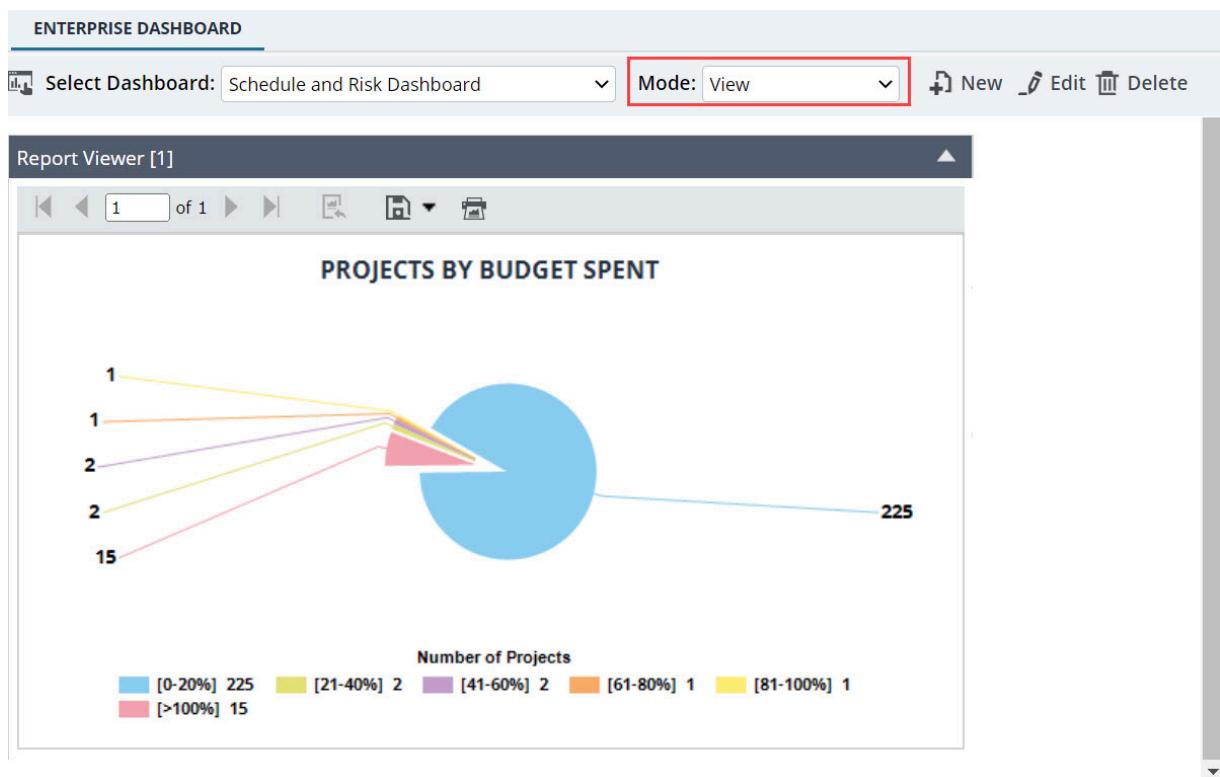
For information on creating a dashboard, see [Configuring a Dashboard](#).

Selecting Dashboard



3. From the Mode drop-down list, select Add Widgets.

Dashboard Mode



The Catalog Zone section is displayed.

Adding Widgets

The figure shows the Planning Dashboard interface in 'Add Widgets' mode. At the top, there is a dropdown for 'Mode' set to 'Add Widgets' and buttons for 'New', 'Edit', and 'Delete'. On the left, there is a placeholder for a report viewer with a 'View Report' button. On the right, a 'Catalog Zone' dialog box is open, showing a list of available widgets under 'Aurigo Parts': 'Report Viewer'. Below the list are buttons for 'Add to:' (set to 'Web Part Zone 0'), 'Add', and 'Close'. The entire 'Catalog Zone' dialog box is highlighted with a red border.

4. In the **Catalog Zone** section, select the widgets to add to the dashboard.

Alternatively, to add Web Part widgets, in the **Catalog Zone** section, click **Web Parts Catalog**.

For information on available widgets, see [List of Widgets](#).

5. From the **Add to** drop-down list, select the web part to which you want to add the selected widgets.
6. Click **Add**.

The selected widgets are added to the dashboard.

You can continue to customize information displayed in the added widgets.

For information on customizing widgets, see [Customizing a Widget](#).

2.10.4. Customizing a Widget

- At least one widget is added to the dashboard.

In a dashboard, you can customize the web parts properties, such as the layout, title, appearance, and the project for which the report is displayed.

The following procedure describes the steps to customize a widget. The **ENTERPRISE DASHBOARD** is used here as an example.

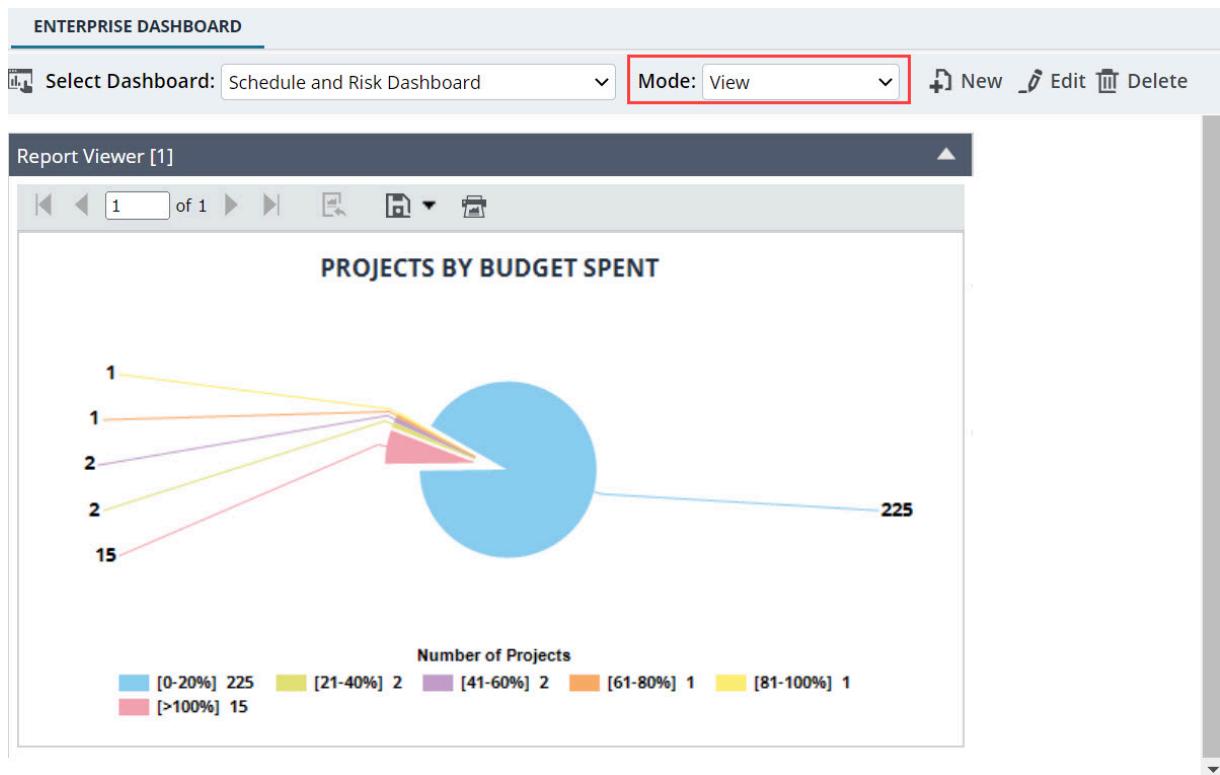
1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** is displayed.

2. From the **Select Dashboard** drop-down list, select the dashboard that displays the appropriate widget.

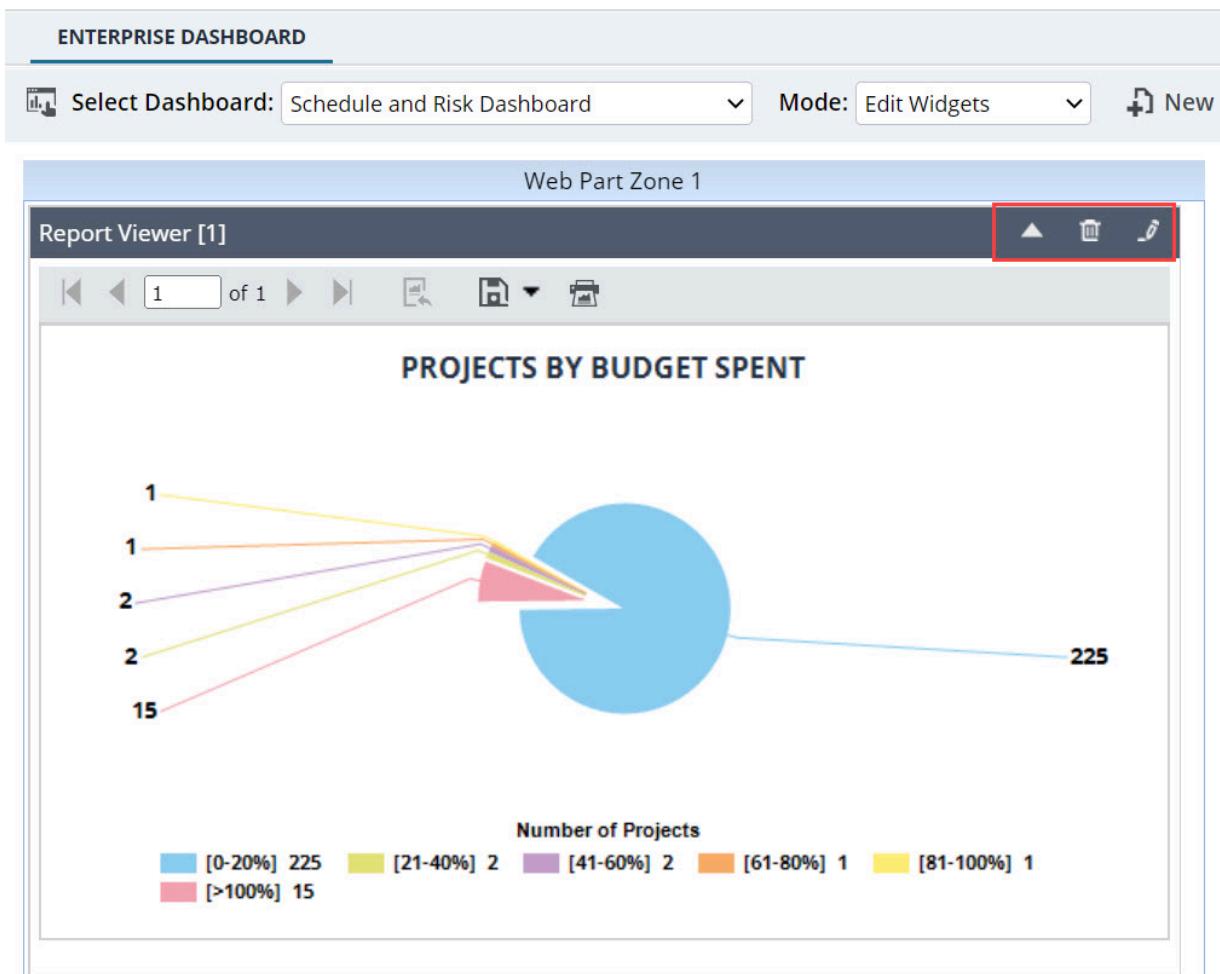
3. From the Mode drop-down list, select **Edit Widgets**.

Editing Widgets



The title bar menu options are displayed in the widget.

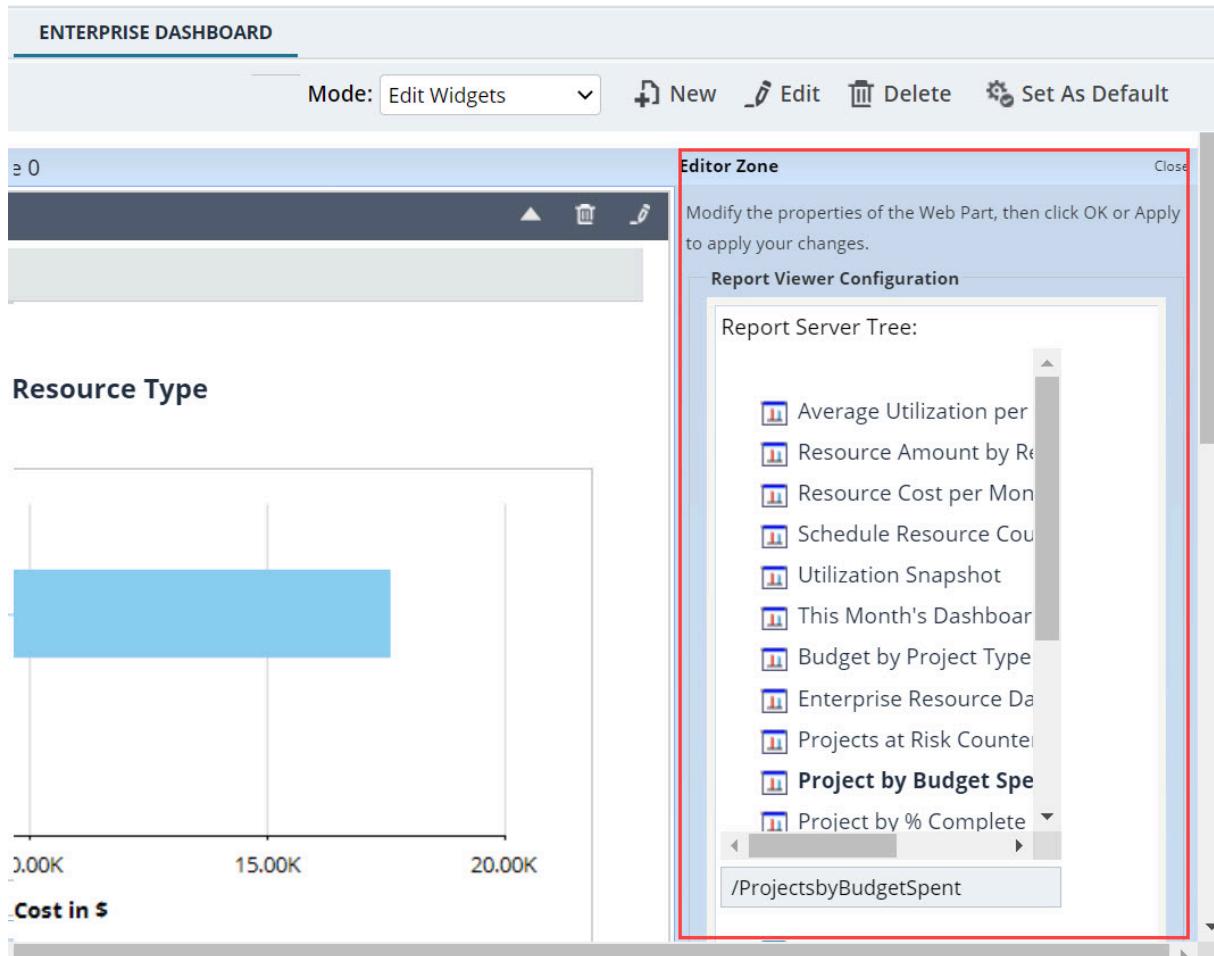
Title Bar Menu



4. Click **Edit**. 

The **Editor Zone** is displayed.

Editor Zone



The screenshot shows the Enterprise Dashboard interface. At the top, there's a toolbar with 'Mode: Edit Widgets' and buttons for 'New', 'Edit', 'Delete', and 'Set As Default'. Below the toolbar, a chart titled 'Resource Type' displays a single bar with a value of approximately 15.00K. To the right of the chart, a modal window titled 'Editor Zone' is open. This window contains instructions: 'Modify the properties of the Web Part, then click OK or Apply to apply your changes.' Below this, a section titled 'Report Viewer Configuration' shows a 'Report Server Tree' with a list of items. One item, '/ProjectsbyBudgetSpent', is highlighted with a red border. The entire 'Editor Zone' modal is also outlined with a red border.

Note: Based on the module selected, files displayed in the **Editor Zone** varies.

5. In the **Editor Zone**, make the appropriate changes as described in the following table.

Web Part Property	Description
Configuration section	Customize widgets to display information on the dashboard based on your requirements.
Title	Enter the name of the widget.
Chrome Type	Set the border and title of the dashboard tile.
Direction	Set the alignment of the widget.
Height	Set the height of the widget.
Width	Set the width of the widget.

Web Part Property	Description
Chrome State	The Minimize option does not show the dashboard content by default. Expand the widget to see the dashboard.
Zone	Select the web part zone of the widget.
Zone Index	Enter a number to define the priority of a widget within a zone to allow ordering by index.

6. Click **OK** to apply the changes and close the editor.
7. From the **Mode** drop-down list, select **View**.

2.10.5. List of Widgets

You can customize widgets to display information on the dashboard if needed.

- **Weather Widget** – This displays the weather conditions and time of the selected locations.

Enter the following information to configure the widget:

Field	Description
Search Weather Locations	Type and select the location of which the weather and time details should be displayed.
Forecast number of days	Select the number of days ahead the forecast should be displayed.
Show Weather	Select the check box to display weather information.
Temperature Unit	Click the appropriate option to display temperature in Celsius or Fahrenheit.
Show Date and Time	Select the check box to show the date and time information.
Image Size	Select the size of the widget.
Orientation	Select the orientation of the widget.

- **Report Viewer:** The report viewer widget displays reports on dashboards. Select the report to be displayed in the **Report Server Tree** list in the **Editor Zone**. Available reports are based on the module of the dashboard; that is, at the Enterprise, Project, or Contract modules.

2.10.6. Viewing a Dashboard

You can open a dashboard to view the dashboard details.

The following procedure describes the steps to view a dashboard. The **ENTERPRISE DASHBOARD** is used here as an example.

1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** page is displayed.

2. From the **Select Dashboard** drop-down list, select the appropriate dashboard to view the dashboard.

2.10.7. Setting a Dashboard as the Default

By default, the dashboard that is set as the default is displayed.

The following procedure describes the steps to set a dashboard as the default. The **ENTERPRISE DASHBOARD** is used here as an example.

1. In the module menu, click **Home**.

The **Enterprise Dashboard** is displayed.

2. From the **Select Dashboard** drop-down list, select the dashboard to be set as the default dashboard.
3. In the dashboard toolbar, click **Set As Default**.

2.10.8. Modifying Dashboard Details

You can modify details of a dashboard.

The following procedure describes the steps to modify the details of a dashboard. The **ENTERPRISE DASHBOARD** is used here as an example.

1. In the module menu, click **Home**.

The **Enterprise Dashboard** is displayed.

2. From the **Select Dashboard** drop-down list, select the appropriate dashboard to edit the dashboard.
3. In the dashboard toolbar, click **Edit**.

The **Edit Dashboard** dialog box is displayed.

4. Modify the appropriate information.

For information on entering dashboard details, see [Configuring a Dashboard](#).

2.10.9. Deleting a Dashboard

The following procedure describes the steps to delete a dashboard. The **ENTERPRISE DASHBOARD** is used here as an example.

1. In the module menu, click **Home**.

The **Enterprise Dashboard** is displayed.

2. From the **Select Dashboard** drop-down list, select the dashboard to delete.
3. In the dashboard toolbar, click **Delete**.

3. Enterprise Management

3.1. Enterprise Home

The Home page is the landing page of the Masterworks application. Availability of information in the **Home** module is based on the roles assigned to you and the projects to which you are invited. This module enables you to search for specific form information, manage notifications, view and create reports, and so on.

The customizable and interactive **ENTERPRISE DASHBOARD** in the Home page provides the latest consolidated and customized view of all the projects to which you are invited.

The following topics describe the various features available on the Home page:

- [Enterprise Dashboard](#) - View project information as graphs or tabulated lists.
- [My Tasks](#) - View your pending tasks in all the projects.
- [Inbox](#) - View the list of application notifications received.
- [Enterprise Search](#) - Search for any specific information available in the application.
- [Document Search](#) - Search for any documents available in the application.
- [Reports Gallery](#) - View enterprise level reports.
- [Ad-hoc Reports](#) - Create reporting views and structures to generate reports.
- [Enterprise Map Viewer](#) - View locations of various projects on a single map.
- [Enterprise Resource Gantt](#) - View time duration of persons allocated to various projects and the associated titles in a project as a Gantt chart.
- Recent Projects - View shortcut links to five most recently opened projects.

3.2. Accessing Enterprise Dashboards

The Enterprise Dashboard illustrates various views of information with graphical representations.

The information displayed in dashboards is based on the following criteria:

- Roles – Based on the roles assigned to the user, only selected information is displayed.
- Projects – Only selected information is displayed for the projects to which the user is invited.

1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** page is displayed.

2. From the **Select Dashboard** drop-down list, select the appropriate dashboard to view.

The following dashboards are available:

- Budget by project type
- Budget Spent
- Enterprise Resource Dashboard
- Portfolio Budget Vs Summary
- Projects at Risk
- Projects by Budget Spent
- This Month's Dashboard

For information on customizing widgets on the planning dashboard, see [Working with Dashboards](#).

3.3. Notifications

3.3.1. Viewing My Tasks

In Masterworks, the tasks awaiting your action are listed on a page that is similar to a to-do list. For example, if you must approve a **Pay Estimate** record, then this task is listed in the **MY TASKS** page.

The number of tasks listed is based on the value defined in the **Filter Window Range (in Days)** field in the [Application Settings](#) page of the **Administration** module.

The **MY TASKS** page is available at the enterprise and project levels. For more information on viewing tasks at the enterprise level, see [Viewing My Tasks at the Enterprise Level](#) on page 115. For more information on viewing tasks at the project level, see [Viewing My Tasks at the Project Level](#) on page 428.

You can also select the window for a specific date range for which you want to view the tasks awaiting your action. The number of windows displayed is based on the value defined in the **No. Of Filter Windows** field in the [Application Settings](#) page of the **Administration** module. For more information on viewing tasks for a specific date range, see the following sections:

- [Viewing My Tasks within a Date Range at the Enterprise Level](#) on page 115
- [Viewing My Tasks within a Date Range at the Project Level](#) on page 429

The tasks awaiting your action are grouped at the module level. Once you have completed a task, the corresponding notification in the **MY TASKS** page is automatically removed from the list.

From the **MY TASKS** page, you can access the records with a pending task. For more information on completing a pending task, see [Completing a Pending Task](#) on page 116.

3.3.1.1. Viewing My Tasks at the Enterprise Level

At the enterprise level, all the latest tasks awaiting your action for all the projects to which you are invited are listed.

1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** is displayed.

2. In the navigation pane, expand **Notifications**, and then click **My Tasks**.

The **MY TASKS** list page is displayed.

Note:

- In the navigation pane, the number displayed adjacent to the **My Tasks** label indicates the number of tasks awaiting your action.
- In the **MY TASKS** list page, the number of tasks listed is based on the value defined in the [Application Settings](#) page of the **Administration** module.

From the **MY TASKS** list page, you can also perform the following functions:

- View tasks within a specific date range. For more information on viewing tasks within a specific date range, see [Viewing My Tasks within a Date Range at the Enterprise Level](#) on page 115.
- Access records with a pending task. For more information on completing a pending task, see [Completing a Pending Task](#) on page 116.

3.3.1.2. Viewing My Tasks within a Date Range at the Enterprise Level

At the enterprise level, for the projects to which you are invited, you can select a specific date range for which you want to view the tasks awaiting your action. The number of date ranges available is based on the number of filter windows defined in the [Application Settings](#) on page 1039.

1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** is displayed.

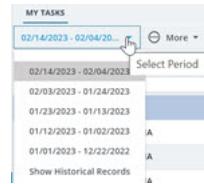
2. In the navigation pane, expand **Notifications**, and then click **My Tasks**.

The **MY TASKS** list page is displayed.

Note: In the navigation pane, the number displayed adjacent to the **My Tasks** label indicates the number of tasks awaiting your action.

3. To select the date range for which the tasks must be displayed, click the **Select Period** drop-down list, and then select the appropriate date range.

Select Period



Note: Upon clicking the **Show Historical Records** option, it lists all the tasks awaiting your action.

3.3.1.3. Completing a Pending Task

1. In the **MY TASKS** page, expand the required module, and then click the appropriate record.
2. Click **Edit** to open the form and complete the task.

Alternatively, click **View** to view details of the record.

3.3.2. Customizing My Tasks Notifications

In Masterworks, you can customize the list of projects for which you do not want to receive notifications. You can access the icon from anywhere in the application.

To customize the notifications displayed in the **My Tasks** page, perform the following steps:

1. In Masterworks, click .

The **My Tasks** page is displayed.

2. In the **My Tasks** page, click .

The **CUSTOMIZE NOTIFICATIONS** page is displayed.

Alternatively,

- a. In the **My Tasks** page, click **All Notifications** at the bottom center of the page.
The **MY TASKS** list page is displayed.

- b. In the **MY TASKS** list page, click **Customize Notifications**.

The **CUSTOMIZE NOTIFICATIONS** page displays a list of all projects that are included to receive notifications.

3. To remove the projects for which you do not want to receive notifications, select the check box adjacent to the project names, click **Remove**, and then click **OK**.
The selected projects are removed from the list of receiving notifications.
4. To add the removed projects to the list of notifications, perform the following steps:
 - a. Click **Add**.
The **Removed Project** dialog box is displayed.
 - b. Select the check box adjacent to the appropriate project names, and then click **Select**.
The selected projects are added to the list of receiving notifications.
5. Click **Save**.

3.3.3. Viewing Inbox Notifications

Masterworks enables action stakeholders to receive email notifications of specific workflow status transitions. These email notifications are available in the **Inbox** of the users configured to receive notifications.

Delivery of notifications is configured in the associated workflow. For information on workflow configuration, see [Creating a Workflow](#).

1. In the module menu, click **Home**.
The **Enterprise Dashboard** is displayed.
2. In the navigation pane, expand **Notifications**, and then click **Inbox**.

Note: The number of notifications you have received is displayed adjacent to the **Inbox** label in the navigation pane.

3. To view a notification, select the appropriate notification, and then click **View**.
4. To delete a notification, select the appropriate notification, and then click **Delete**.

3.4. Using the Enterprise Search Utility

Enterprise Search is a module-based search engine utility to find and view specific information from a large collection of related data. The search results are based on the criteria that are defined for a particular form. Search results contain information of only the projects you are invited to.

1. In the module menu, click **Home**.
The **ENTERPRISE DASHBOARD** page is displayed.

2. In the navigation pane, click **Enterprise Search**.

The **ENTERPRISE SEARCH** page is displayed.

The **SEARCH FORM** section is expanded by default.

3. In the **Form** box, click and select the form within which you want to search for data or records.

Alternatively, type the name of the form, and then select the appropriate form.

Available forms in the list are forms with the **IsSearchable** form attribute set to **True**.

For additional information on form attributes, see [Form Builder](#).

All fields available in the form are displayed.

4. Enter the criteria to search.

5. Optionally, expand the related sections, and enter additional criteria to search.

6. Click **Search**.

The information that matches the criteria is displayed in the **SEARCH RESULTS** section.

Search results contain information of only the projects you are invited to.

The following options are available:

- To save the search results to an Excel workbook, in the toolbar, click **Export**.
- To view a record, in the **SEARCH RESULTS** section, perform the following steps:
 - a. Select the appropriate record and then click **View**.
A dialog box with the respective record details is displayed.
 - b. Click **Open In New Tab** to view the record details in a new tab.
Optionally, click **Close** to return to the **SEARCH RESULTS** section.
- To clear existing search results to search with new criteria, click **Reset**.

3.5. Searching for Documents at the Enterprise Level

You can search for documents in the application based on specified search criteria.

You can search for documents uploaded to various folders across the application and documents uploaded as attachments to forms and workflows.

You can enter any search criteria combination to search for documents. The search results section displays the list of documents from across the application that you are invited to and the roles you are assigned. From the search results, you can view and download documents. You can also export the search results to an Excel workbook.

1. In module menu, click **Home**.

The **Enterprise Dashboard** is displayed.

2. In the navigation pane, click **Document Search**.

The **SEARCH DOCUMENTS** page is displayed.

3. You can search for documents in the **Documents** folders of projects, or for attachments uploaded in project forms.

Perform either of the following steps:

- To search for documents in the **Documents** folders of projects, in the **SEARCH DOCUMENTS** section, perform the following steps:
 - a. To define basic criteria to search for documents, perform the following steps:
 - i. In the **Document Title** box, enter the title of the document.
 - ii. In the **Document Name** box, enter the name of the document.
 - iii. From the **File View Status** drop down list, select the status of the document.
 - iv. From the **Created By** drop-down list, select the user name of the user who has uploaded the document.
Available user names are of users who have uploaded documents in the application.
 - b. To define additional search criteria, perform the following steps:
 - i. From the **Document Property** drop-down list, select the appropriate document property.
The **Advanced Properties** section is displayed. The search criteria in the section are based on the **Document Property** selected.
For information on document properties, see [Document Properties](#).
 - ii. In the **Advanced Properties** section, provide the appropriate information.
Available fields are based on the document property selected from the **Document Property** drop-down list.
 - c. To search for documents from selected projects, in the **Project** field, perform the following steps:
 - i. Click 
The **Projects List** dialog box is displayed.
 - ii. Select the appropriate projects, and then click **Select**.
 - d. To search for documents from the folders, in the **Document Folder** box, click and select the appropriate document folders.
Alternatively, type the name of the document folder, and then click the appropriate folder.
Available options are folders based on the following criteria:
 - If no projects are selected in the **Projects** field, then all folders defined in the **Documents** module of all projects are displayed.

- If projects are selected in the **Projects** field, then all folders defined in the **Documents** module of the selected projects are displayed.
- To search for documents uploaded as attachments to forms and workflows, click the **ATTACHMENTS** tab, and in the **SEARCH ATTACHMENTS** section, perform the following steps:
 - a. To define basic criteria to search for attachments, perform the following steps:
 - i. In the **Document Title** box, enter the title of the document.
 - ii. In the **Document Name** box, enter the name of the document.
 - iii. From the **File View Status** drop-down list, select the status of the document.
 - iv. From the **Created By** drop-down list, select the user name of the user who has uploaded the document.
Available user names are of users who have uploaded documents in the application.
 - b. To search for documents from the projects, in the **Projects** field, perform the following steps:

Note: To search for attachments from an enterprise level form, do not select a project.

- i. Click .
The **Projects List** dialog box is displayed.
 - ii. Select the appropriate projects, and then click **Select**.
 - c. To search for attachments from the forms, in the **Select Form** box, click and select the appropriate forms.
Alternatively, type the name of the form, and then click the appropriate form.
4. Click **Search**.

Based on the search criteria specified, the **SEARCH RESULTS** section displays the list of documents that match the search criteria.

5. You can perform the following actions:

- To download documents, in the **SEARCH RESULTS** section, select the appropriate documents, and then click **Download**.
The selected documents are downloaded to your local storage.
- To download details of the list of documents available in the **SEARCH RESULTS** section to an Excel workbook, click **Export**.
The properties of documents in the search results are downloaded as an Excel workbook to your local storage.
- To open a document, select a document and then click **View**.
The document is opened in the document viewer.
For information on using the viewer, see [Annotations](#).
- To open the folder or form where the document is available, in the **SEARCH RESULTS** section, double-click the appropriate document.
- To reset the search criteria, click **Reset**.

3.6. Viewing Project Locations at the Enterprise Level

- You must have **View** or **Edit** permissions to view or edit a record.

The **Enterprise Map Viewer** enables you to view marked locations of various projects on a single map.

1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** is displayed.

2. In the navigation pane, click **Enterprise Map Viewer**.

The **ENTERPRISE MAP VIEWER** page is displayed.

Enterprise Map Viewer Page

The screenshot shows the 'Enterprise Map Viewer' interface. At the top, there are search criteria fields for 'Program(s)' and 'Portfolio(s)', both set to 'Select'. There is also a checkbox for 'Include Inactive Project(s)'. Below these are 'Search' and 'Reset' buttons. The main area is titled 'SEARCH RESULTS' and displays a map of Washington DC. On the left, there is a sidebar with buttons for 'Add', 'Delete', and 'Generate Map View'. A search bar at the top right of the map area contains the placeholder 'Find address or place' with a magnifying glass icon. To the right of the map, there are dropdown menus for 'Base Map' (set to 'Street Map') and 'Layer(s)'. The map itself shows major streets like K St NW, 3rd St NW, 1st St NW, H St NW, G St NW, F St NW, and Massachusetts Ave NW. Landmarks such as the North Capitol Street, Federal Energy Regulatory Commission (FERC), DC Public Schools Headquarters, Georgetown Law School, City Post Office, Union Station, and Greyhound-Washington Metro Station are labeled. A legend at the bottom right of the map area lists various layers including M-NCPPC, VITA, Esri, HERE, Garmin, INCREMENT P, and others.

3. To search for or add specific projects to view marked locations, perform either of the following steps:

- To search for specific projects using the search criteria, in the **SEARCH CRITERIA** section, perform the following steps:
 - a. In the **Program(s)** box, click and select the appropriate programs.
Alternatively, type the name of the program, and then select the appropriate program.
The list of all program records that have projects containing location data is displayed. For information managing programs, see [Program](#).
 - b. In the **Portfolio(s)** box, click and select the appropriate portfolios.
Alternatively, type the name of the portfolio, and then select the appropriate portfolio.
The list of all the portfolio records in the enterprise is displayed. For information managing portfolios, see [Portfolio Management](#).
 - c. To include inactive projects, select the **Include Inactive Projects(s)** check box.
 - d. Click **Search**.
The list of projects that match the defined search criteria is displayed in the **SEARCH RESULTS** section.
- To add specific projects, in the **SEARCH RESULTS** section, perform the following steps:
 - a. Click **Add**.
The **Project(s)** dialog box is displayed.
The list of all the projects in the enterprise is displayed.
 - b. Select the appropriate projects, and then click **Select**.
The selected projects are added to the **SEARCH RESULTS** section.

4. To view the marked project locations on the map, in the **SEARCH RESULTS** section, select the appropriate projects, and then click **Generate Map View**.

The locations marked for the selected projects are displayed on the map.

5. From the **Base Map** drop-down list, select the required base map.

Available options are base maps defined in the **BASE MAPS** section in the **GIS Settings** page of the **Administration** module. For information on adding base maps, see [Adding Base Maps](#).

6. From the **Layer(s)** section, select the required non-editable layer(s).

The selected layers are displayed in the **Map View**.

Available options are base maps defined in the **LAYERS** section in the **GIS Settings** page of the **Administration** module. For information on adding layers, see [Adding Layers](#).

7. In the **Forms** section, to view the information on a specific form, clear the check box from the remaining forms.

Note: By default, the list of forms that have enabled map control is selected.

The project information marked on the forms are displayed in the map view.

8. To view project details of a location on a tooltip, click the geometry.

Tooltip details of the geometry that is configured for the form are displayed.

When multiple geometries are created at the same location, on clicking a geometry, you can view the details of all the geometries in that location by navigating using the left and right arrows in the tooltip.

9. To open the record applicable to the selected geometry, on the tooltip, click **Navigate to Record**.

Note: You must have **View** or **Edit** permissions to view or edit a record.

3.7. Portfolio

3.7.1. Project Portfolio Management

In Masterworks, you can create and view a manageable overview of all projects in the enterprise to assess available project information and make business decisions.

You can perform the following tasks:

- Make decisions based on proactive data-driven information rather than intuitive-based decisions.
- Track the state of activities and communicate the latest performance results of your investments.
- Review portfolio performance in real-time and compare current to past or future data to identify investment gaps and potential problems.
- Monitor the health of the project by viewing insights of the project schedule, budget, and cost.
- Generate reports and create dashboards.

In this module, you can perform the following tasks:

- [Create a portfolio.](#)
- [View the portfolio tree.](#)

3.7.2. Creating a Portfolio

You can create a portfolio to group the projects, programs, and sub-portfolios. For ease of tracking, you can create portfolios that are in the purview of a user, and assign projects, programs, and sub-portfolios.

1. In the module menu, click **Home**.

The **Enterprise Dashboard** is displayed.

2. In the navigation pane, click **Portfolio**.

The **PORTFOLIO** list page is displayed.

3. Click **New**.

The **PORTFOLIO** page displays the following non-editable fields:

Field	Description
Created By	Displays the name of the user creating the portfolio.
Created Date	The current date is displayed.

4. In the **DETAILS** tab, provide the appropriate information in the fields, as described in the following table.

Field	Description
Portfolio Code	Enter a unique identification code for the portfolio.
Portfolio Manager	To select the portfolio manager, perform the following steps: <ol style="list-style-type: none">a. Click .b. The Portfolio Managers dialog box is displayed.c. The list comprises the user names of all users in the enterprise.d. Click the appropriate portfolio manager.e. Click Select.
Description	Enter a detailed description of the portfolio.
Start Date	Select the start date of the portfolio.

Field	Description
End Date	Select the end date of the portfolio.
Portfolio Budget	Enter the budget planned for the portfolio.

5. To add projects to the portfolio, in the **PROJECTS** section, perform the following steps:
 - a. Click **Add**.
The **Projects** dialog box is displayed.
The list of all the projects in the enterprise is displayed.
 - b. Select the appropriate projects, and then click **Select**.
The selected projects are added to the portfolio.
6. To add programs to the portfolio, in the **PROGRAMS** section, perform the following steps:
 - a. Click **Add**.
The **Programs** dialog box is displayed.
The list of all the programs in the enterprise is displayed.
 - b. Select the appropriate programs, and then click **Select**.
The selected programs are added to the portfolio.
7. To add portfolios as sub-portfolios, in the **SUB PORTFOLIOS** section, perform the following steps:
 - a. Click **Add**.
The **Sub Portfolios** dialog box is displayed.
The list of all the portfolios in the enterprise is displayed.
 - b. Select the appropriate portfolios, and then click **Select**.
The selected portfolios are added as sub-portfolios to the portfolio.
8. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).
9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

3.7.3. Viewing the Portfolio Tree

The **Portfolio Tree** illustrates the hierarchy and placement of projects, sub-portfolios, and portfolios in the enterprise.

The visualization expands on sub-portfolios till the projects contained within them are displayed. Information illustrated in a portfolio tree are color-coded to identify the portfolio components easily. On saving the portfolio details in the **DETAILS** tab, the portfolio tree is updated.

The following information is available in the portfolio tree:

Color Code	Portfolio Component	Description
Red	Portfolio	The portfolio code is displayed as a link. Also, the name of the portfolio manager is displayed.
Green	Project	Project code is displayed as a link.
Orange	Program	Program title is displayed as a link.

1. In the module menu, click **Home**.

The **Enterprise Dashboard** is displayed.

2. In the navigation pane, click **Portfolio**.

The **PORTFOLIO** list page is displayed.

3. In the list page, select a portfolio, and then click **Edit**.

The **PORTFOLIO** page is displayed.

4. Click the **PORTFOLIO TREE** tab.

The hierarchy of projects, sub-portfolios, programs, and portfolios in the enterprise is displayed.

5. Optionally, you can expand  or collapse  a part of the portfolio hierarchy.

6. Click **Cancel** to return to the list page.

3.7.4. Generating Portfolio Reports

You can generate various portfolio reports that illustrate various information views.

1. In the module menu click **Home**.

The **Enterprise Dashboard** is displayed.

2. In the navigation pane, click **Portfolio**.

The **PORTFOLIO** list page is displayed.

3. Select the appropriate portfolio record.

4. Click **Reports**, and then click the appropriate report.

The report is generated and displayed.

For information on the various report features available, see [Standard Report Functions](#).

You can generate the following reports:

- [Portfolio Cost Sheet Summary Report](#)
- [Portfolio Cost Sheet Detail Report](#)
- [Portfolio Progress Report](#)

Note: All values are calculated considering projects are counted uniquely. That is, if a project is part of two sub-portfolios of a portfolio, the project is counted only once for calculations.

3.7.4.1. Portfolio Reports

Portfolio Cost Sheet Summary Report

The Portfolio Cost Sheet Summary Report displays the summary of the cost and budget for the selected portfolio. The summary report displays the cost and budget of each of the projects in the portfolio.

The following information is displayed:

- Portfolio Code - The identification code of the selected portfolio.
- Portfolio Manager - The name of the portfolio manager.
- Created Date - Date the portfolio was created.
- Total Project Budget - The total of the budget for all the projects added in the portfolio.
- Portfolio Budget - The budget defined for the portfolio. The portfolio budget value is displayed in red when the portfolio budget amount is less than the total amount of the budget of all projects in the portfolio.
- Total Project Budget Spent - The percentage of budget spent of all the projects part of the portfolio. Calculated as:
Sum total of the expenses for all the projects added in the portfolio ÷ Sum total of the budget for all the projects added in the portfolio
- No. Of Projects - Number of projects, counted uniquely, in the portfolio.
- Budget - Total amount of all the approved budget estimates of all the projects, counted uniquely, in the portfolio.
- Original Commitments - Total of original contract value and approved purchase orders of all projects in the portfolio.

- Current Commitments - Total of current contract value inclusive of all approved change orders and approved purchase orders inclusive of all approved purchase order revisions of all projects in the portfolio.
- Expenses - Total of all approved pay estimates and direct and indirect expenses of all projects in the portfolio.

Portfolio Progress Report

The Portfolio Progress Report displays the summary of the schedule of the portfolio. The summary displays the schedule of the each of the project part of the selected portfolio.

The following information is displayed:

- Portfolio Code - Identification code of the portfolio.
- Portfolio Manager - The portfolio manager of the selected portfolio.
- Portfolio Progress in % - Percentage complete of the portfolio.

Calculated as:

Sum of [Approved pay estimates + Approved direct and indirect expenses] of all projects part of the portfolio ÷ Sum of [Present contract items + Approved purchase orders inclusive of all approved PO revisions) and miscellaneous expenses] all projects part of the portfolio

- Created Date - The date the portfolio was created.
- Portfolio Start Date - The start date of the selected portfolio; that is, the start date of the portfolio is the start date of the first project by schedule in the portfolio.
- Portfolio End Date - The end date of the portfolio; that is, the end date of the portfolio is the end date of the last project by schedule in the portfolio.
- No. Of Projects - Number of projects, counted uniquely, part of the selected portfolio.

- Portfolio Hierarchy - List of all projects and portfolios added to the portfolio.
- Project Code - The identification code of the project.
- Start Date - Start date of the project.
- End Date - End date of the project.
- Progress in % - Percentage complete of the project.

Calculated as:

Sum of [Approved pay estimates + Approved direct and indirect expenses] ÷ [Contract items + Approved purchase orders + Approved miscellaneous expenses]

Portfolio Cost Sheet Detail Report

The Portfolio Cost Sheet Details Report displays the project-wise cost and budget breakup of the selected portfolio.

The following information is displayed:

- Portfolio Code - Identification code of the portfolio.
- Portfolio Manager - The name of the manager of the portfolio.
- Portfolio Budget in \$ - Budget specified for the portfolio.
- Created Date - The date the portfolio was created.
- Total Project Budget in \$ - Total of the budget for all the projects, counted uniquely, added in the portfolio.
- Total Project Budget Spent in % - Total of the budget spent on all the projects.
Calculated as: Total of the expenses for all the projects, counted uniquely, in the portfolio ÷ Total of the budget for all the projects, counted uniquely, in the portfolio.
- No. Of Projects - Number of projects, counted uniquely, in the portfolio.
- Portfolio Hierarchy - List of projects and portfolios added to the portfolio.
- Project Code - The identification code of the project.
- Budget in \$ - Total of all the approved budget estimate item costs of the project.
- Approved Commitments in \$ - The total of all the approved commitments.
Calculated as:
Total of current contract value (post change order) + Approved Purchase Orders (post PO Revision) of the project.
- Expenses in \$ = Total of Approved Pay Estimates + Direct and Indirect Expenses of the project.
- Budget spent in %

3.8. Project Needs

3.8.1. Project Needs

If a need for a project is identified, you can record the details of the need to define the problem, justify the need, and provide details on the approximate cost and timelines if the need is to be implemented as a project. You can create a list of identified needs that you can convert to a project that addresses the need or a set of related needs.

You can define multiple needs at the enterprise level. On approval of a need, you can associate the need to a project. You can associate a need to only one project.

You can perform the following tasks:

- [Define project needs.](#)
- [Perform workflow actions to implement the business process.](#)

3.8.2. Defining Project Needs

You can define project needs at the enterprise level.

1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** page is displayed.

2. In the navigation pane, click **Needs**.

The **NEEDS** list page is displayed.

3. Click **New**.

The **NEEDS** page is displayed.

Needs Page

The screenshot shows the 'NEEDS' form. At the top, there are buttons for Save, Cancel, Workflow, and Select Actions. Below this is a section titled 'NEED DETAILS' containing fields for ID (Auto Generated), Title, Type, Business Unit, Problem Statement and Justification, Address, Expected Completion Month and Year, Program Year, Strategic Goals, Estimated Cost, and Comments. Below this is an 'ATTACHMENTS' section with a table for managing files, showing no attachments available. At the bottom are buttons for Link Document and Upload Document.

File View Status	Document Name	Url/Link	Title	Uploaded By	Uploaded Date	File Size
No Attachments available						

On saving the record, in the **ID** field, an identification code for the record is automatically generated.

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Title	Enter the title for the need.
Type	Select the type of the need. Available options are need types defined in the Needs Type library catalog.
Business Unit	Select the appropriate business unit for the need. Available options are business units defined in the BUSINESS UNITS page in the Administration module. For information on business units, see Business Units .

Field	Description
Problem Statement and Justification	Enter the details of the reason for need and the justification for the need.
Address	Enter the address of the location where the need is identified.
Expected Completion Month and Year	Select expected month and year of completion of the project.
Program Year	Select the program year for the need.
Strategic Goals	Select the appropriate goals for the need. Available options are goals defined in the Strategic Goals library catalog.
Estimated Cost	Enter the approximate cost of implementing the need as a project.
Comments	Enter any comments for the need.

5. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Needs Workflow](#) on page 132.

On approval of a need, you can associate the need to a project. For information on associating needs to a project, see [Associating Project Needs](#).

3.8.3. Needs Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Needs** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-
2	Submitted	Reject	Rejected	-

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
		Approve	Approved	You can associate the need with a project. For information on associating needs to a project, see Associating Project Needs on page 441.

3.9. Viewing Resource Utilization in the Enterprise – Gantt View

The time duration of persons allocated to projects are illustrated as a Gantt chart in Masterworks. The Gantt chart graphically displays the start dates and end dates of persons allocated to projects, and the associated titles in a project.

The following information is illustrated in the Gantt view:

- The time duration of people allocated to all projects in the enterprise.
- The time duration of a person allocated to a project is illustrated as a blue bar.
- Overlap of allocation of a person is illustrated as a red bar.
- Additional allocation information, such as start and end dates of a person allocated to projects, and the name of the projects the person is allocated to is illustrated on cursor hover over a bar.

The threshold percentage of the resource utilization is defined in the **Resource Management** page in the **Administration** module. For more information, see [Configuring Resource Management](#).

1. In the module menu, click **Home**.
The **Enterprise Dashboard** is displayed.
2. In the navigation pane, click **Enterprise Resource Gantt**.

The Gantt chart of allocation of people to all the projects in the enterprise is displayed.

3. Optionally, use the **Filter** option to view specific data in the Gantt chart.

3.10. Generating Enterprise Reports

- You are invited to projects in the roles that have access permissions to the report.

You can generate various enterprise level reports that comprise information based on the roles assigned to you, and the various projects you are invited to. You can view selected information using filters and generate reports in multiple report formats.

1. In the module menu, click **Home**.

The **Enterprise Dashboard** is displayed.

2. In the navigation pane, click **Report Gallery**.

The **REPORT GALLERY** page is displayed.

3. In the **REPORT GALLERY** page, double-click the appropriate report.
4. Select the filter criteria to generate the report.
5. Click **View Report**.

The report is generated and displayed.

For additional information on reports, see [Standard Report Functions](#).

You can generate the following reports:

- [Budget vs Actuals Report](#)
- [Delayed Projects Based on Schedule](#)
- [Enterprise Cost Sheet](#)
- [Mobile Sync Report](#)
- [Project Funding Overview Report](#)
- [Fund Summary Report](#)
- [Resource Cost Sheet Report](#)
- [Resource Deficit Report](#)
- [Resource Utilization Report](#)
- [Resource Utilization Summary Report](#)
- [Titles Pending Assignment Report](#)

3.10.1. Enterprise Reports

Budget vs Actuals Report

This report displays the budget details and the spend of projects.

The following information is displayed:

- Project Name - The name of the project.
- Original Budget (\$) - The original budget of the project.
- Current Budget (\$) - The current budget of the project.
- Project Cost (\$) - The cost incurred on the project.
- Remaining Cost (\$) - The amount remaining in the budget.

- Remaining % - The percentage of amount remaining in the budget.

Delayed Projects Based on Schedule

This report provides information if the project is on schedule but only with respect to schedule and work completed and not the cost used up.

Enterprise Cost Sheet

This report displays all the budgeted costs and expenses.

Information of the Project Budget (original, revised, and current), Commitments (original, revised, and potential), and Payments split on budgeted and non-budgeted items for all the projects is displayed.

Commitments include:

- Budgeted Commitments is the sum of contract items total amount and purchase orders that are associated to the budget items.
- Non Budgeted Commitments is the sum of contract total amount, purchase orders, and miscellaneous expenses that are not associated to budget items.
- Potential Commitments (draft items total amount)
- Payments are pay estimates and expenses

Mobile Sync Report

This report displays the date and time mobile synchronization occurred, and success or failure information of the synchronization activity.

You can filter information available in the report using the following filter criteria:

- From Date
- To Date
- Show aborted Syncs

The following information is displayed:

- Date - Date the synchronization occurred.
- User Name - Name of the user who performed synchronization.
- Start Time - Time synchronization started.
- End Time - Time synchronization completed.
- Duration - Duration of the synchronization activity.
- Is Aborted? - Displays Yes if synchronization failed; displays No if synchronization succeeded.
- No of Errors - Lists errors that occurred during the synchronization process.
- API Name - The name of the API that was called during synchronization.
- Message - Message about the synchronization activity.

- Details - Details of error messages.

Project Funding Overview Report

This report displays the list of funds associated to projects and are approved. Information, such as funds encumbered, allocated, consumed, and remaining are displayed.

You can filter information available in the report using the following filter criteria:

- Fund Type
- Project Type
- Fund Category

The following information is displayed:

- Project Code - The identification code of the project.
- Project Name - The name of the project.
- Project Type - The project type of the project.
- Fund Category - The fund category of the project.
- Fund Type - The fund type of the project.
- Fund Source Code - Identification codes of the fund sources associated with the project.
- Fund Source Name - Names of fund sources associated with the project.
- Encumbered - The amount this project fund encumbers from the global funds.
- Allocated - The amount allocated during budget estimation in projects.
- Unallocated - The amount not allocated to any projects.
- Consumed - The amount used up for contract items, pay estimates, and miscellaneous expenses.
- Remaining - The remaining amount that is not consumed in any projects.

Fund Summary Report

The Fund Summary report displays the fund details of all projects in the selected program or portfolio. The reports includes information, such as the fund consumed, the funds allocated and the remaining fund for each project. The details are grouped by fund sources allocated to the program.

You can filter information available in the report using the following filter criteria:

- Category
- Name

The following information is displayed:

Note: The following fields are associated with the **Program** category.

It is calculated as: Allocated in \$ - Consumed in \$

Column	Description
Program Name	Name of the program.
Fund Name	Name of the fund associated with the program.
Project Name	List of project names associated with the program.
Allocated in \$	Fund allocated to contract items in projects.
Consumed in \$	Fund consumed by the project for contract items, pay estimates, and miscellaneous expenses.
Remaining in \$	The remaining amount that is not consumed in any projects.

Resource Cost Sheet Report

The Resource Cost Sheet Report provides details of the cost break-up of all resources part of the organization. Information in this report is grouped by projects that resources are allocated to. This report displays cost break-up of all resources assigned to all tasks in a project; that is, Fixed Costs and Variable Costs. Resources are grouped by the title they hold. The total of all costs is displayed in the footer of the report.

You can filter information available in the report using the following filter criteria:

- Project Name
- Full Name
- Fixed Cost

The following information is displayed:

- Sl No - Count of rows that increment for every row.
- Full Name - Full name of the resource.
- Fixed Cost in \$ - Fixed cost for the resource.
- Variable Cost in \$ - Variable cost for the resource.

Resource Deficit Report

The Resource Deficit Report lists titles for which mapping to resources is pending, and resources are unavailable. This report is intended as a basis or guidance for recruitment processes in the organization.

You can filter information available in the report using the following filter criteria:

- Project Name
- Resource ID
- Resource Type
- Title

The following information is displayed:

- SI No - Count of rows that increment for every row.
- Resource ID - Identification code of the resource.
- Title - Titles held by the resource in the project.
- Resource Type - Resource type of the resource.
- Units - Unit of measure for the resource. That is, in Days or Hours.
- Fixed Price in \$ - The fixed price for the resource.
- Variable Price in \$/Unit - The variable price for the resource.
- Start Date - Start date of the project.
- End Date - End date of the project.
- No. Of Resources Required - Number of resources required for the project.
- Resources to be Assigned - Number of resources assigned to the project.
- Pending Quantity in Hours - Remaining quantity in hours for the resource.
- Calculated as the difference of the quantity in units at the title level and the quantity in units at the resource level.

Resource Utilization Report

The Resource Utilization Report provides an overview of the average utilization of all resources allocated to all tasks in all projects. The report also displays resource over-utilization information, if any. This report is generated for a default duration of three months from the current date. However, you can select the duration for which the report can be generated.

Resources for a project are defined in the Schedule form of the project. For information on Schedule, see [Project Task Schedule](#).

You can filter information available in the report using the following filter criteria:

- Project Name
- Full Name
- Title

The following information is displayed:

- Team Strength - Count of total number of resources assigned who are part of the organization.

- Average Utilization per Person in % - The average utilization of each resource across the project duration that they are assigned to the task in a project. This should span the resource's utilization across multiple titles (if any).
- Total Overutilization in % - Count of resources with average utilization over 100%.
- Sl. No. - Count of rows that increment for every row.
- Resource ID - Identification code of the resource.
- Full Name - Full name of the resource.
- Title(s) - Titles held by the resource in the project.
- Project Name - Name of the project.
- Available Hours - The total availability of the resource in the selected duration.
It is calculated as: Working days between Resource Start & End date * Working hours per day of the resource.

Note: Resource Start & End date is based on the entry in the Resource Calendar. Working Days are calculated using each Project Calendar Working Hours per Day as defined in the Enterprise Resource Directory library catalog.

- Assigned Hours in Project - The number of hours the resource was assigned to the project.
- Total Assigned Hours - Sum of assigned hours on all project tasks.
It is calculated as: Sum of all (Intersection of Working days between the Start Date and End Date of each project task allocation and working days on resource calendar * Utilization% * Working hours per day of the resource)

Note: Working Days are calculated using each Project Calendar Working Hours per Day as defined in the Enterprise Resource Directory library catalog.

- Over-utilization in Hours - Difference between the capacity and total assigned hours of the resource.
It is calculated as: (Total Assigned Hours - (Available Hours)) * Over Utilization Threshold.
- Overutilization in % - The difference between the capacity of the resource and the total assigned hours, as a percentage of capacity of the resource.
It is calculated as: [(Total Assigned Hours – (Available Hours * Over Utilization Threshold)) / (Available Hours * Over Utilization Threshold)] * 100

Resource Utilization Summary Report

The Resource Utilization Summary Report provides a pictorial representation of the utilization of a resource or resource title on various tasks in all projects on a time basis.

The X-axis of the graph displays the month or year based on the configuration for the project.

You can filter information available in the report using the following filter criteria:

- Resource Title
- Resource

The following information is displayed:

- No. of Resources - Sum of resources at the project task level.
- Titles Pending Mapping - Total titles that have "No. of Resources" at the title level which is less than the sum of the "No. Of Resources" value under every resource added for that title.
- No. of Resource(s) Over-Utilized - Total number of resources whose utilization percentage is greater than the over-utilization threshold percentage.
- No. of Resource(s) Under Utilized - Total number of resources whose utilization percentage is less than optimal utilization threshold percentage.
- No. of Resource(s) Optimally Utilized - Total number of resources whose utilization percentage is equal to the optimal utilization threshold percentage.
- Average Utilization per Resource in % - Average of utilization percentage per resource.

Titles Pending Assignment Report

The Titles Pending Assignment Report lists out all titles for which no resources are mapped. You can filter information available in the report using the following filter criteria:

- Project name
- Resource ID
- Title
- Resource Type

The following information is displayed:

- SI No - Count of rows that increment for every row.
- Resource ID - Identification code of the resource.
- Title - Title held by the resource in the project.
- Resource Type - Resource type of the resource.
- Units - Unit of measure for the resource. That is, in Days or Hours.
- Fixed Price in \$ - The fixed price for the resource.
- Variable Price in \$/Unit - The variable price for the resource.
- Start Date - Start date of the project.
- End Date - End date of the project.
- No. Of Resources required - Number of resources required for projects.

- Resources to be assigned - Number of resources assigned to projects.
- Pending Quantity in Hours - Remaining quantity in hours for the resource. Calculated as the difference of the quantity in units at the title level and the quantity in units at the resource level.
- Resources Available in Nos. - Total number of resources available in the Enterprise Resource Directory and hold a title. The resources should also have available bandwidth corresponding to requirements across the duration specified. A resource is counted in if:
 - The resource has titles as required in projects.
 - Sum of available bandwidth (in hours) and the required quantity in hours does not exceed 100% of the capacity of the resource.

3.11. My Reports – Logi

3.11.1. Designing Ad-hoc Reports

You can create ad-hoc reports if needed, by specifying a set of criteria or Analysis. An Analysis can be created using data from a single form or multiple forms. You can create tables and different types of charts in an Analysis. You can save these tables and charts as visualizations in the **Visual Gallery**.

Once an Analysis is created, you can design reports. You can use one Analysis to design multiple reports. You can use visualizations from different Analysis in a single report by adding visualizations from the **Visual Gallery**. The report design can be changed only by the user who designed the report.

You can share a report with multiple Masterworks users. Users with whom a report is shared will see the details of the report based on their user-role permissions. Analysis and Reports will be dynamically updated when data is added or modified in the forms.

The task sequence to create ad-hoc reports is as follows:

1. Create an Analysis.
 - a. Select form and form details for Analysis.
 - b. Create formula-based calculated columns.
 - c. Define filters for cell values in rows.
 - d. Add a Chart to the Analysis.
 - e. Add a Crosstab to the Analysis.

2. Create a Report.
 - a. Design the Report using the design elements.
 - b. Preview the Report while designing.
 - c. Share the Report.

The following sections describe in detail the procedure to create an Analysis and a Report using the **Ad-hoc Reports** builder:

- [Creating an Analysis Using a Single Form](#)
- [Creating an Analysis Using Multiple Forms](#)
- [Editing an Analysis](#)
- [Creating a Report](#)
- [Editing a Report](#)
- [Sharing Analysis and Reports](#)

3.11.2. Creating an Analysis Using Multiple Forms

To create an Analysis using multiple forms, you must create a customized view in the **Ad-hoc Report** settings. The **Settings** option in the **Ad-hoc Reports** allows users to create customized views with multiple forms. Customized views will be available as data sources while creating an Analysis. For example, if you want to create an Analysis using the **Contract** form and the **Projects** form, you must first create the customized view using these two forms in the **Settings** page, and then use this customized view as the data source while creating the Analysis.

The following subsections describe in detail the procedure to create a customized view and to create an Analysis from the customized view:

- [Creating a Customized View.](#)
- [Creating an Analysis from a Customized View.](#)

3.11.2.1. Creating a Customized View

You can create a customized view by combining different forms and existing customized views.

1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** is displayed.

2. In the navigation pane, click **Ad-hoc Reports**.

The **REPORTS LIST** page is displayed.

3. Click **Settings**.

The **SETTINGS** page is displayed.

4. In the **SETTINGS** page, click **New**.

Options to create the customized view are displayed.

5. In the **Customized View Name** field, enter a name for the customized view.

6. From the **Select Form** drop-down list, select the appropriate form.

Available options are based on the user-role permission.

7. To select the destination form and to link the fields from the source form to the destination form, in the **Metadata Selection** tab, perform the following steps:

- a. To select the destination form, in the **Destination Form/View** column, click and select the appropriate form from the drop-down list.

Available options are based on the user-role permission.

- b. To select the source field to be linked with the destination field, in the **Source Form Linked Field** column, click and select the appropriate field from the drop-down list.

Available options are the field names available in the form selected as source form in the **Select Form** field.

- c. To select the destination field to be linked with the source field, in the **Destination Form Linked Field** column, click and select the appropriate field from the drop-down list.

Available options are the field name available in the form selected as **Destination Form/View**.

- d. To add rows to the **Metadata Selection** list, click **Add**.

- e. To delete a row, select the row and then click **Delete**.

8. To give user friendly names to the fields that are available in the source form selected in the **Select Form** field, perform the following steps:

- a. Click the **Metadata Columns** tab.

The **Metadata Columns** tab lists all the column names associated to the form selected in the **Select Form** field.

- b. To add user friendly names to the column names, in the **User Friendly Name** column, click and enter a name.

- c. To add field names of the destination form to the Metadata Columns list, click **Add** and enter user friendly names to the columns in the **User Friendly Name** column.

- d. To delete a row, select the row and then click **Delete**.

- e. Click **Save**.

The customized view you created is listed in the **SETTINGS** page.

3.11.2.2. Creating an Analysis from a Customized View

1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** is displayed.

2. In the navigation pane, click **Ad-hoc Reports**.

The **REPORTS LIST** page is displayed.

3. Click **New Report**.

The **Report Name** dialog box is displayed.

4. Enter report name in the **Name** field and click **Proceed**.

The **AD-HOC REPORTS** page is displayed with different tabs to create an Analysis.

5. In the **Data** tab, select the customized view that you created as data source from the **Source** drop-down list.

Note: All the customized view that are created in the **Settings** option are displayed in the **Source** drop-down list.

6. Perform the steps that are described in [Creating an Analysis Using Single Form](#) starting from **Step 5**.

3.11.3. Creating an Analysis Using a Single Form

You can create an Analysis using data from a single form.

1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** is displayed.

2. In the navigation pane, click **Ad-hoc Reports**.

The **REPORTS LIST** page is displayed.

3. Click **New Report**.

The **Report Name** dialog box is displayed.

4. Enter the report name in the **Name** field and click **Proceed**.

The **AD-HOC REPORTS** page is displayed.

5. To select the data source for analysis, in the **Data** tab, perform the following steps:

Note: Click **Pause Data Retrieval** if the data retrieval is slow. Click **Resume** to view the results and resume data retrieval.

- a. From the **Source** drop-down list, select the data for analysis.

Available options are based on the user role permissions.

- b. To display the appropriate fields in the **Table** section, select the check box of the appropriate fields, and click **Apply Column Selection**.

The selected fields are displayed in the **Table** section.

- c. To configure the table display options, in the **Table** section, click .

The configuration options are displayed.

- d. To hide columns in the table, in the **Columns** tab, select the columns that you want to hide, and click **Apply**.

- e. To define sorting of data in the table, perform the following steps:

- i. Click the **Sort** tab.

The options to sort are displayed.

The **Sorted Columns** section displays the default data from the **Columns** tab.

- ii. From the **Data Column** drop-down list, select the column for which you want to apply sorting.

Available options are the columns in the table.

- iii. From the **Direction** drop-down list, select the direction in which you want the sorting to display in the table.

Available options are **Ascending** and **Descending**.

- iv. Click **Add**.

Based on the settings, the data is displayed in the **Table** section.

- To modify sorted columns, click **Replace**.
- To remove sorted columns, click .

- f. To organize rows with grouping and sub-grouping, perform the following steps:

- i. Click the **Group** tab.

The options to group are displayed.

- ii. From the **Grouping Column** drop-down list, select the column for which you want to apply grouping.

Available options are columns in the table.

- iii. Click **Add**.

The **Groups** and the **Detail Rows** sections are displayed.

- iv. To exclude detail rows from the table, click **Exclude Detail Rows**.

- To modify groups, click **Replace**.
- To remove groups, click .

- g. To calculate and display the aggregate of the data, perform the following steps:

- i. Click the **Aggregate** tab.

The options to aggregate are displayed.

- ii. From the **Data Column** drop-down list, select the column for which you want to apply aggregate.

Available options are columns in the table.

- iii. From the **Aggregate Function** drop-down list, select the aggregate function that you want to apply to the selected column.

Available options are standard aggregate functions and custom aggregates.

Note:

- If a numeric column is selected in the **Data Column**, then the following options are displayed: **Sum**, **Average**, **Standard Deviation**, **Count**, **Distinct Count**, **Minimum**, and **Maximum**.
- If a non-numeric column is selected in the **Data Column**, then the following options are displayed: **Count**, **Distinct Count**, **Minimum**, and **Maximum**.

- iv. To create a custom aggregate function, perform the following steps:

- a) From the **Aggregate Function** drop-down list, select **(Custom)**. The **Create a custom aggregation for <column name>** dialog box is displayed.
- b) In the **Name** field, enter a name for the custom aggregation.
- c) In the **Formula** box, enter the appropriate formula.

Note: For additional information on aggregate formula, click **Formula Help**. A webpage opens in a new tab displaying the help file for the aggregate formula.

Alternatively, to generate a pre-defined formula, from the **Insert a Column**, **Formula**, and **Operator** drop-down lists, select the appropriate options.

Based on the options selected, a formula is automatically generated and displayed in the **Formula** box.

d) Click **Create**.

The **Custom Aggregates** section is displayed.

e) To close the dialog box, click .

The created **Custom Aggregate** is added to the **Aggregate Function** drop-down list.

- To modify custom aggregate, click **Replace**.
- To remove custom aggregate, click .

v. Click **Add**.

The **Added Aggregates** section is displayed.

- To modify an aggregate, click **Replace**.
- To remove an aggregate, click .

vi. From the **Results Positioning** drop-down list, select the position of the aggregate in the table.

Available options are **Top** and **Bottom**.

vii. To hide or show the function name in the table, click **Hide Function Names**.

h. To set the number of rows to be displayed per page, perform the following steps:

i. Click the **Paging** tab.

The option to set the number of rows to be displayed per page are displayed.

ii. In the **Rows per Page** field, enter the number of rows to be displayed in a page.

iii. Click **OK**.

The entered number of rows are displayed per page.

i. To add the table to the visual gallery, click .

The **Add to Visual Gallery** dialog box is displayed.

i. In the **Panel Title** field, enter the title for the table.

ii. In the **Panel Description** field, enter a brief description of the table.

iii. Click **Done**.

j. To download a copy of the table, click  and select the appropriate format.

Available formats are **Excel** and **CSV**.

Note: You can export up to 100,000 rows.

- k.** To send a copy of the table through email, perform the following steps:
 - i.** Click  and select **Email as PDF**.
 - ii.** Click **OK**.

Note: The analysis table is sent to the registered email address of the logged in user.

- 6.** To add a new column to the table with formula, perform the following steps:
 - a.** Click the **Formula** tab.
The formula configuration options are displayed.
 - b.** In the **Name** field, enter a name for the formula.
 - c.** In the **Formula** box, enter the appropriate formula.

Note: For additional information on formula, click **Formula Help**. A webpage opens in a new tab displaying the help file of Formula.

Alternatively, to generate a pre-defined formula, from the **Insert a Column**, **Formula**, and **Operator** drop-down lists, select the appropriate options. Based on the options selected, a formula is automatically generated and displayed in the **Formula** box.

- d.** From the **Data Type** drop-down list, select the appropriate data type to be displayed in the table based on the formula entered in the **Formula** field.
Available options are **Number**, **Text**, **Date**, **DateTime**, and **True/False**.
- e.** From the **Display Format** drop-down list, select the format in which the data to be displayed in the table.

Available options are based on the type of data selected in the **Data Type** drop-down list.

- f.** Click **Add**.

The **Formula Columns** are displayed.

- To modify formula column, click **Replace**.
- To remove formula column, click .

7. To filter and display data in rows by cell values, perform the following steps:

Note: You can click  in the **Filter rows by cell values** section to show or hide filter options.

- a. From the **Filter Column** drop-down list, select the column for which you want to apply filter.

Available options are the columns in the table.

- b. From the **Comparison** drop-down list, select the comparison type you want to apply to the selected column.
- c. In the **Value** field, enter the cell value to be filtered.

Alternatively, to select a column in the **Value** field, click .

This option appears based on the data type of the **Filter Column** selected.

Note: For **Date** field, select the date and time in the **Calendar** and **Time** fields.

- d. Click **Add**.

The applied filter is displayed.

- To modify filter, click **Replace**.
- To remove filter, click .

8. To add different types of charts to the Analysis, click the **Add Chart** tab.

The tabs to configure different types of charts are displayed.

- To create a bar diagram, in the **Bar** tab, select the appropriate options.
- To create a line diagram, click the **Line** tab and select the appropriate options.
- To create a curved line diagram, click the **Curved Line** tab and select the appropriate options.
- To create a pie chart, click the **Pie** tab and select the appropriate options.
- To create a scatter plot chart, click the **Scatter Plot** tab and select the appropriate options.
- To create a heatmap chart, click the **Heatmap** tab and select the appropriate options.
- To create a gauge chart, click the **Gauge** tab and select the appropriate options.

Note:

- To show or hide chart options, click .
- To add the chart to the visual gallery, click .
- To remove chart, click .
- To download the visualization as an image file, hover over the visualization and click **Get Image**.

9. To create a crosstab table, perform the following steps:

A crosstab or cross-tabulation is a table that shows relationship between two or more variables.

- a. Click the **Add Crosstab** tab.

The options to configure crosstab are displayed.

- b. From the **Header Values Column** drop-down list, select the column whose value to be displayed as header in the crosstab.

Available options are the column names in the table.

- c. From the **Label Values Column** drop-down list, select the column whose name and value to be displayed as label value in the crosstab.

Available options are the column names in the table.

- d. From the **Aggregate Values Column** drop-down list, select the column whose aggregate value to be displayed based on the function selected in the **Aggregate Function** field.

Available options are the column names in the table.

- e. From the **Aggregate Function** drop-down list, select the function to be applied on the selected column in the **Aggregate Values Column** field.

Available options are based on the data type of the column selected in the **Aggregate Values Column**.

- f. From the **Summary Function** drop-down list, select the summary type to be applied for the function and select the position of the summary to be displayed in the table.

Available options are based on the function selected in the **Aggregate Function** field.

- g. To show or hide the **Reverse Compare Colors** field, click **Compare Label Columns**.

- h. From the **Reverse Compare Colors** drop-down list, select the from and to colors for comparison.

Note:

- To show or hide chart options, click .
- To add the chart to the visual gallery, click .
- To remove chart, click .
- To download the visualization as an image file, hover over the visualization and click **Get Image**.

3.11.4. Editing an Analysis

Only the user who created the Analysis can edit or delete the Analysis. Other users with whom an Analysis is shared can only view the Analysis. Both owners and other users can create a copy of an Analysis. Other users can edit and delete the duplicate copy that they create.

1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** is displayed.

2. In the navigation pane, click **Ad-hoc Reports**.

The **REPORTS LIST** page is displayed.

3. Select the appropriate Analysis that you want to edit, and then click **Edit**.

The selected Analysis is displayed with all the edit options.

4. Optionally, to rename the Analysis, click  and select **Rename**.

5. Optionally, to create a copy of the Analysis, click  and select **Duplicate**.

A copy of the Analysis is saved and is available in the **REPORTS LIST** page.

6. Make the appropriate changes.

For information on creating an Analysis, see [Creating an Analysis Using a Single Form](#).

For information on creating an Analysis using multiple forms, see [Creating an Analysis Using Multiple Forms](#).

3.11.5. Creating a Report

Analyses and Visualizations are available.

A report is created by combining all the Visualizations you created and saved to visual gallery while creating the Analysis. You can add multiple Visualizations from multiple Analyses in a single report.

1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** is displayed.

2. In the navigation pane, click **Ad-hoc Reports**.

The **REPORTS LIST** page is displayed.

3. Select the appropriate Analysis and click **Edit**.

The **AD-HOC REPORTS** page is displayed.

4. Click the **Report** tab.

A report builder named as **Untitled Report** with **Design** and **View** tabs is displayed.

- 5.

To rename the report, click  and select **Rename**.

6. To design the report, in the **Design** tab, perform the following steps:

- a. Drag and drop the appropriate design elements into the right pane and edit the properties to design the report.

Design Element	Description
New Split Row	To add columns to the report, drag and drop New Split Row element into the report. You can add multiple rows and columns by using this element.
Add Space	To add lines in the report, perform the following steps: <ol style="list-style-type: none">i. Drag and drop the Add Space element. The Space Details dialog box is displayed.ii. From the No. of Lines drop-down list, select the number of lines you want to add in the report.iii. From the Thickness drop-down list, select the thickness of the line you want to add in the report.iv. In the Color field, enter the color code. Alternatively, to select the color, click Pick Color.v. Select the border type and click Apply.

Design Element	Description
New Visual	<p>To add a Visualization from the visual gallery to the report, perform the following steps:</p> <p>Note: You can add any Visualization into the report from the Visual Gallery.</p> <p>Visualizations can be saved in the Visual Gallery while creating an analysis.</p> <ol style="list-style-type: none">i. Drag and drop the New Visual element. The Visual Gallery dialog box is displayed.ii. Select the visual that you want to add into the report and click Add. The visual is added into the report and the status changes as Added. You can add multiple visuals from this window.iii. Click Done.iv. To download a copy of the image, hover over the visual element and click Get Image.v. To edit the Visualization name, click  in the element bar.vi. To edit the Visualization, click  in the Visualization. For more information about how to edit the Visualization, see Creating an Analysis Using a Single Form on page 144 from Step 5.
New Text	<p>To add paragraphs or text in the report, perform the following steps:</p> <ol style="list-style-type: none">i. Drag and drop the New Text element. The Settings dialog box is displayed.ii. Enter the text and format it as appropriate.iii. Click Set.iv. To edit the text settings, hover over the text and click .

Design Element	Description
New Image	<p>To add an image in the report, perform the following steps:</p> <ol style="list-style-type: none"><li data-bbox="636 354 1235 399">i. Drag and drop the New Image element.<li data-bbox="636 406 1208 451">The Settings dialog box is displayed.<li data-bbox="636 457 1224 547">ii. To retain the image in its original size, select Original size.<li data-bbox="636 554 1414 599">iii. To fit the image to the report size, select Fit to Size.<li data-bbox="636 606 1346 695">iv. Select the alignment of the image in the Image Alignment field.<li data-bbox="636 702 1394 792">v. To add the image as a URL, select Image URL and enter the URL of the image in the Image URL field.<li data-bbox="636 799 1314 933">vi. To add the image in the report as an image, select Upload image and select the image in the Image Path field.<li data-bbox="636 963 1351 1097">vii. To choose the image from the list of previously uploaded images, select Choose uploaded and select the image from the Image Name list.<li data-bbox="636 1104 1351 1149">viii. Edit the Border Settings section as appropriate.<li data-bbox="636 1156 822 1201">ix. Click Set.<li data-bbox="636 1230 1192 1320">x. To edit the image settings, click .
New Link	<p>To add a link in the report, perform the following steps:</p> <ol style="list-style-type: none"><li data-bbox="636 1394 1192 1483">i. Drag and drop the New Link element.<li data-bbox="636 1490 1208 1535">The Settings dialog box is displayed.<li data-bbox="636 1542 1287 1677">ii. Edit the settings, enter the URL, and select the Target as appropriate and click Set. A hyperlink is displayed in the report builder.<li data-bbox="636 1683 1351 1773">iii. Select the Font Size, Font Color, Page Size, and Orientation of the PDF as per your requirement.<li data-bbox="636 1780 1351 1870">iv. Edit the Border Settings section as appropriate.<li data-bbox="636 1876 1144 1944">v. To edit the link settings, click .

Design Element	Description
New PDF Link	<p>To add a link to send the report as PDF through email, perform the following steps:</p> <ol style="list-style-type: none">i. Drag and drop the New PDF Link element. The Settings dialog box is displayed.ii. Select the Font Size, Font Color, Page Size, and Orientation of the PDF as per your requirement. <p>Note: By default Email as PDF is displayed in the first field of Settings dialog box. However, you can rename it as per your requirement.</p> <ol style="list-style-type: none">iii. Edit the Border Settings section as appropriate.iv. Click Set. A hyperlink Email as PDF or the customized name is displayed in the report.v. Click OK. <p>Note: When a user clicks OK, the report is sent to the registered email address of the logged in user.</p>

7. Click the **View** tab to view the report.

The report view is displayed.

3.11.6. Editing a Report

Only the user who created a Report can edit a Report. Other users with whom a Report is shared can only view. Both owners and other users can create a duplicate copy of a Report. Other users can edit and delete the duplicate copy that they created.

1. In the module menu, click **Home**.
The **ENTERPRISE DASHBOARD** is displayed.
2. In the navigation pane, click **Ad-hoc Reports**.
The **REPORTS LIST** page is displayed.
3. Select the appropriate Report that you want to edit.

4. Click **Edit**.

The selected Report is displayed.

5. Click **Design** tab to edit the Report.

6. Click .

- To rename the Report, select **Rename**.
- To create a duplicate copy of the Report, select **Duplicate**.

Note: Copy of the Report will be autosaved and you can find it listed in the **REPORTS LIST** page.

7. Perform the steps that are described in [Creating a Report](#) starting from Step 6.

3.11.7. Sharing Analysis and Reports

Using the **Share** feature, you can share your Analysis and Reports with specific users. You can add the users and the roles of the users in the application. The users or the roles with whom the Analysis and Reports are shared can only view them on the **REPORTS LIST** page.

The data shown in the Analysis and Report depends on the permissions assigned to the user generating the Report. For example, if an Analysis or a Report has data related to a particular project and if the user with whom the Analysis or Report is shared does not have access to the project, then the user will not see that project's data in the Analysis or Report.

1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** is displayed.

2. In the navigation pane, click **Ad-hoc Reports**.

The **REPORTS LIST** page is displayed.

3. In the list page, select the appropriate Analysis or Report you want to share.

4. Click **Share**.

The **SHARE** page is displayed.

5. To add the user roles with whom you want to share the Analysis or Report, in the **ADD ROLE** section, perform the following steps:

- a. Click **Add**.

The **Please Select Role** dialog box is displayed.

Available options are all roles created in the application with at least **View** permission assigned. For information on setting role permissions, see [Configuring Role Permissions](#).

- b. Select the appropriate user roles, and then click **Select**.

The selected user roles are added to the **ADD ROLE** section.

On saving this page, the Analysis or Report is automatically shared with the users associated with the roles added in this section.

For all the new users of the application, the sharing frequency is based on the number of hours defined in the **APPLICATION SETTINGS** page of the **Administration** module. For more information, see [Application Settings](#).

6. To add the users with whom you want to share the Analysis or Report, in the **ADD USER** section, perform the following steps:

- a. Click **Add**.

The **Please Select User** dialog box is displayed.

- b. Select the appropriate users, and then click **Select**.

The selected users are added to the **ADD USER** section.

On saving this page, the Analysis or Report is automatically shared with the users added in this section.

7. Click **Save**.

The **REPORTS LIST** page is displayed.

3.12. My Reports – Izenda

3.12.1. Ad-hoc Reports

In Masterworks, the **Ad-hoc Reports** feature enables you to create custom reports quickly. You can easily access your databases and transform raw data into useful and readily understood information.

You can use either of the following ways to create a custom report:

- [Create a report using the New Instant Report option](#) – You can create quick and simple reports in tabular format.

- [Create a report using the New Report option](#) – You can design ad-hoc reports with one or more data sources and various graphical elements, such as charts, gauges, pivots, and so on.

Note: Data source refers to tables or views in the application database.

3.12.2. Creating Instant Reports

New Instant Report enables you to build simple reports using a single data source. You can preview the report, filter report data, and perform basic summation operation on numeric fields.

The following procedure describes the steps to create an instant report and save it.

1. In module menu, click **Home**.

The **Enterprise Dashboard** is displayed.

2. In the navigation pane, click **Ad-hoc Reports**.

The **REPORTS LIST** page is displayed.

3. Click **New**, and then click **New Instant Report**.

The **INSTANT REPORT** page is displayed.

The page comprises two panes.

4. In the left pane, click



to expand the appropriate data source categories.

The list of data sources in the categories is displayed. The data sources available are tables and views in the application database.

5. Select the appropriate data source.

The fields in the selected data source are displayed.

6. Select the appropriate fields to add columns in the report.

The preview of the report is displayed in the right pane.

The column sequence in the report is based on the order in which the fields are selected.

Also, in the right pane, you can use the following functions:

Icon	Control	Description
	Add New Filter	To filter the records in the preview, perform the following steps: <ol style="list-style-type: none">Click From the drop-down list, select the filter criterion to add to the report. Available options are fields associated with the selected data source. Based on the field selected, a box is displayed below the filter.In the box under filter header, enter or select the filter criterion.
	Update Preview	Click for the filter to take effect in the preview, if any.
	Add Subtotal	Click to add a subtotal at the end of each number column.
	Design Report	Click to enhance a report and include graphical elements to it. For information on designing a report, see Designing Ad-hoc Reports topic from step number 6.
	View Report	Click to view the report in the REPORT VIEWER page.

Note: To save or export your instant report, you must select either **View** or **Design** to navigate to the **REPORT VIEWER** or **REPORT DESIGNER** page, respectively.

7. Optionally, to enhance a report and include graphical elements to it, in the toolbar, click **Design**.

You are navigated to the **Fields** tab in the **REPORT DESIGNER** page.

For information on designing a report, see [Designing Ad-hoc Reports](#) topic from step number 6.

8. Click **View**.

The **REPORT VIEWER** page is displayed.

9. To filter the records in the report, perform the following steps:

- a. Click



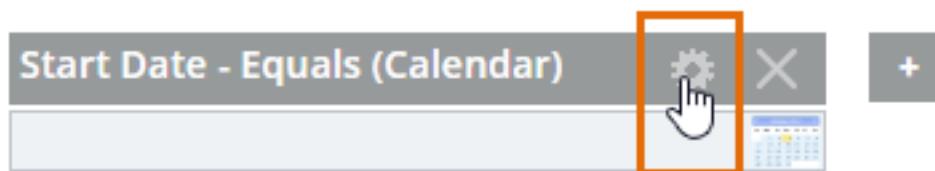
- b. From the drop-down list, select the filter criterion to add to the report.

Available options are fields associated with the selected data source.

Based on the field selected, a box is displayed below the filter.

- c. To define a filter, hover your mouse over the search criterion, and then click **Settings**.

Settings



A dialog box is displayed.

- d. In the **Description** box, enter a description for the filter.

- e. From the **Filter Operator** drop-down list, select the appropriate operator.

- f. Click **OK**.

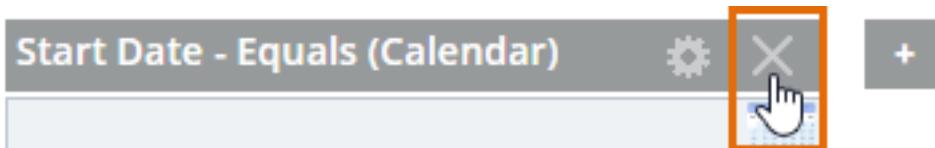
- g. In the box under filter header, enter or select the filter criterion.

- h. Click **UPDATE RESULTS**.

The report is updated and displayed based on the data criterion entered or selected in the box.

- i. Optionally, to delete the filter, hover your mouse over the search criterion, and then click **X**.

Delete



10. To add additional fields to the report, perform the following steps:

- a. Click the **Fields** tab.
- b. In the left box, select the appropriate fields to add to the report, and then click



The selected fields are moved to the right box.

- c. To remove a field from the report, in the right box, select the appropriate field, and then click



- d. To rearrange the fields in the report, in the right box, select the field to move, and then click **UP** or **DOWN**.

- e. Optionally, to configure field properties, in the right box, select the appropriate field, and then click **FIELD PROPERTIES**.

The field properties dialog box is displayed.

- f. Provide the appropriate information in the fields, as described in the following table.

Feature	Description
Description	By default, the name of the field is displayed. Optionally, enter a description for the field.
Format	Select the appropriate format for the selected field. Available formats are based on the data type.
Subtotal function	Select the appropriate summary function for calculation, such as Sum or Count. Options available in the list may vary based on the field selected.
Visual Group	Select the check box to group records based on the field selected.
Multiline Header	Select the check box to make the header of the selected column multiline.

Feature	Description
Label Justification	To align the column header or column value of the selected field, click  , and repeat until the appropriate alignment is selected.
Value Justification	<ul style="list-style-type: none">•  indicates left alignment.•  indicates right alignment.•  indicates middle alignment.
Width	Enter the width of the selected column.

g. Click **OK**.

h. Click **UPDATE RESULTS**.

The report is updated and displayed.

11. In the toolbar, click **Save**.

If you have not previously saved the report, a dialog box to enter the report name and select category is displayed.

Alternatively, click **SaveAs**.

A dialog box to enter the report name and select category is displayed.

12. In the **Input report name** box, enter the name of the report.

13. To categorize the report, from the **Category** drop-down list, select the category for the report. You can either select from the existing categories or create a new category.

To create a new category, perform the following steps:

a. From the **Category** drop-down list, select **(Create New)**.

A dialog box to enter category name is displayed.

b. In the **New category name** field, enter the name of the category.

c. Click **Create**.

The category is created and displayed in the **Category** drop-down list.

d. Click **OK**.

14. In the navigation pane, click **Ad-hoc Reports**.

The report is available in the **REPORTS LIST** page.

3.12.3. Designing Ad-hoc Reports

The **Ad-hoc Reports** feature enables you to design and create your custom reports. You can share these customized reports with other users of the system.

Based on the reporting requirement, you can use either of the following ways to create a report:

- Using **Simple** mode, you can design an ad-hoc report with a single data source.
- Using **Advanced** mode, you can design an ad-hoc report with multiple data sources.

The task sequence to design a custom report is:

1. Select data source.
2. Define the appropriate fields from the selected data view.
3. Specify report summary details to define calculations, grouping, and sorting.
4. Select various displays with charts.
5. Specify report style, formatting, and data filters.
6. Select the roles to share the report with.
7. View a preview of the report you created.
8. Group your reports into custom categories.

Note: To prevent timing out, it is recommended to regularly save your report as you create it.

1. In module menu, click **Home**.

The **Enterprise Dashboard** is displayed.

2. In the navigation pane, click **Ad-hoc Reports**.

The **REPORTS LIST** page is displayed.

3. Click **New**, and then click **New Report**.

The **REPORT DESIGNER** page is displayed with different tabs to create and design a new report.

4. In the **Data Sources** tab, ensure the **Distinct** check box is selected indicating that the distinct condition is applied for the report. That is, for multiple records with the same data, only one instance of the record is displayed in the report.

Optionally, clear the **Distinct** check box to view all records including duplicate records.

5. To select data sources using the **Simple** or **Advanced** mode, perform either of the following:

- To add fields to the report from a single data source using the **Simple** mode, select the appropriate data source check box.

Note: By default, the **Data Sources** tab is displayed in the **Simple** mode in which you can only select one data source.

The available data sources are tables and views of the application database. Alternatively, from the **Recent Data Sources** drop-down list, select the appropriate data source from the recently used data sources.

- To add fields to the report from multiple data sources using the **Advanced** mode, perform the following steps:

- Click the **Advanced** button at the bottom of the page.

The **Advanced** mode is displayed.

Note: There must exist at least one common field in the selected data sources to associate them.

- To select multiple data sources for the report, perform the following steps:

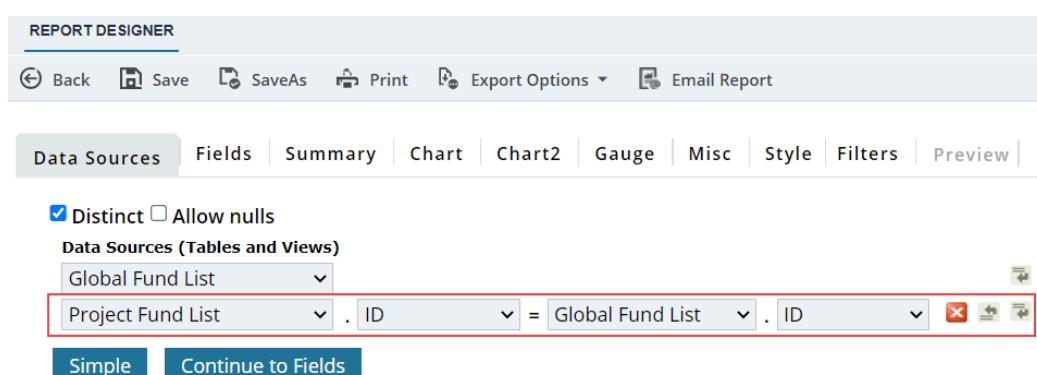
- From the **Data Sources (Tables and Views)** drop-down list, select the appropriate data source.

- Click .

A drop-down list is added.

- From the newly added drop-down list, select the appropriate data source to associate with the initially selected data source.

The common field in both the data sources are selected and displayed.



- The second drop-down list displays all the fields of the second data source selected.

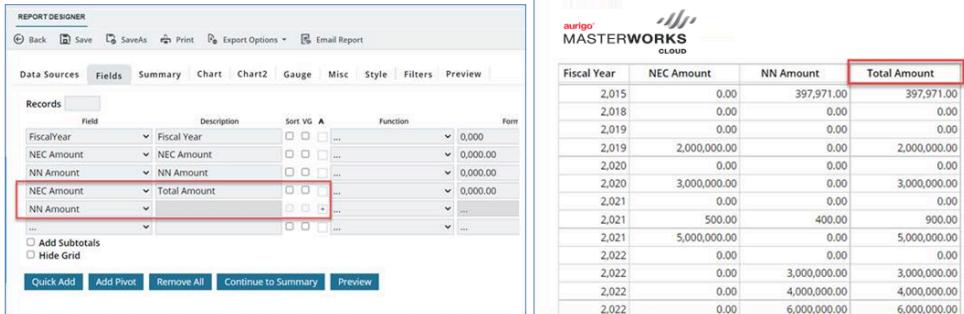
- The third drop-down list, by default, displays the data source that was initially selected.
 - The fourth drop-down list displays all the fields of the initial data source selected.
- iv. From the second drop-down list, select the appropriate field of the second data source.
- v. In the fourth drop-down list, select the appropriate field of the initial data source.

Note: Ensure the option selected in the second and the fourth drop-down lists are the same and have unique values.

- vi. Use the following buttons to add data sources and delete existing rows:
- Click  to delete the existing row.
 - Click  to insert a field above the existing data source.
 - Click  to a field below the existing data source.
- vii. Repeat steps ii to v to add and connect multiple data sources.
- viii. Select the **Allow nulls** check box to display all the records on the report including the records without values.
6. To select fields from the selected data sources, click **Continue to Fields** or click the **Fields** tab.

- a. Provide the appropriate information in the **Fields** tab, as described in the following table.

Feature	Description
Records	Enter the maximum number of records to be displayed on a report page.
Field	Select the appropriate fields from the drop-down list or use the Quick Add button to add multiple fields at a time. The available options in the list are all the fields of the selected data sources.
Description	By default, displays a title for the field. Optionally, enter a new title for the field.

Feature	Description
Sort	Select the check box to sort the field in ascending order on the report.
VG	Select the check box to visually group your data based on the field selected.
A	<p>Select the check box to select the appropriate arithmetic operator for the field.</p> <p>This function performs basic calculations (+, -, x, %) and concatenation of text.</p> <p>To change the arithmetic operator, click the box repeatedly until the appropriate arithmetic function is displayed. The availability of operators varies based on whether the selected field is a numeric field, date field, and so on.</p> <p>Note: The arithmetic function is applied to the selected field against the field above. Hence, you cannot use the arithmetic function in the first row.</p>
	<p>See the following image for the example arithmetic operation of sum and its preview:</p> <p>Arithmetic Function</p> 
Function	Select the appropriate function of the selected field. The list options vary based on the type of data being accessed, such as numeric field, date field, and so on.
Format	Select the appropriate format to display the field values on the report. Formats available in the list are based on the data type.

Feature	Description
Other buttons	<p>Optionally, corresponding to a row, use the following buttons to insert new fields, configure field properties, move fields, and delete existing rows:</p> <ul style="list-style-type: none">Click  to delete the existing row.Click  to insert a field above the existing field.Click  to insert a field below the existing field.Click  to configure advanced properties for the row. For more information on advanced properties, see Advanced Field Settings.Drag  to move the field up or down the order.
Records	Enter the number of records to be displayed in the summary on a report page.
Add Subtotals	Select the check box to include subtotal value in the report.
Hide Grid	The check box is applicable only for chart reports. Select the Hide Grid check box to display only the chart on the report without the field information table.
Quick Add	Click to add multiple fields to the report.

Feature	Description
Add Pivot	<p>The Pivot feature enables you to generate analytical data grids from within reports. The Pivot feature adds extra pivot columns to the right side of the report. This is useful for comparing data over multiple categorical dimensions. For example, a pivot table can be added when for every project, you want to view the monthly pay-outs through the pay estimates.</p> <p>To define inputs for the pivot table, perform the following steps:</p> <ol style="list-style-type: none"><li data-bbox="462 601 732 630">i. Click Add Pivot.<li data-bbox="493 646 1283 675">The Add pivot columns for drop-down list is displayed.<li data-bbox="462 698 1383 832">ii. From the Add pivot columns for drop-down list, select the appropriate field, and in the function drop-down list, select the appropriate function based on which pivot must be created.<li data-bbox="493 848 1414 933">On selecting the appropriate field from the Add pivot columns for drop-down list, the Calculate cell values on field is displayed.<li data-bbox="462 949 1383 1034">iii. From the Calculate cell values on drop-down list, select the appropriate value to be displayed inside the pivot.<li data-bbox="493 1050 1430 1135">From the function drop-down list, select the appropriate function based on which pivot must be created.<li data-bbox="493 1151 1430 1236">From the format drop-down list, select the appropriate format to display the field values on the pivot.<li data-bbox="462 1252 1367 1387">iv. Optionally, corresponding to a row, use the following buttons to delete existing rows, insert new fields, and configure field properties:<ul style="list-style-type: none"><li data-bbox="525 1416 1092 1483">• Click  to delete the existing row.<li data-bbox="525 1499 1287 1584">• Click  to insert a field below the existing field.<li data-bbox="525 1600 1367 1775">• Click  to configure advanced properties for the row. For more information on advanced properties, see Advanced Field Settings.<li data-bbox="462 1798 1314 1827">v. Optionally, to remove the pivot table, click Remove Pivot.
Add Side Total	<p>Note: This field is available only if the Add Pivot feature is used.</p> <p>Select the check box to include side-total value in the report.</p>

Feature	Description
Remove All	Click to clear all the selections made in the Fields tab.
Continue to Summary	Optionally, click to continue to the next tab in the report design process, the Summary tab.
Preview	Click to preview the report in the Preview tab.

7. To include a summary of the appropriate records to the report, click the **Summary** tab.

- a. Provide the appropriate information to the properties available in the **Summary** tab, as described in the following table.

Feature	Description
Title	Enter the title of the summary.
Records	Enter the number of records to be displayed in the summary on a report page.
Field	Select fields to include in the summary.
Description	Enter the description of the selected field.
Sort	Select the check box to sort the field in ascending order in the summary of the report.
Function	Select the appropriate function of the selected field. The drop-down list options vary based on whether the selected field is a numeric field, date field, and so on.
Format	Select the appropriate format for display of the field values in the summary. The Format field is applicable for numeric functions.

Feature	Description
Other buttons	<p>Optionally, corresponding to a row, use the following buttons to insert new fields, configure field properties, move fields, and delete existing rows:</p> <ul style="list-style-type: none">• Click  to delete the existing row.• Click  to insert a field above the existing field.• Click  to insert a field below the existing field.• Click  to configure advanced properties of the field. For more information on advanced properties, see Advanced Field Settings.• Drag  to move the field up or down the order.
Add Subtotals	Select the check box to display subtotals in the summary.
Add Deltas	Select the check box to display difference in values between the current row and the previous row. The difference value is displayed in a separate row.
Hide Grid	The Hide Grid check box is applicable only for chart summaries. Select the check box to display only the chart in the summary without the field information table.
Continue to Chart	Optionally, click to continue to the next tab in the report design process, the Chart tab.
Preview	Click to preview the report in the Preview tab.

8. To add a Trend, Bar, Pie, or Funnel chart to the report, click the **Chart** tab.

Note: You can add a maximum of two charts to a report. Click **Chart2** tab to add the second chart.

- a. Provide the appropriate information to the properties available in the **Chart** or **Chart2** tab, as described in the following table.

Feature	Description
Chart Type	Select the appropriate type of chart to be displayed on the report. The properties fields to configure the chart are displayed. Note: Available fields are based on the option selected in the Chart Type drop-down list.
Title	Enter a title for the chart.
Records	Enter the number of records to be displayed on the chart.
Date	If the selected Chart Type is Trend , then select the time metric for the chart. The options in this field are detected automatically from your selected data sources.
Label	If the selected Chart Type is other than Trend , then select the appropriate label for the chart. The label of the chart is the name of the value on the chart. The label indicates the elements on the chart, such as the slice, bar, or time point.
Function	Select the appropriate function of the selected label. The list options vary based on whether the selected label is a numeric field, date field, and so on.
Format	Select the appropriate format for display of the values in the summary. The Format field is applicable for numeric functions.
Sort	Select the check box to sort the field in ascending order in the report.
Sort (z-a)	Select the check box to arrange gauges in descending order.

Feature	Description
Value	Select the appropriate field value for the chart. The selected field value is the number that is displayed within each Label. The size of a pie slice, the size of a bar, or the height of a point on a line will be represented by the values of this field.
Function	Select the appropriate function of the selected value. The drop-down list options vary based on whether the selected value is a numeric field, date field, and so on.
Format	Select the appropriate format for display of the values in the summary. The Format field is applicable for numeric functions.
Sort	Select the check box to sort the field in ascending order in the chart of the report.
Advanced Properties	Click to configure advanced properties for the chart.
Continue to Chart2 or Continue to Gauge	Optionally, based on the tab you are in, click the button to continue to the next tab in the report design process.
Preview	Click to preview the report in the Preview tab.

9. To add a panel of gauges to the report, click the **Gauge** tab.

- a. Provide the appropriate information to the properties available in the **Gauge** tab, as described in the following table.

Feature	Description
Title	Enter the title of the gauge.
Results	Select the number of results to be displayed in the panel of gauges. A maximum of 12 gauges can be displayed on a report.
Name	Select the appropriate field for the gauge.
Value	Select the value for the gauge.
Sort	Select the appropriate field based on which you want to arrange the gauges.

Feature	Description
Function	Select the appropriate function of the selected value. The drop-down list options vary based on whether the selected sort value is a numeric field, date field, and so on.
Format	Select the appropriate format to display the field values on the report. Formats available in the list are based on the data type.
Sort (z-a)	Select the check box to arrange gauges in descending order.
Minimum	Enter the minimum value of the gauge.
Maximum	Enter the maximum value of the gauge.
Color	Enter details of colors for each percentage on the gauge. Additionally, enter details about transitioning of the colors between the mentioned colors.
Gauge Style	Click the appropriate option.
Show values in currency format	If the selected field is a currency field, then select the check box to add currency format to the gauge.
Target report	Select the sub-report to be displayed when you hover over the gauge on the report.
Effect	If the Target report is selected, then select the appropriate effect for the sub-report.
Continue to Misc	Optionally, click to continue to the next tab in the report design process, the Misc tab.
Preview	Click to preview the report in the Preview tab.

10. To configure title, header, footer, and so on for the report, click the **Misc** tab.

- a. Provide the appropriate information to the properties available in the **Misc** tab, as described in the following table.

Feature	Description
Report Header Image Justification	<p>Click and select the appropriate report header justification.</p> <p>Note:</p> <ul style="list-style-type: none">•  indicates left alignment.•  indicates right alignment.•  indicates middle alignment. <p>To change the function, click the box repeatedly until the appropriate function is displayed.</p>
Title	<p>Enter the title of the report, and then click  to set the alignment of the title on the report.</p>
Description	<p>Enter the description of the report, and then click  to set the alignment of the description on the report.</p>
Header	<p>Enter the header, and then click  to set the alignment of the header on the report.</p>
Footer	<p>Enter the footer, and then click  to set the alignment of the footer on the report.</p>
Limit Outputs to CSV	Select the check box to view the above configured data of the report only when exported as a CSV file.

Feature	Description
Share With	<p>Select the appropriate roles you want to share the report with.</p> <p>Users with the selected roles can now generate this report. Available roles are the roles assigned to you at the enterprise level.</p> <p>Note: Selecting the Everyone option shares the report with users in the roles that are assigned to you. For example, if you have the Project Manager role and the Director role assigned to you, and you have shared a report with everyone using the Everyone option, then the report is visible to users with either the Project Manager role or the Director role.</p>
Rights	<p>Corresponding to the selected roles with whom the report is shared, Select one of the following options:</p> <ul style="list-style-type: none">• None: Select this option to specify there are no rights to view or modify the report.• Full Access: Select this option to provide rights to view, modify, and save changes made to the report.• Read Only: Select this option to provide rights to view, add, or remove filters, and modify the existing filter values. Users can modify the design of the report and save it as a new report but cannot overwrite the existing report.• View Only: Select this option to provide rights only to generate the report and the report cannot be modified.• Locked: Select this option to provide rights only to view and modify existing filter values, but you cannot add or remove filters or fields. The changes made to the report cannot be saved.
Owner	By default, the name of the logged-in user is displayed. Optionally, enter the name of the report's owner.
Drill-Down Keys	Select the column names to be displayed in the sub-report.
Ignore First Key	Select the check box to ignore displaying the first key value selected from the Drill-Down Keys field in the sub-report.

Feature	Description
Schedule	Select time and date for delivery of the report.
Repeat type	Select the schedule for repeat delivery of the report.
Send Email as	Select the mode of sending the report by email.
Recipients	Enter the email addresses of recipients, separated by commas.
Continue to Style	Optionally, click to continue to the next tab in the report design process, the Style tab.
Preview	Click to preview the report in the Preview tab.

11. To configure the appropriate styles for the report, click the **Style** tab.

- a. Provide the appropriate information to the properties available in the **Style** tab, as described in the following table.

Feature	Description
Border color	Select the appropriate color for the grid cells in the report.
Header color	Based on the options selected in these fields, the Sample grid displays the preview of the changes.
Header foreground color	
Item color	
Item Foreground color	
Alternating item color	
Restore Default	Click Restore Default to revert all the previously mentioned controls' settings back to their defaults.
CSS	You can define any custom CSS to be used on the report inside the text box. You can use the browser object inspector to discern CSS class names used on the grid so you can override them.
Landscape printing (PDF)	Select the check box to generate PDF outputs for the reports from the report viewer in landscape mode. Otherwise, the report will be printed in portrait mode.

Feature	Description
Show page number	Select the check box to display the page number on all page-dependent printed reports. This will not apply to the report viewer or to XML, XLS, and CSV exports.
Show date and time	Select the check box to display the date and time on all page-dependent printed reports. This will not apply to the report viewer or to XML, XLS, and CSV exports.
Use pagination	Select the check box to enable the report viewer to use paging.
Add bookmark for each visual group	Select the check box to enable bookmarks on each visual group.
Page Break After Visual Groups (PDF)	Select the check box to enable each visual group to receive its own page when exported. This will not apply to the report viewer or to XML, XLS, and CSV exports.
Minimize Grid Width	Select the check box to enable adjusting the margins of the data grid to match the size of the data. This can result in columns that are not uniform size.
All field headers bold	Select the check box to enable all field headers to be in bold.
All field headers italic	Select the check box to enable all field headers to be in italics.
Remove Headers for CSV Export	Select the check box to remove headers for CSV exports.
Enable Responsive Grid	Select the check box to enable the report layout to change dynamically based on the size of the screen.
Columns Width	Enter the column width for the reports.
Visual Group Style	From the drop-down list select how you want the visual groupings to be displayed.
Items Per Page (In Viewer)	Enter the number of items to be shown per page in the report viewer.

Feature	Description
Pivot columns per exported page	Enter the number of pivot columns to be displayed in each exported page. Optionally, select the check box against Split all columns to split all the columns, and select the check box against Page break on split to enable a page break on splitting the columns.
Report order	It enables you to set the order of items to be included in the report (Summary, Chart, Gauge, Map, and Detail). Note: The detail grid is the one created on the Fields tab.
Field Value column pairs	Select the field value style for multiple columns displaying on one row.
Show main report in Field Value style	Select the check box to enable the entire detail grid to be shown using the defined field value style.
Show summary report in Field Value style	Select the check box to enable the summary grid to use the defined field value style.
Continue to Filters	Optionally, click to continue to the next tab in the report design process, the Filters tab.
Preview	Click to preview the report in the Preview tab.

12. To add multiple filters for a report, click the **Filters** tab.

- Provide the appropriate information to the properties available in the **Filters** tab, as described in the following table.

Feature	Description
Filter Field	Select the appropriate field for the filter.
Operator	Select the appropriate operator for the filter.
Value(s)	Based on the selected operator, enter or select the appropriate value for the filter.
Alias	Enter the alias of the filter.

Feature	Description
Blank	Select the check box. If the check box is selected, the filter will return data that matches the value entered or selected in the Value(s) field and also data that has a null value in that field.
Param	Select the check box. This will display the filtered report in the report viewer and allow the user to change the filter value. If it is not checked, then the filter will not be visible to the user and the user will not be able to change the filter.
Require	Select the check boxes to set mandatory rules for the filter.
Other buttons	Optionally, corresponding to a row, use the following buttons to delete existing rows, insert new fields, and move fields: <ul style="list-style-type: none">Click  to delete the existing row.Click  to insert a filter above the existing field.Click  to insert a filter below the existing field.Drag  to move the field up or down the order.
Show Filters In Report Description	Select the check box to add the filters being used to the Description field of the report when the report is viewed in the Report Viewer or is exported.
Require	Select the appropriate parameters. You can select any of the following options: <ul style="list-style-type: none">All - All the field filters must be selected.At Least One - Any one of the filter fields must be selected.The First - The first filter field must be selected.The First Two - The first two filter fields must be selected.
Filter Logic	Enter logic for the filter using Boolean Logic.
Preview	Click to preview the report in the Preview tab.

13. Click **Save**.

If you have not previously saved the report, a dialog box to enter the report name and select category is displayed.

Alternatively, click **SaveAs**.

A dialog box to enter the report name and select category is displayed.

- a. In the **Input report name** box, enter the name of the report.
- b. To categorize the report, from the **Category** drop-down list, select the category for the report. You can either select from the existing categories or create a new category.

To add a new category, perform the following steps:

- i. From the **Category** drop-down list, select **(Create New)**.
A dialog box to enter category name is displayed.
- ii. In the **New category name** field, enter the name of the category.
- iii. Click **Create**.
The category is created and displayed in the **Category** drop-down list.
- iv. Click **OK**.

14. In the navigation pane, click **Ad-hoc Reports**.

The report is available in the **REPORTS LIST** page.

3.12.4. Advanced Field Settings

Advanced field settings provide more granular control over what data is displayed in your

report. They can be accessed by clicking on the gear icon  to the right of any row on the **Fields** tab or the **Summary** tab in the report designer.

1. Provide the appropriate information in the properties available in the **Advanced Properties** dialog box, as described in the following table.

Setting	Description
Column Group	Enter a label to this column that can work over multiple consecutive columns. Any other column that shares the same label will be included in the grouping.
Break Page After VG (PDF)	Select the check box. If this check box is selected and this field is also a visual group, then it will trigger a page break in a printed report every time this field has different value.

Setting	Description
Multiline Header	Select the check box to enable a header to be multi-lined if the length of the header is longer than the set width of the column. Each space between words works as a line breaker.
Hide this field	Select the check box to hide the field from the display when you run the report. Useful for using expressions on multiple fields but when only one of the fields should be displayed.
Separator	Select the check box to break out Analysis Grid by this field. Functions identical to VG in a normal table. Since VG is used to define the hierarchy of the Analysis Grid, Separator should be used to visually group the Analysis Grid.
Sort (z-a)	Select the check box to sort the field in descending order.
Italic	Select the check box to show the column in italics.
Bold	Select the check box to show the column in bold.
Width	Enter the width of the column.
Label Justification	Click and set the column label to the left, right, or middle of the row.
Value Justification	Click and set the value of the field to the left, right, or middle of the row.
Subreport	Select the drill-down sub-report. The list contains only reports that have a drill-down key set for them. Note: The Automatic option will attempt to choose a sub-report by matching the drill-down key to the selected field and cannot discern between two sub-reports that use the same drill-down key.

Setting	Description
Drill-Down Style	<p>Select the appropriate style. Available options are:</p> <ul style="list-style-type: none">• Link – opens in same browser window.• Link(New Window) – opens in new browser window.• Embedded – embeds the drill-down results into the main report.• Popup – opens the results on a pop-up screen.• Combo key - Used in combination with one of the above. When this setting is chosen for the second drill-down key, the value of both fields will be passed from the main report to the sub-report.
Url	Enter a custom Url to redirect to when the value in this cell is clicked.
Subtotal Function	<p>Select a function for subtotals displayed with the field. The default value is "Sum". This only applies to the bottom sub-totals and not the side sub-totals.</p> <p>If set to Expression, then Subtotal Expression box is displayed allowing you to set an expression for the subtotal. This functions in the same fashion as the typical expression box.</p>
Gradient Cells Shading	Select the check box to use a gradient color for cells shading.
Text Highlight	Enter a range to highlight the text.
Cell Highlight	Enter a range to highlight the cell.
Value Ranges	Enter the values for number ranges. (i.e., setting this to 0 to 10: Under will display the text "Under" when it encounters a value between 0 and 10 for that column).
Expression	Enter a customized mathematical or SQL expression to show as the value for the column cells.
Expression type	Select the data type of the field. This is most useful when you are generating output with an expression and need to specify a data type.

Setting	Description
Group By Expression	<p>Select the check box to include this field in the group by statement of the query.</p> <p>This is functionally the same as the Group function, except applicable to expression output within a field rather than to the field itself.</p>

2. Click **OK**.

4. Library Management

4.1. Library Management

The Masterworks Library module serves as a collection of catalogs to manage reusable data. Catalogs are where you create, define, and store reusable information that is used when you must provide standard inputs to complete forms and information fields. With the Masterworks Library, you can store and manage catalogs of common, configurable, and reusable information.

For example, a catalog of all contractors is stored in the Masterworks Library. Information, such as contractor name, and contractor contact details are stored. Only contractors added in the Library are selectable in projects. This ensures consistency in available information, and provides a standardization factor to ensure data integrity.

Adding items to most library catalogs are similar in procedure. Similarly, viewing and editing library items, and deleting items from a library catalog are similar in procedure. However, certain library catalogs, such as the Document Folder Structure and the Document Properties catalogs, work differently.

The following topics describe the various functions and catalogs to manage library data:

- [Standard Library Functions](#)
- [Library Catalogs on page 188](#)

4.2. Standard Library Functions

4.2.1. Standard Library Functions

The following library item related tasks are common in procedure for most catalogs in the library:

- [Adding an Item to a Catalog](#)
- [Editing Item Details in a Catalog](#)
- [Viewing Details of an Item in a Catalog](#)
- [Deleting an Item from a Catalog](#)

4.2.2. Adding Library Items

You can add library items to a catalog. You can also concurrently import multiple library items to a library catalog using a predefined Microsoft Excel workbook template. You can download the template from the application.

You can import multiple library items to a library catalog using a predefined Microsoft Excel workbook template. You can download the Microsoft Excel workbook template

to your local storage, enter the appropriate information in the template, and then import information in the Microsoft Excel workbook to the catalog. For information on uploading multiple items, see [Uploading Form Details in Bulk](#).

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, click a library catalog.

The items in the selected catalog are displayed.

3. Click **New**.

The page to create a new item is displayed.

4. Enter the appropriate details of the item.

5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.2.3. Editing Item Details

Updating details of a library item does not update the records where the library item has been used previously. However, the updated library item is available for use in new records.

You can update details of multiple library items in a library catalog using a predefined Microsoft Excel workbook template. You can download item information to a Microsoft Excel workbook, update the appropriate information, and then import updated information in the Microsoft Excel workbook to the catalog. For information on updating multiple items, see [Uploading Form Details in Bulk](#).

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, click a library catalog.

The items in the selected library catalog are displayed.

3. Select the appropriate item from the list page.

4. Click **Edit**.

5. Edit the appropriate information.

6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.2.4. Viewing Details of a Library Item

You can view a summary of item details or complete details of a selected item on the application, or you can download item information to an Excel workbook.

You can perform the following tasks:

- [View information of a library item.](#)
- [Download information of multiple library items.](#)

4.2.4.1. Viewing Information of a Library Item

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, click a library catalog.

The items in the selected library catalog are displayed.

3. To view complete details of a selected item, select the appropriate item from the list page.

4. Click **View**.

4.2.4.2. Downloading Information of Multiple Library Items

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, click a library catalog.

The items in the selected library catalog are displayed.

3. In the item list page, click **Excel Import / Export**, and then select **Excel Export**.

The items in the catalog with all details are downloaded to an Excel workbook and saved in the local storage.

Note: If you have [filtered records](#), then only the records that match the filter criteria will be available in the downloaded file.

4.2.5. Deleting an Item

Deleting a library item from a catalog does not delete the information from records that have used the library item. However, the library item will not be available for use in new records being created.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, click a library catalog.

The items in the selected catalog are displayed.

3. Select the appropriate items from the list page.

4. Click **Delete**.

A confirmatory message is displayed, and the item is deleted from the list page.

4.3. Standard Library Catalogs

4.3.1. Library Catalogs

Adding items to a catalog are similar in procedure throughout the application. Similarly, viewing, editing items, and deleting items from catalogs are similar in procedure throughout the application. However, certain library catalogs, such as the Calendar, Document Folder Structure, Document Properties are different.

4.3.2. Budget Management

4.3.2.1. Budget Template

A budget template comprises a set of budget items that are quantified with measurement units of a specific measurement system. You can select a budget template for a budget estimate of a project. On selecting a budget template during budget estimation of a project, the items defined in the template are automatically added to the budget estimate. Also, the measurement system of the budget estimate is set as defined in the selected budget template.

The high-level process of manually creating a budget template is as follows:

1. Create a budget template.
2. Select the appropriate measurement system.
3. Add items quantified with a measurement unit that is part of the measurement system selected.

Also, using the **Excel Import/Export** feature, you can bulk import the budget templates into Masterworks. For more information, see [Using Excel Import and Export](#) on page 80.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Budget Management**, and then click **Budget Template**.

3. Click **New**.

The **BUDGET TEMPLATE** page is displayed.

Budget Template Page

The screenshot shows the 'BUDGET TEMPLATE' page. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these buttons are three input fields. The first field is labeled 'Name *:' with a text input box. The second field is labeled 'Description :' with a text input box containing a scroll bar. The third field is labeled 'Measurement System *:' with a dropdown menu set to 'Select'.

4. In the **Budget Template Name** box, enter the name of the budget template.
5. In the **Description** box, enter the description for the budget template.
6. From the **Measurement System** drop-down list, select the measurement system for the budget template.

Available options are measurement systems defined in the **Measurement Systems** library catalog. For more information, see [Measurement Systems](#).

7. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

8. To add items to the budget template, perform the following steps:

- a. In the **BUDGET TEMPLATE** list page, select a budget template.
- b. Click **Items**.
- c. To add a container, perform the following steps:
 - i. Click **New**, and then click **New Container**.
 - ii. In the **Name** box, enter the name of the container.
 - iii. In the **Description** box, enter the description of the container.
 - iv. In the **Notes** box, enter the notes for the container.
 - v. From the **Parent Container** list, click the container in which the current container must be made available.

Note: For the first container, the only **Parent Container** option is **Root**.

- vi. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.
- d. To add an item to a container, perform the following steps:
 - i. Click **New**, and then click **New**.
The **NEW STANDARD ITEM** page is displayed.
 - ii. Provide the appropriate information in the fields, as described in the table.

Field	Description
Container	To select the container for the item, click  , and then click the appropriate container.

Field	Description
Pay Item No.	<p>Enter the item number.</p> <p>Alternatively, to select an item from the library, perform the following steps:</p> <ol style="list-style-type: none">a) From the Standard Item Table list, select the standard table where the item is defined. Available options in the list are standard item tables defined in the Standard Items Table library catalog. For more information, see Standard Items Tables.b) Optionally, select the Ignore Containers of Standard Items check box to only select the item and not the item container. If the check box is selected, the item is added to the selected container. If the check box is cleared, the item and its container are added to the budget estimate.c) To select an item from the specified standard items table, click Select. The item selection dialog box is displayed. Available options are items defined in the selected standard items table that is defined the Standard Items Table library catalog. For more information, see Standard Items Tables.d) Click the appropriate item from the list, and then click Select. The Pay Item No., Description, Unit, Group, Accounting Code, and Unit Price in \$ are displayed.
Description	<p>Enter the description of the item.</p> <p>Item description is displayed automatically if you have selected the item from the library.</p>
Unit	<p>Select the unit of measure for the item.</p> <p>Available options in the list are measurement units for the measurement system selected for the budget template. For more information, see Measurement Systems.</p>

Field	Description
Accounting Code	Enter the alphanumeric code assigned to the item. Accounting code of the item is displayed automatically if you have selected the item from the library, and an accounting code is defined for the item.
Unit Price in \$	<p>Note: This field is not available if the selected Unit is a Lumpsum.</p> <p>Enter the cost per unit.</p>
Notes	Enter any additional information relevant to the item.
Lumpsum Item	<p>Note: This field is displayed only if the selected Unit is a Lumpsum.</p> <p>By default, the check box is selected and non-editable to indicate that the item is lumpsum.</p>

9. To add resources to the work item, in the **RESOURCES** section, perform either of the following steps:

- To add resources from the library, perform the following steps:
 - a. In the **Select Resource Type** drop-down list, select the appropriate resource to be added to the work item.
 - b. Click **Add From Library**.

The **Resource Picker** dialog box is displayed.

Available options are based on the resource type selected in the **Select Resource Type** drop-down list.

Available options are resources defined in the corresponding library catalog for the selected resource type. For example, if you have selected **Equipment**

from the **Select Resource Type** drop-down list, then the available options are from the **Equipment** library catalog.

- c. Select the appropriate resources, and then click **Select**.
The selected resources are added to the table.
Resource information, such as Resource ID, Title, Resource Category, Resource Type, Units, Fixed Price in \$, Variable Price in \$/Unit are displayed for the selected resources.
- d. Double-click the following columns in the table, and enter information as described in the following table.

Column	Description
No. of Resources	Enter the number of resources appropriate.
Quantity in Units	Enter the number of units for each resource.

The following information is displayed:

Column	Description
Amount in \$	The amount in \$ is calculated as: $\text{Amount in \$} = (\text{No. of Resources}) * (\text{Fixed Price} + (\text{Variable Price} * \text{Quantity in Units}))$

- To add resources manually, perform the following steps:
 - a. Click **Add Manually**.
A row is added to the table.
 - b. Double-click the following columns in the table, and enter information as described in the following table.

Column	Description
Title	Enter title for the resource.
Resource Category	Select the resource category for the resource.

Column	Description
Resource Type	<p>Select the resource type for the resource.</p> <p>Perform either of the following steps:</p> <ul style="list-style-type: none"> ■ If the selected Resource Category is either Equipment or Material, then select NA in the Resource Type drop-down list. ■ If the selected Resource Category is Resource Titles, then from the Resource Type drop-down list, select Internal, Contractor, or Consultant.
Units	<p>Select the appropriate unit of measure.</p> <p>Available units are all the units of measure defined in the Measurement Systems library catalog. For more information, see Measurement Systems.</p> <p>If the selected Resource Category is Resource Titles, then from the Units drop-down list, select Hour, Day, Month, or Year.</p>
Fixed Price in \$	Enter the fixed price for the resource.
Variable Price in \$/ Unit	Enter the variable price for the resource.
No. of Resources	Enter the number of resources appropriate.
Quantity in Units	Enter the number of units for each resource.

The following information is displayed:

Column	Description
Amount in \$	<p>It is calculated as:</p> $\text{Amount in \$} = (\text{No. of Resources}) * (\text{Fixed Price} + (\text{Variable Price} * \text{Quantity in Units}))$

The **Total Item Estimate in \$** value displays the sum of the **Amount in \$** of the item and the total of the **Amount in \$** column of the resources added to the work item.

10. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

11. To save the item, perform any of the following as applicable:

- Click **Save & Exit** to return to the items list page.
- Click **Save & Continue** to save and continue on the same page.
- Click **Save & Create New** to save the current item and continue creating a new item.

4.3.2.2. Distribution Curves

The **Distribution Curves** library catalog enables you to configure non-linear distribution curves. You can set this non-linear distribution curve as default to be used in the budget forecast.

Masterworks offers standard system-defined non-linear distribution curves. You cannot edit or delete these system-defined distribution curves. You can only view them. They are as follows:

- Offset triangular
- Triangular
- Back-loaded
- Front-loaded
- Bell

However, you can create variants from the system-defined non-linear distribution curves and modify these variants based on the business requirements. You can mark any of the distribution curves as default. If none of the distribution curves are marked as default, then the system considers the distribution curve as linear in the budget forecast.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Budget Management**, and then click **Distribution Curves**.

The **DISTRIBUTION CURVES** list page is displayed.

3. To modify and create variant of the existing distribution curves, perform the following steps:

- Select the appropriate distribution curve.
- Click **Create Variant**.

The **DISTRIBUTION CURVES** page is displayed.

Distribution Curves Page

The screenshot shows the 'DISTRIBUTION CURVES' page. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these are fields for 'Curve Name *' (empty), 'Description *' (empty), and 'Is Default' (unchecked). A note below says 'Total % : 100'. The main section is titled 'DISTRIBUTION GRID' and contains a table with two rows: 'Period' and 'Curve Value %'. The 'Period' row has columns from 0 to 10. The 'Curve Value %' row has values: 0.00, 0.50, 0.50, 1.50, 1.50, 4.00, 4.00, 7.50, 7.50, 11.50, 11.50. A horizontal scrollbar is at the bottom of the grid area.

- In the **Curve Name** field, enter a name for the variant.
- In the **Description** field, enter a brief description of the variant.
- In the **Is Default** check box, select the check box to set the variant as default.

Note: You can also manage the settings of distribution curve from the **DISTRIBUTION CURVES** list page.

- To make a distribution curve as default, select the appropriate distribution curve and click **Mark Default**.
Only one distribution curve can be set as default.
- To remove a distribution curve from default setting, select the appropriate distribution curve and click **Remove Default**.

- In the **DISTRIBUTION GRID** section, in the **Curve Value %** row, enter the distribution values according to requirements.

Ensure the aggregate of the distribution percentage is 100. The distribution value is displayed in the **Total %** field.

- Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.2.3. Inflation Rules

To consider inflation when estimating project budgets, you can apply an inflation rule or set an annual inflation rate to a budget item to determine latest budget values inclusive of inflation at any time. In Masterworks, the current budget and the forecasts for budget items display values based on inflation applied to budget items.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Budget Management**, and then click **Inflation Rules**.
3. Click **New**.

The **INFLATION RULES** page is displayed.

Inflation Rules

The screenshot shows the 'INFLATION RULES' form. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these are four input fields: 'Inflation Rule ID *' (with a placeholder box), 'Description' (with a placeholder box), 'Annual Inflation Rate in % *' (with a value of '0.00' and a placeholder box), and 'Effective from date *' (with a dropdown menu showing 'None').

4. In the **Inflation Rule ID** box, enter a unique identification code for the inflation rule.
5. In the **Description** box, enter the description of the inflation rule.
6. In the **Annual Inflation Rate in %** box, enter the annual inflation rate for the item.
7. In the **Effective from date** calendar drop-down box, select the date from when the inflation rate is applicable.

This date is set as the default **Effective from date** when adding a budget estimate item. For information on budget estimates, see [Budget Management](#).

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.2.4. Budget Revision Type

Using the **Budget Revision Type** library catalog, you can define revision types for the **Budget Estimate Revision** and the decision whether the revision type requires approval through a program.

Additionally, you can make a revision type as default.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Budget Management**, and then click **Budget Revision Type**.
3. Click **New**.

The **BUDGET REVISION TYPE** page is displayed.

Budget Revision Type Page

The screenshot shows the 'BUDGET REVISION TYPE' page. At the top, there are three buttons: 'Save & Exit' (with a disk icon), 'Save & Continue' (with a floppy disk icon), and 'Cancel' (with a cancel icon). Below these buttons are four input fields:

- Name ***: A text input field.
- Description**: A text input field.
- Program Approval Required?**: A checkbox. To its right is a blue question mark icon.
- Default?**: A checkbox.

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Name	Enter a name for the revision type.
Description	Enter a detailed description of the revision type.
Program Approval Required?	To define the approval process for the Budget Estimate Revision records of this revision type, perform either of the following: <ul style="list-style-type: none">• Select the check box to approve through a program.• Clear the check box to approve at the project level.
Default?	Select the check box to make this revision type the default selection when creating a new Budget Estimate Revision record.

5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.3. Checklists

The **Checklists** catalog enables you to create a custom list of items or pointers as check points in a project. A checklist comprises stages and activities for a given form.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Checklist**, and then click **Checklist**.
3. In the **CHECKLIST** list page, click **New**.

The **NEW CHECKLIST** page is displayed.

Checklist Page

The screenshot shows the 'NEW CHECKLIST' page. At the top, there are 'Save' and 'Cancel' buttons. Below them are fields for 'Name *' (with a red asterisk) and 'Associate Form :'. The 'Associate Form' field is a dropdown menu with the placeholder '-- Select a Form --'. There is also a 'Description :' field. Below these fields is a section titled 'Stages and Activities' which contains the message 'No Data To Display'. At the bottom of the page are 'Add' and 'Delete' buttons.

4. In the **Name** field, type a name for the check list.
5. In the **Description** field, type a brief description.
6. From the **Associate Form** drop-down list, select the appropriate form to associate the checklist.

Available options are all forms available in the application.

7. To add stages and activities for the checklist, in the **Include Stages and Activities** section, click **Add**.

The **Stages and Activities** dialog box is displayed.

Available options are the stages and activities defined in the **Activities** catalog and **Stages** library catalog.

8. From the **Stages** drop-down list, click the appropriate stage for the checklist.

Available options are stages defined in the **Stages** library catalog.

9. In the **Activities** section, select the activities relevant to the selected stage.

Available options are activities defined in the **Activities** library catalog.

10. Click **Add**.

The selected stages and activities are added.

11. Optionally, perform the following steps as applicable:

- To delete an existing activity, click the activity, click **Delete**, and then click **OK**.
- To delete a stage, click all activities in the stage, click **Delete**, and then click **OK**.

12. Select the **Is Mandatory** column corresponding to an activity to ensure that the particular activity is marked as **Complete** to proceed with subsequent stages in the workflow to which the checklist is associated. For more information on associating a checklist with a workflow, see [Creating a Workflow](#).

13. Click **Save**.

4.3.4. Contract Management

4.3.4.1. Master Contract Category

The **Master Contract Category** library catalog enables you to define the contract categories. You can also define the master contract and work order configurations.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Contract Management**, and then click **Master Contract Category**.

The **MASTER CONTRACT CATEGORY** list page is displayed.

3. Click **New**.

The **MASTER CONTRACT CATEGORY** page is displayed.

Master Contract Category Page

MASTER CONTRACT CATEGORY

Save & Exit Save & Continue Cancel

GENERAL

Category * :

Description :

MASTER CONTRACT

Allow Master Contract Approval Without Item(s) :

WORK ORDER

Allow New Item(s) in Work Order :

Allow Unit Price Change for Master Contract Item(s) :

4. In the **GENERAL** section, provide appropriate information in the fields, as described in the following table.

Section	Field	Description
GENERAL	Category	Enter the category name.
	Description	Enter a brief description of the category.
MASTER CONTRACT	Allow Master Contract Approval Without Item(s)	Select the check box if you want to enable approval of Master Contract without any price item.

Section	Field	Description
WORK ORDER	Allow New Item(s) in Work Order	Select the check box if you want to enable users to create new items in the Work Order. Note: If Allow Master Contract Approval Without Item(s) is Yes, then this field is selected by default and is not editable.
	Allow Unit Price Change for Master Contract Item(s)	Select the check box if you want to enable users to change the unit price for Master Contract Item(s).

5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.5. Document Management

4.3.5.1. Document Folder Structure

The **Document Folder Structure** library catalog enables you to create predefined folder structures and save them as templates. You can also add files to folders in these templates. On selecting a document template when creating a project or a contract, the folder structure and files as defined in the selected template are automatically created in the **Documents** module of the project or contract. You can also assign permissions and associate a workflow to each of the folders in the template that are effective when the folder structure is created automatically in a project or a contract.

You can create multiple folder structures and save these templates in the library. Each of the templates can be structured differently and be used for various types of projects and contracts.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Document Management**, and then click **Document Folder Structure**.

The **DOCUMENT FOLDER STRUCTURE** list page is displayed.

3. Click **New.**

The **DOCUMENT FOLDER STRUCTURE** page is displayed.

Document Folder Structure Page

The screenshot shows a software interface titled "DOCUMENT FOLDER STRUCTURE". At the top, there are two buttons: "Save" with a disk icon and "Cancel" with a cancel symbol. Below these are two input fields. The first field is labeled "Document Folder Structure Name *:" followed by a text input box. The second field is labeled "Description :" followed by another text input box.

DOCUMENT FOLDER STRUCTURE	
	Save
	Cancel
Document Folder Structure Name *:	<input type="text"/>
Description :	<input type="text"/>

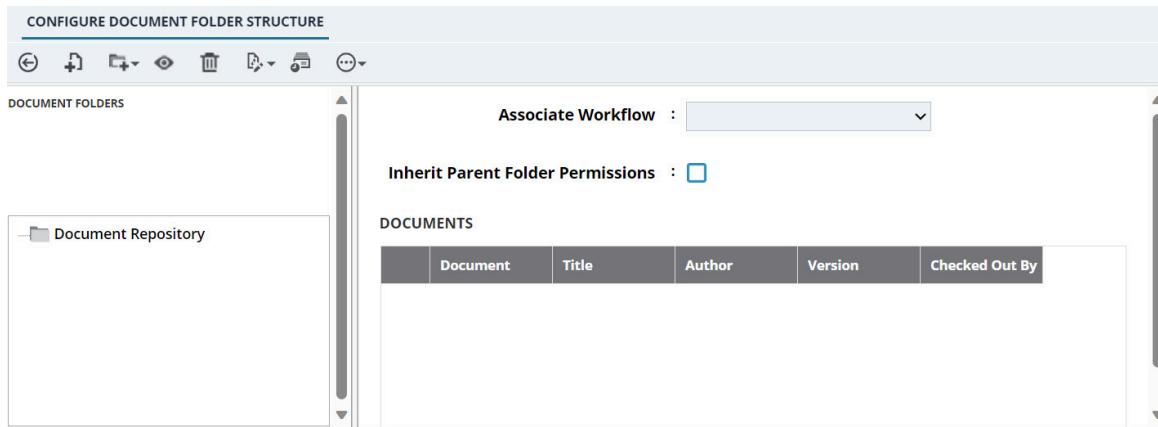
- 4. In the **Document Folder Structure Name** box, enter the name of the template.**
- 5. In the **Description** box, enter the description for the folder structure.**
- 6. Click **Save**.**

7. To define the folder structure for the template, perform the following steps:

- a. In the **DOCUMENT FOLDER STRUCTURE** list page, select a document template, and then click **Settings**.

The **Configure Document Folder Structure** page is displayed.

Configure Document Folder Structure Page



- b. In the **DOCUMENT FOLDERS** pane, click a folder to create a folder within the selected folder.
- c. Click **Folder**, and then click **New Folder** to add a new folder to the document template.

The added folder is displayed in the **DOCUMENT FOLDERS** pane.

- d. In the **DOCUMENT FOLDERS** pane, enter a name for the folder.

Note: You cannot duplicate folder names at the same level of hierarchy.

- e. To edit a folder name, or delete a folder, click the appropriate folder, click **Folder**, and then click **Edit Folder** or **Delete Folder**.

8. To assign a workflow to a folder, perform the following steps:

- a. In the **DOCUMENT FOLDERS** pane, click the appropriate folder.
- b. From the **Associate Workflow** drop-down list, select the appropriate workflow to associate with the folder.

Available options are workflows defined for the document management module.

For information on workflows, see [Workflow Management](#).

9. To define permissions on a folder, perform the following steps:
 - a. In the **DOCUMENT FOLDERS** pane, select the appropriate folder.
 - b. Perform either of the following steps:
 - To inherit permissions from the parent folder, select the **Inherit Parent Folder Permissions** check box.
 - Alternatively, to define permissions, perform the following steps:
 - i. Click **Folder**, and then click **Permissions**.
The **FOLDER PERMISSIONS** page is displayed.
Roles are available as rows, and permissions as columns.
 - ii. Corresponding to each role, select the appropriate check boxes to grant permissions specified in the columns.
 - iii. Click **Save**.
10. To add documents to the folder structure, perform the following steps:
 - a. In the **DOCUMENT FOLDER** section, click the folder to which you want to add a file.
 - b. Click **New** to add a file to the selected folder.
A dialog box is displayed.
 - c. Click **Choose File** to select the file to upload.
The **Open** dialog box is displayed.
 - d. Click the appropriate file, and then click **Open**.
 - e. In the **Title** box, enter the name of the file.
 - f. Click **Save**.

4.3.5.2. Document Properties

You can create custom document properties templates that can be displayed in the **New Document** page to record additional information pertaining to documents that are managed in a project or contract. The **Document Properties** form enables you to add attributes when uploading a document. These document attributes can be then utilized in the **Document Search** form to search for documents.

You can create multiple document properties templates with varied specifications for use in different project types. For example, a design project may require document properties that refer to the architect's numbering scheme to simplify communication, while a construction project may require document properties to identify the vendor who provided the document.

You can associate a document property template to a folder in the **Documents** module, and also [associate document property templates to folders defined in a folder structure](#).

The document properties as defined in the template that is selected for a folder are displayed when uploading documents to that folder.

The document properties template specification can comprise library items (stored lists), text, numbers and various other information. Also, you can mark fields as mandatory or optional.

You can select a document properties template when creating a project or contract, or until a document is uploaded to the **Documents** module. The document properties as defined in the template that is selected for a project or contract is displayed when uploading documents to the **Documents** module.

Characteristics of metadata specifications include:

- The **Document Properties** template selected for a project or contract cannot be changed after the first document is uploaded in a project.
- The **Document Properties** template is not applicable to attachments in forms or workflows.
- The **Document Properties** template selected for a project or contract is consistently used across the project or contract.

Defining a document properties template is similar to the functionalities available with the **Form Builder** utility in the **Administration** module. For additional information, see [Form Builder](#).

The following procedure describes the steps to create a sample document properties template that is displayed when uploading a document. The sample document properties template consists of a text box to enter the document number, and a radio-button control to select the type of document.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Document Management**, and then click **Document Properties**.

The **DOCUMENT PROPERTIES** list page is displayed.

3. Click New.

The **GENERAL** and **DESIGN** tabs for the document properties template are displayed.

General Tab

The screenshot shows the 'GENERAL' tab selected in a dialog box. At the top, there are 'Save' and 'Cancel' buttons, and a 'More' dropdown menu. Below these are four input fields with help icons:

- Form ID :** XFk6j7f
- Header :** Form k6j7f
- Parent Module :** DOCMGMNT
- Folder :** (empty)

4. To modify the form settings, in the **GENERAL tab, perform the following steps:**

- In the **Form ID** box, a unique number to identify the form is displayed. Modify the form ID as appropriate.

The form ID should contain seven alphanumeric characters.

- In the **Header** box, the name of the form is displayed. Modify the header information as appropriate.

Header is displayed only after you publish a form.

- From the **Parent Module** drop-down list, select the module in which the XML form will be placed.
- In the **Folder** box, enter the folder location where the form will be placed in the navigation tree.

Type the complete path of the folder using the '/' separator.

If the folder exists, then the form will be available under the existing folder.

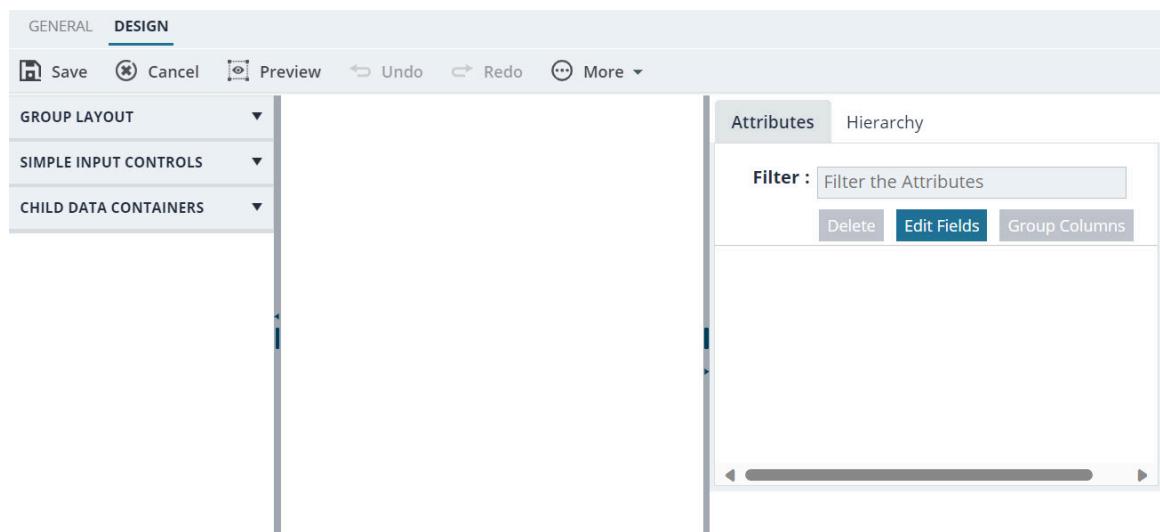
Otherwise, a new folder will be created, and the form will be placed under that folder.

5. To design the layout of the form, first create a section. A section provides a boundary in the design area to add controls.

- a. Click the **DESIGN** tab.

The **DESIGN** tab is displayed.

Design Tab



- b. In the controls pane, expand **GROUP LAYOUT**, and then drag and drop **Section** to the design area.

The label **SECTION <number>** is displayed in the design area.

- c. In the design area, click **SECTION <number>**.

The control attributes pane displays the attributes for **SECTION <number>**.

- d. To define the attributes of the section, enter information in the **COMMON ATTRIBUTES** section, as described in the following table.

Attribute	Description
Caption	This denotes the display name of the section. In the Caption box, enter Document Properties .
Name	This is an automatically generated name to identify the section, and need not be modified. This is also the name of the column in the database, and is used to derive the name of the HTML item that is rendered.
HelpToolTip	You can enter the tool tip that should be displayed on mouse hover on the Help (?) icon.

Attribute	Description
HelpDescription	You can enter the title that should be displayed when the Help ('?') icon is clicked.

6. To add a text box control, perform the following steps:

- a. In the controls pane, click **SIMPLE INPUT CONTROLS**, and then drag and drop **Multi Line Text** into the **DOCUMENT PROPERTIES** section.

Note: Drop a control within the confines of the section for the control to be displayed in the design area.

- b. Double-click **TextBox <number>** and enter **Document Properties**.

The various attributes of the control are listed below:

Attribute	Description
Caption	This denotes the display name of the control. The name to render on the display surface. If the caption is not set, then the default caption is set to the Name attribute of the control. To set a control with no title, delete the caption. Enter Document Properties .
Name	This is a system generated name to denote the control. You need not modify this field; however, normally a form designer provides names that represent the meaning of the data in the field. Name attributes should not have spaces in them, and they must be unique throughout the form. The name field is used to create the underlying database column name and to derive the name of the rendered HTML item.
HelpToolTip	You can enter the tool tip that should be displayed on mouse hover on the Help ('?') icon.
HelpDescription	You can enter the title that should be displayed when the Help ('?') icon is clicked.
Width	This is used to set the width of a control in the user interface.

Attribute	Description
Type	<p>This determines the options to select the type of control appropriate in the form.</p> <p>For example, you can add a text box to a section and later change it to a drop-down list.</p>
Value	<p>You can specify a default value to be displayed in the control.</p> <p>Also, you can also use the Value field to retrieve system level information during display processing.</p> <p>The supported format values include the following:</p> <ul style="list-style-type: none">{CURRENTUSER} - Displays the user name of the logged in user.{CURRENTUSERNAME} - Displays the first name of the logged in user.{CURRENTDATE} - Displays the current date.{CURRENTDATETIME} - Displays the current date and time.{CURRENTTIME} - Displays the current time.{PROJECTNAME} - Displays the name of the project.{PROJECTCODE} - Displays the project code.{CONTRACTNAME} - Displays the name of the contract{CONTRACTCODE} - Displays the contract code.{PRIMECONTRACTOR} - Displays the prime contractor of the project.{_FORMULA: formula}{_REQUEST: state info field}{_DB: db expression}{_Picker: [name Of Thepicker that is defined in this xml]}"any static text" - Displays the text entered here.
ReadOnly	<p>If set to true, the data in the form is made read only.</p> <p>That is, the data cannot be modified by the end user.</p>
MaxLength	<p>Sets the maximum number of characters that can be entered in the text box.</p>

7. To specify the document type in the properties template, perform the following steps:

- a. In the controls pane, click **SIMPLE INPUT CONTROLS**, and then drag and drop **Radio Button List** into the **DOCUMENT PROPERTIES** section.
- b. Click the radio button group.

The attribute pane displays the radio button control attributes.

- c. In the **Attributes** pane, in the **Caption** attribute, type **Document Type**.

- d. In the **Attributes** pane, in the **DataSource**, click .

The **Data Source Editor** dialog box is displayed.

- i. In the **ListItems** box, for an additional radio button, click **Add**.
- ii. In the **Display** column, enter **Specifications** for **Option 1**, **Design** for **Option 2**, and **Contract** for **Option 3**.

Note: For newly added radio buttons, you must enter both the **Display** and **Value**.

- iii. Click **OK**.

8. Click **Save**.

The **DOCUMENT PROPERTIES** list page is displayed.

9. You must publish the properties template to make it available for selection in projects and contracts. To publish the template, perform the following steps:

- a. In the list page, select the properties template to be published.
- b. Click **Publish**.

A confirmation message is displayed.

On creating a new project, the published document properties template can be selected. When adding a new document to the project, the properties template is displayed.

4.3.5.2.1. Associating Document Property Templates to Folders in a Folder Structure

You can associate a document property template to folders defined in a folder structure.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

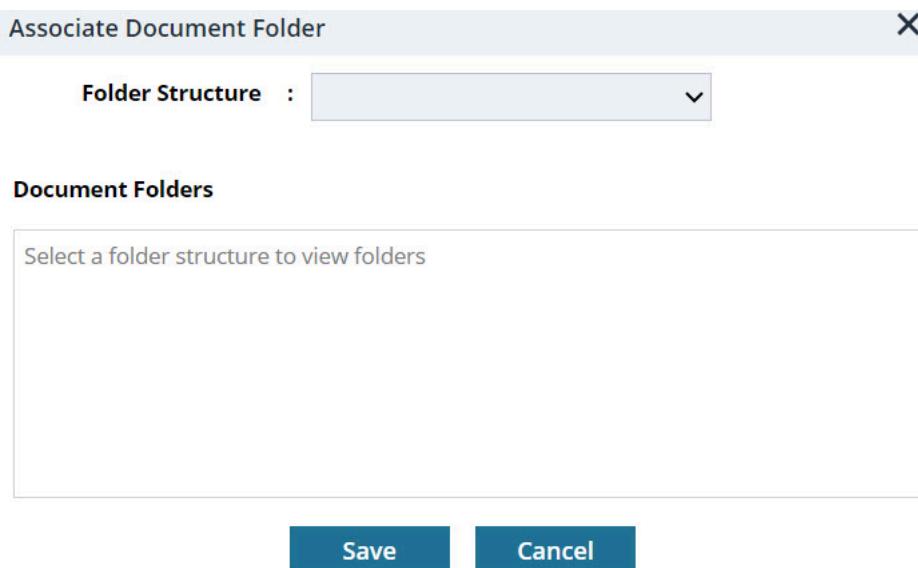
2. In the navigation pane, expand **Document Management**, and then click **Document Properties**.

The **DOCUMENT PROPERTIES** list page is displayed.

3. Select the appropriate document property, and then click **Associate Document Folder**.

The **Associate Document Folder** dialog box is displayed.

Associate Document Folder Dialog Box



4. From the **Folder Structure** drop-down list, select the folder structure to associate the selected document property template.

Available options are folder structures defined in the **Document Folder Structure** library catalog. For more information, see [Document Folder Structure](#).

The folders defined in the selected document folder structure is displayed in the **Document Folders** section.

5. Select the appropriate folders to associate the selected folder property template.
6. Click **Save**.

You must publish the properties template to make it available for selection in projects and contracts.

7. In the **DOCUMENT PROPERTIES** list page, select the properties template form to be published.
8. Click **Publish**.

A confirmation message is displayed.

You can choose the applicable **Document Folder Structure** when creating a project or contract. You need to enter all the metadata information at the time of document upload to a folder that has been associated to a **Document Properties** template.

4.3.6. Notifications

4.3.6.1. Mail Merge Configuration

- Mail merge templates for a form are available in the **Mail Merge Templates** library catalog. For more information, see [Mail Merge Templates](#).
- You should be invited to the project and assigned with **Edit** permission.

You can configure Mail Merge for a form by associating the appropriate fields of the form with the objects of the mail merge template.

When email notifications are sent, the mail merge document is sent as an attachment. In the attachment, the mapped objects in the mail merge template are replaced with the actual field values defined in the selected record of the form.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Notifications**, and then click **Mail Merge Configuration**.

The **MAIL MERGE CONFIGURATION** list page is displayed.

3. Click **New**.

The **MAIL MERGE CONFIGURATION** page is displayed.

Mail Merge Configuration Page

MAIL MERGE CONFIGURATION

Save Cancel

Name * :

Form * : Select

Document * : ...

Template :

Configuration

Convert to PDF

4. In the **Name** box, enter the name for the configuration.

5. Corresponding to the **Document** box, perform the following steps to associate a mail merge template:

- a. Click .

The **Select a template** dialog box is displayed.

Available options are mail merge documents defined in mail merge templates in the **Mail Merge Templates** library catalog. For more information, see [Mail Merge Templates](#).

- b. Click the appropriate template, and then click **OK**.

The template name associated with the selected mail merge document is displayed in the **Template** box, and the objects in selected mail merge document are listed in the **Configuration** section.

6. From the **Form** drop-down list, select the form for which you want to configure mail merge.
7. To configure the data source for mail merge, in the **Source** field, perform either of the following steps:
 - Configure mail merge for a single form:
 - a. Click **Form** (By default, the option **Form** is selected).
In the **Configuration** section, all the fields associated with the form selected in the **Form** field are listed.
 - Configure mail merge for a multiple form:
 - a. Click **View**.
The **View** field is displayed.
 - b. From the **View** drop-down list, select the view for which you want to configure mail merge.
Views are predefined in the system that fetches information from multiple forms.
Available options are views pertaining to the selected form.
In the **Configuration** section, all the fields of the forms defined in the selected **View** and the fields associated with the form selected in the **Form** field are listed.

8. In the **Configuration** section, all the objects associated with the selected mail merge template are listed. To define the fields and layouts for the objects, perform the following steps:
 - a. Corresponding to the row of the appropriate object, click in the **Fields** column, and from the drop-down list, select the appropriate field to map the objects with the fields of the form.
 - b. Corresponding to the row of the appropriate object, click in the **Layout** column, and from the drop-down list, select the appropriate option to separate the objects in the mail merge document.
9. To send the mail merge document as a PDF, select the **Convert to PDF** check box. If the check box is cleared, then the mail merge document is sent in the Word format.
10. Click **Save**.

4.3.6.2. Mail Body Templates

You can configure email messages that are sent from forms, and save the templates in the **Mail Body Templates** library catalog.

You can configure the content of the subject and the body of the email. Also, you can add fields of the associated form as placeholders to the subject and body of the email. The content of these placeholders is replaced with the actual values from the form when the mail merge, workflow, or Ball in Court notification from the form is sent to configured users.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Notifications**, and then click **Mail Body Templates**.

The **MAIL BODY TEMPLATES** list page is displayed.

3. Click New.

The **MAIL BODY TEMPLATES** details page is displayed.

Mail Body Template

4. In the **Name** field, enter the name of the email body template.
 5. In the **Form** field, perform the following steps to select the form for which the email body template is being created.
 - a. Click .

The **Forms Picker** dialog box is displayed listing all the forms in the application.

 - b. Select the appropriate form.
 - c. Click **Select**.
 6. In the **Subject** box, enter the subject of the email body template.

You can also add fields from the selected form to the subject line as placeholders. The field placeholders are later replaced with actual values from the form when

notifications are sent from the form. To add field placeholders, perform the following steps:

- a. Click .

The **Fields Picker** dialog box is displayed.

Available options are fields of the selected form.

- b. Click the appropriate field, and then click **Select**.

The selected field is added to the Subject line.

When a notification email is sent from the selected form, the field placeholders are replaced with the actual field values of the selected form.

7. In the **Message** box, enter the content of the email body for the template.

You can also format the message using the formatting toolbar available in the box.

You can also add fields from the selected form to the message body as placeholders.

The field placeholders are later replaced with actual values from the form when notifications are sent from the form. To add field placeholders, perform the following steps:

- a. Click .

The **Fields Picker** dialog box is displayed.

Available options are fields of the selected form.

- b. Click the appropriate field, and then click **Select**.

The selected field is added to the message of the email.

When a notification email is sent from the selected form, the field placeholders are replaced with the actual field values of the selected form.

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.6.3. Mail Merge Templates

- Mail merge document in the Word format is available. For more information, see [Creating Mail Merge Documents with Objects](#).

A mail merge template is created by uploading the Word format of the mail merge document. For more information, see [Creating Mail Merge Documents with Objects](#).

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Notifications**, and then click **Mail Merge Templates**.

The **MAIL MERGE TEMPLATES** list page is displayed.

3. Click **New**.

The **MAIL MERGE TEMPLATES** details page is displayed.

Mail Merge Templates

MAIL MERGE TEMPLATES

Name * :

Description :

ATTACHMENTS

<input type="checkbox"/>	Document Name	Title	Uploaded By	Uploaded Date	File Size	Signed Copy
No Attachments available						

Upload Document

4. In the **Name** field, enter the name of the mail merge template.

5. In the **Description** field, enter the description about the mail merge template.

6. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

7. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.7. Planning

4.3.7.1. Scoring Configuration

The **Project Scoring Configuration** feature enables you to evaluate projects by defining attributes to score and rank projects. A project with a high score indicates high priority.

Project scoring attributes are broadly classified into:

- **Department** - You can define the name and description of the department, and define the weightage (%) for the department.
- **Category** - You can create different categories, and associate these categories to a department. You can define the weightage (%) for each category.
- **Criteria** - You can define criteria that are grouped under a category. You can define the maximum value you can score a project on the criteria.

4.3.7.2. Scoring Category

- Departments are already defined. For more information, see [Creating a Department](#).

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Planning**, and then click **Scoring Category**.

The **SCORING CATEGORY** list page is displayed.

3. Click **New**.

The new **SCORING CATEGORY** page is displayed.

Scoring Category Page

SCORING CATEGORY

Save & Exit Save & Continue Cancel

Name * :

Description :

Department * :

Weightage :

Is Active :

4. In the **Name** box, enter the name of the scoring category.
5. In the **Description** box, enter the description for the scoring category.
6. From the **Department** drop-down list, select the department to associate the category with.
7. In the **Weightage (%)** field, enter the appropriate department weightage.
8. Optionally, to mark the category as inactive, clear the **Is Active** check box.
Inactive categories are not available for selection in the **Criteria** catalog.
9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.7.3. Scoring Criteria

- Categories are defined in the **Category** library catalog. For more information, see [Creating a Scoring Category](#).

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Planning**, and then click **Scoring Criteria**.

The **SCORING CRITERIA** list page is displayed.

3. Click **New**.

The new **SCORING CRITERIA** page is displayed.

Scoring Criteria Page

The screenshot shows a form titled "SCORING CRITERIA". At the top, there are three buttons: "Save & Exit", "Save & Continue", and "Cancel". Below the buttons, there are four input fields. The first field is labeled "Name *:" with a text input box containing an empty field. The second field is labeled "Description :" with a text input box containing an empty field. The third field is labeled "Category *:" with a dropdown menu set to "Select". The fourth field is labeled "Max Value *:" with a text input box containing "0.0000". Below these fields is a checkbox labeled "Is Active :" which is checked.

4. In the **Name** box, enter the name of the scoring criteria.
5. In the **Description** box, enter the description for the scoring criteria.
6. From the **Category** drop-down list, select the category to associate the criteria with.

Available options are categories defined in the **Category** library catalog and are marked active. For more information, see [Creating a Scoring Category](#).

7. In the **Max Value** box, enter the appropriate value to define the maximum score for the criteria.
8. Optionally, to mark the scoring criteria as inactive, clear the **Is Active** check box.
Inactive criteria are not available for selection during project scoring.
9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.7.4. Scoring Department

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Planning**, and then click **Scoring Department**.

The **SCORING DEPARTMENT** list page is displayed.

3. Click **New**.

The **SCORING DEPARTMENT** page is displayed.

Scoring Department Page

The screenshot shows a form titled "SCORING DEPARTMENT". At the top, there are three buttons: "Save & Exit", "Save & Continue", and "Cancel". Below the buttons, there are three input fields. The first field is labeled "Name *:" and contains a text input box. The second field is labeled "Description :" and contains a text input box with scroll bars. The third field is labeled "Weightage :" and contains a text input box.

4. In the **Name** box, enter the name of the department.
5. In the **Description** box, enter the description for the department.
6. In the **Weightage** field, enter the appropriate weightage percentage.
7. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.8. Project Management

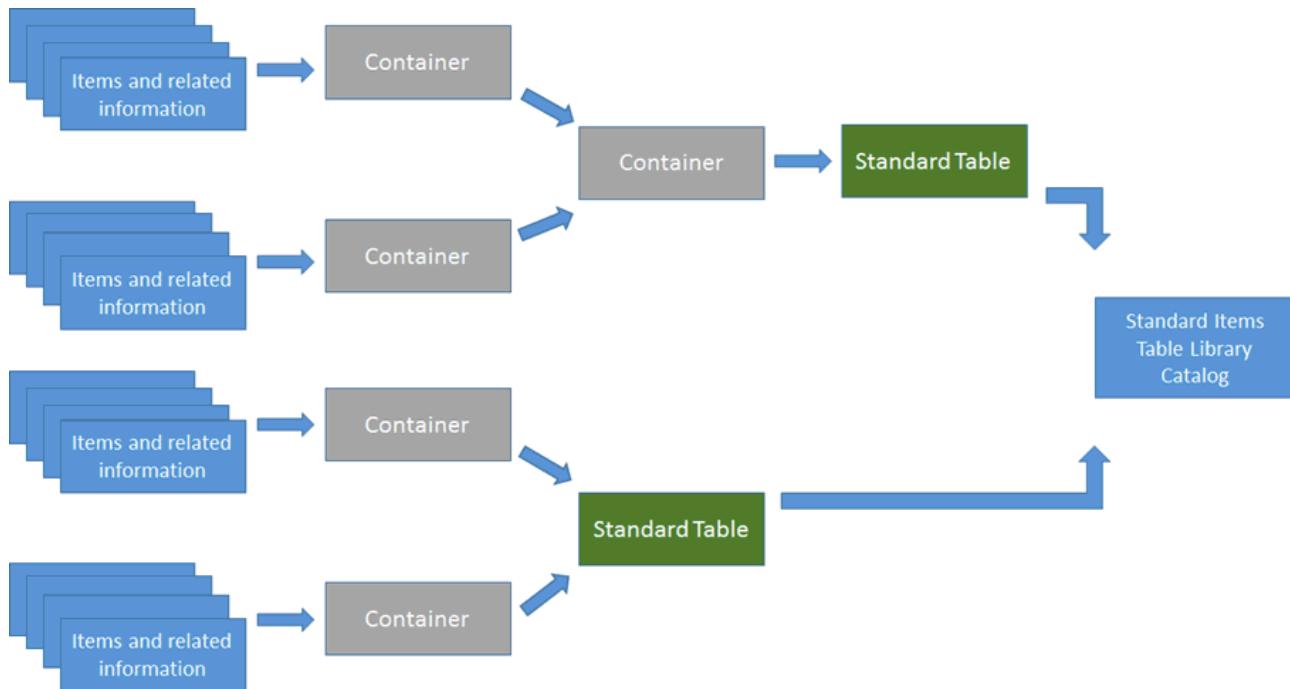
4.3.8.1. Standard Items Tables

4.3.8.1.1. Standard Items Tables

The **Standard Items Table** catalog is a collection of standard tables comprising commonly used items and their related information, such as their units of measure, estimated cost, and so on, grouped hierarchically into containers. In the **Standard Items Table** catalog, you can group items into containers. This enables you to easily categorize items into specific containers for easy access and classification of work. You can create multiple such standard items tables and store them in the library for use in multiple projects across the application.

The following image illustrates, at a high level, the hierarchy of tables, containers, and items in the catalog:

Standard Items Table Catalog



You can perform the following standard items table related activities:

- [Create a Standard Items Table.](#)
- [Configure Groups.](#)
- [Manage Containers.](#)
- [Add Item to a Standard Items Table.](#)
- [Upload Item Details in Bulk.](#)
- [Update Item Details in Bulk.](#)
- [Access Items of a Standard Items Table.](#)

4.3.8.1.2. Creating a Standard Items Table

A standard table is a collection of items and containers. For categorization of items, items can be saved into containers.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Project Management**, and then click **Standard Items Table**.

3. Click **New**.

The **NEW STANDARD TABLE** page is displayed.

New Standard Table Page

Table Name * :

Measurement System :

4. In the **Table Name** box, type a name for the table.

5. From the **Measurement System** drop-down list, select a measurement system.

Available options in the list are measurement systems defined in the **Measurement Systems** library catalog. For more information, see [Measurement Systems](#).

6. Click **Save**.

You can now add items to the table. For more information, see [Adding Items to a Standard Items Table](#).

4.3.8.1.3. Accessing Items of a Standard Items Table

You can access items and containers of a standard table to edit, view, or delete containers and items.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Project Management**, and then click **Standard Items Table**.

3. Select the appropriate standard items table.

4. Click **Standard Items**.

The **STANDARD ITEM LIST** page is displayed.

4.3.8.1.4. Managing Containers

You can create containers to categorize items. You can also delete an entire container to remove items of that container.

The following topics enable you to manage containers:

- [Create container](#).
- [Delete container](#).

4.3.8.1.4.1. Creating a Container

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Project Management**, and then click **Standard Items Table**.
3. Select the appropriate standard items table.
4. Click **Standard Items**.

The **STANDARD ITEM LIST** page is displayed.

5. Click **New**, and then click **New Container**.

The **CONTAINER** page is displayed.

Container Page

CONTAINER

Save & Exit Save & Continue Cancel

Name * :

Description :

Notes :

Parent Container : Root
 Default

6. In the **Name** box, enter the name of the container.
7. In the **Description** box, enter the description of the container.
8. In the **Notes** box, enter the notes for the container.
9. In the **Parent Container** list, click the container in which the current container must be created.

Note: For the first container, the only **Parent Container** option is **Root**.

10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The container is created.

4.3.8.1.4.2. Deleting a Container

On deleting a container, the items in the container are also deleted.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Project Management**, and then click **Standard Items Table**.
3. Select the appropriate standard items table.
4. Click **Standard Items**.

The **STANDARD ITEM LIST** page is displayed.

5. Select a container to delete.
6. Click **Delete**.

A confirmation message is displayed.

7. Click **OK**.

The container and the items in the container are deleted from the standard items table.

4.3.8.1.5. Configuring Groups

In addition to categorizing items in containers, you can categorize items based on groups. Groups enable an additional item grouping methodology. You can associate multiple items to multiple groups that are definable. For example, if containers are used for organizing sections of work, groups could be used to organize items based on payment modes.

You can [add groups](#), [edit details of a group](#), and [delete groups](#). You cannot delete a group if the group is associated with items.

4.3.8.1.5.1. Adding a Group

You can create a group and associate items to the group.

For information on associating a group to an item, see [Editing Item Details](#).

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Project Management**, and then click **Standard Items Table**.
3. Select the appropriate standard items table.
4. Click **Standard Items**.

The **STANDARD ITEM LIST** page is displayed.

5. Click **Groups**.

The **GROUPS** page is displayed.

Groups Page

The screenshot shows a software interface titled "GROUPS". At the top, there are "Save" and "Cancel" buttons. Below the title, the word "GROUPS" is centered. A table follows, with columns "Name" and "Description". One row contains "Default" in the Name column and "Default Group" in the Description column. At the bottom of the table are three buttons: "Add", "Edit" (which is highlighted in blue), and "Delete".

Name	Description
Default	Default Group

6. In the **Groups** section, click **Add**.

The **Group Details** section is displayed.

7. In the **Name** box, enter the name of the group.

8. In the **Description** box, enter the description of the group.

9. Click **Save**.

The group is added to the list of groups.

10. Click **Save** to save the changes.

4.3.8.1.5.2. *Editing the Details of a Group*

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Project Management**, and then click **Standard Items Table**.

3. Select the appropriate standard items table.

4. Click **Standard Items**.

The **STANDARD ITEM LIST** page is displayed.

5. Click **Groups**.

The **GROUPS** page is displayed.

6. In the **Groups** section, click the group to be edited.

The **Group Details** section is displayed.

7. In the **Name** box, enter the name of the group.

8. In the **Description** box, enter the description of the group.

9. Click **Update**.

The group details are updated.

10. Click **Save** to save the changes.

4.3.8.1.5.3. Deleting a Group

You can delete a group only if the group is not associated with any items.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Project Management**, and then click **Standard Items Table**.

3. Select the appropriate standard items table.

4. Click **Standard Items**.

The **STANDARD ITEM LIST** page is displayed.

5. Click **Groups**.

The **GROUPS** page is displayed.

6. In the **Groups** section, click the group to be deleted.

7. Click **Delete**.

A confirmation dialog box is displayed.

8. Click **OK**.

9. Click **Save** to save the changes.

4.3.8.1.6. Adding Items to a Standard Items Table

Items must be added to the standard table to complete the process of creating standard tables for use across the application.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Project Management**, and then click **Standard Items Table**.

3. Select the appropriate standard items table.

4. Click **Standard Items**.

The **STANDARD ITEM LIST** page is displayed.

5. To add a container, perform the following steps:
 - a. Click **New**, and then click **New Container**.
 - b. In the **Name** box, enter the name of the container.
 - c. In the **Description** box, enter the description of the container.
 - d. In the **Notes** box, enter the notes for the container.
 - e. From the **Parent Container** list, click the container in which the current container must be available.
 - f. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.
6. To add an item to a container, perform the following steps:
 - a. Click **New**, and then click **New**.
Alternatively, perform either of the following steps:
 - To add the item within a selected container, select the appropriate container, click **New**, and then click **New**.
 - To convert an existing item to a container and add the item to the container, select the appropriate item, click **New**, and then click **New**. In the confirmation box, click **OK**.
 - b. Provide the appropriate information in the fields, as described in the table.

Field	Description
Container	If you have selected a container, the name of the selected container is displayed. To select a different container to categorize items, perform the following steps: <ol style="list-style-type: none">i. Click .The SELECT CONTAINER page is displayed.ii. Click the appropriate container.
Pay Item No.	Enter the item number.
Description	Enter the description of the item. Item description is displayed automatically if you have selected the item from the library.

Field	Description
Unit	Select the unit of measure for the item. Available options in the list are measurement units defined for the measurement system selected for the standard items table. For more information, see Measurement Systems .
Group	Select the appropriate group for the item. For more information, see Creating Groups .
Accounting Code	Enter the code assigned to the item.
Component Count	<ol style="list-style-type: none">i. Click Components to define item components.ii. Click New to add an item component.iii. In the Name box, enter the name of the item component.iv. In the Description box, enter the description of the item component.v. Click Save.vi. Click Back.
Unit Price in \$	<p>Note: This field is not available if the selected Unit is a Lumpsum.</p> <p>Enter the cost per unit.</p>
Notes	Enter any additional information relevant to the item.
Lumpsum Item	<p>Note: This field is displayed only if the selected Unit is a Lumpsum.</p> <p>By default, the check box is selected and non-editable to indicate that the item is lumpsum.</p>

7. To add resources to the work item, in the **RESOURCES** section, perform following steps:
 - a. In the **Select Resource Type** drop-down list, select the appropriate resource to be added to the work item.
 - b. Click **Add From Library**.

The **Resource Picker** dialog box is displayed.

Available options are based on the resource type selected in the **Select Resource Type** drop-down list.

Available options are resources defined in the corresponding library catalog for the selected resource type. For example, if you have selected **Equipment** from the **Select Resource Type** drop-down list, then the available options are from the **Equipment** library catalog.

- c. Select the appropriate resources, and then click **Select**.

The selected resources are added to the table.

Resource information, such as **Resource ID**, **Title**, **Resource Category**, **Resource Type**, **Units**, **Fixed Price in \$**, and **Variable Price in \$/Unit** are displayed for the selected resources.

The following information is displayed:

Column	Description
Amount in \$	It is calculated as: $\text{Amount in \$} = (\text{No. of Resources}) * (\text{Fixed Price} + \text{Variable Price} * \text{Quantity in Units})$

The **Total Item Estimate in \$** value displays the sum of the **Amount in \$** of the item and the total of the **Amount in \$** column of the resources added to the work item.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. To save the item, perform any of the following as applicable:

- Click **Save & Exit** to return to the items list page.
- Click **Save & Continue** to save and continue on the same page.
- Click **Save & Create New** to save the current item and continue creating a new item.

4.3.8.1.7. Importing Item Details to Standard Items Tables in Bulk

You can perform the following tasks using a Microsoft Excel workbook:

- [Create multiple items simultaneously](#)

You can create multiple items in a standard items table by importing item information from a Microsoft Excel workbook to the standard items table.

- [Update details of multiple items in a standard items table simultaneously](#)

You can update details of multiple items in a standard items table simultaneously by importing item information from a Microsoft Excel workbook to the standard items table.

The template to upload item details to a standard items table or update information of multiple items in a standard items table is downloaded as a Microsoft Excel workbook from the application. The Excel template workbook is updated with the item information and is uploaded back to the form.

Note: The following pointers enable you to upload or update item information correctly:

- For lists and selection options, ensure the correct spelling of the option is entered
- For updating item information, ensure the InternalID refers correctly to the intended item
- You cannot delete items using an Excel workbook
- For Yes/No options, enter Yes or No in the relevant columns
- Calculated fields are not available in the template

4.3.8.1.7.1. Uploading Item Details in Bulk

The high-level process of uploading items in bulk is:

- [Export the template workbook](#).
- [Enter item information in the template workbook](#).
- [Import the updated workbook](#).

4.3.8.1.7.1.1. Export the Template Workbook

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Project Management**, and then click **Standard Items Table**.
3. Select the appropriate standard items table.

4. Click **Standard Items**.

The **STANDARD ITEM LIST** page is displayed.

5. To upload details of new items, click **Excel Import / Export**, and then click **Excel Template Export**.

The template is downloaded to your local storage.

4.3.8.1.7.1.2. Update Item Information

1. Open the template workbook.
2. Enter the appropriate details in the worksheet, as described in the following table.

Column	Description
Type	Mandatory field; information must be provided. Select the type of item being defined. <ul style="list-style-type: none">• To create a container, select Container.• To create an item, select Item.

Column	Description
Indent Level	<p>Mandatory field; information must be provided.</p> <p>Defines the line number of the parent container to group the current container or item into the parent container.</p> <p>Specify 0 for first level containers or items, 1 for second level containers or items, and so on.</p> <p>For example, consider two containers, CONT1 and CONT2. To define CONT2 under CONT1, if Indent Level for CONT1 is set to n then Indent Level of CONT2 must be set to n+1. Similarly for items, to define an item in CONT2, Indent Level of the item must be set to n+2.</p> <p>The hierarchy of containers and items in containers must be defined sequentially in the Excel worksheet. For example, to define an item ITEM3 in a container C3 that is at indent level 0, the item must be defined with indent level 1 after the row with details of container C3.</p> <p>The following image illustrates three containers C1, C2, and C3. Container C3 is within C2. Items ITEM1 is in C1, ITEM2 is in C2, and ITEM3 is in C3. Note the indent levels defined in the Microsoft Excel template.</p>

Items and Containers Illustrated in Excel Workbook

Internal ID	Type	Indent Level	Line No	Name	Item Description	Notes	Pay Item No	Unit Price in \$	Fund
1	Container	0	1	C1					
2	Item	1	1	DESC-ITEM1	NOTES-ITEM1	ITEM1		10	
4	Container	0	2	C2					
5	Container	1	3	C3					
6	Item	2	3	DESC-ITEM3	NOTES-ITEM3	ITEM3		30	
7	Item	1	2	DESC-ITEM2	NOTES-ITEM2	ITEM2		20	

The following image illustrates the items and containers imported to Masterworks using the Excel workbook containing information as illustrated in the previous image:

Items and Containers Import List

BUDGET ESTIMATE DETAILS		BUDGET ESTIMATE ITEMS						
	New	Save	Excel Import / Export	Flat List	Reorder	Add WPs	Refresh Line Number	More
<input type="checkbox"/>		Name	Line Number	Description	Accounting Code	Unit	Quantity	Unit Price in \$
<input type="checkbox"/>		C1						
<input type="checkbox"/>		ITEM1	2	DESC-ITEM1		AC	10.0000	10.000 -NA-
<input type="checkbox"/>		C2						
<input type="checkbox"/>		ITEM2	3	DESC-ITEM2		AC	10.0000	20.000 -NA-

Column	Description
Name	Enter the name of the container or item. That is, if Type is selected as Container , then in the Name column, enter the name of the container.
Description	Enter the description of the container or item.
Notes	Enter the notes for the container or item.
Pay Item No	Mandatory field; information must be provided. Enter the pay item number that uniquely identifies the item.
Accounting Code	Enter the accounting code for the item.
Group	Enter the group name for the item. The group name entered here must match the group name defined in the application. For information on the groups defined, see Creating Groups .
Unit	Mandatory field; information must be provided. Enter the acronym of the unit of measure for the item. The unit of measure entered here must match the unit of measure defined in the Measurement Systems library catalog. For more information, see Measurement Systems .
Unit Price in \$	Mandatory field; information must be provided. Note: Do not enter any value if the Unit is a Lumpsum . Enter the cost of each of the items.

3. Save the workbook.

4.3.8.1.7.1.3. Import Updated Workbook

You can import the workbook with item details to the Standard Items Table.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Project Management**, and then click **Standard Items Table**.
3. Select the appropriate standard items table.
4. Click **Standard Items**.

The **STANDARD ITEM LIST** page is displayed.

5. To upload details of items, click **Excel Import / Export**, and then click **Excel Import**.

The **IMPORT DETAILS FROM EXCEL FILE** page is displayed.

6. Click **Browse** to select the workbook with work item information.

The **Choose File to Upload** dialog box is displayed.

7. Select the appropriate workbook, and click **Open**.

8. Click **Upload**.

The contents of the Excel template is displayed.

9. On encountering issues while importing an Excel workbook, perform the following steps:

- a. In the toolbar, click **Error Log**.

The error log workbook is downloaded to your local storage.

- b. Open the workbook to view the errors in the various columns.

Error messages in the cells are highlighted in red. Tabs in the workbook are also highlighted to indicate presence of errors.

- c. Open the Excel workbook with item information and make relevant corrections.

Optionally, you can make relevant corrections in the error log workbook and upload it.

- d. Save the Excel workbook.

- e. Repeat steps 6 to 8.

10. Click **Save**.

The item details are saved.

Note: Items and containers can be grouped differently using the Reorder feature available in the toolbar. Drag and drop an item or container into another container to regroup the containers and items differently.

4.3.8.1.7.2. Updating Item Details in Bulk

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Project Management**, and then click **Standard Items Table**.

3. Click **Standard Items**.

The **STANDARD ITEM LIST** page is displayed.

4. To export the item details to an Excel workbook, click **Excel Import / Export** and then click **Excel Template With Data**.

The Excel workbook template with item details is downloaded to the local storage.

5. To update existing information, perform the following steps:

- a. Open the saved Excel workbook.

The first column named **InternalID** displays the unique identification code for the items.

- b. Update item details in the various columns, and delete the records that need not be updated.

Note: Deleting an item from the Excel workbook does not delete the item in the standard items table.

- c. Save the updated Excel workbook.

Note: To create new items with details, in the same Excel workbook, do not enter information in the **InternalID** column, and enter all other appropriate and mandatory columns.

6. In the list page, click **Excel Import/Export**, and then click **Excel Import**.

The **IMPORT DETAILS FROM EXCEL FILE** page is displayed.

7. Click **Browse** to select the workbook with updated item information.

The **Choose File to Upload** dialog box is displayed.

8. Select the appropriate workbook, and then click **Open**.

9. Click **Upload** to import item information from the Excel workbook to the standard items table.

10. On encountering errors while importing an Excel workbook, perform the following steps:

- a. In the toolbar, click **Error Log**.

The error log workbook is downloaded to your local storage.

- b. Open the error log workbook to view the errors in the various columns.

Error messages in the cells are highlighted in red. Tabs in the workbook are also highlighted to indicate the presence of errors.

- c. Open the Excel workbook and modify the details as specified in the error log workbook.

Optionally, you can make relevant corrections in the error log workbook and upload it.

- d. Save and upload the Excel workbook to import the updated information.

11. Click **Save**.

The items in the Excel workbook are uploaded to the standard items table.

4.3.8.2. Calendar

The **Calendar** library catalog enables you to define the working days of the organization. You can also define non-working days and holidays for the organization in a calendar.

During project or contract creation when a calendar is selected, the number of working days of the project or contract is calculated based on the calendar selected.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Project Management**, and then click **Calendar**.

3. Click **New**.

The **CALENDAR** page is displayed.

Calendar Page

The screenshot shows the 'CALENDAR' configuration page. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these are several input fields and checkboxes:

- Name ***: A text input field.
- Description**: A text area with scroll bars.
- Is Active**: A checkbox that is currently checked.
- Is Resource Calender**: An unchecked checkbox.
- Non-Working Days**: A section with checkboxes for days of the week:
 - Saturday: checked
 - Sunday: checked
 - Monday: unchecked
 - Tuesday: unchecked
 - Wednesday: unchecked
 - Thursday: unchecked
 - Friday: unchecked
- EXCEPTIONS**: A table with four columns: Date, Type, Notes, and Recurring Annually. The table has one row with the message "No records to display."

4. In the **Name** box, enter a name for the calendar.
5. In the **Description** box, enter a description for the calendar.
6. To make the calendar unavailable for selection in projects or contracts, clear the **Is Active** check box.
7. From the **Non-Working Days** check box options, select the non-working days in a week.

8. To define exceptions to the calendar, that is, to change a specific non-working day to a working day or contrariwise, in the **EXCEPTIONS** section, perform the following steps:

- a. Click **Add**.

The **New Exceptions** dialog box is displayed.

- b. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Date	Select the date to define an exception.
Type	Select the appropriate option. <ul style="list-style-type: none">• If the selected option is Working Day, the date is considered when calculating the number of working days in projects.• If the selected option is Non Working Day, the date is not considered when calculating the number of working days in projects. For example, in the Non-Working Days field, if Saturday is selected as a non-working day, and if a particular Saturday needs to be a working day, the exception can be defined here, and the Saturday is considered when calculating the number of working days in the project.
Notes	Enter any appropriate notes for the exception.
Recurring Annually	Select the check box to consider the exception across years when calculating the number of working days in a project.

- c. Click **Save**.

9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

You can mark a calendar as a **Resource Calendar** that is used to calculate a resource's availability at an organization level. The defined resource calendar is used in the **Resource Utilization Report**. The Resource Utilization Report provides an overview of the average utilization of all resources allocated to all tasks in all projects and displays resource over-utilization, if any. For more information, see [Resource Utilization Report](#).

10. To mark a calendar as the **Resource Calendar**, perform the following steps:

- a. In the **CALENDAR** list page, select the appropriate calendar.
- b. Click **Mark as Resource Calendar**.

4.3.8.3. Measurement Systems

In Masterworks, every project and contract is associated with a measurement unit to quantify the items. Using the **Measurement Systems** library catalog, you can define the appropriate measurement units for a measurement system.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Project Management**, and then click **Measurement Systems**.

The **MEASUREMENT SYSTEMS** list page is displayed.

3. Click **New**.

The **MEASUREMENT SYSTEMS** page is displayed.

Measurement Systems Page

The screenshot shows the 'MEASUREMENT SYSTEMS' page. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these are two input fields: 'System name *:' and 'Description *:', both with placeholder text boxes. Under the heading 'MEASUREMENT UNITS', there is a table with columns 'Unit', 'Description', and 'Type'. A message 'No records to display.' is shown above the table. At the bottom of the page are three buttons: 'Add', 'Edit', and 'Delete'.

Unit	Description	Type
No records to display.		

4. In the **System Name** box, enter the name for the measurement system.
5. In the **Description** box, enter the description for the new measurement system.

6. To associate a unit with the measurement system, in the **MEASUREMENT UNITS** section, perform the following steps:

- Click **Add**.

The **New Measurements Units** dialog box is displayed.

New Measurements Units Dialog Box

The dialog box is titled "New Measurement Units". It contains three input fields: "Unit *:" with a required asterisk, "Description :" with a colon, and "Type :" with a dropdown arrow. Below the fields are two buttons: "Save" and "Cancel".

- In the **Unit** box, enter the name of the unit.
- In the **Description** box, enter a description for the measurement unit.
- To mark the unit as lumpsum, from the **Type** drop-down list, select **Lumpsum**.

Note: The functionality associated with the lumpsum items is available only for **Budget Management** module.

- Click **Save**.

The unit is added to the **MEASUREMENT UNITS** section.

7. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.8.4. MS Project Fields

For bulk export of information from the **SCHEDULE** page to an MSP file, or bulk import from an MSP file to the **SCHEDULE** page, you need to map fields in MS Project files to fields in the **SCHEDULE** page. These fields should be defined in the **MS Project Fields** library catalog.

- In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

- In the navigation pane, expand **Project Management**, and then click **MS Project Fields**.

3. Click **New**.

The **MS PROJECT FIELDS** page is displayed.

MS Project Fields Page

The screenshot shows the 'MS PROJECT FIELDS' page with the following fields:

- MS Project Field Name ***: A text input field with a question mark icon.
- Is Active :** A checked checkbox.
- Field Type *:** A dropdown menu.
- Is Custom Field :** An unchecked checkbox.

At the top, there are three buttons: **Save & Exit**, **Save & Continue**, and **Cancel**.

4. In the **MS Project Field Name** box, enter the name of the MS Project custom field.
5. Ensure the **Is Active** check box is selected. Optionally, clear the check box to mark this MS Project field as inactive.
6. From the **Field Type** drop-down list, select the data type of the custom field.
7. Select the **Is Custom Field** check-box to mark the field as a custom field.
8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.8.5. Schedule MS Project Mapping Template

The **Schedule MS Project Mapping Template** form enables you to map fields in the Masterworks **SCHEDULE** page to the fields in an Microsoft Project file.

To map custom fields in MS Project files to fields in the **SCHEDULE** page, the custom fields should be defined in the **MS Project Fields** library catalog. For more information, see [MS Project Fields](#).

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Project Management**, and then click **Schedule MS Project Mapping Template**.

3. Click **New**.

The **SCHEDULE MS PROJECT MAPPING TEMPLATE** page is displayed.

Schedule MS Project Mapping Template Page

MasterWorks Field Name	MS Project Field Name
Task Name	Task Name
Duration	Duration
Scheduled Start	Start
Scheduled Finish	Finish
Predecessor	Predecessors

4. In the **Template Name** box, enter the name of the template.

The **Fixed Fields Mapping** section displays fields that are mapped by default, and these are non-editable.

5. Ensure the **Is Active** check box is selected. Optionally, clear the check box to make the template unavailable.

6. To map task fields, in the **TASK FIELD MAPPINGS** section, perform the following steps:

- a. Click **Add**.

The **New Task Field Mappings** dialog box is displayed.

- b. From the **MasterWorks Field Name** drop-down list, select a field from the **SCHEDULE** page to map to the MS Project field.

Available options are task fields available in the **SCHEDULE** page.

- c. From the **MS Project Field Name** drop-down list, select the appropriate field from the MS Project file to map the to the selected task field.

Available options are active fields defined in the **MS Project Fields** library catalog.

Note: To map fields, custom fields defined in any MS Project file that needs to be imported to the **SCHEDULE** page must be defined in the **MS Project Fields** library catalog.

- d. Click **Save**.

7. To map resource fields, in the **RESOURCE FIELD MAPPINGS** section, perform the following steps:

- a. Click **Add**.

The **New Resource Field Mappings** dialog box is displayed.

- b. From the **MasterWorks Field Name** drop-down list, select a field from the **SCHEDULE** page to map to the MS Project field.

Available options are resource fields available in the **SCHEDULE** page.

- c. From the **MS Project Field Name** drop-down list, select the appropriate field from the MS Project file to map the to the selected resource field.

Available options are fields defined in the **MS Project Fields** library catalog.

Note: To map fields, custom fields defined in any MS Project file that needs to be imported to the **SCHEDULE** page must be defined in the **MS Project Fields** library catalog.

- d. Click **Save**.

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

Using this mapping template, you can now import the Microsoft Project file to upload or update the task details in the **SCHEDULE** page of a project. For more information, see [Importing Task Details in Bulk Using Microsoft Project](#) on page 479.

4.3.8.6. Schedule Template

The **Schedule Template** is a repository of project tasks in a hierarchical structure. You can add new tasks and group them hierarchically. You can create multiple schedule templates to add to any project by importing a template from this library catalog.

Also, using the **Excel Import/Export** feature, you can bulk import the schedule templates into Masterworks. For more information, see [Using Excel Import and Export](#) on page 80.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Project Management**, and then click **Schedule Template**.

The **SCHEDULE TEMPLATE** list page is displayed.

3. Click **New**.

The **SCHEDULE TEMPLATE** page is displayed.

Schedule Template

The screenshot shows a dialog box titled "SCHEDULE TEMPLATE". At the top, there are three buttons: "Save & Exit" (with a disk icon), "Save & Continue" (with a circular arrow icon), and "Cancel" (with a crossed-out circle icon). Below the buttons, there is a field labeled "Schedule Template Name *:" followed by a text input box. Underneath that, there is a field labeled "Description :" followed by a multi-line text area with scroll bars on the right side.

4. In the **Schedule Template Name** field, enter the name of the schedule template.
5. In the **Description** field, enter the description for the schedule template.
6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The new template is displayed on the **SCHEDULE TEMPLATE** list page.

7. To add tasks to the schedule template, perform the following steps:

- a. In the list page, select the appropriate schedule template.
- b. Click **Tasks**.
- c. Click **Add Task**.

A new task is added to the task list.

- d. Click **Save**.
- e. Select the newly created task.
- f. In the **SCHEDULE** page, enter information in each of the columns as described in the following table:

Note: The entered details are automatically saved.

Column	Action
Task Name	Double-click and enter the task name.
Duration	Double-click and enter the task duration in days.
Predecessor	Double-click and enter the IDs of the task predecessors.

8. To manage tasks, perform the following steps as applicable:

- To add tasks at a particular hierarchical level, perform the following steps:
 - a. Click the appropriate task.
 - b. Click **Add / Remove Tasks** and then click **Add Sibling Below**.
A task is added at the same level as the selected task.
- To add sub-tasks to the tasks, perform the following steps:
 - a. Click the appropriate task.
 - b. Click **Add / Remove Tasks** and then click **Add Child Task**.
A task is added at the subsequent sub-level as the selected task.
- To move a task through the task list sequence, perform the following steps:
 - a. Click the appropriate task.
 - b. Click **Move Tasks** and then perform the following steps as applicable:
 - To move a task up in the list, click **Move Task Up**.
The selected task is moved one level up in the task sequence.
 - To move the task down in the list, click **Move Task Down**.
The selected task is moved one level down in the task sequence.
- To change the hierarchical level of the tasks that are already added to the schedule, perform the following steps:
 - a. Click the appropriate task.
 - b. Click **Indent/Outdent Tasks** and then perform the following steps as applicable:
 - To lower the hierarchical level of the task, click **Indent Task**.
The selected task is set as the subsequent sub-level task.
 - To increase the hierarchical level of the task, click **Outdent Task**.
The selected task is set to the previous task level.
- To remove tasks from the schedule, perform the following steps:
 - a. Click the appropriate task.
To select multiple tasks, press and hold CTRL and then click the appropriate tasks.
 - b. Click **Add / Remove Tasks** and then click **Remove Task**.
The selected task is removed from the schedule.
- To copy and paste the existing tasks, perform the following steps:
 - a. Select the appropriate tasks that you want to copy.
 - b. From the **Action** drop-down list, click **Copy**.

Note: The **Copy** option is enabled only on the selection of single or multiple tasks.

c. Place the cursor at which level you want to paste the copied tasks.

d. From the **Action** drop-down list, click **Paste**.

New tasks are added to the task list.

Note:

- The **Paste** option is enabled only when tasks are copied. It is available for multiple paste actions from a single copy.
- You can copy once and paste multiple times until the session is online.
- If you navigate outside the **SCHEDULE** page, then the **Paste** option is unavailable.

9. Click **Save**.

4.3.9. Resource Management

4.3.9.1. Enterprise Resource Directory

The **Enterprise Resource Directory** catalog contains a list of resources available to be allocated to projects. This library is intended to be an enterprise HR directory. It acts as a database of all people employed within the organization. The **Enterprise Resource Directory** catalog contains information of people associated with the organization.

You can record information, such as the Resource Type, Resource Department, Reporting Manager, and contact information of associated resources. You can also record information, such as a resource's skill set, resource titles, working day exceptions.

Note: People maintained in the **Enterprise Resource Directory** catalog need not have a Masterworks user account. If they do have a Masterworks user account, you can associate them to their user name on this form.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Resource Management**, and then click **Enterprise Resource Directory**.

3. Click New.

The **ENTERPRISE RESOURCE DIRECTORY** page is displayed.

Enterprise Resource Directory Page

The screenshot shows the 'ENTERPRISE RESOURCE DIRECTORY' page. At the top, there are buttons for 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these are two required fields: 'Resource ID *' and 'Full Name *'. A navigation bar at the bottom includes 'DETAILS' (which is selected), 'SKILL SET & ROLES', and 'WORKING DAY EXCEPTIONS'. The main section is divided into three columns: 'ENTERPRISE' (with fields for Resource Type, Working Hours per Day, Reporting Manager, User Name, Business Unit, and Department), 'ADDRESS' (with fields for Address Line 1, 2, and 3, City, and State), and 'CONTACT' (with fields for Phone Number, Fax Number, and Email ID).

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Resource ID	Enter a unique identification code for the resource.
Full Name	Enter the full name of the resource.

5. In the **DETAILS** tab, perform the following steps to add organization level information and contact details of the resource:
 - a. In the **ENTERPRISE** section, perform the following steps to add organization level information:
 - i. From the **Resource Type** drop-down list, select the appropriate type of resource based on the tasks the resource performs.
Available options are resource types defined in the **Resource Types** library catalog.
 - ii. In the **Working Hours per Day** box, enter the number of hours in a day the resource can work.
 - iii. To select the reporting manager for the resource, perform the following steps:
 - a) Corresponding to the **Reporting Manager** box, click .
 - The **User Details** dialog box is displayed.
Available options are user accounts defined in the application.
 - b) Click the appropriate user account, and then click **Select**.
 - c) Optionally, click **Clear** adjacent to the **Reporting Manager** box to clear the selected reporting manager.
 - iv. Optionally, to associate a user account to the resource, perform the following steps:
 - a) Corresponding to the **User Name** box, click .
 - The **User Details** dialog box is displayed.
Available options are user accounts defined in the application.
 - b) Click the appropriate user account, and then click **Select**.
Based on the user account selected, the following fields in the **ADDRESS** and **CONTACT** sections are displayed as read-only values:
 - Address Line 1
 - Address Line 2
 - Address Line 3
 - City
 - State
 - Zip Code
 - Phone Number
 - Fax Number
 - Email ID

Note: You can edit the email address.

- c) Optionally, click **Clear** adjacent to the **User Name** box to clear the selected user name.
 - v. From the **Department** drop-down list, select the department to associate to the resource.
Available options are departments defined in the **Resource Department** library catalog and are marked as active. For information on resource departments, see [Resource Departments](#).
6. If a selection is not made in the **User Name** field, then provide the appropriate information in the fields, as described in the following table.

Section	Field	Description
ADDRESS	Address Line 1, Address Line 2, Address Line 3	Enter the address of the resource.
	City	Enter the city of residence of the resource.
	State	Enter the state name of residence of the resource.
	Zip Code	Enter the zip code of residence of the resource.
CONTACT	Phone Number	Enter the phone number of the resource.
	Fax Number	Enter the fax number of the resource.
	Email ID	Enter the email address of the resource.

7. To add details of the skills possessed by the resource, perform the following steps:

- a. Click the **SKILL SET & ROLES** tab.

On assigning titles to the resource, the **RESOURCE TITLE(S)** section displays the list of titles the resource is assigned. For information on assigning a resource to titles, see [Resource Titles](#).

- b. In the **SKILL SET** section, click **Add**.

The **New Skill Set** dialog box is displayed.

- c. To add a skill, perform the following steps:

- i. Corresponding to the **Skill** box, click .

The **Skill** dialog box is displayed.

Available options are skills defined in the **Skills** library catalog.

- ii. Click the appropriate skill, and then click **Select**.

The **Description** box displays the description of the selected skill.

- iii. Corresponding to the **Skill** box, click .

The **Skill** dialog box is displayed.

Available options are skills defined in the **Skills** library catalog.

- iv. Click the appropriate skill, and then click **Select**.

The **Description** box displays the description of the selected skill.

- d. In the **Experience** box, enter the skill experience details of the resource.

- e. To add the skill level of the resource, perform the following steps:

- i. Corresponding to the **Level** box, click .

The **Skill Level** dialog box is displayed.

Available options are skill levels defined in the **Skills Level** library catalog.

- ii. Click the appropriate skill level, and then click **Select**.

- f. In the **New Skill Set** dialog box, click **Save**.

8. To add details of non-working days, holidays, and exceptions of the resource, perform the following steps:
 - a. Click the **WORKING DAY EXCEPTIONS** tab.
 - b. Adjacent to the **Non-Working Days** field, select the appropriate check boxes to mark the respective days as non-working days.

Note: Saturday and Sunday are marked as non-working days by default.

- c. In the **EXCEPTIONS** section, click **Add**.
The **New Exceptions** dialog box is displayed.
- d. From **From Date** and **To Date** drop-down lists, select the date range during which you want to add exceptions.

Note: Same date cannot be added more than once as an exception.

- e. From the **Type** drop-down list, select the appropriate exception type. It can be either working day or non-working day.
- f. In the **Notes** box, enter appropriate notes for the exception.
- g. Click **Save**.

Note: The following working exceptions are considered while calculating the utilization or availability of the resource:

- The number of working days exclude any days set as Non-Working Day for the selected resource even if they fall on the same date which is a working day according the Project calendar.
- The number of working days includes days set as Working Days even if they fall on the same date as weekends or holidays according to the Project calendar.
- If an allocation is made such that a user-defined working day exception falls within the duration of the allocation, a warning message is displayed.

9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.9.2. Resource Departments

The Resource Departments catalog contains a list of departments that you can associate to various resources. You can create a hierarchy of departments and mark active/inactive

status. In the Enterprise Resource Directory, you can associate resource departments to resources.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Resource Management**, and then click **Resource Departments**.

The **RESOURCE DEPARTMENTS** list page is displayed.

3. Click **New**.

The **RESOURCE DEPARTMENTS** page is displayed.

Resource Departments Page

The screenshot shows a form titled "RESOURCE DEPARTMENTS". At the top, there are three buttons: "Save & Exit", "Save & Continue", and "Cancel". Below the buttons, the "Resource Department" field is labeled with a red asterisk, indicating it is required. The "Is Root?" section contains two radio buttons: "Yes" (selected) and "No". The "Description" field is a text area with scroll bars. The "Is Active" field is a checked checkbox.

RESOURCE DEPARTMENTS	
<input type="button" value="Save & Exit"/>	<input type="button" value="Save & Continue"/>
<input type="button" value="Cancel"/>	
Resource Department * : <input type="text"/>	
Is Root? : <input checked="" type="radio"/> Yes <input type="radio"/> No	
Description : <input type="text"/>	
Is Active : <input checked="" type="checkbox"/>	

4. In the **Resource Department** box, enter the name of the department.

5. From the **Is Root?** options, click either of the following options:

- Click **Yes** to set the department as a high-level option in the resource department hierarchy.
 - Click **No** to set the department a sub-level option to a high-level department in the resource department hierarchy.
- If the selected option is **No**, then from the **Parent Resource Department** drop-down list, select the high-level department in the resource department hierarchy. Available parent resource departments are high-level departments that are marked as active.
6. In the **Description** box, enter the description of the department.
 7. Ensure the **Is Active** check box is selected. Optionally, clear the check box to create the resource department but disable the availability during enterprise resource creation.

Also, the department is not available to create a sub-level department.

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.9.3. Resource Titles

The **Resource Titles** catalog contains a list of titles of job functions needed on projects. This catalog enables you to record information, such as the Resource Title, Resource Type, Unit of time measurement (day, month, year, or hour), prices associated to resource, and working hours per day.

If a resource is identified in the **Enterprise Resource Directory**, you can associate the resource to this title on the form.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Resource Management**, and then click **Resource Titles**.
3. Click **New**.

The **RESOURCE TITLES** page is displayed.

Resource Titles Page

The screenshot shows the 'RESOURCE TITLES' page. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these are several input fields:

- Title ID :** <Auto Generated>
- Title *:** [Input field]
- Resource Type *:** [Dropdown menu set to 'None']
- Unit *:** [Input field with a '...' button]
- Fixed Price in \$:** [Input field] 0.00
- Direct Price in \$/Unit :** [Input field] 0.00
- Indirect Price in \$/Unit :** [Input field] 0.00
- Total Variable Price in \$/Unit :** [Input field] 0.00
- Working Hours per Day :** [Input field] 8.00

Below these fields is a section titled 'CURRENT RESOURCES HAVING TITLE' containing a table:

<input type="checkbox"/>	Resource ID	Full Name	Phone Number	Email ID	Fixed Price in \$	Direct Price in \$/Unit	Indirect Price in \$/Unit	Total Variable Price in \$/Unit	Working Hours per Day
No records to display.									

On saving the form, the **Title ID** field displays the auto-generated unique resource identification code for the title.

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Title	Enter title for the job role.
Resource Type	Select the resource type for the title.
Unit	To select the unit of measure to specify the price of the title, perform the following steps: <ol style="list-style-type: none">a. Click . The Unit dialog box is displayed. Available options are measurement systems and associated units of measure defined in the Measurement Systems library catalog. <p>Note: Only three measurement units: Hour, Day, Month are allowed for Resource Management.</p> <ol style="list-style-type: none">b. Click the appropriate unit of measure, and then click Select.
Fixed Price in \$	Enter the fixed price for the title.
Direct Price in \$/Unit	Enter the direct component of the variable price for the title.
Indirect Price in \$/Unit	Enter the indirect component of the variable price for the title. The Total Variable Price in \$/Unit displays the sum of the Direct Price and Indirect Price for the title. <p>Note: The Fixed Price in \$, Direct Price in \$/Unit, and Indirect Price in \$/Unit defined here are for each resource associated to the title in the Current resources having title section. However, you can update these baseline prices for each resource.</p>
No. of Working Hours per Day	Enter the number of working hours for the title.

The **Total Variable Price in \$/Unit** field displays the sum of the **Direct Price in \$/Unit** and **Indirect Price in \$/Unit** values for the resource.

5. To add people to the title, in the **CURRENT RESOURCES HAVING TITLE** section, perform the following steps:

- a. Click **Add**.

The **Select Resource** dialog box is displayed.

Available options are records of people defined in the **Enterprise Resource Directory** library catalog.

- b. Select the appropriate records, and then click **Select**.

The selected users are added to the table.

The **Resource ID**, **Full Name**, **Phone Number**, **Email ID**, and **Working Hours per Day** information is displayed as defined in the **Enterprise Resource Directory** library catalog for the selected users.

The **Fixed Price in \$**, **Direct Price in \$/Unit**, and **Indirect Price in \$/Unit** displayed for each resource are from the **Fixed Price in \$**, **Direct Price in \$/Unit**, and **Indirect Price in \$/Unit** specified for the title. You can update these baseline prices for each resource.

- c. To modify fixed and variable prices, in the **Fixed Price in \$**, **Direct Price in \$/Unit**, and **Indirect Price in \$/Unit** columns, enter the fixed price, and variable price for the resource.

The **Total Variable Price in \$/Unit** column displays the sum of the **Direct Price in \$/Unit** and **Indirect Price in \$/Unit** values for the resource.

6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.10. Risks and Issues

4.3.10.1. Color Grade

You can define colors using the RGB color model.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Risks & Issues**, and then click **Color Grade**.

3. Click **New**.

The **COLOR GRADE** page is displayed.

Color Grade Page

The screenshot shows a form titled "COLOR GRADE". At the top, there are three buttons: "Save & Exit" (with a house icon), "Save & Continue" (with a disk icon), and "Cancel" (with a cancel icon). Below the buttons, there are four input fields labeled "Color *:", "R *:", "G *:", and "B *:". Each label is followed by a text input box.

Label	Input Box
Color *:	<input type="text"/>
R *:	<input type="text"/>
G *:	<input type="text"/>
B *:	<input type="text"/>

- 4.** In the **Color** box, enter a name for the color.
- 5.** In the **R**, **G**, and **B** boxes, enter the color component values in the range from 0 to 255 to define the appropriate color.
- 6.** Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.10.2. Risk Grade

You can associate a color to a range of risk scores, and risks with scores in the ranges defined are highlighted in the color specified in risk register related dashboards and reports.

The risk score value is calculated as the product of the probability rating and the severity rating of a risk. For defining probability ratings and the severity ratings, see [Risk Probability](#), and [Risk Severity](#).

- 1.** In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

- 2.** In the navigation pane, expand **Risks & Issues**, and then click **Risk Grade**.

3. Click **New**.

The **RISK GRADE** page is displayed.

Risk Grade Page

The screenshot shows a form titled "RISK GRADE". At the top, there are three buttons: "Save & Exit", "Save & Continue", and "Cancel". Below these buttons are three input fields. The first field is labeled "Risk Color *:" with a dropdown menu open, showing "Select One" as the current selection. The second field is labeled "Min Risk Score *:" with an empty input box. The third field is labeled "Max Risk Score *:" with an empty input box.

4. From the **Risk Color** drop-down list, select a color to associate with the risk score range.

Available colors are colors defined in the **Color Grade** library catalog. For information on defining color grades, see [Color Grade](#).

- 5.** In the **Min Risk Score** box, enter the minimum risk score.
- 6.** In the **Max Risk Score** box, enter the maximum risk score.
- 7.** Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.10.3. Risk Probability

You can assign risk probability options to numerical values in the range from 1 to 5 to calculate the risk score. The risk score is calculated as the product of the risk probability and the [risk severity](#) values.

- 1.** In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

- 2.** In the navigation pane, expand **Risks & Issues**, and then click **Risk Probability**.

3. Click **New**.

The **RISK PROBABILITY** page is displayed.

Risk Probability Page

The screenshot shows a form titled "RISK PROBABILITY". At the top, there are three buttons: "Save & Exit", "Save & Continue", and "Cancel". Below these buttons are two input fields. The first field is labeled "Risk Probability *:" and contains a text input box. The second field is labeled "Probability Rating *:" and contains a dropdown menu with the number "1" selected.

4. In the **Risk Probability** box, enter a name for the risk probability.
5. From the **Probability Rating** drop-down list, select a number to associate with the risk probability.
6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.10.4. Risk Severity

You can assign risk severity options to numerical values in the range from 1 to 5 to calculate the risk score. The risk score is calculated as the product of the [risk probability](#) and the risk severity values.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Risks & Issues**, and then click **Risk Severity**.
3. Click **New**.

The **RISK SEVERITY** page is displayed.

Risk Severity Page

The screenshot shows a form titled "RISK SEVERITY". At the top, there are three buttons: "Save & Exit", "Save & Continue", and "Cancel". Below these buttons are two input fields. The first field is labeled "Risk Severity *:" and contains a text input box. The second field is labeled "Severity Rating *:" and contains a dropdown menu with the number "1" selected.

4. In the **Risk Severity** box, enter a name for the risk severity.

5. From the **Severity Rating** drop-down list, select a number to associate with the risk severity.
6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.11. Submittal Response

You can create a submittal response and set it to work in either of the following ways in a submittal form:

- Create a copy of the submittal for revision.
- Close the submittal.

For information on the submittal form, see [Submittals](#).

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Contract Management**, and then click **Submittal Response**.
3. Click **New**.

The **SUBMITTAL RESPONSE** page is displayed.

Submittal Response Page

The screenshot shows a software interface titled "SUBMITTAL RESPONSE". At the top, there are three buttons: "Save & Exit" (with a disk icon), "Save & Continue" (with a disk and arrow icon), and "Cancel" (with a cancel icon). Below these buttons is a field labeled "Submittal Response *:" followed by a text input box. Underneath this is another field labeled "Revision Required? :" followed by a checkbox. The entire interface has a light gray background with dark gray header and button bars.

4. In the **Submittal Response** box, enter submittal response.
5. To create a revision of a submittal, select the **Revision Required** check box.
6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.12. Vendor Management

4.3.12.1. Configuring Library Information

The Library module in Masterworks enables you to create vendor details and define vendor evaluation criteria to evaluate a vendor at the project and enterprise level.

Based on the type of work done by the vendors, you can classify them under category and sub-category. Additionally, you can define evaluation measures, such as the work size, evaluation category and criteria, review stages, and statement of qualification to evaluate a vendor's performance.

The high-level sequence of tasks are as follows:

1. [Define Vendor Category](#).
2. [Define Vendor Sub-Category](#).
3. [Define Vendor's Work Size](#).
4. [Define Vendor Evaluation Category for Project](#).
5. [Define Vendor Evaluation Criteria for Project](#).
6. [Define Vendor Scoring Category for Enterprise](#).
7. [Define Vendor Scoring Criteria for Enterprise](#).
8. [Configure Statement of Qualification](#).
9. [Create Vendor Details](#).
10. [Define Review Stages](#).
11. [Define Review Stages for Vendor Category](#).
12. [Create Contact Details](#).

4.3.12.2. Vendor Category

Based on the type of work done by a vendor, you can define categories to classify vendors.

1. In the module menu, click **Library**.
The **LIBRARY MANAGEMENT** page is displayed.
2. In the navigation pane, expand **Vendor Management** folder, and then click **Vendor Category**.
The **VENDOR CATEGORY** list page is displayed.

3. Click **New**.

The **VENDOR CATEGORY** page is displayed.

Vendor Category Page

The screenshot shows the 'VENDOR CATEGORY' page with the following fields:

- Vendor Category ***: A text input field.
- Description** : A text area with scroll bars.
- Is Active** : A checkbox with a checked mark.

At the top, there are three buttons: **Save & Exit**, **Save & Continue**, and **Cancel**.

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Vendor Category	Enter the category to classify the vendor.
Description	Enter a description for the category.
Is Active	Ensure the check box is selected. Optionally, clear the check box to make the vendor category unavailable for use in a project.

5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.12.3. Vendor Sub-Category

You can define a vendor sub-category and associate it with a vendor category. The sub-category enables you to further classify and group a vendor.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Vendor Management** folder, and then click **Vendor Sub-Category**.

The **VENDOR SUB-CATEGORY** list page is displayed.

3. Click **New**.

The **VENDOR SUB-CATEGORY** page is displayed.

Vendor Sub-Category Page

The screenshot shows the 'VENDOR SUB-CATEGORY' form. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these are four input fields: 'Vendor Category *' with a dropdown menu, 'Sub-Category *' with a dropdown menu, 'Description' with a text area containing scroll bars, and 'Is Active : ' with a checked checkbox. The 'Is Active' field has a blue checkmark indicating it is selected.

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Vendor Category	Select the appropriate category for the vendor. Available options are categories defined with the Is Active check box selected in the Vendor Category library catalog.
Sub-Category	Enter the sub-category to classify the vendor.
Description	Enter a description for the sub-category.
Is Active	Ensure the check box is selected. Optionally, clear the check box to make the vendor sub-category unavailable for use in a project.

5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.12.4. Work Size

You can specify a standard work size along with the minimum and maximum work value in the **Work Size** form. Using this form, you can track and scale the work done by a vendor.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Vendor Management** folder, and then click **Work Size**.

The **WORK SIZE** list page is displayed.

3. Click **New**.

The **WORK SIZE** page is displayed.

Work Size Page

The screenshot shows the 'WORK SIZE' page with the following fields:

- Name ***: [Text input field]
- Description** : [Text area with scroll bars]
- Minimum Work Value (\$)** : [Text input field] 0.00
- Maximum Work Value (\$)** : [Text input field] 0.00
- Is Active** : [Check box] (checked)

At the top, there are three buttons: **Save & Exit**, **Save & Continue**, and **Cancel**.

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Name	Enter the name of the work size form.
Description	Enter a detailed description about the work size form.
Minimum Work Value (\$)	Enter the minimum value of the work.
Maximum Work Value (\$)	Enter the maximum value of the work.
Is Active	Ensure the check box is selected. Optionally, clear the check box to make the work size unavailable for use in a project.

5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.12.5. Vendor Evaluation Category (Project)

The **VENDOR EVALUATION CATEGORY (PROJECT)** page enables you to define an evaluation category and corresponding weightage for evaluating a vendor at the project level.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Vendor Management** folder, and then click **Vendor Evaluation Category (Project)**.

The **VENDOR EVALUATION CATEGORY (PROJECT)** list page is displayed.

3. Click **New**.

The **VENDOR EVALUATION CATEGORY (PROJECT)** page is displayed.

Vendor Evaluation Category (Project) Page

The screenshot shows a form titled "VENDOR EVALUATION CATEGORY (PROJECT)". At the top, there are three buttons: "Save & Exit", "Save & Continue", and "Cancel". Below the buttons are five input fields. The first four fields have asterisks after their labels, indicating they are required. The fifth field does not have an asterisk. The fields are labeled: "Vendor Category *:", "Vendor Sub-Category *:", "Evaluation Category *:", "Description :", and "Weightage :". The "Description" field contains a text area with scroll bars. The "Weightage" field contains the value "0.00". Below the "Weightage" field is a checked checkbox labeled "Is Active".

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Vendor Category	Select the appropriate vendor category. Available options are categories defined with the Is Active check box selected in the Vendor Category library catalog.
Vendor Sub-Category	Select the appropriate vendor sub-category. Available options are based on the Vendor Category selected, and sub-categories defined with the Is Active check box selected in the Vendor Sub-Category library catalog.
Evaluation Category	Enter the evaluation category for the vendor.
Description	Enter a description for the evaluation category.
Weightage	Enter the weightage for evaluating the vendor.

Field	Description
Is Active	Ensure the check box is selected. Optionally, clear the check box to make the evaluation category unavailable for use in a project.

- Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.12.6. Vendor Evaluation Criteria (Project)

The **VENDOR EVALUATION CRITERIA (PROJECT)** page enables you to evaluate a vendor by defining criteria to score and rank the vendor. You can define a maximum score for the defined criteria for evaluating a vendor at the project level.

- In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

- In the navigation pane, expand **Vendor Management** folder, and then click **Vendor Evaluation Criteria (Project)**.

The **VENDOR EVALUATION CRITERIA (PROJECT)** list page is displayed.

- Click **New**.

The **VENDOR EVALUATION CRITERIA (PROJECT)** page is displayed.

Vendor Evaluation Criteria (Project) Page

VENDOR EVALUATION CRITERIA (PROJECT)

Save & Exit Save & Continue Cancel

Vendor Category * :

Vendor Sub-Category * :

Evaluation Category * :

Description * :

Maximum Score :

Is Active :

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Vendor Category	Select the appropriate vendor category. Available options are categories defined with the Is Active check box selected in the Vendor Category library catalog.
Vendor Sub-Category	Select the appropriate vendor sub-category. Available options are based on the Vendor Category selected, and sub-categories defined with the Is Active check box selected in the Vendor Sub-Category library catalog.
Evaluation Category	Select the appropriate evaluation category. Available options are based on the Vendor Category and Vendor Sub-Category selected, and evaluation categories defined with the Is Active check box selected in the Vendor Evaluation Category (Project) library catalog.
Description	Enter a description for the evaluation criteria.
Maximum Score	Enter the appropriate value to define the maximum score for the criteria.
Is Active	Ensure the check box is selected. Optionally, clear the check box to make the evaluation criteria unavailable for use in a project.

5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.12.7. Vendor Scoring Category (Enterprise)

The **VENDOR SCORING CATEGORY (ENTERPRISE)** page enables you to define a scoring category and corresponding weightage for evaluating a vendor at the enterprise level.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Vendor Management** folder, and then click **Vendor Scoring Category (Enterprise)**.

The **VENDOR SCORING CATEGORY (ENTERPRISE)** list page is displayed.

3. Click **New**.

The **VENDOR SCORING CATEGORY (ENTERPRISE)** page is displayed.

Vendor Scoring Category (Enterprise) Page

VENDOR SCORING CATEGORY (ENTERPRISE)

Save & Exit Save & Continue Cancel

Vendor Category * :

Vendor Sub-Category * :

Evaluation Category * :

Description :

Weightage : 0.00

Is Active :

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Vendor Category	Select the appropriate vendor category. Available options are categories defined with the Is Active check box selected in the Vendor Category library catalog.
Vendor Sub-Category	Select the appropriate vendor sub-category. Available options are based on the Vendor Category selected, and sub-categories defined with the Is Active check box selected in the Vendor Sub-Category library catalog.
Evaluation Category	Enter the evaluation category for the vendor.
Description	Enter a description for the evaluation category.
Weightage	Enter the weightage for evaluating the vendor.
Is Active	Ensure the check box is selected. Optionally, clear the check box to make the evaluation category unavailable for use in a project.

5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.12.8. Vendor Scoring Criteria (Enterprise)

The **VENDOR SCORING CRITERIA (ENTERPRISE)** page enables you to evaluate a vendor by defining criteria to score and rank the vendor. You can define a maximum score for the defined criteria for evaluating a vendor at the enterprise level.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Vendor Management** folder, and then click **Vendor Scoring Criteria (Enterprise)**.

The **VENDOR SCORING CRITERIA (ENTERPRISE)** list page is displayed.

3. Click **New**.

The **VENDOR SCORING CRITERIA (ENTERPRISE)** page is displayed.

Vendor Scoring Criteria (Enterprise) Page

VENDOR SCORING CRITERIA (ENTERPRISE)

Save & Exit Save & Continue Cancel

Vendor Category * :

Vendor Sub-Category * :

Evaluation Category * :

Description * :

Maximum Score : 0.00

Is Active :

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Vendor Category	Select the appropriate vendor category. Available options are categories defined with the Is Active check box selected in the Vendor Category library catalog.
Vendor Sub-Category	Select the appropriate vendor sub-category. Available options are based on the Vendor Category selected, and sub-categories defined with the Is Active check box selected in the Vendor Sub-Category library catalog.

Field	Description
Evaluation Category	Select the appropriate evaluation category. Available options are based on the Vendor Category and Vendor Sub-Category selected, and evaluation categories defined with the Is Active check box selected in the Vendor Scoring Category (Enterprise) library catalog.
Description	Enter a description for the evaluation category.
Maximum Score	Enter the appropriate value to define the maximum score for the criteria.
Is Active	Ensure the check box is selected. Optionally, clear the check box to make the evaluation category unavailable for use in a project.

5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.12.9. SOQ Configuration

The **SOQ CONFIGURATION** page enables you to define evaluation standards and criteria to evaluate and qualify a vendor. You can define evaluation criteria, such as range of score adjustments, SOQ cycle, scoring weightage, and minimum qualify percentage to evaluate the vendor at the project and enterprise level.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Vendor Management** folder, and then click **SOQ Configuration**.

The **SOQ CONFIGURATION** page is displayed.

SOQ Configuration Page

The screenshot shows the 'SOQ CONFIGURATION' page with the following sections:

- SOQ CONFIGURATION**: Includes 'Save' and 'Mail Merge' buttons.
- MAXIMUM VALUE FOR PAST PERFORMANCE EVALUATIONS ADJUSTMENT**: Fields for 'From' (10.00) and 'To' (100.00).
- SOQ CYCLE**: Fields for 'Start Month' (January) and 'Duration (in years)' (1), with 'End Month' (December) listed below.
- SOQ SCORING WEIGHTAGE**: Fields for 'Enterprise Score Weightage' (0.50) and 'Project Score Weightage' (0.50), along with 'Minimum Qualify Percentage' (50).
- SETTINGS**: A checkbox for 'Unified SOQ Configuration' (checked).

3. Provide the appropriate information in the fields, as described in the following table.

Section	Field	Description
MAXIMUM VALUE FOR PAST PERFORMANCE EVALUATIONS ADJUSTMENT	From	<p>Enter a value to define the minimum value during adjustment on Vendor Scoring.</p> <p>Note: You can enter a negative value as a minimum value.</p>
	To	<p>Enter a value to define the maximum value during adjustment on Vendor Scoring.</p> <p>Note: The TO value should be greater than zero and greater than the value entered in the From field.</p>

Section	Field	Description
SOQ CYCLE	Start Month	Select the month of initiation of the SOQ cycle. By default, the start month is displayed as January. Optionally, select the start month for the SOQ cycle. Based on the selected start month, the value in the End Month field is displayed. The End Month is calculated as the month selected in the Start Month + 11 months.
	Duration (in years)	Enter the number of years to define the duration for the SOQ cycle.
SOQ SCORING WEIGHTAGE	Enterprise Score Weightage	Enter the score weightage to calculate the total score for the vendors based on their performance at the enterprise level. Note: The total sum of Enterprise Score Weightage and Project Score Weightage should be equal to 1. For example, 0.80 + 0.20 = 1
	Project Score Weightage	Enter the score weightage to calculate the total score for the vendors based on their performance at the project level. Note: The total sum of Enterprise Score Weightage and Project Score Weightage should be equal to 1. For example, 0.80 + 0.20 = 1
	Minimum Qualify Percentage	Enter a value to define the minimum percentage value to qualify the vendor.
SETTINGS	Unified SOQ Configuration	Select the check box to create a Statement of Qualification record for all vendors who have been scored. Clear the check box to create a Statement of Qualification record for each vendor individually.

4. Click **Save**.

4.3.12.10. Vendors

A repository of vendors in the application ensures only validated contractors are selected for implementation of projects, and the integrity of the application is maintained. The **Vendors** library catalog comprises a list of contractors with complete details of each contractor. Vendors are also provided login credentials to access only permitted modules of the application.

A large project can be contracted to multiple contractors, and while creating a contract you must assign a prime contractor and sub contractors from the Vendors list.

Note: Vendors not listed in the Vendors catalog cannot be assigned to contracts in a project.

1. In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

2. In the navigation pane, expand **Vendor Management**, and then click **Vendors**.

The **VENDORS** list page is displayed.

3. Click **New**.

The **VENDORS** page is displayed.

Vendors Page

The screenshot shows a web-based form titled "VENDORS". At the top, there are three buttons: "Save & Exit", "Save & Continue", and "Cancel". Below these are sections for "VENDOR INFORMATION" and "VENDOR DETAILS".

VENDOR INFORMATION

Name * : <input type="text"/>	Vendor Category * : <input type="text"/>
Contact * : <input type="text"/>	Vendor Sub-Category * : <input type="text"/>
Vendor ID * : <input type="text"/>	Work Size * : <input type="text"/>

VENDOR DETAILS

Address1 : <input type="text"/>
Address2 : <input type="text"/>
Address3 : <input type="text"/>
City : <input type="text"/>
State : <input type="text"/>
Zip Code : <input type="text"/>
Phone Number : <input type="text"/>
Fax Number : <input type="text"/>
Email ID : <input type="text"/>

4. Provide the contractor information as described in the following table.

Field	Description
Name	Enter the name of the vendor.
Contact	Enter the contact person for the vendor.
Vendor ID	Enter a unique code or name for identification of the vendor.
Vendor Category	Select the required vendor category. Available options are categories defined with the Is Active check box selected in the Vendor Category library catalog.
Vendor Sub-Category	Select the required vendor sub-category. Available options are based on the Vendor Category selected, and sub-categories defined with the Is Active check box selected in the Vendor Sub-Category library catalog.
Address1, Address2, and Address3	Enter the address of the vendor.
City	Enter the name of the city of the vendor.
State	Enter the name of the vendor.
Zip Code	Enter the zip code of the vendor.
Phone Number	Enter the phone number of the vendor.
Fax Number	Enter the FAX number of the vendor.
Email ID	Enter the email address of the vendor.
Contractor Login ID	To associate a vendor with a Masterworks account, from the drop-down list, select the login identification name for the vendor. Available options are user identification codes of accounts that are of the type selected as External . For information on accounts marked as External, see Creating a User Account .
Type	Select the contractor type. Available options are contractor types defined in the Contractor Type library catalog.

Field	Description
Is Active	Ensure the Is Active check box is selected. Clear the check box to deactivate the vendor account. Deactivated vendors will not be available for selection in the application. You can activate the vendor account at any time.

- Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.12.11. Vendor Category to Review Stages

You can define review stages for vendor category and vendor sub-category using the **VENDOR CATEGORY TO REVIEW STAGES** page.

- In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

- In the navigation pane, expand **Vendor Management** folder, and then click **Vendor Category to Review Stages**.

The **VENDOR CATEGORY TO REVIEW STAGES** list page is displayed.

- Click **New**.

The **VENDOR CATEGORY TO REVIEW STAGES** page is displayed.

Vendor Category to Review Stages Page

The screenshot shows the 'VENDOR CATEGORY TO REVIEW STAGES' page. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these are three dropdown menus. The first dropdown is labeled 'Vendor Category *' and the second is 'Vendor Sub-Category *'. The third dropdown is labeled 'Review Stages :'. Inside the 'Review Stages' dropdown, the options are 'ROM', 'Selection of Steel Assembly', 'Stage1', and 'Stage2'. To the right of the dropdown, there are two buttons: 'Add' and 'Remove'. The 'Remove' button is currently highlighted in blue.

- Provide the appropriate information in the fields, as described in the following table.

Field	Description
Vendor Category	Select the appropriate vendor category. Available options are categories defined with the Is Active check box selected in the Vendor Category library catalog.

Field	Description
Vendor Sub-Category	Enter the vendor sub-category. Available options are based on the Vendor Category selected, and sub-categories defined with the Is Active check box selected in the Vendor Sub-Category library catalog.
Review Stages	Select the appropriate review stage from the left box and click Add>> . Available options are review stages defined with the Is Active check box selected in the Vendor Review Stage library catalog. The selected review stages are displayed in the right box.

- Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.12.12. Vendor Review Stage

The **VENDOR REVIEW STAGE** page enables you to define the stage of the project. Based on the project's stage, you can evaluate the performance of the vendor.

- In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

- In the navigation pane, expand **Vendor Management** folder, and then click **Vendor Review Stage**.

The **VENDOR REVIEW STAGE** list page is displayed.

- Click **New**.

The **VENDOR REVIEW STAGE** page is displayed.

Vendor Review Stage Page

The screenshot shows the 'VENDOR REVIEW STAGE' page. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these buttons, there are two input fields. The first field is labeled 'Name *:' followed by a text input box. The second field is labeled 'Description :' followed by a text input box. At the bottom of the page, there is a checkbox labeled 'Is Active :'. The checkbox is checked, indicated by a blue checkmark inside a blue square.

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Name	Enter the name of the project's stage.
Description	Enter a description for the stage.
Is Active	Ensure the check box is selected. Optionally, clear the check box to make the vendor review stage unavailable for use in a project.

5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

4.3.12.13. Contact List

- The vendor details are defined in the **Vendors** library catalog. For information on defining vendor details, see [Vendor Management, Vendors](#).

The **Contact List** is a repository of details of personnel working for projects and contractors. Information, such as the contact name, email address, telephone number are stored.

- In the module menu, click **Library**.

The **LIBRARY MANAGEMENT** page is displayed.

- In the navigation pane, expand **Vendor Management** folder, and then click **Contact List**.

The **CONTACT LIST** page is displayed.

3. Click **New**.

The **CONTACT LIST** page is displayed.

Contact List Page

CONTACT LIST

Save & Exit Save & Continue Cancel

Name * :

Contact Number :

Address1 :

Address2 :

Address3 :

City :

State :

ZipCode :

Fax Number :

Email ID :

Contractor :

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Name	Enter the name of the personnel.
Contact Number	Enter the phone number of the personnel.
Address1, Address2, and Address3	Enter the address of the personnel.
City	Enter the name of the city where the personnel resides.
State	Enter the name of the state where the personnel resides.
ZipCode	Enter the zip code of the city where the personnel resides.
Fax Number	Enter the fax number of the personnel.
Email ID	Enter the email address of the personnel.

Field	Description
Contractor	Select the contractor for the contact. Available options are contractors defined in the Vendors library catalog.

5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

5. Fund Management

5.1. Fund Management

The **Fund Management** feature enables you to manage the various funding sources available and the allocation of funds to various projects.

Funds are managed at various levels in the application.

- At the Enterprise level as Global Fund List
- At the Planning level as Planning Fund List
- At the Project level as Project Fund List
- At project items level as Fund Rules

The **Global Fund List** is a repository of primary fund sources. You can record details of the fund sources at the enterprise level. Global fund sources are made available to projects and programs.

Fund sources for a capital program can be a consolidation of multiple global fund sources.

Fund sources for a project are identified from global fund sources. Project fund sources are a subset of global fund sources. Funds are encumbered into project fund sources from global fund sources.

Fund rules are defined on project fund sources. A fund rule is a combination of fund sources and defines the percentage each fund source contributes to an item cost. When items are added as contract items or purchase order items and are consumed through the generation of pay estimates and expenses, fund flow and consumption are tracked.

The following topics describe the various fund management tasks and functions to manage funds:

- [Global Fund Sources](#)
- [Planning Fund Sources](#)
- [Project Fund Sources](#)

5.2. Global Fund List

5.2.1. Global Fund Sources

The **Global Fund List** is a repository of fund sources that are made available to all projects in the enterprise.

The **Global Fund List** form enables you to:

- Define fund sources and details, such as the funding agency, funding type, and funding category.
- Allocate funds to project fund sources.
- Mark global fund sources as inactive or active.
 - For more information on inactivating a global fund source, see [Marking a Global Fund Source Inactive](#).
 - For more information on activating an inactive global fund source, see [Marking an Inactive Global Fund Source Active](#).

You can manage funds in a global fund source using the **Fund Transactions** form. The **Fund Transactions** form enables you to add funds to or remove funds from a global fund source.

The functional flow for global fund management is as follows:

1. Global Fund List
 - a. [Create a global fund source](#).
 - b. [Perform workflow actions to implement the business process for fund sources](#).
2. Fund Transaction
 - a. [Manage funds in the global fund source](#).
 - b. [Perform workflow actions to implement the business process for fund transactions](#).

5.2.2. Defining Global Fund Sources

Global funds enable you to define fund sources at the enterprise level to make it available for projects.

1. In the module menu, click **Home**.
The **Enterprise Dashboard** is displayed.
2. In the navigation pane, expand the **Fund Management** folder, and then click **Global Fund List**.
The **GLOBAL FUND LIST** page is displayed.

3. Click **New**.

Global Fund List Page

GLOBAL FUND LIST

Save & Exit Save & Continue Cancel Workflow Select Actions

Fund Source ID : <Auto Generated>

Fund Source Name * :

Fund Source Code :

Fund Source Category :

Fund Source Type :

Funding Agency :

Total Amount in \$:

Remaining Amount in \$:

Notes :

Is Active :

ATTACHMENTS

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The **GLOBAL FUND LIST** page displays the following non-editable fields:

Field	Description
Fund Source ID	On saving the record, an identification code for the global fund source is automatically generated.
Total Amount in \$	<p>Note: This value is available only after transactions on global fund sources are performed.</p> <p>The total fund available in the defined fund source. The total amount is calculated as the difference between the sum of all approved additions and the sum of all approved returns. For information on global fund transactions, see Transacting on Global Fund Sources.</p>

Field	Description
Remaining Amount in \$	<p>The remaining fund available in the defined fund source.</p> <p>The remaining amount is calculated as the difference between the total amount and the encumbered amount for all projects.</p> <p>The encumbered amount for a project is the difference between all the approved add transactions and approved return transactions of all the project funds utilizing the fund source.</p> <p>For information on global fund transactions, see Transacting on Global Fund Sources.</p>

4. Provide the information described in the table.

Field	Description
Fund Source Name	Enter a name for the new fund source to be created.
Fund Source Code	Enter a unique identification code for the global fund source.
Fund Source Category	Select the category of the fund source. Available options are fund categories defined in the Fund Categories library catalog.
Fund Source Type	Select the type of fund source. Available options are fund types defined in the Fund Type library catalog.
Funding Agency	Select the name of the funding agency. Available options are funding agencies defined in the Fund Agency library catalog.
Notes	Enter any notes for the fund source.

Field	Description
Is Active	<p>Ensure the check box is selected to make the global fund source active.</p> <ul style="list-style-type: none">• Optionally, clear the check box to make the global fund source inactive. If a global fund source is marked as inactive, you cannot perform transactions on this global fund source and it is unavailable to projects.• You can activate a global fund source at any point in time. For more information on activating an inactive global fund source, see Marking an Inactive Global Fund Source Active.

5. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Global Fund Transaction Workflow](#) on page 287.

5.2.3. Global Fund Source Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Global Fund Source** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-
2	Submitted	Re-Draft	Draft	-
		Approve	Approved	-

5.2.4. Managing Funds in a Global Fund Source

- The global fund source must be in the **Approved** workflow status.

You can manage funds in a global fund source using the **Fund Transactions** form. With the **Fund Transactions** form, you can add funds to or remove funds from a global fund source.

Approved fund sources are allowed for fund transactions. You can add or return funds to an available and identified existing global fund source.

1. In the module menu, click **Home**.

The **Enterprise Dashboard** is displayed.

2. In the navigation pane, expand the **Fund Management** folder, and then click **Fund Transaction**.
3. Click **New**.

Fund Transaction Page

FUND TRANSACTION

Save & Exit Save & Continue Cancel Workflow ▾ Select Actions ▾

Transaction ID : <Auto Generated>

Fund Source Name * :

Fund Source Code :

Fund Source Category :

Fund Source Type :

Transaction Type : Add Return

Transaction Date :

Available Amount in Fund Source(\$) :

Amount in \$ * :

Notes :

ATTACHMENTS

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No Attachments available

Link Document **Upload Document**

On saving the record, in the **Transaction ID** field, an identification code for the fund transaction is automatically generated.

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Fund Source Name	Select a fund name from the list of approved global funds to add or return funds. Available options are global fund sources that are in the Approved workflow status. The Fund Source Code , Fund Source Category , Fund Source Type , and Available Amount in Fund Source(\$) of the selected fund source are displayed.
Transaction Type	Click Add to add funds to the source or click Return to deduct funds from the source. Note: The maximum amount that can be returned must not exceed the available amount in the fund source.
Transaction Date	Select the date of the transaction.
Amount in \$	Enter the amount to be added to or deducted from the global fund source.
Notes	Enter any notes for the global fund source.

5. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Global Fund Transaction Workflow](#) on page 287.

5.2.5. Global Fund Transaction Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Global Fund Transaction** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
2	Submitted	Re-Draft	Draft	-
		Approve	Approved	-

5.2.6. Generating Global Fund Reports

You can generate various global fund reports that illustrate various information views.

1. In the module menu, click **Home**.
The **Enterprise Dashboard** is displayed.
2. In the navigation pane, expand the **Fund Management** folder, and then click **Global Fund List**.
The **GLOBAL FUND LIST** page is displayed.
3. Click **Reports**, and then click the appropriate report.
The report is generated and displayed.

For information on the various report features available, see [Standard Report Functions](#).

You can generate the following reports:

- Global Fund Availability Report
- List Page Reports
- Details Report

5.3. Project Fund List

5.3.1. Project Fund Sources

The **Project Fund List** is a repository of fund sources defined for a project. You can define multiple fund sources for a project that are derived from approved global fund sources.

With the **Project Fund Transaction** form, you can perform the following tasks:

- Allocate funds to approved project fund sources from the associated global fund sources.
- Remove funds from project fund sources. These are returned to the associated global fund sources.
- Transfer funds from one project to another.

Once funding sources for a project are identified and approved, you can define funding rules on the sources to define percentages of the fund sources to allocate to an item

amount. Each project item can be associated with an approved funding rule to define the percentage of the fund the item consumes.

You can associate fund rules to various types of project items, such as budget items, bid estimate items, contract items, and purchase order items. Funds consumed by a project can then be derived from these associations.

Note: All project funds are released to the associated global funds when a project is deleted.

The functional flow for project fund management is as follows:

1. Project Fund List
 - a. [Create project fund sources](#).
 - b. [Perform workflow actions to implement the business process for project fund sources](#).
2. Project Fund Transaction
 - a. [Manage funds in a project fund source](#).
 - b. [Perform workflow actions to implement the business process for project fund transactions](#).
3. Funding Rules
 - a. [Create funding rule for a project](#).
 - b. [Perform workflow actions to implement the business process for funding rule](#).

5.3.2. Defining Project Fund Sources

- An approved **Global Fund List** record is available. For more information, see [Global Fund Sources](#).

The **Project Fund List** form enables you to select fund sources for your project from the available global fund sources.

1. In the module menu, click **Projects**.
- The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project and then click **View**.
 3. In the project navigation pane, expand the project folder, expand the **Fund Management** folder, and then click **Project Fund List**.

The **PROJECT FUND LIST** page is displayed.

4. Click New.

Project Fund List Page

PROJECT FUND LIST

Project Fund ID : <Auto Generated>

Fund Source Name * :

Fund Source Code :

Fund Source Category :

Fund Source Type :

Available Amount in Fund Source(\$) :

Encumbered Amount(\$) :

Allocated Amount(\$) :

UnAllocated Amount(\$) :

Consumed Amount(\$) :

Remaining Amount(\$) :

Notes :

On saving the record, in the **Project Fund ID** field, an identification code for the fund transaction is automatically generated.

5. From the **Fund Source Name** drop-down list, select the global fund source to associate with the project.

Available options are approved global fund sources. For more information, see [Global Fund Sources](#).

The **Fund Source Code**, **Fund Source Category**, and **Fund Source Type** of the selected fund source are displayed.

Additionally, based on the global fund source selected, the following information is displayed:

Field	Description
Available Amount in Fund Source (\$)	<p>The amount available in the selected global fund source is displayed.</p> <p>This amount is the balance amount considering all the transactions pertaining to the global fund source.</p>
Remaining Amount in \$	<p>The remaining funds available in the fund source is calculated and displayed.</p> <p>The Remaining Amount value is the balance available in the project fund source after considering all the transactions done on that fund source. That is, the Remaining Amount value is calculated as the difference of the amount encumbered into the project and the amount consumed by project.</p>

6. In the **Notes** box, enter the notes for the fund source.
7. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The **PROJECT FUND LIST** page is displayed.

The columns in the list page display the following information:

- **Encumbered Amount** – The total amount of funds committed for the project. This column displays the sum of all the approved fund transactions for the project.
- **Allocated Amount** – The total amount of funds committed to spendable items, such as **Contract Items**, **Purchase Orders**, **Miscellaneous Expenses**, and so on from the **Encumbered Amount**.
- **UnAllocated Amount** – The total amount of funds that have not been committed to any spendable items. This is calculated as the difference of the **Encumbered Amount** value and the **Allocated Amount** value.
- **Consumed Amount** – The total amount consumed (spent) to date from the **Allocated Amount**. This is the sum of all **Pay Estimates** and **Expenses**.
- **Remaining Amount** – The remaining amount is calculated as the difference of the **Allocated Amount** value and the **Consumed Amount** value.

To perform workflow actions, see [Project Fund Source Workflow](#) on page 292.

5.3.3. Project Fund Source Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Project Fund Source** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-
2	Submitted	Re-Draft	Draft	-

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
		Approve	Approved	The Remaining Amount in the associated Global Fund Source is calculated accordingly. For information on the Remaining Amount , see Defining Global Fund Sources .

5.3.4. Managing Funds in a Project Fund Source

- Approved fund sources are available for the project. For more information, see [Defining Project Fund Sources](#) on page 289.

The **Project Fund Transaction** form enables you to allocate funds from global fund sources to project fund sources. You can add, return, or transfer funds. Transferring funds is carried out between projects, whereas returning funds is sending back funds to global fund sources.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project and then click **View**.
3. In the project navigation pane, expand the project folder, expand the **Fund Management** folder, and then click **Project Fund Transaction**.

The **PROJECT FUND TRANSACTION** list page is displayed.

4. Click **New**.

Project Fund Transaction Page

PROJECT FUND TRANSACTION

Save & Exit Save & Continue Cancel

Transaction ID : <Auto Generated>

Transaction Type : Add Return Transfer

Fund Source Name * : Select

Available Amount in Fund Source(\$) : 0.00

Remaining Amount in \$: 0.00

Amount in \$ * :

Notes :

Transaction Date : 08/07/2023

ATTACHMENTS

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No Attachments available

[Link Document](#) [Upload Document](#)

The **PROJECT FUND TRANSACTION** page displays the following non-editable field:

Field	Description
Transaction ID	An automatically generated identification code for the project fund transaction.

5. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Transaction Type	<p>Click any of the following options:</p> <ul style="list-style-type: none">• Click Add to add funds to the project fund source from the associated global fund source.• Click Return to return funds to the global source from the project fund source.• Click Transfer to transfer funds to another project. If Transfer is selected, then from the Transfer to Project drop-down list, select the project to which the funds must be transferred. The projects available in the Transfer to Project list include all projects with the same approved fund source, excluding the current project. <p>Note: The maximum amount that can be transferred or returned must not exceed the remaining amount in the project fund source.</p>
Fund Source Name	<p>Select a fund name from the fund list. Available options are approved project fund sources. For more information, see Defining Project Fund Sources.</p>

Based on the transaction type selected, and the fund source name selected, the following information is displayed:

Field	Description
Available Amount in Fund Source(\$)	<p>If the selected transaction type is either Add or Return, the funds available in the selected global fund source is displayed.</p> <p>The available amount is calculated as the difference between the total amount available in the global fund source and the encumbered amount for all projects.</p> <p>The encumbered amount for a project is the difference between all the approved add transactions and approved return transactions of all the project funds utilizing the fund source. For more information, see Global Fund Sources.</p>

Field	Description
Remaining Amount in \$	If the selected transaction type is either Add or Return , the funds remaining in the project fund source is displayed. The remaining amount is calculated as the difference between the encumbered amount and the consumed amount.

6. In the **Amount in \$** box, enter the amount to be added to, removed, or transferred from the selected project fund source.
7. In the **Notes** box, enter any notes for the project fund transaction.
8. From the **Transaction Date** calendar drop-down box, select the date of the transaction.
9. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).
10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.
To perform workflow actions, see [Project Fund Transaction Workflow](#).

5.3.5. Project Fund Transaction Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Project Fund Transaction** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-
2	Submitted	Re-Draft	Draft	-

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
		Approve	Approved	<p>On approval of transfer of funds from one project to another, that is, on approval of a Transfer transaction in a project, the following activities occur:</p> <ul style="list-style-type: none">• The amount entered for transfer is deducted from the current project fund.• An approved record of Transfer is automatically created in the destination project transaction list with the same amount added to the destination project fund.• For the destination project, the Transfer transaction record

5.3.6. Project Fund Rules

5.3.6.1. Project Fund Rules

The **Funding Rule** form enables you to create funding rules for items.

Once funding sources for a project are identified and approved, you can define funding rules on the sources to define percentages of the fund sources to allocate to an item amount. Each project item can be associated with an approved funding rule to define the percentage of the fund the item can consume.

Additionally, you can deactivate or activate a funding rule at any point in time.

You can perform the following tasks:

- [Create a funding rule.](#)
- [Mark a funding rule as the default.](#)
- [Mark a fund rule as inactive or active.](#)
- [Perform workflow actions to implement the business process.](#)

5.3.6.2. Creating a Funding Rule

The funding rule enables you to allocate funds from each fund source to meet the expenses incurred on the items during the project execution.

You can create a funding rule in two ways:

- [Creating a funding rule manually](#)
- [Copying a funding rule](#)

5.3.6.2.1. Creating a Funding Rule Manually

- An approved fund source is available for the project. For more information, see [Project Fund Sources](#) on page 288.

Fund rules are defined on project fund sources. A fund rule is a combination of fund sources and defines the percentage each fund source contributes to an item cost.

You can track the fund flow and consumption when items are added as contract or purchase order items, and consumed by generating pay estimates and expenses.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project and then click **View**.
3. In the project navigation pane, expand the project folder, expand the **Fund Management** folder, and then click **Funding Rules**.

4. Click **New**.

The **FUNDING RULES** page is displayed.

Funding Rules Page

FUNDING RULES

Save & Exit Save & Continue Cancel

Rule ID : <Auto Generated>

Rule Name * :

Notes :

Is Active :

DISTRIBUTION DETAILS

Fund Source Name	Fund Source Code	Percentage(%)
No records to display.		
		0.00

Add **Edit** **Delete**

On saving the record, in the **Rule ID** field, an identification code for the fund rule is automatically generated.

5. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Rule Name	Enter a rule name.
Notes	Enter the notes for the fund source rule.
Is Active	Ensure the check box is selected to activate the funding rule. Optionally, clear the check box to make the fund rule unavailable for use in the project. You can activate or deactivate a funding rule at any point in time. For more information on activating an inactive funding rule, see Marking a Fund Rule as Inactive or Active on page 303.

6. To add distribution details of funding sources to the project, in the **DISTRIBUTION DETAILS** section, perform the following steps:

- a. Click **Add**.

The **Project Fund List** dialog box is displayed.

Available fund sources are approved project fund sources.

- b. Select the appropriate fund sources, and then click **Select**.
 - c. To enter the percentage of the fund source to be utilized for an item, click the appropriate fund source and then click **Edit**.

The **Edit Distribution Details** dialog box is displayed.

- d. In the **Percentage(%)** box, enter the percentage of the fund source amount to be utilized for an item amount.
 - e. Click **Save**.

Note: Ensure the total of the percentages defined for the funding sources is 100.

7. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Funding Rules Workflow](#) on page 303.

5.3.6.2.2. Copying a Funding Rule

- An approved fund source is available for the project. For more information, see [Project Fund Sources](#) on page 288.
- A **Funding Rules** record is available on the list page.

You can copy the details of an existing **Funding Rules** record to create a new funding rule. The workflow status of the new record is set to **Draft**.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project and then click **View**.

3. In the project navigation pane, expand the project folder, expand the **Fund Management** folder, and then click **Funding Rules**.

4. In the list page, select the appropriate record, and then click **Copy**.

A new **Funding Rules** record is created. The distribution details of funding sources in the **DISTRIBUTION DETAILS** section are copied to the new record.

On saving the record, in the **Rule ID** field, an identification code for the fund rule is automatically generated.

5. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Rule Name	Enter a rule name.
Notes	Enter the notes for the fund source rule.
Is Active	Ensure the check box is selected to activate the funding rule. Optionally, clear the check box to make the fund rule unavailable for use in the project. You can activate or deactivate a funding rule at any point in time. For more information on activating an inactive funding rule, see Marking a Fund Rule as Inactive or Active on page 303.

6. To add, edit, or delete the distribution details of funding sources, in the **DISTRIBUTION DETAILS** section, perform any of the following steps, as applicable:

- To add distribution details, perform the following steps:
 - a. Click **Add**.
The **Project Fund List** dialog box is displayed.
Available fund sources are approved project fund sources.
 - b. Select the appropriate fund sources, and then click **Select**.
 - c. To enter the percentage of the fund source to be utilized for an item, click the appropriate fund source and then click **Edit**.
The **Edit Distribution Details** dialog box is displayed.
 - d. In the **Percentage(%)** box, enter the percentage of the fund source amount to be utilized for an item amount.
 - e. Click **Save**.

Note: Ensure the total of the percentages defined for the funding sources is 100.

- To edit the existing distribution details, perform the following steps:
 - a. Click the appropriate record, and then click **Edit**.
The **Edit Distribution Details** dialog box is displayed.
 - b. In the **Percentage(%)** box, enter the percentage of the fund source amount to be utilized for an item amount.
 - c. Click **Save**.

Note: Ensure the total of the percentages defined for the funding sources is 100.

- To delete the existing distribution details, click the appropriate record, click **Delete**, and then click **OK**.

7. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Funding Rules Workflow](#) on page 303.

5.3.6.3. Marking a Funding Rule as Default

- An active and approved **Funding Rules** record is available.

By marking a funding rule as the default rule, the marked rule is set as the funding rule for all items in the project.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project and then click **View**.
3. In the project navigation pane, expand the **Fund Management** folder, and then click **Funding Rules**.

The **FUNDING RULES** list page is displayed.

4. Select the appropriate rule to set it as the default fund rule.
5. Click **Mark as Default**.

5.3.6.4. Marking a Fund Rule as Inactive or Active

You can deactivate or activate a funding rule at any time.

Marking a fund rule as inactive makes it unavailable for project use.

Note: If you are inactivating a fund rule that is already approved and assigned to some items, you cannot make payments for the respective items. If the payments are already made, you cannot make the subsequent payments.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project and then click **View**.
3. In the project navigation pane, expand the **Fund Management** folder, and then click **Funding Rules**.

The **FUNDING RULES** list page is displayed.

Note: The fund rule is active if the **Is Active** column check box is selected.

4. Perform either of the following, as applicable:

- To deactivate a fund rule, select the appropriate active record, click **Mark Active/Inactive**.

The record is marked as inactive and is unavailable for use.

- To activate a fund rule, select the appropriate inactive record, click **Mark Active/Inactive**.

The record is marked as active and is available for use.

5.3.6.5. Funding Rules Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Funding Rules** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-
2	Submitted	Re-Draft	Draft	-
		Approve	Approved	-

6. Document Management

6.1. Document Management Solutions

The **Documents** module is a repository used to store, organize, secure, track, and manage project-related documents in electronic form. This well-designed online document management system facilitates file sharing across multiple devices connected to the cloud to enable efficient collaboration among project users.

Folders in the **Documents** module enable you to organize and structure documents logically and hierarchically to create an effective knowledge bank of the project and contract-related information. Permissions can be assigned to different folders and sub-folders to provide restricted access to the documents within. You can configure the document types that can be uploaded and saved in the **Documents** module. Also, customized workflows automate document-related business processes.

There is no limitation on the number or the size of documents that can be uploaded to the application. However, Administrator can set the maximum allowable size for the documents to be uploaded in the **Administration** module. Additionally, you can view and annotate various types of documents in the application without installing additional document viewer applications on your system.

The **Documents** folder is the base for the document management system in Masterworks, and all the document folders that are created are available within it. The **Documents** folder is available at two levels in the application, one at the project level for project-related documents, and one at each contract level for individual contract-related documents.

The following features are available with the Masterworks Documents module:

- [Create folders to organize documents.](#)
- [Create predefined folder structure templates.](#)
- [Define folder permissions to control user access to folders.](#)
- [Create custom document properties templates.](#)
- [Upload documents of various file types to folders.](#)
- [Update existing documents to incorporate any changes.](#)
- [Manage document versions.](#)
- [Post comments on a document and record responses received for the comments.](#)
- [Add annotations to documents and consolidate them into a single document.](#)
- [View documents of various file types.](#)
- [Associate a workflow to a document to receive specific approvals.](#)
- [Archive documents.](#)

6.2. Folder Management

6.2.1. Folder Management

In the **Documents** module, you can create folders. You can upload documents and organize them in these folders. To enforce security, you can define role based permissions to access and use a folder. There is no limit on the number of folders you can create in a project.

You can create a predefined folder structure in a project automatically during project creation, and also create additional folders manually. For information on selecting a folder structure during project creation, see [Selecting Document Folder Structure](#).

The following topics aid you in managing your document folders:

- [Create a folder](#).
- [Define folder permissions](#).
- [Modify folder properties](#).
- [Delete a folder](#).

6.2.2. Creating a Folder

You can organize project and contract documents into folders created in the document management system.

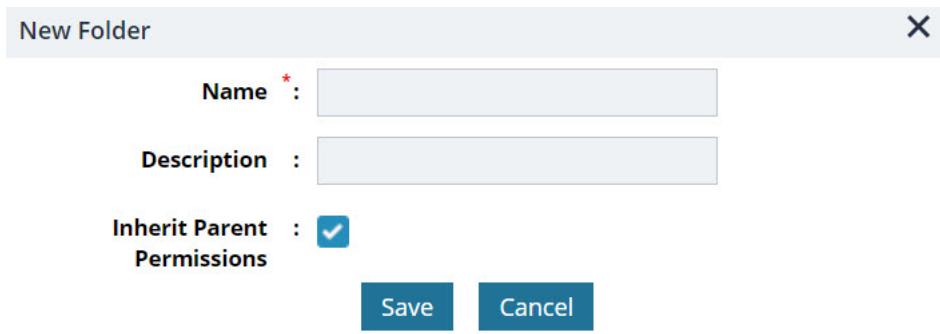
1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Click **New**. 

The **New Folder** dialog box is displayed.

New Folder Dialog Box



3. In the **Name** box, type the folder name.
4. In the **Description** box, type a brief description of the folder.
5. Ensure the **Inherit Parent Permissions** check box is selected to provide the same permissions to the folder as its parent folder.

Optionally, clear the check box to provide permissions to the folder as defined for the roles of the current user.

Note: Permissions are inherited only for the roles the user is invited to in the project or contract.

6. Click **Save**.

The folder is created in the selected folder.

6.2.3. Defining Folder Permissions

You can control user access to folders in the **Documents** module by configuring permissions to the various roles defined in the project. Controlling accessibility of folders in the document management system ensures a high level of security for the documents in the folder.

Note: The user with the **Administrator** role has all permissions in the application.

1. To access a **Documents** folder at the project or contract level, perform the following steps:

- a. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- b. In the list page, double-click the appropriate project.

- c. In the navigation pane, expand the project folder.

- d. Perform either of the following steps, as applicable:

- To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.

- To access the **Documents** folder at the contract level, perform the following steps:

- i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.

- ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Click **Permissions**.

The **DOCUMENT PERMISSIONS** page is displayed.

Document Permissions Page

DOCUMENT PERMISSIONS										
Roles	Create	Edit	View	Delete	Others					
	-	-	-	-						
<input checked="" type="checkbox"/> Business Administrator	<input checked="" type="checkbox"/> Asso...	<input checked="" type="checkbox"/> Crea...	<input checked="" type="checkbox"/> Edit ...			:				
<input checked="" type="checkbox"/> Group Manager	<input checked="" type="checkbox"/> Asso...	<input checked="" type="checkbox"/> Crea...	<input checked="" type="checkbox"/> Edit ...			:				
<input checked="" type="checkbox"/> Division Director	<input checked="" type="checkbox"/> Asso...	<input checked="" type="checkbox"/> Crea...	<input checked="" type="checkbox"/> Edit ...			:				
<input checked="" type="checkbox"/> Deputy City Engineer	<input checked="" type="checkbox"/> Asso...	<input checked="" type="checkbox"/> Crea...	<input checked="" type="checkbox"/> Edit ...			:				
<input checked="" type="checkbox"/> City Engineer	<input checked="" type="checkbox"/> Asso...	<input checked="" type="checkbox"/> Crea...	<input checked="" type="checkbox"/> Edit ...			:				

The roles available in the project are displayed as the rows of the permissions table and document management features are displayed as the columns for you to assign role-based permissions to the document folder.

3. Corresponding to each role, select the appropriate check boxes to provide access to or clear the appropriate check boxes to restrict access to the feature in the folder.
4. Click **Save**.

The permissions defined on the folder are saved.

6.2.4. Associating a Document Property Template to a Folder

- Documents are not uploaded to the folder.

You can associate a document property template to a folder. The associated document property template is displayed when uploading documents to the folder.

1. To access a **Documents** folder at the project or contract level, perform the following steps:

- a. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- b. In the list page, double-click the appropriate project.

- c. In the navigation pane, expand the project folder.

- d. Perform either of the following steps, as applicable:

- To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.

- To access the **Documents** folder at the contract level, perform the following steps:

- i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.

- ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. In the toolbar, click **Associate Document Property**.

The **Associate Document Folder** dialog box is displayed.

3. From the **Document Property Set** drop-down list, select the appropriate document property template.

Available options are document property templates published in the **Document Properties** library catalog. For more information, see [Document Properties](#).

4. Click **Save**.

6.2.5. Modifying Folder Properties

You can modify the name and the description of a folder.

Note: You cannot edit the properties of the default **Documents** folder.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. In the toolbar, click **Edit**.

The **Edit Folder** dialog box is displayed.

Edit Folder Dialog Box

The screenshot shows the 'Edit Folder' dialog box. At the top left is the title 'Edit Folder' and at the top right is a close button ('X'). Below the title are two input fields: 'Name *:' with the value 'Planning' and 'Description :'. Underneath these is a section labeled 'Inherit Parent :' with a checked checkbox. At the bottom of the dialog are two buttons: 'Save' and 'Cancel'.

3. Make the appropriate changes.

- For folders that were created as part of the folder structure selected for the project or contract, select the **Inherit Library Permissions** check box to reset the

permissions of the folder to as defined for the folder in the **Document Folder Structure** library catalog.

For information on **Document Folder Structure**, see [Document Folder Structure](#).

- For folders that were manually created, select the **Inherit Parent Permissions** check box to reset the permissions of the folder to as defined for its parent folder.

Note: The **Inherit Parent Permissions** check box is available only if you have create permissions on the parent folder.

4. Click **Save**.

6.2.6. Deleting a Folder

You can delete a user-created folder. All sub-folders and its contents within that folder will be deleted from the system.

Note:

- You cannot delete the default **Documents** folder.
- Only users with specific roles can delete a folder.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Click **Delete**.  Delete

A confirmation message is displayed.

3. Click **OK**.

The selected folder and all its contents are deleted.

6.3. Document Management

6.3.1. Document Management

The Masterworks **Documents** module supports the following document management features:

- [Access Project and Contract documents](#).
- [View documents](#).
- [Upload documents](#).
- [Upload multiple documents in bulk](#).
- [Download documents](#).
- [Update documents](#).
- [Manage document versions](#).
- [Edit document properties](#).
- [Move documents to a different folder](#).
- [Archive documents](#).

6.3.2. Accessing Project and Contract Documents

The **Documents** folder is the base for the document management system in Masterworks. All project and contract related documents are organized in folders that are created in the base **Documents** folder.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

6.3.3. Viewing Files

Various formats of documents can be [viewed in the application](#) without installing additional document viewer applications on your system.

You can also view reduced-size images of pictures and view a slideshow presentation of pictures in a folder using the [Thumbnail and the Slide Show](#) utilities. For drawings, you can view the files either in 2D or 3D mode, based on the file format.

Note: You can view the document only when the status of the document in the **File View Status** column is **Ready**.

6.3.3.1. Viewing a Document in the Viewer

1. In the navigation pane, expand **Documents**, and then click the required document folder.
2. In the documents list page, select the appropriate document, and then click **View**.

Alternatively, double-click the appropriate document in the list.

The document is opened on the **VIEWER** page.

3. If the document file type is mapped to a viewer that supports 2D and 3D drawings, then to switch the view between 2D and 3D, perform the following steps:

a.



In the **VIEWER** page, click  on the toolbar.

The **Document Browser** dialog box is displayed.

b. In the **Tree** tab, expand **Model** and then click the appropriate view.

Note: If the document supports only 2D view, then the 3D view option is not available. You can view and examine a 2D or 3D drawing design in detail using the viewer tools. For information on using the 2D and 3D viewer tools, see [Using 2D and 3D Viewer Tools](#).

6.3.3.2. Viewing Slideshow and Thumbnails of Images

- Image files are available in the folder.
1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. To view the slide show:

- a. Click **More**, and then click **Slide Show** to view a slide show presentation of images in that folder.
- b. Click on the image to view the navigation pane at the bottom of the page. Click  to view the list page of the document folder. Or, click  or  to view the next image or the previous image.

3. To view thumbnails:

- a. Click **More**, and then click **Thumbnail View** to view reduced size images of pictures in the selected folder.
- b. Click **More**, and then click **List View** to view the document list page.

6.3.4. Uploading Documents

- The document file type is an allowed file type as configured in the application. For information on allowed file types, see [Application Settings](#).
- A document of the same name does not exist in the folder.

In the **Documents** module, you can upload various file types as configured in the application. You can upload documents of any file types, such as Microsoft files, PDFs, images, audios, videos, and so on.

You can also upload 2-Dimensional (2D), 3-Dimensional (3D), and other formats of drawing files that are created using AutoCAD and other designing software.

While viewing a document, based on the file type, Masterworks enables various functionalities.

You can also add metadata information to documents uploaded to Masterworks. You can associate a workflow with a document to obtain approvals from stakeholders.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Click **New**.

The **NEW DOCUMENT** page is displayed.

New Document Page

The screenshot shows the 'New Document' interface. At the top, there's a header bar with 'NEW DOCUMENT' and two buttons: 'Save & Exit' and 'Cancel'. Below this, there are several input fields:

- 'Title' field with a placeholder box.
- 'New Document' field with a placeholder box and a 'Select files' button to its right.
- 'Template Document' field with a checkbox labeled '(Used as Template Document for Mail Merge)'.
- 'Workflow' field with a dropdown menu set to 'None'.

Note: You can configure additional attributes for a document while uploading it. These attributes vary based on the document properties selected for the project during project creation. Document property templates are defined in the **Document Properties** library catalog. For more information, see [Document Properties](#).

3. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Title	<p>Enter a title for the document.</p> <p>Note: If you do not enter the title, the name of the file is updated in the Title box.</p>
New Document	<p>To upload documents, drag and drop the appropriate files into the New Document box.</p> <p>Alternatively, perform the following steps:</p> <ol style="list-style-type: none"><li data-bbox="536 720 838 765">Click Select files.<li data-bbox="536 765 1065 810">The Open dialog box is displayed.<li data-bbox="536 810 1133 855">Click the required document to upload.<li data-bbox="536 855 1383 945">Alternatively, to select multiple files to upload, press and hold CTRL, and then click the required documents.<li data-bbox="536 945 747 990">Click Open.<li data-bbox="536 990 1044 1034">The selected files are displayed.
Template Document	<p>Select the Template Document check box to use the document as a template document for the Mail Merge feature. For information on Mail Merge, see Mail Merge.</p> <p>Note: Only files of Word format are used as templates for the Mail Merge feature.</p>
Workflow	<p>Select the appropriate workflow to receive approvals from the stakeholder.</p> <p>Available options are workflows defined for the document management module. For information on workflows, see Workflow Management.</p>

4. Optionally, based on the document property template associated with the folder, enter the details in the other fields.

For information on the document property template, see [Document Properties](#).

5. Click **Save & Exit**.

The list page of the folder is displayed.

In the list page, the **File View Status** column displays the current status of the document being uploaded. Each status is associated with a color. You can view the uploaded document only when the status is **Ready**.

Note: If the drawing file viewer is not configured, then the **File View Status** column is not displayed in the list page.

The following are the different status of a file being uploaded:

Status	Color	Description
Processing	 Blue	Translation in progress
Failed	 Red	Translation failed
Ready	 Green	File is ready to view

6.3.5. Uploading Documents in Bulk

- The document file type is an allowed file type as configured in the application. For information on allowed file types, see [Application Settings](#).

You can upload up to 200 documents, images, or other files to folders in the **Documents** module in bulk at once. You can also add metadata information to documents uploaded to the application.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Click **Excel Import / Export**, and then click **Document Import**.

The **Import Details from Excel File** page is displayed.

3. Click **Select Files**.

The **Open** dialog box is displayed.

4. Press and hold CTRL, and then click the appropriate files to upload.
5. Click **Open**.

The selected files are displayed

6. To remove a file from the list, corresponding to the appropriate file, in the **X** column, click x.
7. Click **Generate Template**, and then click **Excel Template with Data**.

An Excel workbook named **Metadata_Template** comprising the list of selected files is downloaded to your downloads folder.

8. Open the template workbook, and then perform the following steps:

- a. Ensure the format for the cells in the Excel worksheet is **Text** by default.

To set the format of the cells to **Text**, perform the following steps:

- i. Press **Ctrl + 1**.

The **Format Cells** dialog box is displayed.

- ii. In the **Number** tab, in the **Category** list, click **Text**.

- iii. Click **OK**.

- b. The name of the file is updated in the **Title** column. Optionally, in the **Title** column, enter the title of the files.

- c. In the **Folder** column, select the folder to which the file must be uploaded to.

Available options are names of folders in the **Documents** folder of the project or contract that have the same document property assigned.

- d. Enter the appropriate information in the other columns.

Available column names depend on the associated document property page selected for the folder. For information on document properties, see [Document Properties](#).

- e. Click **Save**.

9. In the **IMPORT DETAILS FROM EXCEL** page, click **Select Excel**.

The **Open** dialog box is displayed.

10. Click the appropriate **Metadata_Template** file, and then click **Open**.

The **Status** column displays **Validated Successfully** for all files that are ready for uploading.

If a file is not validated, an error message is displayed, and the **Status** column displays the reason for the error. You can also download the error log.

If an error occurs, perform the following steps:

- a. To view the error log, click **Error Log**.

Error messages in the cells are highlighted in red. Tabs in the workbook are also highlighted to indicate the presence of errors.

- b. Update the **Metadata_Template** file to correct the error.

Optionally, you can make relevant corrections in the error log workbook and upload it.

- c. In the **IMPORT DETAILS FROM EXCEL** page, click **Select Excel**.

The **Open** dialog box is displayed.

- d. Click the updated **Metadata_Template** file, and then click **Open**.

11. Click **Save**.

The **Status** column displays **successful** for all files that are uploaded successfully.

6.3.6. Downloading Documents

You can download a [document](#), any [version of a document](#), and also an [annotated copy of the document](#).

6.3.6.1. Downloading Documents

1. To access a **Documents** folder at the project or contract level, perform the following steps:

- a. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- b. In the list page, double-click the appropriate project.

- c. In the navigation pane, expand the project folder.

- d. Perform either of the following steps, as applicable:

- To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
- To access the **Documents** folder at the contract level, perform the following steps:

- i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.

- ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select the appropriate documents.

Alternatively, to download an attachment of a form, in the list page of the appropriate form, click **Attachments**.

3. Click **Download**.

If a single file is selected, the file is downloaded to the local storage.

If multiple files are selected, the files are downloaded to the local storage as a compressed file. For information on downloading a document version, see [Downloading Document Versions](#).

6.3.6.2. Downloading Document Versions

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select the appropriate document.

Alternatively, to download a version of an attachment of a form, in the list page of the appropriate form, click **Attachments**.

3. Click **Version History**.

The **Version History** dialog box is displayed.

4. Perform either of the following steps:

- Click  to download the corresponding document version to the local storage.
- 
Click  to download or view annotated copies of the corresponding document version.

6.3.7. Updating a Document

Documents are checked out to incorporate any modifications to the existing file at any point in time. A checked out document cannot be modified by other users to prevent overwriting and loss of information. The user name of the user who checked out the document is displayed in the document list.

Documents wrongly checked out can be restored to their current version by choosing the **Discard Check Out** option. You can discard a check out only before the document is checked-in.

To update a checked out document, the document must be checked in by the user who had checked out the document. On checking in a document, the document version number increments by 1.

1. To access a **Documents** folder at the project or contract level, perform the following steps:

- a. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:

- To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
- To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. From the documents list page, select the appropriate document.
3. Click **Check In/Out**, and then click **Check Out**.

The file is downloaded to the local storage.

Note: If you want to discard the check-out, click **Check In/Out**, and then click **Discard Check Out**.

4. Make required modifications to the document, and then save the document.
5. In the documents list page, select the checked-out document.
6. Click **Check In/Out**, and then click **Check In**.

The **CHECKIN DOCUMENT** page is displayed.

7. In the **Comments** box, enter the details about the modification as comments.

8. Click **Choose File** to select the modified document, select the updated document, and then click **Open**.
9. Click **Check In**.

The version number of the document increments by 1.

For information on document versions, see [Managing Document Versions](#).

6.3.8. Managing Document Versions

You can maintain multiple versions of a document with the following options:

- View or download any version of the document.
- View or download annotations of any document version.

1. To access a **Documents** folder at the project or contract level, perform the following steps:

- a. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.

- d. Perform either of the following steps, as applicable:

- To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
- To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. In the toolbar, click **More**, and then click **Version History**.

The **Version History** page is displayed with the date of creation.

Version History Dialog Box

Version Label	Created On	Created By	Comments	Download	Annotations
Version 1	10/20/2023 17:49:15	MikeRoss	Permit		

Close

3. To download a document version to the local storage, corresponding to the required version, click .
4. To view annotated copies of a document version, corresponding to the required version, click .

6.3.9. Moving a Document to a Different Folder

- **Document Properties** of the source folder and the destination folder are the same. For information on document properties, see [Associating a Document Property Template to a Folder](#).

You can move documents with ease to folders within the Masterworks document management system. Moving a document implies that the current version of the document is moved to the new folder location as is. The previous versions, properties, comments, annotations, and workflow status of the document are retained in the new folder location.

Note:

- On moving a document to a destination folder, the document will no longer be available in the source folder.
- Documents linked to the **ATTACHMENTS** section of a record can be moved to the destination folder, and the URL/Link is automatically updated in the record.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. In the list page, select the appropriate documents.
3. Click **Move**.

The **Move Document** dialog box is displayed.

Available folders are folders you have **Create** permissions on, and the **Document Properties** of the folders are the same.

4. Click the folder to which the documents must be moved to.
5. Click **OK**.

The selected files are moved to the selected folder.

6.3.10. Editing Document Properties

The **Document Properties** page enables you to perform the following tasks:

- Update document properties.
- Associate a workflow to the document.
- Copy to the clipboard the link to download the document.

Note: Document properties displayed are based on the document properties template selected for the project. For information on document properties, see [Document Properties](#).

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. In the documents list page, select the appropriate document.

3. Click **Properties**.

The **VIEW PROPERTIES** page is displayed.

The information available in the **VIEW PROPERTIES** page is based on the document properties template selected for the project.

4. Click **Edit**.

The **EDIT PROPERTIES** page is displayed.

5. Make the appropriate changes.

6. To copy the link to download the document, corresponding to **Download Link** box,

click  , and then click **OK**.

7. From the **Workflow** list, select the appropriate workflow to receive approvals from the stakeholders.

For information on workflows, see [Workflow Management](#).

Note: You cannot edit the workflow of the document if it is already part of a workflow (in any workflow stage of the document).

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

6.3.11. Archiving a Document

You can archive documents to an automatically created **Archive** folder when you no longer require the documents in a particular folder.

The **Archive** folder is automatically created the first time the **Archive** functionality is used. On archiving a document, the document is moved to the **Archive** folder. However, you can still search for archived documents using the **Document Search** feature.

Note: You cannot archive the documents linked to the **ATTACHMENTS** section of a form.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select the appropriate documents.
3. Click **Archive**.

The selected documents are moved to the **Archive** folder.

Note: The **Archive** folder is automatically created the first time the **Archive** functionality is used.

6.3.12. Using 2D and 3D Viewer Tools

In the document viewer, you can use a set of tools and options to view and inspect 2D and 3D drawings in detail. The tools and options vary based on the type of document you open.

In general, you can use a combination of tools to inspect a drawing. For example, after you select **Explode Model**, you can use **Zoom** and **Orbit** to inspect the drawing further. To restore the drawing to the default view, click **Home**.

The following table provides information on using each of the tools in the document viewer.

Tool	Icon	Function
Pan		Drag to move the drawing or model to a different part of the viewer.
Zoom		<p>Perform any of the following options to zoom in or zoom out a drawing model:</p> <ul style="list-style-type: none">Click a part of the design and double-click to zoom.Click a part of the design and press CTRL + Down Arrow key to zoom in and CTRL + Up Arrow key to zoom out.Click a part of the design and rotate the wheel button.<ul style="list-style-type: none">Forward or away from user = zoom out.Backward or towards the user = zoom in.Click Home to return to the default view.
Camera Interactions		<p>Click  and then click the type of view you want to use.</p> <ul style="list-style-type: none">Click  to position the model at the center of the viewport.Click  to rotate the model.If the file is a 3D model, then click  to change the current camera focal length of the model.

Tool	Icon	Function
Measure		<p>Click to view all the measurement options and then select the appropriate option. When completed, click Done to turn off the measurement.</p> <p>In 2D designs, you can use the following measurement options:</p> <ul style="list-style-type: none">• Distance• Angle• Area• Arc• Calibrate <p>In 3D designs, you can use the following measurement options:</p> <ul style="list-style-type: none">• Distance• Angle• Calibrate
Document Browser		<p>To switch the view between 2D and 3D, perform the following steps:</p> <ol style="list-style-type: none">1. Click .The Document Browser dialog box is displayed.2. In the Tree tab, expand Model and then click the appropriate view. <p>Note: If the document supports only 2D View, then the 3D View option is not available.</p> <ol style="list-style-type: none">3. To view the thumbnails of the drawing, click the Thumbnails tab.4. Click the appropriate page.

Tool	Icon	Function
Layer Manager		To view layers in the drawing design, perform the following steps: <ol style="list-style-type: none"> 1. Click . The Layers dialog box is displayed. 2. In the Layers dialog box, click to show or hide layers in the drawing model. Alternatively, in the Enter Filter Term box, click and enter the layer name to search for a layer.
Properties		Click to view the properties of a selected part within the drawing.
Full Screen		Click to change the viewer to full-screen view. Press Esc or click the Full Screen toggle option to exit full-screen view.

Tools specific to 3D drawings:

Term	Icon	Function
Orbit		Click and then click the appropriate rotate option you want to use. <ul style="list-style-type: none"> • Click to rotate the model. • Click to rotate and tilt the model as needed.

Term	Icon	Function
First Person		To navigate through the 3D drawing model as if you were actually inside the model, perform the following steps: <ol style="list-style-type: none">1. Click . The Navigate in First Person dialog box is displayed.2. Read the navigation instructions, and then click Ok, Got It.3. Navigate through the 3D model using the following options:<ul style="list-style-type: none">• Use the directional keys on the keyboard to navigate through your model. Alternatively, you can use the W A S D keys as the directional keys.<ul style="list-style-type: none">■ ↑ or W - move forward■ ↓ or S - move back■ ← or A - move left■ → or D - move right• Use Shift + directional keys to move faster.• To adjust the walk speed, use the + or - keys.• Click Home to return to the default view.
Section Analysis		Click  and then click the type of sectioning you want to use. <ul style="list-style-type: none">• Click  to section along the x-axis.• Click  to section along the y-axis.• Click  to section along the z-axis.• Click  to section a specific area. Drag the desired manipulators until the model is sectioned the way you want it. When done, click  again to turn off sectioning.

Term	Icon	Function
Explode Model		To take apart a 3D drawing design and see the parts that make up the model, perform the following steps: <ol style="list-style-type: none">1. Click .A slider is displayed.2. Drag the slider forward to separate the parts of the model.3. Drag the slider backward to bring the model back together.4. Optionally, use Zoom to take a closer look at a part.5. Click again to go back to the default view.
Model Browser		To view or hide a model in the drawing, perform the following steps: <ol style="list-style-type: none">1. Click .The Model dialog box is displayed.2. In the Model dialog box, click to show or hide a complete model or the parts in the drawing design.3. In the Search box, click and enter the name of the part that you want to search.

6.4. Document Annotations

6.4.1. Annotations

You can add annotations to files of various formats in Masterworks. Annotations added to a file do not affect the original file. A file with annotations is saved as an annotated copy of the original file. You can also consolidate the annotations provided by multiple stakeholders into a single document.

You can annotate the following files:

- [Files in the document folders of the Documents module](#)
- [Files attached to various form records in the application](#)

You can access the following files:

- [Annotated files](#)
- [Annotated attachment files](#)

Note: You cannot delete or edit annotations created by other users. For information on editing annotations, see [Editing Annotations](#).

Annotations for document or image files:

The table below provides a quick reference to the list of annotations that are available for annotations.

Term	Icon	Function
Select		To select and manage annotation objects
Line		To draw a simple line
Rectangle		To draw a rectangle. To make a square annotation, hold down the Shift key and draw the rectangle.
Ellipse		To draw an ellipse. To make a circle annotation, hold down the Shift key and draw the ellipse.
Polyline		To draw a series of points that create a sequence of lines joined
Polygon		To draw a series of points that create a sequence of lines joined in the shape of a polygon
Pointer		To draw a pointed line
Freehand		To draw a series of points that create a sequence of lines joined
Text		To enter text in the rectangular dialog box. To make a square dialog box, hold down the Shift key and draw the rectangle.
Text Pointer		To enter text in the rectangular dialog box with the line pointing to the object in the viewer window. To make a square dialog box, hold down the Shift key and draw the rectangle.

Term	Icon	Function
Note		To add notes in the viewer window. To make a square dialog box, hold down the Shift key and draw the rectangle.
Stamp		To add stamp annotations
Rubber Stamp		To add a specific authentication to the viewing object
Ruler		To add a line that can measure the distance between two points of the viewing object
Poly Ruler		To measure the distance of an irregularly shaped object, a series of points that create a sequence of joined rulers. You can modify the length, add, or remove the ruler segments; a running total of the distance is displayed.
Text Strikeout		To strikeout the text annotation
Text Underline		To underline the text annotation
Comment		<ul style="list-style-type: none"> • To add comments to an annotation • To add responses to comments on an annotation • To add responses to responses on comments on an annotation • To set the status of responses to an annotation
Properties	-	Right-click an annotation to: <ul style="list-style-type: none"> • Format an annotation by: <ul style="list-style-type: none"> ■ Filling the annotation ■ Striking the annotation ■ Adding a hyperlink to the annotation • View and add comments and responses

Annotations for 2D and 3D drawing files:

The table below provides a quick reference to the list of annotations that are available for annotations.

Term	Icon	Function
Arrow		To draw an arrow line.
Rectangle		To draw a rectangle.
Circle		To draw a circle.
Text		To enter text in the rectangular dialog box.
Callout		To add a visual cue.
Cloud		To draw a cloud-like shape in the drawing.
Polyline		To draw a series of points that create a sequence of lines joined together.
Poly Cloud		To draw a series of points that create a sequence of cloud-like lines joined together.
Free Hand		To draw a free-form line.
Highlight		To highlight the contents in a bright color.
Dimension		To add dimensions to the drawing. To edit the default dimension, double-click and enter the appropriate dimension.
Properties	-	Right-click an annotation to change the properties.

Files in folders in the Documents module:

The following tables describe the permissions required to add annotations to a file.

Permissions	Activity
View	Create annotations.
	View annotations created by you and other users.

Permissions	Activity
Edit	<p>Edit annotations created by you.</p> <p>Note: If a document's file type is mapped to a viewer supporting drawing files, then you cannot edit or update the annotations after the file is saved.</p>
Delete	Delete annotations created by you.

Files as attachments in forms without workflows:

The following tables describe the permissions required to add annotations to a file.

Permissions	Activity
Edit	Create annotations.
View	View annotations created by you and other users.
Delete	Delete annotations created by you.

Files as attachments in forms with workflows:

The following tables describe the permissions required to add annotations to a file.

Stakeholder Type	Activity
Action Stakeholder	Create annotations.
	View annotations created by you and other users.
View Stakeholder	View annotations created by you and other users.

6.4.2. Annotating a File

You can annotate files of various formats.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select a document to add annotations.
3. Click **More**, and then click **Annotations**.

The **DOCUMENT ANNOTATION** page is displayed.

Document Annotation Page

DOCUMENT ANNOTATION

New Back More

Annotation Name	Created By	Created On	Modified By	Modified On
<input type="text"/>	<input type="text"/>	MM/dd/yyyy <input type="button" value="Calendar"/>	<input type="text"/>	MM/dd/yyyy <input type="button" value="Calendar"/>

No records to display.

Page 1 of 1

4. Click **New**.

The file is opened in the document viewer.

5. If the file is a 3D drawing, then in the **VIEWER** page, in the toolbar, click . The annotations toolbar is displayed.

Note: Some tools on the toolbar, such as **Section Analysis** and **Explode Model**, are specific to 3D drawings. When the viewer displays a 2D model, the toolbar contains tools that apply to 2D drawings.

6. Click the required annotation and add it to the opened file in the viewer.
You can annotate documents using the various [annotation options](#) that are available.
7. Click **Save**.

On saving the annotated file, a copy of the file with the annotations is saved in the **DOCUMENT ANNOTATION** list page of the document.

Details such as the date and time the annotations were added, and the reviewer's name, are saved. The annotated file name is appended with the reviewer's name. For information on accessing annotated copies of the document, see [Accessing Annotated Files](#).

For information on editing the existing annotations, see [Editing an Annotated File](#).

Note: If a document's file type is mapped to a viewer supporting drawing files, then you cannot edit or update the annotations after the file is saved.

6.4.3. Accessing Annotated Files

You can access all annotated copies of a [document](#) and all annotated copies of all [versions of the document](#).

6.4.3.1. Accessing annotated copies of the current version

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select the appropriate document.
3. Click **Annotations**.
The list of annotated copies of the current version of the file is displayed.
4. Select an annotated file, and then click **View** to view the document.

6.4.3.2. Accessing annotated copies of previous versions

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select the appropriate document.

3. Click **More**, and then click **Version History**.

The **Version History** dialog box is displayed.

4. To view annotated copies of a document version, in the **Annotation** column

corresponding to the appropriate document, click .

5. Select an annotated file, and then click **View** to view the document.

6.4.4. Annotating Attachments

You can annotate files that are attached to forms.

1. In the navigation pane, click the appropriate form.
2. Select the appropriate record, and then click **Edit**.

3. To annotate an attachment, perform either of the following steps:

- To annotate a document or image file, perform the following steps:
 - a. In the **ATTACHMENTS** section, in the **Document Name** column, click the appropriate attachment.
The file is opened in the viewer.

Alternatively, select the appropriate attachment, and then click  in the toolbar.

The **DOCUMENT ANNOTATION** list page is displayed.

- b. In the list page, click **New**.
 - c. If the annotations toolbar is unavailable, then in the document viewer, click **Edit**, and then click **Enable Annotations**.
The various annotation options are displayed.
 - d. Click the required annotation and add it to the document.
You can annotate documents using the various [annotation options](#) that are available.
 - e. Click **Save**.
On saving the annotated document, a copy of the annotated document is saved with the timestamp of review and reviewer details.
For information on accessing annotated copies of the attachment, see [Accessing Annotated Attachment Documents](#).
- To annotate a drawing file, perform the following steps:
 - a. In the **ATTACHMENTS** section, select the appropriate drawing file.
 - b. 
Click  in the toolbar.

Note: The  button is not available if multiple drawing files are selected.

- The **DOCUMENT ANNOTATION** list page is displayed.
- c. Click **New**.
The file is opened in the viewer.
 - d. Click the required annotation and add it to the document.
You can annotate documents using the various [annotation options](#) that are available.
 - e. Click **Save**.

On saving the annotated document, a copy of the annotated document is saved with the timestamp of review and reviewer details. For information on accessing annotated copies of the attachment, see [Accessing Annotated Attachment Documents](#).

6.4.5. Accessing Annotated Attachments

You can access all annotated copies of an [attachment](#) and all annotated copies of all [versions of the attachment](#).

6.4.5.1. Accessing Annotated Copies of the Current Version

1. In the project navigation pane, click the required form.
2. Select the required record, and then click **Edit**.
- 3.

In the **ATTACHMENTS** section, select the required document, and then click 

The list of annotated copies of the current version of the file is displayed.

4. Select an annotated file, and then click **View**.

6.4.5.2. Accessing Annotated Copies of Previous Versions

1. In the project navigation pane, click the required form.
2. Click **More**, and then click **Attachments**.
The list of all attachments is displayed.
3. Click the required file to view annotated copies of its previous versions.
4. Click **Version History**.
The **Version History** dialog box is displayed.

5. To view annotated copies of a document version, in the **Annotations** column of the

corresponding file, click 

6. Select the required annotated file, and then click **View**.

6.4.6. Consolidating Annotations

- The latest version of the document is opened for editing.
- The file type of the document is not drawing.

In Masterworks, multiple stakeholders can review the document and provide comments using annotation. The owner of the document can create a consolidated document of annotations provided by multiple stakeholders.

Note: If the document's file type is mapped to a viewer supporting drawing files, then you cannot consolidate the annotations.

1. To access a **Documents** folder at the project or contract level, perform the following steps:

- a. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- b. In the list page, double-click the appropriate project.

- c. In the navigation pane, expand the project folder.

- d. Perform either of the following steps, as applicable:

- To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.

- To access the **Documents** folder at the contract level, perform the following steps:

- i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.

- ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select a file to view all annotated copies of the file.

3. Click **More**, and then click **Annotations**.

The list of annotated copies of the current version of the file is displayed.

4. Select two or more annotated files, and then click **Consolidate**.

Consolidate Option

DOCUMENT ANNOTATION					
	Annotation Name	Created By	Created On	Modified By	Modified On
<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/> MM/dd/yyyy <input type="button"/>	<input type="text"/>	<input type="text"/> MM/dd/yyyy <input type="button"/>
<input checked="" type="checkbox"/>	MikeRoss_202310201...	MikeRoss	10/20/2023 19:18:03	MikeRoss	10/20/2023 19:18:03
<input checked="" type="checkbox"/>	MikeRoss_202310201...	MikeRoss	10/20/2023 19:17:44	MikeRoss	10/20/2023 19:17:44

A new copy of the consolidated annotations is created in the **DOCUMENT ANNOTATION** list page.

5. Select the newly created consolidated annotation and then click **View** to view the document.

6.4.7. Editing an Annotated File

- The latest version of the document is opened for editing.
- The file type of the document is not drawing.

You can edit existing annotations, and delete annotations in an annotated file. You can edit or delete only annotations created by you. You can edit annotations only of the latest version of a document.

Note: If the document's file type is mapped to a viewer supporting drawing files, then you cannot edit or update the existing the annotations.

1. To access a **Documents** folder at the project or contract level, perform the following steps:

- a. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- b. In the list page, double-click the appropriate project.

- c. In the navigation pane, expand the project folder.

- d. Perform either of the following steps, as applicable:

- To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.

- To access the **Documents** folder at the contract level, perform the following steps:

- i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.

- ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select the appropriate file to view all annotated copies of the file.

3. Click **More**, and then click **Annotations**.

The list of annotated copies of the current version of the file is displayed.

4. Select the required annotated file, and then click **Edit**.

5. Perform any of the following steps:

- To add new annotations, perform the following steps:
 - a. If the annotations toolbar is unavailable, then in the document viewer, click **Edit**, and then click **Enable Annotations**.
The various [annotation options](#) are displayed.
 - b. Click the required annotation and drag the annotation on the opened file in the viewer.
 - c. Click **Save**.
- To delete annotations, click the appropriate annotation, and then press **Delete**, and then click **Save**.
- To edit annotations, click the appropriate annotation, drag any of the edit points, and then click **Save**.

6.4.8. Generating the Document Annotations Report

The **Document Annotations Report** provides a consolidated view of all the annotations made on a document, comments added to annotations, and responses to annotations.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select the appropriate document, click **Report**, and then click **Document Annotation Report**.

The **DOCUMENT ANNOTATIONS REPORT** page is displayed.

Document Annotations Report

The screenshot shows a web-based report interface titled "DOCUMENT ANNOTATIONS REPORT". At the top, there are navigation links for "Back" and "Subscribe", and a search bar with "Find | Next". Below the header, the "aurigo" logo and "MASTERWORKS CLOUD" branding are visible. The main content area displays a table with two rows of header information and three rows of annotation data. The table columns are: Document Name, Document Title, Permit, Uploaded By, Uploaded Date, Version Number, Annotation Name, Created By, Created On, Page Number, Nature Of Annotation, Comment, Comment Added On, Responded By, Responded On, Response Status, and Response Comment. The data in the table is as follows:

Document Name	Document Title	Permit	Uploaded By	Uploaded Date	Version Number	Annotation Name	Created By	Created On	Page Number	Nature Of Annotation	Comment	Comment Added On	Responded By	Responded On	Response Status	Response Comment	
Add Child Task - Schedule.jpg			MikeRoss	10/20/2023	1	Ellipse			1	MikeRoss_2 023102019 1744	MikeRoss	10/20/2023					
						Pointer				MikeRoss_2 023102019 1803	MikeRoss	10/20/2023					
						Pointer				MikeRoss_2	MikeRoss	10/20/2023					

For information on the various report features available, see [Standard Report Functions](#).

The following information is displayed:

- Version Number - The version number of the document.
- Annotation Name - The name of the annotated document.
- Created By - The name of the user who annotated the document.
- Created On - The date the annotation was added to the document.
- Page Number - The page number on which the annotation was added.
- Nature of Annotation - The type of annotation added.
- Comment - The comment added to the annotation.
- Comment Added On - The date the comment was added to the annotation.
- Responded By - The name of the user who responded to the comment.
- Responded On - The date the response was added.
- Response Status - The status as set for the response to an annotation.
- Response Comment - The response comment to an annotation.

6.5. Document Comment Logs

6.5.1. Comment Log

The **Comment Log** is a repository of comments posted on a document. Multiple users can post comments on a document, and record responses on the comments that are posted. You can delete your own comments. You cannot delete comments added by other users.

You can perform the following tasks:

- [Post a comment on a document.](#)
- [Respond to a comment.](#)
- [Generate the Comment Log Report.](#)
- [Delete a comment.](#)

6.5.2. Posting a Comment on a Document

You can post a comment on a document and associate a reference number with the comment. The date the comment is posted is also recorded.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select a document, and then click **Comment Log**.

The **COMMENT LOG** page is displayed.

Comment Log Page

The screenshot shows a web-based application titled "COMMENT LOG". At the top left is a "Save" button with a disk icon and a "Back" button with a circular arrow icon. Below the title is a horizontal header bar with five columns: "Comment Date", "Logged By", "Comments", "Response", and "Responded By". The "Comments" column has a downward-pointing triangle indicating it is sortable. At the bottom of the page are three buttons: "Add", "Edit", and "Delete".

3. Click **Add**.

A row is added to the comment log list.

The date the comment is posted, and the user name of the user posting the comment are displayed.

4. In the added row, double-click in the **Comments** column, and enter comments for the document.
5. In the added row, double-click in the **Reference Number** column, and enter a reference number for the comment.
6. Click **Save**.

6.5.3. Responding to a Comment

You can respond to a comment posted by any user. The date the response is posted is also saved.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select a document, and then click **Comment Log**.

The **COMMENT LOG** page is displayed.

Comment Log Page

The screenshot shows a table titled "COMMENT LOG". At the top left are "Save" and "Back" buttons. Below the title is a header row with columns: "Comment Date", "Logged By", "Comments", "Reference Number", and "Response". A single row of data is shown: "10/20/2023", "MikeRoss", "Check if the documents reflects accurate data?", "", and an empty "Response" field. At the bottom are "Add", "Edit", and "Delete" buttons.

COMMENT LOG					
	Comment Date	Logged By	Comments	Reference Number	Response
<input type="checkbox"/>	10/20/2023	MikeRoss	Check if the documents reflects accurate data?		

3. Select a comment, and then click **Edit** to respond to the comment.

The **Responded By** column is updated with the user name of the logged-in user.

The **Responded On** column displays the response received date.

4. In the selected row, double-click in the **Response** column, and enter a response to the comment.
5. Select the **Complete** check box if the comment has received an appropriate response.
6. Click **Save**.

6.5.4. Deleting a Comment

- You have posted the comment

You can delete your own comments. You cannot delete comments posted by other users.

1. To access a **Documents** folder at the project or contract level, perform the following steps:

- a. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- b. In the list page, double-click the appropriate project.

- c. In the navigation pane, expand the project folder.

- d. Perform either of the following steps, as applicable:

- To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.

- To access the **Documents** folder at the contract level, perform the following steps:

- i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.

- ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select a document, and then click **Comment Log**.

The **COMMENT LOG** page is displayed.

3. Select a comment that you have posted.

4. Click **Delete**.

A confirmatory message is displayed.

5. Click **OK**.

The selected comment is deleted.

6.5.5. Generating the Comment Log Report

The **Comment Log Report** provides details on all the comments and their responses from the comment log for the selected document. The report displays details chronologically with the latest comment post displayed first.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select the appropriate document, click **Report**, and then click **Comment Log Report**.

The report is generated and displayed.

For information on the various report features available, see [Standard Report Functions](#).

The following information is displayed:

- Comment Date - Date the comment was added.
- Logged By - Full name of user who added the comment.
- Comments - The comments provided for the document.
- Reference No - Reference number of the comment.
- Response - The response provided for the comment.
- Complete? - Displays **Yes** if the **Complete** check box is selected for the comment.
- Responded By - Full name of user who responded to the comment.
- Responded On - Date the response was added.

6.6. Offline Availability of Files

6.6.1. Offline Availability of Files

You can access files in document folders on mobile devices only on availability of internet connectivity; that is, in the online mode. To enable availability of files on a mobile device when offline, that is with no internet connectivity, files in document folders must be

marked to be available offline. You can mark an entire document folder to be available offline. Also, you can also mark individual files to be available offline.

You can perform the following tasks:

- [Mark a folder offline.](#)
- [Mark a folder online.](#)
- [Mark a file offline.](#)
- [Mark a file online.](#)

6.6.2. Marking a File Offline

On marking a file in a document folder offline, the file is made available on a mobile device and can be viewed with no internet connectivity.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select the files to be made available offline.
3. Click **Document Operations**, and then click **Mark Offline**.

The selected files are available on the mobile device when offline.

6.6.3. Marking a File Online

On marking a file in a document folder online, the file is made available on a mobile device only with internet connectivity.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select the files to be marked online.
3. Click **Document Operations**, and then click **Mark Online**.

The selected files are available on the mobile device when online.

6.6.4. Marking a Folder Offline

On marking a folder offline, all files in the folder and all its sub-folders are marked to be available offline.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. In the toolbar, click **Mark Offline**.

All files in the folder and its sub-folders are marked to be available on mobile devices when offline.

6.6.5. Marking a Folder Online

On marking a folder online, all files in the folder and all its sub-folders are marked to be available only when online.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. In the toolbar, click **Mark Online**.

All files in the folder and its sub-folders are marked to be available on mobile devices when online.

6.7. DocuSign

6.7.1. DocuSign

Some documents require electronic signatures to be placed inside the document, which is equivalent to the physically signed document. For example, contractual documents need to be signed as it acts as proof that the document is reviewed and approved.

The **DocuSign** feature integrated into Masterworks enables you to sign a document or send it to another user or users for signature and get a signed copy. You must have a **DocuSign** account and your signature file must be uploaded into the **DocuSign** server.

Using the **DocuSign** feature, you can perform the following tasks:

- [Sign the document](#) – the logged-in user can sign the document.
- [Send for signature](#) – the logged-in user can request recipients for their signature.
- [Get the signed copy](#) – the logged-in user can retrieve the signed document after the signing.
- [Cancel the send request](#) – the logged-in user can cancel the signature request that was sent.

6.7.2. Signing a Document

The **DocuSign** feature enables you to sign a document and place relevant information like initials, stamps, dates, and more in the document.

You can sign documents that are **Attachments** to a form or the documents in the **Documents** folder.

6.7.2.1. Signing Attachments in a Form

- You have a **DocuSign** account and have uploaded your signature file into the **DocuSign** server.

1. In the **ATTACHMENTS** section, select the appropriate attachment, and then click .

The **DocuSign** page is displayed.

Note: The document is locked until either the signing process is completed, or the session is timed out. If another user tries to sign the document during this time, a warning message is displayed.

2. Place the signature in the signature section of the document.
3. Click **Finish**.

You will receive a copy of the signed document via email.

6.7.2.2. Signing Documents in the Documents Folder

- You have a **DocuSign** account and have uploaded your signature file into the **DocuSign** server.

1. To access a **Documents** folder at the project or contract level, perform the following steps:
 - a. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 - b. In the list page, double-click the appropriate project.
 - c. In the navigation pane, expand the project folder.
 - d. Perform either of the following steps, as applicable:
 - To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.
 - To access the **Documents** folder at the contract level, perform the following steps:
 - i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.
 - ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select the appropriate document and then click **More**.
3. Click **DocuSign**, and then click **Sign Document**.

The **DocuSign** page is displayed.

Note: The document is locked until either the signing process is completed, or the session is timed out. If another user tries to sign the document during this time, a warning message is displayed.

4. Place the signature in the signature section of the document.
5. Click **Finish**.

You will receive a copy of the signed document by email.

6.7.3. Sending for Signature

The **DocuSign** feature enables you to request recipients for their signatures on a document.

6.7.3.1. Requesting Signature for Attachment in a Form

1. In the **ATTACHMENTS** section, select the appropriate attachment, and then click .

The **DocuSign** page is displayed.

You can specify the following in the **DocuSign** page:

- A list of the recipients whose signatures are required.
- The order of signatures, if applicable.
- The section where the user needs to place the signature.

2. Click **ADD RECIPIENTS**.

The **Edit Recipients** page opens.

3. Provide the name and email address of the recipient.

4. Click **Done**.

An email requesting the signature is sent to the recipient.

After the signing is complete every user including the sender receives a copy of the signed document by email.

6.7.3.2. Requesting Signature for a Document

1. To access a **Documents** folder at the project or contract level, perform the following steps:

- a. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- b. In the list page, double-click the appropriate project.

- c. In the navigation pane, expand the project folder.

- d. Perform either of the following steps, as applicable:

- To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.

- To access the **Documents** folder at the contract level, perform the following steps:

- i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.

- ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select the appropriate document and click **More**.

3. Click **DocuSign**, and then click **Send For Signature**.

The **DocuSign** page opens.

You can specify the following in the **DocuSign** page:

- A list of the recipients whose signatures are required.
- The order of signatures, if applicable.
- The section where the user needs to place the signature.

4. Click **ADD RECIPIENTS**.

The **EDIT RECIPIENTS** page opens.

5. Provide the name and email address of the recipient.

6. Click **Done**.

An email requesting the signature is sent to the recipient.

After the signing is complete every user including the sender receives a copy of the signed document via email.

6.7.4. Getting a Signed Copy

Once all users sign the document, you can fetch the signed PDF using the **Get Signed Copy** option. The **Signed Copy** column in the **Documents** list page is accordingly updated with a hyperlink to the signed copy.

6.7.4.1. Getting Signed Copy of an Attachment

1. In the **ATTACHMENTS** section, select the appropriate attachment, and then click .

The signed copy of the document is downloaded into Masterworks.

The **Signed Copy** column displays the hyperlink to the signed copy of the corresponding document.

6.7.4.2. Getting Signed Copy of a Document

1. To access a **Documents** folder at the project or contract level, perform the following steps:

- a. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- b. In the list page, double-click the appropriate project.

- c. In the navigation pane, expand the project folder.

- d. Perform either of the following steps, as applicable:

- To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.

- To access the **Documents** folder at the contract level, perform the following steps:

- i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.

- ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select the appropriate document and click **More**.

3. Click **DocuSign**, and then click **Get Signed Copy**.

The signed copy of the document is downloaded into Masterworks.

The **Signed Copy** column displays the hyperlink to the signed copy of the corresponding document.

6.7.5. Canceling the Send Request

You can cancel the request for signature after sending the request, using the **Cancel Send Request** option.

Note:

- Only the user who performed the **Send For Signature** action can perform the **Cancel Send Request** action.
- If the **Cancel Send Request** action is performed by another user, an error message is displayed.
- The **Administrator** can perform the **Cancel Send Request** action for a document that is sent for signature by another user.

6.7.5.1. Canceling Request for Signature of an Attachment

1. In the **ATTACHMENTS** section, select the attachment sent for signature, and then

click .

The recipient will receive an email notifying them of the cancellation of the request for signature.

6.7.5.2. Canceling Request for Signature of a Document

1. To access a **Documents** folder at the project or contract level, perform the following steps:

- a. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- b. In the list page, double-click the appropriate project.

- c. In the navigation pane, expand the project folder.

- d. Perform either of the following steps, as applicable:

- To access the **Documents** folder at the project level, click **Documents**, or expand **Documents** and click the appropriate sub-folder.

- To access the **Documents** folder at the contract level, perform the following steps:

- i. In the navigation pane, expand the **Contracts** folder, and then expand the appropriate contract folder.

- ii. Click **Documents**, or expand **Documents** and click the appropriate sub-folder.

The **DOCUMENTS** list page or the list page of the selected sub-folder is displayed.

2. Select the document sent for signature, and then click **More**.

3. Click **DocuSign**, and then click **Cancel Send Request**.

The recipient will receive an email notifying them of the cancellation of the request for signature.

6.8. Add-in for Microsoft Outlook

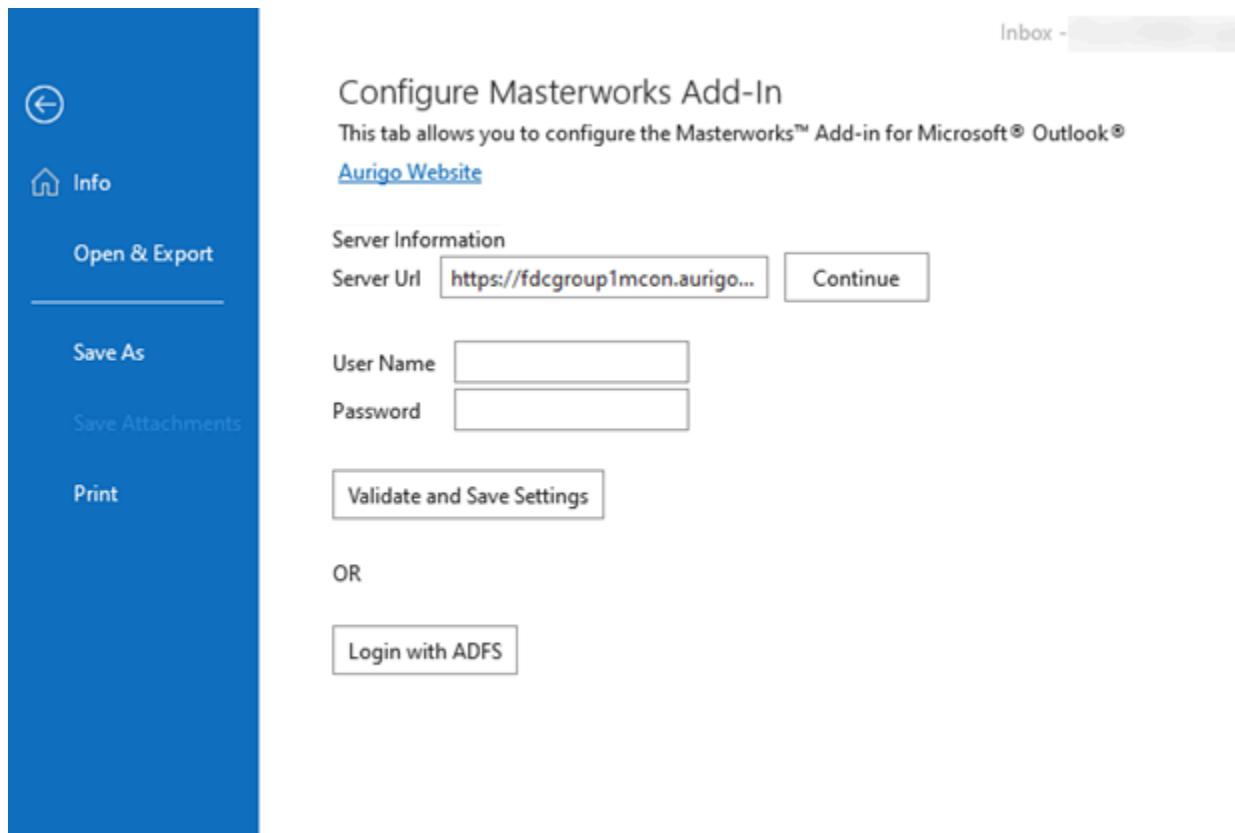
6.8.1. Add-in for Microsoft Outlook

The Masterworks add-in for Microsoft Outlook is an easy to use tool that enables you to upload Microsoft Outlook messages and attachments in messages from Microsoft Outlook to the Masterworks application. Using this tool, email messages and email attachments can be sent to selected Masterworks document folders in projects you have

access to in Masterworks. The add-in for Microsoft Outlook, on installation, is available in the Microsoft Outlook application.

The following image displays the Masterworks add-in in Microsoft Outlook:

Add-in for Microsoft Outlook



6.8.2. Installing and Configuring the Plugin

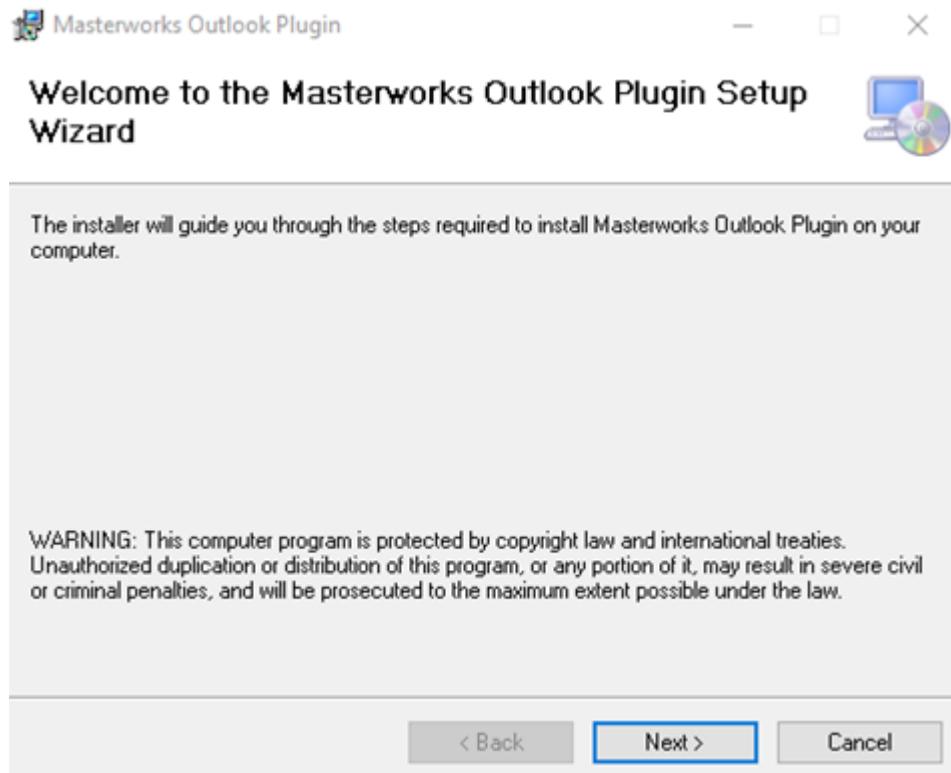
- Microsoft Outlook 2013, or later versions
- Windows 8, or later versions

Installation of the MasterworksOutlook Plugin for Microsoft Outlook is an easy, automated process that requires minimum user interaction.

1. Double-click the provided add-in **setup** file and click **Run**.

The **Masterworks Outlook Plugin** dialog box is displayed.

Microsoft Outlook Plugin Setup



2. Click **Next**.

The **License Agreement** dialog box is displayed.

3. Select the **I Agree** option, and click **Next**.

The **Select Installation Folder** dialog box is displayed.

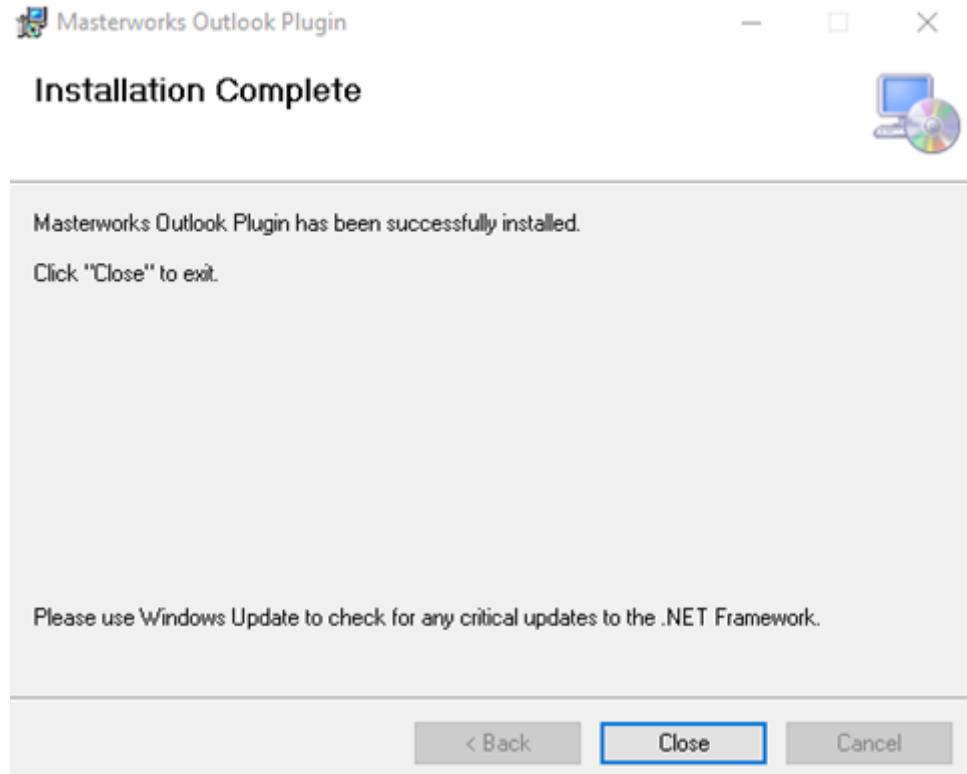
4. To change the destination folder, click **Browse**, select the required folder, and then click **OK**.
5. Select **Everyone** to install **Masterworks Outlook Plugin** for anyone who uses the computer or select **Just me** to install **Masterworks Outlook Plugin** for yourself.
6. Click **Next**.

The **Confirm Installation** dialog box is displayed.

7. Click **Next** to start the installation.

The following screen is displayed.

Microsoft Outlook Plugin Installation



8. Click **Close**.

The plugin is installed on your device.

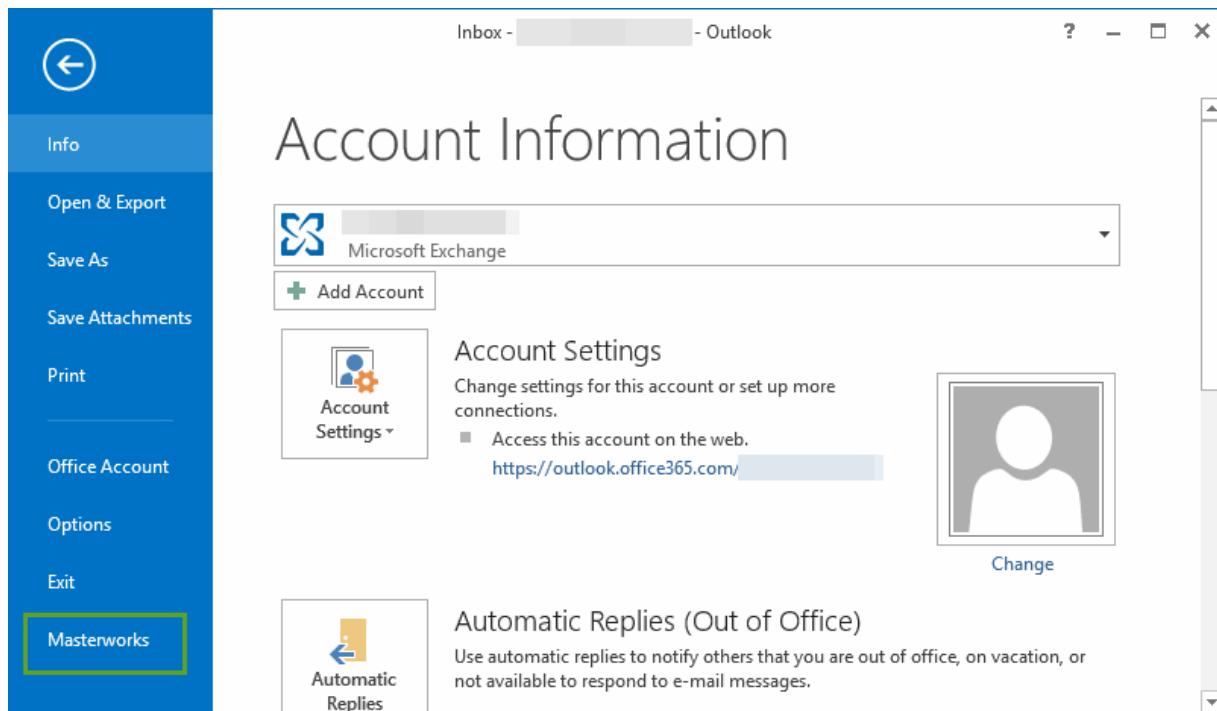
9. Open Outlook.

If Outlook is open on your device, close Outlook, and then open it again.

10. In Outlook, click **File**.

The plugin for Microsoft Outlook is available as an option.

Microsoft Outlook Account Information



11. Click **Masterworks**.

The **Configure Masterworks Add-In** page is displayed.

12. To login using your **Masterworks** credentials, in the **Server Information** section, perform the following:

- In the **Server Url** field, enter the **Masterworks** web address and click **Continue**.
- In the **User Name** field, enter your **Masterworks** user name.
- In the **Password** field, enter your **Masterworks** password.
- Click **Validate and Save Settings**.

On successful connection, the connection success message is displayed.

13. To login using your AD credentials with direct integration, in the **Server Information** section, perform the following:

- In the **Server Url** field, enter the **Masterworks** web address and click **Continue**.
- Click **AD Login**.

The **Login to Masterworks** page is displayed.

- In the **User Name** field, enter your AD user name and click **Next**.
- In the **Password** field, enter your AD password and click **Sign in**.

On successful connection, the connection success message is displayed.

14. To login using your AD credentials with AIS, in the **Server Information** section, perform the following:
 - a. In the **Server Url** field, enter the **Masterworks** web address and click **Continue**.
The **Login to Masterworks** page is displayed.
 - b. To login, perform either of the following steps:
 - To login with **Masterworks** credentials, perform the following steps:
 - i. Enter your **Masterworks** login credentials.
 - ii. Click **Sign in**.
On successful connection, the connection success message is displayed.
 - To login with external identify provider configured for you, perform the following steps:
 - i. Click **Sign in with <External Identify Provider Name>**.
The **Sign in** dialog box is displayed.
 - ii. Enter your AD login credentials and then click **Sign in**.
On successful connection, the connection success message is displayed.
15. Click **OK**.

You can now upload emails and attachments in emails to Masterworks.

6.8.3. Using the Masterworks Add-in

With the add-in, you can directly upload copies of emails and email attachments received in Outlook to document folders in Masterworks projects.

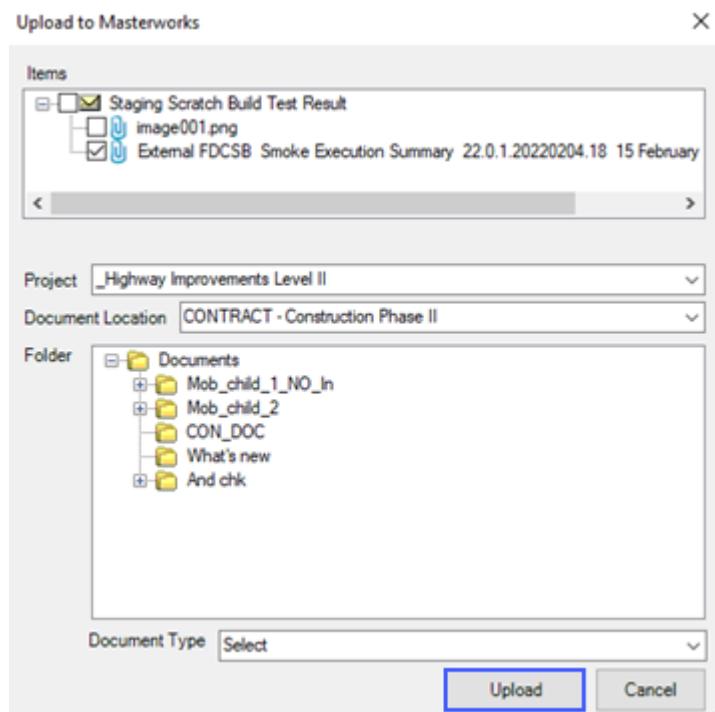
1. Open Microsoft Outlook.

2. Perform any of the following steps:

- To upload messages and its attachments to Masterworks:
 - Right-click an email, and then click **Upload to Masterworks**.
 - Double-click a message to open it, click the **Masterworks** tab, and then click **Upload**.
 - To upload multiple emails to Masterworks:
 - a. Press **Shift**, and click the required emails.
 - b. Right-click, and then click **Upload to Masterworks**.
- To upload selected attachments of an email to Masterworks, open the email, and perform one of the following steps :
 - To upload an attachment to Masterworks, right-click on the attachment, and then click **Upload to Masterworks**.
 - To upload multiple attachments to Masterworks:
 - a. Press **Shift**, and click the required attachments.
 - b. Right-click, and then click **Upload to Masterworks**.Alternatively, click the **Attachments** tab, and then click **Upload**.

The **Upload to Masterworks** dialog box is displayed:

Upload to Masterworks



3. In the **Items** section, select or clear the check boxes of messages, and required attachments.

4. From the **Project** drop-down list, select the required project to which the selected messages and attachments will be uploaded to.

The list of projects available in the **Project** list are the projects you are invited to and are active.

5. From the **Document Location** drop-down list, select the required location to which the selected messages and attachments will be uploaded to.

The list of contracts available in the **Document Location** list are the contracts you are invited to and are active.

6. In the **Folder** box, the **Documents** folder structure as available for the contracts in the selected project is displayed.

The list of folders available in the **Documents** folder structure are the folders to which you have permission to upload files.

7. Click the folder to which the selected messages and attachments must be uploaded to.

8. From the **Document Type** drop-down list, select the document type of the files being uploaded.

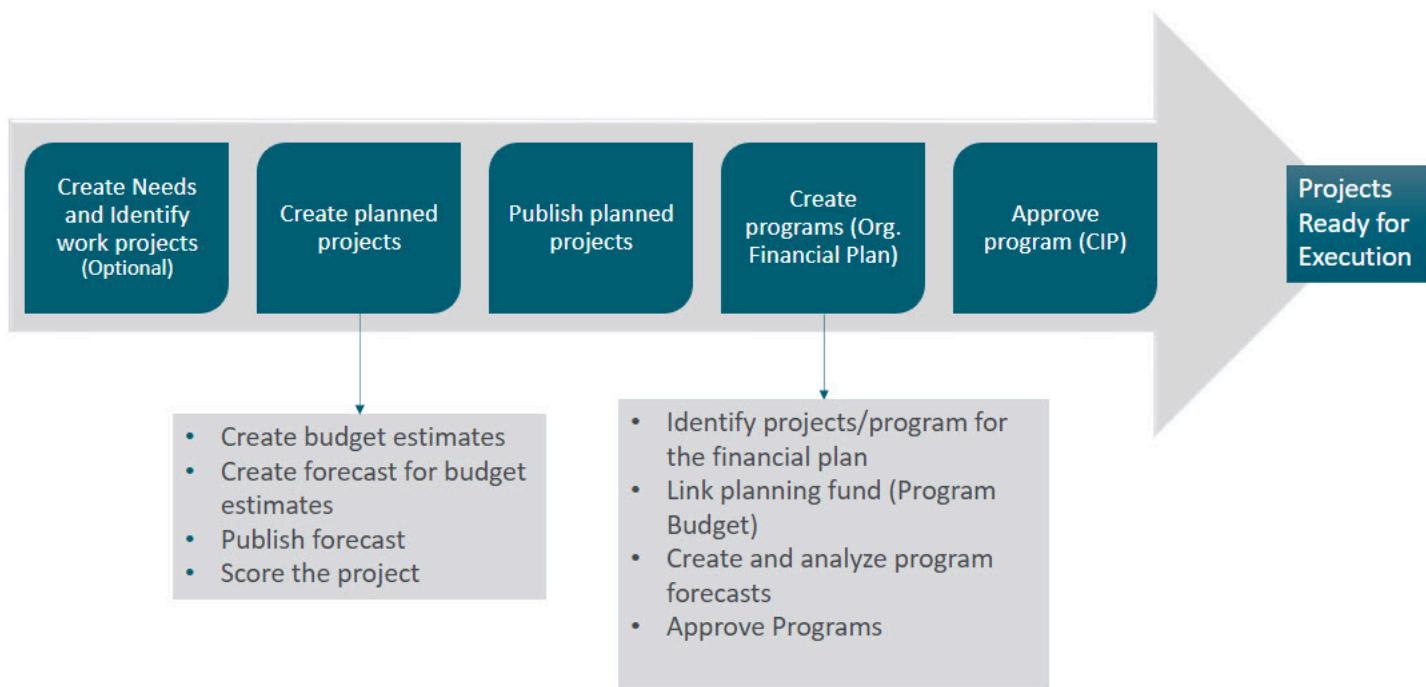
9. Click **Upload**.

The selected message and email attachments are uploaded to the selected folder.

7. Planning Management

7.1. Planning

The Masterworks Planning module enables you to create and manage information on prospective projects, and consolidate them into a program , and then roll selected programs up into a 2-level program. This module supports program planning activities, such as budgeting, scheduling, forecasting, project scoring, and managing project commitments and expenses.



The Masterworks Planning module enables you to perform the following tasks:

- Create and manage work projects and planned projects.
- Create and manage multi-year and annual programs.
- Define the program cycle duration.
- Create accurate budget forecasts based on what-if analysis.
- Customize construction plans based on fund availability.
- Track funding sources and fund allocations, commitments, and expenses.
- Improve visibility and control over project budgets and expenses.
- Gather timely and accurate comparisons between planned and actual expenses.
- Define dashboards with visual cues and drill-downs.

A program is a set of published, planned, pre-award, and in-progress projects that are forecast to start in a particular set of fiscal years. You can create multi-year programs that span any duration of time. Once a program is created, Masterworks can create multi-year

forecasts, perform what-if analysis on the program, modify the plan using sophisticated revision tools, and so on.

The Masterworks platform has extensive multi-year planning capabilities that enables you to create and implement multi-year programs. Programs are created at the enterprise level, and planned projects are added to programs. Masterworks enables you to create multiple programs for user-defined criteria and categories.

Once programs are created, you can compare proposed budgets, and also perform what-if analysis on those programs. The what-if planning activities enable you to save information for the selected projects.

The Masterworks application also supports managing 2-level programs. A 2-level program is a consolidation of programs. The 2-level program configuration enables a central planning engine to consolidate programs into a 2-level program for any time period.

The 2-level program configuration supports all of the same capabilities as available for programs; instead of selecting projects, programs are selected to roll up into a 2-level program.

The key concepts for planning are briefly defined here:

Project/Program	Description
Work Project	They are project or work item needs initiated by the owner. These needs are evaluated by the stakeholders for implementation and are then planned as projects for a fiscal period. Work projects identified for implementation can be grouped together to form a planned project.
Planned Projects	All projects that are identified for execution are created as planned projects. The project's estimated value is determined by associating multiple budget items during budget estimation. You can define project schedules, create budget forecasts, and rank and prioritize the planned projects to analyze them to add into a program

Project/Program	Description
1-level Program	<p>You can create programs that comprise multiple planned projects. Planned projects are added to a program based on various criteria, such as Program Type, Program Year, Required Year, Budget Estimates, Project Score, and so on.</p> <p>You can create planning scenarios for what-if analysis by making adjustments to programs.</p> <p>Planned projects that are part of an approved program are available for implementation in the Masterworks Projects module.</p>
2-level Program	<p>You can create a 2-level program by adding submitted programs to a program. What-if analysis can be performed by creating multiple program scenarios. Planned projects that are part of an approved 2-level program are available for implementation in the Masterworks Projects module.</p>

The functional flow of topics for capital planning is as follows:

1. [Work Projects](#) on page 373
2. [Planned Projects](#) on page 375
3. [Budget Management](#) on page 595
4. [Project Scoring](#)
5. [Planning Fund](#) on page 392
6. [Program](#)
7. [Program Revisions](#) on page 423
8. [Budget Estimate Revisions](#) on page 654

7.2. Accessing Planning Dashboards

Planning Dashboards provide graphical representation of all planned project activities. The Planning Dashboard view is customized for each user role in the enterprise.

You can easily configure dashboards to display any pertinent information. Each user role with appropriate permissions can define their own dashboard screens that display selected planning information.

1. In the module menu, click **Planning**.
The **PLANNING DASHBOARD** is displayed.

2. From the **Select Dashboard** drop-down list, select the appropriate dashboard to view.
The following dashboards are available:

- Plan Summary by Program Category
- Planning Dashboard

For information on customizing widgets on the planning dashboard, see [Working with Dashboards](#).

7.3. Work Projects

7.3.1. Work Projects

A work project is any small identifiable piece of work that needs to be accomplished and has a cost associated with it. A work project has various attributes that include:

- a name and code to identify the work project
- an estimated cost to define an approximate project expense
- a program category to group the work projects
- a fiscal year for the project to begin implementation

Work projects are consolidated to form a planned project. Work projects are associated to a planned project on creating a budget estimate for the planned project. For more information, see [Managing Work Projects](#) on page 385.

7.3.2. Creating a Work Project

1. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** page is displayed.

2. In the navigation pane, click **Work Projects**.

The **WORK PROJECTS** list page is displayed.

3. Click **New**.

Work Projects

The screenshot shows the 'WORK PROJECTS' page with the following fields:

- Name ***: [Text input field]
- Description ***: [Text input field]
- Estimated Cost(\$)**: [Text input field] (value: 0.00)
- Comment**: [Text input field]
- Business Unit**: [Text input field] (with a delete icon)
- Code ***: [Text input field]
- Program Category ***: [Dropdown menu]
- Associated Project Code**: [Text input field]
- Program Year**: [Dropdown menu] (value: 2018)

The **WORK PROJECTS** page displays the following non-editable fields.

Field	Description
ID	On saving the record, an identification code for the record is automatically generated.
Associated Project Code	After the work project is associated with a planned project, the field displays the identification code of the project. Work projects are associated to a planned project on creating a budget estimate for the project. For more information, see Managing Work Projects on page 385.

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Name	Enter the name of the work project.
Code	Enter a unique code to identify the work project.
Description	Enter a brief description of the work project.
Program Category	Select the program category to group the work project. Available options are program categories defined in the Program Category library catalog.
Estimate Cost (\$)	Enter the approximate cost of the work project.
Comment	Enter any comments for the work project.

Field	Description
Program Year	Select the program year. Available options in the list are years calculated as follows: (Current year – Program Duration) to (Current Year + Program Duration) You can define the program duration in Configuring Planning Management .
Business Unit	Select the appropriate business unit for the project. For information on business units, see Business Units . For information on business units associated to your account, see Creating a User Account .

- Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The estimated cost of the work project is now available for inclusion to a planned project as a budget item. For more information, see [Managing Work Projects](#) on page 385.

7.4. Planned Projects

7.4.1. Planned Projects

A planned project is a proposed project planned for execution, and at the current status not approved for execution. A planned project has a definite timeline and scope for execution and completion. These projects have an associated budget, and priority for execution. All projects that must be included in a program are created as planned projects.

A planned project has the following key attributes:

- **Budget**

An associated budget that specifies the approximate cost of project execution.

The budget of a planned project is derived from a set of budget items defined for a project. A planned project budget may also comprise the estimated cost of associated work projects.

- **Program Category**

A program category to group the planned projects into a program.

- **Fiscal Year**

A fiscal year for the planned project to be included in a program and begin execution.

- **Business Unit**

The business unit to which the project is associated.

For a planned project to be available for selection in a program, it must be published. To publish a planned project, perform the following steps:

1. [Create a planned project.](#)
2. [Create budget estimates and define a forecast for the planned project.](#)
3. [Score a planned project.](#)
4. [Perform workflow actions to implement the business process.](#)

7.4.2. Creating a Planned Project

You can create a planned project in two ways.

- [Create a planned project manually.](#)
- [Copy a project with selected information.](#)

7.4.2.1. Creating a Planned Project Manually

You can create a new planned project to capture the high-level scope of the project, project value, and project schedule (project start date and end date).

1. In the module menu, click **Planning**.
The **PLANNING DASHBOARD** page is displayed.
2. In the navigation pane, click **Planned Projects**.
The **PLANNED PROJECTS** list page is displayed.

3. Click New.

New Project Page

The screenshot shows the 'NEW PROJECT' page with the following fields:

- Project Name ***: [Input Field]
- Owner ***: [Input Field]
- Status** : Select One
- Start Date** : 10/13/2023
- Calendar** : Select One
- Calendar Days** : 1
- Project Code ***: [Input Field]
- Project Type** : Select One
- Date Created** : 10/13/2023
- End Date** : 10/13/2023
- Active** :
- Document Folder Structure** : Select One
- Description** : [Input Field]
- Program Category ***: Select One
- Project Value (\$)** : 0.00
- Business Unit ***: [Input Field]
- Project Score** : 0.00
- Document Properties** : Select One
- Default Fiscal Year ***: Select One
- Program Year** : [Input Field]

STRATEGIC GOALS

<input type="checkbox"/> Goal	Description	Percentage
No records to display.		

The **NEW PROJECT** page displays the following non-editable fields:

Field	Description
Date Created	The current date from the system calendar.
Calendar Days / Working Days	<ul style="list-style-type: none">If a calendar is selected for the project, based on the calendar selected, the Working Days field displays the number of days calculated from the start date of the project to the completion date of the project. Note: The number of working days is also based on the latest version of the project calendar. For information on creating versions of the project calendar, see Managing the Project Calendar.If no calendar is selected for the project, the Calendar Days field displays the number of days calculated from the start date of the project to the completion date of the project.

Field	Description
Project Score	Once the project is scored, the calculated project score. For information on project scoring, see Scoring a Planned Project .

4. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Project Name	Enter the planned project name.
Project Code	Enter the project number to uniquely identify the planned project.
Owner	Enter the name of the owner of the planned project.
Project Type	Select the type of the project. Available options are project types defined in the Project Type library catalog.
Status	Select the current implementation status of the project. For more information, see Project Status .
Start Date	Select the date the project starts.
End Date	Select the date the project is planned for completion.

Field	Description
Calendar	<p>Select the calendar for the project. Available options are calendars defined in the Calendar library catalog and are marked as active. For information on project calendars, see Calendar.</p> <p>If no option is selected in the Calendar drop-down list, then the Calendar Days field displays the number of days calculated from the selected Start Date to the selected End Date of the project.</p> <p>If a calendar is selected in the Calendar drop-down list, then based on the calendar selected, the Working Days field displays the number of days calculated from the selected Start Date to the selected End Date of the project.</p> <p>Note: The number of working days is based on the latest version of the project calendar. For information on creating versions of the project calendar, see Managing the Project Calendar.</p>
Active	<p>Ensure the check box is selected. Optionally, clear the check box to deactivate the project to make the project unavailable to users.</p> <p>For information on setting the project status, see Setting Project Availability.</p>
Document Folder Structure	<p>Select the document folder structure to be set up for the project.</p> <p>Based on the document folder structure selected, the set of folders and documents as defined in the selected document folder structure is automatically created in the Documents folder of the project, and all of its contracts. For information on creating a document folder structure, see Document Folder Structure.</p>

Field	Description
Document Properties	<p>Select the document properties template to include additional document information when uploading documents to the project.</p> <p>The set of document properties as defined in the template is displayed to be filled in when uploading documents to the project. For information on creating document properties templates, see Document Properties.</p> <p>Note: You cannot change the selected document property template option once the project is saved. However, you can change the properties sheet of a folder. For more information, see Associating a Document Property Template to a Folder.</p>
Description	Enter a brief description of the project.
Program Category	Select the appropriate program category. Available options are program categories defined in the Program Category library catalog.
Program Year	Select the year of executing the planned project. The years available in the list are years calculated as follows: $(\text{Current year} - \text{Program Duration}) \text{ to } (\text{Current year} + \text{Program Duration})$ You can define the program duration in Configuring Planning Management .
Project Value (\$)	Enter the total amount allocated for the project. Once the budget of the planned project is approved, the budget amount calculated for the planned project is displayed. For information on budget estimates, see Budget Management .
Default Fiscal Year	Select the fiscal year for the planned project. Available options are the fiscal years defined in the Planning Management page of the Administration module. For more information, see Configuring Planning Management .

Field	Description
Business Unit	<p>Select the appropriate business unit for the project. Available options are business units defined in the BUSINESS UNITS page in the Administration module.</p> <p>Note: Ensure your account is associated with the selected business unit. For information on business units, see Business Units.</p>

5. To include information on the strategic goals of the project, in the **STRATEGIC GOALS** section, perform the following steps:

- Click **Add**.

The **Strategic Goals** dialog box is displayed.

Available options are project strategic goals defined in the **Strategic Goals** library catalog.

- Select the appropriate strategic goals for the project and then click **Select**.
The selected project strategic goals are added to the **Strategic Goals** section.
- For each goal, in the **Percentage** column, click and enter the importance value in percentage for the goal.

Note: The sum of all the percentage values must be 100%.

6. To include information on the strategic objectives of the project, in the **STRATEGIC OBJECTIVES** section, perform the following steps:

- Click **Add**.

The **Strategic Objectives** dialog box is displayed. Available options are project strategic objectives defined in the **Strategic Objectives** library catalog.

- Select the appropriate strategic objectives for the project and then click **Select**.
The selected project strategic objectives are added to the **Strategic Objectives** section.
- For each objective, in the **Percentage** column, click and enter the importance value in percentage for the objective.

Note: The sum of all the percentage values must be 100%.

7. To include additional project specific information, you can add attributes to the project. To add attributes to a project, expand the **ATTRIBUTES** section, and then perform the following steps:

- a. Click **Add**.

The **New Attributes** dialog box is displayed.

Note: The **Add** button is available only if attributes are defined in the **Master Attribute List**. For information on attributes, see [Project Status and Attributes](#).

- b. From the **Attribute** drop-down list, select the appropriate attribute.

Available options are attributes defined in the **Master Attribute List**. For information on adding attributes, see [Project Status and Attributes](#).

- c. In the **Value** field, enter a value for the attribute.
 - d. In the **Notes** field, enter notes for the attribute.

- e. Click **Save**.

The selected attribute and its corresponding value and notes are saved for the project.

8. You can select specific modules that you require to manage the project, and make the other modules that are not required for the project unavailable in the project in the web application and the mobile app. To select modules for the web application and the mobile app, in the **MODULES** section, perform the following steps:

- a. Expand the **MODULES** section.

By default, all modules in the application are enabled for a project in the web application.

- b. To remove the modules that are not required for the project in the web application, clear the check box in the first column of the modules that are not required for the project.

Alternatively, select the check box of the modules that are required for the project in the web application. On saving the form, the **Web** column displays a selected

check box for modules selected for the project, and a cleared check box for modules that are not selected for the project.

- c. To select modules to be made available in the mobile app, in the **Offline Client** column, select the check box for the modules required for the project in the mobile app.

Note: Only check boxes of modules that are available for the mobile app are enabled.

9. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The planned project is created. You can now invite users to the planned project.

For information on inviting users to a project, see [Inviting Users to a Project](#).

To perform workflow actions, see [Planned Projects Workflow](#) on page 386.

7.4.2.2. Copying a Planned Project

- User accounts are created.
- Roles are assigned to users.

You can copy selected details of a project to create a new planned project with a new name and project number. The workflow status of the new planned project is set to the first workflow status as defined for projects.

1. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** page is displayed.

2. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

3. To copy a project, perform either of the following steps:

- Select the project to be copied, click **Copy**, and then click **OK**.
- Double-click the project to be copied, click the **PROJECT DETAILS** tab, and then click **Copy**.

Copy Project Page

COPY PROJECT

Save Cancel

Source Project Name : Tip Tower Project

Source Project Code : 1122

New Project Name * :

New Project Code * :

Description :

Include in copy : Modules Attributes Users

Funds :

The **COPY PROJECT** page displays the following non-editable fields:

Field	Description
Source Project Name	The name of the project that is copied.
Source Project Code	The project code of the project that is copied.

4. In the **New Project Name** box, enter a name to identify the project.
5. In the **New Project Code** box, enter a unique alphanumeric code to identify the project.
6. In the **Description** box, enter the description of the project.
7. In the **Include in copy** section, select the required information to be copied into the new project, as described in the following table.

Section	Description
Modules	Makes available in the copied project, the modules selected in the project being copied.
Attributes	Copies all attributes defined in the project. For information on attributes, see Project Status and Attributes .

Section	Description
Users	Copies all users invited to the project. For information on managing users, see User Management in Projects .
Funds	Copies all project fund sources and active project fund rules.

8. Click **Save**.

The planned project is created. You can now invite users to the project. For information on inviting users to a project, see [Inviting Users to a Project](#). To perform workflow actions, see [Planned Projects Workflow](#).

7.4.3. Managing Work Projects

You can add work projects to a budget estimate of a project as a budget estimate item. Work projects are associated to a planned project on creating a budget estimate for the planned project.

You can perform the following tasks:

- [Add work projects to a planned project](#).
- [Remove work projects from a planned project](#).

7.4.3.1. Adding Work Projects to a Planned Project

- Work projects are created with the same **Program Category** defined for the planned project. For information about work projects, see [Work Projects](#) on page 373.

You can add work projects to a planned project. On adding work projects, the estimated cost of each work project is added to the budget estimate of the planned project.

1. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** page is displayed.

2. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

3. In the list page, double-click the appropriate project.

4. In the project navigation pane, expand the **Budget Management** folder, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

5. Select the appropriate budget estimate, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

6. Click **More**, and then click **Add WPs**.

The **Select Work Projects** dialog box is displayed.

Available work projects are of the same **Program Category** defined for the planned project. For more information, see [Work Projects](#) on page 373.

7. Select the appropriate work projects, and then click **Select**.

The selected work projects are added to the planned project. The sum of estimates of the selected work projects is added to the budget estimate of the planned project.

8. Click **Save**.

7.4.3.2. Removing Work Projects from a Planned Project

You can remove work projects from a planned project. On removing work projects from a planned project, the estimated cost of each work project is deducted from the budget estimate of the planned project.

1. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** page is displayed.

2. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

3. In the list page, double-click the appropriate project.

4. In the project navigation pane, expand the **Budget Management** folder, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

5. Select the appropriate budget estimate, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

6. Select the appropriate work projects, and then click **Delete**.

A confirmation dialog box is displayed.

7. Click **OK**.

7.4.4. Planned Projects Workflow

The Planned Projects workflow is driven by the following workflows:

- A planned project is published to make it available for selection to a program when the budget estimate of that planned project is published. For information on budget management, see [Budget Estimates Workflow](#) on page 652.
- A planned project is approved when the 2-level program that the planned project is part of is approved. For information on 2-level program workflow, see [Program Workflow](#) on page 416.

The following table provides the workflow actions and status (current and subsequent status) of the **Planned Project** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Publish	Published	To perform this action, a published budget estimate for the project must exist. For more information, see Budget Estimates . You can now add this planned project to a program.

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
2	Published	Approve	Planned	<p>Transition to the Planned workflow status is automatically driven by the associated 2-level program. You cannot perform this workflow action.</p> <p>The record is transitioned to the Planned workflow status if the start date of the project is not in the current fiscal year.</p> <p>The project can be approved only by adding the project to a program and then adding the program to a 2-level program.</p> <p>Approving the 2-level program automatically approves the project budget and moves the project to the Planned workflow status.</p>

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
			Pre-Award	<p>Transition to the Pre-Award workflow status is automatically driven by the associated 2-level program. You cannot perform this workflow action.</p> <p>The record is transitioned to the Pre-Award workflow status if the start date of the project is prior to or in the current fiscal year.</p> <p>The project can be approved only by adding the project to a program and then adding the 2-level program to a program.</p> <p>Approving the 2-level program automatically approves the project budget and moves the project to the Pre-Award workflow status.</p> <p>The project will then be available in the Projects module and not in the Planning module.</p>

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
		Un-Publish	Draft	-
3	Planned	Pre-Award	Pre-Award	This workflow action is available only if the start date of the project is not in the current fiscal year. The project is now available in the Projects module and not in the Planning module.

7.4.5. Planned Projects Reports

For information on project reports, see [Reports](#).

7.4.6. Project Scoring

7.4.6.1. Scoring a Planned Project

Project scoring enables you to evaluate and rank planned projects based on defined criteria. The planned projects are sorted from high priority to low priority based on the user score. This enables you to filter the high-priority projects to add them to a program.

A project is scored for each of the departments, and a score is provided for each of the criteria for the selected department. For more information, see [Scoring Configuration](#).

The project score (**Weighted Score**) is calculated as:

$$\text{Weighted Score} = \text{Round} [\Sigma \{\text{Department Score} * \text{Department Weightage (\%)}\}]$$

where, **Department Score** is calculated as:

$$\text{Department Score} = \text{Round} [\Sigma \{\text{Category Score} * \text{Category Weightage (\%)}\}]$$

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the project navigation pane, expand the project folder, and then click **Project Scoring**.

The **PROJECT SCORING** list page is displayed.

4. Click **New**.

The **PROJECT SCORING** page is displayed.

Project Scoring Page

The screenshot shows the 'PROJECT SCORING' page. At the top, there are buttons for Save & Exit, Save & Continue, Cancel, Workflow, and Select Actions. Below these are fields for Version (Auto Generated), Scored by (Smith), Department (Select), Scored on (10/17/2023), Remarks (empty), and Weighted Score (0.0000). A help icon is next to the Weighted Score field. Below this is a section titled 'PROJECT SCORING DETAILS' containing a table with columns for Criteria, Category, Max Value, and Score. The table shows 'No records to display.'

5. From the **Scored by** drop-down list, select the user creating the record. The list comprises all users invited to the project and have permissions to the project scoring form.

For information on user role permissions, see [Assigning a Role to Users](#).

6. From the **Department** drop-down list, select the department to which the project is associated.

Available options are departments defined in the **Department** library catalog. Based on the **Department** selected, the associated criteria that are marked active for the

selected department are displayed in the table. For information on departments, categories, and criteria, see [Scoring Configuration](#).

7. From the **Scored on** calendar drop-down box, select the date on which the record is created.
8. In the **Remarks** field, enter any additional information.
9. In the **PROJECT SCORING DETAILS** section, in the **Score** column, for each criteria, click and enter the score for the project.

Note: Ensure the score for the criteria does not exceed the value displayed in the corresponding **Max Value** column.

10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The **Weighted Score** is calculated and displayed.

To perform workflow actions, see [Project Scoring Workflow](#) on page 392.

7.4.6.2. Project Scoring Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Project Scoring** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-

7.5. Planning Fund

The **Planning Fund** feature is used to plan and estimate the fund requirements for a program.

A planning fund source is associated with a program when creating a program. Based on funds allocated to a program and remaining funds calculated, if funds are available, then you can add new programs to a 2-level program, or move projects in the 2-level program from one year to another. Planning funds are a subset of approved global fund sources.

You can perform the following tasks:

- [Create a planning fund](#).
- [Perform workflow action to implement the business process](#).

7.5.1. Creating a Planning Fund

You can create a planning fund source and select fund sources from the available global fund sources.

1. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** page is displayed.

2. In the navigation pane, click **Planning Fund**.

The **PLANNING FUND** list page is displayed.

3. Click **New**.

The **DETAILS** tab is displayed.

Planning Fund Page

The screenshot shows the 'Planning Fund Page' with the 'DETAILS' tab selected. At the top, there are buttons for 'Save & Exit', 'Save & Continue', 'Cancel', 'Workflow', and 'Select Actions'. Below these are fields for 'Title *' (a text input box), 'Default Fiscal Year *' (a dropdown menu set to 'Select One'), 'Description' (a text input box containing 'No records to display.'), and 'Program Year *' (a dropdown menu). A large section titled 'DISTRIBUTION DETAILS' contains a table with a single row labeled 'Fund Name'. At the bottom of the page are 'Add' and 'Delete' buttons.

4. In the **Title** field, enter a name for the new planning fund source to be created.
5. From the **Default Fiscal Year** drop-down list, select the fiscal year for the planning fund.

Available options are the fiscal years defined in the **Planning Management** form of the **Administration** module. For information on fiscal years, see [Configuring Planning Management](#).

6. From the **Program Year** drop-down list, select the year for which the planning fund is created.

The selected year is the first year of the program duration as defined in the program cycle.

For information on the program cycle, see [Configuring Planning Management](#).

7. In the **Description** field, enter a brief description of the planning fund.

8. To add fund sources, in the **DISTRIBUTION DETAILS** section, perform the following steps:

- a. Click **Add**.

The **Global Fund List** dialog box is displayed.

Available options are global fund sources that are in the **Approved** workflow status. For more information, see [Global Fund Sources](#).

- b. Select the appropriate fund sources.
 - c. Click **Select**.

The selected global fund sources are added to the **DISTRIBUTION DETAILS** section.

- d. To distribute funds for the program duration, enter the amount to be distributed corresponding to each fund for each year.

Available years are based on the **Program Year** selected for the planning fund and the defined program cycle. For information on the program cycle, see [Configuring Planning Management](#).

Note: You can enter the distribution amount irrespective of the amount available in the selected fund sources.

9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

10. To view and update the monthly forecast of the funds, perform the following steps:

- a. Select the appropriate planning fund, and then click **Edit**.

The **DETAILS** tab is displayed.

- b. Click the **FORECAST** tab, and then click **OK**.

The **ITEM DETAILS** page is displayed.

- c. Expand the planning fund source.

The funds are distributed linearly on a monthly basis, starting from the first fiscal month of the program year until the end of the program duration.

- d. To view the forecasts of forthcoming months, click **Next Period**.

- e. To update the forecast for a month, double-click the appropriate cell, and then enter the forecast amount.

- f. Click **Save**.

To perform workflow actions, see [Planning Fund Workflow](#) on page 395.

7.5.2. Approving a Planning Fund Record

To move a **Planning Fund** record through the approval workflow, perform the following steps:

1. In the **Planning Fund** list page, select the appropriate record that is in the **Draft** workflow status, and then click **Select Actions**.
2. Click **Approve**, and in the dialog box, click **OK**.

The workflow status of the record is set to **Approved**.

7.5.3. Planning Fund Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Planning Fund** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Approve	Approved	-

7.6. Programs

7.6.1. Program

A program is a collection of published, planned, pre-award, and in-progress projects and submitted programs. A program comprises the project cost details and project budget forecasts for each of the projects that are part of the program.

A program provides a comprehensive view of all the project requirements and available funds to achieve at the funding required for a given program.

The **Program** form enables you to:

- Add multiple planned projects and programs to a program.
- Group projects under a program and assign funds.
- Group programs under a program and assign funds.
- View funds that are available, remaining, and required.
- View details of each fund category and fund source.
- View the forecast of the program over the program period.
- Perform what-if analysis by creating multiple program scenarios and selecting the best scenario for approval.
- Perform what-if analysis using fund views.

- Create snapshots for comparison.
- Approve projects and programs.
- Manage program revisions.
- Generate reports.

You can perform the following task:

- [Create a program.](#)
- [Perform what-if analysis.](#)
- [Update the program forecast.](#)
- [View the program forecast.](#)
- [Create a forecast snapshot.](#)
- [Perform workflow actions to implement the business process.](#)
- [Manage program revisions.](#)

7.6.2. Creating a Program

- Planned projects that are in the **Published** workflow status or after are available. For more information, see [Creating a Planned Project](#).
- Planning funds that are in the **Approved** workflow status are available. For more information, see [Planning Fund](#).
- Programs that are in the **Submitted** workflow status are available.

1. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** page is displayed.

2. In the navigation pane, click **Program**.

The **PROGRAM** page is displayed.

3. Click **New**.

Program Details Page

The screenshot shows the 'PROGRAM DETAILS' tab selected in the top navigation bar. It includes fields for Name, Program Type (Regular or Contingency), Project Cost (\$), Description, and various fiscal year dropdowns. Below this is a 'PROJECTS' section with a grid showing columns for Project Code, Name, Project Status, Project Score, Program Year, Original Budget (\$), Revised Budget (\$), Commitments (\$), and Actuals (\$). A message 'No records to display.' is shown below the grid. At the bottom are 'Add' and 'Delete' buttons.

The **PROGRAM DETAILS** page is displayed.

4. In the **Name** field, enter the name of the program.
5. From the **Program Type** options, click either of the following, as applicable:
 - Click **Regular**, if the program is a regular program that is planned.
 - Click **Contingency**, if the program is created due to an unexpected crisis or unplanned events. Contingency programs are created to reduce the risk and help in the continuity of the projects with minimal losses or damages.
6. From the **Program Year** drop-down list, select the appropriate program year.

The years available in the list are years calculated as follows:

(Current year – Program Duration) to **(Current Year + Program Duration)**

You can define the program duration in the **Planning Management** form of the **Administration** module. For more information, see [Planning Management](#).

7. From the **Default Fiscal Year** drop-down list, select the fiscal year for the program.
Available options are the fiscal years defined in the **Planning Management** form of the **Administration** module. For more information, see [Planning Management](#).
8. From the **Program Category** drop-down list, select the appropriate category of the program.
Available options are program categories defined in the **Program Category** library catalog.

9. In the **Description** field, enter the description of the program.
10. To add planned projects to the program, in the **PROJECTS** section, perform either of the following steps, as applicable:
 - To add planned projects to a **Regular** program based on the selection criteria, perform the following steps:
 - a. Provide information in the fields as described in the following table.

Field	Description
Min Cost (\$)	Enter the minimum cost of projects for retrieval.

Field	Description
Max Cost (\$)	Enter the maximum cost of projects for retrieval. If Max Cost and Min Cost are entered, then projects in the specified cost range are retrieved.

- b. Click **Retrieve**.

Note: The **Retrieve** button is not available if the **Program Type** is **Contingency**.

The list of planned projects with the following criteria is added.

- Planned projects with the same **Program Category** as selected for the program.
 - Planned projects that are in the **Published**, **Planned**, **In Progress**, or **Pre-Award** workflow status.
 - Planned projects with the unapproved budget estimate revision records and the **Revision Type** as **PAR = Yes**.
 - Planned projects conforming to the defined selection criteria.
 - Planned projects that are equal to or less than the **Program Budget (\$)** (if project funds are selected in the **PROGRAM BUDGET** section while retrieving)
- c. Optionally, to remove a planned project from the program, select the planned project and click **Delete**.
- To add planned projects to a **Contingency** program, perform the following steps:

- a. Click **Add**.

The **Select Planned Projects** dialog box is displayed.

Available options are based on the following criteria:

- Planned projects with the same **Program Category** as selected for the program.
- Planned projects that are in the **Published**, **Planned**, **In Progress**, or **Pre-Award** workflow status.
- Planned projects with the unapproved budget estimate revision records and the **Revision Type** as **PAR = Yes**.

- b. Select the appropriate planned projects.

- c. Click **Select**.

The selected planned projects are added to the program.

The following information is updated:

- **Total Cost (\$)** displays the sum of the cost of the selected planned projects.
Calculated as:
Total Cost (\$) = Sum of values in the **Original Budget (\$)** column in **PROJECTS** table
- **Projects Count** displays the number of planned projects selected for the program.
- The **PROJECTS** table displays the selected projects and its details.
The following information is displayed.

Column	Description
Code	A unique project code to uniquely identify the planned project.
Name	The name of the planned project.
Project Status	The current workflow status of the project.
Project Score	The calculated project score.
Program Year	The year of executing the planned project is displayed.
Original Budget (\$)	The Approved or Published original Budget Estimate of the project and the inflated cost (if inflation is available).
Revised Budget (\$)	The revised budget of the planned project added to the program. Calculated as: $\text{Revised Budget ($)} = \text{Original Budget ($)} + \text{Sum of all Approved and Published Budget Estimate Revisions}$ with inflation (if inflation is available) Note: The Revised Budget (\$) is updated whenever a budget estimate revision of the associated Budget Estimates is approved or published.

Column	Description
Commitments (\$)	<p>The sum of the values of all committed Contracts or Purchase Orders of a project.</p> <p>Calculated as:</p> <p>Commitments (\$) = Sum of all Contracts values having Locked Contract Items + Sum of all PO values that are in the Committed workflow status</p> <p>Note: This value is displayed only for projects in the In-Progress workflow status.</p>
Actuals (\$)	<p>The sum of the actuals or pay-outs done through Pay Estimates, Purchase Orders, or Expenses in a project.</p> <p>Calculated as:</p> <p>Actuals = Sum of all approved Pay Estimates (Net To Be Paid amount) + Sum of all approved Expenses</p> <p>Note: This value is displayed only for projects in the In-Progress workflow status.</p>

- d. Optionally, to remove a planned project from the program, select the planned project and click **Delete**.

11. To add programs to a program, in the **PROGRAMS** section, perform the following steps:

- a. Click **Add Programs**.

The **Select Programs** dialog box is displayed.

Available options are all the programs in the **Submitted** workflow status and with the same **Program Category** as selected for the program.

- b. Select the appropriate programs.
- c. Click **Select**.

The selected programs are added to the program.

- d. Optionally, to remove a program from the program, select the program and click **Delete**.

Note: If the **Program Type** is **Contingency**, then the **Add** and **Delete** buttons are not available.

Once the selected programs are added to the program, the following information is automatically updated:

- **Total Cost (\$)** displays the sum of the cost of the selected programs.
Calculated as:
Total Cost (\$) = Sum of values in the **Original Budget (\$)** column in **PROJECTS** table + Sum of values in the **Original Budget (\$)** column in **PROGRAMS** table
 - **Programs Count** displays the number of programs added to the program.
 - The **PROGRAMS** table displays the selected programs and its details.
- The following information is displayed:

Column	Description
Code	A unique program code to identify the program.
Name	The name of the program.
Program Year	The year of executing the planned project.
Original Budget (\$)	The total Original Budget (\$) of all projects added to the program. Calculated as: Original Budget (\$) = Sum of Original Budget (\$) column in the PROJECTS table of the projects added to the program.

Column	Description
Revised Budget (\$)	The total Revised Budget (\$) of all projects added to the program. Calculated as: $\text{Revised Budget ($)} = \text{Sum of Revised Budget ($)}$ column in the PROJECTS table of the projects added to the program.
Commitments (\$)	The total Commitments (\$) of all projects added to the program is displayed. Calculated as: $\text{Commitments ($)} = \text{Sum of Commitments ($)}$ column in the PROJECTS table of projects added to the program.
Actuals (\$)	The total Actuals (\$) of all projects added to the program. Calculated as: $\text{Actuals ($)} = \text{Sum of Actuals ($)}$ column in the PROJECTS table of projects added to the program.

12. To associate a planning fund to the program, in the **PROGRAM BUDGET** section, perform the following steps:

- Click **Add**.

The **Select Program Budget** dialog box is displayed.

Available options are all the approved planning funds.

- Select the appropriate planning fund.
- Click **Select**.

The **PROGRAM BUDGET** table displays the selected planning fund and its details.

The following information is displayed:

Column	Description
Fund Category	The Fund Category as specified in the associated Planning Fund is displayed.
Fund Source	The Fund Source as specified in the associated Planning Fund is displayed.

Column	Description
Total Funds (\$)	The sum of the distributed amount for each fund source is displayed.
[Yearly Distribution]	The yearly distributed amount for each fund source is displayed.

Once the selected planning fund is added to the program, the following fields are automatically updated:

- **Planning Fund** displays the name of the approved planning fund.
- **Program Budget (\$)** displays the total funds available for the program.
- If the **Program Type** is **Contingency**, then **Remaining (\$)** displays the budget available for contingency projects.

The **Remaining (\$)** value is calculated as:

Remaining (\$) = **Program Budget (\$)** - Sum of budget from all the projects added in the contingency program

13. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

14. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

On saving the program, the **Code** is automatically generated. The yearly forecast distribution of the added projects and programs budget is available in the **Forecast Details** tab.

7.6.3. What-If Analysis

The Gantt view feature enables you to generate the planning or implementation schedule of a program. The Gantt view displays the start dates and end dates of project budgets graphically in an N-level hierarchy which rolls-up to the overall project or program schedule. The Gantt view enables user-based task assignments, tracks completions, perform resource leveling, and calculate critical path. Masterworks supports extensive what-if planning capabilities for project forecasts that streamlines the planning process.

On approval of a program, the project schedule is created and approved automatically.

The Gantt chart enables you to:

- Show or hide the Gantt chart

You can toggle between **Show Gantt** and **Hide Gantt** to view or hide the Gantt chart.

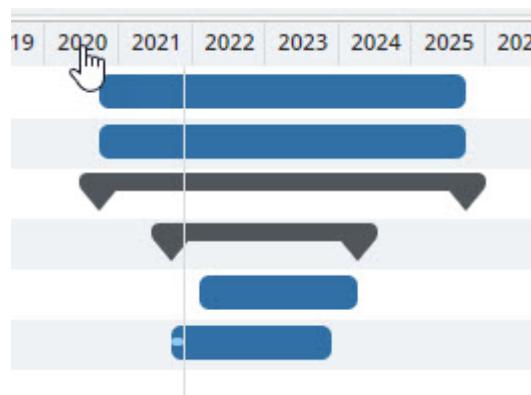
Note: The Gantt chart is hidden by default.

Show Gantt

The screenshot shows the 'PROGRAM DETAILS' and 'FORECAST DETAILS' tabs at the top. Below the tabs is a toolbar with various icons: 'Show Gantt' (highlighted with a cursor), 'Filter', 'Basic View', 'Monthly View', 'Show Critical Path', and 'More'. The main area displays a table with columns: 'Included', 'Name', 'Is Revision Available?', 'Project Status', 'Start Date', 'End Date', 'Amount in \$', and '2022-23'. The 'Show Gantt' button is located in the top left corner of the table header.

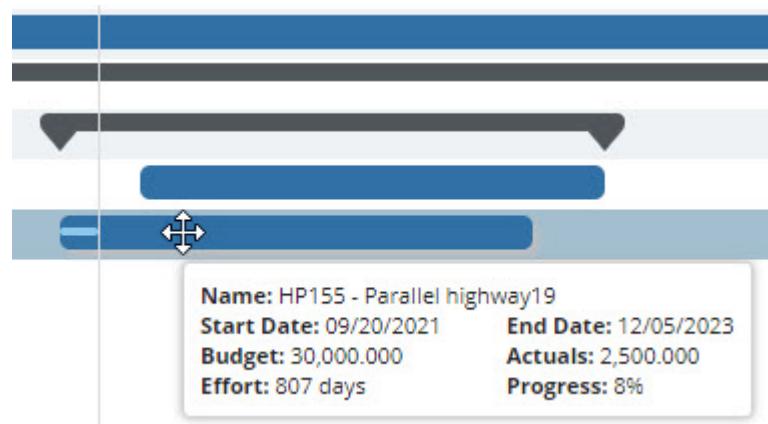
- Perform zoom in or out by dragging the pointer

Zoom



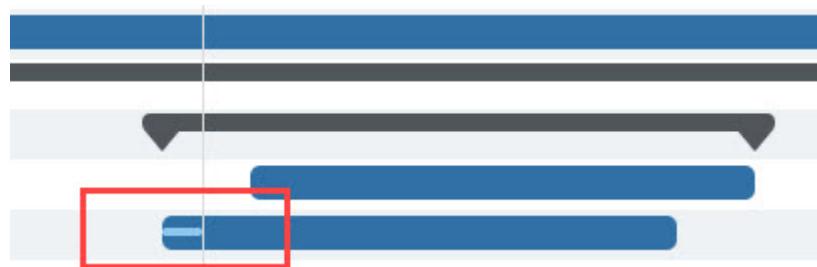
- View the project information by hovering over the task bar

Task Bar



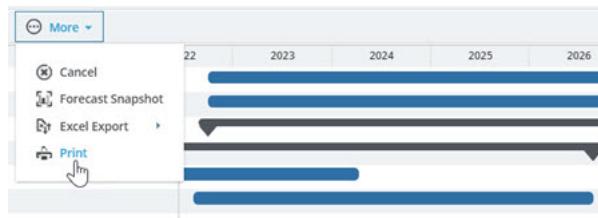
- View the progress of the project using the Progress indicator in the project bar

Project Bar



- Generate a PDF using the **Print** option

Print



7.6.3.1. Types of What-If Analysis Views

The grouping of projects or phases under relevant fund categories, fund sources, or project phases provides an efficient view while planning. These views enable you to perform what-if analysis efficiently based on the funds available, funds allocated or required, and the remaining funds.

The following views are available to perform what-if analysis:

- **Basic View**

By default, the **FORECAST DETAILS** page displays the **Basic View**. The Gantt chart displays the yearly distribution of the funds specified in the selected planning fund for the specified program cycle and yearly project fund requirements.

You can click the **Monthly View** button to view the monthly fund distribution.

- **Fund Source - Projects**

The fund sources in the forecast are used to group the forecast calculation for the projects or programs. The following information is displayed:

- Available funds in each fund source of the **Planning Fund**
- Remaining funds in each fund source

- **Fund Source - Phases**

The fund source in the forecast is used to group forecast calculation for the project phases. The following information is displayed:

- Available funds in each fund source of the **Planning Fund**
- Remaining funds in each fund source

- **Fund Category - Projects**

The fund category in the forecast is used to group the forecast calculation for the projects or programs. The following information is displayed:

- Available funds in each fund category of the **Planning Fund**
- Remaining funds in each fund category

- **Fund Category - Phases**

The fund category in the forecast is used to group the forecast calculation for the project phases. The following information is displayed:

- Available funds in each fund category of the **Planning Fund**
- Remaining funds in each fund category

1. To change the view in the **FORECAST DETAILS** page, click **Basic View**.

The view options are displayed.

2. Select the appropriate view.

The forecast view is updated accordingly.

You can now perform what-if analysis based on the available funds, the project requirement, and the remaining funds in a given year.

When you save and forecast the program, the forecasts of the added projects are updated automatically.

7.6.3.2. Performing What-If Analysis

1. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

2. In the navigation pane, click **Program**.

The **PROGRAM** list page is displayed.

3. Click the appropriate program, and then click **Edit**.

The **PROGRAM DETAILS** page is displayed.

4. To view the cost distribution based on the program cycle and fiscal year selected in the **PROGRAM DETAILS** page, click the **FORECAST DETAILS** tab.

By default, the **Basic View** is displayed. For information on the available views, see [Types of What-If Analysis Views](#).

5. To reschedule the project, move the Gantt bar of the appropriate project.

Note:

- If you have selected the **Allow Project/Phase What-If For In-Progress Projects** option as **Yes**, then you can modify the start and end dates of projects that are in the **Pre-Award**, **In-Progress**, **Planned**, or **Published** workflow status.
- If you have selected the **Allow Project/Phase What-If For In-Progress Projects** option as **No**, then you can modify the start and end dates of projects that are in the **Planned** and **Published** workflow statuses only.

For more information on **Allow Project/Phase What-If For In-Progress Projects** setting, see [Configuring Planning Management](#).

- In the **Fund Source - Projects** and **Fund Category - Projects** views, you can reschedule the project provided that:
 - No approved payment records (**Pay Estimate**, **Direct Expenses**, or **Indirect Expenses**) exist for the project.
 - All the project phases are in the **Not Started** status.

Note: Projects that cannot be rescheduled are indicated with a lock icon.

- In the **Fund Source - Phases** and **Fund Category - Phases** views, you can reschedule the project or phase provided that all the phases in the project are in the **Not Started** status.
If the project has approved payment records (**Pay Estimate**, **Direct Expenses**, or **Indirect Expenses**), then the project is locked, and you can only move the phases that are in the **Not Started** status.

Note: Projects and Phases that cannot be rescheduled are indicated with a lock icon.

You can use the available views in the **FORECAST DETAILS** page while rescheduling the project. For information on the available views, see [Types of What-If Analysis Views](#).

Rescheduling the projects in a program reschedules the program accordingly. On approval of a program, a forecast for the projects is generated and approved automatically.

6. Click **Save & Forecast**.

A confirmation dialog box is displayed.

7. Click **OK**.

The forecast of the project is updated.

7.6.4. Updating the Program Forecast

- The published or approved project for which the forecast is revised is part of a program that is in the **Draft** or **Submitted** workflow status. For information on the program workflow, see [Program Workflow](#) on page 416.

You cannot update the forecast values of a program except schedule dates. However, if the forecast of a planned project that is part of the program is updated and published, you can include the updates in the program forecast.

If the forecast of a planned project that is in the **Published** workflow status is updated, the updates are made available in the associated program.

1. To update the forecast of the published budget estimate of a planned project, perform the following steps:

a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** page is displayed.

b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

c. Select the project that is in the **Published** workflow status and click **Edit**.

d. In the navigation pane, expand the project folder, and then expand the **Budget Management** folder.

e. Click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

f. Select the budget estimate that is in the **Published** workflow status, click **Forecast**, and then click **New Forecast**.

g. Create a new forecast.

For information on creating a new forecast, see [Creating a Forecast for Budget Estimate Items](#).

You can mark the forecast as the latest. For information on marking a forecast as latest, see [Marking a Forecast as Latest](#) on page 646.

2. To update the program forecast, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** page is displayed.

- b. In the navigation pane, click **Program**.

The **PROGRAM** list page is displayed.

- c. Select the appropriate program, and then click **Edit**.

The **PROGRAM DETAILS** page is displayed.

- d. Click the **FORECAST DETAILS** tab.

- e. Perform the following steps for projects that are part of the program:

- i. Expand the name of the 2-level program.

- ii. Expand the name of the contained program, and then expand **Projects**.

The **Is Revision Available?** column displays a hyperlink with the forecast ID of the updated forecast, and the date on which the updated forecast is transitioned to the **Published** workflow status.

Note: The **Is Revision Available?** column displays hyperlink when:

- Another budget estimate is created and published.
- An approved budget estimate is revised and published with the **PAR = Yes** revision type.
- A new forecast is created directly in the **Forecast** page and marked as the latest.
- A current year program includes previous year projects that are in the **Pre-Award** or **In-Progress** workflow status and any approved budget estimate is revised.
- A what-if analysis is performed in a program that is part of a program.

The hyperlink displays only the date on which the what-if analysis is performed.

Click the link to view the program where the what-if analysis is performed.

- iii. Click the link to view the updated forecast in the **View Forecast** page.

- iv. Select the project with forecast revision.

- v. Click **Update Forecast**.

The forecast is updated and saved.

- vi. Click **Update Forecast** and click **Compare**.

The **Budget Forecast Comparison** dialog box is displayed. It shows a comparison view of **Existing Budget Forecast** and **Revised Budget Forecast**. Alternatively, click **Update Forecast** and click **Accept** or **Reject** to directly approve or reject the budget forecast.

- vii. In the **Budget Forecast Comparison** dialog box, select **Accept** to accept the budget forecast.
Alternatively, select **Reject** to reject the budget forecast.
- viii. Click **Apply**.

Note:

- When accepted;
 - The program forecast is updated with the revised budget forecast and the **Is Revision Available** column is cleared.
 - The system creates a forecast snapshot in **Program Forecast Snapshots** page.
 - An email notification is sent to the user who published the revised budget estimate forecast.
- When rejected;
 - The program forecast is not updated with the revised budget forecast and the **Is Revision Available?** column is cleared.
 - The program forecast is not updated and the record is transitioned to 1-level program status.
 - The **Forecast** record is transitioned to the **Un-Published** workflow status. The previous un-published budget forecast record is transitioned to the **Published** workflow status and is highlighted in the **Forecast** list page.
 - An email notification is sent to the user who published the revised budget estimate forecast.

3. Click **Cancel** to return to the **PROGRAM** list page.

7.6.5. Viewing the Program Forecast

Program forecasts are based on the forecasts of the planned projects that are part of it.

The **FORECAST DETAILS** tab of the program is read-only and cannot be updated. On approval of a program, forecasts of all planned projects that are part of the program are approved automatically.

If the forecast of a planned project that is part of the program is modified prior to the approval of the program, the forecast of the program must be updated to display the updated forecasts. For information on updating the program forecast, see [Updating the Program Forecast](#).

The **Forecast Details** page lists all planned projects and programs that are part of the program and the yearly distribution of the added project amounts. The hierarchy of displayed rows are:

- Total Available Funds
- Remaining Funds
- Name of the program
- Name of the program that is part of the program
- Projects [Number of planned projects part of the program]
- Names of planned projects that are part of the program
- Unplanned budget for contingent programs

1. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** page is displayed.

2. In the navigation pane, click **Program**.

The **PROGRAM** list page is displayed.

3. Double-click the appropriate program.

4. Click the **FORECAST DETAILS** tab.

Forecast Details Page

The screenshot shows the 'Forecast Details' page with the 'Basic View' selected. At the top, there are buttons for 'Cancel', 'Forecast Snapshot', 'Show Gantt', and a 'More' dropdown. Below is a table with columns: Included, Name, Is Revision Available?, Project Status, Start Date, End Date, Amount in \$, 2024-25, 2025-26, and 2026-27. The table includes rows for Total Available Funds, Remaining Funds, Capital Improvement Program, Projects [1], and a specific project named PC.19.10.QQ - Parks Construction.

Included	Name	Is Revision Available?	Project Status	Start Date	End Date	Amount in \$	2024-25	2025-26	2026-27
<input checked="" type="checkbox"/>	Total Available Funds			10/01/2024	09/30/2029	50,000.00	10,000.00	10,000.00	10,000.00
<input checked="" type="checkbox"/>	Remaining Funds			10/01/2024	09/30/2029	27,000.00	2,202.81	2,908.12	8,311.10
<input checked="" type="checkbox"/>	▼ Capital Improvement Program			10/01/2024	09/30/2029	23,000.00	7,797.19	7,091.88	1,688.90
<input checked="" type="checkbox"/>	▼ Projects [1]			10/02/2023	12/31/2026	23,000.00	7,797.19	7,091.88	1,688.90
<input checked="" type="checkbox"/>	PC.19.10.QQ - Parks Construction	Pre-Award		10/02/2023	12/31/2026	23,000.00	7,797.19	7,091.88	1,688.90

The **FORECAST DETAILS** page is displayed.

By default, the **Basic View** is displayed. For information on views, see [Types of What-If Analysis Views](#).

The following table describes the forecast details:

Column	Description
Included	Enables you to analyze the overall program costs by either including or excluding a program or project in the forecast. To analyze the overall costs of a 2-level program, in the Included column, select or clear the check box to include or exclude the selected projects or programs.
Name	Displays the Total Available Funds , Remaining Funds , name of the program, and names of planned projects that are part of the program. An additional row named Unplanned Budget is displayed for contingent programs. If the program includes other programs, then the name of the program is followed by the names of the added programs and their respective planned projects.

Column	Description
Is Revision Available?	<p>When the forecast of the project is updated, it displays a hyperlink with the forecast ID of the updated forecast and the date on which the updated forecast is transitioned to the Published workflow status. You can click the available link to view the updated forecast in the View Forecast page.</p> <p>When what-if analysis is performed in a program that is part of a 2-level program, it displays a hyperlink with the date on which the what-if analysis is performed. You can click the available link to view the program for which the what-if analysis is performed.</p> <p>Note: This column is visible only in the Basic View.</p>
Project Status	Displays the workflow status of the project.
Start Date	Displays the start date of the project.
End Date	Displays the end date of the project.
Amount in \$	Displays the total available funds, the remaining funds, the total program level cost, and the cost for each project.
Yearly or Monthly distributed amount (multiple columns) based on the forecast distribution settings. For information on forecast settings, see Configuring Planning Management .	For regular programs, it displays the cost distribution available in the forecast of the planned projects. For contingent programs, the program budget cost is uniformly distributed across the program duration. Note: Yearly columns visible are based on the Start Month and Program Duration defined in the Planning Management form of the Administration module.
Before	Displays the total value of the forecast numbers before the beginning month of the Program Cycle . For information on program cycle configuration, see Configuring Planning Management on page 1068.

Column	Description
After	Displays the total value of the forecast numbers after the end month of the Program Cycle . For information on program cycle configuration, see Configuring Planning Management on page 1068.

The forecast engine generates a yearly budget view by rolling-up project forecast values to relevant years.

The Gantt chart enables you to:

- Hover the cursor over the bar chart to view project specific details, such as project name, start and finish time, effort in terms of project duration, and utilization percentage.
- Drag the date, month, or year column names to view consolidated or distributed time periods.
- Use the Gantt filter to view specific data in the Gantt chart.

5. To view the monthly forecast, perform the following steps:

a. Click **Monthly View**.

The **MONTHLY FORECAST DETAILS** page is displayed.

- To view the remaining years' forecast, click **Next Period**.
- Click **Back** to return to the **FORECAST DETAILS** page.

6. Click **Forecast Snapshot** to view manually or auto-generated snapshots of the forecast.

Note: Snapshots are generated automatically when a program is approved, or when the budget or forecast of a project in the program is revised, or when a program revision is approved. You can also create a snapshot manually.

7. Click **Back** to return to the main page.

7.6.6. Creating a Forecast Snapshot

Forecast Snapshots are generated automatically when a program is approved, when the budget or forecast of a project in the program is revised, or when a program revision is approved. However, you can manually create forecast snapshots of the current program forecast.

1. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

2. In the navigation pane, click **Program**.

The **PROGRAM** list page is displayed.

3. In the right pane, double-click the appropriate program.

4. Click the **FORECAST DETAILS** tab.

The **ITEM DETAILS** page is displayed.

5. Click **Forecast Snapshot**.

The **PROGRAM FORECAST SNAPSHOTS** list page is displayed.

Program Forecast Snapshots List Page

A screenshot of a web-based application interface titled "PROGRAM FORECAST SNAPSHOTS". The page includes a header with "Back", "New", "Reports", and "More" buttons, and a search/filter section. Below is a table with columns: Snapshot ID, Snapshot Description, Created By, Created On, and MPID. A single row is shown with values: 1, "Auto-generated snapshot driven by Program approval", MikeRoss, 10/19/2023 17:15:43, and an empty MPID field. At the bottom are navigation icons (back, forward, first, last) and a page number "Page 1 of 1".

	Snapshot ID	Snapshot Description	Created By	Created On	MPID
<input type="checkbox"/>	1	Auto-generated snapshot driven by Program approval	MikeRoss	10/19/2023 17:15:43	

6. Click **New**.

A dialog box is displayed.

7. In the **Snapshot Description** box, enter the description of the snapshot.

8. Click **OK**.

The current forecast is saved.

Note: For information on viewing the saved forecast snapshots, see [Viewing the Program Forecast](#) on page 411.

7.6.7. Program Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Program** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	You can now add programs to a program.

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
2	Submitted	Approve	Approved	<p>On approval of a program, the following changes occur:</p> <ul style="list-style-type: none">• Programs that are part of the associated program are approved.• Forecasts of programs that are part of the program are updated with the schedules and forecasts as defined in the program.• A new approved forecast named Auto-generated budget forecast driven by Program approval is created for all projects of the program.• The published

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
		Redraft	Draft	-
3	Approved	Close	Closed	-

7.6.8. Generating Program Reports

You can generate various program reports that illustrate various information views.

1. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** page is displayed.

2. In the navigation pane, click **Programs**.

The **PROGRAM** list page is displayed.

3. Click **Reports**, and then click the appropriate report.

The report is generated and displayed.

For information on the various report features available, see [Standard Report Functions](#).

You can generate the following reports:

- [Project Priority Report](#)
- [Program Summary by Fund Report](#)
- [Program Forecast Details Report](#)
- [Program Forecast Report](#)
- [Program Forecast Comparison Report](#)
- [Program Budget vs Fund Forecast Report](#)
- [Program Fund Forecast Report](#)

7.6.8.1. List of Programs Reports

Project Priority Report

The Project Priority Report graphically illustrates the cost, the duration, and the score of all the projects that are part of the selected program. The size of the circles representing the projects illustrates the cost of the projects. The report displays the cost, the duration, and the score of all the projects that are part of the selected program in a tabular format. Additionally, the tabular format displays the start date and end date of the projects.

You can filter information in the report using the **Program Name** filter.

The following information is displayed.

Field	Description
Project	The name of the selected project.
Budget	The budget allocated for the project.
Score	After the project evaluation, the score defined in the Project Scoring page for the project.
Start Date	The start date of the project.
End Date	The end date of the project.
Duration in days	Based on the calendar selected for the project, the duration is calculated from the start date of the project to the completion date of the project.

Program Summary by Fund Report

The Program Summary by Fund Report displays information of the funds consumed, the funds allocated, and the remaining funds for the selected program rolled-up to the fund sources.

You can filter information in the report using the **Program Name** filter.

The following information is displayed.

Field	Description
Program Name	The name of the selected program.
Fund Name	The fund name associated with the program.
Project Name	The list of project names associated with the program.
Allocated	The fund allocated to the contract items in projects.
Consumed	The amount used for contract items, pay estimates, and miscellaneous expenses.
Remaining	The remaining amount that is not consumed. Calculated as: Allocated - Consumed

Program Forecast Details Report

The Program Forecast Details Report displays the total allocated budget and the forecast details of the selected program.

The Program Forecast Details Report enables you to:

- Define the information view by selecting the chart type.

- View the values by hovering over the line graph.

You can filter information in the report using the following filters:

- Program Name
- Chart Type

The following information is displayed.

Field	Description
Program	The name of the program associated with the program.
Total Allocated Budget	The total budget allocated for the program and its monthly or yearly distribution.

Program Forecast Report

The Program Forecast Report displays combined value of the latest approved budget forecast distribution of all projects associated with the selected program.

You can filter information in the report using the following filters:

- Program
- Forecast Type
- Report Type
- Drilldown

The following information is displayed.

Field	Description
Program Name	The name of the selected program.
Program Year	The year the program was created.
Report Type	The type of the report generated.
Forecast Type	The type of the forecast selected in the Forecast Type filter.
Drilldown	If Report Type selected is Detail , then you can view details either for a program or project for 2-level program and for a project for a 1-level program.
Before	The total amount forecasted for the program before the beginning of the program.
After	The total amount forecasted for the program after the end of the program.

Field	Description
Total Budget	The total budget allocated for the selected program and its monthly or yearly distribution. The total budget is calculated as: Before + (Fund Forecasted for every year/month) + After.

Program Forecast Comparison Report

The Program Forecast Comparison Report displays the trend curves for the selected forecasts for the selected program. The budget snapshots for the selected program illustrate details of monthly or yearly budget allocations, and the total budget for each of the budget snapshots.

You can filter information in the report using the following filters:

- Program
- Forecast
- Forecast Type

The following information is displayed.

Field	Description
Program	The name of the selected program.
Forecast Type	The type of the forecast selected in the Forecast Type filter .
Forecasts	Lists the project forecast selected in the Forecast filter.
Snapshot Name	Lists the names selected in the Forecast filter.
Total Budget	The total budget allocated for the selected snapshot of the program and its monthly or yearly distribution.

Program Budget vs Fund Forecast Report

The **Program Budget Vs Fund Forecast Report** illustrates the following information for the selected program for the program duration in both graphical and tabular format:

- Forecasted expenses
- Available funds
- The difference between the forecasted expense and the available funds

You can filter information in the report using the **Program** filter.

The following information is displayed.

Field	Description
Fund Availability	The fund plan selected in the program, which represents the anticipated money inflow for every year from various fund sources.
Forecasted Expense	The total program forecast expenses distributed yearly, which is the summed up value of individual project forecasts within the program.
Difference	The difference between the Forecasted Expense and the Fund Availability . Calculated as: Fund Availability - Forecasted Expense.

Program Fund Forecast Report

The Program Fund Forecast Report displays the trend curves for the fund forecasts and the forecasted fund distribution values for each of the fund sources utilized in projects that are part of the selected program for the program duration.

You can filter information in the report using the following filters:

- Program
- Forecast Type

The following information is displayed.

Field	Description
Program Name	The name of the selected program.
Forecast Type	The type of the forecast selected in the Forecast Type filter.
Fund Name	The list of fund names associated with the program.
Project Name	The list of project names associated with the program.
Before	The total of item forecast, which is linked to the selected fund sources within the project before the beginning of the program.
After	The total of item forecast, which is linked to the selected fund sources within the project after the end of the program.
Program Total	The sum of values in the Before , yearly distributions, and After .

7.7. Program Revisions

7.7.1. Program Revisions

Approved programs can be updated to include additional projects or remove projects from a program.

Impacts of Program Revision on Program

Once the program revision is approved by program stakeholders, revision changes are updated in the selected program. You can add a planned project to the program or delete a planned project from the approved program using the **Revise Program** feature.

Program Forecast: Once a program revision is approved, the forecasts of the newly added projects are added automatically to the program forecast and projects removed are removed from the program forecast. The program forecast remains read-only at defined statuses.

Forecast Snapshot: On revising a program, a forecast snapshot is taken before making the changes to the forecast and this snapshot is available in the **PROGRAM FORECAST SNAPSHOTS** page of the associated **Program Forecast**. For information on program forecast snapshots, see [Viewing the Program Forecast](#) on page 411 and [Creating a Forecast Snapshot](#) on page 415.

You can perform the following task:

- [Revise a program.](#)
- [Perform workflow actions to implement the business process.](#)

7.7.2. Revising a Program

- The program is in the **Approved** workflow status.

1. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

2. In the navigation pane, click **Revise Program**.

The **REVISE PROGRAM** list page is displayed.

3. Click **New**.

The **REVISE PROGRAM** page is displayed.

Revise Program Page

The screenshot shows the 'REVISE PROGRAM' page. At the top, there are buttons for 'Save & Exit', 'Save & Continue', 'Cancel', 'Workflow', and 'Select Actions'. Below these are sections for 'ADD NEW REVISION' and 'PLANNED PROJECTS'.

ADD NEW REVISION: A field labeled 'Select A Program *:' with a dropdown arrow and a '...' button.

PLANNED PROJECTS: A table with columns: Project Code, Name, Project Status, Project Score, Program Year, Original Budget (\$), Revised Budget (\$), Commitments (\$), and Actuals (\$). The table shows 'No records to display.'

REMOVE PROJECTS: A table with the same columns as the 'PLANNED PROJECTS' table, also showing 'No records to display.'

At the bottom left are 'Add' and 'Delete' buttons.

4. To select a program to be revised, in the **ADD NEW REVISION** section, perform the following steps:

- In the **Select A Program** field, click

The **Select Program** dialog box is displayed.

- Click the appropriate program, and then click **Select**.

The selected program name is displayed.

5. To manage projects in the program, perform either of the following steps as applicable:

- To add projects to the program, perform the following steps:

- a. In the **PLANNED PROJECTS** section, click **Add**.

The **Select Planned Projects** dialog box is displayed.

Available options are planned projects in the **Published** workflow status, or projects in the **Pre-Award, Planned**, or **In Progress** workflow status.

- b. Select the appropriate projects to be added to the program.

- c. Click **Select**.

The selected projects are added to the program.

- To remove projects from a program, perform the following steps:

- a. In the **REMOVE PROJECTS** section, click **Add**.

The **Select Planned Projects** dialog box is displayed.

Available options are projects associated with the program.

- b. Select the appropriate projects to be removed from the program.

- c. Click **Select**.

The selected projects are removed from the program.

6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Program Revision Workflow](#) on page 425.

On approving the program, the **PROGRAM DETAILS** page of the associated **Program** is updated with the revised information.

7.7.3. Program Revision Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Program Revision** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
2	Submitted	Approve	Approved	The projects that are part of the program revision are added or removed from the program. Forecast snapshot is generated automatically when the revised program is approved.

7.8. Reports

7.8.1. Planned Projects Reports

You can generate various planned project reports that illustrate various information views. These reports help various project stakeholders stay updated on project status.

1. In the module menu, click **Planning**.
The **PLANNING DASHBOARD** is displayed.
2. In the navigation pane, click **Report Gallery**.
The **REPORT GALLERY** is displayed.
3. In the **REPORT GALLERY** page, double-click the appropriate report to open it.
For information on the various report features available, see [Standard Report Functions](#).

You can generate the following reports:

- **General**
 - Program Budget Vs Fund Forecast Report
 - Work Projects Under Projects Report

- **Program Reports**

- Program Forecast Comparison Report
- Program Forecast Report
- Program Fund Forecast Report
- Program Summary by Fund Report

- **Project Reports**

- Project Forecast Comparison Report
- Project Forecast Report
- Project Fund Forecast Report

- **Summary Reports**

- Fund Availability v/s Project Requirement Report
- Project Score Card Report

8. Project Management

8.1. Project Management

The **Projects** module comprises features to manage a project through its lifecycle. Using this module, you can create custom projects, add and store project-related information, and integrate functional modules to manage projects.

You can access projects and perform project-related tasks based on the following factors:

- Business unit of the project is a business unit that is assigned to you
- Roles assigned to you
- Permissions defined for the roles assigned to you
- Workflow status of the project

8.2. Viewing My Tasks at the Project Level

At the project level, all the latest tasks awaiting your action for the project to which you are invited are listed.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, and then click **My Tasks**.

The **MY TASKS** list page is displayed.

Note:

- In the navigation pane, the number displayed adjacent to the **My Tasks** label indicates the number of tasks awaiting your action.
- In the **My Tasks** list page, the number of tasks listed is based on the value defined in the [Application Settings](#).

From the **MY TASKS** list page, you can also perform the following functions:

- View tasks within a specific date range. For more information on viewing tasks within a specific date range, see [Viewing My Tasks within a Date Range at the Project Level](#) on page 429.
- Access records with a pending task. For more information on completing a pending task, see [Completing a Pending Task](#) on page 116.

8.2.1. Viewing My Tasks within a Date Range at the Project Level

At the project level, for the projects to which you are invited, you can select a specific date range for which you want to view the tasks awaiting your action. The number of date ranges available is based on the number of filter windows defined in the [Application Settings](#) on page 1039.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

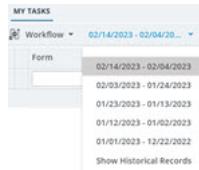
2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder, and then click **My Tasks**.

The **MY TASKS** list page is displayed.

Note: In the navigation pane, the number displayed adjacent to the **My Tasks** label indicates the number of tasks awaiting your action.

4. To select the date range for which the tasks must be displayed, click the **Select Period** drop-down list, and then select the appropriate date range.

Select Period



Note: Upon clicking the **Show Historical Records** option, it lists all the tasks awaiting your action.

8.3. Searching for Documents at the Project Level

You can search for documents in the project based on specified search criteria. You can search for documents uploaded to folders in the Documents folder of projects and documents uploaded as attachments to forms and workflows.

You can enter any search criteria combination to search for documents. The search results section displays the list of documents from the project based on the roles assigned to you. From the search results, you can view and download documents. You can also export the search results to an Excel workbook.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, click **Document Search**.

The **SEARCH DOCUMENT** page is displayed.

In the **Projects** field, the name of the associated project is displayed.

4. You can search for documents in the **Documents** folders of the project, or for attachments uploaded in the project forms.

Perform either of the following steps:

- To search for documents in the **Documents** folders of the project, in the **SEARCH DOCUMENTS** section, perform the following steps:
 - a. To define basic criteria to search for documents, perform the following steps:
 - i. In the **Document Title** box, enter the title of the document.
 - ii. In the **Document Name** box, enter the name of the document.
 - iii. From the **File View Status** drop down list, select the status of the document.
 - iv. From the **Created By** drop-down list, select the user name of the user who has uploaded the document.
Available user names are of users who have uploaded documents in the application.
 - b. To define additional search criteria, perform the following steps:
 - i. From the **Document Property** drop-down list, select the appropriate document property.
The **Advanced Properties** section is displayed. The search criteria in the section are based on the **Document Property** selected.
For information on document properties, see [Document Properties](#).
 - ii. In the **Advanced Properties** section, provide the appropriate information.
Available fields are based on the document property selected from the **Document Property** drop-down list.
 - c. To search for documents from the folders, in the **Document Folder** box, click and select the required document folders.
Alternatively, type the name of the document folder, and then click the required folder.
Available options are folders defined in the **Documents** module of the associated project.
- To search for documents uploaded as attachments to forms and workflows, click the **ATTACHMENTS** tab, and in the **SEARCH ATTACHMENTS** section, perform the following steps:
 - a. To define basic criteria to search for attachments, perform the following steps:
 - i. In the **Document Title** box, enter the title of the document.
 - ii. In the **Document Name** box, enter the name of the document.

- iii. From the **Created By** drop-down list, select the user name of the user who has uploaded the document.

Available user names are of users who have uploaded documents in the application.

- iv. From the **File View Status** drop-down list, select the status of the file.

- b. To search for attachments from the forms, in the **Select Form** box, click and select the required forms.

Alternatively, type the name of the form, and then click the appropriate form.

5. Click **Search**.

Based on the search criteria specified, the **SEARCH RESULTS** section displays the list of documents that match the search criteria.

6. You can perform the following actions:

- To download documents, in the **SEARCH RESULTS** section, select the appropriate documents, and then click **Download**.
The selected documents are downloaded to your local storage.
- To export details of the list of documents available in the **SEARCH RESULTS** section to an Excel workbook, click **Export**.
The properties of documents in the search results are downloaded as an Excel workbook to your local storage.
- To open a document, select a document and then click **View**.
The document is opened in the document viewer.
For information on using the viewer, see [Annotations](#).
- To open the folder or form where the document is available, in the **SEARCH RESULTS** section, double-click the appropriate document.

8.4. Project Setup

8.4.1. Creating a Project

You can create a project in two ways.

- [Create a project manually and select required modules](#).
- [Copy a project with selected information](#).

8.4.1.1. Creating a Project and Selecting Modules

- User accounts are created.
- Roles are assigned to users.

You can enter project details that include basic project information, select modules for the project, and attach project related images and files.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click **New**.

New Project Page

NEW PROJECT

Save Cancel Workflow Select Actions

Project Name * :

Owner * :

Status : Select One

Start Date : 10/13/2023

Calendar : Select One

Project Code * :

Project Type : Select One

Date Created : 10/13/2023

End Date : 10/13/2023

Active :

Calendar Days : 1

Document Folder Structure : Select One

Description :

Program Category * : Select One

Project Value (\$) : 0.00

Business Unit * :

Project Score : 0.00

Document Properties : Select One

Default Fiscal Year * : Select One

Program Year :

STRATEGIC GOALS

Goal	Description	Percentage
No records to display.		

The **NEW PROJECT** page displays the following non-editable fields:

Field	Description
Date Created	The current date is displayed.

Field	Description
Calendar Days / Working Days	<p>Based on the selected calendar for the project, the Working Days box displays the number of days calculated from the start date of the project to the completion date of the project.</p> <p>Note: The number of working days is also based on the latest version of the project calendar. For more information, see Managing Calendar Versions.</p> <p>If no calendar is selected for the project, the Calendar Days box displays the number of days calculated from the start date of the project to the completion date of the project.</p>

3. Provide the required information in the fields, as described in the following table.

Field	Description
Project Name	Enter a name to identify the project.
Project Code	Enter a unique alphanumeric code to identify the project.
Owner	Enter the name of the owner of the project.
Project Type	Select the type of the project. Available options are project types defined in the Project Type library catalog.
Status	Select the current implementation status of the project. For information on project status, see Project Status .
Start Date	Select the date the project starts.
End Date	Select the date the project is planned for completion.
Active	Ensure the check box is selected to activate the project. Clear the check box to deactivate the project to make the project unavailable to users. For information on setting the project status, see Setting Project Availability .

Field	Description
Calendar	<p>Select the calendar for the project. Available options are active calendars defined in the Calendar library catalog. For information on project calendars, see Calendar.</p> <ul style="list-style-type: none">• If no option is selected, the Calendar Days box displays the number of days calculated from the selected Start Date to the selected End Date of the project.• If a calendar is selected, based on the calendar selected, the Working Days box displays the number of days calculated from the selected Start Date to the selected End Date of the project. <p>Note: The number of working days is based on the latest version of the project calendar. For more information, see Managing the Project Calendar.</p>
Document Folder Structure	<p>Select the document folder structure to be set up for the project. Based on the document folder structure selected, the set of folders and documents as defined in the selected document folder structure is automatically created in the Documents folder of the project. For information on creating a document folder structure, see Document Folder Structure.</p>

Field	Description
Document Properties	<p>Select the document properties template to include additional document information when uploading documents to the project.</p> <p>The set of document properties as defined in the template is displayed to be filled in when uploading documents to the project.</p> <p>For information on creating document properties templates, see Document Properties.</p> <p>Note: You cannot change the selected document property template option once the project is saved. However, you can change the properties sheet of a folder. For information on changing the document properties of a folder, see Associating a Document Property Template to a Folder.</p>
Description	Enter a brief description of the project.
Business Unit	<p>Select the appropriate business unit for the project. Options available in the list are business units defined in the BUSINESS UNITS page in the Administration module.</p> <p>Note: Ensure your account is associated with the selected business unit.</p> <p>For information on business units, see Business Units.</p>

4. To include information on the strategic goals of the project, in the **STRATEGIC GOALS** section, perform the following steps:

- a. Click **Add**.

The **Strategic Goals** dialog box is displayed.

Available options are active strategic goals defined in the **Strategic Goals** library catalog.

- b. Select the required strategic goals for the project, and then click **Select**.

The selected project strategic goals are added to the **STRATEGIC GOALS** section.

- c. For each goal, in the **Percentage** column, click and enter the importance value in percentage for the goal.

Note: The sum of all the percentage values must be 100%.

5. To include information on the strategic objectives of the project, in the **STRATEGIC OBJECTIVES** section, perform the following steps:

- a. Click **Add**.

The **Strategic Objectives** dialog box is displayed.

Available options are active strategic objectives defined in the **Strategic Objectives** library catalog.

- b. Select the required strategic objectives for the project, and then click **Select**.

The selected project strategic objectives are added to the **STRATEGIC OBJECTIVES** section.

- c. For each objective, in the **Percentage** column, click and enter the value in percentage for the objective.

Note: The sum of all the percentage values must be 100%.

6. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

7. To include additional project-specific information, you can add attributes to the project.

To add attributes to a project, expand the **ATTRIBUTES** section, and then perform the following steps:

- a. Click **Add**.

Note: The **Add** button is available only if attributes are defined in the **Master Attribute List**. For information on attributes, see [Project Status and Attributes](#).

- b. From the **Attribute** drop-down list, select the required attribute.

Available options are attributes defined in the **Master Attribute List**. For more information, see [Creating Project Attributes](#).

- c. In the **Value** box, enter a value for the attribute.
- d. In the **Notes** box, enter notes for the attribute.
- e. Click **OK**.

The selected attribute and its corresponding value and notes are saved for the project.

8. You can define the module visibility for your project.

You can select specific modules that you require to manage the project in the web application and the mobile app. You can designate other modules that are not required as unavailable.

To select modules for the web application and the mobile app, expand the **MODULES** section, perform the following steps:

- a. By default, all modules in the application are enabled for a project in the web application.

To remove modules that are not required for the project from the web application, clear the check box in the first column of the modules that are not required for the project.

Alternatively, select the check box of the modules that are required for the project in the web application.

On saving the form, the **Web** column displays a selected check box for modules selected for the project, and a cleared check box for modules that are not selected for the project.

- b. To select modules to be made available in the mobile app, in the **Offline Client** column, select the check box for the modules required for the project in the mobile app.

Note: Only check boxes of modules that are available for the mobile app are enabled.

9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The project is created. You can now invite users to the project. For more information, see [Inviting Users to a Project](#).

To perform workflow actions, see [Project Approval Workflow](#).

8.4.1.2. Copying a Project

- User accounts are created.
- Roles are assigned to users.

You can copy selected details of a project to create a new project with a new name and project number. The workflow status of the new project is set to the first workflow status as defined for projects.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. To copy a project, perform either of the following steps:

- Select the project to be copied, click **Copy**, and then click **OK**.
- Double-click the project to be copied, click the **PROJECT DETAILS** tab, and then click **Copy**.

Copy Project Page

COPY PROJECT

Save Cancel

Source Project Name : Tip Tower Project

Source Project Code : 1122

New Project Name * :

New Project Code * :

Description :

Include in copy : Modules Attributes Users

Funds :

The **COPY PROJECT** page displays the following non-editable fields:

Field	Description
Source Project Name	The name of the project that is copied.
Source Project Code	The project code of the project that is copied.

3. In the **New Project Name** box, enter a name to identify the project.
4. In the **New Project Code** box, enter a unique alphanumeric code to identify the project.
5. In the **Description** box, enter the description of the project.
6. In the **Include in copy** section, select the required information to be copied into the new project, as described in the following table.

Section	Description
Modules	Makes available in the copied project, the modules selected in the project being copied.
Attributes	Copies all attributes defined in the project. For information on attributes, see Project Status and Attributes .

Section	Description
Users	Copies all users invited to the project. For information on managing users, see User Management in Projects .
Funds	Copies all project fund sources and active project fund rules.

7. Click **Save**.

The project is created. You can now invite users to the project. For information on inviting users to a project, see [Inviting Users to a Project](#).

To perform workflow actions, see [Project Approval Workflow](#).

8.4.2. Managing Project Needs

8.4.2.1. Associating Project Needs

On approval of a need at the enterprise level, you can associate the needs to the project.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the required project, and then click **View**.

3. In the navigation pane, expand the project folder, and then click **Project Needs**.

The **PROJECT NEEDS** page is displayed.

4. Click **Associate Needs**.

The **Select Needs** dialog box is displayed.

Available options are approved needs defined at the enterprise level and are not associated with any project. For information on defining needs, see [Managing Needs](#).

5. Select the needs to associate with the project, and then click **Select**.

The selected needs are associated with the project.

8.4.2.2. Editing Details of a Need

- Need are associated with the project. To associate needs with the project, see [Associating Project Needs](#) on page 441.

You can modify details of a project need.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the project folder, and then click **Project Needs**.

The **PROJECT NEEDS** page is displayed.

The approved **Needs** records associated with the project are displayed. For information on defining needs, see [Project Needs](#).

4. Select the appropriate record, and then click **Edit**.

The **PROJECT NEEDS** page is displayed.

5. Make the required changes.

For information on modifying the project need details, see [Defining Project Needs](#).

6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

8.4.3. Managing the Project Calendar

- Calendars are defined in the **Calendar** library catalog.
For more information on defining calendars, see [Calendar](#).
- A calendar is selected for the project in the **PROJECT DETAILS** page.

The **Project Calendar** enables you to define the working days of a week and holidays for the project. The configured calendar in a project determines the number of working days in the project.

You can configure multiple generic calendars in the **Calendar** library catalog. From the available list of configured calendars, an applicable calendar is then selected for the project. Once a calendar is selected for the project, you can later update the project calendar to customize it for the project. Only the latest version is effective in determining the number of working days in the project.

You can only update the latest version of the project calendar to customize it for the project. However, if a project calendar is changed in the middle of the project cycle, then the latest version of the calendar is effective for the project from the time the new version of the calendar is selected.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the project navigation pane, click **Project Calendar**.

The **PROJECT CALENDAR** list page is displayed.

The available calendars are versions of the calendar selected for the project.

4. In the list page, select the latest version of the calendar, and then click **Edit**.

Note: The latest version of the calendar is the calendar that has the check box in the **Is Latest** column selected.

Project Calendar Page

The screenshot shows the 'PROJECT CALENDAR' page. At the top, there are 'Save' and 'Cancel' buttons. Below them, the 'Name *' field contains 'Highway Improvement'. The 'Description' field is empty. Under 'Non-Working Days', 'Saturday' and 'Sunday' are checked, while 'Monday', 'Tuesday', 'Wednesday', 'Thursday', and 'Friday' are unchecked. In the 'EXCEPTIONS' section, a table shows a single row with 'No records to display.' At the bottom are 'Add', 'Edit', and 'Delete' buttons.

Date	Type	Notes	Recurring Annually
No records to display.			

Add Edit Delete

The **PROJECT CALENDAR** page displays the following non-editable fields:

Section	Field	Description
-	Name	The name of the calendar is displayed.
	Description	The description of the calendar is displayed.
	Non-Working Days	The check boxes for the non-working days are selected.

Section	Field	Description
EXCEPTIONS	-	Any exceptions made on the working days or non-working days apart from the information in the Non-Working Days field are displayed.

5. Optionally, enter appropriate details in the **Name**, **Description**, and **Non-Working Days** fields, as applicable.
6. In the calendar, you can change a specific non-working day to a working day or vice versa. To define such exceptions, in the **EXCEPTIONS** section, perform the following steps:

- a. Click **Add**.

The **New Exceptions** dialog box is displayed.

- b. Provide the appropriate information in the fields, as described in the following table:

Field	Description
Date	Select the date to define an exception.
Type	<p>Select the appropriate option.</p> <ul style="list-style-type: none">• If the selected option is Working Day, the date is considered when calculating the number of working days in the project.• If the selected option is Non Working Day, the date is not considered when calculating the number of working days in the project. <p>For example, in the Non-Working Days field, if Saturday is selected as a non-working day, and if a particular Saturday needs to be a working day, the exception can be defined here, and the Saturday is considered when calculating the number of working days in the project.</p>
Notes	Enter any appropriate notes for the exception.

Field	Description
Recurring Annually	Select the check box to consider the exception across years when calculating the number of working days in a project.

- c. Click **Save**.
 - d. Optionally, perform any of the following steps, as applicable:
 - To edit any records, select the appropriate record, click **Edit**, and then repeat steps 6b to 6c, as applicable.
 - To delete any records, select the appropriate records, click **Delete**, and then click **OK**.
7. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

A new version of the project calendar is created, and the number of project working days is updated based on this version.

8.4.4. Planning Project Phases

You can structure and organize a project into logical phases to implement and manage the project effectively.

In Masterworks, you can add multiple project phases from the library, and define the sequence and schedule of the phases. You can schedule project phases for sequential implementation, and also schedule multiple phases in the same time period for concurrent implementation.

For each project phase that is created and saved, the following activities occur.

- A corresponding container is created in every budget estimate of the project.
- A corresponding container is created in the contract of the project.

Note: Containers are not created in contracts created from work orders. For information on work orders, see [Work Orders and Contracts](#).

- A corresponding task is created in the schedule of the project with the corresponding start and end dates as defined for the project phase.

The Phases feature enables you to perform the following tasks.

- [Create project phases](#).
- [Reorganize the sequence of the phases defined in the project](#).
- [Delete defined phases](#).

8.4.4.1. Creating a Project Phase

You can create a project phase and define the schedule of the phase.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the project navigation pane, click **Project Phases**.

The **PHASES** section displays the list of phases defined in the **Project Phase** library catalog.

Project Phases Page

Project Start Date : 09/01/2023

Project End Date : 04/25/2025

Sequence	Phase	Description	Start Date *	End Date *	Status *
1	PH1	DESIGN			Not Started
2	PH2	PRE-CONSTRUCTION PHASE			Not Started
3	PH3	CONSTRUCTION PHASE			Not Started
4	PH4	POST CONSTRUCTION PHASE			Not Started

Add Delete * Indicates Mandatory

4. To delete phases, in the **PHASES** section, perform the following steps:
 - a. Select the appropriate phases, and click **Delete**.
 - b. Click **OK**.
5. To add phases, in the **PHASES** section, perform the following steps:
 - a. Click **Add**.
The **Project Phase(s)** dialog box is displayed. Available phases are phases defined in the **Project Phase** library catalog and not added to the project.
 - b. In the **Project Phase(s)** dialog box, select the required project phases, and then click **Select**.
6. From the **Start Date** calendar drop-down list, select the start date of implementation of the selected phase.

7. From the **End Date** calendar drop-down list, select the completion date of implementation of the selected phase.
8. From the **Status** drop-down list, select the status of the selected phase.

The available options are:

- Not Started
- In-Progress
- Completed

Note: The default phase status is **Not Started**.

The phase status is automatically updated to **In-Progress**, when any of the following records is created in the project:

- Approved Pay Estimate
- Approved Direct Expenses
- Approved Indirect Expenses

After the project workflow is complete, statuses of all the phases in the project are automatically updated to **Completed**.

9. To reorder the sequence of the phases, in the **PHASES** section, click , and drag the row to the appropriate sequence level.
10. Click **Save**.

Every phase created has a corresponding container created in the **Budget Estimate Items list** and **Contract Items** list, and a corresponding task created in the **Schedule** of the project.

8.4.4.2. Reorganizing the Project Phases

You can reorganize the sequence of the phases by dragging and dropping the selected phase in the required position.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the project navigation pane, click **Project Phases**.

The list of phases defined for the project is displayed.

4. To reorder the sequence of the phases, in the **PHASES** section, click , and drag the row to the appropriate sequence level.
5. Click **Save**.

8.4.4.3. Deleting Project Phases

- Items are not added to the corresponding containers that are automatically created in the Budget Estimate Item list, and Contract Items list of the project.
- Subtasks are not defined for the corresponding tasks that are automatically created in the Schedule of the project.

On deleting a project phase, the corresponding containers created in the Budget Estimate Item list, and Contract Items list, and tasks defined in the Schedule of the project are deleted.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the project navigation pane, click **Project Phases**.

The list of phases defined for the project is displayed.

4. In the **PHASES** section, select the appropriate phases, and then click **Delete**.
- A confirmatory message is displayed.

5. Click **OK**.

8.4.5. Editing Project Details

Based on the workflow settings of a project workflow and the current workflow status of the project, you can edit the details of a project.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **Edit**.

Alternatively,

- a. In the list page, double-click the appropriate project.

The **PROJECT DASHBOARD** page is displayed.

- b. Click the **PROJECT DETAILS** tab, and then click **Edit**.

The **EDIT PROJECT** page is displayed.

3. Make the appropriate changes.

Note:

- You cannot change the project code, selected document property template, or the business unit of the project.
- If you change the document folder structure, the new folder structure is appended to the existing folder structure.

4. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

8.4.6. Viewing Project Details

The **PROJECT DETAILS** page provides general information about a project, such as the project name, project code, start and end dates, current status, the functional modules that are available for the project, and attachments.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. Click the **PROJECT DETAILS** tab to view the project details.

8.4.7. Deleting a Project

Deleting a project from the application also deletes the associated contracts.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, select the appropriate project that must be deleted.
3. Click **Delete**.

A confirmation message is displayed.

4. Click **OK**.

8.4.8. Project Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Project** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Pre-Award	Execute	In-Progress	-
2	In-Progress	Close	Closed	-
3	Closed	Final Close	Final Closed	-

8.5. User Management

8.5.1. User Management in Projects

To manage the functioning of a project, you must invite users to the project. Only invited users can access the project and its contracts. Each user can participate in the project tasks based on the roles assigned to them in the project. You can assign roles to a user in a project based on the roles assigned to the user at the enterprise level.

You can invite users to a project in the following ways:

- [Inviting users to a project](#)
- [Inviting a user to multiple projects](#)

You can invite users to a contract to enforce information security by allowing contract information visibility only to authorized users. To invite a user to a contract, the user is first invited to the project, and then to the required contracts in the project. The user creating the contract is automatically invited to the contract. In addition, you can invite other users to the contract. You can assign roles to a user in a contract based on the roles assigned to the user in the project.

You can also remove users from a project and remove access to multiple projects from a user.

- Users removed from a project cannot access the project and perform any project-related tasks. For more information on removing users from a project, see [Removing Users from a Project](#).
- A user removed from multiple projects cannot access those projects and perform any project-related tasks. For more information on removing projects from a user, see [Removing Projects from a User](#) on page 456.

8.5.2. Inviting Users to a Project

- User accounts are created.
- Roles are assigned to users.

For information on creating user accounts and assigning roles to users, see [User Management](#).

You can invite users to a project and assign project-specific roles as required.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

The **PROJECT DASHBOARD** page is displayed.

3. Click the **PROJECT DETAILS** tab.

4. Click **Manage Users**.

The **MANAGE USERS IN PROJECT** page is displayed.

Manage Users in Project page

The screenshot shows the 'MANAGE USERS IN PROJECT' page. At the top, there are buttons for Save, Remove User, Back, and Add User. Below that, a header reads 'CURRENT USERS IN PROJECT : 'TIP TOWER PROJECT' (PROJECT CODE: '1122')'. A table lists one user: 'Smith' (Administrator, User) with email 'a@bc.com', invitation start date '10/13/2023', and end date 'None'. The 'Is Primary' checkbox is checked. Navigation buttons at the bottom include back, forward, and page number controls (1).

	<input type="checkbox"/>	First Name	Last Name	Project Role	Company	Phone	Email	Invitation Start Date	Invitation End Date	Is Primary
>	<input type="checkbox"/>	Smith		Administrator,User			a@bc.com	10/13/2023	None	<input checked="" type="checkbox"/>

5. Click **Add User.**

The **All Users** dialog box is displayed.

Available users are users belonging to the business unit as selected for the project.

For information on Business Units, see [Business Units](#). For information on associating users to business units, see [User Accounts](#).

6. To add specific users, select the users to invite to the project, and then click **Add Users.**

Alternatively, click **Select All Records** to add all users to the project.

7. To assign invitation start date and end date to the invited users, perform the following steps:

- a. Double-click the cell in the **Invitation Start Date** column of the user.**

By default, the current date is selected as the **Invitation Start Date**.

- b. Click  to assign project invitation start date to the user.**

- c. Double-click the cell in the **Invitation End Date** column of the user.**

By default, **None** is selected as the **Invitation End Date**.

- d. Click  to assign project invitation end date to the user.**

Note: If the **Is Primary** check box is selected, the users will receive email notifications on invitation start date, a week before invitation expiry date, on the invitation end date, and after the invitation expiry date.

Otherwise, the users will receive the notifications only in Masterworks **Inbox**.

8. To assign project roles to invited users, perform the following steps:

- a. Double-click the cell in the **Project Role** column of the user.**

The list of roles assigned to the user at the enterprise level is displayed. For information on roles, see [Security Roles](#).

- b. From the **Project Role** drop-down list, select the roles to be assigned to the user in the project.**

9. Ensure the **Is Primary check box is selected for the user to receive task email notifications as defined in workflows.**

Optionally, clear the check box to block the user from receiving email notifications as defined in workflows.

10. Click **Save.**

8.5.3. Removing Users from a Project

- Users are invited to the project.

On removing a user from a project, the user will not be able to access the project and perform any project related tasks.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

The **PROJECT DASHBOARD** page is displayed.

3. Click the **Project Details** tab.

4. In the **PROJECT DETAILS** page, click **Manage Users**.

The **MANAGE USERS IN PROJECT** page is displayed.

5. From the **CURRENT USERS IN PROJECT** list, select the users to be removed from the project.

6. Click **Remove Users**.

A confirmation message is displayed.

7. Click **OK**.

The selected users are removed from the project.

8.5.4. Mapping Projects to a User

- User accounts are created.
- Roles are assigned to users at the enterprise level.
For information on creating user accounts and assigning roles to users, see [User Management](#).

You can invite a user to multiple projects, and assign multiple roles to the user in a project.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. Click **Manage Users**.

The **MANAGE USER MEMBERSHIP** page is displayed.

3. From the **User** drop-down list, select the appropriate user name.

Alternatively, type and select the appropriate user from the list.

Available user names are of user accounts defined at the enterprise level. For information on user accounts, see [User Accounts](#).

Manage User Membership Page

The screenshot shows the 'MANAGE USER MEMBERSHIP' page. At the top, there are buttons for Save, Remove, Switch User, and Back. A dropdown menu labeled 'User : Smith' is open. Below this is a table titled 'EXISTING PROJECTS' with columns: Project Name, Project Code, User's Role(s), Invitation Start Date, Invitation End Date, and Is Primary. One project, 'Tip Tower Project', is listed with details: Project Code 1122, User's Role(s) Administrator,User, Invitation Start Date 10/13/2023, and Is Primary checked. Navigation buttons for the table are shown below the table. At the bottom, there is a section titled 'ADD PROJECTS' with a table and two buttons: 'Add' and 'Delete'. A message 'No new projects added.' is displayed.

4. In the **ADD PROJECTS** section, click **Add** to assign projects to the user.

The **Projects List** dialog box is displayed.

Available projects are projects with the same business units as associated with the selected user.

For information on Business Units, see [Business Units](#). For information on associating users to business units, see [User Accounts](#).

5. To add specific projects, select the appropriate projects, and then click **Select**.

The selected projects are displayed.

Alternatively, to select all projects, perform the following steps:

- a. Click **Select All Records**.

A confirmation dialog box is displayed.

- b. Click **OK**.

6. By default, the user is invited with all roles assigned at the application level. To select specific user roles for a project, in the **ADD PROJECTS** section, perform the following steps:

- a. Double-click the role in the **User's Role(s)** column.

The list of roles assigned to the user at the enterprise level is displayed. For information on enterprise user management, see [User Accounts](#).

- b. Select the appropriate roles for the user in the project.

7. To assign invitation start date and end date to the invited users, perform the following steps:

- a. Double-click the cell in the **Invitation Start Date** column of the user.

The current date is selected as the **Invitation Start Date** by default.

- b. Click  to assign project invitation start date to the user.

- c. Double-click the cell in the **Invitation End Date** column of the user.

None is selected as the **Invitation End Date** by default.

- d. Click  to assign project invitation end date to the user.

Note: If the **Is Primary** check box is selected, the users will receive email notifications on invitation start date, a week before invitation expiry date, on the invitation end date, and after the invitation expiry date.

Otherwise, the users will receive the notifications only in Masterworks **Inbox**.

8. Ensure the **Is Primary** check box is selected for the user to receive task email notifications as set in workflows.

Optionally, clear the check box to block the user from receiving email notifications as defined in workflows.

9. Click **Save**.

The selected projects are assigned to the user in the specified roles.

8.5.5. Removing Projects from a User

You can remove a user from multiple projects.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. Click **Manage Users**.

The **MANAGE USER MEMBERSHIP** page is displayed.

3. From the **User** drop-down list, select the appropriate user name.

Alternatively, type and select the appropriate user from the list.

Available user names are of user accounts defined at the enterprise level. For information on user accounts, see [User Accounts](#).

4. In the **EXISTING PROJECTS** list, select the projects to be removed from the selected user, and then click **Remove**, and then click **Remove**.

Alternatively, to remove all projects from the user, click **Remove**, and then click **Remove All**.

A confirmation dialog box is displayed.

5. Click **OK**.

6. Click **Save**.

8.6. Location

8.6.1. Location

The **Location** form is used to mark location data pertinent to a project/contract(s), such as Project Area, Work Site. Project locations marked on maps are viewed at the project and enterprise levels. You can mark multiple project locations and project boundaries by placing points or drawing boundaries on a map. While using map markers, you can view layers as a reference on the map.

The Location form in Masterworks enables you to record and display location information alongside other pertinent project information. You can perform the following actions.

- Add project locations on a map using map markers.
- View location-specific data attributes of projects.

- View all project locations in a consolidated map view.

Project locations marked on all projects are available in the [Enterprise Map Viewer](#).

8.6.2. Managing Project Location Details on a Map

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, and then click **Location**.

The **LOCATION** list page is displayed.

- 4.** Click **New**.

Location Page

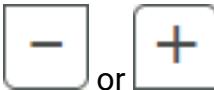
The screenshot shows the 'LOCATION' page with the following details:

- Save & Exit**, **Save & Continue**, **Cancel**
- Location ID**: <Auto Generated>
- Project Code**: P10/17
- Project Name**: Test Project-10/17
- Title**:
- Description**:
- Add Feature:**
- Map View**: A map of the Denver metropolitan area, including cities like Louisville, Superior, Broomfield, Adams, Thornton, Westminster, Arvada, Lakewood, Aurora, and Parker. It shows roads, rivers (Standy Lake, Cherry Creek), and state parks (Golden Gate Canyon State Park, Chaffield State Park). A search bar at the top right of the map says 'Find address or place'.
- Base Map**: Set to 'Topographic M'. Options include 'Topographic M' (selected), 'Aerial', and 'Satellite'.
- Layer(s)** (checkboxes):
 - BRIDGE
 - CIP
 - USA MAP SERVER
 - WATERNETWORKGROUPLAYERS
 - LINES
 - POINTS
 - POLYGONS
- Note:** Layer(s) displayed in blue will only display features added in other records of this form.

The **LOCATION** page displays the following non-editable fields:

Field	Description
Location ID	On saving the record, a unique identification code for the location is automatically generated.
Project Code	The identification code of the project for which the location details are being created.
Project Name	The name of the project for which the location details are being created.

- 5.** To associate a contract with the location, from the **Contract** drop-down list, click and select the appropriate contract.
- Alternatively, type the name of the contract, and then select the contract.
Available contracts are all the contracts the user is invited to in the project.
- 6.** In the **Title** box, enter the title for the project location.
- 7.** In the **Description** box, enter a detailed description of the project location.

8. To find the appropriate location and draw the location geometries on the map, perform the following steps:
 - a. To find the appropriate location on the map, perform the following steps:
 - i. Drag the map in the required direction.
 - ii. In the **Find address or place** box, enter the name of the location, click  , and then click the appropriate location.
The map of the area is displayed.
 - iii. 
Use  or  to zoom in or out on the map.
 - iv. Select the appropriate base map from the **Base Map** drop-down list.
Available options are base maps defined in the **BASE MAPS** section in the **GIS Settings** page of the **Administration** module. For more information, see [Adding Base Maps](#).
 - v. To view layers, such as stations or transit centers, select the required layers in the **Layer(s)** section.
The **Layer(s)** displayed in blue will only display features added in other records of this form.
Available options are base maps defined in the **LAYERS** section in the **GIS Settings** page of the **Administration** module. For more information, see [Adding Layers](#).
 - b. In the **Add Feature** drop-down list, select the required feature to mark on the map.
The drawing toolset will display options based on the configured geometry corresponding to the selected feature.
 - c. To draw the location geometries, perform the following steps:
 - To mark a point on the map, click  , and then click on the map at the required location.
 - To draw a polyline, click  , and then click on the map. To complete the boundary, follow the instructions as displayed on the map.
 - To draw a freehand polyline, click  , and then click on the map. To complete the boundary, follow the instructions as displayed on the map.
 - To draw a triangle, rectangle, or a circle, click  ,  , or  , click on the map, and drag to size the map marker.

-  
To mark a boundary, click  or , and then click on the map.
To complete the boundary, follow the instructions as displayed on the map.
- 
To draw an arrow mark, click 

Action	Steps
Edit	<ol style="list-style-type: none">i. Right-click in a boundary or on a line, and then click Edit. Points that are editable are displayed.ii. Click a point and drag to edit the marker.
Move	<ol style="list-style-type: none">i. Right-click in a boundary or on a line, and then click Move.ii. Click and drag the map marker to the required location on the map.
Rotate	<ol style="list-style-type: none">i. Right-click in a boundary or on a line, and then click Rotate.ii. Click , and drag to rotate the marker.
Scale	<ol style="list-style-type: none">i. Right-click in a boundary or on a line, and then click Scale.ii. Click a point and drag to adjust the marker boundary.
Delete	<ol style="list-style-type: none">i. Right-click in a boundary or on a line to be deleted.ii. Click Delete. A confirmation message is displayed.iii. Click OK.

9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The map markers are saved on the map.

The project location data created in the Masterworks application is automatically saved in the external system ESRI (ArcGIS). In the list page, the ESRI Save Status column displays the current status of saving data to ESRI.

The following are the different statuses:

Status	Description
Completed	<p>The location geometry is successfully saved from the application to the ESRI geodatabase.</p> <p>Note: Once the geometry drawn on the map is successfully saved to the ESRI geodatabase, the updated or edited geometry will override the current geometry present in ESRI. The changes will not be merged.</p>
In Progress	<p>Saving location data from the application to the ESRI geodatabase is in progress. If the first attempt of saving location data fails, then the system automatically attempts to save the location data, based on the number of tries defined in the ESRI SAVE SETTINGS section in the GIS Settings page of the Administration module. For information ESRI save settings, see Configuring the ESRI Save Settings.</p>
Pending	<p>Saving of location data to the ESRI geodatabase is pending.</p>
Failed	<p>Saving location data from the application to the ESRI geodatabase has failed despite retrying after the configured number of retries defined in the ESRI SAVE SETTINGS section in the GIS Settings page of the Administration module. For information ESRI save settings, see Configuring the ESRI Save Settings.</p>

8.6.3. Viewing Project Locations at the Enterprise Level

- You must have **View** or **Edit** permissions to view or edit a record.

The **Enterprise Map Viewer** enables you to view marked locations of various projects on a single map.

1. In the module menu, click **Home**.

The **ENTERPRISE DASHBOARD** is displayed.

2. In the navigation pane, click **Enterprise Map Viewer**.

The **ENTERPRISE MAP VIEWER** page is displayed.

Enterprise Map Viewer Page

ENTERPRISE MAP VIEWER

SEARCH CRITERIA

Program(s) :

Portfolio(s) :

Include Inactive Project(s) :

Search **Reset**

SEARCH RESULTS

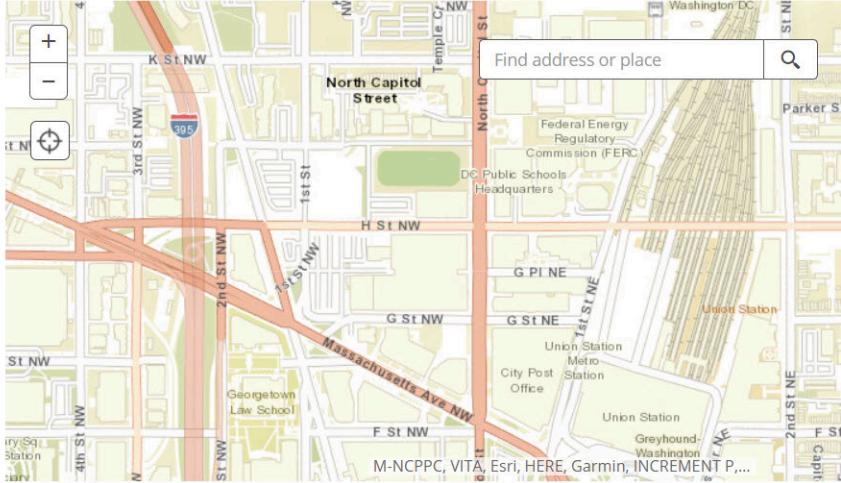
<input type="checkbox"/> Project Code	<input type="checkbox"/> Project Name
No records available.	

Add **Delete** **Generate Map View**

Find address or place

Base Map

Layer(s)



3. To search for or add specific projects to view marked locations, perform either of the following steps:

- To search for specific projects using the search criteria, in the **SEARCH CRITERIA** section, perform the following steps:
 - a. In the **Program(s)** box, click and select the appropriate programs.
Alternatively, type the name of the program, and then select the appropriate program.
The list of all program records that have projects containing location data is displayed. For information managing programs, see [Program](#).
 - b. In the **Portfolio(s)** box, click and select the appropriate portfolios.
Alternatively, type the name of the portfolio, and then select the appropriate portfolio.
The list of all the portfolio records in the enterprise is displayed. For information managing portfolios, see [Portfolio Management](#).
 - c. To include inactive projects, select the **Include Inactive Projects(s)** check box.
 - d. Click **Search**.
The list of projects that match the defined search criteria is displayed in the **SEARCH RESULTS** section.
 - To add specific projects, in the **SEARCH RESULTS** section, perform the following steps:
 - a. Click **Add**.
The **Project(s)** dialog box is displayed.
The list of all the projects in the enterprise is displayed.
 - b. Select the appropriate projects, and then click **Select**.
The selected projects are added to the **SEARCH RESULTS** section.
4. To view the marked project locations on the map, in the **SEARCH RESULTS** section, select the appropriate projects, and then click **Generate Map View**.
- The locations marked for the selected projects are displayed on the map.
5. From the **Base Map** drop-down list, select the required base map.
- Available options are base maps defined in the **BASE MAPS** section in the **GIS Settings** page of the **Administration** module. For information on adding base maps, see [Adding Base Maps](#).

6. From the **Layer(s)** section, select the required non-editable layer(s).

The selected layers are displayed in the **Map View**.

Available options are base maps defined in the **LAYERS** section in the **GIS Settings** page of the **Administration** module. For information on adding layers, see [Adding Layers](#).

7. In the **Forms** section, to view the information on a specific form, clear the check box from the remaining forms.

Note: By default, the list of forms that have enabled map control is selected.

The project information marked on the forms are displayed in the map view.

8. To view project details of a location on a tooltip, click the geometry.

Tooltip details of the geometry that is configured for the form are displayed.

When multiple geometries are created at the same location, on clicking a geometry, you can view the details of all the geometries in that location by navigating using the left and right arrows in the tooltip.

9. To open the record applicable to the selected geometry, on the tooltip, click **Navigate to Record**.

Note: You must have **View** or **Edit** permissions to view or edit a record.

8.7. Project Schedule

8.7.1. Project Task Schedule

The Schedule feature enables you to organize project tasks into deliverable-oriented manageable sub-components and tasks. The Schedule feature is integrated with capabilities to schedule project tasks and track project progress.

The functional flow for project schedule is as follows:

1. [Add new tasks to the schedule](#).
2. [Take schedule snapshot for what-if analysis](#).
3. [Edit task details to update task progress information](#).
4. Save the schedule.

The Masterworks Schedule provides you with the following functionalities.

- [Create a hierarchical structure of tasks without any level limitations](#).

- [Define tasks with information, such as scheduled begin and end dates, actual begin and end dates, task duration, prioritization, and weightage.](#)
- [Schedule tasks.](#)
- [Define dependencies.](#)
- [Illustrate task progress.](#)
- [Illustrate critical path.](#)
- [Take a snapshot of the schedule.](#)
- [Select a baseline snapshot for comparison.](#)

8.7.2. Defining Project Tasks

You can define project tasks in the following ways:

- [Import items as tasks to the Schedule from budget estimates and library templates.](#)
- [Add tasks and define additional information.](#)
- [Copy and paste tasks.](#)
- You can also bulk import tasks using either of the following options:
 - [Use Microsoft Excel to import task details in bulk.](#)
 - [Use Microsoft Project to import task details in bulk.](#)

You can define information, such as scheduled begin and end dates, actual begin and end dates, task duration, prioritization, and weightage for every task.

For information on adding tasks at the same level of hierarchy and lower levels of hierarchy, see [Other Scheduling Activities](#).

Note: Based on the phases added to the project, tasks are pre-created in the **SCHEDULE** page. For information on phases, see [Planning Project Phases](#).

8.7.2.1. Importing Items or Tasks to a Schedule

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.
3. In the project navigation pane, click **Schedule**.
The **SCHEDULE** page is displayed.
4. Click **Import Items**.

5. Add items from either of the modules, as defined in the following table:

Budget Estimates of the Project	Schedule Template Library Catalog
<p>a. Click Add Budget Estimates. The Select Items dialog box is displayed.</p> <p>b. Select the required budget estimates. Options available are budget estimates defined for the project. For information on budget estimate items, see Managing Budget Estimate Items.</p> <p>c. Click Select. All the items defined in the selected budget estimate are listed as tasks in the Schedule. The hierarchical task information of imported tasks is retained as in the selected budget estimate.</p>	<p>a. Click Add Tasks from Library. The ADD STANDARD TASKS page is displayed.</p> <p>b. From the Task Template drop-down list, select the appropriate option. Options available are task templates defined in the Schedule Template library catalog.</p> <p>c. Click Add. The Tasks dialog box is displayed. Available options are based on the task template selected and the tasks defined in the Schedule Template library catalog. For information on defining task templates, see Schedule Template on page 245.</p> <p>d. Select the tasks to be imported.</p> <p>Note: Tasks that already exist in the project schedule are not available for selection.</p> <p>e. Click Select. Alternatively, click Select All Tasks to select all the tasks. All the selected tasks are listed in the Schedule. The hierarchical task information of imported tasks is retained as in the selected task template.</p>

6. Click **Save**.
7. Optionally, to modify or add additional task information, see [Editing Task Details](#).

8.7.2.2. Adding Tasks to the Schedule

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

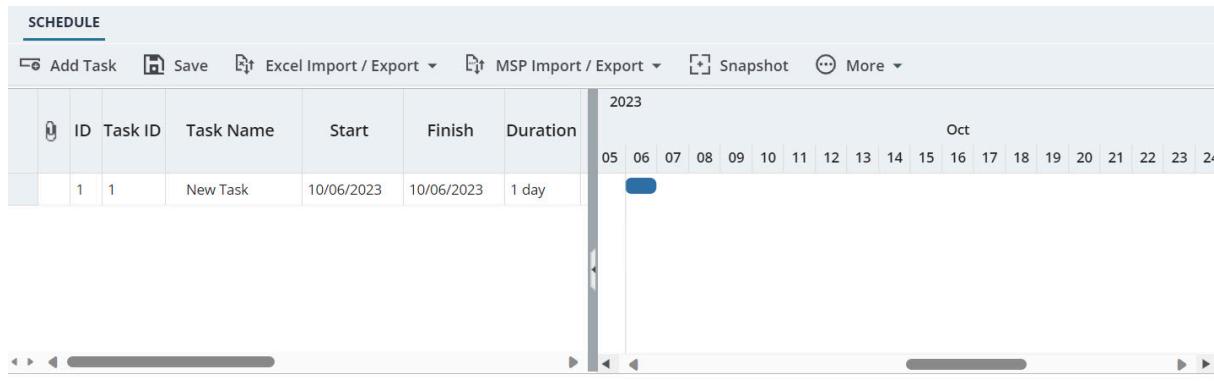
3. In the project navigation pane, click **Schedule**.

The **SCHEDULE** page is displayed.

4. Click **Add Task**.

A task is added to the task list.

Add Task



By default, the following information is displayed:

Column	Description
ID	A unique identification code for the corresponding record.
Task ID	A unique task ID that defines the hierarchy and sequence of the parent and child tasks.
Task Name	The task name is defaulted to New Task .
Start	By default, the current date is displayed.
Finish	
Duration	The duration is calculated based on the Start and Finish dates.
Weightage	By default, the task weightage is displayed as 1 .
% Complete	By default, it displays 0 .

5. Click **Save**.

6. To modify or add additional task information, see [Editing Task Details](#).

To add sub-tasks, see [Add sub-tasks](#).

To add tasks at the same hierarchical level, see [Add tasks at the same hierarchical level](#).

8.7.2.3. Copying and Pasting Tasks

- Tasks are available in the **SCHEDULE** page. For information on adding a task, see [Defining Project Tasks](#) on page 465.

In the **SCHEDULE** page, using the **Copy** and **Paste** options, you can copy the existing project tasks and paste them as new tasks. You can copy all the information of the task, such as **Task**, **Task type** (Manual or Automated) **Predecessor**, **Resources**, and **Attachments**.

The following list elicits the nuances of the **Copy** and **Paste** options:

- If a grouped task list is expanded and only the header row is copied, then only the header is pasted as a new task.
- If a grouped task list is collapsed and the header row is copied, then all the tasks inside the grouped task list are copied and pasted as new tasks.
- If a filter is applied to the task list and collapsed, then the **Copy** option copies only the filtered sub-tasks of the selected parent task.
- If a filter is applied to the task list, then the **Paste** option is unavailable.

Note: To enable the **Paste** option, the **Filter** option must be cleared from the task list.

- If the hierarchy of tasks under a task list is copied, then the same hierarchy is retained after pasting.
- The IDs of the tasks followed by paste action are incremented by 1.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the project navigation pane, click **Schedule**.

The **SCHEDULE** page is displayed.

3. Select the appropriate tasks that you want to copy.
4. From the **Action** drop-down list, click **Copy**.

Note: The **Copy** option is enabled only on the selection of single or multiple tasks.

5. Place the cursor at which level you want to paste the copied tasks.
6. From the **Action** drop-down list, click **Paste**.

New tasks are added to the task list.

Note:

- The **Paste** option is enabled only when tasks are copied. It is available for multiple paste actions from a single copy.
- You can copy once and paste multiple times until the session is online.
- If you navigate outside the **SCHEDULE** page, then the **Paste** option is unavailable.

7. Click **Save**.
8. Optionally, to modify or add additional task information, see [Editing Task Details](#) on page 481.

8.7.3. Other Scheduling Activities

In addition to adding tasks, you can perform other task-related activities, such as adding tasks at a selected hierarchical level, adding tasks at the subsequent level of hierarchy, moving tasks in the structure, removing tasks, and so on.

Other Gantt schedule activities include the following.

- [Add a sub-task](#).
- [Add a task at a particular hierarchical level](#).
- [View or hide sub-tasks](#).
- [Modify the hierarchical level of a task](#).
- [Move a task in task list sequence](#).
- [Remove a task](#).

8.7.3.1. Adding Subtask

You can add subtasks to the tasks in the Gantt schedule.

1. In the **Schedule** table, click the appropriate task.

2. Click **Add / Remove Tasks**, and then click **Add Child Task**.

Add Child Task Option

The screenshot shows a software interface titled 'SCHEDULE'. At the top, there is a toolbar with various icons and dropdown menus. One of the dropdown menus, 'Add/Remove Tasks', has a sub-menu open with three options: 'Remove Tasks', 'Add Sibling Below', and 'Add Child Task'. The 'Add Child Task' option is highlighted with a red box. To the right of the table is a calendar view showing dates from 19 to 31 of the current month, followed by days 01 through 06 of the next month.

A task is added at the subsequent sub-level of the selected task.

3. Click **Save**.

To modify or add additional task information, see [Editing Task Details](#).

8.7.3.2. Adding Task at Hierarchical Level

- A child task is existing.

You can add tasks at a particular hierarchical level.

1. In the **Schedule** table, click the appropriate child task.
2. Click **Add/Remove Tasks**, and then click **Add Sibling Below**.

Add Sibling Task Option

The screenshot shows the same software interface as the previous one. The 'Add/Remove Tasks' dropdown menu is open, and the 'Add Sibling Below' option is highlighted with a red box.

A task is added at the same level as the selected task.

3. Click **Save**.

To modify or add additional task information, see [Editing Task Details](#).

8.7.3.3. Viewing or Hiding Subtasks

You can view or hide the subtasks.

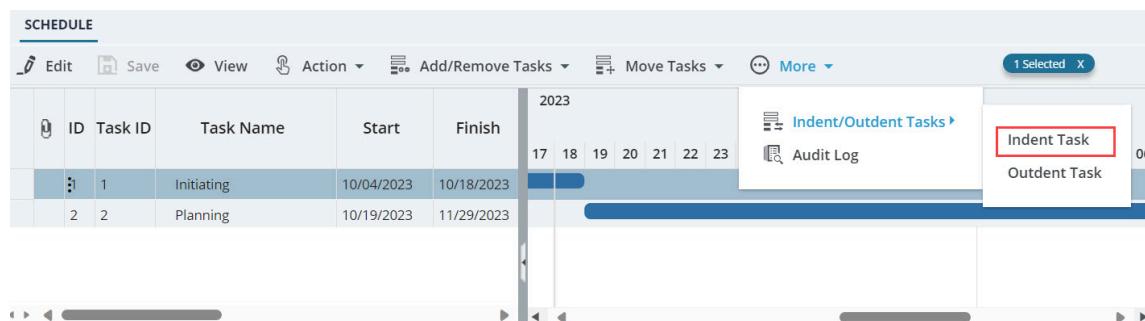
1. In the **Schedule** table, right-click on a task, and then perform either of the following steps:
 - a. Click **Expand All** to view all the subtasks of all the tasks.
 - b. Click **Collapse All** to hide all the subtasks of all the tasks.

8.7.3.4. Modifying Hierarchical Level of a Task

You can change the hierarchical level of the tasks that are already added to the schedule.

1. In the **Schedule** table, click the appropriate task.
2. Click **Indent/Outdent Tasks**, and then click either of the following options:
 - To lower the hierarchical level of the task, click **Indent Task**.

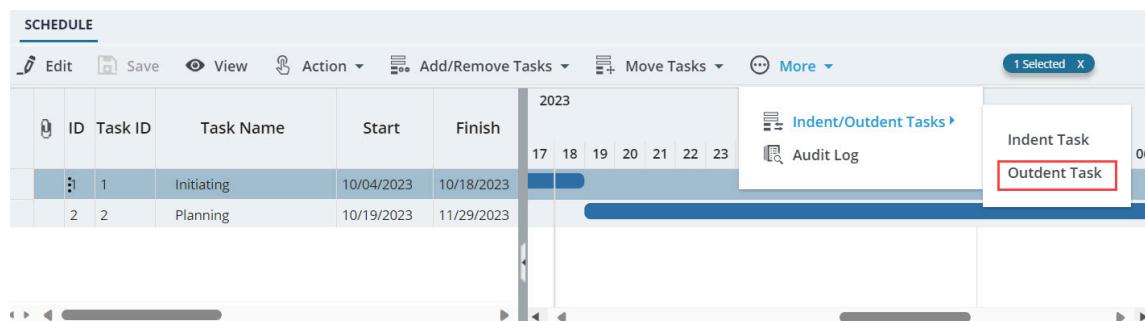
Indent Task Option



The selected task is set as the subsequent sub-level task.

- To increase the hierarchical level of the task, click **Outdent Task**.

Outdent Task Option



The selected task is set to the previous task level.

Alternatively, right-click on a task, and then click the appropriate option.

3. Click **Save**.

8.7.3.5. Moving a Task

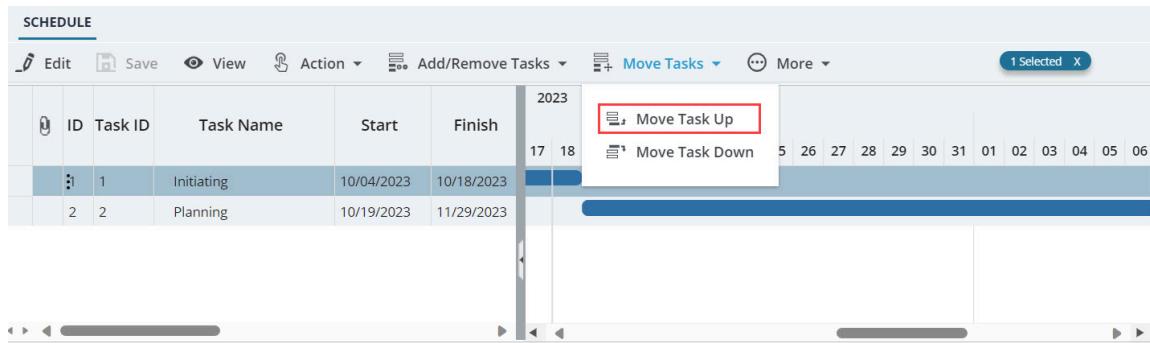
You can move a task through the task list sequence.

1. In the **Schedule** table, click the appropriate task.

2. Click **Move Tasks**, and then click either of the following options:

- To move a task up the list, click **Move Task Up**.

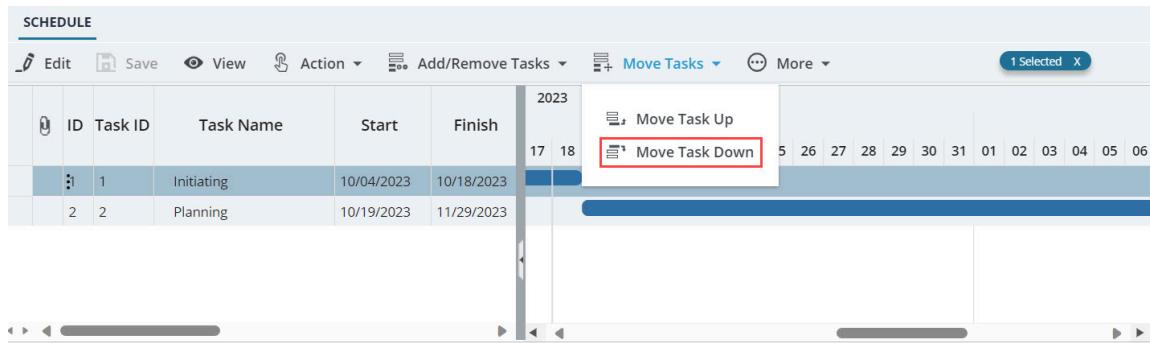
Move Task Up Option



The selected task is moved one level up in the task sequence.

- To move the task down the list, click **Move Task Down**.

Move Task Down



The selected task is moved one level down in the task sequence.

3. Click **Save**.

8.7.3.6. Removing a Task

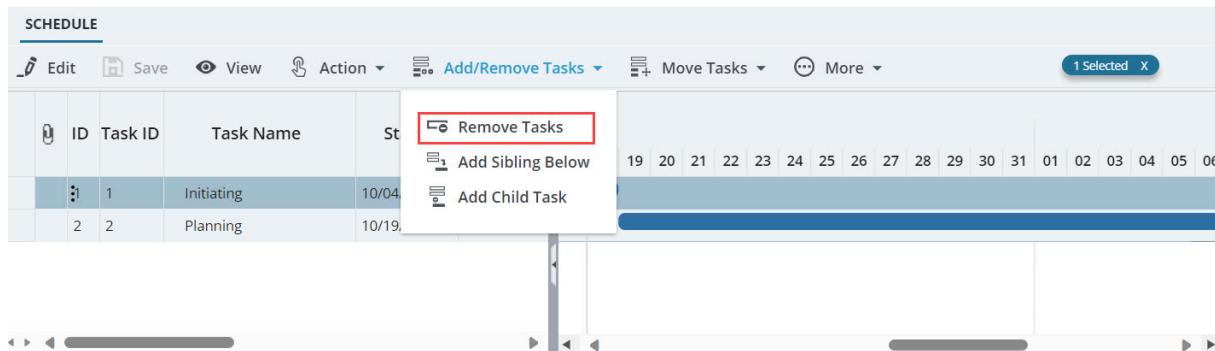
You can remove tasks from the schedule.

Note: You cannot remove a task that is pre-created as part of phases defined for the project. For information on phases, see [Planning Project Phases](#).

1. In the **Schedule** table, select the appropriate task.
2. To select multiple tasks, perform either of the following steps:
 - Press and hold CTRL, and then click the required tasks.
 - Press and hold SHIFT, and then click the first task and the last task.
All tasks between the first and last tasks are selected.

3. Click **Add/Remove Tasks**, and then click **Remove Tasks**.

Remove Tasks Option



4. Click **Save**.

8.7.4. Uploading Task Details in Bulk

8.7.4.1. Importing Task Details in Bulk Using Excel

Using the **Excel Import / Export** feature, you can upload new tasks and update details of existing tasks in bulk.

Note: You cannot delete tasks or upload attachments using an Excel workbook.

The high-level process of uploading or updating details of tasks in bulk is as follows:

1. Export the template workbook.
2. Add or update task information in the template workbook.
3. Import the updated workbook.

The **Instructions** tab in the Microsoft Excel workbook template provides information on updating the template.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

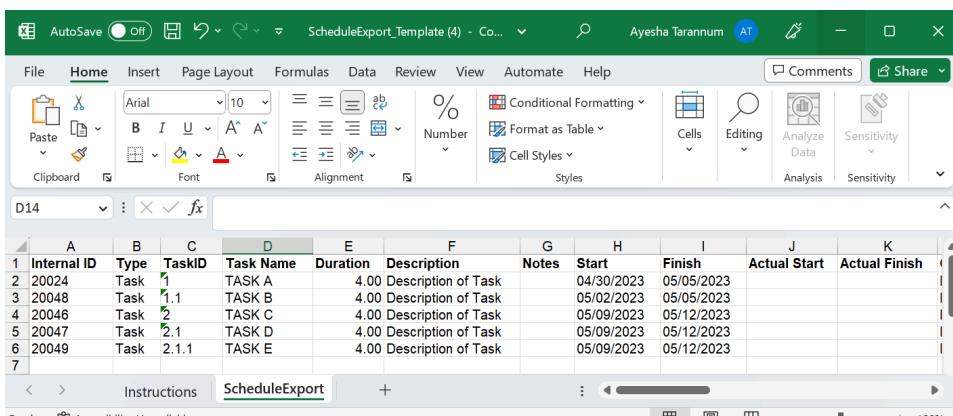
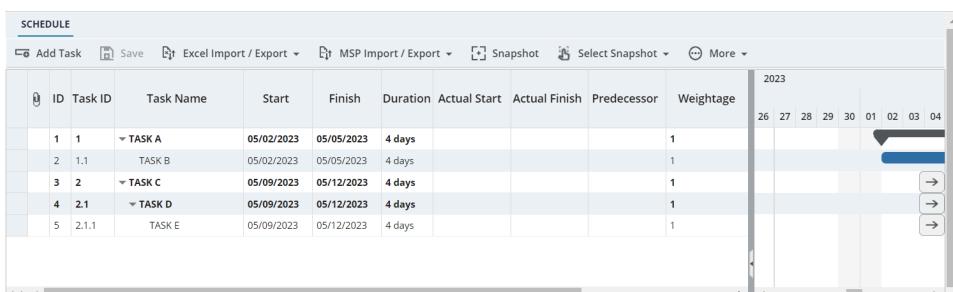
2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder, and then click **Schedule**.

The **SCHEDULE** page is displayed.

4. To export the Excel workbook template, perform the following steps:
 - a. In the **SCHEDULE** page, click **Excel Import / Export**, and then click **Excel Template** or **Excel Template With Data**.

The Excel workbook template is downloaded to the local storage.
 - b. Open the Excel workbook template.
5. In the **ScheduleExport** tab of the Excel workbook, enter the task details in various columns, as described in the following table.

Column	Description
Internal ID	<ul style="list-style-type: none">• To upload details of new tasks, do not enter any details in the Internal ID column.• To update details of existing tasks, retain the value in the Internal ID column. The Internal ID column displays the unique identification code for the corresponding record of the form and is used as a reference to update task details.
Type	<p>Mandatory field; information must be provided.</p> <ul style="list-style-type: none">• To update the existing task, retain the value in this column.• To create a new task, enter Task.• To update the resource title information, enter Resource Titles.• To update the resource information for a person, enter Person.
If the Type is Task , enter the task details in the following columns:	

Column	Description
Task ID	<p>Mandatory field; information must be provided.</p> <p>To update the existing task, retain the values in this column.</p> <p>Task ID defines the hierarchy and sequence of the parent task and child task. The hierarchy of tasks and sub-tasks must be defined sequentially in the Excel workbook.</p> <p>For example, TASK A is the parent task and Task B is the child task. The Task ID for TASK A should be 1 and Task B should be 1.1.</p> <p>The following image illustrates five tasks, TASK A, TASK B, TASK C, TASK D, and TASK E:</p> <p>Tasks Illustrated in Excel Workbook</p>  <p>The following image illustrates the tasks imported to the application using the Excel workbook as shown in the previous image:</p> <p>Tasks Import List</p>  <p>Task Name</p> <p>Enter the name of the tasks.</p> <p>Duration</p> <p>Do not enter any value. On importing the Excel workbook, the duration is auto-calculated based on the Start and Finish dates.</p> <p>Description</p> <p>Mandatory field; information must be provided. Enter the description of the tasks.</p>

Column	Description
Notes	Enter the notes for the tasks.
Start	Enter the start date of the task. Based on the Calendar selected for the project, non-working days are not available for selection. For more information, see Managing the Project Calendar .
Finish	Enter the date of completion of the task. Based on the Calendar selected for the project, non-working days are not available for selection. For more information, see Managing the Project Calendar .
Actual Start	Enter the actual start date of the task. Based on the Calendar selected for the project, non-working days are not available for selection. For more information, see Managing the Project Calendar .
Actual Finish	Enter the actual end date of the task. Based on the Calendar selected for the project, non-working days are not available for selection. For more information, see Managing the Project Calendar .
Complete	<ul style="list-style-type: none">• If the task is complete, enter Yes.• If the task is yet to be completed, enter No.
Predecessor	Enter the row number of the task in the Excel template minus 1. Note: Ensure the predecessor is not a task with sub-tasks defined. Suffix the row number with any of the following: <ul style="list-style-type: none">• FS to set the link of the task with the predecessor as Finish to Start.• SS to set the link of the task with the predecessor as Start to Start.• FF to set the link of the task with the predecessor as Finish to Finish.• SF to set the link of the task with the predecessor as Start to Finish.
% Complete	Enter the completion percentage of the task.

Column	Description
Weightage	Enter the weightage of the task.
Task Priority	Enter the task priority.
If the Type is Resource Titles or Person , enter the resource details in the following columns:	
Note: To associate resources with a task, enter resource details after the task details row.	
Resource ID	Enter the identification number of the resource title or person. Ensure the identification number entered is as defined in the Resource Titles library catalog.
Resource Title/ Name	Enter the title or name of the resource associated with the task. Ensure the name entered is as defined in the Resource Titles library catalog.
Resource Type	Enter the resource type for the title. Ensure the type entered is as defined in the Resource Titles library catalog.
Resource Units	Enter the unit of measure for the resource title or person. Ensure the unit entered is as defined in the Resource Titles library catalog.
Resource Fixed Price in \$	Enter the fixed price for the resource title or person. Ensure the price entered is as defined in the Resource Titles library catalog.
Resource Variable Price in \$/Unit	Enter the variable price for the resource title or person. Ensure the price entered is as defined in the Resource Titles library catalog.
Number of Resources	Enter the number of resources required for the resource title or person.
Resource Utilization per day in %	Enter the utilization in percentage value of the resource title or person for a task.
Resource Quantity in Units	Enter the quantity of the resource title or person for the corresponding unit.

Column	Description
Resource	Do not enter any value.
Amount in \$	The amount is auto-calculated as: Resource Amount in \$ = (Number of Resources) * (Resource Fixed Price in \$ + (Resource Variable Price in \$/Unit * Resource Quantity in Units))

6. Click **Save** to save the Excel workbook.
7. To import the template workbook with task details to the application, perform the following steps:
 - a. In the **SCHEDULE** page, click **Excel Import / Export**, and then click **Excel Import**.
The **IMPORT DETAILS FROM EXCEL FILE** page is displayed.
 - b. Click **Choose File** to select the workbook with updated item information.
The **Open** dialog box is displayed.
 - c. Select the appropriate workbook, and then click **Open**.
 - d. Click **Upload** to import task information from the Excel workbook to the **SCHEDULE** page.
On successful import, the success message is displayed.
- e. On encountering errors while importing an Excel workbook, perform the following steps:
 - i. In the toolbar, click **Error Log**.
The error log workbook is downloaded to your local storage.
 - ii. Open the error log workbook to view the errors in the various columns.
Error messages in the cells are highlighted in red. Tabs in the workbook are also highlighted to indicate the presence of errors.
 - iii. Open the Excel workbook and modify the details as specified in the error log workbook.
Optionally, you can make relevant corrections in the error log workbook and upload it.
 - iv. Save and upload the Excel workbook to import the updated information.
- f. Click **Save**.
- g. Click **Back**.

The task details in the Excel workbook are uploaded to the **SCHEDULE** page.

8.7.4.2. Importing Task Details in Bulk Using Microsoft Project

- A mapping template is created to map fields in the Masterworks **SCHEDULE** page to the fields in a Microsoft Project file. For more information, see [Schedule MS Project Mapping Template](#).
- The calendar used in the Microsoft Project file should match the calendar selected for the project. For more information on project calendar, see [Managing the Project Calendar](#) on page 442.

Note: You can import even if the calendars do not match. Masterworks will recalculate the schedule as per the project calendar. As a result, you can expect inconsistency in the schedule.

Using a Microsoft Project template file, you can upload details of new tasks and update details of multiple tasks in bulk.

Additionally, you can export task details from Masterworks to a Microsoft Project file. For more information, see [Exporting Task Details Using Microsoft Project](#).

The high-level process of uploading or updating details of tasks in bulk is as follows:

1. Create the mapping template file.

This mapping template maps the fields in the Masterworks application to the fields in the Microsoft Project file. For more information, see [Schedule MS Project Mapping Template](#).

2. Add or update task information in the Microsoft Project file to be uploaded to the **SCHEDULE** page.
3. Import the updated Microsoft Project file with schedule details to the **SCHEDULE** page.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the required project, and then click **View**.
3. In the navigation pane, expand the project folder, and then click **Schedule**.

The **SCHEDULE** page is displayed.

4. Click **MSP Import / Export**, and then click **MS Project Import**.

The **MS PROJECT INTEGRATION** page is displayed.

5. From the **Select Mapping Template** drop-down list, select the appropriate mapping template.

Available options are active mapping templates defined in the **Schedule MS Project Mapping Template** library catalog.

6. In the **Select File** box, click **Choose File**.

The **Open** dialog box is displayed.

7. Select the appropriate Microsoft Project file to be uploaded, and then click **Open**.

8. Click **Fetch Views**.

The list of views defined for the selected file is added to the **Select View** drop-down list.

9. From the **Select View** drop-down list, select the appropriate view for uploading.

10. Click **Import**.

- If tasks were previously imported from an MS Project file to the **SCHEDULE** page of this project, then these previously imported tasks are identified automatically and are updated.
- If a new task is being uploaded; that is, the task was not imported earlier through an MSP file, a new task is created.

11. On encountering errors while importing the Microsoft Project file, perform the following steps:

a. In the toolbar, click **Error Log**.

The error log file is downloaded to your local storage.

b. Open the error log file to view the errors in various rows.

The error details are specified in the **Error** column.

- c. Open the Microsoft Project file and modify the details as specified in the error log.
- d. Save and upload the Microsoft Project file to import the updated information.

8.7.4.3. Exporting Project Tasks to a Microsoft Project File

- A mapping template is created to map fields in the Masterworks **SCHEDULE** page to the fields in a Microsoft Project file. For more information, see [Schedule MS Project Mapping Template](#).
- The calendar used in the Microsoft Project file should match the calendar selected for the project. For more information on project calendar, see [Managing the Project Calendar](#) on page 442.

You can export the task details from Masterworks **SCHEDULE** page to Microsoft Project file.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the required project, and then click **View**.

3. In the navigation pane, expand the project folder, and then click **Schedule**.

The **SCHEDULE** page is displayed.

4. Click **MSP Import / Export**, and then click **MS Project Export (mpp)**.

The **MS PROJECT INTEGRATION** page is displayed.

5. From the **Select Mapping Template** drop-down list, select the appropriate mapping template.

Available options are active mapping templates defined in the **Schedule MS Project Mapping Template** library catalog. For more information, see [Schedule MS Project Mapping Template](#).

6. In the **Select File** box, click **Choose File**.

The **Open** dialog box is displayed.

7. Select the appropriate Microsoft Project template file, and then click **Open**.

Note: The selected template file must have the field mapping as per the Mapping Template.

8. Click **Fetch Views**.

The list of views defined for the selected file is added to the **Select View** drop-down list.

9. From the **Select View** drop-down list, select the appropriate view for uploading.

10. Click **Export**.

A new Microsoft Project file is created and downloaded to your local storage with all the project schedule details.

11. On encountering errors while exporting the Microsoft Project file, perform the following steps:

- a. In the toolbar, click **Error Log**.

The error log file is downloaded to your local storage.

- b. Open the error log file to view the errors in various rows.

The error details are specified in the **Error** column.

- c. In the **SCHEDULE** page, modify the details as specified in the error log.

- d. Save and export the updated information.

8.7.5. Editing Task Details

You can define information, such as scheduled begin and end dates, actual begin and end dates, task duration, prioritization, and weightage for every task.

You can update task details in the following ways:

- [Inline editing](#)
- [Gantt chart](#)
- [Using the Edit option](#)

Note: You cannot edit details of a task that is pre-created as part of phases defined for the project. For information on phases, see [Planning Project Phases](#).

8.7.5.1. Inline Editing

- Tasks are added to the schedule. For information on adding a task, see [Defining Project Tasks](#).

You can update the tasks by providing the appropriate details, such as start and end dates, weightage, and completion percentage of the tasks.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the project navigation pane, click **Schedule**.

The **SCHEDULE** page is displayed.

4. In the **Schedule** table, enter information in the editable columns, as described in the following table.

Note:

- For a parent task, you can edit only **Task Name** and **Weightage** columns.
- For any task, you cannot edit the **Resources** column.

To modify additional task information, see [Updating Task Details Using Edit Option](#).

Column	Action
Task Name	Double-click and enter the task name.
Duration	Double-click and enter the task duration in days.
Start	Double-click and select the start date. Based on the Calendar selected for the project, non-working days are not available for selection. For more information, see Managing the Project Calendar .

Column	Action
Finish	<p>Double-click and select the task completion date.</p> <p>Based on the Calendar selected for the project, non-working days are not available for selection. For more information, see Managing the Project Calendar.</p>
Actual Start	<p>Double-click and select the actual start date of the task.</p> <p>The Start date is updated to the actual start date.</p> <p>Based on the Calendar selected for the project, non-working days are not available for selection. For more information, see Managing the Project Calendar.</p>
Actual Finish	<p>Double-click and select the actual task completion date.</p> <p>The Finish date is updated to the actual finish date.</p> <p>Based on the Calendar selected for the project, non-working days are not available for selection. For more information, see Managing the Project Calendar.</p>
Predecessor	<p>Double-click and enter the IDs of the task predecessors.</p> <p>This defines the Finish-to-Start task link to the specified task.</p> <p>To modify the link, see Task Links.</p> <p>Alternatively, suffix the required predecessor number with any of the following:</p> <ul style="list-style-type: none"> • FS to set the link of the task with the predecessor as Finish to Start • SS to set the link of the task with the predecessor as Start to Start • FF to set the link of the task with the predecessor as Finish to Finish • SF to set the link of the task with the predecessor as Start to Finish <p>Based on suffixes and predecessors defined, the link is generated and displayed in the Gantt.</p> <p>Task Link</p> <p>The diagram illustrates task dependencies on a Gantt chart. At the top, a row of boxes represents dates from 20 to 05. Below this, three horizontal bars represent tasks. Task 25 (FS) is a blue bar spanning from date 20 to 25. Task 26 (SS) is a grey bar starting at date 26 and ending at 01. Task 03 (SF) is a blue bar starting at date 02 and ending at 05. Arrows indicate the links: a vertical arrow points down from the end of Task 25 to the start of Task 26, labeled 'SS'. Another vertical arrow points up from the end of Task 26 to the start of Task 03, labeled 'SF'.</p>
Weightage	Enter the weightage for the task.

Column	Action
% Complete	Enter the percentage of completion of the task.

Note: The **Resources** column displays the list of resource titles added to the task. For more information, see [Adding Task-Level Resource Information](#).

5. Click **Save**.

The Gantt chart is updated according to the values defined in the **Schedule** table.

8.7.5.2. Updating Task Details from the Gantt Chart

- Tasks are added to the schedule. For information on adding a task, see [Defining Project Tasks](#).

1. In the module menu, click **Projects**.

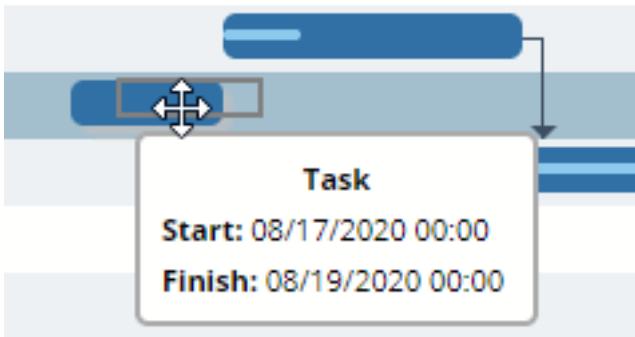
The **PROJECTS** list page is displayed.

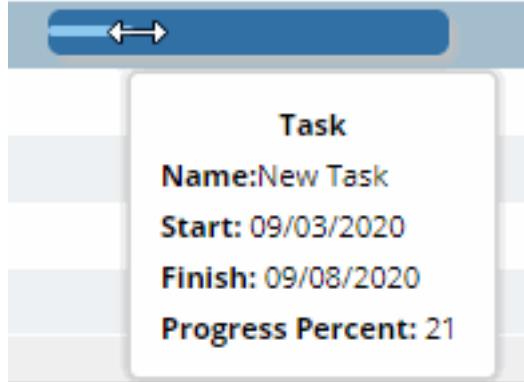
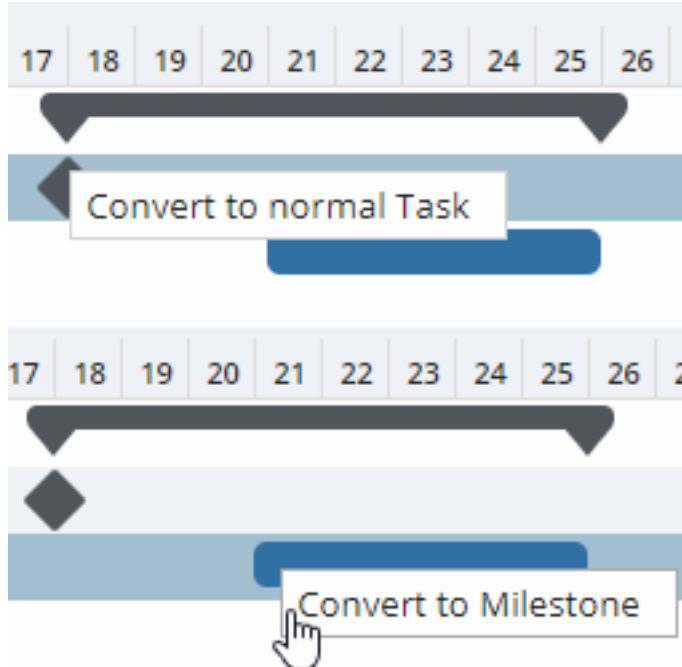
2. In the list page, click the appropriate project, and then click **View**.

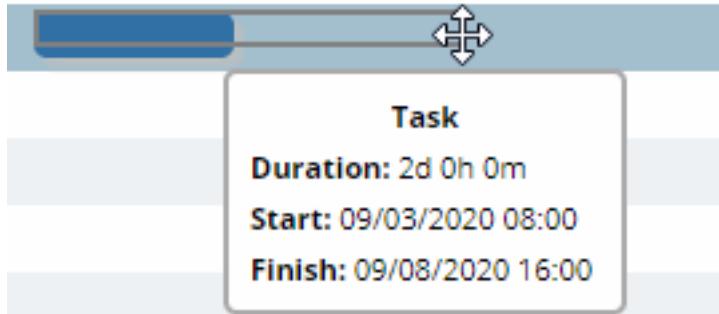
3. In the project navigation pane, click **Schedule**.

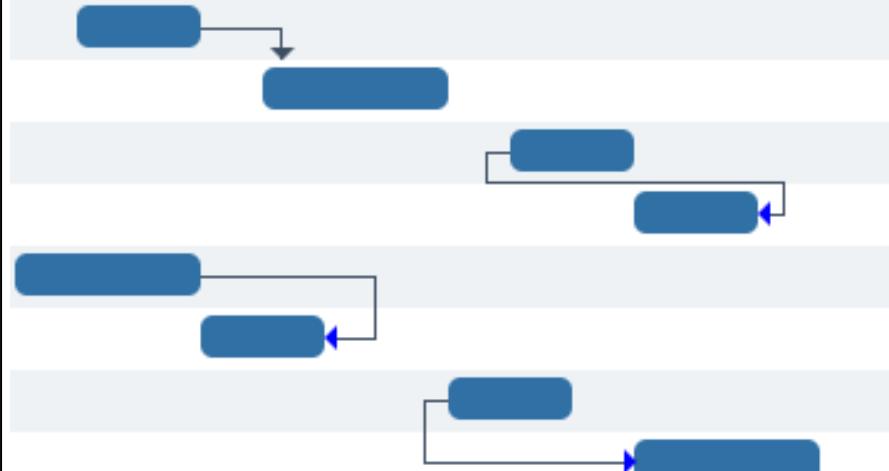
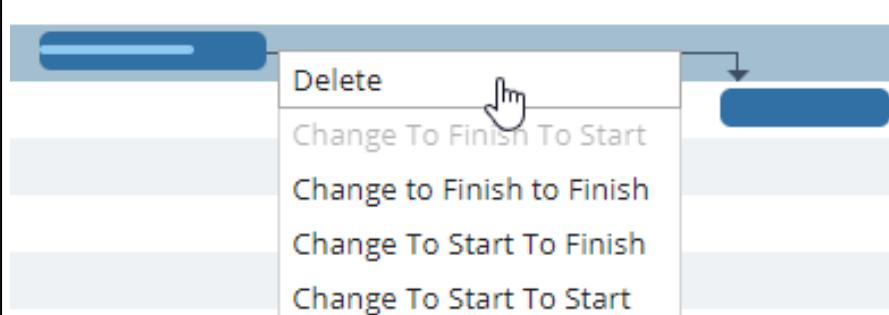
The **SCHEDULE** page is displayed.

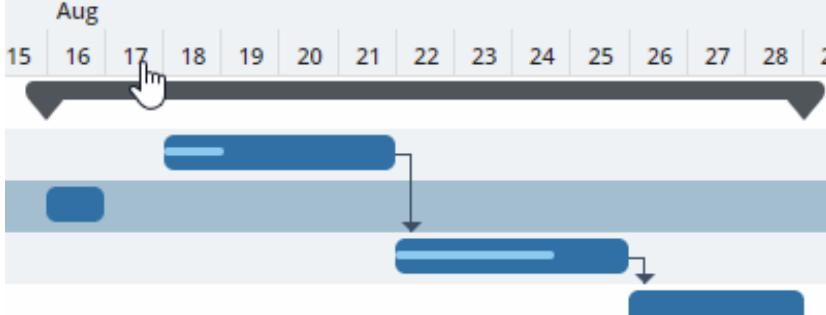
4. In the Gantt chart, perform the steps described in the following table.

Task	Action
Update task dates	<p>Move the task slider to the left or right to update task dates. The Start and Finish date columns are updated accordingly in the Schedule table.</p> <p>Note: You can move the slider only if the task progress is zero. You can move the slider only to the right if a finish to start task link is defined.</p> <p>Updating Task Dates</p> 

Task	Action
Update task progress	<p>In the task slider, drag inside the slider.</p> <p>The % Complete column is updated accordingly in the Schedule table.</p> <p>Updating Task Progress</p> 
Convert milestones to tasks, and tasks to milestones	<p>Right-click on a slider and click the required option.</p> <p>Converting Tasks and Milestones</p> 

Task	Action
Extend finish date	<p>Drag the slider right end to the right.</p> <p>The Finish date column is updated accordingly in the Schedule table.</p> <p>Extending Finish Date</p>  <p>A screenshot of a software interface showing a task duration slider. A tooltip box displays:</p> <ul style="list-style-type: none">TaskDuration: 2d 0h 0mStart: 09/03/2020 08:00Finish: 09/08/2020 16:00

Task	Action
Task links	<p>Drag from one task slider to another to establish a link.</p> <p>Note: Moving a linked task updates to the dates of the associated tasks.</p> <p>Linking Tasks</p>  <p>Right-click on the link to change links.</p> <p>Changing Task Links</p> 

Task	Action
Zoom in/out	To zoom in or out, perform either of the following steps: <ul style="list-style-type: none">Drag right or left on the date row <p>Zoom in and zoom out</p>  <ul style="list-style-type: none">Ctrl + mouse scroll

5. Click **Save**.

The **Schedule** table is updated as defined in the Gantt chart.

8.7.5.3. Updating Task Details Using Edit Option

- Tasks are added to the schedule. For information on adding a task, see [Defining Project Tasks](#).

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page , click the appropriate project, and then click **View**.

3. In the project navigation pane, click **Schedule**.

The **SCHEDULE** page is displayed.

4. Select a task, and then click **Edit**.

The **EDIT SCHEDULE TASK** page is displayed.

Edit Schedule Task Page

EDIT SCHEDULE TASK

Save & Exit Save & Continue Cancel

Task Name *	New Task	Clear
Description *	Description of Task	
Unit Price in \$:	0.00	
Start :	10/06/2023	
Finish :	10/06/2023	
Actual Start :	None	
Actual Finish :	None	
Duration :	1.00	
Weightage :	1	
Task Priority :	Select	
% Complete :	0	
Complete :	<input type="checkbox"/>	
Notes :		

5. Provide the required information in the fields, as described in the following table.

Field	Description
Task Name	Enter the name of the task.
Description	Enter the description of the task.

Field	Description
Start	<p>Note: For a parent task, this field is not editable.</p> <p>Select the date the task is scheduled to start. Based on the Calendar selected for the project, non-working days are not available for selection. For information on project calendars, see Managing the Project Calendar.</p>
Finish	<p>Note: For a parent task, this field is not editable.</p> <p>Select the date the task is scheduled to complete. Based on the Calendar selected for the project, non-working days are not available for selection. For information on project calendars, see Managing the Project Calendar.</p>
Actual Start	<p>Note: For a parent task, this field is not editable.</p> <p>Select the date on which the task was started. The Start date is updated accordingly. Based on the Calendar selected for the project, non-working days are not available for selection. For information on project calendars, see Managing the Project Calendar.</p>
Actual Finish	<p>Note: For a parent task, this field is not editable.</p> <p>Select the date on which the task was completed. The Finish date is updated accordingly. Based on the Calendar selected for the project, non-working days are not available for selection. For information on project calendars, see Managing the Project Calendar.</p>
Duration	<p>The duration is automatically calculated based on the Actual Start and Actual Finish dates. If the actual dates are not provided, the duration is calculated based on the scheduled dates. Based on the Calendar selected for the project, and the start and finish dates, the duration for the task is calculated.</p>
Weightage	Enter the weightage for the task.

Field	Description
Task Priority	Select the appropriate task priority.
% Complete	<p>Note: For a parent task, this field is not editable.</p> <p>Enter the percentage of completion of the task.</p> <p>Note: The percentage of completion of a parent task is calculated based on the weightage and the percentage of completion of the sub-tasks.</p> <p>It is calculated as:</p> $\% \text{ Complete} = \frac{\text{Sum}(\text{Weightage of sub-task 1} * \% \text{ Complete of sub-task 1}, \text{Weightage of sub-task 2} * \% \text{ Complete of sub-task 2}, \dots, \text{Weightage of sub-task n} * \% \text{ Complete of sub-task n})}{\text{Sum}(\text{Weightage of sub-task 1}, \text{Weightage of sub-task 2}, \dots, \text{Weightage of sub-task n})}$
Complete	Select the check box if the task is complete. On selecting the check box, the Actual Finish date for the task is updated to the current date, and % Complete is marked as 100%. Optionally, to clear the check box, in the % Complete field, enter the percentage value less than 100.
Notes	Enter any notes for the task.

6. In the **Resource Title Allocation** section, to associate resources with the task, see [Adding Task-Level Resource Information](#).
7. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).
8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

8.7.6. Adding Task-Level Resource Information

You can assign personnel titles and add a specific person to each task through the project's schedule. You can then modify certain information of personnel, such as number of resources and the utilization per day. This action is very similar to allocating resources to a project.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then click **Schedule**.

The **SCHEDULE** page is displayed.

4. To enter resource information, click the required task, and then click **Edit**.

The **EDIT SCHEDULE TASK** page is displayed.

Edit Schedule Task Page

EDIT SCHEDULE TASK

Save & Exit Save & Continue Cancel

Task Name *	New Task	Clear
Description *	Description of Task	
Unit Price in \$	0.00	
Start	10/06/2023	
Finish	10/06/2023	
Actual Start	None	
Actual Finish	None	
Duration	1.00	
Weightage	1	
Task Priority	Select	<input type="button" value="▼"/>
% Complete	0	
Complete	<input type="checkbox"/>	
Notes		

Resource Title Allocation

	<input type="checkbox"/>	Title ID	Title	Unit	Resource Type	Fixed Price in \$	Variable Price in \$/Unit
No records to display.							

Add Title(s) Add Resource(s) Delete

ATTACHMENTS

◀ ▶

5. In the **Resource Title Allocation** section, perform the following steps to add a title.

- a. Click **Add Title(s)**.

The **Title(s)** dialog box is displayed.

Available options are titles defined in the **Resource Titles** library catalog.

- b. Select the required titles, and then click **Select**.

The selected titles are added to the **Resource Title Allocation** section.

Note: You can modify information in the highlighted columns.

- c. In the **No. of Resources** column, click in the required row, and then enter the number of resources required for the title.
- d. You can either enter the **Utilization per Day in %** or **Quantity in Units** values. Masterworks automatically calculates and displays the other value. For example, if you enter the **Quantity in Units** value, the **Utilization per Day in %** value is automatically calculated and displayed.

Perform either of the following steps.

- In the **Utilization per Day in %** box, enter the utilization, in percentage value, of the title for a task. The **Quantity in Units** value is calculated and displayed. Calculation of **Quantity in Units** when you enter **Utilization per Day in %**.

Unit	Calculation of Quantity in Units
Hours	$Q = U\% \times [(No. \text{ of working hours per day}) \times (D1 + D2 + \dots + Dn)]$
Days	$Q = U\% \times [(D1 + D2 + \dots + Dn)]$
Months	$Q = U\% \times [(D1/M1) + (D2/M2) + \dots + (Dn/Mn)]$
Years	$Q = U\% \times [(D1/T1) + (D2/T2) + \dots + (Dn/Tn)]$

Where,

Abbreviations used in Calculations	Description
U %	Utilization per Day in % as specified.
No. of working hours per day	The number of working hours per day as specified in the Personnel library catalog for the title

Abbreviations used in Calculations	Description
D1, D2, ... Dn	Number of working days in each year within the duration.
M1, M2, ... Mn	Number of working days in each month within the duration.
(T1, T2, ... Tn)	Number of working days per year within the duration.
(D1/M1), (D2/M2), ... (Dn/Mn)	Duration in months, for each month.
(D1/ T1), (D2/ T2), ... (Dn/ Tn)	Duration in years, for each year.

- In the **Quantity in Units** box, enter the quantity in units of the title for the task for the corresponding unit. The **Utilization per Day in %** value is calculated and displayed.

Calculation of **Utilization per Day in %** when you enter **Quantity in Units**.

Unit	Calculation of Utilization per Day in %
Hours	$U\% = Q / [(No. \text{ of working hours per day}) \times (D1 + D2 + \dots + Dn)]$
Days	$U\% = Q / [(D1 + D2 + \dots + Dn)]$
Months	$U\% = Q / [(D1/M1 + D2/M2 + \dots + Dn/Mn)]$
Years	$U\% = Q / [(D1/ T1) + (D2/ T2) + \dots + (Dn/ Tn)]$

Where,

Abbreviations used in Calculations	Description
Q	Quantity in Units as specified.
No. of working hours per day	The number of working hours per day as specified in the Personnel library catalog for the title.
D1, D2, ... Dn	Number of working days in each year within the duration.

Abbreviations used in Calculations	Description
M1, M2, ... Mn	Number of working days in each month within the duration.
T1, T2, ... Tn	Number of working days per year within the duration.
(D1/M1), (D2/M2), ... (Dn/Mn)	Duration in months, for each month.
(D1/ T1), (D2/ T2), ... (Dn/ Tn)	Duration in years, for each year.

Note: An alert message is displayed when a role is over-utilized or overlaps with any other project, but you can continue to assign the over-allocated person to a title.

- e. The **Amount in \$** for the title is calculated as follows.

Amount in \$ = [N' (Fixed Price + (Variable Price x Quantity in Units))] + Sum of (Amount from each person associated with the title)

Where,

N' = (Number of resources) – (Number of associated persons)

If N' is less than zero, then N' is considered as 0 value.

6. In the **Resource Title Allocation** section, perform the following steps to add personnel to the selected title.

- a. Select the required title and click **Add Resource(s)**.

The **Select Resource(s)** dialog box is displayed.

Available options are the personnel information defined in the **Resource Titles** library catalog for the selected title.

- b. Select the required personnel, and then click **Select**.

The selected personnel are added to the **Resource Title Allocation** section for the selected title.

Note: You can assign multiple personnel to a title, regardless of the number of resources defined for a title in the **No. of Resources** column.

Resource Title Allocation

Resource Title Allocation								
>	<input type="checkbox"/>	Title ID	Title	Unit	Resource Type	Fixed Price in \$	Variable Price in \$/Unit	No. of Resources
		RES-PER-001	PER1-2701202010353491	DAY	Internal	30	60	1
		Expand ES-PER-002	PER1-280120201030141	DAY	Internal	30	60	1

- c. You can either enter the **Utilization per Day in %** or **Quantity in Units** values. The system automatically calculates and displays the other value.

For example, if you enter the **Quantity in Units** value, the system calculates and displays the **Utilization per Day in %** value.

- d. Perform either of the following steps:

- In the **Utilization per Day in %** box, enter the utilization, of the person in percentage value for the task.

The **Quantity in Units** value is calculated and displayed.

Calculation of **Quantity in Units** when you enter **Utilization per Day in %**:

Unit	Calculation of Utilization per Day in %
Hours	$U\% = Q / [(No. \text{ of working hours per day}) \times (D1 + D2 + \dots + Dn)]$
Days	$U\% = Q / [(D1 + D2 + \dots + Dn)]$
Months	$U\% = Q / [(D1/M1 + D2/M2 + \dots + Dn/Mn)]$

Unit	Calculation of Utilization per Day in %
Years	$U\% = Q / [(D1/ T1) + (D2/ T2) + \dots (Dn/ Tn)]$

Where,

Abbreviations used in Calculations	Description
U %	Utilization per Day in % as specified.
No. of working hours per day	The number of working hours per day as specified in the Personnel library catalog for the title.
D1, D2, ... Dn	Number of working days in each year within the duration.
M1, M2, ... Mn	Number of working days in each month within the duration.
T1, T2, ... Tn	Number of working days per year within the duration.
(D1/M1), (D2/M2), ... (Dn/Mn)	Duration in months, for each month.
(D1/ T1), (D2/ T2), ... (Dn/ Tn)	Duration in years, for each year.

- In the **Quantity in Units** box, enter the quantity in units of the title for the task for the corresponding unit.

The **Utilization per Day in %** value is calculated and displayed.

Calculation of **Utilization per Day in %** when you enter **Quantity in Units**.

Unit	Calculation of Utilization per Day in %
Hours	$U\% = Q / [(No. of working hours per day) \times (D1+ D2 + \dots Dn)]$
Days	$U\% = Q / [(D1 + D2 + \dots Dn)]$
Months	$U\% = Q / [(D1/M1) + (D2/M2) + \dots (Dn /Mn)]$

Unit	Calculation of Utilization per Day in %
Years	$U\% = Q / [(D1/ T1) + (D2/ T2) + \dots (Dn/ Tn)]$

Where,

Abbreviations used in Calculations	Description
Q	Quantity in Units as specified.
No. of working hours per day	The number of working hours per day as specified in the Enterprise Resource Directory library catalog for the personnel.
D1, D2, ... Dn	Number of working days in each year within the duration.
M1, M2, ... Mn	Number of working days in each month within the duration.
T1, T2, ... Tn	Number of working days per year within the duration.
(D1/M1), (D2/M2), ... (Dn/Mn)	Duration in months, for each month.
(D1/ T1), (D2/ T2), ... (Dn/ Tn)	Duration in years, for each year.

Note: An alert message is displayed when a person is over-utilized or overlaps with any other project, but you can continue to assign the over-allocated person to a title.

- e. The **Amount in (\$)** for a person is calculated as follows.

Amount in (\$) = [Fixed Price + (Variable Price x Quantity in Units)].

- 7. Optionally, to delete personnel or titles, select the required rows, and then click **Delete**.
- 8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

Based on the configuration defined in the **Show Resource Name in schedule** component in the **Feature Settings** page of the **Administration** module, the **SCHEDULE** list page displays either the user name or the user role in the **Resources** column.

8.7.7. Viewing the Critical Path

You can highlight the critical path of the project.

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.
3. In the project navigation pane, click **Schedule**.
The **SCHEDULE** page is displayed.
4. Click **More**, and then click **Show Critical Path**.

Show Critical Path

The screenshot shows the Masterworks SCHEDULE page. At the top, there's a toolbar with buttons for Add Task, Save, Excel Import / Export, MSP Import / Export, Snapshot, and More. Below the toolbar is a table header with columns: ID, Task ID, Task Name, Start, Finish, Duration, and a date range from 05 to 12. A single task row is visible: ID 1, Task ID 1, Task Name 'New Task', Start 10/06/2023, Finish 10/06/2023, Duration 1 day. To the right of the table is a context menu with options: Select Snapshot, Reports, Import Items, Filter, Show Critical Path (which is highlighted with a red box), and Hide Critical Path.

The critical path of the project is highlighted.

8.7.8. Hiding the Critical Path

If the critical path of the project is highlighted, you can remove the critical path highlights.

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.
3. In the project navigation pane, click **Schedule**.
The **SCHEDULE** page is displayed.

- Click **More**, and then click **Hide Critical Path**.

Hide Critical Path

The screenshot shows the Project Management interface's Schedule module. At the top, there are buttons for Add Task, Save, Excel Import / Export, MSP Import / Export, Snapshot, and More. The More dropdown is open, showing options like Select Snapshot, Reports, Import Items, Filter, Show Critical Path (which is unselected), and Hide Critical Path (which is selected and highlighted with a red box). Below the menu is a table with columns for ID, Task ID, Task Name, Start, Finish, Duration, and a timeline. One task, 'New Task', is listed with a duration of 1 day.

The highlights of the critical path are removed.

8.7.9. Taking a Snapshot of the Schedule

You can take a snapshot of the current project schedule and save the snapshot for future reference.

- In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- In the list page, click the appropriate project, and then click **View**.
- In the project navigation pane, click **Schedule**.

The **SCHEDULE** page is displayed.

- Click **Snapshot**.

The **SCHEDULE SNAPSHOT** list page is displayed.

Schedule Snapshot Page

The screenshot shows the Schedule Snapshot list page. At the top, there are buttons for New, Reports, Back, and More. The main area is a table with columns for Snapshot ID, Snapshot Description, Created By, Created On, and Mark for Resource Rollup. The table is empty, displaying the message 'No records to display.'

The list of snapshots taken are listed.

5. Click **New**.

The **SCHEDULE SNAPSHOT** page is displayed.

Schedule Snapshot Details Page

The screenshot shows a top navigation bar with the title "SCHEDULE SNAPSHOT". Below it is a toolbar with three buttons: "Save & Exit" (with a house icon), "Save & Continue" (with a disk icon), and "Cancel" (with a cancel symbol).

Snapshot ID : <Auto Generated>

Snapshot Description :

Created By : Tavleen Farook

Created On : 10/06/2023 7:51:12 AM

Mark for Resource Rollup :

The following table describes the information displayed.

Column	Description
Snapshot ID	On saving the form, a unique identification code for the snapshot is created.
Created By	The logged in user's name is displayed.
Created On	The date and time the snapshot is taken is displayed.

6. In the **Snapshot Description** box, enter a description of the snapshot.
7. Select the **Mark for Resource Rollup** check box to define which snapshot to be used in Schedule reports and Gantt View.
8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

8.7.10. Selecting a Baseline Snapshot for Comparison

- A snapshot of the project schedule is available.

For more information on taking a snapshot of the project schedule, see [Taking a Snapshot of the Schedule](#) on page 500.

You can select a snapshot as a baseline to compare with the current schedule.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the project navigation pane, click **Schedule**.

The **SCHEDULE** page is displayed.

4. In the toolbar, click **Select Snapshot**, and then select the required snapshot to compare.

The baseline bars appear with the current schedule bars on the Gantt chart for comparison.

The following columns are added to the schedule table:

Column	Description
<<Name of selected snapshot>> Start	The start date of the selected baseline schedule.
<<Name of selected snapshot>> Finish	The end date of the selected baseline schedule.
<<Name of selected snapshot>> Duration	The duration of the selected baseline schedule.
Variance	Calculated as: Baseline Duration - Duration

5. To end the comparison, in the toolbar, click **Select Snapshot**, and then select **None**.

8.7.11. Generating Schedule Reports

You can generate various schedule reports that illustrate various information views.

To generate reports from the schedule page, perform the following steps.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. Double-click the required project.

3. In the navigation pane, expand the project folder, and then click **Schedule**.

4. Click **Reports**, and then click the required report.

The report is generated and displayed.

For information on the various report features available, see [Standard Report Functions](#).

You can generate the following reports.

- [Delayed Task Report](#)
- [Look Ahead Report](#)

Delayed Task Report

The Delayed Task Report displays all tasks that are delayed in the project.

A task is counted as delayed if either of the following is true for the task.

- The start date earlier than the current date and the percentage complete is zero.
- The finish date is earlier than the current date and the percentage complete is not equal to 100%.

The following information is displayed.

- Task Name - The name of the task.
- Start - Start date of the task.
- Finish - Finish date of the task.
- Actual Start - Actual start date of the task.
- Actual Finish - Actual finish date of the task.
- % Complete - Percentage of completion of the task.

Look Ahead Report

The Look Ahead Report displays the list of tasks that are upcoming based on Start Date or Finish Date, or both.

The report displays tasks that adhere to the following search criteria specified.

- If the Based on selection is Start, all tasks that have the start date between the specified from and to dates are listed.
- If the Based on selection is Finish, all tasks that have the finish date between the specified from and to dates.
- If the Based on selection is Both, all tasks with either the start date or finish date between the specified from and to dates.

The following information is displayed.

- Start - Start date of the task.
- Finish - Finish date of the task.
- Actual Start - Actual start date of the task.
- Actual finish - Actual finish date of the task.
- % Complete - Percentage complete of the task.

8.8. Resource Management

8.8.1. Viewing Resource Utilization – Gantt View

The Gantt chart displays the project resource allocation in a graphical view. It displays the project details, including the start date, end date, resource utilization in %, the associated roles, and the people allocated to a project.

The threshold percentage of the resource utilization is defined in the **Resource Management** page in the **Administration** module. For more information, see [Configuring Resource Management](#).

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the project navigation pane, expand the project folder.
4. Click **Task Resource Gantt**.

The Gantt chart for the resources of the project is displayed.

- You can hover the cursor over the bar chart to view project-specific details, such as task name, start and end time, and utilization percentage.
- You can also drag the date, month, or year column names to view consolidated or distributed time periods.

5. Optionally, use the **Filter** option to view specific information in the Gantt chart.

8.9. Collaboration

8.9.1. Collaboration

The following forms enable you to collaborate with other project stakeholders and key players.

- [Meeting Scheduler](#)
- [Minutes of Meeting](#)
- [Request for Information](#)

8.9.2. Meeting Scheduler

8.9.2.1. Meeting Scheduler

Masterworks integrates with Zoom to drive collaboration within stakeholders. Using Masterworks Meeting Scheduler, you can seamlessly schedule and manage all your Zoom meetings.

With Meeting Scheduler when a Zoom meeting is scheduled, the invitees receive an invitation with the Zoom meeting URL and other details of the meeting by email. Meeting invitees can view their schedule on the go and sync with the calendars they use. The Zoom link can be accessed from any device with internet access to join into Zoom meeting and collaborate through Video/Audio Conferencing.

The logged in users can edit, publish, and cancel the meetings they created. A user cannot edit, publish, and cancel meetings created by other users. The logged in user can only view the meetings created by other users.

The functional flow for Meeting Scheduler is as follows:

1. [Enable meeting scheduler.](#)
2. [Authorize your Zoom account.](#)
3. [Create Zoom meetings.](#)
4. [Publish Zoom meetings.](#)
5. [Perform workflow actions to implement the business process.](#)

8.9.2.2. Authorizing Your Zoom Account

You must authorize your Zoom account to Masterworks for the first time and anytime in future, when authorization is invalid in Masterworks.

Perform the following steps to install and authorize the Zoom App.

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder.
4. Expand **Collaboration**, and then click **Meeting Scheduler**.
The **MEETING SCHEDULER** list page is displayed.
5. Click **Authorize**.
The **ZOOM SIGN IN** page opens in a different tab.
6. Login to your Zoom account and authorize Masterworks to access your Zoom account.
7. Navigate to the Masterworks tab.

8.9.2.3. Creating Zoom Meetings

- The user should be authorized to create the meeting.

You can create Zoom meetings in Masterworks using the Meeting Scheduler feature.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder.
4. Expand **Collaboration**, and then click **Meeting Scheduler**.

The **MEETING SCHEDULER** list page is displayed.

5. Click **New**.

The **MEETING SCHEDULER** page is displayed.

6. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Title	Enter the title of the meeting.
Meeting Date	Select the date of the meeting.
Start Time	Enter the start time of the meeting in accordance to the time zone of the application.
End Time	Enter the end time of the meeting in accordance to the time zone of the application. Ensure the end time is later than the start time.
Meeting Type	Select the meeting type. Available options are meeting types defined in the Meeting Type library catalog. Note: When Minutes Of Meeting form exists, then both Minutes Of Meeting and Meeting scheduler forms share the same Meeting Type library catalog.

Field	Description
Venue	<p>Select the venue of the meeting.</p> <p>Available options are venues defined in the Meeting Venue library catalog.</p> <p class="list-item-l1">a. Alternatively, to specify a new venue, perform the following steps:</p> <p class="list-item-l2">b. From the Venue drop-down list, select Others. A text box is displayed.</p> <p class="list-item-l2">c. In the box, enter the venue details.</p> <p>Note: When Minutes Of Meeting form exists, then both Minutes Of Meeting and Meeting scheduler forms share the same Meeting Venue library catalog.</p>
Agenda	Enter the agenda of the meeting.
Notes	Enter any notes for the meeting.

The **Meeting Status** of the meeting record is set to **Draft** only when the meeting created is saved but not published.

Note: When the meeting is published, the **Meeting Status** changes to **Published**.

7. To add the details of meeting invitees, in the **MEETING INVITEES** section, perform the following steps:

a. To add the details of an external user, perform the following steps:

i. Click **Add External User**.

A row is added to the **MEETING INVITEES** section.

ii. Provide the appropriate information in the columns, as described in the following table.

Column	Description
User Name	Click and enter the user name of the invitee.
First Name	Click and enter the first name of the invitee.

Column	Description
Last Name	Click and enter the last name of the invitee.
Email	Click and enter the email address of the invitee.
Department	Click and enter the name of the department the invitee belongs to.

- b. To add invitees from the list of user accounts defined in the enterprise, perform the following steps:

 - i. Click **Add**.
The **Select Users** dialog box is displayed.
Available options are user details of all active users defined in the enterprise.
For information on user management, see [User Management](#).
 - ii. Select the appropriate users, and then click **Select**.
The selected users are added as invitees to the meeting.
 - iii. Optionally, click the appropriate column to edit the details of the invitees.
 8. In the **MEETING SETUP** section, click **Create Zoom Meeting** to generate a Zoom meeting URL.
The Zoom meeting URL is displayed in the **Meeting Link** box.

9. To link the records of the forms in the project, in the **LINKED RECORDS** section, perform the following steps:

- a. Click **Add**.

The **SEARCH FORM** page is displayed.

Search Form Page

A screenshot of a web-based application interface titled "Search Form Page". At the top, there is a toolbar with icons for "Search", "Back", and "Reset". Below the toolbar, a dark grey header bar contains the text "SEARCH FORM". Underneath the header, there is a search input field with the placeholder text "Form : Type here to filter Forms".

- b. In the **Form** field, click and select the form you want to associate.

Alternatively, type the name of the form, and then select the appropriate form.

Available forms in the list are forms with the **IsSearchable** form attribute set to **True**. For additional information on form attributes, see [Form Builder](#).

All fields available in the selected form are displayed. To associate records, you can search for records of the form.

- c. In the form fields, enter the appropriate criteria to search.
- d. Optionally, expand the **Filter By Attachment** and **Filter By Workflow Status** sections, and enter additional criteria to search.
- e. In the toolbar, click **Search**.

The information that matches the criteria is displayed in the **SEARCH RESULTS** section. Search results contain information of only projects you are invited to.

- f. Optionally, to clear existing search results to search with new criteria, click **Reset**.
- g. In the **SEARCH RESULTS** section, select the appropriate records, and then click **Link**.

The selected records are added to the **LINKED RECORDS** section.

Note: To view the details of a linked record, in the **Record Identifier** column, click the appropriate hyperlink.

10. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

11. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

8.9.2.4. Publishing a Zoom Meeting

When you publish a meeting request, all the invitees of the meeting receive an email invite. When you update and republish an already published meeting, all current invitees will receive invitation with updated meeting details.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder.
4. Expand **Collaboration**, and then click **Meeting Scheduler**.

The **MEETING SCHEDULER** list page is displayed.

5. To publish a meeting request, perform either of the following steps.
 - Select the required record, and then click **Publish**.
 - Select the required meeting, click **Edit**, and then click **Publish** in the **MEETING SCHEDULER** page.

When a meeting is created and published, the invitees of the meeting receive a meeting invite email with the following details.

- Date of the meeting
- Start Time and End Time of the meeting
- Meeting Agenda
- Notes for the meeting
- Zoom meeting URL
- ID and Password for the Zoom Meeting
- Dial-in detail
- Meeting Instance

Invitees can join the Zoom meeting by clicking the Zoom link in the email.

8.9.2.5. Editing and Republishing Zoom Meetings

The meeting should not be in the canceled status.

You can edit a draft meeting and publish it. You can also edit and republish a published meeting until the current date and time is not greater than the meeting date and time.

When you update meeting details and republish the meeting, invitees receive a meeting invite email with revised details.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**

3. In the navigation pane, expand the project folder.
4. Expand **Collaboration**, and then click **Meeting Scheduler**.

The **MEETING SCHEDULER** list page is displayed.

5. Select the required meeting, and then click **Edit**.

The **MEETING SCHEDULER** page is displayed.

6. Make changes as required.

7. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

8. Click **Publish** to re-publish the meeting invite.

The invitees of the meeting receive an email with the updated meeting details. If invitees are added, the new invitees receive the meeting request. If meeting invitees are removed, then removed invitees receive a meeting cancellation email.

8.9.2.6. Canceling Zoom Meetings

You can cancel a published meeting. On canceling a meeting, the invitees receive cancellation request email.

Note: A canceled meeting cannot be published.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **Edit**.
3. In the navigation pane, expand the project folder.
4. Expand **Collaboration**, and then click **Meeting Scheduler**.

5. To cancel a meeting request, perform either of the following steps.

The **MEETING SCHEDULER** list page is displayed.

- Select the appropriate record, and then click **Cancel Meeting**.
- Select the appropriate meeting, click **Edit**, and then click **Cancel Meeting** in the **MEETING SCHEDULER** page.

When a meeting is canceled, an email stating the meeting is canceled is sent to the invitees along with the following details:

- Date of the meeting
- Start Time and End Time of the meeting
- Meeting Agenda
- Notes for the meeting
- Zoom meeting URL
- ID and Password for the Zoom Meeting
- Dial-in detail
- Meeting Instance
- An ICS file as an email attachment

8.9.2.7. Deleting Zoom Meetings

The meeting should not be in **Published/Canceled** state.

You can delete a draft meeting.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder.
4. Expand **Collaboration**, and then click **Meeting Scheduler**.

The **MEETING SCHEDULER** list page is displayed.

5. Select the record, and then click **Delete**.

A confirmatory message is displayed.

6. Click **OK**.

The selected meeting is deleted from the **MEETING SCHEDULER** list page.

8.9.2.8. Meeting Scheduler Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Meeting Scheduler** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Save	Draft	Indicates the Meeting request is in the draft status and not published.
		Publish	Published	Indicates the meeting request is published.
2	Published	Cancel Meeting	Cancelled	Indicates the meeting request is cancelled.
3	Cancelled	-	-	Cancelled meetings cannot be published.

8.9.2.9. Uninstalling the MasterworksApp

You can uninstall the Masterworks app from your Zoom Account.

1. Log in to your Zoom account and go to **Zoom App Marketplace**.
2. Click **Manage**, and then click **Installed Apps**.
3. Search for the Masterworks app.
4. In the **Installed Apps** section, in the last column corresponding to the Masterworks app, click **Uninstall**.

The Masterworks app is uninstalled from your Zoom Account.

8.9.3. Minutes of Meeting

8.9.3.1. Minutes of Meeting

You can record the minutes of a meeting using the **Minutes of Meeting** form.

You can record the following meeting related information:

- Details of the meeting, such as the type, venue, date, time, duration, invitees, and attendees
- Details of the agenda, duration of the discussion on the agenda
- Associations to project forms and contracts
- Assigning action items to users, setting the due date, tracking the progress, and responses to action items

The functional flow for Minutes of Meeting is as follows:

1. [Record meeting minutes.](#)
2. [Work with action items.](#)
3. [Perform workflow actions to implement the business process.](#)

8.9.3.2. Recording Minutes of Meeting

You can record project meeting minutes to summarize what was discussed and agreed upon during the meeting and include a list of action items.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand **Collaboration**, and then click **Minutes Of Meeting**.

The **MINUTES OF MEETING** list page is displayed.

4. Click New.

Minutes of Meeting Page

The screenshot shows the 'Minutes of Meeting' page with the following details:

- MINUTES OF MEETING** section:
 - Buttons: Save & Exit, Save & Continue, Cancel, Workflow, Select Actions.
 - Fields: Meeting ID (Auto Generated), Project Name (Widen Tranco Road project), Created By (Smith), Contract (Select), Project Code (PR-39333).
- DETAILS** section:
 - Meeting Type: Select One
 - Meeting Date: 10/18/2023
 - Meeting Start Time: [empty]
 - Series: Select
 - Organizer: Smith (with a red X)
 - Meeting End Time: [empty]
 - Venue: Select One
 - Subject: [empty]
- MEETING AGENDA** section:
 - Buttons: Fetch from Previous Meeting, Reset/Bring Default Agenda.
 - Search bar: Start ..., End Ti..., Agenda, Owner.
 - Message: No records available.
 - Action buttons: Add, Delete.
 - Checkboxes: Extend agendas to all occurrences of the series.
- MEETING INVITEES** section:
 - Search bar: User Na..., First Name, Last Name, Email, Department, Attendan... (with a red X).
 - Message: No records available.
 - Action buttons: Add External User, Add, Delete.
- MEETING NOTES** section:
 - Search bar: [empty].

The **MINUTES OF MEETING** page displays the following non-editable fields:

Field	Description
Meeting ID	On saving the record, an identification number is automatically generated.
Project Name	The name of the associated project.
Project Code	The identification code of the associated project.
Created By	The name of the logged-in user.

5. To associate a contract with this meeting minutes record, from the **Contract drop-down list, click and select the required contracts.**

Alternatively, type the name of the contract, and then select the appropriate contract. Available options are contracts associated with the project.

6. To add details of the meeting, in the **DETAILS** section, provide the required information in the fields, as described in the following table.

Field	Description
Meeting Type	Select the type of meeting. Available options are active meeting types defined in the Meeting Type library catalog.
Series	If the meeting is regularly recurring, then to select the series name, perform either of the following: <ul style="list-style-type: none">Click and select the appropriate series. Alternatively, type the name of the series, and then select the appropriate series.To add a new series for the selected Meeting Type, enter the name of the series, and then from the drop-down list, select the entered series name with the suffix (Add). <p>Note: Only the new series name is suffixed with (Add).</p>
Meeting Date	By default, the current date is displayed. Optionally, select the date of the meeting.
Organizer	By default, the name of the logged-in user is displayed. Optionally, to select a meeting organizer, perform the following steps: <ol style="list-style-type: none">Corresponding to the displayed user name, click .Click and select the appropriate user. Alternatively, type the name of the user, and then select the appropriate user. Available user names are of users invited to the project.
Meeting Start Time	Enter the start time of the meeting in 24-hour time format.
Meeting End Time	Enter the end time of the meeting in 24-hour time format.

Field	Description
Venue	Select the venue of the meeting. Available options are venues defined in the Meeting Venue library catalog. Alternatively, to specify a new venue, perform the following steps: <ol style="list-style-type: none">From the Select Venue drop-down list, select Others. A text box is displayed.In the box, enter the venue details.
Subject	Enter the subject of the meeting.

7. To add the details of the agendas, in the **MEETING AGENDA** section, perform any of the following steps:

- To manually add the details of an agenda, perform the following steps:
 - Click **Add**.
A row is added to the **MEETING AGENDA** section.
 - Provide the required information in the columns, as described in the following table.

Column	Description
Start Time	Click and enter the start time of the discussion on the corresponding agenda in 24-hour time format.
End Time	Click and enter the end time of the discussion on the corresponding agenda in 24-hour time format.
Agenda	Click and enter the agenda of the meeting.

Column	Description
Owner	Double-click and select the owner of the agenda. Alternatively, type the name of the user, and then select the required user. Available user names are of users invited to the project, and if a contract is selected in the Contract field, the user names of users invited to the contract.

- To add agendas from the previous MoM record, click **Fetch from Previous Meeting**. Based on the following scenarios, the agendas are fetched from the previous MoM record:
 - The **Meeting Type** and **Series** selected in the previous MoM record are the same as this record.
 - The **Extend agendas to all occurrences of the series** check box is selected in the previous MoM record.
 - The workflow status of the previous MoM record is **Published**.
- To add default agendas from the library defined for the **Meeting Type** selected, click **Reset/ Bring Default Agenda**.

Note: This will remove the existing agendas in the **MEETING AGENDA** section.

The added agendas are based on the **Meeting Type** selected and the agendas defined in the **Meeting Agenda** library catalog.

8. Select the **Extend agendas to all occurrences of the series** check box if the agendas defined in the **MEETING AGENDA** section are to be made available for selection in the subsequent MoM records for the selected **Meeting Type** and **Series**.

Note: The agendas defined are made available for selection in the subsequent meeting minutes form after this MoM record is transitioned to the **Published** workflow status.

9. To add the details of meeting invitees, in the **MEETING INVITEES** section, perform the following steps:

Note: The **MEETING INVITEES** section is used to maintain a log of all the users invited to the meeting. If a user is added as an invitee to the **MEETING INVITEES** section, it does not mean that the application is sending out meeting invitations. A different collaboration tool must be used to set up the meeting invites.

- a. To add the details of an external user, perform the following steps:
 - i. Click **Add External User**.
A row is added to the **MEETING INVITEES** section.
 - ii. Provide the required information in the columns, as described in the following table.

Column	Description
User Name	Click and enter the user name of the invitee.
First Name	Click and enter the first name of the invitee.
Last Name	Click and enter the last name of the invitee.
Email	Click and enter the email address of the invitee.
Department	Click and enter the name of the department the invitee belongs to.
Attendance	Select the check box to mark the meeting attendance of the invitee.

- b. To add invitees from the list of user accounts defined in the enterprise, perform the following steps:
 - i. Click **Add**.
The **Select Users** dialog box is displayed.
Available options are user details of all active users defined in the enterprise.
For information on user management, see [User Management](#).
 - ii. Select the required users, and then click **Select**.
The selected users are added as invitees to the meeting.
 - iii. To mark the meeting attendance of an invitee, in the **Attendance** column of the required invitee, select the check box.

10. In the **MEETING NOTES** section, enter any notes for the meeting.

You can perform any of the following tasks to create and edit meeting notes:

Note: By default, the **Design** mode is selected.

- Bold, italicize, underline, strike-through letters and words
- Use subscripts and superscripts
- Select the font and its size
- Select the font color and the background color for the content
- Insert and manage tables, and hyperlinks
- Use bullets and numbering
- Use clipboard operations to cut, copy, and paste the text
- Use indents and outdents
- To add HTML code, click **</> HTML** and then type the code.
- To preview the HTML code entered, click **Preview**.

11. To link the records of the forms in the project, in the **LINKED RECORDS** section, perform the following steps:

- a. Click **Add**.

The **SEARCH FORM** page is displayed.

Search Form Page

A screenshot of a web-based application interface titled "Search Form Page". At the top, there is a toolbar with icons for "Search", "Back", and "Reset". Below the toolbar, a dark grey header bar contains the text "SEARCH FORM". Underneath the header, there is a search input field with the placeholder text "Form : Type here to filter Forms".

- b. In the **Form** field, click and select the form you want to associate.

Alternatively, type the name of the form, and then select the appropriate form.

Available forms in the list are forms with the **IsSearchable** form attribute set to **True**. For additional information on form attributes, see [Form Builder](#).

All fields available in the selected form are displayed. To associate records, you can search for records of the form.

- c. In the form fields, enter the appropriate criteria to search.
- d. Optionally, expand the **Filter By Attachment** and **Filter By Workflow Status** sections, and enter additional criteria to search.
- e. In the toolbar, click **Search**.

The information that matches the criteria is displayed in the **SEARCH RESULTS** section. Search results contain information of only projects you are invited to.

- f. Optionally, to clear existing search results to search with new criteria, click **Reset**.
- g. In the **SEARCH RESULTS** section, select the appropriate records, and then click **Link**.

The selected records are added to the **LINKED RECORDS** section.

Note: To view the details of a linked record, in the **Record Identifier** column, click the appropriate hyperlink.

12. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

13. To assign action items to users, in the **ACTION ITEMS** section, perform the following steps:

- a. To add action items from the previous MoM record, perform the following steps:

- i. Click **Add Pending Tasks**.

The **Select Pending Task** dialog box is displayed.

Based on the following scenarios, the action items are fetched from the previous MoM record:

- The **Meeting Type** and **Series** selected in the previous MoM record are the same as this record.
- The action items that have the **Status** as **Open** in the previous MoM record.
- The workflow status of the previous MoM record is **Published**.

- ii. Select the appropriate action items, and then click **Select**.

The selected items are added to the **ACTION ITEMS** section, and the **Meeting ID** of the previous MoM record is displayed. Also, the **Status** of the selected items is set as **Forwarded** in the previous MoM record.

Note: If a forwarded action item is deleted, its **Status** in the original record is reset to **Open** and available for use in a new MoM record.

- b. To add a new action item, perform the following steps:

- i. Click **Add New Tasks**.

The **New Action Items** dialog box is displayed.

- ii. Provide the required information in the fields, as described in the following table.

Field	Description
Assigned To	Click and select the appropriate user to assign the action item. Alternatively, type the name of the user, and then select the required user. Available user details are of users invited to the project.
Action Item	Enter the details of the action item.

Field	Description
Due Date	By default, the current date is displayed. Optionally, select the date by when the user must complete the assigned action item.

iii. Click **Save**.

An action item is added to the **ACTION ITEMS** section, and the **Status** is set as **Open**.

14. To manage the added action items, in the **ACTION ITEMS** section, perform any of the following steps:

- To edit the action item details, in the required action item row, in the **Action Item** column, click and enter the details of the action item for the corresponding user.
- To edit the due date of the action item, in the required action item row, in the **Due Date** column, click , and then select the due date for the action item.
- To post the action item to a selected user, in the last column corresponding to the user, click .
- To undo a posted message, click .

On saving the form, the meeting minutes form with the action item is available to the user who is assigned the action item. For information on action item activities, see [Working with Action Items](#).

15. To add details of the next meeting, in the **NEXT MEETING DETAILS** section, provide the required information in the fields, as described in the following table.

Field	Description
Next Meeting Date & Time	<p>a. Click , and then select the required date for the next meeting.</p> <p>b. Click , and then select the required time for the next meeting.</p>

Field	Description
Next Meeting Venue	Select the required venue for the next meeting. Available options are venues defined in the Meeting Venue library catalog. Alternatively, to specify a new venue, perform the following steps: <ol style="list-style-type: none">From the Select Venue drop-down list, select Others. A text box is displayed.In the box, enter the venue details.

16. In the **NEXT MEETING NOTES** section, enter any notes for the next meeting.

You can perform any of the following tasks to create and edit notes for the next meeting:

Note: By default, the **Design** mode is selected.

- Bold, italicize, underline, strike-through letters and words
- Use subscripts and superscripts
- Select the font and its size
- Select the font color and the background color for the content
- Insert and manage tables, and hyperlinks
- Use bullets and numbering
- Use clipboard operations to cut, copy, and paste the text
- Use indents and outdents
- To add HTML code, click **</> HTML**, and then enter the code. To preview the HTML entered typed, click **Preview**.

17. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Minutes of Meeting Workflow](#).

8.9.3.3. Working with Action Items

You can perform the following action item activities.

- [Responding to an Action Item](#) on page 525

You can respond to an action item that is assigned to you. Once you post a response to an action item, the **Status** of the action item is set to **Closed**.

- [Reopen a closed action item](#)

If you assigned an action item to a user, and the action item is closed by the user, you can reopen the action item, and assign it back to the user. Once you reopen an action item, the **Status** of the action item is set to **Open**, and the action item is made available to the assigned user for a response.

- [Deleting an Action Item on page 526](#)

You can delete an action item only if you have assigned an action item to a user. The action item is deleted for you and for the user to whom you have assigned the action item.

8.9.3.3.1. Responding to an Action Item

If an action item is assigned to you, you can respond to the action item, and thereby close the action item.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the **Collaboration** folder, and then click **Minutes Of Meeting**.

The **MINUTES OF MEETING** list page is displayed.

4. Select the required meeting minutes form, and then click **Edit**.

5. To post a response to an action item, in the **ACTION ITEMS** section, perform the following steps:

- a. In the required action item row, in the **Response** column, click and enter the response to the action item.

- b. In the **Actions** column, click .

The **Status** column of the action item displays **Closed**, and the **Response Date** column of the action item displays the date the action item was closed.

- c. Optionally, to undo a posted response, click .

Note: You cannot undo the posted response after you have saved the record.

6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

8.9.3.3.2. Reopening a Closed Action Item

If you assigned an action item to a user, and the action item is closed by the user, you can reopen the action item, and assign it back to the user.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the **Collaboration** folder, and then click **Minutes Of Meeting**.

The **MINUTES OF MEETING** list page is displayed.

4. Select the required meeting minutes form, and then click **Edit**.
5. To reopen an action item, in the **ACTION ITEMS** section, in the required action item row with the **Status** column that displays **Closed**, in the last column, click .

The **Status** column of the action item displays **Open**.

6. Optionally, to undo the re-opening, click .

Note: You cannot undo the re-opening after you have saved the record.

7. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

8.9.3.3.3. Deleting an Action Item

You can delete an action item only if you initiated the action item and assigned it to a user. On deleting an action item, the action item is deleted for you and for the user to whom you have assigned the action item.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the **Collaboration** folder, and then click **Minutes Of Meeting**.

The **MINUTES OF MEETING** list page is displayed.

4. Select the required meeting minutes form, and then click **Edit**.

5. To delete an action item, in the **ACTION ITEMS** section, in the required action item row, in the last column, click  , and then click **OK**.

The action item is deleted for you and for the user to whom you have assigned the action item.

Note: Only the initiator of the action item can delete the action item.

6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

8.9.3.4. Minutes of Meeting Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Minutes of Meeting** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Publish	Published	You can add the following to the subsequent minutes of meeting form with the same Meeting Type , and the same Series as in the current form. <ul style="list-style-type: none">• Agendas• Action items with the Status as Open

8.9.4. Request for Information

8.9.4.1. Request for Information

The Request for Information (RFI) form is used as a formal mode of communication between the contractor and the owner. The RFI form is used primarily to facilitate a

contractor to address questions to the owner, and receive resolutions from the owner. Additionally, an owner can invite multiple project users and initiate a discussion to determine the solution for the query from the contractor.

An RFI form is initiated by a contractor, submitted to the owner, and the owner provides a resolution to the contractor for the queries raised by the contractor. An RFI may result in a contract change order.

You can perform the following tasks.

- [Initiate an RFI](#).
- [Collaborate with other project users to arrive at a solution for the queries from the contractor](#).
- [Respond with clarifications to the contractor and initiate a request for proposal process if required](#).
- [Perform workflow action to implement the business process](#).

8.9.4.2. Initiating an RFI Form

A contractor can create an RFI form to request for information or clarifications from the owner of the project or vice versa.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the **Collaboration** folder, and then click **Request for Information**.

The **REQUEST FOR INFORMATION** list page is displayed.

4. Click New.**Request for Information Page**

REQUEST FOR INFORMATION

Save & Exit Save & Continue Cancel

RFI ID : <Auto Generated>	Project Code : 0.3.3.62
Created By : Trainer2	Project Name : Lackawanna WRRF & ORF
Identified Date : 10/18/2023	Disinfection Improvement -
Contract : Select	Respond By : 10/18/2023
	Reason : <input type="button"/>

LINKED RECORDS

<input type="checkbox"/>	Record Identifier	<input type="button"/> Source Form	<input type="button"/> Contract Name	<input type="button"/> Notes	<input type="button"/>
No records available.					

Add Delete

ATTACHMENTS

<input type="checkbox"/>	File View Status	Document Name	Url/Link	Title	Uploaded By	Uploaded Date	File Size	Signed Copy
No Attachments available								

Link Document Upload Document

REQUEST FOR INFORMATION

Subject * :

Priority :

Question/Clarifications * :
Required :

Impact to Scope :

Impact to Cost :

Impact to Schedule :

The **REQUEST FOR INFORMATION** page displays the following non-editable fields.

Field	Description
RFI ID	On saving the record, an identification code for the record is automatically generated.
Created By	The user name of the user initiating the RFI form.
Project Code	The identification code of the project for which the RFI form is being initiated.
Project Name	The name of the project for which the RFI form is being initiated.

5. Provide the appropriate information in the respective fields, as described in the following table.

Field	Description
Identified Date	<p>By default, the current date is displayed.</p> <p>Optionally, from the drop-down list, select the date for the RFI initiation.</p>
Contract	<p>From the drop-down list, select the appropriate contract for which the RFI is being initiated.</p> <p>Note: You can select only one contract.</p> <p>Available options are contracts to which the user is invited in the associated project. For information on contract management, see Contract Setup.</p>
Respond By	<p>By default, the current date is displayed.</p> <p>Optionally, from the drop-down list, select the appropriate date by which the owner is expected to reply to the RFI initiated by the contractor.</p>
Reason	<p>From the drop-down list, select the reason for the initiation of the RFI.</p> <p>Available options are reasons defined in the RFI Reason library catalog.</p>

6. To link the records of the forms in the project, in the **LINKED RECORDS** section, perform the following steps:

- Click **Add**.

The **SEARCH FORM** page is displayed.

Search Form Page

A screenshot of a web-based application interface titled "Search Form Page". At the top, there is a toolbar with icons for "Search", "Back", and "Reset". Below the toolbar, a dark grey header bar contains the text "SEARCH FORM". Underneath the header, there is a search input field with the placeholder text "Form : Type here to filter Forms".

- In the **Form** field, click and select the form you want to associate.

Alternatively, type the name of the form, and then select the appropriate form.

Available forms in the list are forms with the **IsSearchable** form attribute set to **True**. For additional information on form attributes, see [Form Builder](#).

All fields available in the selected form are displayed. To associate records, you can search for records of the form.

- In the form fields, enter the appropriate criteria to search.
- Optionally, expand the **Filter By Attachment** and **Filter By Workflow Status** sections, and enter additional criteria to search.
- In the toolbar, click **Search**.

The information that matches the criteria is displayed in the **SEARCH RESULTS** section. Search results contain information of only projects you are invited to.

- Optionally, to clear existing search results to search with new criteria, click **Reset**.
- In the **SEARCH RESULTS** section, select the appropriate records, and then click **Link**.

The selected records are added to the **LINKED RECORDS** section.

Note: To view the details of a linked record, in the **Record Identifier** column, click the appropriate hyperlink.

7. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

8. To detail queries to the owner, in the **Request for Information** section, provide the appropriate information in the fields, as described in the following table.

Field	Description
Subject	Enter the subject for the RFI to be addressed.
Priority	Select the priority for the RFI to be addressed.
Question/Clarifications Required	Enter the details of the query or clarification required.
Impact to Scope	Select the impact on the scope of the project if the RFI results in a scope change.
Impact to Cost	Select the project cost impact associated with the RFI.
Estimated Impact on Cost(\$)	If the RFI has an associated cost impact, then enter the approximate cost impact of the RFI. Note: This field is available only if a value is selected in the Impact to Cost field.
Impact to Schedule	Select the project schedule impact associated with the RFI.
Estimated Impact on Schedule(days)	If the RFI has an associated schedule impact, then enter the approximate schedule impact associated with the RFI. Note: This field is available only if a value is selected in the Impact to Schedule field.

Once the RFI is created and moved to **Awaiting RFI Response** workflow status, then you can have discussions in the **Internal Discussions** section. For more information, see [Working with Discussions](#).

For information on the workflow status of the RFI form, see [Request for Information Workflow](#).

9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Request for Information Workflow](#) on page 539.

8.9.4.3. Collaborating with Stakeholders

- The RFI record is in the **Awaiting RFI Response** workflow status.

The owner can collaborate with stakeholders to collectively formulate an adequate response for the queries raised by a contractor.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand **Collaboration**, and then click **Request for Information**.
The **REQUEST FOR INFORMATION** list page is displayed.
4. In the **REQUEST FOR INFORMATION** list page, select the appropriate RFI form, and then click **Edit**.

The **REQUEST FOR INFORMATION** page displays the following non-editable fields.

Section	Field	Description
-	RFI ID	An automatically generated identification code for the RFI form.
	Created By	The user name of the user initiating the RFI form.
	Project Code	The identification code of the project for which the RFI form is being initiated.
	Project Name	The name of the project for which the RFI form is being initiated.
Request for Information	Subject	The subject of the RFI as entered by the contractor.
	Priority	The priority for the RFI as set by the contractor.
	Question/ Clarifications Required	The questions or clarification as specified by the contractor.

5. To provide responses to the queries of the contractor, in the **Request for Information** section, provide the appropriate information in the fields as described in the following table.

Field	Description
Response/Clarification	Enter the responses for the queries from the contractor..
Impact to Scope	Select the impact on the scope of the project if the RFI results in a scope change.

Field	Description
Impact to Cost	Select the project cost impact associated with the RFI.
Estimated Impact on Cost(\$)	If the RFI has an associated cost impact, then enter the approximate cost impact of the RFI.
Impact to Schedule	Select the project schedule impact associated with the RFI.
Estimated Impact on Schedule(days)	If the RFI has an associated schedule impact, then enter the approximate schedule impact associated with the RFI.

6. To invite project users to discuss the queries of the contractor, in the **Internal Discussions** section, perform the following steps:

Note: The **Internal Discussions** section is displayed only when the RFI record is in the **Awaiting RFI Response** workflow status.

- a. Click **Invite Users**.

The **New Internal Discussions** dialog box is displayed.

The **From** field displays the name of the user who created the RFI record.

- b. Provide the appropriate information in the fields as described in the following table.

Field	Description
To	<p>Click and select the appropriate users to be invited to participate in the discussion.</p> <p>Available options are all active users in the application.</p> <p>Note: If the drop-down list does not display the appropriate user name, you can enter the first few characters of the user name so that the list gets filtered to display the respective user name in the application.</p>
Message	Enter the appropriate message.

Field	Description
Due Date	From the drop-down calendar, select the date to receive a response on the message.

c. Click **Save**.

The message is displayed in the **Internal Discussions** section, and the Status is set to **Open**.

d. To update the message or due date, corresponding to the appropriate user, click in the **Message** column and update the message, or click in the **Due Date** column, click , and select the appropriate date.

Note: You can only update messages or due date for the respective row to which you have invited users to respond to the queries.

e. To post the message to the selected users, in the last column corresponding to the user, click .

Upon posting the message, the selected user receives an email notification awaiting action on the assigned task.

Alternatively, to remove a selected user, in the last column corresponding to the user, click .

f. To undo a posted message, click .

Note: You cannot revert the posted response after you have saved the record.

7. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The messages posted in the **Internal Discussions** section are made available to the recipients to whom it is posted.

8.9.4.4. Working with Discussions

You can perform the following actions in the **Internal Discussions** section of an RFI form:

- [Collaborating with Stakeholders](#) on page 532
- [Responding to an RFI](#) on page 537
- [Deleting a Message](#) on page 536
- [Hiding a Message](#) on page 536

8.9.4.4.1. Deleting a Message

You can delete messages in the discussion.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand **Collaboration**, and then click **Request for Information**.

The **REQUEST FOR INFORMATION** list page is displayed.

4. In the **REQUEST FOR INFORMATION** list page, select the required RFI form, and then click **Edit**.
5. In the **INTERNAL DISCUSSIONS** section, in the last column corresponding to the required message, click  , and then click **OK**.
6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The message is also deleted from the **INTERNAL DISCUSSIONS** section for the recipient of the message and the initiator of the message.

Note: Only the initiator of the message can delete the message.

8.9.4.4.2. Hiding a Message

You can hide messages with responses from participants invited to the discussion.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand **Collaboration**, and then click **Request for Information**.

The **REQUEST FOR INFORMATION** list page is displayed.

4. In the **REQUEST FOR INFORMATION** list page, select the required RFI form, and then click **Edit**.
5. In the **INTERNAL DISCUSSIONS** section, in the last column corresponding to the required message, click .

6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The message is made visible only to the user who initiated the message.

Note: Only the initiator of the message can hide a message with a response.

8.9.4.5. Responding to an RFI

- The RFI record is in the **Awaiting RFI Response** workflow status.

The workflow action stakeholders for an RFI record can respond to the queries and return them to the owner.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the **Collaboration** folder, and then click **Request for Information**.

The **REQUEST FOR INFORMATION** list page is displayed.

4. In the **REQUEST FOR INFORMATION** list page, select the appropriate RFI form, and then click **Edit**.

The **REQUEST FOR INFORMATION** page displays the following non-editable fields.

Section	Field	Description
-	RFI ID	An automatically generated identification code for the RFI form.
	Created By	The user name of the user initiating the RFI form.
	Project Code	The identification code of the project for which the RFI form is being initiated.
	Project Name	The name of the project for which the RFI form is being initiated.
Request for Information	Subject	The subject of the RFI as entered by the contractor.
	Priority	The priority for the RFI as set by the contractor.

Section	Field	Description
	Question/ Clarifications Required	The questions or clarification as specified by the contractor.

5. To provide responses to the queries of the contract, in the **Request for Information** section, provide the appropriate information in the fields, as described in the following table.

Field	Description
Response/Clarification	Enter the responses for the queries from the contractor.
Impact to Scope	From the drop-down list, select the impact on the scope of the project if the RFI results in a scope change.
Impact to Cost	From the drop-down list, select the project cost impact associated with the RFI.
Estimated Impact on Cost(\$)	If the RFI has an associated cost impact, then enter the approximate cost impact of the RFI.
Impact to Schedule	From the drop-down list, select the project schedule impact associated with the RFI.
Estimated Impact on Schedule(days)	If the RFI has an associated schedule impact, then enter the approximate schedule impact associated with the RFI.

6. If multiple stakeholders are involved for the RFI record, to post the response to the query, in the **INTERNAL DISCUSSIONS** section, perform the following steps:

Note:

- The **Internal Discussions** section is displayed only when the RFI record is in the **Awaiting RFI Response** workflow status.
- Only users invited to collaborate on the RFI record can perform the actions mentioned in this step.

- a. In the **Response** column, click and enter the response in the respective cell of the appropriate row.
- b. Click .

The **Response Date** column displays the current date and the **Status** column displays **Closed**.

7. Optionally, to undo a posted message, click .

Note:

- You can perform this action only if you have posted the message.
- You cannot revert the posted response after you have saved the record.

8. To respond to the RFI initiated by the contractor, click **Select Actions**, and then click **Send Response**.

Optionally, to initiate a request for proposal form, click **Select Actions**, and then click **Initiate RFP**.

9. In the dialog box, enter the appropriate information, and then click **OK**.

For information on the workflow status of the RFI form, see [Request for Information Workflow](#).

8.9.4.6. Request for Information Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Request for Information** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit Request	Awaiting RFI Response	If a contract is selected for the RFI, only users invited to the contract can perform the workflow action.

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
2	Awaiting RFI Response	Send Response	Response Received	<ul style="list-style-type: none"> The record is editable in the Awaiting RFI Response workflow status. If a contract is selected for the RFI, only users invited to the contract can perform the workflow action.
		Initiate RFP	Closed	
		Redraft	Draft	
3	Response Received	Re-Submit Request	Awaiting RFI Response	-
		Initiate RFP	Closed	
		Mark RFI Closed	Closed	

8.10. Commitments and Expenses

8.10.1. Commitments and Expenses

This section describes the process of creating purchase orders and expenses, and revising approved purchase orders.

The functional flow for purchase order is as follows:

1. [Create a purchase order and add pay items to it.](#)
2. [Perform workflow actions to implement the business process for purchase order.](#)
3. [Revise the released purchase order to add new pay items or modify existing pay items.](#)
4. [Perform workflow actions to implement the business process for purchase order revision.](#)

The functional flow for expenses is as follows:

1. [Create direct or miscellaneous expense.](#)
2. [Perform workflow actions to implement the business process for expenses.](#)

8.10.2. Purchase Orders

8.10.2.1. Creating a Purchase Order

A purchase order authorizes a purchase transaction. Creating a purchase order enables you to specify the pay items, and the terms and conditions for the purchase in the **Purchase Order** form.

A purchase order is used to:

- Manage design contracts.
- Manage purchase of equipment.

Note: You can also create a purchase order in the **WORK ORDERS AND CONTRACTS** module using the **Work Order** form. For information on creating purchase orders from work orders, see [Creating a Work Order](#) on page 993.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the projects list page, double-click the appropriate project.
3. In the navigation pane, expand **Commitments & Expenses**, and click **Purchase Order**.

The **PURCHASE ORDER** list page is displayed.

4. Click New.

Purchase Order Page

The screenshot shows the 'PURCHASE ORDER' page. At the top, there are buttons for Save & Exit, Save & Continue, Cancel, Workflow, and Select Actions. The main area contains the following fields:

- PR Ref Number : <Auto Generated>
- Project Name : Widen Tranco Road project
- Purchase Order Type : Select
- Project Code : PR-39333
- Purchase Order Date : 10/19/2023
- PO No. :
- Start Date : 10/19/2023
- End Date : 10/19/2023
- Lead Time in Days :
- Vendor Name :
- Vendor ID * :
- PO Description :
- Original PO Value in \$: 0.00
- Revised PO Value in \$: 0.00

Below these fields is a section titled 'PAY ITEMS' with a table:

Name	Description	Budget item	Fund Rule	Accounting Code	Measurement System	Unit	Quantity	Rate in \$	Amount in \$
No records to display.									

The **PURCHASE ORDER** page displays the following non-editable fields:

Field	Description
PR Ref Number	The chronological order of the purchase order created.
Project Name	The name of the project.
Project Code	The identification code of the project.
Original PO Value	The original purchase order amount which is the sum of the amounts of all the pay items that are part of original purchase order.
Revised PO Value	The revised purchase order amount which is the sum of the amounts of all revised pay items.

5. Provide the required information in the fields, as described in the following table.

Field	Description
Purchase Order Type	Select the type of the purchase order. Available options are purchase order types defined in the Purchase Order Type library catalog.

Field	Description
Purchase Order Date	Select the date of the purchase order.
PO No	Enter the purchase order number.
Start Date	Select the start date for the purchase order.
End Date	Select the end date for the purchase order.
Lead Time in Days	Enter the time in days required to release a purchase order.
Vendor ID	To select the vendor, perform the following steps: a. Click  . The Vendors List dialog box is displayed. Available options are vendors' details defined in the Contractors library catalog. b. Click the required vendor, and then click Select . The Vendor ID box displays the identification code of the selected vendor, and the Vendor Name box displays the name of the selected vendor.
PO Description	Enter a brief description for the purchase order request.

6. To enter details of purchase order items, in the **PAY ITEMS** section, perform the following steps:
 - a. Click **Add**.

The **New Pay Items** dialog box is displayed.
 - b. In the **Name** box, enter the name of the item.
 - c. In the **Description** box, enter the description of the item.
 - d. To link the purchase order item to a budget estimate item, in the **Budget Item** field, perform the following steps:
 - i. Click .

The **Select Budget Item** dialog box is displayed.
Available options are budget estimate items defined in the approved budget estimate of the project. For information on budget management, see [Budget Estimates](#).
 - ii. Click the required item, and then click **Select**.

The **Budget Item** box displays the item number of the selected item.
 - e. From the **Fund Rule** drop-down list, select the fund rule for the item.

Available options are active and approved fund rules defined for the project. For information on fund management, see [Fund Management](#).
 - f. In the **Accounting Code** box, enter the accounting code for the item.
 - g. From the **Measurement System** drop-down box, select the measurement system to quantify the item.

Available options are measurement systems defined in the **Measurement Systems** library catalog. For information on measurement systems, see [Measurement Systems](#).
 - h. From the **Unit** drop-down box, select the unit of measure for the item.

Available options are measurement units defined for the selected measurement system.
 - i. In the **Quantity** box, enter the required quantity of the item.
 - j. In the **Rate in (\$)** box, enter the unit price of the item.

The **Amount in (\$)** box displays the total cost of the item.
 - k. Click **Save**.

The purchase order item is added to the **PAY ITEMS** section.
7. In the **TERMS AND CONDITIONS** box, enter the terms and conditions applicable to the purchase order.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Purchase Order Workflow](#).

8.10.2.2. Purchase Order Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Purchase Order Revision** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Status	Action	Workflow Status	Comments
1	Created	Commit	Committed	-
2	Committed	Undo-Commit	Created	-
		Receive	Received	You can now revise the purchase order, or create an expense for the approved purchase order.

8.10.2.3. Generating Purchase Order Reports

You can generate list page reports and detailed reports of purchase orders. The List Page report displays a list of all purchase orders associated with the respective project and provides high-level information about each purchase order. The Detailed report provides detailed information about the selected purchase order associated with the respective project.

For information on the various report features available, see [Standard Report Functions](#).

List Page Report:

To navigate and view the list page report of purchase orders, perform the following steps:

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the projects list page, double-click the appropriate project.
3. In the navigation pane, expand **Commitments & Expenses**, and click **Purchase Order**.
The **PURCHASE ORDER** list page is displayed.

4. In the **PURCHASE ORDER** list page, click **Reports**, and then click **List Page Report**.

The report is generated and displayed.

You can generate the following report:

- **List Page Report**

Detailed Report:

To navigate and view the detailed report of a purchase order, perform the following steps:

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the projects list page, double-click the appropriate project.

3. In the navigation pane, expand **Commitments & Expenses**, and click **Purchase Order**.

The **PURCHASE ORDER** list page is displayed.

4. In the **PURCHASE ORDER** list page, select the appropriate purchase order,

click **Reports**, and then select the appropriate report to view the detailed report.

The report is generated and displayed.

You can generate the following reports:

- **Purchase Order Details Report**
- **PO Original Item Details Report**

8.10.2.4. Revising a Purchase Order

- Purchase order must be in the **Received** workflow status.

Creating a revision for a purchase order after receiving it creates a new purchase order as a revision to the original purchase order for which a revision was required.

Note: You can revise the purchase orders created from work orders using the **Work Order Revision** form only of the respective work orders. For information on creating purchase order revisions from Approved work orders, see [Revising an Approved Work Order](#) on page 1008.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the project list page, double-click the appropriate project.

3. In the navigation pane, expand **Commitments & Expenses**, and then click **Purchase Order**.

The **PURCHASE ORDER** list page is displayed.

4. In the list page, select a received purchase order that you want to revise.

5. Click Revisions.

The **PURCHASE ORDER REVISION** list page is displayed.

6. Click New.**Purchase Order Revision Page**

The screenshot shows the 'PURCHASE ORDER REVISION' page. At the top, there are buttons for Save & Exit, Save & Continue, Cancel, Workflow, and Select Actions. The main form contains the following fields:

PR Revision Ref Number :	<Auto Generated>	Project Name :	Widen Tranco Road project
PR Ref Number :	PR-2	Project Code :	PR-39333
Purchase Order Type :		PO No. :	
Revision Date :	10/19/2023	End Date :	03/11/2020
Start Date :	03/11/2020	Vendor Name :	A & J Donner Construction
Lead Time in Days :			
Vendor ID :	10391		
PO Revision Description :			
PO Revision Value in \$:	0.00		
Revised PO Amount in \$:	1,000.00		

Below the form is a section titled 'PAY ITEMS (TYPE-NEW)' with a table:

Name	Description	Budget item	Fund Rule	Accounting Code	Measurem... System	Unit	Quantity	Rate in \$	Amount in \$
No records to display.									

The **PURCHASE ORDER REVISION** page displays the following non-editable fields:

Field	Description
PR Revision Ref Number	The chronological order of the purchase order revision created.
PR Ref Number	The chronological order of the purchase order.
Project Name	The name of the project.
Project Code	The identification code of the project.
Purchase Order Type	The purchase order type as selected in the original purchase order.
PO#	The purchase order number as defined in the original purchase order.

7. Provide the required information in the fields, as described in the following table.

Field	Description
Start Date	Select the start date for the purchase order.
End Date	Select the end date for the purchase order.
Lead Time in Days	Enter the time in days required to release a purchase order.
Vendor ID	To select the vendor, perform the following steps: a. Click  . The Vendors List dialog box is displayed. Available options are vendors details defined in the Contractors library catalog. b. Click the required vendor, and then click Select . The Vendor ID box displays the identification code of the selected vendor, and the Vendor Name box displays the name of the selected vendor.
PO Revision Description	Enter a brief description for the purchase order request.

8. To enter details of purchase order items, in the **PAY ITEMS (TYPE-NEW)** section, perform the following steps:

- a. Click **Add**.

The **New Pay Items (Type-New)** dialog box is displayed.

- b. Provide the required information in the fields, as described in the following table.

Field	Description
Name	Enter the name of the item.
Description	Enter the description of the item.

Field	Description
Budget item	To link the purchase order item to a budget estimate item, perform the following steps: <ol style="list-style-type: none">i. Click . The Select Budget Item dialog box is displayed. Available options are budget estimate items defined in the approved budget estimate of the project. For information on budget management, see Budget Estimates.ii. Click the required item, and then click Select. The Budget Item box displays the item number of the selected item.
Fund Rule	Select the fund rule for the item. Available options are fund rules defined for the project. For information on fund management, see Fund Management .
Accounting Code	Enter the accounting code for the item.
Measurement System	Select the measurement system to quantify the item. Available options are measurement systems defined in the Measurement Systems library catalog. For information on measurement systems, see Measurement Systems .
Unit	Select the unit of measure for the item. Available options are measurement unit defined for the selected measurement system.
Quantity	Enter the required quantity of the item.
Rate in \$	Enter the unit price of the item. The Amount in \$ box displays the total cost of the item. The Amount in \$ box displays the total cost of the item.

c. Click **Save**.

The purchase order item is added to the **New Pay Items (Type-New)** table. You can add more records, edit, and delete records by clicking on the **Add**, **Edit**, and **Delete** buttons respectively.

9. To modify the existing pay items associated with the purchase order, in the **PAY ITEMS (TYPE-MODIFY EXISTING)** section, perform the following steps:

- a. Click **Add**.

The **Purchase Order Items List** dialog box is displayed.

- b. Click the appropriate pay item that requires modification, and click **Select**.

The selected pay item is added to the **PAY ITEMS (TYPE-MODIFY EXISTING)** section.

- c. Click the pay item, and then click **Edit**.

The **Edit Pay Items (Type-Modify Existing)** dialog box is displayed.

- d. Make the appropriate changes.

- e. Click **Save**.

The purchase order item is updated in the **PAY ITEMS (TYPE-MODIFY EXISTING)** section.

The **PO Revision Value in (\$)** box displays the revised purchase order amount.

10. In the **TERMS AND CONDITIONS** box, enter the terms and conditions applicable to the purchase order.

11. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

12. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Purchase Order Revision Workflow](#).

8.10.2.5. Purchase Order Revision Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Purchase Order Revision** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Status	Action	Subsequent Workflow Status	Comments
1	Created	Commit	Committed	You can only revise an approved purchase order.
2	Committed	Undo-Commit	Created	-
		Receive	Received	-

8.10.2.6. Generating Purchase Order Revision Reports

You can generate list page report and detailed reports of revised purchase orders. The List Page report displays a list of all purchase order revisions associated with the respective purchase order and provides high-level information about each purchase order revision. The Detailed report provides detailed information about the selected purchase order revision associated with the respective purchase order.

For information on the various report features available, see [Standard Report Functions](#).

List Page Report

To navigate and view the list page report of revised purchase orders, perform the following steps:

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand **Commitments & Expenses**, and click **Purchase Order**.
The **PURCHASE ORDER** list page is displayed.
4. In the **PURCHASE ORDER** list page, select the appropriate purchase order, and then click **Revisions**.
The **PURCHASE ORDER REVISION** list page is displayed.
5. In the **PURCHASE ORDER REVISION** list page, click **Reports**, and then click **List Page Report**.

You can generate the following report:

- **List Page Report**

Detailed Report

To navigate and view the detailed report of a revised purchase order, perform the following steps:

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the **PROJECTS** list page, double-click the appropriate project.
3. In the navigation pane, expand **Commitments & Expenses**, and click **Purchase Order**.
The **PURCHASE ORDER** list page is displayed.
4. In the **PURCHASE ORDER** list page, select the appropriate purchase order, and then click **Revisions**.
The **PURCHASE ORDER REVISION** list page is displayed.
5. In the **PURCHASE ORDER REVISION** list page, select the appropriate purchase order revision, click **Reports**, and then click **PO Revision Details Report**.

You can generate the following report:

- **PO Revision Details Report**

8.10.3. Expenses

8.10.3.1. Creating an Expenses Record

It is essential to document and account for all expenses incurred during the construction lifecycle. The **Expenses** form keeps track of the overheads systematically providing higher visibility for the processing of pay estimates. Once purchase orders are approved, the application tracks project expenses through the **Expenses** form.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the projects list page, double-click the appropriate project.
3. In the navigation pane, expand **Commitments & Expenses**, and click **Expenses**.

The **EXPENSES** list page is displayed.

4. Click **New**.

Expenses Page

The **EXPENSES** page displays the following non-editable fields:

Field	Description
Expense Number	The automatically generated unique identification code for the expense.
Cost In \$	The cost of the transaction is calculated and displayed based on the pay items defined in the Pay Items .

5. Provide required information in the fields, as described in the following table.

Field	Description
Direct Expenses / Miscellaneous Expenses	Click the required option based on the type of expense.
External Ref Number	Enter the external reference number.
Expense Type	Select the category of the expense. Available options are expense types defined in the Expense Type library catalog.
Expense Date	Select the expense date from the calendar.

Field	Description
Purchase Order No. / Employee	<p>Perform either of the following steps:</p> <ul style="list-style-type: none">• If Direct Expenses is selected, select the received purchase order number. Based on the selected purchase order, the Vendor ID and Vendor Name associated with the selected purchase order is displayed. For information on purchase orders, see Purchase Orders.• If Miscellaneous Expenses is selected, from the Employee drop-down list, select the required employee.
Accounting Code	Enter the accounting code for the expense.
Voucher ID	Enter the unique identification code for the vouchers associated with a certain category of expenses.
Expense Details	Enter any additional information relevant to the expense.

6. To add a new expense pay item, in the **DIRECT EXPENSE PAY ITEMS / MISCELLANEOUS EXPENSE PAY ITEMS** section, click **Add**, and perform either for the following steps:

- If **Direct Expenses** is selected, the **Purchase Order Items List** dialog box is displayed.
 - a. Select the required purchase order items.
 - b. Click **Select**.

The selected purchase order items are added to the **DIRECT EXPENSE PAY ITEMS** section.

The sum of all the pay items is displayed in the **Cost in \$** box.

Note: For direct expenses, the **Cost in \$** must not exceed the total value of the selected purchase order, its approved revisions, and other approved expense records with the same purchase order.

- If **Miscellaneous Expenses** is selected, the **New Miscellaneous Expense Pay Items** dialog box is displayed.
 - a. Provide the required information in the fields, as described in the following table.

Field	Description
Name	Enter the name of the item.
Description	Enter the description of the item.
Fund Rule	Select the required fund rule for the item. Available options are fund rules defined for the project. For information on fund rules, see Project Fund Rules .

Field	Description
Budget Item	To associate the budget item with the expense, perform the following steps: <ol style="list-style-type: none">i. Click . The Select Budget Item dialog box is displayed. Available options are approved budget estimate items of the project. For more information, see Budget Management on page 595.ii. Click the appropriate budget item, and then click Select. <p>Note: A budget line item can be associated with multiple expenses.</p>
Amount in \$	Enter an amount for the item.

b. Click **Save**.

The record is added to the **MISCELLANEOUS EXPENSE PAY ITEMS** section. The sum of all the pay items is displayed in the **Cost in \$** box.

Note: The sum of total amount of all the miscellaneous expenses must not exceed the current budget.

7. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Expenses Form Workflow](#).

8.10.3.2. Expenses Form Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Expenses** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Status	Action	Workflow Status	Comments
1	Draft	Submit	Submitted	-

Phase	Current Status	Action	Workflow Status	Comments
2	Submitted	Approve	Approved	-

8.10.3.3. Generating Expenses Reports

You can generate list page report and detailed reports of expenses, both direct and miscellaneous. The List Page report displays a list of all expenses associated with the respective project and provides high-level information about each expense. The Detailed report provides detailed information about the selected expense associated with the respective purchase order.

For information on the various report features available, see [Standard Report Functions](#).

List Page Report

To navigate and view the list page report of expenses, perform the following steps:

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the **PROJECTS** list page, double-click the appropriate project.
3. In the navigation pane, expand **Commitments & Expenses**, and click **Expenses**.
The **EXPENSES** list page is displayed.
4. In the **EXPENSES** list page, click **Reports**, and then click **List Page Report**.

You can generate the following report:

- **List Page Report**

Detailed Report

To navigate and view the detailed report of an expense, perform the following steps:

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the **PROJECTS** list page, double-click the appropriate project.
3. In the navigation pane, expand **Commitments & Expenses**, and then click **Expenses**.
The **EXPENSES** list page is displayed.
4. In the **EXPENSES** list page, select the appropriate expense, click **Reports**, and then click **Expense Detail Report**.

You can generate the following report:

- **Expense Detail Report**

8.11. Risks and Issues

8.11.1. Issue Log

8.11.1.1. Issue Log

The **Issue Log** form is used to record and track issues that occur in a project or specifically in a contract of a project.

An issue is an event that affects the budget, the schedule, or the cost of a project. An issue log is a repository of issues that occurred and the resolution that was provided in a project.

The **Issue Log** form enables the following functionalities:

- Record issues that occurred in a project.
- Add locations affected by the issue on a map using map markers.
- Track and assign responsibilities to specific people for each issue.
- Analyze and prioritize issues easily.
- Record issue resolution for future reference and project learning.
- Monitor overall project health and status.

The functional flow for issue log is as follows:

1. [Log an issue.](#)
2. [Respond to an issue with a resolution.](#)
3. [Perform workflow actions to implement the business decisions.](#)

8.11.1.2. Logging an Issue

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand **Risks & Issues**, and then click **Issue Log**.

The **ISSUE LOG** list page is displayed.

4. Click New.

Issue Log Page

ISSUE LOG

Save & Exit Save & Continue Cancel Workflow Select Actions

ID : <Auto Generated>	Contract : Select
Project Code : PR-39333	Project Name : Widen Tranco Road project
Title * : <input type="text"/>	
Description * : <input type="text"/>	
Priority * : Select One	Type * : Select One
Identifier * : Smith X	Occurred On * : 10/19/2023
Impact On : Select One	Created On : 10/19/2023
Owner * : Select	Due On : 10/19/2023
Created By : Smith	

LOCATION

Add Feature: Select

No write layers configured for the map. Please visit [here](#) to do the configuration.

Map View

#/Common/BrixListPage.aspx?xContext=PRJNEDS&PID=1025&ParentID=1025

The **ISSUE LOG** page displays the following non-editable fields:

Field	Description
ID	On saving the record, an identification code is automatically generated.
Project Code	The identification code of the project for which the issue log form is being created is displayed.
Project Name	The name of the project for which the issue log form is being created is displayed.
Created By	The user name of the user creating the issue log form is displayed.
Created On	The current date is displayed.

5. Provide the required information in the fields, as described in the following table.

Field	Description
Contract	Click and select the contract for which the issue was observed. Alternatively, type the name of the contract, and then select the appropriate contract. Available options are contracts associated with the project.
Title	Enter a title for the issue.
Description	Enter the details of the issue that occurred.
Priority	Select the priority for the issue to be resolved. Available options are priority options defined in the Issue Priority library catalog.
Type	Select the type of issue that occurred. Available options are issue types defined in the Issue Type library catalog.
Identifier	If the issue was identified by a different user than the logged-in user, perform the following steps: <ol style="list-style-type: none">a. Corresponding to the displayed user name, click .b. Click and select the required user. Alternatively, type the name of the user, and then select the appropriate user. Available user names are of users invited to the project.
Occurred On	By default, the current date is displayed. Select the date the issue occurred.
Impact On	Select the project factors impacted due to the issue that occurred. Available options are impact factors that are defined in the Impact Areas library catalog.
Owner	To select the owner of the issue, click and select the required user. Alternatively, type the name of the user, and then select the required user. Available usernames are of users invited to the project.

Field	Description
Due On	By default, the current date is displayed. Select the date by when the resolution for the issue must be provided.

6. To find the appropriate location and draw the location geometries on the map, in the **LOCATION** section, perform the following steps:

- a. To find the appropriate location on the map, perform the following steps:

i. Drag the map in the required direction.

ii.

In the **Find address or place** box, enter the name of the location, click  , and then click the appropriate location.

The map of the area is displayed.

iii.



Use or to zoom in or out on the map.

- iv. Select the appropriate base map from the **Base Map** drop-down list.

Available options are base maps defined in the **BASE MAPS** section in the **GIS Settings** page of the **Administration** module. For more information, see [Adding Base Maps](#).

- v. To view layers, such as stations or transit centers, select the required layers in the **Layer(s)** section.

The **Layer(s)** displayed in blue will only display features added in other records of this form.

Available options are base maps defined in the **LAYERS** section in the **GIS Settings** page of the **Administration** module. For more information, see [Adding Layers](#).

- b. In the **Add Feature** drop-down list, select the required feature to mark on the map.

The drawing toolset will display options based on the configured geometry corresponding to the selected feature.

- c. To draw the location geometries, perform the following steps:

- To mark a point on the map, click



and then click on the map at the required location.

- To draw a polyline, click , and then click on the map. To complete the boundary, follow the instructions as displayed on the map.
- To draw a freehand polyline, click , and then click on the map. To complete the boundary, follow the instructions as displayed on the map.
-

To draw a triangle, rectangle, or a circle, click , , or , click on the map, and drag to size the map marker.

-  
To mark a boundary, click  or , and then click on the map.
To complete the boundary, follow the instructions as displayed on the map.
- 
To draw an arrow mark, click 

Action	Steps
Edit	<ol style="list-style-type: none">i. Right-click in a boundary or on a line, and then click Edit. Points that are editable are displayed.ii. Click a point and drag to edit the marker.
Move	<ol style="list-style-type: none">i. Right-click in a boundary or on a line, and then click Move.ii. Click and drag the map marker to the required location on the map.
Rotate	<ol style="list-style-type: none">i. Right-click in a boundary or on a line, and then click Rotate.ii. Click , and drag to rotate the marker.
Scale	<ol style="list-style-type: none">i. Right-click in a boundary or on a line, and then click Scale.ii. Click a point and drag to adjust the marker boundary.
Delete	<ol style="list-style-type: none">i. Right-click in a boundary or on a line to be deleted.ii. Click Delete. A confirmation message is displayed.iii. Click OK.

7. To link the records of the forms in the project, in the **LINKED RECORDS** section, perform the following steps:

- a. Click **Add**.

The **SEARCH FORM** page is displayed.

Search Form Page

A screenshot of a web-based application interface titled "Search Form Page". At the top, there is a toolbar with icons for "Search", "Back", and "Reset". Below the toolbar, a dark grey header bar contains the text "SEARCH FORM". Underneath the header, there is a search input field with the placeholder text "Form : Type here to filter Forms".

- b. In the **Form** field, click and select the form you want to associate.

Alternatively, type the name of the form, and then select the appropriate form.

Available forms in the list are forms with the **IsSearchable** form attribute set to **True**. For additional information on form attributes, see [Form Builder](#).

All fields available in the selected form are displayed. To associate records, you can search for records of the form.

- c. In the form fields, enter the appropriate criteria to search.
- d. Optionally, expand the **Filter By Attachment** and **Filter By Workflow Status** sections, and enter additional criteria to search.
- e. In the toolbar, click **Search**.

The information that matches the criteria is displayed in the **SEARCH RESULTS** section. Search results contain information of only projects you are invited to.

- f. Optionally, to clear existing search results to search with new criteria, click **Reset**.
- g. In the **SEARCH RESULTS** section, select the appropriate records, and then click **Link**.

The selected records are added to the **LINKED RECORDS** section.

Note: To view the details of a linked record, in the **Record Identifier** column, click the appropriate hyperlink.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. To post the mitigation plan and comments on the issue, in the **COMMENTS LOG** section, perform the following steps:
 - a. Click **Add**.
The **New Comments Log** dialog box is displayed.
In the **Created By** field, the name of the logged-in user is displayed.
In the **Created On** field, the current date and the time are displayed.
 - b. In the **Comment** box, enter the mitigation plan and comments for the issue.
 - c. Click **Save**.
10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.
To perform workflow actions, see [Issue Log Workflow](#).

8.11.1.3. Resolving an Issue

- The workflow status of the **Issue Log** record is **Open**.
For more information, see [Issue Log Workflow](#).
1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 2. In the list page, click the appropriate project, and then click **View**.
 3. In the navigation pane, expand the **Risks & Issues** folder, and then click **Issue Log**.
The **ISSUE LOG** list page is displayed.
 4. In the list page, select the issue log form that requires a resolution, and then click **Edit**.

The **ISSUE LOG** page displays the following non-editable fields:

Field	Description
ID	The automatically generated identification code for the issue log form is displayed.
Project Code	The identification code of the project for which the issue log form is created is displayed.
Project Name	The name of the project for which the issue log form is created is displayed.
Created By	The user name of the user who created the issue log form is displayed.
Created On	The date the issue log form was created is displayed.

Field	Description
Contract	The name of the contract for which the issue is logged is displayed.
Title	The title of the issue is displayed.
Description	The description of the issue is displayed.
Priority	The priority of the issue is displayed.
Identifier	The username of the user who identified the issue is displayed.
Impact On	The impact areas due to the issue is displayed.
Owner	The user in charge of the issue is displayed.
Type	The type of issue is displayed.
Occurred On	The date the issue occurred is displayed.
Due on	The date by when a resolution for the issue is expected is displayed. If the due date is passed, the issue is highlighted in red in the ISSUE LOG list page.

5. To link the records of the forms in the project, in the **LINKED RECORDS** section, perform the following steps:

- a. Click **Add**.

The **SEARCH FORM** page is displayed.

Search Form Page

A screenshot of a web-based application interface titled "Search Form Page". At the top, there is a toolbar with icons for "Search", "Back", and "Reset". Below the toolbar, a dark grey header bar contains the text "SEARCH FORM". Underneath the header, there is a search input field with the placeholder text "Form : Type here to filter Forms".

- b. In the **Form** field, click and select the form you want to associate.

Alternatively, type the name of the form, and then select the appropriate form.

Available forms in the list are forms with the **IsSearchable** form attribute set to **True**. For additional information on form attributes, see [Form Builder](#).

All fields available in the selected form are displayed. To associate records, you can search for records of the form.

- c. In the form fields, enter the appropriate criteria to search.
 - d. Optionally, expand the **Filter By Attachment** and **Filter By Workflow Status** sections, and enter additional criteria to search.
 - e. In the toolbar, click **Search**.

The information that matches the criteria is displayed in the **SEARCH RESULTS** section. Search results contain information of only projects you are invited to.

- f. Optionally, to clear existing search results to search with new criteria, click **Reset**.
 - g. In the **SEARCH RESULTS** section, select the appropriate records, and then click **Link**.

The selected records are added to the **LINKED RECORDS** section.

Note: To view the details of a linked record, in the **Record Identifier** column, click the appropriate hyperlink.

6. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

7. To provide a resolution for the issue, in the **COMMENTS LOG** section, perform the following steps:

- a. Click **Add**.

The **New Comments Log** dialog box is displayed.

In the **Created By** field, the name of the logged-in user is displayed.

In the **Created On** field, the current date and the time are displayed.

- b. In the **Comment** box, enter the resolution for the issue.

- c. Click **Save**.

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Issue Log Workflow](#).

8.11.1.4. Issue Log Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Issue Log** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	New	Submit	Open	-
2	Open	Resolve	Resolved	-
		Redraft	New	-
3	Resolved	Re-Open	New	-
		Close	Closed	-

8.11.1.5. Top High Priority Issues Report

The **Top High Priority Issues** report displays all high-priority issues in the project. The number of records displayed is based on the number defined in the **Top High Priority Issues (N)** field in the **Report Configurations** page of the **Administration** module.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand **Risks & Issues**, and then click **Issue Log**.

The **ISSUE LOG** page is displayed.

4. Click **Reports**, and then click **Top High Priority Issues**.

The report is generated and displayed.

For information on the various report features available, see [Standard Report Functions](#).

8.11.2. Risk Register

8.11.2.1. Risk Register

The **Risk Register** form is used to record details of potential risks that are identified in a project or in a contract of a project.

The **Risk Register** form enables the following functionalities:

- Record details of risks in a project, and the areas affected by the risk.
- Record details of the probability of the risk resulting in an issue and the severity of the risk.
- Determine the initial risk score and grade.
- Color code risks based on the score.
- Record details of the mitigation plan.
- Assign action items to specific project users for each risk, and track the assigned action items to closure.
- Determine the risk score and grade after analyzing the mitigation plan and assigned action items.

The functional flow for the risk register is as follows:

1. [Create a risk register record by specifying initial risk impact details and areas](#).
2. [Respond to an action item](#).
3. [Work on posted action items](#).
4. [Perform workflow actions to receive business decisions](#).

8.11.2.2. Recording Risk Details

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the **Risks & Issues** folder, and then click **Risk Register**.

The **RISK REGISTER** list page is displayed.

4. Click New.**Risk Register Page**

RISK REGISTER

Save & Exit Save & Continue Cancel Workflow Select Actions

ID : <Auto Generated> Contract : Select

Project Code : 0.3.3.62 Project Name : Lackawanna WRRF & ORF Disinfection Improvement -

Title * :

Description * :

Category * : Select One Identifier * : Administrator

Owner * : Select Identified On * : 10/19/2023

Created By : Administrator Created On : 10/19/2023

LINKED RECORDS

<input type="checkbox"/> Record Identifier	<input type="button" value="▼"/> Source Form	<input type="button" value="▼"/> Contract Name	<input type="button" value="▼"/> Notes
No records available.			

Add Delete

RISK IMPACT

Initial Risk Likelihood * : Select One Initial Risk Severity * : Select One

Initial Risk Score : 0 Initial Risk Grade :

IMPACT AREAS

<input type="checkbox"/> Area	Severity	Value	Description
No records to display.			

The **RISK REGISTER** page displays the following non-editable fields:

Field	Description
ID	On saving the record, an identification code is automatically generated.
Project Code	The identification code of the project for which the risk register form is being created is displayed.
Project Name	The name of the project for which the risk register form is being created is displayed.
Created By	The user name of the user creating the risk register form is displayed.
Created On	The current date is displayed.

5. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Contract	Click and select the contract for which the risk is identified. Alternatively, type the name of the contract, and then select the appropriate contract. Available options are contracts associated with the project.
Title	Enter a descriptive heading for the identified risk.
Description	Enter a detailed description of the identified risk.
Category	Select the risk category to group the identified risk. Available options are risk categories defined in the Risk Category library catalog.
Identifier	By default, the name of the logged-in user is displayed. Optionally, if the risk is identified by a user other than the logged-in user, to select the person who identified the risk, perform the following steps: <ol style="list-style-type: none">a. Corresponding to the displayed user name, click .b. Click and select the appropriate user. Alternatively, type the name of the user, and then select the appropriate user. Available options are the user names of the users invited to the project.
Owner	To select the owners of the identified risk, click and select the appropriate users. Alternatively, type the name of the user, and then select the appropriate user name. Available options are the user names of the users invited to the project.
Identified On	Select the date the risk was identified.

6. To link the records of the forms in the project, in the **LINKED RECORDS** section, perform the following steps:

- a. Click **Add**.

The **SEARCH FORM** page is displayed.

Search Form Page

A screenshot of a web-based application interface titled "Search Form Page". At the top, there is a toolbar with icons for "Search", "Back", and "Reset". Below the toolbar, a dark grey header bar contains the text "SEARCH FORM". Underneath the header, there is a search input field with the placeholder text "Form : Type here to filter Forms".

- b. In the **Form** field, click and select the form you want to associate.

Alternatively, type the name of the form, and then select the appropriate form.

Available forms in the list are forms with the **IsSearchable** form attribute set to **True**. For additional information on form attributes, see [Form Builder](#).

All fields available in the selected form are displayed. To associate records, you can search for records of the form.

- c. In the form fields, enter the appropriate criteria to search.
- d. Optionally, expand the **Filter By Attachment** and **Filter By Workflow Status** sections, and enter additional criteria to search.
- e. In the toolbar, click **Search**.

The information that matches the criteria is displayed in the **SEARCH RESULTS** section. Search results contain information of only projects you are invited to.

- f. Optionally, to clear existing search results to search with new criteria, click **Reset**.
- g. In the **SEARCH RESULTS** section, select the appropriate records, and then click **Link**.

The selected records are added to the **LINKED RECORDS** section.

Note: To view the details of a linked record, in the **Record Identifier** column, click the appropriate hyperlink.

7. To record details of the impacts of the risk, in the **RISK IMPACT** section, perform the following steps:

- a. From the **Initial Risk Likelihood** drop-down list, select the likelihood of the risk occurring.

Available options are likelihood options defined in the **Risk Probability** library catalog.

- b. From the **Initial Risk Severity** drop-down list, select the severity of the identified risk.

Available options are severity options defined in the **Risk Severity** library catalog.

Based on the **Initial Risk Likelihood** and the **Initial Risk Severity** options selected, the **Initial Risk Score**, and **Initial Risk Grade** values are displayed.

The **Initial Risk Score** value is calculated as the product of the probability rating and the severity rating of the risk. For information on defining probability ratings and the severity ratings, see [Risk Probability](#), and [Risk Severity](#).

Based on the calculated **Initial Risk Score** value, the **Initial Risk Grade** is automatically assigned with color as defined in the **Risk Grade** library catalog. For information on risk grade, see [Risk Grade](#).

Note: The colors associated with the **Initial Risk Grade** values are used for illustrations in risk register related reports and dashboards.

- c. To record areas of impact in the project due to the identified risk, in the **IMPACT AREAS** section, perform the following steps:

- i. Click **Add**.

The **Impact Areas** dialog box is displayed.

Available options are impact areas defined in the **Impact Areas** library catalog.

- ii. Select the appropriate impact areas, and then click **Select**.

The impact areas are added to the **IMPACT AREAS** section.

- iii. For every impact area added, in the **Severity** column, double-click and select the appropriate risk severity option for the selected impact area.

Available options are severity options defined in the **Risk Severity** library catalog.

- iv. For every impact area added, in the **Value** column, click and enter the appropriate value for the selected impact area.

- v. For every impact area added, in the **Description** column, click and enter the description of the impact for the selected impact area.

8. In the **RISK MITIGATION** section, in the **Mitigation Plan** box, enter the details of the risk mitigation plan to reduce the impacts of the risk.
9. To assign action items to specific users, in the **ACTION ITEMS** section, perform the following steps:

- a. Click **Assign Resource**.

The **New Action Items** dialog box is displayed.

- b. In the **Assigned To** box, click and select the appropriate users to assign an action item.

Alternatively, enter the name of the appropriate user, and then from the list, select the appropriate user.

Available options are user names of the users invited to the project.

- c. In the **Action Item** box, enter the details of the action item assigned to the users.
 - d. From the **Due Date** calendar drop-down box, select the date by when the user must complete the assigned action item.

- e. Click **Save**.

The selected action items are added to the **ACTION ITEMS** section.

- f. In the **ACTION ITEMS** section, perform any of the following steps:

- To post the action item to the selected user, in the last column corresponding to the user, click .
- To update the action item, in the **Action Item** column of the appropriate user, click and enter the action item details.
- To update the due date for the action item, in the appropriate row, click in the **Due Date** column, click , and then select the appropriate date.
- To recall a posted message, click .
- To delete the action item assigned to a user, in the last column corresponding to the user, click , and then click **OK**.

10. To determine the risk score based on the assessment of the mitigation plan and the assigned action items, in the **ACTION ITEMS** section, perform the following steps:

- a. From the **Current Risk Likelihood** drop-down list, select the likelihood of the risk occurring.

Available options are likelihood options defined in the **Risk Probability** library catalog.

- b. From the **Current Risk Severity** drop-down list, select the severity of the risk.

Available options are severity options defined in the **Risk Severity** library catalog.

Based on the **Current Risk Likelihood** and the **Current Risk Severity** options selected, the **Current Risk Score**, and **Current Risk Grade** values are displayed.

The **Current Risk Score** value is calculated as the product of the probability rating and the severity rating of the risk. For information on defining probability ratings and the severity ratings, see [Risk Probability](#) and [Risk Severity](#).

Based on the calculated **Current Risk Score** value, the **Current Risk Grade** is automatically assigned with a color as defined in the **Risk Grade** library catalog.

For information on risk grade, see [Risk Grade](#).

Note: The colors associated with the **Current Risk Grade** values are used for illustrations in risk register related reports and dashboards.

11. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

12. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The action items posted in the **ACTION ITEMS** section are made available to the recipients to whom it is posted.

The **Status** of the action items is set to **Open**.

8.11.2.3. Working with Posted Action Items

You can recall, delete, or reassign an action item that was posted by you.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the **Risks & Issues** folder, and then click **Risk Register**.

The **RISK REGISTER** list page is displayed.

4. Select the appropriate record to respond to the action items assigned to you, and then click **Edit**.

The **RISK REGISTER** page is displayed.

5. In the **ACTION ITEMS** section, in the last column of the appropriate action item, perform any of the following steps, as applicable:

- To reassign a posted action item to a different user, recall the posted action item, and in the required row, click in the **Assigned To** column, corresponding to the user name, click , and then select the required user.
- To recall a posted action item, click .
- To delete an action item, click , and then click **OK**.

Note: Only the initiator of the action item can delete it.

The selected action item is deleted from the form and is not available to the user who assigned the action item nor to the user to whom the action item was assigned.

6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

8.11.2.4. Responding to an Action Item

You can respond to an action item that is assigned to you. On responding to an action item, the status of the action item is set to **Closed**.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the **Risks & Issues** folder, and then click **Risk Register**.

The **RISK REGISTER** list page is displayed.

4. Select the appropriate risk register form to respond to the action items assigned to you, and then click **Edit**.

5. In the **ACTION ITEMS** section, perform the following steps:

- a. In the appropriate row, in the **Response** column, click and enter the response to the posted action item.
 - b. To post the response to the action item, click  .
The **Response Date** column displays the current date, and the **Status** column displays **Closed**.
 - c. Optionally, to undo a posted response, click .
6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The response to action item is made available to the user who posted the initial action items.

To perform workflow actions, see [Risk Register Workflow](#).

8.11.2.5. Risk Register Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Risk Register** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	New	Submit	Submitted	-
2	Submitted	Close	Closed	-
3	Closed	Re-open	Re-opened	-

8.11.2.6. Top N Risks Report

The **Top N Risks** report displays the highest risk items in the project based on the risk score.

The number of records displayed is based on the number defined in the **Top High Priority Risks (N)** field in the **Report configurations** page of the **Administration** module.

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the **Risks & Issues** folder, and then click **Risk Register**.
The **RISK REGISTER** list page is displayed.

4. Click **Reports, and then click **Top N Risks**.**

The report is generated and displayed.

For information on the various report features available, see [Standard Report Functions](#).

The following information is displayed:

- ID - The risk identification code. Click the link to open the details page.
- Contract Code - The identification code of the contract.
- Contract Name - The name of the contract.
- Title - The title of the risk.
- Description - The description of the risk.
- Severity - The severity of the risk.
- Likelihood - The likelihood of the risk.
- Risk Score - The risk score.
- Risk Grade - The risk grade.
- Impact On - The impacts of the risk.

8.12. Project Availability

8.12.1. Project Status

The project status defines if the project is available for use. By inactivating a project, the project is unavailable for use and functionalities to edit project details is made unavailable.

The following procedures describe the steps to activate or deactivate a project.

- [Inactivating a project](#)
- [Activating an inactive project](#)

8.12.2. Inactivating a Project

You can deactivate a project to make the project inaccessible to users.

1. In the module menu, click **Projects.**

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

a. In the module menu, click **Planning.**

The **PLANNING DASHBOARD** is displayed.

b. In the navigation pane, click **Planned Projects.**

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, click the appropriate active project to deactivate.
3. Click **Mark Active/Inactive**.

The status of the project is set to **InActive**, and the project is unavailable for use.

8.12.3. Activating an Inactive Project

You can activate an inactive project to enable access to the project and enable project usage.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, click the appropriate inactive project to activate.
3. Click **Mark Active/Inactive**.

The status of the project is set to active, and the project is available for use.

8.13. Project Availability on Mobile Devices

8.13.1. Offline Availability of Projects

To enable availability of projects on a mobile device, projects must be marked to be available offline.

- For more information on marking a project offline, see [Marking a Project Offline](#) on page 579.
- For more information on marking an offline project online, see [Marking an Offline Project Online](#) on page 579.

Additionally, for the projects to which users are invited, you can add them as online or offline to enable them to access the projects from the mobile application.

- For more information on marking a user offline, see [Marking a User Offline](#) on page 580.
- For more information on marking an offline user online, see [Marking an Offline User Online](#) on page 581.

8.13.2. Marking a Project Offline

On marking a project offline, the project is made available on a mobile device with no internet connectivity. These projects will be downloaded to the mobile device on internet connectivity and are available for use on the mobile device even when internet connectivity is not available. Updates made to the project are uploaded to the server when the mobile device has internet connectivity.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. Click **Mark Offline/Online**.

The **OFFLINE PROJECTS** page is displayed.

3. In the **Offline Projects** section, click **Add**.

The **Projects** dialog box is displayed.

Available projects are projects that you are invited to and are not marked offline.

4. Select the required projects to be marked offline, and then click **Select**.

5. Click **Save**.

The selected projects are marked offline.

To remove a project from offline mode, see [Marking a Project Online](#).

8.13.3. Marking an Offline Project Online

On marking an offline project online, the project is available only when online.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the toolbar, click **Mark Offline/Online**.

The **OFFLINE PROJECTS** page is displayed.

3. In the **Offline Projects** section, select the projects that are marked offline, and then click **Delete**.

4. Click **Save**.

The selected projects are marked online.

All projects are marked to be available on mobile devices only when online.

8.13.4. Marking a User Offline

- Users are invited to the project.
- Roles are assigned to users.

Administrators and users assigned with the **Manage Users – Project** permission can mark a user offline.

Upon marking a user offline, the user can access the respective project from the mobile application. When the internet connection is available, the user must sync the mobile application to download the respective project. Later, the user can access the project on a mobile device even without internet connectivity and make the necessary updates. To make these updates available in the web application, the user must sync the mobile application when an internet connection is available.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

The **PROJECT DASHBOARD** page is displayed.

3. Click the **PROJECT DETAILS** tab.

4. In the **PROJECT DETAILS** page, click **Mark Offline/Online**.

The **OFFLINE PROJECT USERS** page is displayed.

5. In the **OFFLINE PROJECT USERS** section, click **Add**.

The **Project Users** dialog box is displayed.

Available users are the active users who are invited to the project and are not marked offline.

6. Select the appropriate users, and then click **Select**.

7. Click **Save**.

The selected users are marked as offline users, and the project is automatically added as an offline project.

To remove an offline user, see [Marking an Offline User Online](#) on page 581.

Note: If users with the Administrator role are not invited to a project, the **Mark Offline/Online** feature in the projects list page enables them to add them to the project as offline user.

8.13.5. Marking an Offline User Online

- Users are invited to the project.
- Roles are assigned to users.

Administrators and users assigned with the **Manage Users – Project** permission can mark an offline user as online.

Upon marking an offline user online, the user cannot access the project from the mobile application.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

The **PROJECT DASHBOARD** page is displayed.

3. Click the **PROJECT DETAILS** tab.

4. In the **PROJECT DETAILS** page, click **Mark Offline/Online**.

The **OFFLINE PROJECT USERS** page is displayed.

5. To remove offline users, in the **OFFLINE PROJECT USERS** section, select the appropriate users, and then click **Delete**.
6. Click **Save**.

8.14. Project Status and Attributes

8.14.1. Project Status and Attributes

The Status and Attributes feature enables you to add project status options and additional attributes to record project details.

Project attributes are easily configurable to save additional project information. These attributes can be optionally added to every project you create. You can add a corresponding value and notes to every project attribute that is available.

Project status enables you to define the implementation state or status of a project in its lifecycle.

For information on adding a project status, see [Adding a Status](#), and for information on adding a project attribute, see [Adding an Attribute](#).

8.14.2. Creating a Project Status

You can create project status options to set the current implementation status or state of a project in its lifecycle.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. Click **More**, and then click **Status and Attributes**.

The **STATUS and ATTRIBUTES** list page is displayed.

3. In the **STATUS LIST** section, click **Add**.

The **New Status List** dialog box is displayed.

4. In the **Status** name box, type the name of the status.

5. Select the **ActivationStatus** check box to enable the availability of the status.

6. Click **Save.**

The **STATUS LIST** is updated with the new status.

The status is now available for selection in the **NEW PROJECT** and **EDIT PROJECT** pages.

8.14.3. Creating Project Attributes

You can add project specific information as attributes to a project to record additional project information. Attributes are customized fields to provide additional information about a project in addition to the standard fields.

For example, a project has standard attributes, such as Project Name, Project Code, Description, Date Created, Start Date, End Date, Owner, and Status. In addition, you can define new fields to provide more information on the project, such as, Estimated Cost, Issues, Remarks, and so on.

Every attribute is associated with a value type, such as Integer, Float, Text, Currency, or Date, that defines the type of data that can be entered in the field. For example, if the type for Estimated Cost is defined as Currency, then you are allowed to enter a value in currency format only.

1. In the module menu, click **Projects.**

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

a. In the module menu, click **Planning.**

The **PLANNING DASHBOARD** is displayed.

b. In the navigation pane, click **Planned Projects.**

The **PLANNED PROJECTS** list page is displayed.

2. In the toolbar, click **More, and then click **Status and Attributes**.**

The **STATUS AND ATTRIBUTES** page is displayed.

3. In the **MASTER ATTRIBUTE LIST section, click **Add**.**

The **New MASTER ATTRIBUTE LIST** dialog box is displayed.

4. In the **Attribute name box, type the name of the attribute.**

5. From the **Type** drop-down list, select the type of value for the attribute. This defines the type of value that you can enter for the attribute.

The attribute types available are as follows.

- **Text** - Text string limited to 255 characters
- **Integer** - Numbers with no decimals
- **Date** - Date
- **Float** - Numbers with decimals
- **Currency** - Currency

6. Optionally, select the **DeActivated** check box to currently disable the availability of the attribute.
7. Optionally, select the **Mandatory** check box to ensure a value is entered for the attribute.
8. Click **Save**.

The **MASTER ATTRIBUTE LIST** is updated with the new attribute. The attribute is now available for selection in the **NEW PROJECT** and **EDIT PROJECT** page.

8.15. Generating Project Reports

You can generate various project reports that illustrate various information views. These reports enable various project stakeholders to stay up-to-date on the status of projects.

You can generate project reports from.

- [Projects list page](#)
- [Report Gallery](#)

8.15.1. Projects List Page Reports

To generate project list page reports, perform the following steps:

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. Click **Reports**, and click the required report.
The report is generated and displayed.
For information on the various report features available, see [Standard Report Functions](#).

You can generate the following reports:

- [Project Cost Sheet Report](#)
- [InActive Projects List Report](#)
- [Active Projects List Report](#) on page 586

Project Cost Sheet Report

This report displays the details of the cost and budget breakup for the selected project. It also provides the details of the cost breakup of the contract, purchase order, and other miscellaneous expenses.

You can filter information in the report using the following filters:

- User
- From Date
- To Date

The following information is displayed.

Column	Description
Project Name	Name of the selected project.
Project Code	Identification code of the selected project.
Owner	Owner name of the selected project.
Created Date	The date the project was created.
Description	Name of the container
Item Name	Name of the item.
Original Budget in \$	The total amount for the items from the first approved budget estimate.
Budget Revisions in \$	The total amount for change in the items based on approved budget revisions.
Current Budget in \$	Amount of the current budget; that is, the sum of the original budget amount and all the approved budget revisions.
Original Commitments in \$	The total amount for all contract items, purchase orders, and miscellaneous expenses linked to the budget items.
Revised Commitments in \$	The total amount for all change orders (for contract items) and purchase order revisions for items linked to the budget item.

Column	Description
Current Commitments in \$	The total amount for all contract items, purchase orders, and miscellaneous expenses linked to the budget items considering all change orders, and purchase order revisions.
Potential Changes in \$	The total amount for all the unapproved purchase orders and change orders.
Work Done in \$	The total amount for approved item postings for which payments are not done, direct expenses for purchase orders, and miscellaneous expenses.
Payments in \$	The total amount for all the approved pay estimates and expenses.
Remaining Budget in \$	The budget remaining after the payments are made. It is calculated as: Current Budget - Payments
Percentage Complete	It is calculated as: Current Budget / Payments

InActive Projects List Report

This report displays all projects that are marked inactive.

The following information is displayed:

- Project Code - Identification code of the inactive project.
- Project Name - Name of the inactive project.
- Owner - Owner of the inactive project.
- Created Date - The date the project was created.
- Contractor - Prime contractor of the project.
- Contact Information - Contact information of the prime contractor.

Active Projects List Report

This report displays all projects that are not marked inactive.

The following information is displayed:

- Project Code - Identification code of the active project.
- Project Name - Name of the active project.
- Owner - Owner of the active project.
- Created Date - The date the project was created.

- Contractor - Prime contractor of the project, if the project was implemented.
- Contact Information - Contact information of the prime contractor.

8.15.2. Report Gallery

To navigate to the projects report gallery and to generate reports, perform the following steps:

1. In the navigation pane, click **Projects**.
The **PROJECTS** list page is displayed.
2. Double-click the required project, and in the navigation pane, click **Project Report Gallery**.
3. In the **PROJECT REPORT GALLERY** page, double-click the required report.
For information on the various report features available, see [Standard Report Functions](#).

You can generate the following reports:

- [Funding Details By Budget Items Report](#) on page 587
- [Funding Details by Contract Report](#) on page 588
- [Project Funding Summary Report](#) on page 588
- [Purchase Order Details Report](#) on page 589
- [Purchase Order Original Items Details Report](#) on page 589
- [Purchase Order Revision Details](#) on page 590
- [Resource Cost Sheet Report](#) on page 590
- [Resource Deficit Report](#) on page 590
- [Resource Utilization Report](#) on page 591
- [Resource Utilization Summary Report](#) on page 592
- [Titles Pending Assignment Report](#) on page 592

Funding Details By Budget Items Report

The Funding Details By Budget Items Report displays funds allocated to each budget item or container in a project. This report displays details of only budget items that have a fund rule associated.

You can filter information in the report using the following filter criteria:

- Container
- Item

The following information is displayed:

- Container - Names of the budget estimate containers.
- Budget Item - Names of the budget items.

- Description - Description of the budget item or container.
- Fund Source Name - The names of fund sources allocated to the budget item with the associated fund rule.
- Allocated - Amount allocated to the budget item.
- Consumed - The total of the pay estimate amount and the expenses amount if the item is consumed as a contract item or is part of a purchase order.
- Remaining - Remaining amount in the fund source.

Funding Details by Contract Report

This report displays funds allocated to contract items so you can track contract spending from each fund source.

You can filter information in the report using the following filter criteria:

- Contract
- Container
- Item

The following information is displayed:

- Contract - The name of the contract.
- Container - The name of the container.
- Pay Item No. - The pay item number of the contract item.
- Description - The description of the contract item.
- Fund Source Name - The name of the fund source.
- Allocated - The amount allocated to the item from the fund source.
- Consumed - The amount consumed from the fund source by the contract item calculated through pay estimates generated.
- Remaining - Remaining amount in the fund source.

Project Funding Summary Report

This report displays the funding summary within the project among different contracts.

You can filter information in the report using the following filters:

- Contracts

The following information is displayed:

- Fund Source Name - Names of all the funds used in the project.
- Encumbered - Amount of funds allocated from the global fund to the project.
- Unallocated - Funds remaining after allocating project funds to the contract items.
- Pay Item No. - Pay item number of the contract item.
- Contract - Name of the contract.

- Allocated - Sum of all the contract item funds in that contract, grouped by contract name.
- Consumed - Amount of the fund consumed by the contract item calculated through pay estimates.
- Remaining - Remaining amount in the fund source.

Purchase Order Details Report

The Purchase Order Details Report provides information on a purchase order for a project. You can select the purchase order identification number and all the details of that purchase order are displayed in the report.

You can filter information in the report using the following filters:

- POID - Purchase order identification code.

The following information is displayed:

- Name - The name of the purchase order item.
- Description - The description of the purchase order item.
- Unit - The unit of measure of the purchase order item.
- Quantity - The quantity of the purchase order item.
- Rate (\$) - The unit price of the purchase order item.
- Amount (\$) - The total amount of the purchase order item.
- Total (\$) - The total of amounts of all purchase order items.

Purchase Order Original Items Details Report

The Purchase Order Original Items Details report provides information on a purchase order for a project based on the original approved purchase order without considering any revisions. You can select the purchase order identification code and all the details of that purchase order that was initially approved is displayed.

You can filter information in the report using the following filters:

- POID - Purchase order identification code.

The following information is displayed:

- Name - The name of the purchase order item.
- Description - The description of the purchase order item.
- Unit - The unit of measure of the purchase order item.
- Quantity - The quantity of the purchase order item.
- Rate (\$) - The unit price of the purchase order item.
- Amount (\$) - The total amount of the purchase order item.
- Total (\$) - The total of amounts of all purchase order items.

Purchase Order Revision Details

The Purchase Order Revision Details report displays all the details of a purchase order revision.

You can filter information in the report using the following filters:

- PRID - Purchase order revision identification code.

The following information is displayed for new items added and items that are modified:

- Name - The name of the purchase order revision item.
- Description - The description of the purchase order revision item.
- Unit - The unit of measure of the purchase order revision item.
- Quantity - The quantity of the purchase order revision item.
- Rate (\$) - The unit price of the purchase order revision item.
- Amount (\$) - The total amount of the purchase order revision item.
- Total (\$) - The total of amounts of all purchase order revision items.

Resource Cost Sheet Report

The Resource Cost Sheet Report displays the cost break-up of all resources assigned to all tasks in a project; that is, Fixed Costs and Variable Costs. Each resource is grouped by the Title they hold. A summation of all costs is displayed in the footer of the report.

You can filter information available in the report using the following filter criteria:

- Project Name
- Full Name
- Fixed Cost

The following information is displayed:

- SI No - Count of rows that increment for every row.
- Full Name - Full name of the resource.
- Fixed Cost in \$ - Fixed cost for the resource.
- Variable Cost in \$ - Variable cost of the resource.

Resource Deficit Report

The Resource Deficit Report lists titles for which mapping to resources is pending, and resources are unavailable.

You can filter information available in the report using the following filter criteria:

- Resource ID
- Resource Type
- Title

The following information is displayed:

- SI No - Count of rows that increment for every row.
- Resource ID - Identification code of the resource.
- Title - Titles held by the resource in the project.
- Resource Type - Resource type of the resource.
- Units - Unit of measure for the resource. That is, in Days or Hours.
- Fixed Price in \$ - The fixed price for the resource.
- Variable Price in \$/Unit - The variable price for the resource.
- Start Date - Start date of the project.
- End Date - End date of the project.
- No. Of Resources Required - Number of resources required for the project.
- Resources to be Assigned - Number of resources assigned to the project.
- Pending Quantity in Hours - Remaining quantity in hours for the resource.

Resource Utilization Report

The Resource Utilization Report provides an overview of the average utilization of all resources allocated to all tasks in the project and displays their over-utilization if any. This report is generated for a default duration of three months from the current date. However, you select the required duration to generate the report.

You can filter information available in the report using the following filter criteria:

- Resource ID
- Full Name
- Title

The following information is displayed:

- SI No - Count of rows that increment for every row.
- Resource ID - Identification code of the resource.
- Full Name - Full name of the resource.
- Title(s) - Titles held by the resource in the project.
- Available Hours - The total capacity of the resource in the selected duration. This is calculated based on the working hours per day defined for the resource and number of working days in the duration specified for the resource.
- Total Assigned Hours - Sum of assigned hours on all project tasks.
- Over-utilization in Hours - Difference between the capacity and total assigned hours of the resource. The capacity of a resource is calculated as the product of available hours and the over-utilization threshold of the resource.
- Overutilization in % - The difference between the capacity of the resource and the total assigned hours, as a percentage of capacity of the resource.

Resource Utilization Summary Report

The Resource Utilization Summary Report provides a pictorial representation of the utilization of a resource or resource title on various tasks in all projects on a time basis. The X-axis of the graph displays the month or year based on the configuration for the project.

You can filter information available in the report using the following filter criteria:

- Resource Title
- Resource

The following information is displayed:

- No. of Resources - Sum of resources at the project task level.
- Titles Pending Mapping - Total titles that have "No. of Resources" at the title level which is less than the sum of the "No. Of Resources" value under every resource added under that title.
- No. of Resource(s) Over-Utilized - Sum of resources whose utilization percentage is greater than the over-utilization threshold percentage.
- No. of Resource(s) Under Utilized - Sum of resources whose utilization percentage is less than optimal utilization threshold percentage.
- No. of Resource(s) Optimally Utilized - Sum of resources whose utilization percentage is equal to the optimal utilization threshold percentage.
- Average Utilization per Resource in % - Average of utilization percentage per resource.

Titles Pending Assignment Report

The Titles Pending Assignment Report lists out all titles for which resource mapping is pending.

The Resources Available in Nos. displays the number of resources available in the Enterprise Resource Directory and hold a title. The resource should also have available bandwidth corresponding to requirement across the duration specified. A resource is included in the count if.

- The resource has the title as required in the project.
- Sum of available bandwidth (in hours) and the required Quantity in Hours does not exceed 100% of the user's capacity.

You can filter information available in the report using the following filter criteria:

- Project name
- Resource ID
- Title
- Resource Type

The following information is displayed:

- SI No - Count of rows that increment for every row.
- Resource ID - Identification code of the resource.
- Title - Title held by the resource in the project.
- Resource Type - Resource type of the resource.
- Units - Unit of measure for the resource. That is, in Days or Hours.
- Fixed Price in \$ - The fixed price for the resource.
- Variable Price in \$/Unit - The variable price for the resource.
- Start Date - Start date of the project.
- End Date - End date of the project.
- No. Of Resources required - Number of resources required for the project.
- Resources to be assigned - Number of resources assigned to the project.
- Pending Quantity in Hours - Remaining quantity in hours for the resource. Calculated as the difference of the quantity in units at the title level and the quantity in units at the resource level.
- Resources Available in Nos. - Total number of resources available in the Enterprise Resource Directory and hold a title. The resources should also have available bandwidth corresponding to requirements across the duration specified. A resource is counted in if;
 - The resource has titles as required in the project.
 - Sum of available bandwidth (in hours) and the required quantity in hours does not exceed 100% of the capacity of the resource.

8.16. Accessing Project Dashboards

Project dashboards provide a quick view of project information.

The information displayed in dashboards is based on the following criteria:

- Roles – Based on the roles assigned to the user, only selected information is displayed.
- Projects – Only selected information is displayed for the projects to which the user is invited.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

The **PROJECT DASHBOARD** page is displayed.

3. From the **Select Dashboard** drop-down list, select the appropriate dashboard to view.

The following dashboards are available:

- Project Forecast Vs. Actuals
- Project Resource Dashboard

For information on customizing widgets on the dashboards, see [Working with Dashboards](#).

9. Budget Management

9.1. Budget Management

The Budget Management module is a cost budgeting utility that enables you to create multiple budget estimates for a project to determine the best spending plan. The most appropriate budget estimate is then processed for approvals by the budget estimate stakeholders of the project.

In Masterworks, a budget comprises two factors, the cost and the forecast. The cost is the price of a budget item, and a forecast is a prediction of the anticipated spend pattern over the duration of the project.

You cannot update the approved budget estimate. To revise the approved budget estimate, you can create a budget estimate revision record. The budget estimate revision record is then processed for approval from the relevant project stakeholders. On approval of a budget estimate revision record, the revisions defined are appended to the original budget estimate.

The **CURRENT BUDGET** page enables you to view the following information:

- Latest approved budget estimate
- Budget with cost summary of the project
- Latest approved forecast details

Additionally, you can edit certain details of items in the **CURRENT BUDGET** page.

Using the Budget Management module, you can perform the following tasks:

- [Create and manage budget estimates for a project.](#)
- [Revise the approved budget estimate.](#)
- [View the current total available budget for the project.](#)
- [Generate budget management reports.](#)

9.2. Budget Estimates

9.2.1. Budget Estimates

A budget estimate is an estimation of the cost of project implementation. To estimate the cost of a project, the measurement system used for quantifying work items is first identified, and then items required for the project with an approximate cost of each item is identified and listed. The sum of costs of all estimate items is the budget estimate of the project.

You can create multiple estimates for a project. Each estimate can be created for a different measurement system for analysis and ease of use. From the list of estimates, you can finalize the most appropriate estimate for the project by receiving approvals from various stakeholders.

The high-level sequence of tasks to create a budget estimate is as follows:

1. [Create a budget estimate.](#)
2. [Add items to the budget estimate.](#)
3. [Schedule and forecast items.](#)
4. [Approve planned project's budget estimate.](#)
5. [Approve project's budget estimate.](#)
6. [Perform workflow actions to implement the business process.](#)

9.2.2. Creating a Budget Estimate

The Budget Estimates form enables you to create an itemized summary of estimated costs for a project.

You can create a budget estimate in two ways:

- [Creating a budget estimate manually](#)
- [Copying a budget estimate](#)

9.2.2.1. Creating a Budget Estimate Manually

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the required project.
3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. Click **New**.

Budget Estimate General Details Page

The screenshot shows the 'GENERAL DETAILS' tab of the Budget Estimate General Details page. At the top, there are three buttons: 'Save & Exit', 'Save & Estimate', and 'More'. Below these are several input fields and dropdown menus:

- Budget Estimate ID : <Auto Generated>
- Budget Estimate Name * : MikeRoss - 10/18/2023
- Budget Estimate Type * : - Select -
- Measurement System * : - Select -
- Standard Item List :
- Description :
- Forecast ID : <Auto Generated>
- Forecast Name * : MikeRoss - 10/18/2023
- Budget Created By : Mike Ross
- Budget Created On : 10/18/2023
- Forecast Created By : Mike Ross
- Forecast Created On : 10/18/2023
- Notes :
- Budget Estimate Template :

Below the main form is an 'ATTACHMENTS' section with a grid header:

File View Status	Document Name	Url/Link	Title	Uploaded By	Uploaded Date	File Size	Signed Copy
------------------	---------------	----------	-------	-------------	---------------	-----------	-------------

No Attachments available.

At the bottom of the attachments section are two buttons: 'Link Document' and 'Upload Document'.

The **GENERAL DETAILS** page displays the following non-editable fields:

Field	Description
Budget Estimate ID	On saving the record, an identification code for the budget estimate is automatically generated.
Forecast ID	On saving the record, an identification code for the forecast is automatically generated.
Budget Created By	The name of the logged-in user.
Budget Created On	The date the budget estimate is created.
Forecast Created By	The name of the logged-in user.
Forecast Created On	The date the forecast is created.

5. Provide the required information in the fields, as described in the following table.

Field	Description
Budget Estimate Name	By default, a name is displayed with the combination of the logged-in user's name and current date. Optionally, enter a name for the budget estimate.
Budget Estimate Type	Select the budget estimate type based on the purpose of the budget for the project. Available options are active budget estimate types defined in the Budget Estimate Type library catalog.

Field	Description
Measurement System	<p>Select the measurement system for estimate items. Available options are measurement systems defined in the Measurement Systems library catalog. For more information, see Measurement Systems.</p> <p>Note: If a budget template is selected for an estimate, the Measurement System is set as the predefined measurement system defined for the selected template.</p>
Standard Item List	<p>Select a standard item list from which you can import estimate items to create the budget estimate. Available options are standard item lists defined in the Standard Items Table library catalog. For more information, see Standard Items Table.</p>
Description	Enter a brief description of the budget estimate.
Forecast Name	By default, a name is displayed with the combination of the logged-in user's name and current date. Optionally, enter a name for the forecast.
Notes	Enter any notes for the forecast.
Budget Estimate Template	<p>You can select the budget estimate template to define the measurement system for the estimate, and add items to the budget estimate.</p> <p>To select a budget estimate template, perform the following steps:</p> <ol style="list-style-type: none"><li data-bbox="589 1544 1430 1775">Click . The Budget Template dialog box is displayed. Available options are budget templates defined in the Budget Template library catalog. For more information, see Budget Template.<li data-bbox="589 1798 1430 2056">Click the required budget template, and then click Select. The Measurement System is set as the predefined measurement system defined for the selected template.

6. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

7. To save the record, perform any of the following:

- Click **Save & Exit** to return to the list page.
- Click **Save & Estimate** to add items to the budget estimate.

For information on adding items to a budget estimate, see [Working with Budget Estimate Items](#).

9.2.2.2. Copying a Budget Estimate

You can copy the details of a selected budget estimate to create a new budget estimate with a new name and estimate number. The workflow status of the new budget estimate is set to the first workflow status as defined for budget estimates.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the required project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. Select the required budget estimate, and then click **Copy**.

A new budget estimate with a new **Budget Estimate ID** is created. All the details of the budget estimate being copied are copied to the new budget estimate.

You can now add or remove estimate items. For information on managing estimate items, see [Working with Budget Estimate Items](#).

9.2.3. Managing Budget Estimate Items

9.2.3.1. Managing Budget Estimate Items

You can add work items and lumpsum items to a budget estimate, associate an estimated price to each item, and attach relevant reference files and documents to each item.

You can create containers to categorize estimate items:

- [Manage containers.](#)

You can add budget estimate items in various ways:

- [Add a single estimate item.](#)
- [Add multiple estimate items.](#)
- [Import estimate items in bulk.](#)

You can also edit item details:

- [Quick edit of item details.](#)
- [Edit item details.](#)
- [Bulk edit details of multiple items.](#)
- [Associate a fund rule to items.](#)
- [View fund rule association history.](#)
- [Associate an inflation rule to items.](#)
- [Manage work projects in budget estimate.](#)

You can reorder or move items:

- [Move an item to a different container.](#)

9.2.3.2. Managing Containers

You can create containers in a budget estimate to categorize estimate items. You can also delete an entire container to remove items of that container from the budget estimate.

The following topics enable you to manage containers:

- [Create container.](#)
- [Delete container.](#)

9.2.3.2.1. Creating a Container

You can create containers to categorize estimate items.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. Select the appropriate budget estimate to create a container, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

5. Click **Add Container**.

Optionally, perform either of the following:

- To add the container within a container, select the appropriate container, and then click **Add Container**.
- To convert an existing item to a container and then add the container within it, select the appropriate item and click **Add Container**. In the confirmation box, click **OK**.

The **CONTAINER** page is displayed.

Container Page

The screenshot shows the 'CONTAINER' page. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below the buttons is a form with three fields: 'Name *' (with a required asterisk), 'Description', and 'Notes'. Each field has a text input area. At the bottom, there is a 'Parent Container' dropdown menu with options: 'Root', 'Default', and 'Misc'.

6. In the **Name** box, enter the name of the container.
7. In the **Description** box, enter the description of the container.
8. In the **Notes** box, enter the notes for the container.
9. In the **Parent Container** list, click the container in which the current container must be created.

Note: For the first container, the only **Parent Container** option is **Root**.

10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

9.2.3.2.2. Deleting a Container

On deleting a container, the items in the container are also deleted from the budget estimate.

Note: You cannot delete a container that is pre-created as part of phases defined for the project. For information on phases, see [Planning Project Phases](#).

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. Select the appropriate budget estimate, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

5. Select a container to delete, and then click **Delete**.

A confirmation message is displayed.

6. Click **OK**.

The container and the items in the container are deleted from the budget estimate.

9.2.3.3. Adding Items to a Budget Estimate

You can add work items to a budget estimate in following ways:

- [Manually entering the required information of all items](#)
- [Adding items from the predefined set of standard items from the library](#)
- [Using Microsoft Excel to upload item details in bulk](#)

Note: Based on the phases added to the project, containers are pre-created in the Budget Estimate Item page. For information on phases, see [Planning Project Phases](#).

9.2.3.3.1. Adding an Estimate Item

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. Select the required budget estimate, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

5. Click **Add Item**.

Optionally, perform either of the following steps:

- To add the item within a container, select the required container, and then click **Add Item**.
- To convert an existing item to a container and then add the item within it, select the required item, click **Add Item**. In the confirmation box, click **OK**.

The **NEW BUDGET ESTIMATE ITEM** page is displayed.

New Budget Estimate Item Page

6. Provide the required information in the fields, as described in the following table.

Field	Description
Container	<p>If you have selected a container, the name of the selected container is displayed.</p> <p>To select a different container to categorize items, perform the following steps:</p> <ol style="list-style-type: none">a. Click .b. Click the required container. <p>For information about creating a new container, see Creating a Container.</p>

Field	Description
Pay Item No.	<p>Enter the item number.</p> <p>Alternatively, to select an item from the library, perform the following steps:</p> <ol style="list-style-type: none">In the Select Item from Library section, from the Standard Item Table drop-down list, select the standard table in which the required item is defined. Available options are standard item tables defined in the Standard Items Table library catalog. For more information, see Standard Items Table.Optionally, select the Ignore Containers of Standard Items check box to only select the item and not the container of the item. If the check box is selected, the item is added to the selected container. If the check box is selected, the item is added to the selected container. If the check box is cleared, the item and its container are added to the budget estimate.Click Select to select an item from the selected standard items table. The item selection dialog box is displayed. Available options are items defined in the selected standard items table that is defined in the Standard Items Table library catalog. For more information, see Standard Items Table.Click an item, and then click Select. The Pay Item No., Description, Unit, Accounting Code, and Unit Price in \$ of the selected item are displayed.
Description	Enter the description of the item. Item description is displayed automatically if you have selected the item from the library.
Unit	Select the unit of measure for the item. Available options are measurement units based on the measurement system selected in the Measurement System field in the GENERAL DETAILS page. For more information, see Measurement Systems .

Field	Description
Funding Rule	<p>Select the funding rule for the item. Available options are active and approved funding rules defined for the project. For more information, see Project Fund Rules.</p> <p>Note: You can change the fund rule of an item at any time. For more information, see Associating a Fund Rule.</p>
Inflation Rule	<p>To consider inflation when estimating project budgets, you can apply an inflation rule or set an annual inflation rate to a budget item to determine latest budget values inclusive of inflation at any time. In Masterworks, the Current Budget and the forecasts for budget items display values based on inflation applied to budget items.</p> <p>To apply an inflation rule to a budget item, perform the following steps:</p> <ol style="list-style-type: none"><li data-bbox="536 1050 732 1095">Click .<li data-bbox="536 1106 1414 1288">The Select Inflation Rule dialog box is displayed. Available options are inflation rules defined in the Inflation Rule library catalog. For more information, see Inflation Rules on page 197.<li data-bbox="536 1304 1414 1596">Perform any of the following steps:<ul style="list-style-type: none"><li data-bbox="605 1364 1414 1454">To apply an inflation rule to the budget item, click the required inflation rule.<li data-bbox="605 1470 1414 1515">To enter the inflation percentage, click Manual.<li data-bbox="605 1531 1414 1596">To remove a previously applied inflation rule, click None.<li data-bbox="536 1634 763 1679">Click Select.
Annual Inflation Rate (in %)	<ul style="list-style-type: none"><li data-bbox="552 1708 1399 1775">If the selected Inflation Rule option is Manual, enter the annual inflation rate in percentage.<li data-bbox="552 1798 1399 1932">If an inflation rule is selected, the annual inflation rate as defined for the rule in the Inflation Rule library catalog, is displayed.<li data-bbox="552 1955 1399 2022">If the selected Inflation Rule option is None, the annual inflation rate is displayed as 0.00.

Field	Description
Effective from	<p>Note: This field is editable only if an Inflation Rule is selected for the item.</p> <p>By default, it displays the Effective from date as defined in the Inflation Rule library catalog for the selected Inflation Rule. For more information, see Inflation Rules on page 197.</p> <p>Optionally, select the date from when the inflation should be effective on the price of the item.</p>
Accounting Code	Enter the accounting code assigned to the item. Accounting code of the item is displayed automatically if you have selected the item from the library.
Quantity	<p>Note: This field is not available if the selected Unit is a Lumpsum.</p> <p>Enter the required quantity of the item.</p> <p>You can add subitems to an item, and the quantity of the item is calculated as the sum of all the subitems added. For more information, see Adding Subitems.</p>
Unit Price in \$	<p>Note: This field is not available if the selected Unit is a Lumpsum.</p> <p>Enter the cost per unit. Unit price is displayed automatically if you have selected the item from the library.</p>
Amount in \$	<ul style="list-style-type: none">If the selected Unit is not a Lumpsum, then this field displays the total amount of the item calculated as the product of the Quantity and Unit Price.If the selected Unit is a Lumpsum, then enter the lumpsum amount of the estimate item.
Notes	Enter any additional information relevant to the item.

Field	Description
Lumpsum Item	<p>Note: This field is displayed only if the selected Unit is a Lumpsum.</p> <p>By default, the check box is selected and non-editable to indicate that the item is lumpsum.</p>

7. To add resources to the work item, in the **RESOURCES** section, perform either of the following steps:

- To add resources from the library, perform the following steps:
 - a. From the **Select Resource Type** drop-down list, select the required resource to be added to the work item.
 - b. Click **Add From Library**.

The **Resource Picker** dialog box is displayed.

Available options are based on the resource type selected in the **Select Resource Type** drop-down list.

Available options are resources defined in the corresponding library catalog for the selected resource type. For example, if you have selected **Equipment** from the **Select Resource Type** drop-down list, then the available options are from the **Equipment** library catalog.

- c. Select the required resources, and then click **Select**.

The selected resources are added to the table.

Resource information, such as Resource ID, Title, Resource Category, Resource Type, Units, Fixed Price in \$, and Variable Price in \$/Unit are displayed for the selected resources.

- d. Double-click the following columns in the table, and enter information as described in the following table.

Column	Description
No. of Resources	Enter the number of resources required.

Column	Description
Quantity in Units	Enter the number of units for each resource.

The following information is displayed:

Column	Description
Amount in \$	The amount in \$ is calculated as: $\text{Amount in \$} = (\text{No. of Resources}) * (\text{Fixed Price} + \text{Variable Price} * \text{Quantity in Units})$

- To add resources manually, perform the following steps:
 - a. Click **Add Manually**.
A row is added to the table.
 - b. Double-click the following columns in the table, and enter information as described in the following table.

Column	Description
Title	Enter title for the resource.
Resource Category	Select the resource category for the resource.
Resource Type	Select the resource type for the resource. Perform either of the following steps: <ul style="list-style-type: none">■ If the selected Resource Category is either Equipment or Material, then select NA in the Resource Type drop-down list.■ If the selected Resource Category is Resource Titles, then from the Resource Type drop-down list, select Internal, Contractor, or Consultant.
Units	Select the required unit of measure. Available units are all the units of measure defined in the Measurement Systems library catalog. For more information, see Measurement Systems . If the selected Resource Category is Resource Titles , then from the Units drop-down list, select Hour , Day , Month , or Year .
Fixed Price in \$	Enter the fixed price for the resource.

Column	Description
Variable Price in \$/Unit	Enter the variable price for the resource.
No. of Resources	Enter the number of resources required.
Quantity in Units	Enter the number of units for each resource.

The following information is displayed:

Column	Description
Amount in \$	The amount in \$ is calculated as: $\text{Amount in \$} = (\text{No. of Resources}) * (\text{Fixed Price} + \text{Variable Price} * \text{Quantity in Units})$

The **Total Item Estimate in \$** value displays the sum of the **Amount in \$** of the item and the total of the **Amount in \$** column of the resources added to the work item.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. To save the item, perform any of the following as applicable:

- Click **Save & Exit** to return to the items list page.
- Click **Save & Continue** to save and continue on the same page.
- Click **Save & Create New** to save the current item and continue creating a new item.

You can now forecast the budget estimate. For more information, see [Forecasts and Scheduling](#).

9.2.3.3.2. Adding Multiple Estimate Items

To save time and effort, you can add multiple estimate items from the library to the budget estimate at once.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the required project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. Select the required budget estimate, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

5. Click **Add Multiple Items**.

Optionally, perform either of the following steps:

- To add items within a container, select the required container, and then click **Add Multiple Items**.
- To convert an existing item to a container and then add items within it, select the required item, and then click **Add Multiple Items**.

The **Standard Items** dialog box is displayed.

Standard Items Dialog Box

Name/Pay Item No	Description	Unit Price	UOM	Contain

6. From the **Standard Item list** drop-down list, select the standard table from which you can add items to the budget estimate.

Available options are standard item tables defined in the **Standard Items Table** library catalog. For more information, see [Standard Items Table](#).

Items from the selected standard items table are displayed.

7. Optionally, select the **Ignore Containers** check box to only select the item and not the item container.

If the check box is selected, only the item is added to the budget estimate.

If the check box is cleared, the item and its container are added to the budget estimate.

8. Select the required items, and then click **Save**.

Alternatively, to select all items from the list, click **Select & Save All Records**, and in the confirmation dialog box, click **OK**.

The selected items are added to the budget estimate.

To update item information, perform either of the following steps:

- To enter the item quantity, or update the item description and unit price, see [Inline Editing](#).
- To enter or modify other information, see [Editing Other Details](#).

You can now forecast the budget estimate. For more information, see [Forecasts and Scheduling](#).

9.2.3.4. Importing Details of Budget Estimate Items in Bulk

You can import details of multiple estimate items to a budget estimate using a Microsoft Excel template workbook. In addition to uploading details of estimate items in bulk, you can also update details of multiple estimate items in bulk.

The high-level process of uploading or updating details of estimate items in bulk is as follows:

1. Export the template workbook.
2. Add or update item information in the template workbook.
3. Import the updated workbook.

The **Instructions** tab in the Microsoft Excel workbook template provides information on updating the template.

Note: You cannot delete records or upload attachments using an Excel workbook.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. In the list page, select the appropriate budget estimate, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

Available items are based on the **Budget Estimate Template** selected for the budget estimate.

5. To export the Excel template workbook, perform the following steps:

- a. Click **Excel Import / Export**, and then click **Excel Template** or **Excel Template With Data**.

The Excel workbook template is downloaded to the local storage.

- b. Open the saved Excel workbook template.

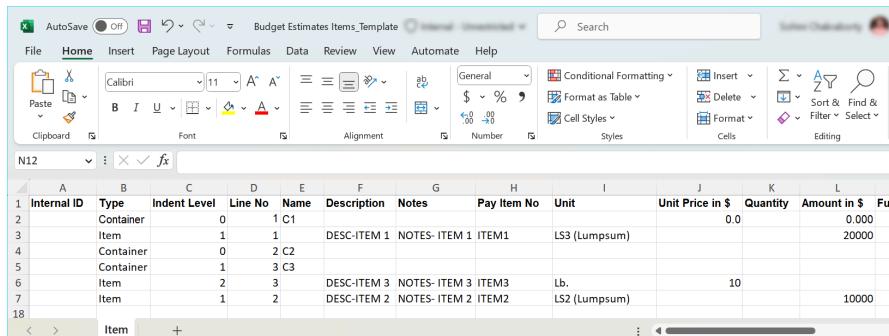
6. Enter details of the budget estimate items in the various columns, as described in the following table.

Column	Description
Internal ID	<ul style="list-style-type: none">• For uploading details of new estimate items, do not enter any details in the Internal ID column.• For updating details of existing estimate items, retain the value in the Internal ID column. <p>The Internal ID column displays the unique identification code for the corresponding record of the form and is used as a reference to update estimate item details.</p>

Column	Description
Type	<p>Mandatory field; information must be provided.</p> <p>Select the item type.</p> <ul style="list-style-type: none">• To create a container, enter Container.• To create an item, enter Item.• To create a sub-item, enter SubItem.• To create an item associated equipment, enter Equipment.• To create an item associated material, enter Materials.• To create an item associated title, enter Resource Titles.

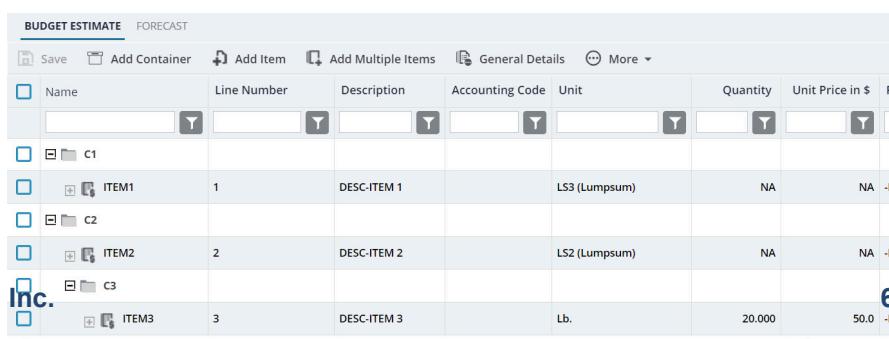
Column	Description
Indent Level	<p>Mandatory field; information must be provided.</p> <p>Defines the line number of the parent container to group the current container or item into the parent container. Specify 0 for first level containers.</p> <p>For example, consider two containers, CONT1 and CONT2. To define CONT2 under CONT1, Indent Level for CONT1 must be set to 0 and Indent Level of CONT2 must be set to 1. Similarly for items, to define an item in CONT2, Indent Level of the item must be set to 2.</p> <p>The hierarchy of containers and items in containers must be defined sequentially in the Excel worksheet. For example, to define an item in a container CONT3 that is at indent level 0, the item must be defined with indent level 1 after the row with details of container CONT3. Similarly, to define sub-items for an item that is at indent level 1, the sub-items for that item must be defined with indent level 2 after the row with the details of the item.</p> <p>The following image illustrates three containers C1, C2, and C3. Container C3 is within C2. Items ITEM1 is in C1, ITEM2 is in C2, and ITEM3 is in C3. Note the indent levels defined in the Excel workbook.</p>

Items and Containers Illustrated in Excel Workbook



The following image illustrates the items and containers imported using the Excel workbook as illustrated in the previous image:

Items and Containers Import List



Column	Description
Line No	<p>Mandatory field; information must be provided.</p> <p>To update the existing item, retain the values in this column.</p> <p>Enter the line number of the container or item.</p> <p>For example, if the Type entered is Container, to define CONTAINER 2 under CONTAINER 1, the Line No of CONTAINER 1 must be set to 1 and CONTAINER 2 must be set to 2.</p> <p>Similarly, if the Type entered is Item, to define an ITEM 1 under CONTAINER 2, the Line No of ITEM 1 must be set to 1 and ITEM 2 must be set to 2.</p>
Name	<p>If Type is entered as Container, then in the Name column, enter the name of the container.</p>
Description	<p>Enter the description of the container or item.</p> <ul style="list-style-type: none">• If Type is entered as Container, then enter a description for the container.• If Type is entered as Item, then enter a description for the item.• If Type is entered as SubItem, then enter a name for the sub-item.
Notes	<p>If Type is entered as Container, or Item, or SubItem enter the notes for the container, or item, or sub-item.</p>
Pay Item No	<p>Mandatory field; information must be provided.</p> <p>If Type is entered as Item, then enter a unique name or identifier to identify the item.</p> <p>Note: Prefix an apostrophe to the first Pay Item No in the sheet if the first 8 rows contain numeric values, followed by alphanumeric pay item numbers starting row 9. Microsoft Excel automatically converts a text-content column to a numeric-content column if the first 8 rows contain numeric values.</p>

Column	Description
Unit	<p>Mandatory field; information must be provided.</p> <p>If Type is entered as Item, then select the unit of measure for the item.</p> <p>Available options are measurement system selected for the budget estimate, and unit of measures defined in the Measurement Systems library catalog. For more information, see Measurement Systems.</p>
Unit Price in \$	<p>Mandatory field; information must be provided.</p> <p>If Type is entered as Item, enter the cost of each of the item.</p> <p>Note: Do not enter any value if the Unit is a Lumpsum.</p>
Quantity	<p>Note: Do not enter any value if the Unit is a Lumpsum.</p> <ul style="list-style-type: none">• If Type is entered as Item, then in the Quantity column, enter the appropriate quantity of the item.• If Type is entered as SubItem, then in the Quantity column, enter the appropriate quantity of the sub-item. <p>The quantity of the item is calculated as the sum of all its sub-item quantities.</p>
Amount in \$	If the selected Unit is a Lumpsum , enter the value of the item.
Fund Rule	If Type is entered as Item , enter the Rule Name of the funding rule from the list of approved fund rules to associate the item amount to the selected fund rule. For more information, see Project Fund Rules .
Accounting Code	Enter the accounting code for the item.
Effective From	If the Type entered is Item , enter the commencement date from when the annual inflation rate applied to the item. Enter the date in the MM/DD/YYYY format.
Inflation Rule	If the Type entered is Item , enter the inflation rule for the item. Ensure the inflation rule entered is as defined in the Inflation Rules library catalog.
Annual Inflation Rate(in %)	If the Type entered is Item , enter the annual inflation rate on the cost of the item.

Column	Description
	<p>Optionally, to associate resources, such as equipment, material, or resource titles to an item, enter the following resource information.</p> <p>Enter details of material, equipment, and titles associated with an item in rows after the item details row.</p>
Title ID	<p>Do not enter any value.</p> <p>A unique identification code for the resource is automatically generated.</p>
Resource Title	If the entered Type is either Equipment or Material , or Resource Titles , enter the title for the resource.
Resource Type	<ul style="list-style-type: none">If the entered Type is either Equipment or Material, then enter NA.If the entered Type is Resource Titles, then enter Internal, Contractor, or Consultant.
Resource Units	<ul style="list-style-type: none">If the entered Type is either Equipment or Material, then enter the unit of measure for the resource. Ensure the unit of measure is entered as defined in the Measurement Systems library catalog.If the entered Type is Resource Titles, then enter the unit of measure as Hour, Day, Month, or Year.
Resource Fixed Price in \$	If the entered Type is either Equipment or Material , or Resource Titles , enter the fixed price for the resource.
Resource Variable Price in \$/Unit	If the entered Type is either Equipment or Material , or Resource Titles , enter the variable price for one unit for the resource.
Number of Resources	If the entered Type is either Equipment or Material , or Resource Titles , enter the number of resources required.
Resource Quantity in Units	If the entered Type is either Equipment or Material , or Resource Titles , enter the number of units for each resource.

Column	Description
Resource Amount in \$	<p>Do not enter any value. The value is automatically calculated for each resource.</p> <p>It is calculated as:</p> $\text{Resource Amount in \$} = (\text{Number of Resources}) * (\text{Resource Fixed Price in \$} + (\text{Resource Variable Price in \$/Unit} * \text{Resource Quantity in Units}))$

7. Click **Save** to save the Excel workbook.

8. To import the template workbook with item details to the application, perform the following steps:
 - a. In the **BUDGET ESTIMATE** page, click **Excel Import / Export**, and then click **Excel Import**.

The **IMPORT DETAILS FROM EXCEL FILE** page is displayed.
 - b. Click **Choose File** to select the workbook with updated item information.

The **Open** dialog box is displayed.
 - c. Select the appropriate workbook, and then click **Open**.
 - d. Click **Upload** to import form information from the Excel workbook to the form.

On successful import, the success message is displayed.
 - e. On encountering errors while importing an Excel workbook, perform the following steps:
 - i. In the toolbar, click **Error Log**.

The error log workbook is downloaded to your local storage.
 - ii. Open the error log workbook to view the errors in the various columns.

Error messages in the cells are highlighted in red. Tabs in the workbook are also highlighted to indicate the presence of errors.
 - iii. Open the Excel workbook and modify the details as specified in the error log workbook.

Optionally, you can make relevant corrections in the error log workbook and upload it.
 - iv. Save and upload the Excel workbook to import the updated information.
 - f. Click **Save**.
 - g. Click **Back**.

The items in the Excel workbook are uploaded to the **BUDGET ESTIMATE** page.

You can now forecast the budget estimate. For more information, see [Forecasts and Scheduling](#).

9.2.3.5. Editing Item Details

You can edit item details, such as quantity, unit price, containers, and so on in the following ways:

- [Inline editing](#)
- [Using the Edit option](#)
- Using an Excel workbook. For information on updating details of estimate items in bulk, see [Uploading Estimate Items in Bulk](#)

You can reorder items, or move them to other containers:

- [Moving an item to a different container](#)

9.2.3.5.1. Inline Editing

Inline Editing enables you to modify and save item details by directly editing details in the list page. You can only edit the **Description**, **Accounting Code**, **Unit**, **Quantity**, and **Unit Price in \$** fields.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. Select the appropriate budget estimate, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

5. Right-click on a row, and click **Expand All** to expand all containers and view item details.

6. Double-click the row of the item you want to edit.

The editable cells are highlighted.

7. Enter the required information.

8. Click **Save**.

9.2.3.5.2. Using the Edit Option

You can modify and save item details in the **EDIT ITEM** page.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. Select the appropriate budget estimate to edit details of items, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

5. Right-click on a row, and click **Expand All** to expand all containers and view item details.

6. Select the appropriate item you want to edit.

7. Click **Edit**.

The **EDIT BUDGET ESTIMATE ITEM** page is displayed.

Edit Budget Estimate Item

The screenshot shows the 'Edit Budget Estimate Item' page. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. On the right side, there is a vertical scroll bar. A 'Select Item from Library' panel is open, showing 'Standard Item Table : StandardItems' and a checkbox 'Ignore Containers of Standard Items' with a 'Select' button next to it. The main form contains the following fields:

Container :	Root/Misc	...
Pay Item No. *	104250	<input type="button" value="Clear"/>
Description *	PROJECT HOTLINE	
Unit *	EA	<input type="button" value="▼"/>
Funding Rule :	Rule - 01	
Inflation Rule :	None	
Annual Inflation Rate (in %) :	0.00	
Effective from :	None <input type="button" value="?"/>	
Accounting Code :		
Quantity *	2.0000	Sub Items
Unit Price in \$:	5,000.00	
Amount in \$:	10,000.00	
Notes :		

8. Enter the appropriate information.

9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

9.2.3.5.3. Reordering Items and Containers

You can move items from one container to another, or move an entire container with the items in it to a different hierarchical level or a different container.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. Select the appropriate budget estimate, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

5. Click **Reorder**.

The **REORDER STRUCTURE** page is displayed.

Reorder Structure Page

The screenshot shows the 'REORDER STRUCTURE' page. At the top, there are navigation buttons: Save, Back, Expand All, and Collapse All. Below the buttons is a tree view of items. The 'Default' category is expanded, showing three items: '2 - 104150 - PROJECT SIGNS (NEW)', '3 - 104160 - PUBLIC NOTIFICATION', and '4 - 104250 - PROJECT HOTLINE'. The 'Misc' category is collapsed. A status bar at the bottom indicates 'Status'.

6. Click **Expand All** to view all the items in the various containers.

7. Drag and drop the appropriate item to the appropriate container.

8. Click **Save**.

9. Click **Back**.

The **BUDGET ESTIMATE** page is displayed.

9.2.3.6. Adding Subitems

- The item is created and saved.

You can divide an item into subitems and group them into the specified item. If subitems are defined for an item, the quantity of the item is the sum of the quantity of the subitems defined.

1. Corresponding to the **Quantity** box, click **Sub Items**.

The **SUB ITEMS** page is displayed.

Sub Items Page

The screenshot shows the 'SUB ITEMS' page with the following details:

- Pay Item No. :** 104150
- Item Description :** PROJECT SIGNS (NEW)
- A table with the following columns: Description, Quantity, Unit Price in \$, Unit, Notes, Fund Rule, and Amount in \$.

2. Click **New**.

A row is added to the table.

3. In the **Description** column, double-click the row and enter the description of the subitem.
4. In the **Quantity** column, double-click the row and enter the quantity of the subitem.

The **Unit Price in \$** and **Unit** columns display the unit price and unit of measure specified for the item.

5. In the **Notes** column, double-click the row and enter the notes of the subitem.

The **Fund Rule** column displays the fund rule selected for the item.

6. Click **Save**.

On saving the subitem details, the **Amount in \$** column displays the amount of the subitem based on the **Quantity** value specified for the subitem, and the **Unit Price in \$** value specified for the item.

Note: If the **Unit Price in \$** value is not specified for the item, then the **Amount in \$** column displays 0.

7. Click Back.

The quantity of the item is sum of all the subitem quantities.

Note: Once subitems are added to an item, the quantity of the item can be modified only by editing the subitems' quantities.

9.2.3.7. Associating a Fund Rule to Items

- Funding rules are created and approved for the project. For information on creating funding rules, see [Project Fund Rules](#).

You can associate a fund rule to multiple budget items.

When a budget estimate is in the **Approved** workflow status, the history of fund rule association to a budget item is recorded. For information on viewing the association history, see [Viewing Fund Rule Association History](#).

1. In the module menu, click **Projects.**

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

a. In the module menu, click **Planning.**

The **PLANNING DASHBOARD** is displayed.

b. In the navigation pane, click **Planned Projects.**

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand **Budget Management, and then click **Budget Estimates**.**

The **BUDGET ESTIMATES** list page is displayed.

4. Select the appropriate budget estimate, and then click **Edit.**

The **BUDGET ESTIMATE** page is displayed.

5. To associate a funding rule, select the appropriate items, or select the required containers to select all items in the selected containers.

6. Click **Associate Fund, and then click the appropriate funding rule.**

Available options are active and approved funding rules defined for the project. For information on funding rules, see [Project Fund Rules](#).

7. Optionally, to disassociate a fund rule, select the appropriate items or containers, click **Associate Fund, and then select **None**.**

9.2.3.8. Viewing Fund Rule Association History

- The workflow status of the budget estimate record is **Approved**.

When a budget estimate is in the **Approved** workflow status, the history of fund rule association to a budget item is recorded. You can view the details of when a fund rule was associated or dissociated with a budget item.

- In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

- In the list page, double-click the appropriate project.

- In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

- Select the appropriate budget estimate, and then click **View**.

The **BUDGET ESTIMATE** page is displayed.

- In the **Fund Rule** column of the required item, click the rule name.

The **Fund Rule Association History** dialog box is displayed.

The history of fund rule association to the budget item is displayed.

9.2.3.9. Associating an Inflation Rule to Items

To consider inflation when estimating project budgets, you can associate an inflation rule or set an annual inflation rate to budget estimate items so you can determine the latest budget values inclusive of inflation at any time. Also, you can disassociate an inflation rule from the budget estimate items.

In Masterworks, the **Current Budget** page and the forecasts for budget items display values based on inflation applied to budget items.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. Select the appropriate budget estimate, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

5. Select the appropriate items, or select the required containers to select all items in the selected containers.

6. Click **Associate Inflation Rule**.

The **Apply Inflation Rule** dialog box is displayed.

Apply Inflation Rule Dialog Box

Apply Inflation Rule X

Inflation Rule :	<input type="text" value="None"/> ...
Annual Inflation Rate *: in %	<input type="text" value="0.00"/>
Effective From *:	<input type="text" value="None"/> ▼
Save Cancel	

7. Provide the required information in the fields, as described in the following table:

Field	Description
Inflation Rule	To select the appropriate inflation rule, perform the following steps: <ol style="list-style-type: none">Click . The Select Inflation Rule dialog box is displayed.Perform any of the following steps:<ul style="list-style-type: none">To apply an inflation rule to the budget item, click the appropriate inflation rule. Available options are inflation rules defined in the Inflation Rule library catalog. For more information, see Inflation Rules on page 197.To manually enter the inflation percentage, click Manual.To remove a previously applied inflation rule, click None.Click Select. The Annual Inflation Rate in % and Effective From of the selected inflation rule are displayed.
Annual Inflation Rate in %	If the selected Inflation Rule is Manual , enter the annual inflation rate in percentage.
Effective From	By default, it displays the Effective from date as defined in the Inflation Rule library catalog for the selected Inflation Rule . For more information, see Inflation Rules on page 197. Optionally, select the date from when the inflation should be effective on the price of the item. <p>Note: You cannot edit this field if the selected Inflation Rule is None.</p>

8. Click **Save**.

The inflation rules is applied to the selected items.

9.2.4. Editing Budget Estimate Details

Based on the current workflow status of the budget estimate, you can edit the details of the budget estimate record.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. Select the appropriate budget estimate, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

5. Click **General Details**.

The **GENERAL DETAILS** page is displayed.

6. Enter the appropriate information.

7. To save the record, perform either of the following as applicable:

- Click **Save & Exit** to save the record and return the list page.
- Click **Save & Estimate** to manage items in the budget estimate.

For information on managing budget estimate items, see [Managing Budget Estimate Items](#) on page 599.

9.3. Forecasts Management

9.3.1. Forecasts and Scheduling

The **Forecasts** feature enables you to schedule budget estimate items and forecast item costs over the duration of the project. Forecast distribution considers the calendar selected for the project.

Forecast distribution is based on the setting defined in the **Budget Management** page in the **Administration** module. For more information, see [Configuring Budget Management](#).

The forecasting and scheduling process is as follows:

- [Auto-generate a forecast.](#)
- Perform any of the following tasks:
 - [Create a forecast using the New option.](#)
 - [Create a forecast using the Copy option.](#)
- [Perform workflow actions to implement the business process.](#)

9.3.2. Generating a Forecast Automatically

- At least one item is added to the budget estimate.

For more information, see [Working with Budget Estimate Items.](#)

To use the schedule and forecast feature, an automatically generated forecast must be available. The automatically generated forecast linearly distributes item costs over the scheduled duration of the item by default.

When a non-linear distribution curve is marked as default in the **Distribution Curves** library catalog, then the automatically generated forecast distributes item costs over the scheduled duration of the item based on it. The default scheduled duration of any item is the duration of the project. That is, the start date and the end date of the project is considered as the start date and the end date of all items.

After the first forecast is generated, you can schedule the item usage.

Note: If an inflation rule is applied to an item, then the inflation rate is considered for the forecast of the item based on the effective date of the applied inflation rule. The **Amount in \$** value for the item inclusive of inflation is calculated as:

$$Ai = ((1 + [r]) / 100) ^ (n/365) * [A]$$

Where:

- Ai - Inflated Amount
- r - Annual Inflation Rate (in %)
- n - Number of days between **Effective from** date and **Start Date** of the item if inflation is applicable
- A - Amount in \$ (That is, Quantity x Unit Price in \$)
- Start Date - The start date of the item, that is, for a new project, the project start date is considered.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand the **Budget Management** folder, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. In the list page, select the appropriate budget estimate, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

5. Click the **FORECAST** tab.

A forecast for the budget estimate is automatically generated and marked as latest.

The **Start Date** and **End Date** display the project start and end date.

The forecast values of the items are linearly distributed over the project period. If a non-linear distribution curve is marked as default in the **Distribution Curves** library catalog, then the forecast values of the items are non-linearly distributed based on the distribution curve. For information on non-linear distribution curves, see [Distribution Curves](#) on page 195.

To filter the forecast items using various search criteria, see [Filtering Forecast Using Search Criteria](#) on page 650.

6. To apply a distribution logic to an item, perform the following steps:

- a. Select the appropriate forecast item.

- b. Click the **Select Curve** drop-down list, and then select the appropriate distribution curve.

Available options are the non-linear distribution curves defined in the **Distribution Curves** library catalog.

The forecast of the selected item is distributed as per the selected distribution curve.

7. To preview the distribution plot of an item, perform the following steps:

- a. Select the appropriate forecast item or the container.
- b. Click **Preview**.

The **Detailed Forecast Chart** is displayed.

- c. To download the **Detailed Forecast Chart**, perform the following steps:

- i. Click .

The **Detailed Forecast Chart** dialog box is displayed.

- ii. Click **Export to Excel**.

The details of the item forecast and forecast chart are downloaded to an Excel workbook and saved in the local storage.

8. To modify the schedule of the items in the forecast table, perform the following steps:

- a. To modify the **Start Date** and **End Date** of an item, double-click in the corresponding cells, and then select the required date.

Note: You cannot select dates beyond the project start and end dates.

The **Duration** column is updated accordingly.

You can select dates beyond the project start and end dates, only for projects without phases. When the forecast is approved, the project start and end dates are updated with earliest item and latest item dates, respectively.

- b. To modify the **Duration** of an item, double-click in the corresponding cell and update the value.

The **End Date** of the item is updated accordingly.

- c. To modify the **Progress in %** of an item, double-click in the corresponding cell and update the value.

Also, the **Progress in %** column is automatically updated as payments are made on the item, provided that the budget item is associated with the contract pay item.

9. To modify the schedule of the items in the gantt chart, perform the following steps:

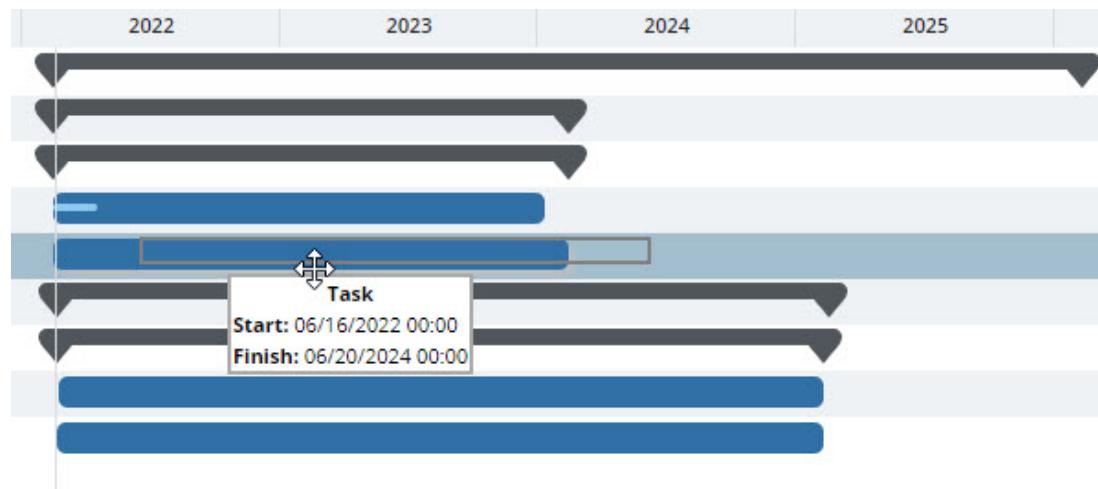
- Click **Show Gantt**.

The Gantt chart is displayed.

- Perform any of the following steps:

- To change the start and end dates of an item, drag the corresponding Gantt bar to the right or left.

Gantt bar - Start and End Date



You cannot move the item dates beyond the project start and end dates.

You can move the item dates beyond the project start and end dates, only for projects without phases. When the forecast is approved, the project start and end dates are updated with earliest item and latest item dates, respectively.

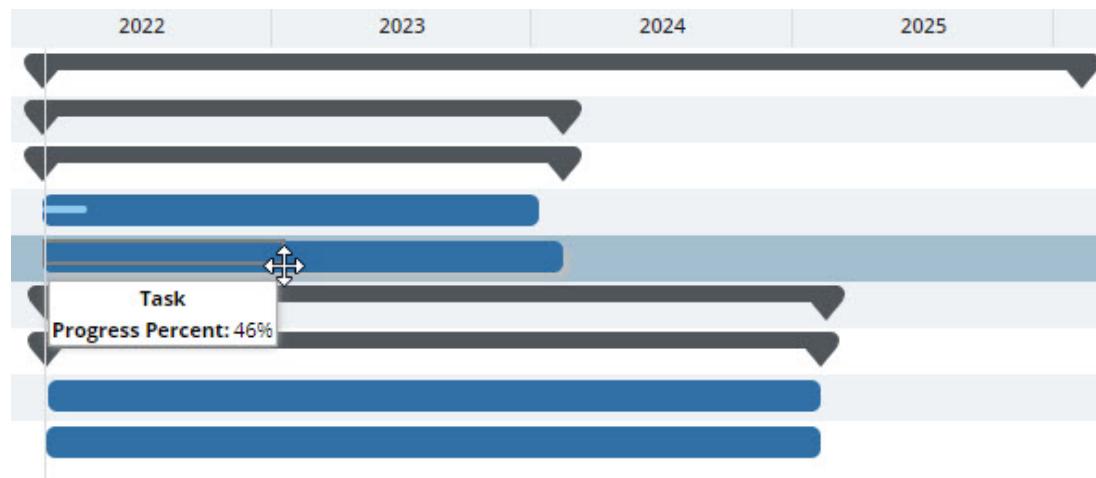
- To edit the progress percentage of an item, place the cursor at the start of the corresponding Gantt bar, and then press and drag to the right.

Gantt bar - Progress Percentage



The progress percentage is displayed in the tooltip.

Gantt bar - Tool Tip



10. To modify the forecasted item costs, perform the following steps:

- In the cost distribution columns, double-click the corresponding cells and update the values.

The **Remaining Amount in \$** column for each item is updated accordingly.

Note: Ensure that the **Remaining Amount in \$** for each item is zero after cost distribution.

- Optionally, you can toggle between the monthly or yearly view using the **Monthly View** and **Yearly View** toolbar options, respectively.

Note: The default cost distribution, as monthly or yearly, is configured in the **Budget Management** page of the **Administration** module. For more information, see [Configuring Budget Management](#) on page 1069.

11. Click **Save & Forecast**.

9.3.3. Manually Creating a Forecast

- An automatically generated forecast for the budget estimate is available.
For more information, see [Generating a Forecast Automatically](#) on page 631.

Masterworks enables you to manually create a forecast for the budget estimate items.

Also, you can create a forecast for the published budget estimate and mark it as the latest.

Note: If an inflation rule is applied to an item, the inflation rate is considered for the forecast of the item based on the effective date of the applied inflation rule. The **Amount in \$** value for the item inclusive of inflation is calculated as:

$$Ai = ((1 + [r] / 100) ^ (n/365)) * [A]$$

Where:

- Ai - Inflated Amount
- r - Annual Inflation Rate (in %)
- n - Number of days between **Effective from** date and **Start Date** of the item if inflation is applicable
- A - Amount in \$ (That is, Quantity x Unit Price in \$)
- Start Date - The project start date for a new forecast or the start date of the item from the latest approved forecast.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand the **Budget Management** folder, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. In the **BUDGET ESTIMATES** list page, select the appropriate budget estimate, click **Forecast**, and then click **New Forecast**.

The **New Forecast** dialog box is displayed.

New Forecast Dialog Box

The screenshot shows the 'New Forecast' dialog box. At the top left is the title 'New Forecast' and at the top right is a close button 'X'. Below the title are three input fields: 'Forecast ID : <Auto-generated>', 'Forecast Name * : MikeRoss - 10/19/2023', and 'Notes :'. The 'Notes' field is a large text area that is currently empty. At the bottom of the dialog box are two buttons: 'Save' and 'Cancel'.

Alternatively,

- a. In the **BUDGET ESTIMATES** list page, select the appropriate budget estimate, and click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

- b. Click the **FORECAST** tab.
- c. To create a forecast, perform either of the following:
 - Click **New Forecast**.
 - Click **History**, and then click **All Forecasts**.

The **FORECAST** page is displayed.

Click **New**, and then click **New Forecast**.

The **New Forecast** dialog box is displayed.

5. In the **Forecast Name** box, by default, a name is displayed with the combination of the logged-in user's name and current date. Optionally, enter a name for the forecast.
6. In the **Notes** box, enter any notes for the forecast.
7. Click **Save**.

The new forecast is created.

The **Start Date** and **End Date** display the project start and end date.

The forecast values of the items are linearly distributed over the project period. If a non-linear distribution curve is marked as default in the **Distribution Curves** library

catalog, then the forecast values of the items are non-linearly distributed based on the distribution curve. For more information, see [Distribution Curves](#) on page 195.

To mark the forecast as latest, see [Marking a Forecast as Latest](#) on page 646.

To filter the forecast items using various search criteria, see [Filtering Forecast Using Search Criteria](#) on page 650.

8. To apply a distribution logic to an item, perform the following steps:
 - a. Select the appropriate forecast item.
 - b. Click the **Select Curve** drop-down list, and then select the appropriate distribution curve.
Available options are the non-linear distribution curves defined in the **Distribution Curves** library catalog.
The forecast of the selected item is distributed as per the selected distribution curve.
9. To preview the distribution plot of an item, perform the following steps:
 - a. Select the appropriate forecast item or the container.
 - b. Click **Preview**.
The **Detailed Forecast Chart** is displayed.
 - c. To download the **Detailed Forecast Chart**, perform the following steps:
 - i. Click .
The **Detailed Forecast Chart** dialog box is displayed.
 - ii. Click **Export to Excel**.
The details of the item forecast and forecast chart are downloaded to an Excel workbook and saved in the local storage.

10. To modify the schedule of the items in the forecast table, perform the following steps:

- a. To modify the **Start Date** and **End Date** of an item, double-click in the corresponding cells, and then select the required date.

Note: You cannot select dates beyond the project start and end dates.

The **Duration** column is updated accordingly.

You can select dates beyond the project start and end dates, only for projects without phases. When the forecast is approved, the project start and end dates are updated with earliest item and latest item dates, respectively.

- b. To modify the **Duration** of an item, double-click in the corresponding cell and update the value.

The **End Date** of the item is updated accordingly.

- c. To modify the **Progress in %** of an item, double-click in the corresponding cell and update the value.

Also, the **Progress in %** column is automatically updated as payments are made on the item, provided that the budget item is associated with the contract pay item.

11. To modify the schedule of the items in the gantt chart, perform the following steps:

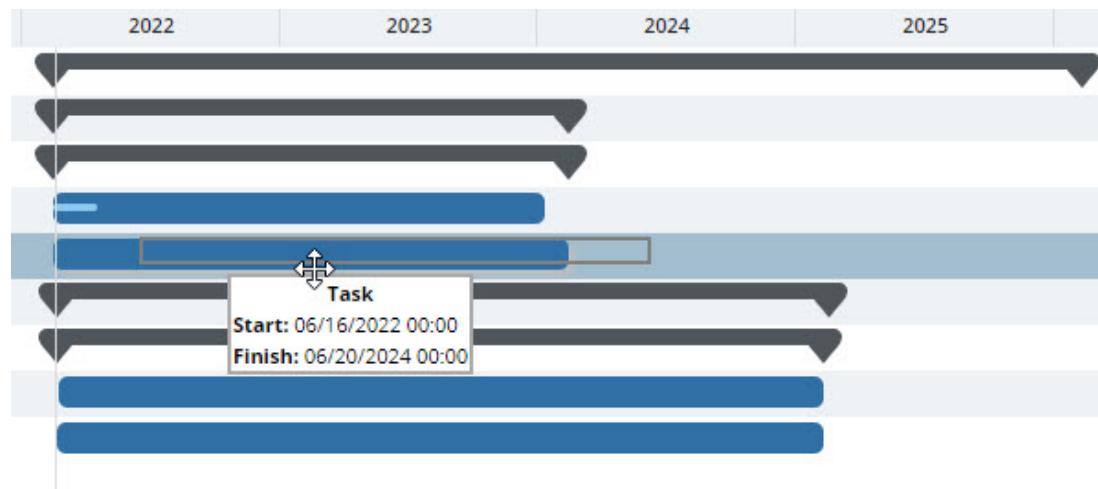
a. Click **Show Gantt**.

The Gantt chart is displayed.

b. Perform any of the following steps:

- To change the start and end dates of an item, drag the corresponding Gantt bar to the right or left.

Gantt bar - Start and End Date



You cannot move the item dates beyond the project start and end dates.

You can move the item dates beyond the project start and end dates, only for projects without phases. When the forecast is approved, the project start and end dates are updated with earliest item and latest item dates, respectively.

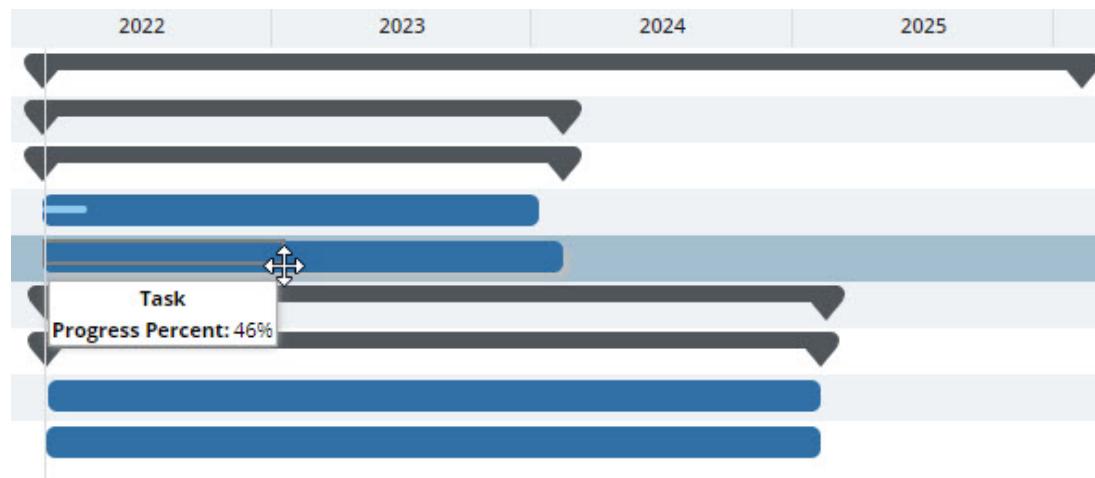
- To edit the progress percentage of an item, place the cursor at the start of the corresponding Gantt bar, and then press and drag to the right.

Gantt bar - Progress Percentage



The progress percentage is displayed in the tooltip.

Gantt bar - Tool Tip



12. To modify the forecasted item costs, perform the following steps:

- In the cost distribution columns, double-click the corresponding cells and update the values.

The **Remaining Amount in \$** column for each item is updated accordingly.

Note: Ensure that the **Remaining Amount in \$** for each item is zero after cost distribution.

- Optionally, you can toggle between the monthly or yearly view using the **Monthly View** and **Yearly View** toolbar options, respectively.

Note: The default cost distribution, as monthly or yearly, is configured in the **Budget Management** page of the **Administration** module. For more information, see [Configuring Budget Management](#) on page 1069.

13. Click **Save & Forecast**.

9.3.4. Copying a Forecast

- An automatically generated forecast for the budget estimate is available.
For more information, see [Generating a Forecast Automatically](#) on page 631.

You can create a forecast by copying a forecast.

Also, you can create a forecast for the published budget estimate and mark it as the latest.

Note: If an inflation rule is applied to an item, the inflation rate is considered for the forecast of the item based on the effective date of the applied inflation rule. The **Amount in \$** value for the item inclusive of inflation is calculated as:

$$Ai = ((1 + [r] / 100) ^ (n/365)) * [A]$$

Where:

- Ai - Inflated Amount
- r - Annual Inflation Rate (in %)
- n - Number of days between **Effective from** date and **Start Date** of the item if inflation is applicable
- A - Amount in \$ (That is, Quantity x Unit Price in \$)
- Start Date - The project start date for a new forecast or the start date of the item from the latest approved forecast.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand the **Budget Management** folder, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. In the list page, select the appropriate budget estimate, and click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

5. Click the **FORECAST** tab.

6. Click **History**, and then click **All Forecasts**.

The **FORECAST** page is displayed.

7. Click **New**, and then click **Copy from Existing**.

The **Copy Forecast** dialog box is displayed.

8. From the **Select Forecast** drop-down box, select the forecast you want to copy.

Available options are the forecasts created for this budget estimate.

9. In the **Forecast Name** box, by default, a name is displayed with the combination of the logged-in user's name and current date. Optionally, enter a name for the forecast.
10. In the **Notes** box, enter any notes for the forecast.
11. Click **Save**.

The new forecast is created.

The **Start Date** and **End Date** display the project start and end date.

The forecast values of the items are linearly distributed over the project period. If a non-linear distribution curve is marked as default in the **Distribution Curves** library catalog, then the forecast values of the items are non-linearly distributed based on the distribution curve. For more information, see [Distribution Curves](#) on page 195.

To mark the forecast as latest, see [Marking a Forecast as Latest](#) on page 646.

To filter the forecast items using various search criteria, see [Filtering Forecast Using Search Criteria](#) on page 650.

12. To apply a distribution logic to an item, perform the following steps:
 - a. Select the appropriate forecast item.
 - b. Click the **Select Curve** drop-down list, and then select the appropriate distribution curve.

Available options are the non-linear distribution curves defined in the **Distribution Curves** library catalog.

The forecast of the selected item is distributed as per the selected distribution curve.

13. To preview the distribution plot of an item, perform the following steps:

- a. Select the appropriate forecast item or the container.
- b. Click **Preview**.

The **Detailed Forecast Chart** is displayed.

- c. To download the **Detailed Forecast Chart**, perform the following steps:

- i. Click .

The **Detailed Forecast Chart** dialog box is displayed.

- ii. Click **Export to Excel**.

The details of the item forecast and forecast chart are downloaded to an Excel workbook and saved in the local storage.

14. To modify the schedule of the items in the forecast table, perform the following steps:

- a. To modify the **Start Date** and **End Date** of an item, double-click in the corresponding cells, and then select the required date.

Note: You cannot select dates beyond the project start and end dates.

The **Duration** column is updated accordingly.

You can select dates beyond the project start and end dates, only for projects without phases. When the forecast is approved, the project start and end dates are updated with earliest item and latest item dates, respectively.

- b. To modify the **Duration** of an item, double-click in the corresponding cell and update the value.

The **End Date** of the item is updated accordingly.

- c. To modify the **Progress in %** of an item, double-click in the corresponding cell and update the value.

Also, the **Progress in %** column is automatically updated as payments are made on the item, provided that the budget item is associated with the contract pay item.

15. To modify the schedule of the items in the Gantt chart, perform the following steps:

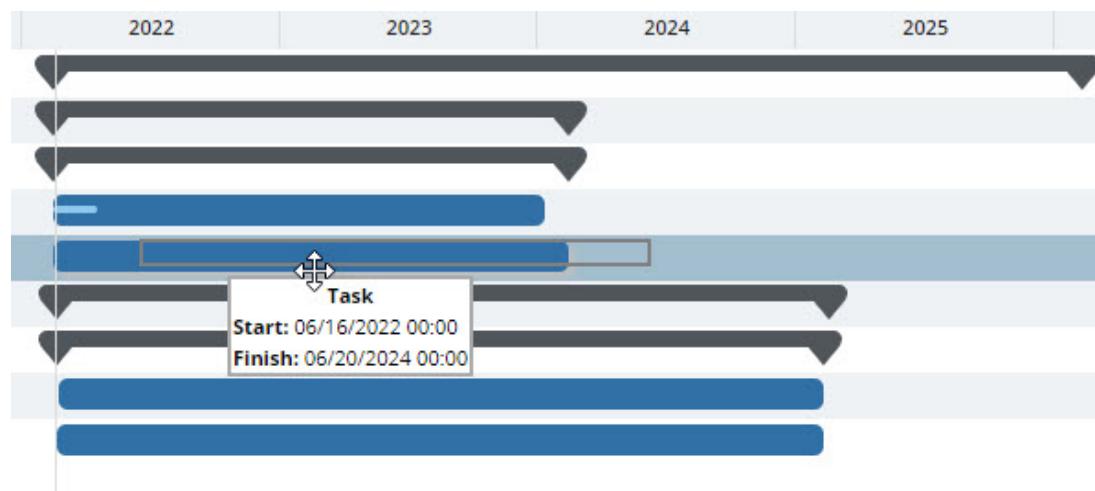
- a. Click **Show Gantt**.

The Gantt chart is displayed.

- b. Perform any of the following steps:

- To change the start and end dates of an item, drag the corresponding Gantt bar to the right or left.

Gantt bar - Start and End Date

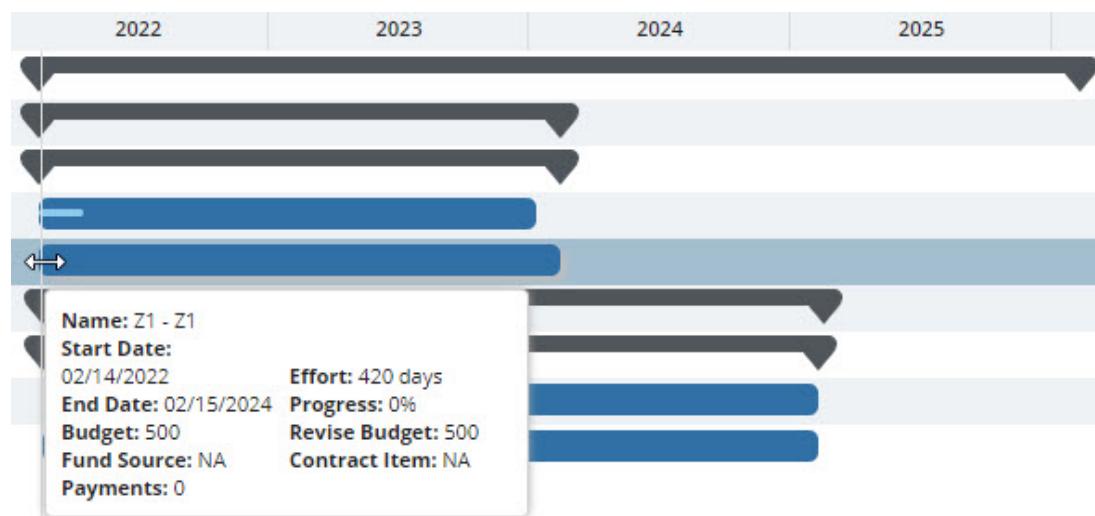


You cannot move the item dates beyond the project start and end dates.

You can move the item dates beyond the project start and end dates, only for projects without phases. When the forecast is approved, the project start and end dates are updated with earliest item and latest item dates, respectively.

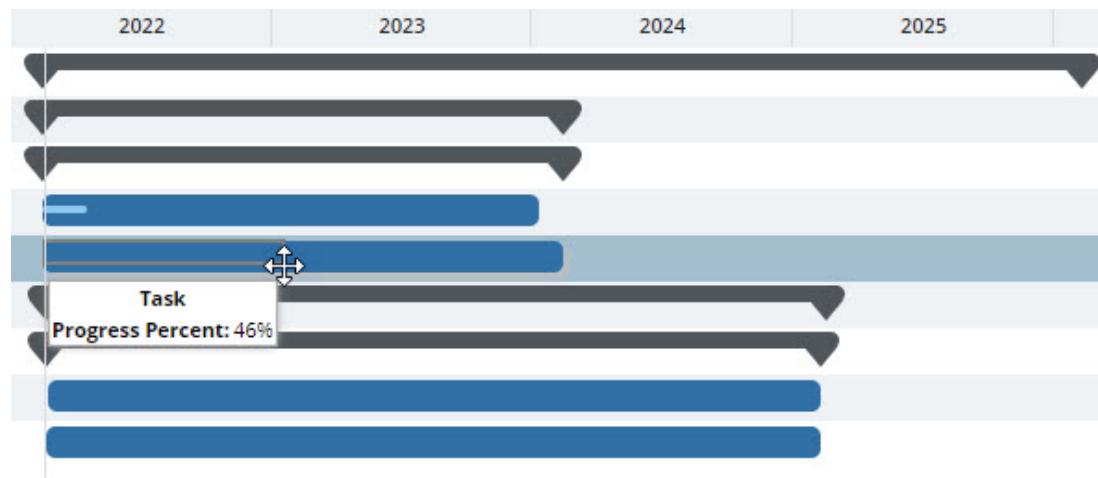
- To edit the progress percentage of an item, place the cursor at the start of the corresponding Gantt bar, and then press and drag to the right.

Gantt bar - Progress Percentage



The progress percentage is displayed in the tooltip.

Gantt bar - Tool Tip



16. To modify the forecasted item costs, perform the following steps:

- In the cost distribution columns, double-click the corresponding cells and update the values.

The **Remaining Amount in \$** column for each item is updated accordingly.

Note: Ensure that the **Remaining Amount in \$** for each item is zero after cost distribution.

- Optionally, you can toggle between the monthly or yearly view using the **Monthly View** and **Yearly View** toolbar options, respectively.

Note: The default cost distribution, as monthly or yearly, is configured in the **Budget Management** page of the **Administration** module. For more information, see [Configuring Budget Management](#) on page 1069.

17. Click **Save & Forecast**.

9.3.5. Marking a Forecast as Latest

You can create multiple forecasts for a budget estimate, perform what-if analysis and mark one forecast as the latest. It enables the system to identify which cash flow forecast distribution is ready for further processing.

When you process a budget estimate for approval, always forecast marked as the latest is considered for review and approval.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand the **Budget Management** folder, and then click **Budget Estimates**.

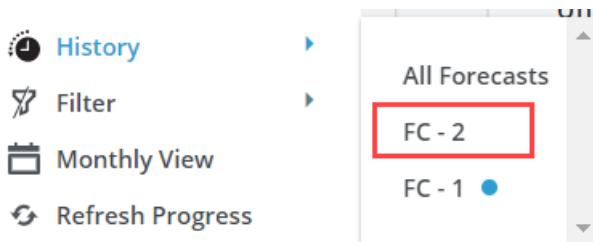
The **BUDGET ESTIMATES** list page is displayed.

4. In the list page, select the appropriate budget estimate, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

5. Click the **FORECAST** tab.

6. Click **History**, and then click the required forecast that is not marked with a blue dot.



The selected forecast's items list is displayed.

7. Click **Mark As Latest**.

A confirmation message is displayed and the forecast is marked as latest.

Alternatively,

- a. Click **History**, and then click **All Forecasts**.

The **FORECASTS** page is displayed.

- b. Click the appropriate forecast to be marked as latest, and then click **Mark As Latest**.

A confirmation message is displayed and the **State** column of the selected forecast is set to **Latest Forecast**.

9.3.6. Viewing Forecast History

You can view the history of forecasts created for the budget estimate.

Note: You can view only the history of latest five forecasts.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand the **Budget Management** folder, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. In the list page, select the appropriate budget estimate, click **Forecast**, and then click **All Forecasts**.

The **FORECASTS** page is displayed.

Forecasts Page

The screenshot shows a table titled "FORECASTS". At the top left are buttons for "New", "Back", and "More". On the right is a search/filter icon. The table has columns: Forecast ID, State, BE/BER, Forecast Name, Start Date, and End Date. A row is selected with the value "1" in the Forecast ID column, and the "Latest Forecast" button is highlighted in blue. The BE/BER column contains "BE-1", the Forecast Name is "Forecast - 01", the Start Date is "10/01/2023", and the End Date is "12/31/2026". Below the table is a horizontal scroll bar.

Forecast ID	State	BE/BER	Forecast Name	Start Date	End Date
1	Latest Forecast	BE-1	Forecast - 01	10/01/2023	12/31/2026

The list of forecasts created for the budget estimate is displayed.

Alternatively,

- a. In the **BUDGET ESTIMATES** list page, select the appropriate budget estimate, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

- b. Click the **FORECAST** tab.

- c. Click **History**, and then click **All Forecasts**.

The **FORECASTS** page is displayed.

The list of forecasts created for the budget estimate is displayed.

9.3.7. Viewing Zero Value Items

In the **FORECAST** page, using the **Show Zero Value Items** option, you can view the items with zero value. However, the default view is based on settings defined in the **Budget Management** page in the **Administration** module (System Admin).

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand the **Budget Management** folder, and then click **Budget Estimates**.

The **BUDGET ESTIMATES** list page is displayed.

4. In the list page, select the appropriate budget estimate, and then click **Edit**.

The **BUDGET ESTIMATE** page is displayed.

5. Click the **FORECAST** tab.

6. In the toolbar, click **Show Zero Value Items**.

The items with zero value are displayed.

7. Optionally, to hide the zero value items, click **Hide Zero Value Items**.

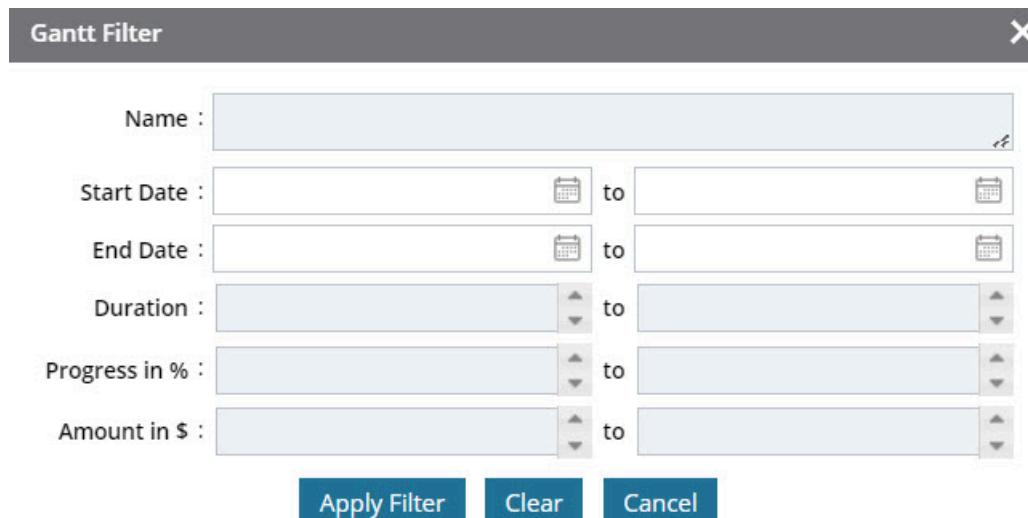
9.3.8. Filtering Forecast Using Search Criteria

In the **FORECAST** page, you can search for the forecast items that matches the criteria you define.

1. In the **FORECAST** tab, click **Filter**.

The **Gantt Filter** dialog box displays various filter options to search for specific forecast items.

Gantt Filter Dialog Box



2. Provide the required information in the fields, as described in the following table.

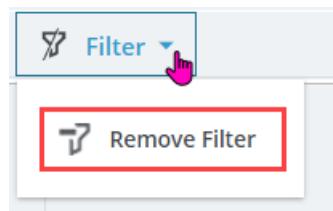
Filter Criterion	Description
Name	Enter the name of the item you are searching for. As you are typing the name of the item, the drop-down list suggests the names of the items that match the filtering criterion. Click and select the required item.

Filter Criterion	Description
Start Date	Select the required start date range of the items you are searching for. You can manually enter the date range.
End Date	Select the required end date range of the items you are searching for. You can manually enter the date range.
Duration	Enter the forecast duration range. Optionally, use the 
Progress in %	Enter the progress range of the items. Optionally, use the 
Amount in \$	Enter the budget range of the items you are searching for. For example, if you are searching for items with a budget range between 2000 to 10000, then enter 2000 in the first box and 10000 in the second box. Optionally, use the 

3. Click **Apply Filter**.

The items are displayed based on the filtering criteria defined.

4. Optionally, to remove the filter, corresponding to **Filter**, click , and then click **Remove Filter**.



The applied filter is removed.

9.4. Budget Estimates Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Budget Estimates** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Complete	Completed	-
2	Completed	Publish	Published	On publishing the record, in the BUDGET ESTIMATES list page, the Release to Planning column check box is automatically selected to indicate that the associated project is ready to be included in a program.
		Re-Draft	Draft	-
3	Published	Un-Publish	Un-Published	In the Un-Published workflow status, you can update the budget estimate.

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
		Approve	Approved	You cannot perform this workflow action as approval of the budget estimate is driven by the approval of the associated program. The budget estimate can be approved only by adding the associated published project to a Program and then adding the program to a 2-level Program. Approving the 2-level Program automatically approves the associated programs, and the published budget estimates of the projects associated with these programs.
4	Un-Published	Re-Publish	Published	-

The following table provides the workflow actions and status (current and subsequent status) of the **Budget Estimates** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Complete	Completed	-
2	Completed	Approve	Approved	-

9.5. Budget Estimate Revisions

9.5.1. Budget Estimate Revisions

After a budget estimate is approved, you cannot add or delete estimate items, nor modify details of estimate items that are part of the approved budget estimate.

Using the **Budget Estimate Revisions** form, you can add or delete estimate items or modify details of existing estimate items of an approved budget estimate. You can create multiple budget estimate revision records.

The **BUDGET ESTIMATE REVISION** page lists all the items of the approved budget estimate. On adding, modifying, or deleting items, in the **Name** column, the items are marked in color codes as described in the following table.

Action	Color Code	Example
New Item Added	Green	34241
Existing Item Modified	Blue	23455 <ul style="list-style-type: none"> Click to view the summary of modification.
Existing Item Deleted	Red	220601

If an ongoing project requires additional funds for upcoming fiscal years, it must be added to the next fiscal year's program for approval. On approving a revision, the items added, deleted, and modified are updated to the current budget and the existing unapproved revisions.

The column **Revision Type** in the **BUDGET ESTIMATE REVISIONS** list page displays the Program Approval Required (PAR) information of the revision type selected. In addition to the program approval information, the column displays the following information on approving the revision record:

- If the items are revised (add/delete/modify), the column is updated as **Budget Revision**.
For example, **PAR = Yes, Budget Revision**.
- If only the forecast is revised or created, the column is updated as **Forecast Revision**.
For example, **PAR = No, Forecast Revision**.

You can perform the following tasks:

- [Revise an approved budget estimate](#).
- [Add a single item](#) or [Add multiple items](#) to revise an approved budget estimate.
- [Delete items from an approved budget estimate](#).
- [Modify item quantity](#).
- [Modify lumpsum item value](#).
- [Create containers](#).
- [Restore the modified and deleted items](#).
- [Forecast budget estimate revision](#).
- [Approve planned project's budget estimate revision](#).
- [Approve budget estimate revision](#).
- [Perform workflow actions to implement the business process](#).

9.5.2. Revising an Approved Budget Estimate

- An approved budget estimate is available for the project.
- To create a revision that requires approval through a program, the existing revision record with the **PAR = Yes** revision type, if any, must be in the **Approved** workflow status.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimate Revisions**.

The **BUDGET ESTIMATE REVISIONS** list page is displayed.

4. Click New.

General Details Page

GENERAL DETAILS
 Save & Exit
 Save & Revise

Budget Estimate Rev ID : <Auto Generated>	Forecast ID : <Auto Generated>
Budget Estimate Rev Name * : <input type="text" value="Smith - 10/16/2023"/>	Forecast Name * : <input type="text" value="Smith - 10/16/2023"/>
Budget Revision Type * : <input type="text" value="Select"/> ?	BER Created By : Smith
Standard Item List : <input type="text"/>	BER Created On : 10/16/2023
Current Budget's Measurement System : IS System	Forecast Created By : Smith
Description : <input type="text"/>	Forecast Created On : 10/16/2023
Notes : <input type="text"/>	

ATTACHMENTS

<input type="checkbox"/>	File View Status	Document Name	Url/Link	Title	Uploaded By	Uploaded Date	File Size	
No Attachments available								

[Link Document](#)
[Upload Document](#)

The **GENERAL DETAILS** page displays the following non-editable fields:

Field	Description
Budget Estimate Revision ID	On saving the record, an identification code for the record is automatically generated.
Current Budget's Measurement System	The measurement system used in the approved budget estimate for standard items is displayed.
Forecast ID	On saving the record, an identification code for the forecast revision is automatically generated.
BER Created By	The name of the logged-in user.
BER Created On	The date the budget estimate revision is created.
Forecast Created By	The name of the logged-in user.
Forecast Created On	The date the forecast revision is created.

5. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Budget Estimate Revision Name	<p>By default, a name is displayed with the combination of the logged-in user's name and current date.</p> <p>Optionally, enter a name for the revised budget estimate.</p>
Budget Revision Type	<p>Displays the type that is marked as default in the Budget Revision Type library catalog.</p> <p>Optionally, to select the appropriate type of revision, perform the following steps:</p> <ol style="list-style-type: none">a. Corresponding to the displayed revision type, click b. Click and select the appropriate type. <p>Alternatively, type the name of the revision type, and then select the appropriate revision type.</p> <p>Available options are revision types defined in the Budget Revision Type library catalog. For more information, see Budget Revision Type on page 197.</p> <p>The approval process of this revision record is based on the revision type selected. If the Program Approval Required? field of the selected type is marked as Yes, the revision is approved through a program. Otherwise, the revision is approved at the project level.</p> <p>Note: To select the revision type that requires approval through a program, ensure the existing revision record with the PAR = Yes revision type, if any, in the Approved workflow status.</p>
Standard Item List	<p>Select a standard item table from which you can import estimate items to create the budget estimate revision for the selected approved budget estimate.</p> <p>Available options are standard items tables defined in the Standard Items Table library catalog. For more information, see Standard Items Table.</p>
Description	Enter a brief description of the budget estimate revision.

Field	Description
Forecast Name	By default, a name is displayed with the combination of the logged-in user's name and current date. Optionally, enter a name for the forecast revision.
Notes	Enter any notes for the forecast.

6. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

7. To save the record, perform any of the following as applicable:

- Click **Save & Exit** to return to the list page.
- Click **Save & Revise** to add items to the budget estimate revision.

For more information, see [Adding a Single Item](#) or [Adding Multiple Items](#).

9.5.3. Creating a Container

You can create containers in a budget estimate revision to categorize estimate items.

Note: You cannot delete an existing container.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the required project.
3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimate Revisions**.

The **BUDGET ESTIMATE REVISIONS** list page is displayed.

4. Select the required budget estimate revision record, and then click **Edit**.

The **BUDGET ESTIMATE REVISION** page is displayed.

5. In the toolbar, click **Add Container**.

Optionally, to add the container within a container, select the required container, and then click **Add Container**.

The **CONTAINER** page is displayed.

New Container Page

The screenshot shows a form titled "CONTAINER". At the top, there are three buttons: "Save & Exit", "Save & Continue", and "Cancel". Below the buttons are four input fields: "Name *:" with a placeholder box, "Description :" with a placeholder box, and "Notes :" with a placeholder box. At the bottom, there is a "Parent Container :" field containing the value "...Root".

6. In the **Name** box, enter the name of the container.
7. In the **Description** box, enter the description of the container.
8. In the **Notes** box, enter the notes for the container.
9. In the **Parent Container** list, click the container in which the current container must be created.

Note: For the first container, the only **Parent Container** option is **Root**.

10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

In the **Name** column, the added container is marked in green color.

9.5.4. Adding an Item to Budget Estimate Revision

You can add items to a budget estimate revision to amend the approved budget estimate.

On approving the budget estimate revision, the new items are added to the current budget and the existing unapproved revisions.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the required project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimate Revisions**.

The **BUDGET ESTIMATE REVISIONS** list page is displayed.

4. Select the required budget estimate revision record, and then click **Edit**.

The **BUDGET ESTIMATE REVISION** page is displayed.

5. Click **Add Item**.

The **NEW BUDGET ESTIMATE REVISION ITEM** page is displayed.

New Budget Estimate Revision Item Page

NEW BUDGET ESTIMATE REVISION ITEM

Save & Exit Save & Continue Save & Create New Cancel

Container :	...
Pay Item No. *	<input type="text"/> Clear
Description *	<input type="text"/>
Unit *	Select
Funding Rule :	Select
Inflation Rule :	None
Annual Inflation Rate (in %) :	0.00
Effective from :	None ?
Accounting Code :	<input type="text"/>
Quantity *	0.0000 Sub Items
Unit Price in \$:	<input type="text"/>
Amount in \$:	<input type="text"/>
Notes :	<input type="text"/>

RESOURCES

<input type="checkbox"/>	Title ID	Title	Resource Category	Resource Type	Units	Fixed Price in \$	Variable Price in \$/Unit	No. of Resources	Quantity in Units
No data to display									

Select Resource Type [▼](#) [Add From Library](#) [Add Manually](#) [Delete](#)

Total Item Estimate in \$: 0.00

ATTACHMENTS

6. Provide the required information in the fields, as described in the following table.

Field	Description
Container	<p>To select a container to categorize items, perform the following steps:</p> <ol style="list-style-type: none"><li data-bbox="536 433 743 489">Click .<li data-bbox="536 500 1227 556">The Select Container dialog box is displayed. <p data-bbox="536 567 989 601">b. Click the required container.</p> <p data-bbox="536 612 1426 691">For information on creating a new container, see Creating a Container.</p>
Pay Item No.	<p>Enter the item number.</p> <p>Alternatively, to select an item from the library, perform the following steps:</p> <ol style="list-style-type: none"><li data-bbox="536 893 1426 1016">In the Select Item from Library section, from the Standard Item Table drop-down list, select the standard table in which the required item is defined.<li data-bbox="536 1028 1426 1174">Available options are standard item tables defined in the Standard Items Table library catalog. For more information, see Standard Items Tables.<li data-bbox="536 1185 1426 1331">Optionally, select the Ignore Containers of Standard Items check box to only select the item and not the container of the item.<li data-bbox="536 1342 1322 1421">If the check box is selected, the item is added to the selected container.<li data-bbox="536 1432 1386 1510">If the check box is cleared, the item and its container are added to the budget estimate.<li data-bbox="536 1522 1386 1645">Click Select to select an item from the selected standard items table.<li data-bbox="536 1656 1195 1712">The item selection dialog box is displayed.<li data-bbox="536 1724 1386 1870">Available options are items defined in the selected standard items table that is defined the Standard Items Table library catalog. For more information, see Standard Items Tables.<li data-bbox="536 1881 1092 1937">Click an item, and then click Select.<li data-bbox="536 1948 1362 2049">The Pay Item No., Description, Unit, Group, Accounting Code, and Unit Price in \$ of the selected item are displayed.

Field	Description
Description	<p>Enter the description of the item.</p> <p>Item description is displayed automatically if you have selected the item from the library.</p>
Unit	<p>Select the unit of measure for the item.</p> <p>Available options are measurement units based on the measurement system selected in the Measurement System field in the associated approved budget estimate. For more information, see Budget Estimates.</p>
Funding Rule	<p>Select the funding rule for the item.</p> <p>Options available are funding rules defined for the project. For more information, see Project Fund Rules.</p>
Inflation Rule	<p>To consider inflation when estimating project budgets, you can apply an inflation rule or set an annual inflation rate to a budget item to determine latest budget values inclusive of inflation at any time. In Masterworks, the Current Budget page and the forecasts for the budget items display values based on inflation applied to budget items.</p> <p>To apply an inflation rule to a budget item, perform the following steps:</p> <ol style="list-style-type: none">Click . The Select Inflation Rule dialog box is displayed. Available options are inflation rules defined in the Inflation Rule library catalog. For more information, see Inflation Rules on page 197.Perform any of the following steps:<ul style="list-style-type: none">To apply an inflation rule to the budget item, click the required inflation rule.To enter the inflation percentage, click Manual.To remove a previously applied inflation rule, click None.Click Select.

Field	Description
Annual Inflation Rate (in %)	<ul style="list-style-type: none">If the selected Inflation Rule option is Manual, enter the annual inflation rate in percentage.If an inflation rule is selected, the annual inflation rate as defined for the rule in the Inflation Rule library catalog, is displayed.If the selected Inflation Rule option is None, the annual inflation rate is displayed as 0.00.
Effective from	<p>Note: This field is editable only if an Inflation Rule is selected for the item.</p> <p>By default, it displays the Effective from date as defined in the Inflation Rule library catalog for the selected Inflation Rule. For more information, see Inflation Rules on page 197.</p> <p>Optionally, select the date from when the inflation should be effective on the price of the item.</p>
Accounting Code	Enter the accounting code assigned to the item. Accounting code of the item is displayed automatically if you have selected the item from the library.
Quantity	<p>Note: This field is not available if the selected Unit is a Lumpsum.</p> <p>Enter the required quantity of the item. You can add sub-items to an item, and the quantity of the item is calculated as the sum of all the sub-items added. For more information, see Adding Sub Items.</p>
Unit Price in \$	<p>Note: This field is not available if the selected Unit is a Lumpsum.</p> <p>Enter the cost per unit.</p>

Field	Description
Amount in \$	<ul style="list-style-type: none">If the selected Unit is not a Lumpsum, then this field displays the total amount of the item calculated as the product of the Quantity and Unit Price.If the selected Unit is a Lumpsum, then enter the lumpsum amount of the estimate item.
Notes	Enter any additional information relevant to the item.
Lumpsum Item	<p>Note: This field is displayed only if the selected Unit is a Lumpsum.</p> <p>By default, the check box is selected and non-editable to indicate that the item is lumpsum.</p>

7. To add resources to the work item, in the **RESOURCES** section, perform either of the following steps:

- To add resources from the library, perform the following steps:
 - From the **Select Resource Type** drop-down list, select the required resource to be added to the work item.
 - Click **Add From Library**.

The **Resource Picker** dialog box is displayed.

Available options are based on the resource type selected in the **Select Resource Type** drop-down list.

Available options are resources defined in the corresponding library catalog for the selected resource type. For example, if you have selected **Equipment**

from the **Select Resource Type** drop-down list, then the available options are from the **Equipment** library catalog.

- c. Select the required resources, and then click **Select**.

The selected resources are added to the table.

Resource information, such as Resource ID, Title, Resource Category, Resource Type, Units, Fixed Price in \$, Variable Price in \$/Unit are displayed for the selected resources.

- d. Double-click the following columns in the table, and enter information as described in the following table.

Column	Description
No. of Resources	Enter the number of resources required.
Quantity in Units	Enter the number of units for each resource.

The following information is displayed:

Column	Description
Amount in \$	The amount in \$ is calculated as: $\text{Amount in \$} = (\text{No. of Resources}) * (\text{Fixed Price} + \text{Variable Price} * \text{Quantity in Units})$

- To add resources manually, perform the following steps:
 - Click **Add Manually**.
A row is added to the table.
 - Double-click the following columns in the table, and enter information as described in the following table.

Column	Description
Title	Enter title for the resource.
Resource Category	Select the resource category for the resource.

Column	Description
Resource Type	<p>Select the resource type for the resource.</p> <p>Perform either of the following steps:</p> <ul style="list-style-type: none"> ■ If the selected Resource Category is either Equipment or Material, then select NA in the Resource Type drop-down list. ■ If the selected Resource Category is Resource Titles, then from the Resource Type drop-down list, select Internal, Contractor, or Consultant.
Units	<p>Select the required unit of measure.</p> <p>Available units are all the units of measure defined in the Measurement Systems library catalog. For more information, see Measurement Systems.</p> <p>If the selected Resource Category is Resource Titles, then from the Units drop-down list, select Hour, Day, Month, or Year.</p>
Fixed Price in \$	Enter the fixed price for the resource.
Variable Price in \$/ Unit	Enter the variable price for the resource.
No. of Resources	Enter the number of resources required.
Quantity in Units	Enter the number of units for each resource.

The following information is displayed:

Column	Description
Amount in \$	<p>The amount in \$ is calculated as:</p> $\text{Amount in \$} = (\text{No. of Resources}) * (\text{Fixed Price} + (\text{Variable Price} * \text{Quantity in Units}))$

The **Total Item Estimate in \$** value displays the sum of the **Amount in \$** of the item and the total of the **Amount in \$** column of the resources added to the work item.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. To save the item, perform any of the following as applicable:

- Click **Save & Exit** to return to the items list page.
- Click **Save & Continue** to save and continue on the same page.
- Click **Save & Create New** to save the current item and continue creating a new item.

In the **Name** column, the added item is marked in green color.

The **Total Revised Budget (\$)** and **Total Projected Budget (\$)** fields display values based on the estimate items added, deleted, or modified in the current estimate revision.

You can now forecast the budget estimate. For more information, see [Forecasts and Scheduling](#).

9.5.5. Adding Multiple Estimate Items to Revision

To save time and effort you can add multiple estimate items at once from the library to the budget estimate revision.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimate Revisions**.

The **BUDGET ESTIMATE REVISIONS** list page is displayed.

4. Select the appropriate budget estimate revision record, and then click **Edit**.

The **BUDGET ESTIMATE REVISION** page is displayed.

5. Perform either of the following steps, as applicable:

- Click **Add Multiple Items**.
- To add items within a container, select the appropriate container, and then click **Add Multiple Items**.

The **Standard Items** dialog box is displayed.

Standard Items List

<input checked="" type="checkbox"/>	Name/Pay Item No	Description	Unit Price	UOM	Container	Groups

Save Cancel

6. From the **Standard Item list** drop-down list, select the standard table from which you can add items to the budget estimate revision.

Available options are standard item tables defined in the **Standard Items Table** library catalog. For more information, see [Standard Items Table](#).

Items from the selected standard items table are displayed.

7. Optionally, select the **Ignore Containers** check box only to select the item and not the item container.

If the check box is selected, only the item is added to the budget estimate revision.

If the check box is cleared, the item and its container are added to the budget estimate revision.

8. Select the appropriate items, and then click **Save**.

Alternatively, to select all items from the list, click **Select & Save All Records**, and in the confirmation dialog box, click **OK**.

The selected items are added to the budget estimate revision.

You can now forecast the budget estimate revision. For more information, see [Forecasting Budget Estimate Revision](#) on page 674.

9.5.6. Deleting Items from an Approved Budget Estimate

- The item to be deleted is not modified or deleted in any of the existing unapproved revision records.

You can delete items from the approved budget estimate of a project.

Note: The **Delete** action does not remove the existing items from the **BUDGET ESTIMATE REVISION** page. However, the items are marked in red color.

On approving the budget estimate revision, the deleted items are removed from the current budget and the existing unapproved revisions.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the required project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimate Revisions**.

The **BUDGET ESTIMATE REVISIONS** list page is displayed.

4. Select the required budget estimate revision record, and then click **Edit**.

The **BUDGET ESTIMATE REVISION** page is displayed.

5. Select the appropriate item to be deleted, and then click **Delete**.

A confirmation message is displayed.

6. Click **OK**.

In the **Name** column, the selected item is marked in red color.

The **Total Revised Budget (\$)** and **Total Projected Budget (\$)** fields display values based on the estimate items added, deleted, or modified in the current estimate revision.

You can restore the item that is marked for deletion. For more information, see [Restoring Modified and Deleted Items](#) on page 673.

9.5.7. Modifying Item Quantity

- The **Unit** selected for the item is not a **Lumpsum**.

To modify the value of a lumpsum item, see [Modifying Lumpsum Item Value](#) on page 670.

- The item to be modified is not modified or deleted in any of the existing unapproved revision records.

You can modify the quantities of estimate items of an approved budget estimate to amend the budget estimate of the project.

Note: By default, in the **BUDGET ESTIMATE REVISION** page, the **Change in Quantity**, **Inflation Rate**, and **Amount in \$** columns are set to zero.

After the modification, you can restore the item to its original configuration. For more information, see [Restoring Modified and Deleted Items](#) on page 673.

On approving the budget estimate revision, the modified items are updated in the current budget and the existing unapproved revisions.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimate Revisions**.

The **BUDGET ESTIMATE REVISIONS** list page is displayed.

4. Select the appropriate record, and then click **Edit**.

The **BUDGET ESTIMATE REVISION** page is displayed.

5. Right-click on a row, and click **Expand All** to expand all containers and view item details.

6. To modify the quantity of an existing item, perform either of the following steps:

Note:

- To increase the quantity of the item, enter the quantity of the item that is additionally required.

For example, if the existing quantity of the item is 10, and you want to revise it to 15, then enter 5.

- To decrease the quantity of the item, press the Minus sign (-), and then enter the quantity to be decreased.

For example, if the existing quantity of the item is 10, and you want to decrease it to 5, then enter -5.

- In the **BUDGET ESTIMATE REVISION** page, double-click the row of the item you want to modify, and then perform the following steps:
 - in the **Change in Quantity** column, enter the appropriate quantity.
The existing quantity is displayed as a tooltip message for reference.
 - Click **Save**.
- In the **BUDGET ESTIMATE REVISION** page, select the item you want to modify, and then perform the following steps:
 - Click **Edit**.
The **EDIT EXISTING ITEM** page is displayed.
 - In the **Change in Quantity** box, enter the appropriate quantity.
The existing quantity is displayed as a tooltip message for reference.
 - Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

In the **Name** column, the modified item is marked in blue color.

7. To view the revision summary of the modified item, in the **Name** column, click .

The **Revision Summary** dialog box displays the summary of modification.

Also, the **Total Revised Budget (\$)** and **Total Projected Budget (\$)** fields in the **BUDGET ESTIMATE REVISION** page are calculated based on the estimate items added, deleted, or modified in the current estimate revision.

9.5.8. Modifying Lumpsum Item Value

- The **Unit** selected for the item is a **Lumpsum**.
- The item to be modified is not modified or deleted in any of the existing unapproved revision records.

You can modify the value of an existing lumpsum item to amend the budget estimate of the project.

Note: By default, in the **BUDGET ESTIMATE REVISION** page, the **Change in Quantity** column is set to **NA**, and the **Inflation Rate** and **Change in Amount (\$)** columns are set to zero.

After the modification, you can restore the item to its original configuration. For more information, see [Restoring Modified and Deleted Items](#) on page 673.

On approving the budget estimate revision, the modified items are updated in the current budget and the existing unapproved revisions.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimate Revisions**.

The **BUDGET ESTIMATE REVISIONS** list page is displayed.

4. Select the appropriate record, and then click **Edit**.

The **BUDGET ESTIMATE REVISION** page is displayed.

5. Right-click on a row, and click **Expand All** to expand all containers and view item details.

6. To modify the value of an existing lumpsum item, perform either of the following steps:

Note:

- To increase the value of the item, enter the value of the item that is additionally required.
For example, if the existing value of the item is \$1000, and you want to revise it to \$1500, then enter 500.
- To decrease the value of the item, press the Minus sign (-), and then enter the value to be decreased.
For example, if the value of the item is \$1000, and you want to revise it to \$500, then enter -500.

- In the **BUDGET ESTIMATE REVISION** page, double-click the row of the lumpsum item you want to modify, and then perform the following steps:
 - a. in the **Change in Amount (\$)** column, enter the appropriate value.
The existing value is displayed as a tooltip message for reference.
 - b. Click **Save**.
- In the **BUDGET ESTIMATE REVISION** page, select the lumpsum item you want to modify, and then perform the following steps:
 - a. Click **Edit**.
The **EDIT EXISTING ITEM** page is displayed.
 - b. In the **Change in Amount (\$)** box, enter the appropriate value.
The existing value is displayed as a tooltip message for reference.
 - c. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

In the **Name** column, the modified item is marked in blue color.

7. To view the revision summary of the modified item, in the **Name** column, click .

The **Revision Summary** dialog box displays the summary of modification.

Also, the **Total Revised Budget (\$)** and **Total Projected Budget (\$)** fields in the **BUDGET ESTIMATE REVISION** page are calculated based on the estimate items added, deleted, or modified in the current estimate revision.

9.5.9. Reordering Items and Containers

You can move items from one container to another, or move an entire container with the items in it to a different hierarchical level or a different container.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimate Revisions**.

The **BUDGET ESTIMATE REVISIONS** list page is displayed.

4. Select the appropriate budget estimate, and then click **Edit**.

The **BUDGET ESTIMATE REVISION** page is displayed.

5. Click **Reorder**.

The **REORDER STRUCTURE** page is displayed.

6. Click **Expand All** to view all the items in the various containers.

7. Drag and drop the appropriate item into the appropriate container.

8. Click **Save**.

9. Click **Back**.

The **BUDGET ESTIMATE REVISION** page is displayed.

9.5.10. Restoring Modified and Deleted Items

- A modified or deleted item exists.

While revising an approved budget estimate, you can restore all the modified and deleted items to current budget values till the revision is approved. On restoration, the color marking on the items is removed.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the required project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimate Revisions**.

The **BUDGET ESTIMATE REVISIONS** list page is displayed.

4. Select the appropriate record, and then click **Edit**.

The **BUDGET ESTIMATE REVISION** page is displayed.

5. Right-click on a row, and click **Expand All** to expand all containers and view item details.

6. Select the appropriate modified or deleted item, and then click **Restore**.

A confirmation message is displayed.

In the **Name** column, the color marking on the selected item is removed.

The **Total Revised Budget (\$)** and **Total Projected Budget (\$)** fields display values based on the estimate items added, deleted, or modified in the current estimate revision.

9.5.11. Forecasting Budget Estimate Revision

You can schedule budget estimate revision items and then forecast item costs for the duration of the project.

An auto-generated forecast, which is a copy of the approved latest forecast, is automatically created for a budget estimate revision. It enables you to modify cash flow forecast distribution and get it reviewed and approved without any revised items.

Additionally, you can create a forecast manually for the budget estimate revision.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the required project.
3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Budget Estimate Revisions**.

The **BUDGET ESTIMATE REVISIONS** list page is displayed.

4. In the **BUDGET ESTIMATE REVISIONS** list page, select the appropriate budget estimate, and click **Edit**.

The **BUDGET ESTIMATE REVISION** page is displayed.

5. Click the **FORECAST** tab.

A forecast for the budget estimate revision is automatically generated and marked as the latest.

The forecast values of the items are linearly distributed over the project period. If a non-linear distribution curve is marked as default in the **Distribution Curves** library catalog, then the forecast values of the items are non-linearly distributed based on the distribution curve. For more information, see [Distribution Curves](#) on page 195.

6. Optionally, to create a forecast manually, in the **FORECAST** tab, perform the following steps:
 - a. Click **New Forecast**.

Alternatively,

 - i. Click **History**, and then click **All Forecasts**.

The **FORECAST** page is displayed.
 - ii. Click **New**, and then click **New Forecast**.

The **New Forecast** dialog box is displayed.
 - b. In the **Forecast Name** box, by default, a name is displayed with the combination of the logged-in user's name and current date. Optionally, enter a name for the forecast.
 - c. In the **Notes** box, enter any notes for the forecast.
 - d. Click **Save**.

The new forecast is created in the **FORECAST** page.
The **Start Date** and **End Date** display the project start and end date.
 - e. To mark the forecast as latest, click **Mark As Latest**.

A confirmation message is displayed, and the forecast is marked as the latest.
7. To apply a distribution logic to an item, perform the following steps:
 - a. Select the appropriate forecast item.
 - b. Click the **Select Curve** drop-down list, and then select the appropriate distribution curve.

Available options are the non-linear distribution curves defined in the **Distribution Curves** library catalog.

The forecast of the selected item is distributed as per the selected distribution curve.
8. To preview the distribution plot of an item, perform the following steps:
 - a. Select the appropriate forecast item or the container.
 - b. Click **Preview**.

The **Detailed Forecast Chart** is displayed.
 - c. To download the **Detailed Forecast Chart**, perform the following steps:
 - i. Click .

The **Detailed Forecast Chart** dialog box is displayed.
 - ii. Click **Export to Excel**.

The details of the item forecast and forecast chart are downloaded to an Excel workbook and saved in the local storage.

9. To modify the schedule of the items in the forecast table, perform the following steps:

- a. To modify the **Start Date** and **End Date** of an item, double-click in the corresponding cells, and then select the required date.

Note: You cannot select dates beyond the project start and end dates.

The **Duration** column is updated accordingly.

You can select dates beyond the project start and end dates, only for projects without phases. When the forecast is approved, the project start and end dates are updated with earliest item and latest item dates, respectively.

- b. To modify the **Duration** of an item, double-click in the corresponding cell and update the value.

The **End Date** of the item is updated accordingly.

- c. To modify the **Progress in %** of an item, double-click in the corresponding cell and update the value.

Also, the **Progress in %** column is automatically updated as payments are made on the item, provided that the budget item is associated with the contract pay item.

10. To modify the schedule of the items in the Gantt chart, perform the following steps:

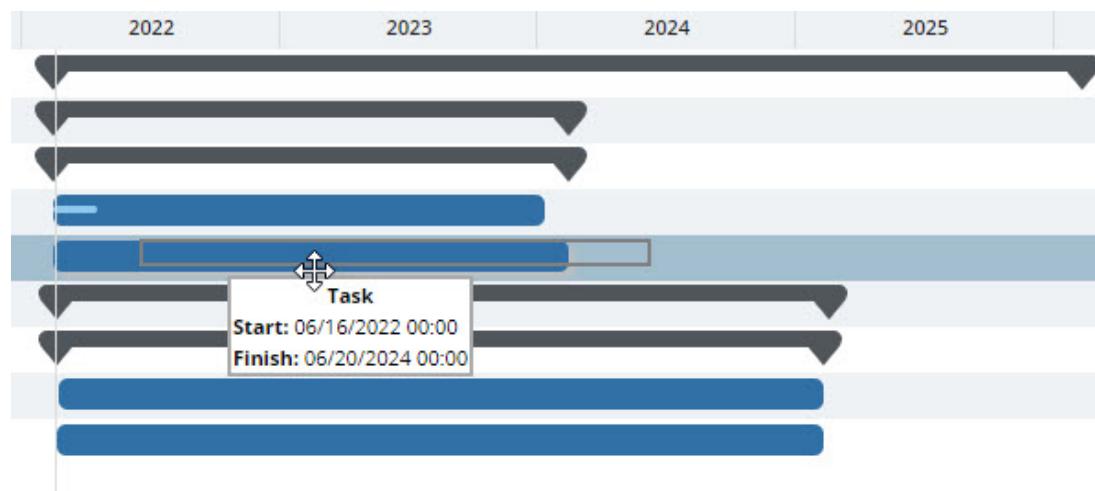
a. Click **Show Gantt**.

The Gantt chart is displayed.

b. Perform any of the following steps:

- To change the start and end dates of an item, drag the corresponding Gantt bar to the right or left.

Gantt bar - Start and End Date



You cannot move the item dates beyond the project start and end dates.

You can move the item dates beyond the project start and end dates, only for projects without phases. When the forecast is approved, the project start and end dates are updated with earliest item and latest item dates, respectively.

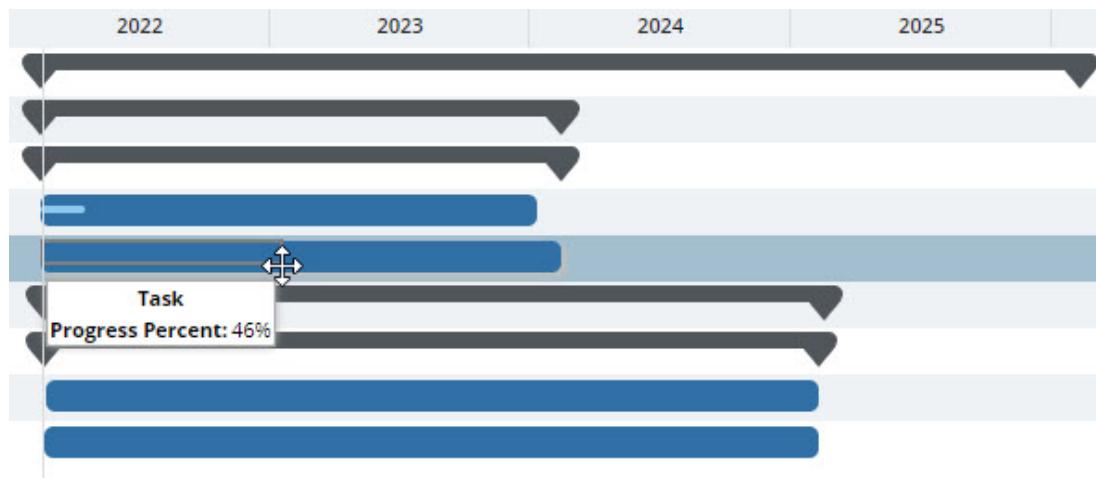
- To edit the progress percentage of an item, place the cursor at the start of the corresponding Gantt bar, and then press and drag to the right.

Gantt bar - Progress Percentage



The progress percentage is displayed in the tooltip.

Gantt bar - Tool Tip



11. To modify the forecasted item costs, perform the following steps:

- a. In the cost distribution columns, double-click the corresponding cells and update the values.

The **Remaining Amount in \$** column for each item is updated accordingly.

Note: Ensure that the **Remaining Amount in \$** for each item is zero after cost distribution.

- b. Optionally, you can toggle between the monthly or yearly view using the **Monthly View** and **Yearly View** toolbar options, respectively.

Note: The default cost distribution, as monthly or yearly, is configured in the **Budget Management** page of the **Administration** module. For more information, see [Configuring Budget Management](#) on page 1069.

12. Click **Save & Forecast**.

To perform workflow actions, see [Budget Estimate Revisions Workflow](#).

9.5.12. Budget Estimate Revisions Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Budget Estimate Revisions** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Complete	Completed	-
2	Completed	Publish	Published	-
		Re-Draft	Draft	
		Reject	Rejected	
3	Published	Un-Publish	Un-Published	In the Un-Published workflow status, you can update the budget estimate.

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
		Approve	Approved	<p>The approval process of the revision record is based on the Budget Revision Type selected. If the Program Approval Required? field of the selected revision type is marked as Yes, you can approve the revision only through a program. For information on approving a program, see Program Workflow on page 416.</p> <p>On approval of a budget estimate revision, the following occur:</p> <ul style="list-style-type: none">• The items added, deleted, and modified are updated to the current budget and the existing unapproved revisions of the project.• The

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
4	Un-Published	Re-Publish	Published	-

The following table provides the workflow actions and status (current and subsequent status) of the **Budget Estimate Revisions** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Complete	Completed	-
2	Completed	Approve	Approved	-

9.6. Current Budget

9.6.1. Viewing the Current Budget

Using the **CURRENT BUDGET** page, you can view the following information:

- A consolidated view of all items that are part of the approved budget estimate and all of its approved revisions.
- The details of originally approved budget estimate.
- The details of budget and cost summary, such as payments and commitments.
- The details of latest approved forecast in the **FORECAST** tab.
- The **Current Budget Details** and **Project Cost Sheet** reports. For more information, see [Generating Current Budget Reports](#) on page 687.

Additionally, based on the permissions assigned, you can edit certain details of the current budget items. For more information, see [Editing Current Budget Item Details](#).

If an inflation rule is applied to an item, the **Inflation in \$** column displays the inflation amount of the item based on the effective date of the applied inflation rule.

- The **Inflation in \$** value is calculated as: Inflation in \$ = Inflated Amount - (Unit Price x Quantity).

- The Inflated Amount value is calculated as: $A_i = ((1 + [r] / 100) ^ (n/365)) * [A]$.

Where:

- Ai - Inflated Amount
- r - Annual Inflation Rate (in %)
- n - Number of days between **Effective from** date and **Start Date** of the item if inflation is applicable
- A - Amount in \$ (That is, Quantity x Unit Price in \$)
- Start Date - The project start date for a new forecast

The fields at the bottom of the **CURRENT BUDGET** page are calculated, as described in the following table.

Field	Calculation
Original Approved Budget (\$)	The value as specified in the Total Inflated Budget (\$) field in the approved BUDGET ESTIMATE page.
Approved Budget Revisions (\$)	The sum of all the approved budget estimate revisions.
Current Budget (\$)	The sum of the values in the Inflated Amount in \$ column of this current budget.
Actuals (\$)	The sum of all approved Pay Estimates, Direct Expenses, and Miscellaneous Expenses (pay items to which budget items are associated).
Remaining Budget (\$)	Current Budget (\$) - Actuals (\$)

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Current Budget**.

The **CURRENT BUDGET** page is displayed.

Current Budget Page

CURRENT BUDGET						
Budget with Cost Summary		Original Approved Budget		Reports		
Name	Line Number	Description	Accounting Code	Unit	Quantity	
Default						
Misc		Misc				
104150	2	PROJECT SIGNS (NEW)		EA	20.0000	
104160	3	PUBLIC NOTIFICATION		EA	1.0000	
104250	4	PROJECT HOTLINE		EA	2.0000	

Original Approved Budget (\$): 23,000.00 | Approved Budget Revisions (\$): 0.00 | Current Budget (\$): 23,000.00 | Actuals (\$): 0.00 | Remaining Budget (\$): 23,000.00

4. To view the details of budget and cost summary, perform the following steps:

- a. In the toolbar, click **Budget with Cost Summary**.

The **BUDGET WITH COST SUMMARY** page is displayed with the details, as described in the following table.

Column	Description
Name	All items that are part of the approved budget estimate and all of its approved revisions. Note: The associated project is the first item in the hierarchy, grouping all items. Each column displays the sum of items in the respective column.
Approved Original Budget	Values from the originally approved budget estimate for each item.
Approved Budget Revisions	Values from the approved budget estimate revision for each item. Revised values may include inflated amount applied to the total quantity of an item.
Current Budget	It is calculated as: Approved Original Budget + Approved Budget Revisions

Column	Description
Pending Budget Revisions	Values from unapproved budget estimate revision for each item.
Projected Budget	It is calculated as: Current Budget + Pending Budget Revisions
Original Commitments	<p>It is calculated as: (Contract Amount - Change Order Amount) + Purchase Order Amount + Miscellaneous Expense Amount</p> <p>Where:</p> <ul style="list-style-type: none">• Contract Amount: Sum of inflated amount values of locked contract items in all contracts of the project.• Change Order Amount: Sum of approved change order amounts of revised contract items in all contracts of the project.• Purchase Order Amount: Sum of pay items amounts in the PAY ITEMS section of all the Purchase Order records that are in the Received workflow status.• Miscellaneous Expense Amount: Sum of pay items amounts in the MISCELLANEOUS EXPENSE PAY ITEMS section of all the approved Expenses records of the project.

Note: The values are retrieved only from the records to which budget items are associated.

Column	Description
Approved Commit Changes	<p>It is calculated as: Change Order Amount + Revised Purchase Order Amount</p> <p>Where:</p> <ul style="list-style-type: none">• Change Order Amount: Sum of approved change order amounts of revised contract items in all contracts of the project.• Revised Purchase Order Amount: Sum of pay items amounts in the PAY ITEMS section of all the Purchase Order Revision records that are in the Received workflow status. <p>Note: The values are retrieved only from the records to which budget items are associated.</p>
Current Commitments	It is calculated as: Original Commitments + Approved Commit Changes
Pending Commit Changes	<p>It is calculated as: Potential Change Order Amount + Revised Purchase Order Amount</p> <p>Where:</p> <ul style="list-style-type: none">• Potential Change Order Amount: Sum of all submitted potential change order amounts of revised contract items in all contracts of the project.• Revised Purchase Order Amount: Sum of pay items amounts in the PAY ITEMS section of all the Purchase Order Revision records that are in the Created or Committed workflow status. <p>Note: The values are retrieved only from the records to which budget items are associated.</p>
Projected Commitments	It is calculated as: Current Commitments + Pending Commit Changes

Column	Description
Actuals Approved	<p>It is calculated as: Pay Estimates + Direct Expenses + Miscellaneous Expenses</p> <p>Where,</p> <ul style="list-style-type: none"> • Pay Estimates: Sum of the Net to be paid in this bill (E) field amounts in all the approved pay estimates in all contracts of the project. • Direct Expenses: Sum of pay items amounts in all the approved direct Expenses records. • Miscellaneous Expense: Sum of pay items amounts in the MISCELLANEOUS EXPENSE PAY ITEMS section of all the approved Expenses records of the project. <p>Note: The values are retrieved only from the records to which budget items are associated.</p>
Actual Cost To Complete	It is calculated as: Current Commitments - Actuals Approved
% Cost Complete	It is calculated as: Actuals Approved / Current Commitments
Remaining Budget	It is calculated as: Current Budget - Actuals Approved

- b. To return to the **CURRENT BUDGET** page, click **Current Budget**.
5. To view the details of the originally approved budget estimate, click **Original Approved Budget**.

The originally approved **BUDGET ESTIMATE** page is opened in a new browser tab.

6. To view the latest approved forecast details, click the **FORECAST** tab.

9.6.2. Editing Current Budget Item Details

- The role of the logged-in user has **Edit** permission assigned to the **Current Budget** form. For more information, see [Configuring Form Permissions](#).

You can edit the details of a current budget item, such as Description, Unit, Funding Rule, Accounting Code, and Notes.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Current Budget**.

The **CURRENT BUDGET** page is displayed.

4. Select the appropriate item, and then click **Edit**.

The **MODIFY EXISTING ITEM** page is displayed.

Modify Existing Item Page

MODIFY EXISTING ITEM

Save & Exit Save & Continue Cancel

Container : Root/Misc

Pay Item No. * : 104150 [Clear](#)

Description * : PROJECT SIGNS (NEW)

Unit * : EA

Funding Rule : Select

Inflation Rule : None

Annual Inflation Rate (in %) : 0.00

Effective from : None [?](#)

Accounting Code :

Quantity * : 20.0000 [Sub Items](#)

Unit Price in \$: 100.00

Amount in \$: 2,000.00

Complete :

Select Item from Library

Standard Item Table : StandardItems

Ignore Containers of Standard Items [Select](#)

5. Enter the appropriate information in the editable fields.
6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

9.6.3. Generating Current Budget Reports

You can generate current budget reports that illustrate various information views. The reports enable various project stakeholders to stay up-to-date on the status of the budget.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Current Budget**.

The **CURRENT BUDGET** page is displayed.

4. In the toolbar, click **Reports**, and then click the appropriate report.

You can generate the following reports:

- Current Budget Details
- Project Cost Sheet

For information on the various report features available, see [Standard Report Functions](#).

9.7. Generating Budget Management Reports

You can generate various budget management reports that illustrate various information views. These reports enable various project stakeholders to stay up-to-date on the budget status of the project.

You can generate various budget management reports.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand **Budget Management**, and then click **Reports**.

The **REPORTS** page is displayed.

4. Double-click the appropriate report.

The report is generated and displayed.

For information on the various report features available, see [Standard Report Functions](#).

You can generate the following reports:

- [Budget Estimate Details Report](#)
- [Budget Revision Details Report](#)
- [Current Budget Details Report](#)

Budget Estimate Details Report

The Budget Estimate Details Report displays the budget estimate items' details of the selected budget estimate. Information includes container, line number, name, and description, unit price and quantity of each of the items.

The following information is displayed:

- Project Name - Name of the project.
- Project Code - Identification code of the project.
- Budget Estimate ID - Identification code of the budget estimate.
- Budget Estimate Name - Name of the budget estimate.
- Budget Estimate Type - The type associated with the budget estimate.
- Status - Workflow status of the budget estimate.
- Created By - First name of the user who created the budget estimate.
- Created Date - The date the budget estimate was created.
- Container - List of containers created in the budget estimate.
- Name - List of items in the budget estimate (within or outside containers).
- Description - Description for the budget estimate item.
- Fund Rule - Fund rule associated with each budget estimate item.
- Unit Price in \$ - Unit price of each budget estimate.
- Quantity - Quantity of each budget estimate item.
- Amount in \$ - Total cost for each budget estimate item.

Budget Revision Details Report

The Budget Revision Details Report displays details on the added and modified budget estimate items. Item information, such as container, name, description, unit price, quantity, and amount of the revised items is displayed.

- Project Name - Name of the project.
- Project Code - Identification code of the project.
- Budget Estimate ID - Identification code of budget estimate revision.

- Budget Estimate Name - Name of the budget estimate revision.
- Budget Estimate Type - The type of the budget estimate revision.
- Status - Workflow status of the budget estimate revision.
- Created By - First name of the user who created the budget estimate revision.
- Created Date - Date the budget estimate revision was created.
- Container - List of containers in the budget estimate revision.
- Name - List of items in the budget estimate revision (within or outside containers).
- Description - Description of each budget estimate revision item.
- Fund Rule - Fund rule of each budget estimate revision item.
- Unit Price in \$ - Unit price of each budget estimate revision item.
- Quantity - Quantity of each budget estimate revision item.
- Amount in \$ - Total cost for each budget estimate revision item.

Current Budget Details Report

The Current Budget Details Report displays the list of all items from the approved budget estimate and all its approved revisions grouped by containers. Item information, such as container name, line number, name, description, unit price, quantity, and amount are displayed.

The following information is displayed:

- Project Name - Name of the project.
- Project Code - Identification code of the project.
- Container - List of containers part of the current budget.
- Name - List of current budget items.
- Description - Description of each current budget item.
- Resources - List of resources associated with each of the current budget items.
- Unit Price in \$ - Unit price of each current budget item.
- Quantity - Quantity of each current budget item.
- Amount in \$ - Total cost for each of the current budget items.
- Total Container Cost - The total cost, at the container level, of all the current budget items within the container.
- Grand Total - The total cost of all the budget items available in the current budget.

10. Bid Estimate Management

10.1. Bid Estimate Information

One of the important status in project management is cost estimation. An estimate establishes the baseline of the project cost at different status in the development of the project. It represents a prediction of the project costs based on available data.

To ensure a competitive contracting environment, the engineer's estimate reflects a fair and reasonable cost of the project. It contains sufficient details to reflect the actual estimate of the project.

The **Bid Estimate Information** module provides a simple and intuitive interface with powerful functions and comprehensive reporting features.

The features of the **Bid Estimate Information module** include:

Unit Price Search: A tool that enables the engineer to prepare a fair and reasonable estimate using the historic data of stored engineer's estimates, awarded contracts, and accepted and rejected bids.

Bid Items: The Bid Items feature enables the preparation of an engineer's estimate with numerical codes and description of the items, and components. Items categorized into standard lists can be added.

Bid Letting: The Bid Letting feature enables you to list estimates for bids, advertise, and send out bid lists to potential contractors for bidding.

Bid Management: The Bid Management feature enables engineers and management personnel to assess competition, range of bids and compare bids with the engineer's estimate, differences of unit bid prices between bidders and engineer's estimate. The analysis provided by this feature enables managers to determine the most competitive bid before awarding.

Reports: Estimate Reports provide a comprehensive summary of estimates, estimate costs, bids, bid tabulation details, and much more.

The functional flow for bid estimate management is as follows:

1. [Create a bid estimate record.](#)
2. Bid Items
 - a. [Add bid items and save the record.](#)
 - b. [Lock the bid items.](#)
 - c. [Approve the bid items.](#)

3. Bid Letting

- a. [Create a new bid letting record.](#)
- b. [Change the status to Issued and save the record.](#)

4. Bid Management

- a. [Add contractor bid proposals.](#)
- b. [Submit the bid record.](#)
- c. [Evaluate the bids and award the bid to one contractor.](#)

10.2. Working with Estimates

10.2.1. Working with Estimates

Every project requires estimates to invite bids from contractors or send bid responses or tenders to owners who invite bids or float tenders. Masterworks enables you to create multiple estimates for a project. An estimate is created to list appropriate items with the subitems, quantity of work, and unit rates of each item to provide a fair and competitive cost of a project. An estimate is created for the following scenarios:

- As an owner, prepare an engineer's estimate to invite bids/tenders from contractors, and analyze the received bids/tenders before awarding the project work to the most competitive bidder.
- As a contractor, prepare a response for the bid and submit it to the owner.

10.2.2. Creating a Bid Estimate

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. Double-click the required project.

3. In the navigation pane, expand the project folder, and then click **Bid Estimate Information**.

The **ESTIMATE LIST** page is displayed.

4. Click **New**.

The **CREATE ESTIMATE** page is displayed.

Create Estimate Page

CREATE ESTIMATE

Save Cancel

Estimate ID * :

Estimate Name * :

Description :

Work Type :

Estimate Type :

Measurement System * :

Standard Pay Item list :

Created by :

Date Created :

Estimate Total :

Advertisement Date :

Bid Opening Date :

ATTRIBUTES

Attribute :

Value :

5. Provide the required information in the fields, as described in the following table.

Field	Description
Estimate ID	Enter the identification number for the estimate.
Estimate Name	Enter the name for the estimate.
Description	Enter the description of the estimate.

Field	Description
Work Type	Select the work type. Available options are work types defined in the Work Type library catalog.
Estimate Type	Select the estimate type. Available options are estimate types defined in the Estimate Type library catalog.
Measurement System	Select the measurement system used for the estimate. Available options are measurement systems defined in the Measurement Systems library catalog. For information on measurement systems, see Measurement Systems .
Standard Pay Item list	Select the standard pay item list for the estimate. For information on standard items, see Standard Items Tables .

The following non-editable fields are displayed:

Field	Description
Created By	On saving the record, the name of the user who created the estimate.
Date Created	On saving the record, the date the estimate is created.
Estimate Total	On approval of the bid items, the total cost of the bid items. For information on bid items, see Bid Items .
Advertisement Date	On issuing a bid letting, the advertisement date of the bid letting. For information on bid letting, see Bid Letting .
Bid Opening Date	On issuing a bid letting, the bid opening date. For information on bid letting, see Bid Letting .

6. In the **ATTRIBUTES** section, perform the following steps to add attributes to the bid estimate:
 - a. Expand **ATTRIBUTES**.

Note: You can add attributes only if attributes are created for bid estimation. For information on attributes, see [Managing Bid Attributes](#) on page 695.

- b. From the **Attribute** drop-down list, select the required attribute. Available options are attributes defined in the **Master Attributes** list. For information on attributes, see [Managing Bid Attributes](#) on page 695.
 - c. In the **Value** box, enter the value for the selected attribute.
 - d. Click **Add**.

7. Click **Save**.

The bid estimate is created. Forms to manage bids are available in the navigation pane.

10.2.3. Managing Bid Attributes

You can add bid-estimate-specific information as attributes to a bid estimate to record additional bid information. Attributes are customized fields to provide additional information about a bid in addition to the standard fields.

Every attribute is associated with a value type, such as Integer, Float, Text, Currency, or Date, that defines the type of data that can be entered in the field. For example, if the type for Estimated Cost is defined as Currency, then you are allowed to enter a value in currency format only. You can only delete bid attributes that are not in use.

You can perform the following tasks:

- [Add a Bid Attribute](#).
- [Delete a Bid Attribute](#).

10.2.3.1. Adding a Bid Attribute

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. Double-click the appropriate project.
3. In the navigation pane, expand the project folder, and then click **Bid Estimate Information**.

The **ESTIMATE LIST** page is displayed.

4. Click **Settings**.

The **MASTER ATTRIBUTES** page is displayed.

Master Attributes Page

The screenshot shows the 'MASTER ATTRIBUTES' page. At the top, there's a header bar with 'MASTER ATTRIBUTES', a 'Back' button, and an 'Audit Log' button. Below the header is a section titled 'ADDITIONAL INFORMATION :'. A table displays one attribute entry:

Attribute name	Attribute type	
Integration Key	Text	

At the bottom of the page are two buttons: 'Add New Attribute' and 'Delete Attribute'.

5. Click **Add New Attribute**.

The **Create Attribute** section is displayed.

6. In the **Attribute name** box, type the name of the attribute.

7. From the **Attribute type** drop-down list, select the type of value for the attribute.

This defines the type of value that you can enter for the attribute. The attribute types available are as follows:

- **Text** - Text string limited to 255 characters.
- **Integer** - Numbers with no decimals.
- **Date** - Date.
- **Float** - Numbers with decimals.
- **Currency** - Currency.

8. Click **Add**.

The **Master Attribute List** is updated with the new attribute.

9. Click **Back** to return to the list page.

10.2.3.2. Deleting a Bid Attribute

- The attribute is not used in any of the bid estimate information records.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. Double-click the appropriate project.

3. In the navigation pane, expand the project folder, and then click **Bid Estimate Information**.

The **ESTIMATE LIST** page is displayed.

4. Click **Settings**.

The **MASTER ATTRIBUTES** page is displayed.

5. In the **Additional Information** section, click the attribute to delete, and then click **Delete Attribute**.

A confirmation message is displayed.

6. Click **OK**.

10.2.4. Managing a Bid Estimate

You can hide a bid estimate or delete a bid estimate. When you hide a bid estimate, you can restore the bid estimate to view it; but when you delete a bid estimate, you cannot restore it.

You can perform the following tasks:

- [Hide a bid estimate](#).
- [Restore a bid estimate](#).
- [Delete a bid estimate](#).

10.2.4.1. Hiding a Bid Estimate

You can hide a bid estimate. When you hide a bid estimate, you can restore the bid estimate to view it.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. Double-click the appropriate project.

3. In the navigation pane, expand the project folder, and then click **Bid Estimate Information**.

The **ESTIMATE LIST** page is displayed.

4. Click the appropriate bid estimate, click **Delete**, and then click **Delete from View**.

A confirmatory message is displayed.

5. Click **OK**.

The bid estimate is hidden from view.

10.2.4.2. Restoring a Hidden Bid Estimate

You can restore a hidden bid estimate to view it.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. Double-click the appropriate project.

3. In the navigation pane, expand the project folder, and then click **Bid Estimate Information**.

The **ESTIMATE LIST** page is displayed.

4. Click **Restore**.

The list of all hidden bid estimates is displayed.

5. Select the appropriate bid estimates, and then click **Restore**.

A confirmatory message is displayed.

6. Click **OK**.

7. Click **Back**.

The bid estimate is available in the **ESTIMATE LIST** page.

10.2.4.3. Deleting a Bid Estimate

When you delete a bid estimate, you cannot restore it.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. Double-click the appropriate project.

3. In the navigation pane, expand the project folder, and then click **Bid Estimate Information**.

The **ESTIMATE LIST** page is displayed.

4. Click the appropriate bid estimate, click **Delete**, and then click **Delete from Database**.

A confirmatory message is displayed.

5. Click **OK**.

The bid estimate is deleted from the application.

10.3. Groups and Alternate Bids

10.3.1. Configuring Groups and Alternate Bids

Scheduled Groups

Scheduled Groups are used to define an alternate mode to categorize items. Scheduled groups are used in addition to the primary categorization of items using containers. Similar to containers, you can create multiple groups and associate items for categorization. For example, you can have an item in a container based on the work type; and additionally, you can group the item in a scheduled group based on the payment mode. By default, Masterworks assigns the default group to items.

Alternate Bids

Alternate Bids enables you to create a substitute for items in the estimate, or a variation from the base specifications of a bid. For example, flooring of a building can have options, such as wooden flooring, stone flooring, and so on; or alternates can include items that are optional. A set of items defined in alternates can be included or excluded to an estimate to determine and analyze cost estimates in various item combinations. It is mandatory that all items be associated to at least one alternate. By default, all items are defined in the Base Bid alternate.

You can perform the following tasks:

- [Configure groups.](#)
- [Add alternate bids.](#)

10.3.2. Managing Alternate Bids

You can add alternate bids, edit details of a bid, and delete a bid. However, you cannot edit details of a bid estimate or delete a bid estimate if the alternate bid is associated with bid estimate items.

You can perform the following tasks:

- [Add alternate bids.](#)
- [Edit details of a bid.](#)
- [Delete a bid.](#)

10.3.2.1. Adding an Alternate Bid

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Click **More**, and then click **Settings**.

The **ESTIMATE SETTINGS** page is displayed.

Estimate Settings Page

The screenshot shows the 'ESTIMATE SETTINGS' page. At the top is a back navigation button labeled 'Back'. Below it is a 'GROUPS' section containing a table with one row: 'Default' under 'Name' and 'Default Group' under 'Description'. Below the table are three buttons: 'Add', 'Edit', and 'Remove'. Underneath is an 'ALTERNATES' section with a similar table structure: 'Alternate Code' (Base Bid), 'Alternate Name' (Base Bid), and 'Notes' (empty). Below this table are three more buttons: 'Add', 'Edit', and 'Remove'.

Name	Description
Default	Default Group

Alternate Code	Alternate Name	Notes
Base Bid	Base Bid	

7. In the **ALTERNATES** section, click **Add**.

The **ALTERNATE DETAILS** section is displayed.

8. In the **Alternate Code** box, enter a unique identification code for the alternate.
9. In the **Alternate Name** box, enter the name for the alternate bid.
10. In the **Notes** box, enter the name of the alternate bid.
11. Click **Add**.
12. Click **Back** to return to the **ITEM LIST** page.

10.3.2.2. Editing the Details of an Alternate Bid

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the required bid estimate.
5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Click **More**, and then click **Settings**.

The **ESTIMATE SETTINGS** page is displayed.

7. In the **ALTERNATES** section, click the bid to be edited, and then click **Edit**.

The **ALTERNATE DETAILS** section is displayed.

8. In the **Alternate Code** box, enter a unique identification code for the alternate.

9. In the **Alternate Name** box, enter the name of the bid.

10. In the **Notes** box, enter the name of the bid.

11. Click **Update**.

The bid details are updated.

10.3.2.3. Deleting an Alternate Bid

You can delete an alternate bid only if it is not associated with any bid estimate items.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder.

4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.

5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Click **More**, and then click **Settings**.

The **ESTIMATE SETTINGS** page is displayed.

7. In the **ALTERNATES** section, click the bid to be deleted.

8. Click **Remove**.

A confirmation dialog box is displayed.

9. Click **OK**.

10.3.3. Configuring Groups

In addition to categorizing items in containers, you can categorize items based on groups. Groups enable an additional item grouping methodology. You can associate multiple items to multiple groups that are definable. For example, if containers are used for organizing sections of work, groups could be used to organize items based on payment modes.

You can perform the following tasks:

- [Add groups](#).
- [Edit details of a group](#).

- [Delete groups.](#)

However, you cannot edit details of a group or delete a group if the group is associated with bid estimate items.

10.3.3.1. Adding a Group

You can create a group and associate items to the group. For information on associating a group to an item, see [Editing Item Details](#).

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Click **More**, and then click **Settings**.

The **ESTIMATE SETTINGS** page is displayed.

7. In the **GROUPS** section, click **Add**.

The **GROUP DETAILS** section is displayed.

8. In the **Name** box, enter the name of the group.
9. In the **Description** box, enter the description of the group.
10. Click **Add**.

The group is added to the list of groups.

10.3.3.2. Editing the Details of a Group

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Click **More**, and then click **Settings**.

The **ESTIMATE SETTINGS** page is displayed.

7. In the **GROUPS** section, click the group to be edited, and then click **Edit**.

The **GROUP DETAILS** section is displayed.

8. In the **Name** box, enter the name of the group.

9. In the **Description** box, enter the description of the group.

10. Click **Update**.

The group details are updated.

10.3.3.3. Deleting a Group

You can delete a group only if the group is not associated with any bid estimate items.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder.

4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.

5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Click **More**, and then click **Settings**.

The **ESTIMATE SETTINGS** page is displayed.

7. In the **GROUPS** section, click the group to be deleted.

8. Click **Remove**.

A confirmation dialog box is displayed.

9. Click **OK**.

10.4. Bid Items

10.4.1. Bid Items

The bid items list comprises the list of required items for the project, with information on unit cost and quantities of items required. The Bid Item list enables you to estimate the projected costs and invite bids/tenders from various contractors, analyze, and award the bid to the appropriate contractor to perform identified tasks. The Bid Item list is used for bid letting, bid analysis, and to award contracts.

You can perform the following tasks:

- [Add containers](#) to nest items of a work type in one container.
- [Add items](#) from the standard item lists or add ad-hoc, non-standard items to the bid estimate item list.

- [Add multiple items](#) in one instance.
- [Predict the unit price](#) of items based on historical data.
- [Lock the item list](#) to prevent updates.

10.4.2. Unit Price Search

The **Unit Price Search** utility in the **Bid Estimate Information** module provides the estimator with historic data of bid unit price of items from the collection of stored unit prices and related data of all engineer's estimates, and awarded and rejected bids of projects in the enterprise. The **Unit Price Search** utility uses the Multiple Linear Regression type of predictive analysis that assists in determining the best cost estimate of items based on historic pricing data and the inflation value that you can specify. You can filter unit price information using multiple criteria from a specific project or all projects in the enterprise.

With the **Unit Price Search** utility, you can perform the following tasks:

- Search for bid items based on specified filter criteria.
- Export the search results in an Excel workbook.
- Predict the unit price for bid items based on historical price data and by specifying inflation.
- View the plotting of the prices on a chart (Price against Quantity).

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- 2.** In the list page, double-click the appropriate project.
- 3.** In the navigation pane, expand the project folder.
- 4.** Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
- 5.** In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Perform any of the following steps:

- To perform a unit price predictive analysis for multiple items, perform the following steps:

- Select the appropriate items.

- Click **Unit Price Search**.

The **UNIT PRICE SEARCH** page is displayed.

Unit Price Search Page

The screenshot shows the 'UNIT PRICE SEARCH' page. At the top, there are buttons for 'Search', 'Reset', 'Save', 'Back', and 'Save Search Criteria'. Below this is a section for 'SEARCH CRITERIA' with three radio buttons: 'Search In All Projects' (selected), 'Search In Specific Project', and 'Search In Specific Job'. Under 'SEARCH CRITERIA', there are fields for 'Contractor' (dropdown menu), 'Bid Status' (dropdown menu), 'Inflation %' (text input), and 'Quantity between' (two dropdown menus). Below this is a 'BID DATE' section with 'From' and 'To' dropdowns and a 'Search Based On' dropdown set to 'Pay Item No.'. At the bottom is a 'PAY ITEM' table with columns for a checkbox, 'Pay Item No.', and 'Description'. One row is shown: a checked checkbox next to '12345', '12345' in the Pay Item No. column, and 'Steel' in the Description column. At the very bottom are 'Add' and 'Delete' buttons.

The **Pay Item** table displays the selected items.

- To add more items to perform price predictive analysis, perform the following steps:
 - Click **Add**.
The **Standard Items** dialog box is displayed.
Available items are from the selected standard items table for the bid.
 - Select the appropriate items, and then click **Select**.
- To perform a unit price predictive analysis for a single item, that is when adding a new item, or editing details of an item, perform the following steps:
 - To create a new item, click **New**.
Alternatively, to edit details of an item, select the appropriate item, and then click **Edit**.
 - Corresponding to the **Unit Price in \$** box, click **Unit Price Search**.
When editing an item, the **Pay Item** table displays the selected item.
 - To select an item to perform price predictive analysis, perform the following steps:

i. Click **Add**.

The **Standard Items** dialog box is displayed.

Available items are from the selected standard items table for the bid.

ii. Click the appropriate item, and then click **Select**.

7. Provide the required inputs in the fields, as described in the following table.

Field	Description
Search In All Projects	Search for unit price data in estimate and bids across all the projects in the application.
Search in Specific Project	Search unit price data in estimates and bids from a specified project.
Project	If the Search in Specific Project option is selected, then to select the required project, in the box, enter the name of the project, and from the list of projects that you are invited to, click the appropriate project. Alternatively, click in the box, and from the list of projects that you are invited to, click the appropriate project.
Contractor	Search from bids of a selected contractor. If left blank, searches for all bids of all contractors. In the box, enter the name of the contractor, and from the list of contractors, click the appropriate contractor. Alternatively, click in the box, and from the list of contractor, click the appropriate contractor. Available options are contractors defined in the Contractor library catalog.
Bid Status	Search from bids of selected bid statuses. If left blank, searches from all bids of all bid statuses. Select the appropriate bid status options, or select the Engineers Estimate option.
Inflation %	Enter the inflation value to calculate the suggested price based on the available historical data.
Quantity between	Search from bids that have the item in the specified quantity range. Enter the range of quantities of the bid item.
Bid Date	Search from bids created in the specified date range based on the Bid Status selected. Select the date range of the bids.

Field	Description
Search Based On	Select any of the following search criteria: <ul style="list-style-type: none">• Pay Item No. - Search is based on only the Pay Item No. of the item.• Description - Search is based on only the Description of the item.• Pay Item No. and Description - Search is based on the Pay Item No. and the Description of the item.

8. Click **Search.**

The **Search Results** section displays the following information:

Field	Description
Low in \$	The lowest unit price from the search results.
High in \$	The highest unit price from the search results.
Suggested Unit Price	The suggested unit price after calculation for predictive analysis.
Average Unit Price in \$	The calculated average unit price from the search results.
Unit Price in \$	The unit price of the item. The Suggested Unit Price value is copied to this field when you click Add to Unit Price .

9. Perform either of the following, as applicable:

- If a single item is selected, perform the following steps:
 - a. Optionally, to exclude any of the search results to calculate the **Suggested Price**, clear the required check boxes.
 - b. Click **Generate Suggested Price**.
 - c. To copy the suggested price as the unit price of the item, click **Add to Unit Price**.
The unit price is set as the suggested price.
 - d. Optionally, perform any of the following steps:
 - To copy search results to an Excel workbook, click **Export**.
 - To reset the search criteria, click **Reset**.
 - To save the search criteria for the item, click **Save Search Criteria**.
 - To view the item trend chart that displays the price to quantity graph, click **Graph**.
 - e. To view the item details page, click **Back**.
- If multiple items are selected, the suggested price for each item is displayed in the **Suggested Price** column. Perform the following steps:
 - a. Optionally, to exclude any of the items' suggested price from being copied as the unit price of the item, clear the required check boxes.
 - b. Click **Save**.
The unit price search of the selected items is set as the suggested price.
 - c. Optionally, perform any of the following steps:
 - To reset the search criteria, click **Reset**.
 - To save the search criteria for the item, click **Save Search Criteria**.
 - d. To view the item list page, click **Back**.

10.4.3. Managing Containers

You can create containers in a bid estimate to categorize bid items. You can also delete an entire container to remove items of that container from the bid estimate.

The following topics enable you to manage containers:

- [Create container](#).
- [Delete container](#).

10.4.3.1. Creating a Container

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Click **New**, and then click **New Container**.

The **CONTAINER** page is displayed.

Container Page

CONTAINER

Save & Exit Save & Continue Cancel

Name *: [Text Box]

Description : [Text Box] (Placeholder: Enter description)

Notes : [Text Box]

Parent Container : Root
 Default

7. In the **Name** box, enter the name of the container.
8. In the **Description** box, enter the description of the container.
9. In the **Notes** box, enter the notes for the container.
10. In the **Parent Container** list, click the container in which the current container must be created.
11. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The container is created.

10.4.3.2. Deleting a Container

On deleting a container, the items in the container are also deleted from the bid estimate.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.

5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Select a container to delete.

7. Click **Delete**.

A confirmation message is displayed.

8. Click **OK**.

The container and the items in the container are deleted.

10.4.4. Adding Items to the Bid Item List

Items are an integral part of an estimate that determines work and the projected cost to implement a project. You can add items to the bid estimate to determine a fair and competitive cost to invite bids from contractors.

You can add items in any of the following ways:

- [Manually entering appropriate information](#)
- [Adding items from the Standard Items list](#)
- [Importing item details using an Excel template](#)

10.4.4.1. Adding Items Manually

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder.

4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.

5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Click **New**, and then click **New**.

Alternatively, perform either of the following steps:

- To add the item within a selected container, select the appropriate container, click **New**, and then click **New**.
- To convert an existing item to a container and add the item to the container, select the appropriate item, click **New**, and then click **New**.
In the confirmation box, click **OK**.

The **NEW ESTIMATE ITEM** page is displayed.

New Estimate Item Page

NEW ESTIMATE ITEM

Save & Exit Save & Continue Save & Create New Cancel

Container :	...
Pay Item No. *:	<input type="text"/> Clear
Description *:	<input type="text"/>
Unit *:	Select
Group *:	Default
Budget Item :	...
Funding Rule :	Select
Accounting Code :	<input type="text"/>
Alternate *:	Base Bid
Component Count :	0 Components
Quantity *:	0.0000 Sub Items
Unit Price in \$:	<input type="text"/> Unit Price Search
Force Unit Price :	<input type="checkbox"/>
Amount in \$:	<input type="text"/>
Notes :	<input type="text"/>

RESOURCES

<input type="checkbox"/>	Title ID	Title	Resource Category	Resource Type	Units	Fixed Price in \$	Variable Price in \$/U
No data to display							

Select Resource Type [▼](#) [Add From Library](#) [Add Manually](#) [Delete](#)

ATTACHMENTS

7. Provide the required information in the fields, as described in the following table.

Field	Description
Container	<p>If you have selected a container, the name of the selected container is displayed.</p> <p>To select a container to categorize items, perform the following steps:</p> <p class="list-item-l1">a. Click .</p> <p>The SELECT CONTAINER page is displayed.</p> <p class="list-item-l1">b. Click the required container.</p> <p>For information on creating a new container, see Creating a Container.</p>

Field	Description
Pay Item No.	<p>Enter the item number.</p> <p>Alternatively, to select an item from the library, perform the following steps:</p> <ol style="list-style-type: none">In the Select Item from Library section, from the Standard Item Table drop-down list, select the standard table in which the required item is defined. Available options are standard item tables defined in the Standard Items Table library catalog. For information on Standard Items Table, see Standard Items Table.Optionally, select the Ignore Containers of Standard Items check box to only select the item and not the container of the item. If the check box is selected, the item is added to the selected container. If the check box is cleared, the item and its container are added to the budget estimate.Click Select to select an item from the selected standard items table. The item selection dialog box is displayed. Available options are items defined in the selected standard items table that is defined in the Standard Items Table library catalog. For information on Standard Items Table, see Standard Items Table.Click an item, and then click Select. The Pay Item No., Description, Unit, Group, Accounting Code, and Unit Price in \$ are displayed.
Description	Enter the description of the item. Item description is displayed automatically if you have selected the item from the library.

Field	Description
Unit	Select the unit of measure for the item. Available options are measurement units defined in the measurement system selected for the bid estimate. Measurement system of the bid estimate is defined in the BID ESTIMATE DETAILS page. For information on measurement systems, see Measurement Systems .
Group	Select the group name for the item. For information on groups, see Configuring Groups .
Budget Item	To associate a bid item with a budget item, click  , and then click the budget line item the bid item must be associated with. Available options are budget items from the approved budget estimate of the project. For information on budget estimates, see Budget Estimates .
Funding Rule	Select the funding rule from the list of approved fund rules to associate the item amount to the selected fund rule. For information on funding rules, see Project Fund Rules .
Accounting Code	Enter the accounting code assigned to the item. Accounting code of the item is displayed automatically if you have selected the item from the library.
Alternate	Select Base Bid to specify the item is a base bid item. Alternatively, select an alternate bid to specify the item as an alternate bid item. For information on alternate bid items, see Adding Alternate Bids .
Component Count	<ol style="list-style-type: none">a. Click Components to define item components.b. Click New to add an item component.c. In the Name box, enter the name of the item component.d. In the Description box, enter the description of the item component.e. Click Save.f. Click Back.

Field	Description
Quantity	<p>Enter the required quantity of the item.</p> <p>You can add sub-items to an item, and the quantity of the item is calculated as the sum of all the sub-items added.</p> <p>For more information, see Adding Sub Items.</p>
Unit Price in \$	<p>Enter the cost per unit.</p> <p>The Amount in \$ box displays the total amount of the item calculated as the product of quantity of the item and unit price of the item.</p> <p>Using the Unit Price Search feature, you can search for bid items based on filter criteria. You can also determine the best price for the item based on historical pricing data and by specifying inflation. To use the Unit Price Search feature, see Unit Price Search.</p>
Force Unit Price	Select this option to mandate the bidder to bid at the price quoted in the engineer's estimate item list. This ensures that a bidder cannot modify the unit price for the item.
Notes	Enter any additional information relevant to the item.

8. To add resources to the bid item, in the **RESOURCES** section, perform either of the following steps:

- To add resources from the library, perform the following steps:
 - a. From the **Select Resource Type** drop-down list, select the required resource to be added to the bid item.
 - b. Click **Add From Library**.

The **Title(s) Picker** dialog box is displayed.

Available options are based on the resource type selected in the **Select Resource Type** drop-down list.

Available options are resources defined in the corresponding library catalog for the selected resource type. For example, if you have selected **Equipment**

from the **Select Resource Type** drop-down list, then the available options are from the **Equipment** library catalog.

- c. Select the required resources, and then click **Select**.

The selected resources are added to the table.

Resource information, such as **Resource ID**, **Title**, **Resource Category**,

Resource Type, **Units**, **Fixed Price in \$**, **Variable Price in \$/Unit** are displayed for the selected resources.

- d. For each column in the table, enter information as described in the following table.

Column	Description
No. of Resources	Enter the number of resources required.
Quantity in Units	Enter the number of units for each resource.

The following information is displayed.

Column	Description
Amount in \$	The amount in \$ is calculated as: $\text{Amount in \$} = (\text{No. of Resources}) * (\text{Fixed Price} + (\text{Variable Price} * \text{Quantity in Units}))$

- To add resources manually, perform the following steps:
 - a. Click **Add Manually**.
A row is added to the table.
 - b. For each column in the table, enter information as described in the following table.

Column	Description
Title	Enter title for the resource.
Resource Category	Select the resource category for the resource.

Column	Description
Resource Type	Select the resource type for the resource. Perform either of the following steps: <ul style="list-style-type: none">■ If the selected Resource Category is either Equipment or Material, then select NA from the Resource Type drop-down list.■ If the selected Resource Category is Resource Titles, then from the Resource Type drop-down list, select Internal, Contractor, or Consultant.
Units	Select the required unit of measure. Available units are all the units of measure defined in the Measurement Systems library catalog. For information on Measurement Systems, see Measurement Systems . If the selected Resource Category is Resource Titles , then from the Units drop-down list, select Hour , Day , Month , or Year .
Fixed Price in \$	Enter the fixed price for the resource.
Variable Price in \$/ Unit	Enter the variable price for the resource.
No. of Resources	Enter the number of resources required.
Quantity in Units	Enter the number of units for each resource.

The following information is displayed.

Column	Description
Amount in \$	The amount in \$ is calculated as: $\text{Amount in \$} = (\text{No. of Resources}) * (\text{Fixed Price} + (\text{Variable Price} * \text{Quantity in Units}))$

9. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

10. To save the item, perform any of the following as applicable:

- Click **Save & Exit** to return to the items list page.
- Click **Save & Continue** to save and continue on the same page.
- Click **Save & Create New** to save the current item and continue creating a new item.

10.4.4.2. Adding Multiple Items to the Bid Item List

The **Add Multiple** option enables you to add multiple items from a **Standard Items List** to the bid item list. This method saves time and effort.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder.

4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.

5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Click **New**, and then click **Add Multiple**.

The **ADD STANDARD ITEMS** page is displayed.

Add Standard Items Page

7. From the **Standard Item List** drop-down list, select the standard table where the item is defined.

Available options are standard item tables defined in the **Standard Items Table** library catalog. For information on **Standard Items List**, see [Standard Items Table](#).

8. Optionally, select the **Ignore Containers of Standard Items** check box only to select the item and not the item container.

If the check box is selected, the item is added to the selected container.

If the check box is cleared, the item and its container are added to the budget estimate.

9. Click **Use Pay Item No. Groups** to assign the scheduled group to the items as defined in the **Standard Items Table** library catalog.

Alternatively, click **Use Group** and select a scheduled group from the list. For information on scheduled groups, see [Adding Scheduled Groups](#).

10. Click **Add**.

The items in the standard list are displayed.

Available options are items defined in the item list selected in the **Standard Item List** drop-down list.

11. Select the items you want to add to the estimate item list.

12. Click **Select**.

13. Click **Save**.

You can now edit item information. For information on editing item details, see [Editing Item Details](#).

10.4.4.3. Importing Details of Bid Items in Bulk

You can import details of multiple bid items to a bid estimate using a Microsoft Excel template workbook. In addition to uploading details of items in bulk, you can also update details of multiple items in bulk.

The high-level process of uploading or updating details of items in bulk is as follows:

1. Export the template workbook.
2. Add or update item information in the template workbook.
3. Import the updated workbook.

The **Instructions** tab in the Microsoft Excel workbook template provides information on updating the template.

Note: You cannot delete records or upload attachments using an Excel workbook.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder, expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
4. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

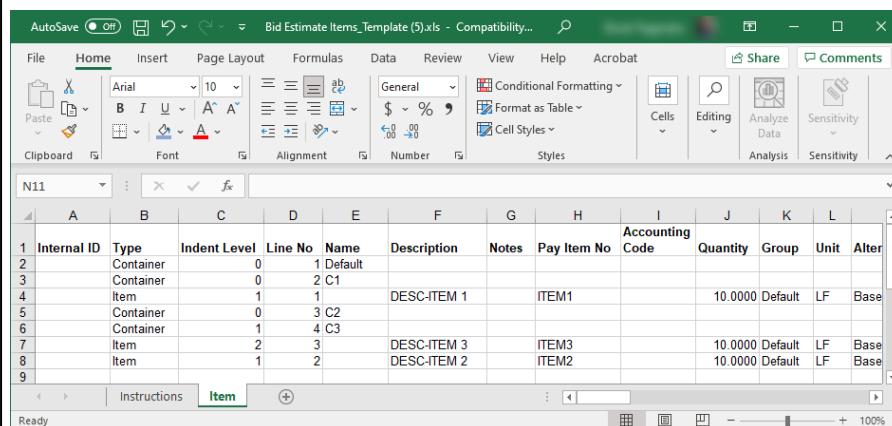
5. To export the Excel template workbook, perform the following steps:
 - a. Click **Excel Import / Export**, and then click **Excel Template** or **Excel Template With Data**.

The Excel workbook template is downloaded to the local storage.
 - b. Open the saved Excel workbook template.
6. Enter details of the bid items in the various columns, as described in the following table.

Column	Description
Internal ID	<p>For uploading details of new items, do not enter any details in the Internal ID column.</p> <p>For updating details of existing items, retain the value in the Internal ID column. The Internal ID column displays the unique identification code for the corresponding record of the form and is used as a reference to update estimate item details.</p>
Type	<p>Select the item type.</p> <ul style="list-style-type: none">• To create a container, select Container.• To create an item, select Item.• To create a sub-item, select SubItem.• To create an item associated equipment, enter Equipment.• To create an item associated material, enter Materials.• To create an item associated title, enter Resource Titles.

Column	Description
Indent Level	<p>Defines the line number of the parent container to group the current container or item into the parent container. Specify 0 for first level containers.</p> <p>For example, consider two containers, CONT1 and CONT2. To define CONT2 under CONT1, Indent Level for CONT1 must be set to 0 and Indent Level of CONT2 must be set to 1. Similarly for items, to define an item in CONT2, Indent Level of the item must be set to 2.</p> <p>The hierarchy of containers and items in containers must be defined sequentially in the Excel worksheet. For example, to define an item in a container CONT3 that is at indent level 0, the item must be defined with indent level 1 after the row with details of container CONT3. Similarly, to define sub-items for an item that is at indent level 1, the sub-items for that item must be defined with indent level 2 after the row with the details of the item.</p> <p>The following image illustrates three containers C1, C2, and C3. Container C3 is within C2. Items ITEM1 is in C1, ITEM2 is in C2, and ITEM3 is in C3. ITEM3 has one material, equipment, and title associated. Details of material, equipment, and titles associated to an item are entered in rows after the item details are entered. Note the indent levels defined in the Excel workbook.</p>

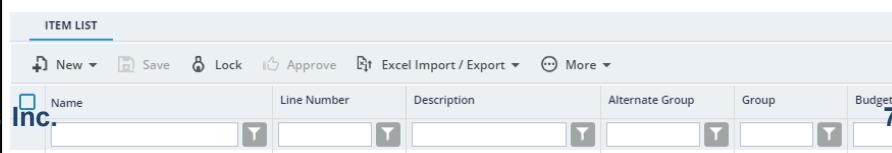
Bid Estimate Items



Internal ID	Type	Indent Level	Line No	Name	Description	Notes	Pay Item No	Accounting Code	Quantity	Group	Unit	Alter
1	Container	0	1	Default								
2	Container	0	2	C1								
3	Item	1	1		DESC-ITEM 1		ITEM1		10.0000	Default	LF	Base
4	Container	0	3	C2								
5	Container	1	4	C3								
6	Item	2	3		DESC-ITEM 3		ITEM3		10.0000	Default	LF	Base
7	Item	1	2		DESC-ITEM 2		ITEM2		10.0000	Default	LF	Base
8												
9												

The following image illustrates the items and containers imported to the **ITEM LIST** page using the Excel workbook containing information as illustrated in the previous image:

Bid Estimate Items Import List



Name	Line Number	Description	Alternate Group	Group	Budget It
Default					

Column	Description
Name	If Type is entered as Container , then in the Name column, enter the name of the container.
Item Description	Enter the description of the container or item. <ul style="list-style-type: none">• If Type is entered as Container, then in the Item Description column, enter a description for the container.• If Type is entered as Item, then in the Item Description column, enter a description for the item.• If Type is entered as SubItem, then in the Item Description column, enter a name for the sub-item.
Notes	If Type is entered as Container , or Item , or SubItem enter the notes for the container, or item, or sub-item.
Pay Item No	If Type is entered as Item , then in the Pay Item No column, enter a unique name or identifier to identify the item. <p>Note: Prefix an apostrophe to the first Pay Item No in the sheet if the first 8 rows contain numeric values, followed by alphanumeric pay item numbers starting row 9. Microsoft Excel automatically converts a text-content column to a numeric-content column if the first 8 rows contain numeric values.</p> <p>Mandatory field; information must be provided.</p>
Accounting Code	If Type is entered as Item , enter the accounting code for the item.
Quantity	If Type is entered as Item , then in the Quantity column, enter the required quantity of the item. If Type is entered as SubItem , then in the Quantity column, enter the required quantity of the subitem. The quantity of the item is calculated as the sum of all its subitem quantities.
Group	If Type is entered as Item , enter the name of the group, or enter Default .

Column	Description
Unit	If Type is entered as Item , enter the unit of measure for the item. Note: Ensure the unit of measure used is defined in the measurement system selected for the bid estimate. Mandatory field; information must be provided.
Alternate Group	If Type is entered as Item , then enter Base Bid or Alternate to specify the item as a base bid or alternate bid item. For information on groups, see Configuring Groups and Alternate Bids .
Unit Price in \$	If Type is entered as Item , enter the cost of each of the item. Mandatory field; information must be provided.
Budget Item	If Type is entered as Item , then enter the Pay Item No. of the budget item the bid item must be associated with. Enter the Pay Item No. of the budget item that is from the approved budget estimate of the project. For information on budget estimates, see Budget Estimates .
Fund Rule	If Type is entered as Item , enter the Rule Name of the funding rule from the list of approved fund rules to associate the item amount to the selected fund rule. For additional information on funding rules, see Project Fund Rules .
Force Unit Price	Enter Y to mandate the bidder to bid at the price quoted in the engineer's estimate item list. This ensures that a bidder cannot modify the unit price for the item. Alternatively, enter N .
Amount in \$	Do not enter any value. The value is automatically calculated for each item based on the unit price and quantity of the item.
Optionally, to associate resources, such as equipment, material, or resource titles to an item, enter the following resource information. Enter details of material, equipment, and titles associated to an item in rows after the item details row.	
Title ID	Do not enter any value. A unique identification code for the resource is automatically generated.
Resource Title	If the entered Type is either Equipment or Material , or Resource Titles , then enter the title for the resource.

Column	Description
Resource Type	<ul style="list-style-type: none">If the entered Type is either Equipment or Material, then enter NA.If the entered Type is Resource Titles, then enter Internal, Contractor, or Consultant.
Resource Units	<ul style="list-style-type: none">If the entered Type is either Equipment or Material, then enter the unit of measure for the resource. Ensure the unit of measure is entered as defined in the Measurement Systems library catalog.If the entered Type is Resource Titles, then enter the unit of measure as Hour, Day, Month, or Year.
Resource Fixed Price in \$	If the entered Type is either Equipment or Material , or Resource Titles , enter the fixed price for the resource.
Resource Variable Price in \$/Unit	If the entered Type is either Equipment or Material , or Resource Titles , enter the variable price for one unit for the resource.
Number of Resources	If the entered Type is either Equipment or Material , or Resource Titles , enter the number of resources required.
Resource Quantity in Units	If the entered Type is either Equipment or Material , or Resource Titles , enter the number of units for each resource.
Resource Amount in \$	<p>Do not enter any value. The value is automatically calculated for each resource.</p> <p>The amount in \$ is calculated as:</p> <p>Resource Amount in \$ = (Number of Resources) * (Resource Fixed Price in \$ + (Resource Variable Price in \$/Unit * Resource Quantity in Units))</p>

7. Click **Save** to save the Excel workbook.

8. To import the template workbook with item details to the application, perform the following steps:
 - a. In the **ITEM LIST** page, click **Excel Import / Export**, and then click **Excel Import**.
The **IMPORT DETAILS FROM EXCEL FILE** page is displayed.
 - b. Click **Choose File** to select the workbook with updated item information.
The **Open** dialog box is displayed.
 - c. Select the appropriate workbook, and then click **Open**.
 - d. Click **Upload** to import form information from the Excel workbook to the form.
On successful import, the success message is displayed.
 - e. On encountering errors while importing an Excel workbook, perform the following steps:
 - i. In the toolbar, click **Error Log**.
The error log workbook is downloaded to your local storage.
 - ii. Open the error log workbook to view the errors in the various columns.
Error messages in the cells are highlighted in red. Tabs in the workbook are also highlighted to indicate the presence of errors.
 - iii. Open the Excel workbook and modify the details as specified in the error log workbook.
Optionally, you can make relevant corrections in the error log workbook and upload it.
 - iv. Save and upload the Excel workbook to import the updated information.
 - f. Click **Save**.
 - g. Click **Back**.
- The items in the Excel workbook are uploaded to the **ITEM LIST** page.

10.4.5. Editing Item Details

You can edit item details, such as quantity, unit price, and containers, in the following ways:

- [Inline editing](#)
- [Using the Edit option](#)
- Using an Excel workbook. For more information, see [Uploading Bid Items in Bulk](#)

You can reorder items, or move them to other containers:

- [Moving an item to a different container](#)

10.4.5.1. Inline Editing

Inline Editing enables you to modify and save item details by directly editing details in the list page.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the required bid estimate.
5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Right-click on a row, and click **Expand All** to expand all containers and view item details.

7. Double-click the row of the item you want to edit.

The editable cells are highlighted.

8. Enter the appropriate information.
9. Click **Save**.

10.4.5.2. Using the Edit Option

You can modify and save item details in the **EDIT ITEM** page.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Right-click on a row, and click **Expand All** to expand all containers and view item details.

7. Select the item you want to edit.

8. Click **Edit**.

The **EDIT ESTIMATE ITEM** page is displayed.

9. Enter the appropriate information.

10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

10.4.5.3. Reordering Items and Containers

You can move items from one container to another, or move an entire container with the items in it to a different hierarchical level or a different container.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Click **Reorder**.

The **REORDER STRUCTURE** page is displayed.

7. Click **Expand All** to view all the items in the various containers.
8. Drag and drop the appropriate item into the appropriate container.
9. Click **Save**.

10. Click **Back**.

The **BUDGET ESTIMATE ITEMS** page is displayed.

10.4.6. Associating Budget Items to Bid Items

You can associate bid items to budget estimate items of the current budget. You can associate multiple bid items to a single budget item, but not associate one bid item to multiple budget items.

You can associate bid items to budget estimate items of the current budget. You can associate multiple bid items to a single budget item, but not associate one bid item to multiple budget items. When a budget item is associated with a bid item, the fund rule of the budget item is associated with the bid item. However, you can update the fund rule. For information on associating a fund rule to a contract item, see [Associating a Fund Rule](#).

Note: If a bid item is associated with a fund rule, and then a budget item is associated to the bid item, the fund rule associated to the bid item persists. Similarly, if the fund rule of the associated budget item is revised, the fund rule previously associated with the bid item persists.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Select the appropriate items.
7. Click **Association**, and then click **Associate Budget Items**.

The list of approved budget items, and approved budget revision items is displayed.

That is, the list of items in the current budget is displayed. For information on budget estimates, see [Budget Estimates](#).

8. Click the appropriate budget item, and then click **Select**.

The selected contract items are associated with the selected budget item.

9. Click **Save**.

10.4.7. Disassociating Bid Items from Budget Items

You can disassociate bid items and budget items of the current budget.

On disassociating a bid item from a budget item, the fund rule of bid item persists.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Select the appropriate items.
7. Click **Association**, and then click **Disassociate Budget Items**.
8. Click **Save**.

10.4.8. Associating Fund Rule

You can associate a fund rule to multiple bid items.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.

5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Select the appropriate items to associate a funding rule.

7. Click **Associate Fund**, and then click the appropriate funding rule.

Available options are active and approved funding rules defined for the project. For information on funding rules, see [Project Fund Rules](#).

8. Click **Save**.

10.4.9. Locking a Bid Item List

- Bid estimate items are added to the bid list. For information on adding bid estimate items, see [Adding Bid Items](#).

After the entire bid estimate item details are finalized, you must lock the item list to prevent modifications.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder.

4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.

5. In the navigation pane, click **Bid Items**.

The **ITEM LIST** page is displayed.

6. Click **Lock**.

A confirmation message is displayed.

7. Click **OK**.

The **Estimate Items** are locked.

10.4.10. Unlocking a Bid Item List

- A Bid Letting does not exist for the estimate.

A locked bid item list can be unlocked if you are required to modify estimate items or to add new items to the list before the estimate is processed for bid letting, analysis and award. You cannot unlock the estimate item list if a Bid Letting exists for the project.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder.

4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Items**.
The **ITEM LIST** page is displayed.
6. Click **Unlock**.
The **Estimate Items** are unlocked.

10.4.11. Approving a Bid Item List

- The estimate item list is locked. For information on locking the estimate, see [Locking Bid Item List](#).
1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 2. In the list page, double-click the appropriate project.
 3. In the navigation pane, expand the project folder.
 4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
 5. In the navigation pane, click **Bid Items**.
The **ITEM LIST** page is displayed.
 6. Click **Approve**.
The bid item list is approved.

10.4.12. Un-Approving a Bid Item List

- The estimate item list is approved. For information on locking the estimate, see [Approving a Bid Item List](#).
1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 2. In the list page, double-click the appropriate project.
 3. In the navigation pane, expand the project folder.
 4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
 5. In the navigation pane, click **Bid Items**.
The **ITEM LIST** page is displayed.
 6. Click **Undo Approve**.

10.5. Bid Letting

10.5.1. Bid Letting

Bid Letting is a formal and competitive procurement procedure through which offers are requested, received, evaluated, and consequently awarded to the bidder with the most suitable evaluated bid.

Bid Letting specifies the details of the project and schedules of advertising, last date, and time to submit bids, and date and time of opening the bids received from contractors.

Addendum is the process of issuing amendments to the issued bid list. Bid Addenda are created and issued when the initial bid letting has been issued and if you are required to modify item details, add new items, or delete Items from the bid list.

You can create only one Bid Letting for an estimate and issue, and thereafter create addenda to notify changes in the bid letting schedule, to modify, add, or delete estimate bid items.

Bid Letting provides the features to create a new bid letting, view and edit bid details, create addenda to an issued bid, and attach Items to the addendum.

The process of bid letting includes the following tasks in the order specified:

1. [Create a bid letting to specify the schedules of advertising and bidding.](#)
2. [Lock](#) and [approve](#) bid estimate items.
3. [Issue a bid letting to finalize the defined schedules.](#)
4. [Create addenda to update a bid letting.](#)
5. [Issue addenda to add, modify, or delete bid items.](#)

10.5.2. Creating a Bid Letting

- Bid estimate items are locked and approved.

Creating a bid letting is the first step in the process to invite bidders to bid for the estimate items.

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Letting**.

The **BID LETTING DETAILS** list page is displayed.

6. Click **New**, and then click **New Bid Letting**.

The **CREATE NEW BID LETTING** page is displayed.

New Bid Letting Page

CREATE NEW BID LETTING

Project Code, Name : PR-39333,Widen Tranco Road project

Letting ID * :

Bid Advertisement Date * :

Bid Issue Date * :

Pre Bid Meeting Date * :

Bid Opening Date and Time * : (UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi

Bid Due Time : (UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi

Address :

Notes :

Description * :

ATTACHMENTS

<input type="checkbox"/>	Document Name	Url/Link	Title	Uploaded By	Uploaded Date	File Size	Signed Copy
No Attachments available							

Status

Ball In Court :

Status :

Approved By :

The **Project Code, Name** field displays the project code and name of the project for which bid letting is being created.

7. Provide required information in the fields, as described in the following table.

Field	Description
Letting ID	Enter a unique identification code for the bid letting.
Bid Advertisement Date	Select the date on which the bid should be advertised.
Bid Issue Date	Select the date on which the bid should be issued.
Pre Bid Meeting Date	Select the date on which the pre-bid meeting should be held.

Field	Description
Bid Opening Date and Time	Select the date and time at which the bids received from contractors will be opened for analysis. <ul style="list-style-type: none">Click  , and select the date.Click  , and select the time.
Bid Due Time	Select the time until which bids will be received on the bid opening date. Click  , and select the time.
Address	Enter the address where bids must be submitted or delivered.
Notes	Enter additional information relevant to the bid letting.
Description	Enter description of the bid letting.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. From the **Ball in Court** drop-down list, select the person responsible for the next step in the bid letting process.

On saving the form, an email is sent to the selected user to take action. This notification will also be available in the **MY TASKS** page of the user.

10. From the **Status** drop-down list, select **Draft** to save the bid letting for further modifications.

To issue the bid letting, from the **Status** drop-down list, select **Issued**.

Note: Ensure that bid estimate items are locked and approved prior to setting the **Bid Letting** status to **Issued**.

11. Click **Save**.

10.5.3. Issuing a Bid Letting

- Bid Item list is locked and approved.

You can issue a bid letting to finalize bid schedules and receive bids from contractors.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Letting**.

The **BID LETTING DETAILS** list page is displayed.

6. Click the appropriate bid letting, and then click **Edit**.
7. From the **Status** drop-down list, select **Issued** to issue the bid letting.
8. Click **Save**.

The **Approved By** field displays the name of the user who changed the status from **Draft** to **Issued**.

10.5.4. Changing the Status of a Bid Letting or an Addendum

You can change the status of a bid letting or addendum.

Note:

- The status of an issued bid letting for an estimate cannot be changed from **Issued** to **Draft** if an addendum has been created, or contractors are added in **Bid Management**.
- The status of an addendum cannot be changed from **Issued** to **Draft** if items are attached to the addendum.
- The status of issued addenda can be changed to **Draft** only in the reverse sequence of creation of the addenda. That is, if addenda A1, A2, and A3 are issued in that order, then the status of A3 must be changed to **Draft** before the status of A2 can be changed to **Draft**; and the status of A3 and A2 must be changed to **Draft** in that order before the status of A1 is changed to **Draft**.
- If an addendum has no attached items, and the status of the addendum is changed from **Issued** to **Draft**, then changes to the bid letting are reverted.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.

5. In the navigation pane, click **Bid Letting**.

The **BID LETTING DETAILS** page is displayed.

6. Click the appropriate bid letting or addendum.
7. Click **Edit**.

The **EDIT BID LETTING DETAILS** or **EDIT ADDENDUM DETAILS** page is displayed.

8. From the **Status** drop-down list, select **Issued** or **Draft**.
9. Click **Save**.

10.5.5. Managing Addenda

10.5.5.1. Addenda

You must create an addendum to notify any changes in an issued bid letting or bid addenda.

An addendum is created and issued as an amendment or revision to a bid letting when:

- The original bid letting has been issued and advertised.
- Bid letting information requires modifications.
- Bid estimate items must be added, modified, or deleted.

You can perform the following tasks:

- [Creating an Addendum](#)
- [Managing Addendum Items](#)
- [Issuing an Addendum](#)

10.5.5.2. Creating an Addendum

- The status of the bid letting is **Issued**.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Letting**.

The **BID LETTING DETAILS** page is displayed.

6. Click **New**, and then click **New Addendum**.

The **CREATE NEW ADDENDUM** page is displayed.

New Addendum Page

The screenshot shows the 'CREATE NEW ADDENDUM' page with the following fields:

- Project Code, Name :** PR-39333,Widen Tranco Road project
- Addendum ID *:** (Input field)
- Description :** (Input field)
- Bid Advertisement Date *:** 10/20/2023 (Select dropdown)
- Bid Issue Date *:** 10/20/2023 (Select dropdown)
- Pre Bid Meeting Date *:** 10/20/2023 (Select dropdown)
- Addendum Issue Date :** 10/20/2023 (Select dropdown)
- Bid Opening Date and Time *:** 10/20/2023 00:00:00 (Select dropdown) (UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi
- Bid Due Time :** 16:00:00 (Select dropdown) (UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi

ATTACHMENTS

<input type="checkbox"/>	Document Name	Url/Link	Title	Uploaded By	Uploaded Date	File Size	Signed Copy
No Attachments available							

Link Document **Upload Document**

Status

Ball In Court : shane bond	Status : Draft
Approved By :	

The **Project Code, Name** field displays the project code and name of the project for which the addendum is being created.

7. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Addendum ID	Enter a unique identification code for the addendum.
Description	Enter the description of the addendum.
Bid Advertisement Date	Select the date on which the addendum will be advertised.
Bid Issue Date	Select the date on which the addendum will be issued.
Pre Bid Meeting Date	Select the date on which the pre-bid meeting for the addendum will be held.
Addendum Issue Date	Select the date on which the addendum will be issued.

Field	Description
Bid Opening Date and Time	Select the date and time at which the bids received from contractors for the addendum will be opened for analysis. <ul style="list-style-type: none">• Click , and select the date.• Click , and select the time.
Bid Due Time	Select the time until which bids for the addendum will be received on the bid opening date. Click  , and select the time.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. From the **Ball in Court** drop-down list, select the person responsible for the next step in the addendum process.

10. Click **Save**.

You can now attach items to the addendum. For information on attaching items, see [Managing Addendum Items](#).

10.5.5.3. Managing Addendum Items

You can add items to a bid addendum to add items to the original bid estimate items list that was issued. You can also modify existing bid items, and delete bid items from an issued bid letting. Items attached to an addendum get added, modified, or deleted from the bid estimate item list only after the addendum is issued. New items cannot be attached to an addendum that has been issued.

Using addenda, you can perform the following tasks:

- [Add items to an issued bid item list](#).
- [Delete items from an issued bid item list](#).

10.5.5.3.1. Adding Items using an Addendum

- The bid addendum is in the **Draft** status.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder.

4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Letting**.

The **BID LETTING DETAILS** page is displayed.

6. Click an addendum with **Status** as **Draft**.
7. Click **Attach Items**.

The **ADDENDUM ITEM LIST** page is displayed.

8. Perform either of the following, as applicable:

- Click **New** to add a new item.
The **NEW ADDENDUM ITEM** page is displayed.
- Click **More**, and then click **Add Existing Item** to include an additional quantity of an existing item.
The **ADD EXISTING ITEM** page is displayed.

Addendum Item Page

ADD EXISTING ITEM

Save & Exit Save & Continue Save & Create New Cancel

Container :	<input type="text"/>	...	
Pay Item No. *:	<input type="text"/>	...	Clear
Description *:	<input type="text"/>		
Unit *:	Select	▼	
Group *:	Default		
Funding Rule :	Select	▼	
Accounting Code :	<input type="text"/>		
Alternate *:	Base Bid		
Component Count :	<input type="text"/> 0	Components	
Quantity *:	<input type="text"/> 0.0000	Sub Items	
Unit Price in \$:	<input type="text"/>		
Force Unit Price :	<input checked="" type="checkbox"/>		
Amount in \$:	<input type="text"/>		
Complete :	<input checked="" type="checkbox"/>		
Notes :	<input type="text"/>		

ATTACHMENTS

<input type="checkbox"/>	Document Name	Url/Link	Title	Uploaded By	Uploaded Da...	File Size	Signed Copy
No Attachments available							

[Link Document](#) [Upload Document](#)

9. Provide the appropriate information in the fields

For information on the various fields, see [Adding Bid Items](#).

10. If the item is complete, select the **Complete** check box.

11. To save the item, perform any of the following as applicable:

- Click **Save & Exit** to return to the items list page.
- Click **Save & Continue** to save and continue on the same page.
- Click **Save & Create New** to save the current item and continue creating a new item.

12. Click **Back**.

The item is added to the **ADDENDUM ITEM LIST** page with the **Item Type** as **New** or **Modified**.

You can now issue the addendum. For information on issuing an addendum, see [Issuing an Addendum](#).

10.5.5.3.2. Deleting Items using an Addendum

- The bid addendum is in the **Draft** status.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

3. In the navigation pane, expand the project folder.

4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.

5. In the navigation pane, click **Bid Letting**.

The **BID LETTING DETAILS** page is displayed.

6. Click an addendum with **Status** as **Draft**.

7. Click **Attach Items**.

The **ADDENDUM ITEM LIST** page is displayed.

8. To remove an item from the issued bid item list, select the appropriate item, and then click **Delete Items**.

The **Please select an Item** dialog box is displayed.

Available items are bid items from the originally issued bid estimate.

9. Click the appropriate item, and then click **Select**.

10. Click Back.

The **BID LETTING DETAILS** page is displayed.

You can now issue the addendum. For information on issuing an addendum, see [Issuing an Addendum](#).

10.5.5.4. Issuing an Addendum

You can issue an addendum to finalize the addendum and receive bids from contractors.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Letting**.

The **BID LETTING DETAILS** page is displayed.

6. Click the appropriate addendum, and then click **Edit**.
7. From the **Status** drop-down list, select **Issued** to issue the addendum.
8. Click **Save**.

The **Approved By** field displays the name of the user who issued the addendum.

10.5.6. Deleting a Bid Letting or a Bid Addendum

Bid Letting or Bid Addendum in the draft status can only be deleted from the application.

Note: The status of an addendum cannot be changed from Issued to Draft if items are attached to the addendum. For more information, see [Changing the Status of a Bid Letting or an Addendum](#).

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Letting**.

The **BID LETTING DETAILS** page is displayed.

6. Select a bid letting or addendum that is in the **Draft** status.

7. Click **Delete.**

A confirmation message is displayed.

8. Click **OK.**

10.6. Bid Management

10.6.1. Bid Management

This section describes the process of bid analysis and award, and the procedures to create, edit, view bid lists, and award, reject or revert assigned status of the bids received from contractors.

Bid Management is the process of analyzing bids received from various bidders before awarding the bid to the successful bidder. This automated analysis enables the estimator to judge and quickly determine the successful bidder for award of the contract.

The **Bid Management** module provides features to:

- Export a Bid Items template in Excel for bidders.
- Create Bid Lists for the bids received from bidders.
- Collate received bids.
- Review and analyze received bids.
- Reject noncompetitive bids.
- Award the successful bid.
- Revert the bid award in the event of any discrepancy.

10.6.2. Working with Bids

10.6.2.1. Working with Bids

This section enables you to perform various bid management activities, such as:

- [Creating a Bid](#)
- [Viewing Bid Information](#)
- [Submitting a Bid](#)
- [Awarding a Bid](#)
- [Rejecting a Bid](#)
- [Reverting a Bid Status](#)

10.6.2.2. Creating a Bid

- Bid estimate items must be locked and approved before creating a Bid List. Bids can be created only after the Bid Letting/Addendum is issued.

You must create the bids list with contractor details and bid unit prices submitted by each bidding contractor.

You have the option to enter the bid price details of items manually if bid details were submitted in hard copies or import bid details submitted by a bidder in a Microsoft Excel template that is provided to the bidders in the bid letting process.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Management**.

The **BID LIST** page is displayed.

6. Click **New**.

The **Contractor List** dialog box is displayed.

Available options are contractors defined in the **Contractors** library catalog.

7. Select the appropriate contractors from the list.
8. Click **Select**.

The contractors are added to the **BID LIST** page.

An email notification with login information is sent to the invited bidders.

9. To enter the bidder's price for each bid item, select a contractor, and click **Edit**.

The **BID ITEMS** page displays the items from the engineer's estimate item list, and the editable cells are highlighted.

Note: If the **Force Unit Price** check box for an estimate item is selected, or the **Force Unit Price** column is specified as Y in the finalized engineer's estimate, the **Unit Price** of the item cannot be modified.

Bid Items Page

The screenshot shows the 'BID ITEMS' page with a single bid item listed. The item details are as follows:

Line No.	Pay Item No.	Description	Quantity	Unit	Unit Price in \$	Amount in \$
1	1	1	7.0000	SY	0.00	

A yellow highlight is applied to the 'Unit Price in \$' field. At the bottom right of the page, the total amount is displayed as 'Total in \$:0.00'.

10. Double-click in the **Unit Price in \$** cell and enter the unit price of the item.

Alternatively, to use an Excel workbook to enter and import price information, perform the following steps:

- Click **Export Bid to Excel** to export the bid template with bid items to a Microsoft Excel worksheet.

An Excel worksheet with bid items can be mailed to the bidder to enter his unit prices for the listed items and send it back for bid analysis.

The Excel worksheet consists of columns, such as Line No., Pay Item No., Description, Quantity, Unit, Unit Price, Amount, and AlternateCode. Only the

highlighted Unit Price column can be modified to specify the unit price of the estimate item.

Note: If the **Force Unit Price** check box for an estimate item is selected, or the **Force Unit Price** column is specified as Y in the imported Excel worksheet, the **Unit Price** of the item cannot be modified.

- b. Click **Import from Excel** to import the bid items' list.
- c. Click **Browse** to choose the Excel file with bid prices sent via email by the bidder and click **Upload Excel**.

Note: On encountering issues on importing an Excel workbook, click **Issue Log** to view the errors.

- d. Use **Up Arrow** and **Down Arrow** keys to navigate and enter unit bid prices for other items.

11. Click **Save & Continue** to save the record and continue on the same page.

Optionally, click **Save** to save the record and return to the list page.

10.6.2.3. Viewing Bid Information

The **BID LIST** page provides the following information:

- Total amount in \$ of the estimate items for which bids were invited from the bidders.
- On creating bid lists with unit price for the items of all bidders, the system automatically tabulates and provides details of each bidder.
- Percentage above or below the lowest bidder.
- Percentage above or below the engineer's estimate.
- Ranking of bidders based on cost.

Bidders are ranked based on the lowest cost and the lowest three bidders are listed.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the required project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the required bid estimate.
5. In the navigation pane, click **Bid Management**.

The **BID LIST** page is displayed.

6. In the **BID LIST** page, select the required bid, and then click **View**.

The **BID ITEMS** page is displayed.

7. Click the **Bid Information** tab.

Bid information is displayed.

10.6.2.4. Submitting a Bid

Once all the bids are received, you can submit the bids for comparison and analysis before selecting the most appropriate one for the contract.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the required project.

3. In the navigation pane, expand the project folder.

4. Expand **Bid Estimate Information**, and then expand the required bid estimate.

5. In the navigation pane, click **Bid Management**.

The **BID LIST** page is displayed.

6. In the **BID LIST** page, select a bid to be submitted.

7. Click **Select Actions**, and then click **Submit**.

The **Notes** dialog box is displayed.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. Click **OK**.

The **BID LIST** page is refreshed with the **Status** of the bid as **Submitted**.

10.6.2.5. Awarding a Bid

- The bid for awarding must be in the Submitted workflow status.

Awarding is the process of short listing and awarding contracts to the most competitive bid.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the required project.

3. In the navigation pane, expand the project folder.

4. Expand **Bid Estimate Information**, and then expand the required bid estimate.

5. In the navigation pane, click **Bid Management**.

The **BID LIST** page is displayed.

6. In the **BID LIST** page, select a submitted bid to be awarded.
7. Click **Select Actions**, and then click **Award**.
The **Notes** window is displayed.
8. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).
9. Click **OK**.

The **BID LIST** page is refreshed with the **Status** of the bid as **Awarded**.

10.6.2.6. Rejecting a Bid

- The bid for rejecting must be in the Submitted workflow status.

The process of rejecting the least competitive bids for the contract.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the required project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the required bid estimate.
5. In the navigation pane, click **Bid Management**.

The **BID LIST** page is displayed.

6. Select a submitted bid to be rejected.
7. Click **Select Actions**, and then click **Reject**.

The **Notes** dialog box is displayed.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. Click **OK**.

The **BID LIST** page is refreshed with the **Status** of the bid as **Rejected**.

10.6.2.7. Reverting a Bid Status

- The bid for reverting the status must be in the **Awarded** or **Rejected** workflow status.

Revert is a feature that provides an option to revert the status of a bid from Awarded to Pending or from Rejected to Pending.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the required project.
3. In the navigation pane, expand the project folder.

4. Expand **Bid Estimate Information**, and then expand the required bid estimate.
5. In the navigation pane, click **Bid Management**.

The **BID LIST** page is displayed.

6. In the **BID LIST** page, select a bid from the bid list to revert the status.
7. In the **Workflow** group, click **Select Actions**, and then click **Revert**.

The workflow status of the selected bid is set to **Submitted**.

Note: On reverting the bid status of an awarded contract, if a different bidder is awarded the contract, or the same bidder is re-awarded the contract, a confirmation message is displayed to confirm if the existing construction contract must be replaced. In the confirmation dialog, select **Yes** to delete the existing contract details and create a new construction contract; or click **No** to retain the previously awarded construction contract details.

10.6.3. Viewing the Bid Tabulation and Summary

You can view the consolidated summary of bids of all the bidders. It provides the bidder name and the aggregate bid amount for the items. You can also generate a **Bid Tabulation Details** report that provides item-by-item comparison of unit prices of all bids.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Management**.

The **BID LIST** page is displayed.

6. Click **Bid Tabulation**.

The **BID TABULATION** page is displayed.

Bid Tabulation Page

The screenshot shows a user interface for bid tabulation. At the top, a header reads "BID TABULATION". Below it is a "Back" button with a circular arrow icon. The main area contains two rows of checkboxes. The first row has a checkbox labeled "Alternate Code" which is unchecked. The second row has a checkbox labeled "Base Bid" which is checked. At the bottom of the main area is a blue "View Summary" button.

7. Select the appropriate bid alternate check box.

8. Click **View Summary**.

The summary of the bids is displayed in the **TABULATION SUMMARY** section that is displayed.

10.6.4. Working with Bid Alternates

The **Alternates** option enables you to choose a combination of the base bid items and alternate bid items when creating a bid list.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the required project.

3. In the navigation pane, expand the project folder.

4. Expand **Bid Estimate Information**, and then expand the required bid estimate.

5. In the navigation pane, click **Bid Management**.

The **BID LIST** page is displayed.

6. Click **Alternates**.

The **CHOOSE ALTERNATES** dialog box is displayed.

7. Select the check box to include the alternate bid in the bid list.

8. Click **Select**.

10.6.5. Updating Contractor Details

- The bid for awarding must be in the **Submitted** workflow status.

You can modify contractor details only before a contractor is awarded the project.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the appropriate bid estimate.
5. In the navigation pane, click **Bid Management**.

The **BID LIST** page is displayed.

6. Select a bid.

7. Click **Edit**.

The **BID ITEMS** page is displayed.

8. Click the **Bidder Information** tab.
9. Enter the appropriate information.

10. Click **Save**.

10.7. Reports

10.7.1. Generating and Viewing Reports

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the required project.
3. In the navigation pane, expand the project folder.
4. Expand **Bid Estimate Information**, and then expand the required bid estimate.
5. In the navigation pane, click **Bid Estimate Report Gallery**.

The **REPORT GALLERY** page is displayed.

6. In the right pane, double-click the report that you want to generate.

7. Click **View Report**.

The report is generated and displayed.

For information on the various report features available, see [Standard Report Functions](#).

You can generate the following comprehensive reports for estimation and bidding processes:

- [Bid Tabulation Summary Report](#)

- [Addendums](#)
- [Awarded Bidder Details Report](#)
- [Bid Advertisement Report](#)
- [Bid Response Report](#)
- [Bid Sheet Report](#)
- [Bid Tabulation Details](#)
- [Engineer's Estimate Report](#)

Bid Tabulation Summary Report

The Bid Tabulation Summary report provides a summary of the contractors' bid and ranking in the bid analysis. You can choose to include or exclude the engineer's estimate while generating the report.

You can filter information in the report using the following filter criteria:

- Include Engineers Estimate - Select Yes to include the engineers estimate in the report.

The following information is displayed:

- Project Code - Identification code of the project.
- Project Name - Name of the project.
- Estimate ID - Engineer's estimate identification code.
- Estimate Name - Name of the estimate.
- Bid Opening Date - Date the bid was let out.
- Initiated By - Name of the user generating the report.
- Rank - Bids are ranked from lowest amount bid to the highest, with the lowest bid ranked 1 and the engineer's estimate ranked 0.
- Contractor - Name of the contractor.
- Extended Value (\$) - Total bid amount.
- % Over Low Bid - Percentage of amount increase from the bid ranked the lowest. That is, percentage of amount increase in the second than the first, 3rd than the 1st, and so on.
- % Estimate - Percentage differential from the engineer's estimate.

Addendums

The Addenda report provides details of the selected addendum and details of the items that are modified or added to the estimate items through an addendum. Addendum item details, such as Item Description, New Quantity, New Unit Price, and New Amount are provided in this report.

You can filter information in this report using the following filter criteria:

- Addenda

The following information is displayed:

- Project Code - Identification code of the project.
- Project Name - Name of the project.
- Addendum ID - Addendum identification code.
- Addendum Issue Date - Date the addendum was issued.
- Line No. - Line number of the pay item.
- Pay Item No. - Pay item number.
- Type - Type of the pay item.
- Item Description - Description of the pay item.
- Unit - Unit of measure of the pay item.
- Quantity - Quantity of the pay item.
- Unit Price - Unit price of the pay item.
- Amount in \$ - Total amount of the pay item.
- Grand Total - Sum of all the pay item amounts.

Awarded Bidder Details Report

The Awarded Bidder Details Report displays the bidder information and estimate details of the awarded bid.

The following information is displayed:

- Project Code - Identification code of the project.
- Project Name - Name of the project.
- Estimate ID - Identification code of the submitted bid estimate.
- Estimate Name - Name of the engineer's estimate.
- Contractor Name - Name of the contractor to whom the bid is awarded.
- Contractor ID - Identification code of the contractor to whom the bid is awarded.
- Address - Address of the contractor to whom the bid is awarded.
- Phone - Phone number of the contractor to whom the bid is awarded.
- Email - Email address of the contractor to whom the bid is awarded.
- Container - Name of the container.
- Item No. - Sequential number of the bid item in the list.
- Pay Item No. - Pay item number of the bid item.
- Description - Description of the bid item.
- Quantity - Quantity of the bid item.
- Unit - Unit of measure of the bid item.
- Unit Price in \$ - Unit price of the bid item.

- Amount in \$ - Total amount of the bid item.
- Totals are displayed at:
 - Container
 - Bid Total
 - Addenda Total
 - Grand Total

Bid Advertisement Report

The Bid Advertisement report provides details of the Bid Advertisement that includes complete details of the bid letting in terms of advertisement date, bid opening date and time, and the user who approved the bid letting.

The following information is displayed:

- Project Code - Identification code of the project.
- Project Name - Name of the project.
- Estimate ID - Bid estimate identification code.
- Estimate Name - Name of the bid estimate.
- Letting ID - Bid letting identification code.
- Bid Advertisement Date - Date the bid was advertised.
- Bid Issue Date - Date the bid was issued.
- Pre Bid Meeting Date - Date of pre-bidding meeting was held.
- Bid Due Time - Date the bid was due.
- Bid Opening Time - Date the bid was opened for bidding.
- Address - Address of the company letting out the bid.
- Notes - Notes about the bid advertisement.
- Approved By - Name of the person who approved the bid.

Bid Response Report

The Bid Response Report displays bid information of bids submitted by various bidders.

You can filter information in the report using the following filter criteria:

- Bidder - Names of all bidders who have successfully submitted a bid.
- Sort by - Options to sort the report by line number, pay item number, or description of the pay item.

The following information is displayed:

- Project Code - Identification code of the project.
- Project Name - Name of the project.
- Estimate ID - Identification code of the submitted bid estimate.

- Estimate Name - Name of the engineer's estimate.
- Bid Issue Date - Date the bid was issued.
- Bid Opening Date - Date the bid was let out.
- Bid Advertisement Date - Date the bid was advertised.
- Addendums - Number of addenda for the bid estimate.
- Container - Name of the container.
- Item No. - Sequential number of the bid item in the list.
- Pay Item No. - Pay item number of the bid item.
- Description - Description of the bid item.
- Quantity - Quantity of the bid item.
- Unit - Unit of measure of the bid item.
- Unit Price in \$ - Unit price of the bid item.
- Amount in \$ - Total amount of the bid item.
- Totals are displayed at:
 - Container
 - Bid Total
 - Addenda Total
 - Grand Total

Bid Sheet Report

The Bid Sheet Report displays the list of bid items and quantities from the engineers bid with placeholders for the unit price and amounts. This report can be used by the bidders to fill out the unit price for each of the bid item to submit the bid. You can also print the bid sheet that can be filled up by the bidder and submitted.

You can filter information in the report using the following filter criteria:

- Draft Addendum - Select Yes to include details of draft addenda in the report.
- Sort by - Options to sort the report by line number, pay item number, or description of the pay item.

The following information is displayed:

- Project Code - Identification code of the project.
- Project Name - Name of the project.
- Estimate ID - Identification code of the submitted bid estimate.
- Estimate Name - Name of the engineer's estimate.
- Bid Issue Date - Date the bid was issued.
- Bid Opening Date - Date the bid was let out.
- Bid Advertisement Date - Date the bid was advertised.

- Addendums - Number of addenda for the bid estimate.
- Container - Name of the container.
- Item No. - Sequential number of the bid item in the list.
- Pay Item No. - Pay item number of the bid item.
- Description - Description of the bid item.
- Quantity - Quantity of the bid item.
- Unit - Unit of measure of the bid item.
- Unit Price in \$ - Placeholder to enter the unit price of the bid item.
- Amount in \$ - Placeholder to enter the total amount of the bid item.
- Totals are displayed at:
 - Container
 - Bid Total
 - Addenda Total
 - Grand Total

Bid Tabulation Details

The Bid Tabulation Details report provides a line-by-line, item-wise comparison of bids from the top ranking three bidders. You can choose to include or exclude the engineer's estimate in the report.

You can filter information in the report using the following filter criteria:

- Bidders - Select from the list of engineer's estimate and all the bidders and who have successfully bid for the bid items.

The following information is displayed:

- Project Code - Identification code of the project.
- Project Name - Name of the project.
- Estimate ID - Engineer's estimate identification code.
- Estimate Name - Name of the engineer's estimate.
- Bid Opening Date - Date the bid was let out.
- Initiated By - Name of the user generating the report.
- Pay item No - Pay item name.
- Line No - Line number of the item.
- Description - Description of the pay item.
- Quantity - Quantity of the pay item.
- Unit - Unit of measure of the pay item.
- Engineer's Estimate Unit Price (\$) - The unit price for the item as specified in the engineer's estimate.

- Amount - Total amount for the item.
- Bidder Estimation Details - Unit price and total amount for the item as specified by each of the bidders.

Engineer's Estimate Report

The Engineer's Estimate Report provides details of the Engineer's Estimate of the project. You can use the Engineer's Estimate Report as the benchmark to compare it with other bidder quotations.

You can filter information displayed in the report using the following filter criteria:

- Alternate - Select the require bid alternate.
- Sort by - Options to sort the report by line number, pay item number, or description of the pay item.

The following information is displayed:

- Project Code - Identification code of the project.
- Project Name - Name of the project.
- Estimate ID - Identification code of the engineer's estimate.
- Estimate Name - Name of the engineer's estimate.
- Bid Issue Date - Date the bid was issued.
- Bid Opening Date - Date the bid was let out.
- Bid Advertisement Date - Date the bid was advertised.
- Addendums - Number of addenda for the bid estimate.
- Container - Name of the container.
- Item No. - Sequential number of the bid item in the list.
- Pay Item No. - Pay item number of the bid item.
- Description - Description of the bid item.
- Quantity - Quantity of the bid item.
- Unit - Unit of measure of the bid item.
- Unit Price in \$ - Unit price of the bid item.
- Amount in \$ - Total amount of the bid item.
- Totals are displayed at:
 - Container
 - Base Bid Total
 - Addenda Total
 - Grand Total

11. Contract Management

11.1. Contract Management

The Masterworks Contracts module provides a comprehensive, flexible, full-featured, and intuitive system to manage contracts in a project. Its user-friendly features guide you through the complete contracting process, from initial setup and analysis to implementing the contract, tracking progress, and estimating payments.

The highlights of the Contracts module are:

- Enables an authorized user to quickly create contracts, assign contractors, and track work progress.
- Provides an efficient approval process with instant notification of approvals.
- Streamlines management of changes in contract.
- Electronic forms prevent redundancy and manual errors, and save time in recording field information.
- Instant access and search based on a variety of parameters to monitor contracts.
- A comprehensive reporting feature to create and publish reports for contracts.
- Invitation-based accessibility to contract information.

The functional flow for contract management is as follows:

1. Contract Setup
 - [Create a contract record.](#)
2. Contract Configurations
 - a. [Manage the contract calendar.](#)
 - b. [Manage contractor details.](#)
 - c. [Manage details of key contacts.](#)
3. Contract Items
 - a. [Add/modify contract items, if required.](#)
 - b. [Associate funding rules to all contract items.](#)
 - c. [Lock all contract items.](#)
4. Execute the contract
5. Daily Progress Report
 - a. [Create new daily progress report record\(s\), if required.](#)
 - b. [Perform workflow actions to implement the business process.](#)

6. Item Posting

- a. [Create item posting records for the items consumed by contractor.](#)
- b. [Perform workflow actions to implement the business process.](#)

7. Materials on Hand

- a. [Create a material on hand record.](#)
- b. [Perform workflow actions to implement the business process.](#)

8. Pay Estimate

- a. [Generate a pay estimate record.](#)
- b. [Perform workflow actions to implement the business process.](#)

The functional flow for contract closure is as follows:

1. Punch List

- a. [Create a punch list record.](#)
- b. [Perform workflow actions to implement the business process.](#)

2. Balance Change Order (BCO)

- a. [Create a BCO record to balance out overrun or underrun.](#)
- b. [Perform workflow actions to implement the business process.](#)

3. Final Pay Estimate

- a. [Generate the final pay estimate record.](#)
- b. [Perform workflow actions to implement the business process for the Final Pay Estimate.](#)

4. Perform workflow actions to implement the business process for the contract.

11.2. Contract Setup

11.2.1. Contract Setup

You can create a contract, provide contract information, track the work progress of a contract, and generate pay estimates for the contract.

You can access contracts that you have been invited to, and modules or forms available to you in a contract are based on the roles assigned to you in the project and contract.

You can manage the following contract-related tasks in a project:

- [Create contracts.](#)
- [Add owner details.](#)
- [Add prime contractor and subcontractors to contracts.](#)
- [Manage contract users.](#)

- [Manage key contacts of every contract.](#)
- [Manage the contract calendar of every contract.](#)
- [Edit contract details.](#)
- [Add work items to a contract.](#)
- [Perform workflow actions to implement the business process.](#)

11.2.2. Creating a Contract

You can create a contract in two ways:

- [Creating a contract manually and selecting appropriate modules](#)
- [Copying a contract with selected information](#)

11.2.2.1. Creating a Contract Manually

- You must have the **Create** permission.

You can enter contract details that include basic contract information, select modules for the contract, and attach contract related images and files.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the project folder, and then click **Contracts**.

The **CONTRACTS LIST** page is displayed.

4. Click New.

New Contract Page

The screenshot displays the 'NEW CONTRACT' page with the following fields:

- Project Code:** PR-39333
- Contract Name:** Widen Tranco Road project
- Measurement System:** IS System
- Created Date:** 10/20/2023
- Description:** [Empty]
- Area Office:** [Empty]
- Document Folder Structure:** Select One
- Type:** [Empty]
- Status:** 11
- Calendar:** Select One
- Start Date:** 01/01/2018
- Calendar Days:** 3346
- Closure Date:** 02/28/2027
- Notice to Proceed Date:** None
- Construction Started Date:** None
- Open to Traffic Date:** None
- Contract Work Completed Date:** None
- Contract Closed (Final Estimate) Date:** None
- Bid Details:**
 - Bid Code:** [Empty]
 - Bid Name:** [Empty]
 - Bid Letting Date:** None
 - Bid Awarded Date:** None
- Attachments:** A table showing attachments with columns: Document Name, Url/Link, Title, Uploaded By, Uploaded Date, File Size, and Signed Copy.

The **NEW CONTRACT** page displays the following non-editable fields:

Field	Description
Project Code	The unique alphanumeric code of the project.
Project Name	The name of the project.
Created Date	The current date is displayed as the date of creation of the contract.
Start Date	The project start date.
Closure Date	The project end date.

5. In the **MAIN** tab, perform the following steps:

- a. Provide the appropriate information in the fields, as described in the following table.

Section	Field	Description
-	Contract Code	Enter a unique alphanumeric code to identify the contract.
	Contract Name	Enter a unique name to identify the contract.
	Measurement System	Select the measurement system for the contract. Available options are measurement systems defined in the Measurement Systems library catalog. For more information, see Measurement Systems .
	Description	Enter a brief description of the contract.
	Area Office	Enter the address of the area office.
	Document Folder Structure	Select the document folder structure for the contract. Based on the document folder structure selected, the set of folders and documents is created in the Documents folder of the contract. For information on creating a document folder structure, see Document Folder Structure .
	Type	Select the type of contract. Available options are contract types defined in the Contract Type library catalog.
	Status	Select the status of the contract. To edit the contract status options, see Contract Status and Attributes .

Section	Field	Description
CONTRACT TIME	Calendar	<p>Select the calendar for the contract. Available options are calendars defined in the Calendar library catalog. For more information, see Calendar.</p> <ul style="list-style-type: none">• If no option is selected, the Calendar Days box displays the number of days calculated from the selected Start Date to the selected Closure Date of the contract.• If a calendar is selected, based on the calendar selected, the Working Days box displays the number of days calculated from the selected Start Date to the selected Closure Date of the contract. <p>Note: The number of working days is also based on the latest version of the contract calendar. For more information, see Managing the Contract Calendar.</p>
	Start Date	Select the date the contract begins.
	Closure Date	Select the date the contract ends.
KEY DATES	Notice to Proceed Date	Select the date the contractor to begin work.
	Construction Started Date	Select the date the construction commences.
	Open to Traffic Date	Select the date the facility constructed is open to traffic.
	Contract Work Completed Date	Select the date on which the contract work is completed.
	Contract Closed (Final Estimate) Date	Select the date on which the contract is finally closed, and the final pay estimate is issued.

- b. To associate the contract to a Bid Estimate record in the project, in the **BID DETAILS** section, perform the following steps:
- i. In the toolbar, click **Import**.
The **Import Estimate** dialog box is displayed.
 - ii. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Estimate Name	Select the appropriate bid estimate. Available options are all bid estimate records in the project. For information on creating a bid estimate record, see Creating a Bid Estimate on page 692. If the selected bid is an awarded bid, in the Awarded Bid field, the contractor information is automatically displayed. Otherwise, it displays Estimate Not Awarded . For information on awarding a bid, see Awarding a Bid on page 746.
Engineer's Estimate	Select the check box to indicate that the selected bid estimate is the engineer's estimate.

iii. Click **Done**.

The details of the imported bid are displayed in the **BID DETAILS** section.

Note: On importing the bid, the items associated with the bid are automatically added to the **Contract Items** page.

Alternatively, without importing, you can enter the bidding details in the **BID DETAILS** section, as described in the following table.

Field	Description
Bid Code	Enter the bid code.
Bid Name	Enter the name of the bid.
Bid Letting Date	Select the bid letting date.
Bid Awarded Date	Select the bid awarded date.

6. To select modules according to contract requirements, perform the following steps:
 - a. Click the **MODULES** tab.
 - b. In the **Web** column, select the appropriate modules for the web application.
 - c. In the **Offline Client** column, select the appropriate modules for the mobile app.

Note: Only certain modules are available for the mobile app.

7. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).
8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

11.2.2.2. Copying a Contract

- You must have the **Create** permission.

You can copy selected details of a contract and create a new contract with a new name and contract number.

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then click **Contracts**.
The **CONTRACTS LIST** page is displayed.

4. Select the contract to be copied, click **Copy**, and then click **OK** to copy the contract.

Copy Contract Page

COPY CONTRACT

Copy Cancel

Source Contract Name : Phase 1-Widen Tranco Road
Source Contract Code : CC-39333

New Contract Name * :

New Contract Code * :

Project Name * : ...

INCLUDE IN COPY : ([SELECT ALL](#) / [CLEAR ALL](#))

GENERAL

Groups : Status :
Containers : Attributes :
Owners Details : Pay Estimate Settings :
Key Dates :
Contract Time :
Key Contacts :

CONTRACTORS

Prime Contractors : Items :
Sub Contractors :

ITEMS

The **COPY CONTRACT** page displays the following non-editable fields:

Field	Description
Source Contract Name	The name of the contract being copied is displayed.
Source Contract Code	The contract code of the contract being copied is displayed.

5. In the **New Contract Name** box, enter a unique name to identify the contract.
6. In the **New Contract Code** box, enter a unique alphanumeric code to identify the contract.

7. To select the project to which you want to copy the contract details of the selected contract, perform the following steps:

- a. In the **Project Name** field, click .

The **Available Projects** dialog box displays the projects that you are invited to.

- b. Click the project to which you want to copy the contract details, and then click **Select**.

8. In the **INCLUDE IN COPY** section, select the appropriate information to be copied into the new contract, as described in the following table.

Section	Information Element	Description
GENERAL	Groups	Copies the groups of items defined in the CONTRACT ITEMS page to the new contract. For information on Contract Items, see Managing Contract Items .
	Containers	Copies the containers and items defined in the CONTRACT ITEMS page to the new contract. For information on Contract Items, see Managing Contract Items .
	Owners Details	Copies the owner details defined in the SETTINGS page of the contract. For information on the SETTINGS page, see Adding Owner Details .
	Key Dates	Copies the dates defined in the Key Dates section of the contract to the new contract.
	Contract Time	Copies the information defined in the Contract Time section of the contract to the new contract.
	Key Contacts	Copies the information defined in the KEY CONTACTS page of the contract to the new contract. For information on the KEY CONTACTS page, see Managing Contract Key Contact Details .

Section	Information Element	Description
SETTINGS	Pay Estimate Settings	Copies the information defined in the PAY ITEMS SETTINGS page of the contract to the new contract. For information on the PAY ITEMS SETTINGS page, see Pay Estimate Settings .
CONTRACTORS	Prime Contractors	Copies the information defined in the PRIME CONTRACTOR section in the CONTRACTORS page of the contract to the new contract. For information on the CONTRACTORS page, see Managing Contractor Details .
	Sub Contractors	Copies the information defined in the SUB CONTRACTORS section in the CONTRACTORS page of the contract to the new contract. For information on the CONTRACTORS page, see Managing Contractor Details .
ITEMS	Items	Copies the information defined in the CONTRACT ITEMS page of the contract to the new contract. For information on the CONTRACT ITEMS page, see Managing Contract Items .

- Click **Copy**.

11.2.3. Managing Contract Users

You can invite users to a contract to enforce information security by allowing contract visibility and contract information visibility only to authorized users.

To invite a user to a contract, the user is first invited to the project, and then to the required contracts in the project. The user creating the contract is automatically invited to the contract. In addition, you can invite other users to the contract.

You can assign roles to a user in a contract based on the roles assigned to the user in the project. That is, the roles assigned to a user in a contract is a sub-set of roles or all roles assigned to the user in the project, and the roles assigned to a user in a project is a sub-set of roles or all roles assigned to the user in the enterprise.

You can invite users to a contract in two ways:

- [Inviting users to contracts of a project](#)

- [Inviting a user to contracts of multiple projects](#)

You can remove users from the contract. On removing a user from a contract, the user cannot access the contract and perform any tasks. For more information, see [Removing a User from Contracts](#).

11.2.3.1. Inviting Users to Contracts of a Project

- The user is invited to the project. For more information, see [Inviting Users to a Project](#).

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

The **PROJECT DASHBOARD** is displayed.

3. Click the **PROJECT DETAILS** tab.

4. Click **Manage Users**.

The **MANAGE USERS IN PROJECT** page is displayed.

5. In the **MANAGE USERS IN PROJECT** page, expand the appropriate project user row.

The list of contracts in the project is displayed.

The following image displays the **MANAGE USERS IN PROJECT** page:

Managing Users in Project

The screenshot shows the 'MANAGE USERS IN PROJECT' page. At the top, there are buttons for Save, Remove User, Back, and Add User. Below that, a header reads 'CURRENT USERS IN PROJECT : 'AUTO TEST PROJECT' (PROJECT CODE: '5FB0C5D66F84')'. A table lists users with columns for Name, Last Name, and Project Role. An orange callout points to the 'Expand' button in the 'Invitation' column of the first row, which belongs to a user named 'Anand'. The 'Expand' button has a tooltip 'Expand'. The table also includes filter icons for each column.

Name	Last Name	Project Role
Anand		Administrator,User,Project

At the bottom of the table, there are navigation icons for back, forward, and page number (1).

6. In the **Invitation** column, select the check box corresponding to the appropriate contracts.

The user is invited to the contract with all the roles the user has in the project.

7. To define contract roles to the invited user, perform the following steps:

- a. Double-click the cell in the **Contract** column of the user.

The list of roles assigned to the user at the project level is displayed. For information on roles, see [Security Roles](#).

- b. From the **Contract Role** drop-down list, select the roles to be assigned to the user in the contract.

Available roles are roles the user is assigned to in the project.

The selected roles are also added as the roles for the user in the project.

8. To assign invitation start date and end date to the invited users, perform the following steps:

- a. Double-click the cell in the **Invitation Start Date** column of the user.

The current date is selected as the **Invitation Start Date** by default.

- b. Click  to assign contract invitation start date to the user.

- c. Double-click the cell in the **Invitation End Date** column of the user.

None is selected as the **Invitation End Date** by default.

- d. Click  to assign contract invitation end date to the user.

Note: If **Is Primary** check box is checked, the users will receive email notifications on invitation start date, a week before invitation expiry date, on the invitation end date, and after the invitation expiry date.

Otherwise, the users will receive the notifications only in Masterworks **Inbox**.

9. By default, the **is Primary** check box is selected.

Optionally, clear the **is Primary** check box to block the user from receiving task email notifications as defined in the workflows.

10. Click **Save**.

11.2.3.2. Inviting a User to Contracts of Multiple Projects

- The user is invited to the project. For more information, see [Inviting Users to a Project](#).

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. Click **Manage Users**.

The **MANAGE USER MEMBERSHIP** page is displayed.

3. From the **User** drop-down list, select the appropriate user name.

Available user names are of user accounts defined at the enterprise level. For more information, see [User Accounts](#).

4. In the **Existing Projects** section, expand the appropriate project row.

User Membership

The screenshot shows the 'MANAGE USER MEMBERSHIP' page. At the top, there are buttons for Save, Remove, Switch User, and Back. A dropdown menu shows 'User : Anand'. Below this is a table titled 'EXISTING PROJECTS' with columns for Project Name, Project Code, and User's Role(s). The table contains two rows: 'Auto' and 'Auto Test Project'. The 'Auto Test Project' row has an 'Expand' button next to it, which is highlighted with an orange callout. Below the table is a section titled 'ADD PROJECTS' with an 'Add' button and a 'Delete' button.

	Project Name	Project Code	User's Role(s)
	Auto		
	Auto Test Project	5fb0c5d66f84	Administrator,Au... 70345842,SR1620 33265206,SR1637 33635674,SR1638 81183928,SR1638

EXISTING PROJECTS

	Project Name	Project Code	User's Role(s)

No new projects added.

Add Delete

The list of contracts in the project are displayed.

The following image displays the **MANAGE USER MEMBERSHIP** page:

Managing User Membership

The screenshot shows the 'MANAGE USER MEMBERSHIP' page. At the top, there are buttons for Save, Remove, Switch User, and Back. A dropdown menu shows 'User : Anand'. Below this is a table titled 'EXISTING PROJECTS' with columns for Project Name, Project Code, User's Role(s), and Is Primary. The table contains two rows: 'Auto' and 'Auto Test Project'. The 'Auto Test Project' row is expanded, showing a sub-table with columns for Invitation ID, Contract Name, User's Role(s), and Is Primary. This sub-table has one row: 'Auto009cbda2f02f' with '009cbda2f02f' under Contract Name and 'Administrator' under User's Role(s). The 'Is Primary' column for this row has a checked checkbox. Below the main table is a section titled 'ADD PROJECTS' with an 'Add' button and a 'Delete' button.

	Project Name	Project Code	User's Role(s)	Is Primary
	Auto			<input type="checkbox"/>
	Auto Test Project	5fb0c5d66f84	Administrator,Automation,Project	<input checked="" type="checkbox"/>

EXISTING PROJECTS

	Contract Name	User's Role(s)	Is Primary
	Auto009cbda2f02f	009cbda2f02f	Administrator

Page 1 of 1

ADD PROJECTS

	Project Name	Project Code	User's Role(s)	Is Primary
				<input type="checkbox"/>

No new projects added.

Add Delete

5. In the **Invitation** column, select the check box corresponding to the appropriate contracts.

The user is invited to the contract with all the roles the user has in the project.

6. To define contract roles to the invited user, perform the following steps:

- a. Double-click the cell in the **User's Role(s)** column of the user.

The list of roles assigned to the user at the enterprise level is displayed. For information on roles, see [Security Roles](#).

- b. From the **User Role** drop-down list, select the roles to be assigned to the user in the contract.

Available roles are roles the user is assigned to in the project.

The selected roles are also added as the roles for the user in the project.

7. To assign invitation start date and end date to the invited users, perform the following steps:

- a. Double-click the cell in the **Invitation Start Date** column of the user.

The current date is selected as the **Invitation Start Date** by default.

- b. Click  to assign contract invitation start date to the user.

- c. Double-click the cell in the **Invitation End Date** column of the user.

None is selected as the **Invitation End Date** by default.

- d. Click  to assign contract invitation end date to the user.

Note: If **Is Primary** check box is checked, the users will receive email notifications on invitation start date, a week before invitation expiry date, on the invitation end date, and after the invitation expiry date.
Otherwise, the users will receive the notifications only in Masterworks **Inbox**.

8. By default, the **is Primary** check box is selected.

Optionally, clear the **is Primary** check box to block the user from receiving task email notifications as defined in the workflows.

9. Click **Save**.

11.2.3.3. Removing a User from Contracts

- The user is invited to the project. For more information, see [Inviting Users to a Project](#).

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. Click Manage Users.

The **MANAGE USER MEMBERSHIP** page is displayed.

3. From the User drop-down list, select the required user name.

Available user names are of user accounts defined at the enterprise level. For more information, see [User Accounts](#).

4. In the Existing Projects section, expand the required project rows.

The list of contracts in the project are displayed.

The following image displays the **MANAGE USER MEMBERSHIP** page:

Removing User from Contracts

The screenshot shows the 'MANAGE USER MEMBERSHIP' page. At the top, there are buttons for Save, Remove, Switch User, and Back. The 'User' dropdown is set to 'Anand'. Below this is a table titled 'EXISTING PROJECTS' with columns: Project Name, Project Code, User's Role(s), and Is Primary. One row for 'Auto Test Project' is visible, with its details expanded. A modal dialog is overlaid on the page, showing the 'Contract Name' as 'Auto009cbda2f02f' and 'User's Role(s)' as 'Administrator'. The 'Invitation' checkbox is checked. The bottom section, 'ADD PROJECTS', shows a table with a single row and buttons for Add and Delete. The page footer indicates 'Page 1 of 1'.

5. In the Invitation column of the required contracts, clear the check box.

The user is removed from the contract.

6. Click Save.

11.2.4. Editing Contract Details

- You must have the **Edit** permission.

1. In the module menu, click **Projects.**

The **PROJECTS** list page is displayed.

2. In the list page, click the required project, and then click **View.**

3. In the navigation pane, expand the project folder, and then click the **Contracts folder.**

The **CONTRACTS LIST** page is displayed.

4. In the list page, click the required contract, and then click **Edit**.

The **CONTRACT DETAILS** page is displayed.

Note:

- You can edit the measurement system only if contract items are not added in the **CONTRACT ITEMS** page.
For information on **Contract Items**, see [Managing Contract Items](#).
- You cannot update the contract calendar if contract items are locked in the contract.
For information on contract items, see [Managing Contract Items](#).
For information on selecting a contract calendar, see [Creating a Contract](#).

5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

11.2.5. Managing the Contract Calendar

- A calendar is selected for the contract.

With the Contract Calendar, you can define the working days of a week and holidays for the contract. The configured calendar in a contract determines the number of working days of a contract.

You can configure multiple generic calendars in the **Calendar** library catalog. From the available list of configured calendars, an applicable calendar is then selected for the contract. Once a calendar is selected for the contract, you can later update the contract calendar to customize it for the contract. Only the latest version is effective in determining the number of working days in the contract.

You can only update the latest version of the calendar to customize it for the contract. However, if the contract calendar is changed in the middle of a project cycle, then the latest version of the calendar is effective for the contract from the time the new version of the calendar is created. The latest version of the contract calendar impacts the following:

- Contract duration
 - Newly created contract forecasts and forecast reports
1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the required project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.

4. In the navigation pane, expand the required contract folder, and then expand the **Configurations** folder.
5. Click **Contract Calendar**.

The **CONTRACT CALENDAR** list page is displayed.

The available list of calendars is the versions of the calendar selected for the contract.

6. In the list page, select the latest version of the calendar, and then click **Edit**.

Note: The latest version of the calendar is the calendar that has the check box in the **Is Latest** column selected.

Contract Calendar Page

The screenshot shows the 'CONTRACT CALENDAR' edit page. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these are two input fields: 'Name *' containing 'WTR Contract Calendar' and 'Description' with a dropdown menu. Under 'Non-Working Days', checkboxes are checked for Saturday and Sunday, while Monday through Friday are unchecked. A section titled 'EXCEPTIONS' shows a table with columns for Date, Type, Notes, and Recurring Annually. A message 'No records to display.' is shown. At the bottom are 'Add', 'Edit', and 'Delete' buttons.

Date	Type	Notes	Recurring Annually
No records to display.			

Add Edit Delete

The **CONTRACT CALENDAR** page displays the following non-editable fields:

Section Name	Field	Description
-	Name	The name of the calendar is displayed.
	Description	The description of the calendar is displayed.

Section Name	Field	Description
	Non-Working Days	The check boxes for the non-working days are selected.
EXCEPTIONS	-	Any exceptions made in the working days or non-working days apart from the information in the Non-Working Days field are displayed.

7. Optionally, enter appropriate details in the **Name**, **Description**, and **Non-Working Days** fields, as applicable.
8. In the calendar, you can change a specific non-working day to a working day or vice versa. To define such exceptions, in the **EXCEPTIONS** section, perform the following steps:
 - a. Click **Add**.
The **New Exceptions** dialog box is displayed.
 - b. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Date	Select the date to define an exception.
Type	<p>Select the appropriate option.</p> <ul style="list-style-type: none">• If the selected option is Working Day, the date is considered when calculating the number of working days in the contract.• If the selected option is Non Working Day, the date is not considered when calculating the number of working days in the contract. <p>For example, in the Non-Working Days field, if Saturday is selected as a non-working day, and if a particular Saturday needs to be a working day, the exception can be defined here, and the Saturday is considered when calculating the number of working days in the contract.</p>
Notes	Enter any appropriate notes for the exception.

Field	Description
Recurring Annually	Select the check box to consider the exception across years when calculating the number of working days in a contract.

- c. Click **Save**.
- d. Optionally, perform any of the following steps, as applicable:
 - To edit any records, select the appropriate record, click **Edit**, and then repeat steps 8b to 8c, as applicable.
 - To delete any records, select the appropriate records, click **Delete**, and then click **OK**.
9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

A new version of the contract calendar is created, and the number of contract working days is updated based on this version.

For information on setting calendar options, see [Calendar](#).

11.2.6. Adding Owner Details

You can add owner details to the contract.

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the required contract folder, and then expand the **Configurations** folder.

5. Click **Settings**.

Settings Page

The screenshot shows the 'SETTINGS' tab selected in the top navigation bar. Below it are buttons for 'Save', 'Cancel', and 'Audit Log'. The main section is titled 'OWNER DETAILS' and contains nine input fields for entering owner information: Name, Address 1, Address 2, Address 3, City, State, Zip Code, Phone No., Fax, and Email.

Field	Description
Name	Enter the name for the owner.
Address1, Address2, and Address3	Enter the address of the owner.
City	Enter the name of the city where the owner resides.
State	Enter the name of the state where the owner resides.
Zip Code	Enter the zip code of the city in which the owner resides.
Phone No.	Enter the mobile number of the owner.
Fax	Enter the fax number of the owner.
Email	Enter the email address of the owner.

6. Provide the required information in the fields, as described in the following table.

Field	Description
Name	Enter the name for the owner.
Address1, Address2, and Address3	Enter the address of the owner.
City	Enter the name of the city where the owner resides.
State	Enter the name of the state where the owner resides.
Zip Code	Enter the zip code of the city in which the owner resides.
Phone No.	Enter the mobile number of the owner.
Fax	Enter the fax number of the owner.
Email	Enter the email address of the owner.

7. Click **Save**.

11.2.7. Managing Contractor Details

You can add details of the primary contractor and subcontractor of a contract. You can select the prime and subcontractor for a contract from the master list of contractors in the Masterworks library.

You can perform the following tasks:

- [Add details of the prime contractor and subcontractors.](#)
- [Change a contractor of the contract.](#)
- [Delete a contractor of the contract.](#)

11.2.7.1. Adding Contractor Details

- Contractor details are available in the **Contractors** library catalog.

You can add details of the prime contractor and subcontractor.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then expand the **Configurations** folder.

5. Click **Contractors**.

The **CONTRACTORS** page is displayed.

Contractors Page

CONTRACTORS

Save Audit Log Back Delete

PRIME CONTRACTOR :

Contractor ID * :	10004
Name :	DENNIS PARKING LOT MAINTENAI
Address :	PO BOX 3031
City :	DES MOINES
State :	IA
Zip Code :	50316

SUB CONTRACTORS :

<input type="checkbox"/>	Contractor ID	Contractor	
No records to display.			

Add **Delete**

6. To define the prime contractor of the contract, in the **PRIME CONTRACTOR** section, perform the following steps:

- a. In the **Contractor ID** field, click .

The **Add Prime Contractor** dialog box is displayed.

Available contractor details are of contractors defined in the **Contractors** library catalog. For information on contractor details, see [Contractors](#).

- b. Click the appropriate contractor from the list, and then click **Select**.

The details of the selected contractor is displayed in the **PRIME CONTRACTOR** section.

7. To define subcontractor of the contract, in the **SUB CONTRACTORS** section, perform the following steps:

- a. Click **Add**.

The **Add Sub Contractor** dialog box is displayed.

The list of active contractors, excluding the selected prime contractor, is displayed.

Available contractor details are of contractors defined in the **Contractors** library catalog. For information on contractor details, see [Contractors](#).

- b. Select the appropriate contractors, and then click **Select**.

The selected contractors are added to the **SUB CONTRACTORS** section.

8. Click **Save**.

11.2.7.2. Changing a Contractor

- Contract items are not locked.

Note: This prerequisite is applicable only to the prime contractor.

You can change a prime contractor or sub-contractors of a contract.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.

4. In the navigation pane, expand the required contract folder, and then expand the **Configurations** folder.

5. Click **Contractors**.

The **CONTRACTORS** page is displayed.

6. To change the prime contractor, in the **PRIME CONTRACTOR** section, perform the following steps:

Note: You can change the prime contractor only if the contract items are not locked.

- a. In the **Contractor ID** field, click .
 - The **Add Prime Contractor** dialog box is displayed.
Available contractor details are of contractors defined in the **Contractors** library catalog. For more information, see [Contractors](#).
 - b. Click the appropriate contractor from the list, and then click **Select**.
The details of the selected contractor is displayed in the **PRIME CONTRACTOR** section.
7. To add sub-contractors of the contract, perform the following steps:
 - a. In the **SUB CONTRACTORS** section, click **Add**.
The **Add Sub Contractor** dialog box is displayed.
The list of active contractors, excluding the selected prime contractor is displayed.
Available contractor details are of contractors defined in the **Contractors** library catalog. For information on contractor details, see [Contractors](#).
 - b. Select the appropriate contractors, and then click **Select**.
The selected contractors are added to the **SUB CONTRACTORS** section.
 8. Click **Save**.

11.2.7.3. Deleting a Contractor

- Contract items are not locked.

Note: This prerequisite is applicable only to the prime contractor.

You can delete a prime contractor or sub-contractors of a contract. Deleting the prime contractor deletes all the sub-contractors from the contract.

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the required contract folder, and then expand the **Configurations** folder.
5. Click **Contractors**.

The **CONTRACTORS** page is displayed.

6. To delete the prime contractor, in the **PRIME CONTRACTOR** section, perform the following steps:

Note: When you delete the prime contractor, the sub-contractors in the **SUB CONTRACTORS** section are also deleted.

- a. In the toolbar, click **Delete**.
A confirmation message is displayed.
 - b. Click **OK**.
The prime contractor and all the sub-contractors of the contract are deleted.
7. To delete sub-contractors of the contract, perform the following steps:
 - a. In the **SUB CONTRACTORS** section, select the sub-contractors to be deleted.
 - b. Click **Delete**.
A confirmation message is displayed.
 - c. Click **OK**.
The selected sub-contractors of the contract are deleted.
 8. Click **Save**.

11.2.8. Managing Details of Key Contacts

The **KEY CONTACTS** page enables you to save contact information of key participants in the contract.

You can add information of key contacts as described in the following procedure, or you can add information of key contacts in bulk using an Excel template available from the **KEY CONTACTS** page. For information on add key contact details in bulk, see [Uploading Form Details in Bulk](#).

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the required contract folder, and then expand the **Configurations** folder.
5. Click **Key Contacts**.

The **KEY CONTACTS** list page is displayed.

6. Click **New**.

The **KEY CONTACTS** page is displayed.

Key Contacts Page

The screenshot shows the 'KEY CONTACTS' page with the following fields:

- Contact Type :** Consultant (dropdown menu)
- Full Name :** Last Name * (text input) and First Name * (text input)
- Title :** (text input)
- Email :** (text input)
- Address :** (text input)
- City** and **State** (text inputs)
- Zip/Postal Code** (text input)
- Contact Details :** Phone Number (text input) and Extension Number (text input)
- Cell Phone** and **Fax** (text inputs)

7. Provide the required information in the fields, as described in the following table.

Field	Description
Contact Type	Select the category for the key contact. Available options are contact categories defined in the Contact Type library catalog.

Field	Description
Full Name	In the Last Name box, enter the last name of the contact person. In the First Name box, enter the first name of the contact person.
Title	Enter the title for the key contact.
Email	Enter the email address of the contact.
Address	Enter the address of the key contact.
City	Enter the name of the city where the contact resides.
State	Enter the name of the state where the contact resides.
Zip/Postal Code	Enter the zip code of the city in which the contact resides.
Contact Details	<ol style="list-style-type: none">a. In the Phone Number box, enter the phone number of the contact person.b. In the Extension Number box, enter the extension of the phone number of the contact person.c. In the Cell Phone box, enter the cell phone number of the contact person.d. In the Fax Number box, enter the fax number of the contact person.

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

11.2.9. Contract Workflow

The **Contract** module workflow is partially driven by contract items and pay estimates. You cannot manually perform certain actions for a contract workflow.

The following table provides the workflow actions and status (current and subsequent status) of the **Contract** record.

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Awarded	Automatically set to this workflow status when contract items are locked.
2	Awarded	Re-Draft	Draft	Automatically set to this workflow status when contract items are unlocked.
		Execute	In Progress	This workflow action must be performed manually.
3	In Progress	Re-Draft	Draft	Automatically set to this workflow status when contract items are unlocked.
		Close	Closed	This workflow action must be performed manually.

11.3. Contract Status and Attributes

11.3.1. Contract Status and Attributes

The Status and Attributes feature enables you to add contract status options and additional attributes to record contract details.

Contract attributes are easily configurable to save additional contract information. These attributes can be optionally added to every contract you create. You can add a corresponding value and notes to every contract attribute that is available.

Contract status enables you to define the implementation state or status of a contract in its life cycle.

For information on adding a contract status, see [Adding a Status](#), and for information on adding a contract attribute, see [Adding an Attribute](#).

11.3.2. Creating a Contract Status

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then click **Contracts**.
4. Click **More**, and then click **Status and Attributes**.

The **STATUS and ATTRIBUTES** list page is displayed.

5. In the **STATUS LIST** section, click **Add**.

The **Add Status** section is displayed.

6. In the **Enter Status Name** box, type the name of the status.
7. Click **Save**.

The **STATUS LIST** is updated with the new status.

The status is now available for selection in the **NEW CONTRACT** and **EDIT CONTRACT** page.

11.3.3. Creating Contract Attributes

You can add contract specific information as attributes to a contract to record additional contract information. Attributes are customized fields to provide additional information about a contract in addition to the standard fields.

For example, a contract has standard attributes, such as Contract Name, Contract Code, Description, Date Created, Start Date, End Date, and so on. In addition, you can define new fields to provide more information on the contract, such as, Estimated Cost, Issues, Remarks, and so on.

Every attribute is associated with a value type, such as Integer, Float, Text, Currency, or Date, that defines the type of data that can be entered in the field. For example, if the type for Estimated Cost is defined as Currency, then you are allowed to enter a value in currency format only.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then click **Contracts**.
4. Click **More**, and then click **Status and Attributes**.

The **STATUS and ATTRIBUTES** list page is displayed.

5. In the **MASTER ATTRIBUTE LIST** section, click **Add**.

The **Add Attribute** section is displayed.

6. In the **Enter attribute name** box, type the name of the attribute.

7. From the **Enter attribute type** drop-down list, select the type of value for the attribute.

This defines the type of value that you can enter for the attribute.

The attribute types available are as follows:

- **Text** - Text string limited to 255 characters
- **Integer** - Numbers with no decimals
- **Date** - Date
- **Float** - Numbers with decimals
- **Currency** - Currency

8. Click **Save**.

The **MASTER ATTRIBUTE LIST** is updated with the new attribute. The attribute is now available for selection in the **NEW CONTRACT** and **EDIT CONTRACT** page.

11.4. Contract Items

11.4.1. Contract Items

Using the **Contract Items** module, you can define the scope of work of the contract.

It provides intuitive features to quantify work items, define the activities required to implement work items, and specify the unit cost of each item required for project implementation.

You can add items to a contract to list and describe the work that is to be performed by the contractor. A work item itemizes the materials, equipment, and all other miscellaneous resources that are required for the implementation of the work defined in the contract.

Containers are used for categorizing, organizing, and structuring items. You can store items of a similar category or based on user preferences to enable easy identification and sorting. For example, you can use containers to organize items in a section of work. You can add new containers or add items to existing containers.

In addition to categorizing items in containers, you can categorize items based on groups. You can associate multiple contract items to a single group, but not associate one contract item to multiple groups. Groups enable an additional item grouping methodology. For example, if containers are used for organizing sections of work, groups could be used to organize items based on payment modes.

To finalize the scope of a contract, you must lock the contract items list. Once the contract items are locked, you cannot modify the scope of the contract directly, but through a

formalized change order process. For information on managing changes to locked contract items, see [Change Management](#).

You can perform the following tasks to manage contract items:

- [Manage containers](#).
- [Configure groups](#).
- [Add contract items](#).
- [Upload details of contract items in bulk](#).
- [Edit details of contract items](#).
- [Associate a contract item with a budget item](#).
- [Associate a Fund Rule](#).
- [View Fund Rule Association History](#).
- [Lock contract items](#).
- [Unlock contract items](#).

11.4.2. Managing Containers

You can create containers in a contract to categorize work items. You can also delete an entire container to remove items of that container from the contract.

The following topics enable you to manage containers:

- [Create container](#).
- [Delete container](#).

11.4.2.1. Creating a Container

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **CONTRACT ITEMS** page is displayed.

5. Perform any of the following:

- To add a new container, click **New**, and then click **New Container**.
- To add a container within a container, select the appropriate container, click **New**, and then click **New Container**.
- To convert an existing item to a container and then add the container within it, select the appropriate item, click **New**, and then click **New Container**. In the confirmation box, click **OK**.

The **CONTAINER** page is displayed.

Container Page

The screenshot shows a form titled "CONTAINER". At the top, there are three buttons: "Save & Exit", "Save & Continue", and "Cancel". Below the buttons, there are three input fields labeled "Name", "Description", and "Notes", each with a text input box. Under "Parent Container", there is a dropdown menu showing "Root" and "Default".

6. In the **Name** box, enter the name of the container.
7. In the **Description** box, enter the description of the container.
8. In the **Notes** box, enter the notes for the container.
9. From the **Parent Container** list, click the container in which the current container must be made available.

Note: For the first container, the only Parent Container option is Root.

10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The container is created.

11.4.2.2. Deleting a Container

On deleting a container, the items in the container are also deleted from the contract.

Note: You cannot delete a container that is pre-created as part of phases defined for the project. For information on phases, see [Planning Project Phases](#).

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.
5. Select a container to delete.
6. Click **Delete**.

A confirmation message is displayed.

7. Click **OK**.

The container and the items in the container are deleted from the contract.

11.4.3. Configuring Groups

In addition to categorizing items in containers, you can categorize items based on groups. Groups enable an additional item grouping methodology. You can associate multiple items to multiple groups that are definable. For example, if containers are used for organizing sections of work, groups could be used to organize items based on payment modes.

You can [add groups](#), [edit details of a group](#), and [delete groups](#). However, you cannot edit details of a group or delete a group if the group is associated with contract items.

11.4.3.1. Adding a Group

You can create a group and associate items to the group.

For information on associating a group to an item, see [Editing Item Details](#).

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. Click **Groups**.

The **GROUPS** page is displayed.

Groups Page

The screenshot shows a software interface titled "GROUPS". At the top, there are "Save" and "Cancel" buttons. Below the title, the word "GROUPS" is repeated. A table has "Name" and "Description" columns. One row contains "Default" and "Default Group". At the bottom are "Add", "Edit", and "Remove" buttons.

6. In the **GROUPS** section, click **Add**.

The **Group Details** section is displayed.

7. In the **Name** box, enter the name of the group.

8. In the **Description** box, enter the description of the group.

9. Click **Save**.

The group is added to the list of groups.

10. Click **Save** to save the changes.

11.4.3.2. Editing the Details of a Group

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.

4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. In the **ITEM LIST** page, click **Groups**.

The **GROUPS** page is displayed.

6. In the **GROUPS** section, click the group to be edited, and then click **Edit**.

The **Group Details** section is displayed.

7. In the **Name** box, enter the name of the group.
8. In the **Description** box, enter the description of the group.
9. Click **Update**.

The group details are updated.

10. Click **Save** to save the changes.

11.4.3.3. Deleting a Group

You can delete a group only if the group is not associated with any contract items.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. In the **ITEM LIST** page, click **Groups**.

The **GROUPS** page is displayed.

6. In the **GROUPS** section, click the group to be deleted.
7. Click **Remove**.

A confirmation dialog box is displayed.

8. Click **OK**.
9. Click **Save** to save the changes.

11.4.4. Adding Items to a Contract

You can add the work items to a contract to enlist the scope of the contract and the items required for the contract. Additionally, you can also add non-contract items to the contract item list. Non-contract items are work items that are part of the contract but the cost of which is set to zero.

While creating the contract, if you have imported a bid, the items are automatically added to the **Contract Items** page. For more information, see [Creating a Contract](#).

You can add work items to a contract in the following ways:

- [Manually entering the required information of standard items or non-standard items](#)
- [Adding items from the predefined set of standard items from the library](#)
- [Copying an item](#)

- [Copying a subitem](#)
- [Using Microsoft Excel to upload item details in bulk](#)

Note: Based on the phases added to the project, containers are pre-created in the contract items page. For information on phases, see [Planning Project Phases](#).

11.4.4.1. Adding a Work Item to a Contract

- You must have the **Create** permission to add contract items.
1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
 2. In the list page, click the appropriate project, and then click **View**.
 3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
 4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. Click **New**, and then click **New**.

Alternatively, perform either of the following steps:

- To add the item within a selected container, select the appropriate container, click **New**, and then click **New**.
- To convert an existing item to a container and add the item to the container, select the appropriate item, click **New**, and then click **New**. In the confirmation box, click **OK**.

The **NEW ITEM** page is displayed.

6. Provide the appropriate information in the fields as described in the table.

Field	Description
Container	If you have selected a container, the name of the selected container is displayed. To select a different container to categorize items, perform the following steps: <ol style="list-style-type: none">a. Click . The SELECT CONTAINER page is displayed.b. Click the appropriate container. For more information, see Creating a Container.

Field	Description
Pay Item No.	<p>Enter the item number.</p> <p>Alternatively, to select an item from the library, perform the following steps:</p> <ol style="list-style-type: none">In the Select Item from Library section, from the Standard Item Table drop-down list, select the standard table in which the appropriate item is defined. Available options are standard item tables defined in the Standard Items Table library catalog. For more information, see Standard Items Table.Optionally, select the Ignore Containers of Standard Items check box to only select the item and not the container of the item.<ul style="list-style-type: none">• If the check box is selected, the item is added to the selected container.• If the check box is cleared, the item and its container are added to the contract.Click Select to select an item from the selected standard items table. The item selection dialog box is displayed. Available options are items defined in the selected standard items table that is defined in the Standard Items Table library catalog. For more information, see Standard Items Table.Click an item, and then click Select. The Pay Item No., Description, Unit, Group, Accounting Code, and Unit Price in \$ of the selected item are displayed.
Description	Enter the description of the item. Item description is displayed automatically if you have selected the item from the library.
Unit	Select the unit of measure for the item. Available options are measurement units defined in the measurement system selected for the contract. For information on measurement systems, see Measurement Systems .

Field	Description
Group	Select the group name for the item. For information on groups, see Configuring Groups .
Budget Item	<p>To associate a budget item with the contract item, perform the following steps:</p> <p class="list-item-l1">a. Click . The Select Budget Item dialog box is displayed. Available options are budget items from the approved budget estimate of the project. For more information on budget estimates, see Budget Estimates.</p> <p class="list-item-l1">b. Click the appropriate budget line item, and then click Select.</p> <p>If you associate a budget item with the contract item, new forecasts created for the budget are impacted when an expense is incurred for the associated contract item. New forecasts created, being a blended forecast, display spent amount in past dates and the remaining amount is distributed in the future dates.</p>
Funding Rule	<p>Select the funding rule for the item. Available options are approved funding rules defined for the project. For more information, see Project Fund Rules.</p> <p>Note: You can change the fund rule of an item at any time. For information on associating a funding rule to an item, see Viewing Fund Rule Association History.</p>
Accounting Code	Enter the accounting code assigned to the item. Accounting code of the item is displayed automatically if you have selected the item from the library.

Field	Description
Component Count	<ol style="list-style-type: none">a. Click Components to define item components.b. Click New to add an item component.c. In the Name box, enter the name of the item component.d. In the Description box, enter the description of the item component.e. Click Save.f. Click Back.
Quantity	<p>Enter the appropriate quantity of the item.</p> <p>You can add sub-items to an item, and the quantity of the item is calculated as the sum of all the sub-items added. For more information, see Adding Sub Items.</p>
Unit Price in \$	<p>Enter the cost per unit.</p> <p>The Amount in \$ box displays the total amount of the item calculated as the product of quantity of the item and unit price of the item.</p>
Complete	<p>Select the check box to mark the item as complete.</p> <p>On marking an item as complete, the item will not be available for item postings to be processed in a pay estimate. For information on item postings, see Posting Items for Payments.</p>
Notes	Enter any additional information relevant to the item.
Non-Contract Item	<p>Select the check box to mark the item as a non-contract item.</p> <p>The cost of non-contract items is zero, and the Amount in \$ box is made unavailable.</p> <p>Note: If the contract items are locked, this check box is selected, and you cannot clear this check box. All items added after the contract items are locked, automatically are added as non-contract items to the contract item list. The amount of non-contract items is always zero. For more information, see Locking Contract Items.</p> <p>You can convert a non-contract item to a contract item at a later time. For more information, see Converting Non-Contract Items to Contract Items using a Change Order.</p>

7. To add resources to the work item, in the **RESOURCES** section, perform either of the following steps:

- To add resources from the library, perform the following steps:
 - a. In the **Select Resource Type** drop-down list, select the appropriate resource to be added to the work item.
 - b. Click **Add From Library**.

The **Resource Picker** dialog box is displayed.

Available options are based on the resource type selected in the **Select Resource Type** drop-down list.

Available options are resources defined in the corresponding library catalog for the selected resource type. For example, if you have selected **Equipment** from the **Select Resource Type** drop-down list, then the available options are from the **Equipment** library catalog.

- c. Select the appropriate resources, and then click **Select**.

The selected resources are added to the table.

Resource information, such as Resource ID, Title, Resource Category, Resource Type, Units, Fixed Price in \$, Variable Price in \$/Unit are displayed for the selected resources.

- d. Double-click the following columns in the table, and enter information as described in the following table.

Column	Description
No. of Resources	Enter the number of resources appropriate.

Column	Description
Quantity in Units	Enter the number of units for each resource.

The following information is displayed.

Column	Description
Amount in \$	The amount in \$ is calculated as: $\text{Amount in \$} = (\text{No. of Resources}) * (\text{Fixed Price} + (\text{Variable Price} * \text{Quantity in Units}))$

- To add resources manually, perform the following steps:
 - a. Click **Add Manually**.
A row is added to the table.
 - b. Double-click the following columns in the table, and enter information as described in the following table.

Column	Description
Title	Enter title for the resource.
Resource Category	Select the resource category for the resource.
Resource Type	Select the resource type for the resource. Perform either of the following steps: <ul style="list-style-type: none">■ If the selected Resource Category is either Equipment or Material, then select NA in the Resource Type drop-down list.■ If the selected Resource Category is Resource Titles, then from the Resource Type drop-down list, select Internal, Contractor, or Consultant.
Units	Select the appropriate unit of measure. Available units are all the units of measure defined in the Measurement Systems library catalog. For more information, see Measurement Systems . If the selected Resource Category is Resource Titles , then from the Units drop-down list, select Hour , Day , Month , or Year .
Fixed Price in \$	Enter the fixed price for the resource.

Column	Description
Variable Price in \$/ Unit	Enter the variable price for the resource.
No. of Resources	Enter the appropriate number of resources.
Quantity in Units	Enter the number of units for each resource.

The following information is displayed:

Column	Description
Amount in \$	The amount in \$ is calculated as: $\text{Amount in \$} = (\text{No. of Resources}) * (\text{Fixed Price} + \text{Variable Price} * \text{Quantity in Units})$

The **Total Item Estimate in \$** value displays the sum of the **Amount in \$** of the item and the total of the **Amount in \$** column of the resources added to the work item.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. To save the item, perform any of the following as applicable:

- Click **Save & Exit** to return to the items list page.
- Click **Save & Continue** to save and continue on the same page.
- Click **Save & Create New** to save the current item and continue creating a new item.

11.4.4.2. Adding Multiple Contract Items

- You must have the **Create** permission to add contract items.

To save time and effort, you can add multiple contract items at once from the library to the contract.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. Select the appropriate container to add items.

For information on creating a new container, see [Creating a Container](#).

6. Click **New**, and then click **Add Multiple**.

The **ADD STANDARD ITEMS** page is displayed.

7. From the **Standard Item list** drop-down list, select the standard table to add items to the contract.

Available options are standard item tables defined in the **Standard Items Table** library catalog. For more information, see [Standard Items Table](#).

8. Optionally, select the **Ignore Containers of Standard Items** check box to only select the item and not the item container.

If the check box is selected, the item is added to the selected container.

If the check box is cleared, the item and its container are added to the contract.

9. Click the **Use Pay Item No. Groups** option to assign **Default** as the scheduled group to the items.

Or

Click the **Use Group** option, and select a group from the list.

For information on groups, see [Configuring Groups](#).

10. Click **Add** to select an item from the selected standard items table.

The item selection dialog box is displayed.

Available options are items defined in the selected standard items table that is defined in the **Standard Items Table** library catalog. For more information, see [Standard Items Table](#).

11. Select the appropriate items, and then click **Select**.

Alternatively, to select all items from the list, click **Select All Records**, and in the confirmation dialog box, click **OK**.

The **Pay Item No.**, **Description**, **Container**, **Unit**, **Unit Price in \$**, and **Group Name** are displayed.

12. Click **Save**.

The **ITEM LIST** page is displayed with the selected items.

To update item information, perform either of the following steps:

- To enter the item quantity, update the item description, unit of measure, or unit price, see [Inline Editing](#).
- To enter or modify other information, see [Editing Other Details](#).

13. To associate budget line items with contract items, perform the following steps:

- a. In the **ITEM LIST** page, select the appropriate items.
- b. Click **Association**, and then click **Associate Budget Items**.

The list of approved budget line items is displayed.

- c. Click the appropriate budget line item, and then click **Select**.

The selected contract items are associated with the selected budget line item.

14. Click **Save**.

11.4.4.3. Copying an Item

- You must have the **Create** permission to add contract items.
- A container is available to paste the item.

You can create an item by copying the details of another item.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.

4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. In the **ITEM LIST** page, select the items to copy.

6. Click **More**, hover over **Actions**, and then click **Copy Items**.

7. Select a container to paste the copied items.

8. Click **Actions**, and then click **Paste Items**.

A confirmation message is displayed.

9. Click **OK**.

The items are pasted to the selected container.

11.4.4.4. Copying a Subitem

You can create a subitem by copying the details of another subitem.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. Select the appropriate subitem.
6. Click **More**, hover over **Actions**, and then click **Copy Sub Items**.
7. Select an item to paste the copied subitem.
8. Click **More**, hover over **Actions**, and then click **Paste Sub Items**.

A confirmation message is displayed.

9. Click **OK**.

The subitem is added to the selected item.

11.4.5. Uploading Details of Work Items in Bulk

- You must have **Create** permission.

Using the **Excel Import / Export** feature, you can upload new items and update details of existing items in bulk.

Note: You cannot delete items or upload attachments using an Excel workbook.

The high-level process of uploading or updating details of work items in bulk is as follows:

1. Export the template workbook.
2. Add or update item information in the template workbook.
3. Import the updated workbook.

The **Instructions** tab in the Microsoft Excel workbook template provides information on updating the template for uploading multiple records.

1. In the module menu, click **Projects**.
- The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.
 3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
 4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. To export the Excel workbook template, perform the following steps:
 - a. In the **ITEM LIST** page, click **Excel Import / Export**, and then click **Excel Template** or **Excel Template With Data**.

The Excel workbook template is downloaded to the local storage.
 - b. Open the Excel workbook template.
6. In the **Item** tab of the Excel workbook, enter the item details in various columns, as described in the following table.

Column	Description
Internal ID	<ul style="list-style-type: none">• For uploading details of new work items, do not enter any details in the Internal ID column.• For updating details of existing work items, retain the value in the Internal ID column. The Internal ID column displays the unique identification code for the corresponding record of the form and is used as a reference to update work item details.
Type	<p>Mandatory field; information must be provided. Enter the type of item being defined.</p> <ul style="list-style-type: none">• To create a container, enter Container.• To create an item, enter Item.• To create a sub-item, enter SubItem.• To create an item associated equipment, enter Equipment.• To create an item associated material, enter Materials.• To create an item associated title, enter Resource Titles.

Column	Description
Indent Level	<p>Mandatory field; information must be provided. To update the existing item, retain the values in this column.</p> <p>Indent Level defines the hierarchy and sequence of the parent container and the container, item, or sub-item within the parent container. The hierarchy must be defined sequentially in the Excel workbook.</p> <p>For example, C1 is the parent container, and an item is present in C1. The Indent Level should be 0 for C1 and 1 for the item.</p> <p>Similarly, to define sub-items for an item that is at indent level 1, the sub-items for that item must be defined with indent level 2 after the row with the details of the item.</p> <p>The following images illustrate three containers C1, C2, and C3. Container C3 is within C2. Items ITEM1 is in C1, ITEM2 is in C2, and ITEM3 is in C3.</p> <p>Note the following factors:</p> <ul style="list-style-type: none"> The item ITEM1 is marked as a non-contract item, and therefore the Amount in \$ column for the item displays zero in the ITEM LIST page. The item ITEM2 is marked as Complete, and therefore will not be available for inclusion into any pay estimates.

Items and Containers Illustrated in Excel Workbook

Internal ID	Type	Indent Level	Line No	Name	Description	Notes	Pay Item No	Accounting Code	Quantity	Group	Fund
1	Container	0	1	C1							
2	Item	1	1		DESC-ITEM 1	NOTE-ITEM 1	ITEM1				10
3	Container	0	2	C2							
4	Item	1	3		DESC-ITEM 2	NOTE-ITEM 2	ITEM2				20
5	Container	1	3	C3							
6	Item	2	2		DESC-ITEM 3	NOTE-ITEM 3	ITEM3				30
7											Default
8											Default

The following image illustrates the items and containers imported to the application using the Excel workbook containing information as illustrated in the previous image:

Items and Containers Import List

ITEM LIST				
	New	Save	Lock	Forecast
	Excel Import / Export	More		
<input type="checkbox"/>	Name	Line Number	Description	Group
<input type="checkbox"/>	C1			
<input type="checkbox"/>	ITEM1	1	DESC-ITEM 1	Default

Column	Description
Line No	<p>Mandatory field; information must be provided.</p> <p>To update the existing item, retain the values in this column.</p> <p>Enter the line number of the container or item.</p> <p>For example, if the Type entered is Container, to define CONTAINER 2 under CONTAINER 1, the Line No of CONTAINER 1 must be set to 1 and CONTAINER 2 must be set to 2.</p> <p>Similarly, if the Type entered is Item, to define an ITEM 1 under CONTAINER 2, the Line No of ITEM 1 must be set to 1 and ITEM 2 must be set to 2.</p>
Name	<p>If Type is entered as Container, then in the Name column, enter the name of the container.</p>
Item Description	<p>Enter the description of the container or item.</p> <ul style="list-style-type: none">• If Type is entered as Container, then in the Item Description column, enter a description for the container.• If Type is entered as Item, then in the Item Description column, enter a description for the item.• If Type is entered as SubItem, then in the Item Description column, enter a name for the sub-item.
Notes	<p>If Type is entered as Container, or Item, or SubItem, or enter the notes for the container, or item, or sub-item.</p>
Pay Item No	<p>Mandatory field; information must be provided.</p> <p>If Type is entered as Item, then in the Pay Item No column, enter a unique name or identifier to identify the item.</p> <p>Note: Prefix an apostrophe to the first Pay Item No in the sheet if the first 8 rows contain numeric values, followed by alphanumeric pay item numbers starting row 9. Microsoft Excel automatically converts a text-content column to a numeric-content column if the first 8 rows contain numeric values.</p>
Accounting Code	<p>If Type is entered as Item, enter the accounting code for the item.</p>

Column	Description
Quantity	<p>If Type is entered as Item, then in the Quantity column, enter the required quantity of the item.</p> <p>If Type is entered as SubItem, then in the Quantity column, enter the required quantity of the subitem. The quantity of the item is calculated as the sum of all its subitem quantities.</p>
Group	<p>Mandatory field; information must be provided.</p> <p>If Type is entered as Item, enter the group name for the item. If no groups are created, enter Default.</p> <p>For information on Groups, see Configuring Groups.</p>
Fund Rule	<p>If Type is entered as Item, enter the Rule Name of the funding rule from the list of approved fund rules to associate the item amount to the selected fund rule.</p> <p>For additional information on funding rules, see Project Fund Rules.</p>
Budget Item	<p>If Type is entered as Item, enter the Pay Item No. of the budget item from the approved budget estimate of the project. For information about budget estimates, see Budget Estimates.</p>
Unit	<p>Mandatory field; information must be provided.</p> <p>If Type is entered as Item, enter the unit of measure for the item.</p> <p>Note: Ensure the unit of measure used is defined in the measurement system selected for the contract.</p> <p>A measurement system is selected for every contract. For information on selecting a measurement system for the contract, see Creating a Contract.</p>
Unit Price in \$	<p>Mandatory field; information must be provided.</p> <p>If Type is entered as Item, enter the cost of each of the item.</p>

Column	Description
IsNonContract	<p>If Type is entered as Item, enter Y if the item is a non-contract item, or enter N if the item is contract item.</p> <p>The cost of non-contract items is zero, and on marking an item as a non-contract item, the Amount in \$ for the item is calculated as zero. For information on item postings, see Posting Items for Payments.</p>
IsComplete	<p>If Type is entered as Item, enter Y if the item must be marked as implementation completed as part of approved item postings, and enter N if the item implementation is incomplete.</p> <p>On marking an item as complete, the item will not be available for item postings to be processed in a pay estimate. For information on item postings, see Posting Items for Payments.</p>
Optional, to associate resources, such as equipment, material, or resource titles to an item, enter the following resource information. Enter details of material, equipment, and titles associated to an item in rows after the item details row.	
Title ID	Do not enter any value. A unique identification code for the resource is automatically generated.
Resource Title	Enter the title for the resource.
Resource Type	<ul style="list-style-type: none">If the entered Type is either Equipment or Material, enter NA.If the entered Type is Resource Titles, enter Internal, Contractor, or Consultant.
Resource Units	<ul style="list-style-type: none">If the entered Type is either Equipment or Material, then enter the unit of measure for the resource. Ensure the unit of measure is entered as defined in the Measurement Systems library catalog.If the entered Type is Resource Titles, then enter the unit of measure as Hour, Day, Month, or Year.
Resource Fixed Price in \$	Enter the fixed price for the resource.

Column	Description
Resource Variable Price in \$/Unit	Enter the variable price for one unit for the resource.
Number of Resources	Enter the number of resources required.
Resource Quantity in Units	Enter the number of units for each resource.
Resource Amount in \$	<p>Do not enter any value. The value is automatically calculated for each resource.</p> <p>The amount in \$ is calculated as:</p> $\text{Resource Amount in \$} = (\text{Number of Resources}) * (\text{Resource Fixed Price in \$} + (\text{Resource Variable Price in \$/Unit} * \text{Resource Quantity in Units}))$

- Click **Save** to save the Excel workbook.

8. To import the template workbook with item details to the application, perform the following steps:
 - a. In the **ITEM LIST** page, click **Excel Import / Export**, and then click **Excel Import**.
The **IMPORT DETAILS FROM EXCEL FILE** page is displayed.
 - b. Click **Choose File** to select the workbook with updated item information.
The **Open** dialog box is displayed.
 - c. Select the appropriate workbook, and then click **Open**.
 - d. Click **Upload** to import item information from the Excel workbook to the **SCHEDULE** page.
On successful import, the success message is displayed.
 - e. On encountering errors while importing an Excel workbook, perform the following steps:
 - i. In the toolbar, click **Error Log**.
The error log workbook is downloaded to your local storage.
 - ii. Open the error log workbook to view the errors in the various columns.
Error messages in the cells are highlighted in red. Tabs in the workbook are also highlighted to indicate the presence of errors.
 - iii. Open the Excel workbook and modify the details as specified in the error log workbook.
Optionally, you can make relevant corrections in the error log workbook and upload it.
 - iv. Save and upload the Excel workbook to import the updated information.
 - f. Click **Save**.
 - g. Click **Back**.
- The item details in the Excel workbook are uploaded to the **ITEM LIST** page.

11.4.6. Associating a Budget Item with Contract Items

- Contract items are not locked.
- Approved budget items are available.
- You must have **Edit** permission to modify the item details.

You can associate contract items with budget estimate items of the current budget. You can associate multiple contract items with a single budget item, but not associate one contract item with multiple budget items.

If you associate a budget item with a contract item, new forecasts created for the budget are impacted when an expense is incurred for the associated contract item. The new

forecast created, being a blended forecast, displays the spent amount in past dates, and the remaining amount is distributed in future dates.

When a budget item is associated with a contract item, the fund rule of the budget item is associated with the contract item. However, you can update the fund rule. For information on associating a fund rule to a contract item, see [Associating a Fund Rule](#).

Note: If a contract item is associated with a fund rule, and then a budget item is associated with the contract item, the fund rule associated with the contract item persists. Similarly, if the fund rule of the associated budget item is revised, the fund rule previously associated with the contract item persists.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.

4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. Select the appropriate items.

6. Click **Association**, and then click **Associate Budget Items**.

The list of approved budget and budget revision items is displayed.

That is, the list of items in the current budget is displayed.

For information about budget estimates, see [Budget Estimates](#).

7. Click the appropriate budget item, and then click **Select**.

The selected contract items are associated with the selected budget item.

11.4.7. Disassociating Contract Items from Budget Items

- Contract items are not locked.
- You must have **Edit** permission to modify the item details.

You can disassociate contract items from the budget items of the current budget.

On disassociating a contract item from a budget item, the fund rule of the contract item persists.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. Select the appropriate items.
6. Click **Association**, and then click **Disassociate Budget Items**.

The selected contract items are disassociated from the budget items.

11.4.8. Associating a Fund Rule with Contract Items

- You must have **Edit** permission to modify the item details.

You can associate a fund rule with multiple contract items. You can revise fund rules of contract items even when contract items are locked. This facilitates flexibility in applying and using different fund sources in accordance with changing business decisions. The latest associated fund rule is considered in pay estimates, purchase orders, and expenses to determine the consumption of the fund.

Changes to fund rules are considered in pay estimates, purchase orders, and expenses only until pay estimates, purchase orders, and expenses are in their final workflow status.

From when a contract item list is locked, the history of fund rule association to a contract item is recorded. For more information, see [Viewing Fund Rule Association History](#).

Note: Fund rule association history of non-contract items is not recorded. On converting a non-contract item to a contract item, the fund rule association history is recorded.

1. In the module menu, click **Projects**.
- The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.
 3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
 4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.
- The **ITEM LIST** page is displayed.
5. Select the appropriate items to associate a funding rule.

6. Click **Associate Fund**, and then click the appropriate funding rule.

Available options are active and approved funding rules defined for the project. For more information, see [Project Fund Rules](#).

7. Click **Save**.

11.4.9. Editing Contract Item Details

A contract item may require modifications to alter the quantity, unit price, containers, and so on. Additionally, you can move items to a different container, and associate or dissociate contract items and budget items.

You can edit item details in the following ways:

- [Inline editing](#)
- [Using the Edit option](#)
- [Using an Excel workbook](#)
- [Editing a subitem](#)
- [Moving an item to a different container](#)
- [Associating a contract item with a budget item](#)
- [Disassociating contract items and budget items](#)

11.4.9.1. Inline Editing

- Contract items are not locked, or the item is a non-contract item.
- You must have **Edit** permission to modify the item details.

Inline editing enables you to modify and save item details by directly editing details in the list page. You can edit only the **Description**, **Unit**, **Unit Price in \$**, and **Quantity** fields.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. Right-click on a row, and click **Expand All** to expand all containers and view item details.
6. Double-click the row of the item you want to edit.

The editable cells are highlighted.

7. Enter the appropriate information.

8. Click **Save**.

11.4.9.2. Using the Edit Option

- Contract items are not locked, or the item is a non-contract item.
- You must have **Edit** permission to modify the item details.

You can modify and save item details in the **EDIT ITEM** page.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. Right-click on a row, and click **Expand All** to expand all containers and view item details.
 6. Select the appropriate item, and then click **Edit**.
- The **EDIT ITEM** page is displayed.
7. Enter the appropriate information.
 8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

11.4.9.3. Using the Excel Template

- Contract items are not locked, or the item is a non-contract item.
- You must have **Edit** permission to modify the item details.

For information on updating details of contract items in bulk, see [Uploading Contract Items in Bulk](#).

11.4.9.4. Editing a Subitem

- Contract items are not locked, or the item is a non-contract item.

You can modify and save the subitem details. The quantity of the parent item is the sum of the quantity of the subitems defined.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. Right-click on a row, and click **EXPAND ALL** to expand all containers, and view item and subitem details.
6. Select the parent item of the subitem you want to edit.
7. Click **More**, hover over **Actions**, and then click **Sub items**.

The **SUB ITEMS** page is displayed.

8. Enter the appropriate information. For more information, see [Adding Subitems](#).
9. Click **Save**.
10. Click **Back**.

The **ITEM LIST** page is displayed.

11.4.9.5. Reordering Items

- Contract items are not locked.
- You must have **Edit** permission to modify the item details.

You can move items from one container to another.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. Click **Reorder**.

The **REORDER STRUCTURE** page is displayed.

6. Click **Expand All** to view all the items in the various containers.
7. Drag and drop the appropriate item into the appropriate container.
8. Click **Save**.
9. Click **Back**.

The **CONTRACT ITEMS** page is displayed.

11.4.10. Locking the Contract Item List

- Prime Contractor for the contract is configured.
For information on setting up contractors, see [Managing Contractor Details](#).
- The total amount of the contract items must not be zero or less than zero.
For more information, see [Adding Items to a Contract](#).
- You must have permission to lock the Contract Items list.

You can finalize the scope of a contract by locking the contract item list of the contract. Any items added after locking the contract list are marked as non-contract items, and the cost of these items is considered as zero.

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

- The **ITEM LIST** page is displayed.
5. Click **Lock**.
A confirmation message is displayed.
 6. Click **OK**.

The contract items of the contract are locked.

Note: You can unlock contract items and modify item details only until no items are posted in the contract. For more information, see [Unlocking the Contract Item List](#).

11.4.11. Viewing the Fund Rule Association History

From when a contract item list is locked, the history of fund rule association to a contract item is recorded. You can view the details of when a fund rule was associated or dissociated with a contract item.

Note:

- When a contract item list is unlocked, the history of fund rule association is deleted.
- Fund rule association history of non-contract items is not recorded. On converting a non-contract item to a contract item, the fund rule association history is recorded.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.**3.** In the navigation pane, expand the project folder, and then expand the **Contracts** folder.**4.** In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. In the **Fund Rule** column, corresponding to the row of the appropriate item, click the rule name.

The **Fund Rule Association History** dialog box is displayed.

11.4.12. Unlocking the Contract Item List

- The **Contract Items** list is locked.
- Items are not posted in the contract.

You can unlock a locked contract item list to modify the details of contract items. If items are posted in the contract, you cannot unlock the contract item list.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.**3.** In the navigation pane, expand the project folder, and then expand the **Contracts** folder.**4.** In the navigation pane, expand the appropriate contract folder, and then click **Contract Items**.

The **ITEM LIST** page is displayed.

5. Click **Unlock**.

The confirmation message is displayed.

6. Click **OK**.

The contract items of the contract are unlocked.

11.5. Collaboration

11.5.1. Submittals and Transmittals

The Submittals and Transmittals feature enables submission and transmission of project-related correspondence or documents to the appropriate approving authorities to obtain any necessary clearance or approvals. This feature enables you to:

- Create submittals and categorize them based on the types.
- Attach documents that are required for a submittal type.
- Issue transmittals.
- Track transmittals that were submitted.
- Maintain history of all correspondence for every submittal.
- Manage reviews and approvals using workflows.

You can perform the following tasks:

- [Manage submittals](#).
- [Issue transmittals](#).

11.5.2. Submittals

11.5.2.1. Submittals

A submittal is a document or samples provided by subcontractors to the general contractor, or by the general contractor to the owner for approval of design, equipment, materials, and so on.

In Masterworks, relevant documents are attached to a submittal form and then processed for approvals from stakeholders. A submittal form comprises information about the contractor submitting the submittal, the title, type, and due date for the expected information for the submittal, and specification and description details. You can also compile a set of submittals and package it into a single unit that you can use without having to attach these documents individually to a submittal form.

You can associate related records of other forms to a submittal, and also invite project users to review a submittal before it is processed for approvals.

You can perform the following tasks:

- [Create a submittal](#).
- [Invite reviewers to review a submittal](#).
- [Perform workflow actions to implement the business process](#).

- [Create a submittal package.](#)
- [Create a revision of a submittal.](#)

11.5.2.2. Creating a Submittal

You can track the contract-related submittal documents and review them using the **Submittals** form. Additionally, the form provides the capability to track multiple revisions that a submittal goes through throughout the review process.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the required project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the required contract folder, and then expand **Collaboration**.
5. Click **Submittals**.

The **SUBMITTALS** list page is displayed.

6. Click New.

Submittals Page

The screenshot shows the 'SUBMITTALS' page with the following fields:

- Submittal ID :** <Auto Generated>
- Project Code :** PR-39333
- Submittal Type * :** (dropdown menu)
- Project Name :** Widen Tranco Road project
- Contract Name :** Widen Tranco Road wide
- Created By :** Smith
- Submittal Owner :** DENNIS PARKING LOT MAINTENANCE, INC.
- Created Date :** 10/23/2023
- Sub Contractor :** Select
- Due Date * :** 10/23/2023
- Submittal Package :** (dropdown menu)
- Specification Section :** (dropdown menu)
- Revision Number :** 0
- Transmittals Created :** 0
- Submittal Title * :** (text input)
- Description :** (text area)

ATTACHMENTS

	Document Name	Url/Link	Title	Uploaded By	Uploaded Date	File Size	Signed Copy
No Attachments available							

LINKED RECORDS

<input type="checkbox"/>	Record Identifier		Source Form		Contract Name		Notes
No records available.							

Add **Delete**

+ SUBMITTAL REVIEW

+ SUBMITTAL APPROVAL

The **SUBMITTALS** page displays the following non-editable fields:

Field	Description
Submittal ID	On saving the record, a unique identification code is automatically generated for the record.
Contract Name	The name of the contract for which the submittal is being created.
Submittal Owner	The name of the prime contractor for the contract.
Transmittals Created	The number of transmittals created for the submittal. For more information, see Transmittals .
Project Code	The identification code of the project for which the submittal record is being created.

Field	Description
Project Name	The name of the project for which the submittal is being created.
Created By	The name of the logged-in user.
Created Date	The current date. That is, the date the submittal record is being created.
Revision Number	For a submittal revision, the revision number of the submittal. For more information, see Creating a Submittal Revision .

7. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Submittal Type	Select the type of the submittal. Available options are submittal types defined in the Submittal Type library catalog.
Sub Contractor	To select the subcontractor initiating the submittal, click and select the appropriate subcontractor. Alternatively, type the name of the subcontractor, and then select the appropriate subcontractor. Available options are subcontractors selected for the contract. For information on subcontractors of the contract, see Managing Contractor Details .
Due Date	Select the date by when the information for the submittal is expected by the submitter.

Field	Description
Submittal Package	<p>To select a submittal package, perform the following steps:</p> <p class="list-item-l1">a. Click . The Select Submittal Packages dialog box is displayed. Available options are submittal packages defined in the contract. For information on submittal packages, see Submittal Packages.</p> <p class="list-item-l1">b. Click the appropriate submittal package, and then click Select. The submittal package is associated with the submittal. Also, a row with details of this submittal is added in the SUBMITTALS section of the selected SUBMITTAL PACKAGE record.</p>
Specification Section	Enter the details of the references to sections in any document.
Submittal Title	Enter the title of the submittal.
Description	Enter the description of the submittal.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. To link the records of the forms in the project, in the **LINKED RECORDS** section, perform the following steps:

- Click **Add**.

The **SEARCH FORM** page is displayed.

Search Form Page

A screenshot of a web-based application interface titled "Search Form Page". At the top, there is a toolbar with icons for "Search", "Back", and "Reset". Below the toolbar, a dark grey header bar contains the text "SEARCH FORM". Underneath the header, there is a search input field with the placeholder text "Form : Type here to filter Forms".

- In the **Form** field, click and select the form you want to associate.

Alternatively, type the name of the form, and then select the appropriate form.

Available forms in the list are forms with the **IsSearchable** form attribute set to **True**. For additional information on form attributes, see [Form Builder](#).

All fields available in the selected form are displayed. To associate records, you can search for records of the form.

- In the form fields, enter the appropriate criteria to search.
- Optionally, expand the **Filter By Attachment** and **Filter By Workflow Status** sections, and enter additional criteria to search.
- In the toolbar, click **Search**.

The information that matches the criteria is displayed in the **SEARCH RESULTS** section. Search results contain information of only projects you are invited to.

- Optionally, to clear existing search results to search with new criteria, click **Reset**.
- In the **SEARCH RESULTS** section, select the appropriate records, and then click **Link**.

The selected records are added to the **LINKED RECORDS** section.

Note: To view the details of a linked record, in the **Record Identifier** column, click the appropriate hyperlink.

- Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The **SUBMITTALS** list page is displayed.

11. To submit the **Submittals** record, perform the following steps:

- a. In the list page, select the appropriate record that is in the **Draft** workflow status, and then click **Select Actions**.
- b. Click **Issue**, and in the dialog box, click **OK**.

The workflow status of the record is set to **Issued**.

- c. In the list page, select the appropriate record that is in the **Issued** workflow status, and then click **Select Actions**.
- d. Click **Submit**, and in the dialog box, click **OK**.

The workflow status of the record is set to **Submitted**.

You can now invite project users to collaborate and review the submittal before it is sent for approval.

For information on inviting project users to collaborate on the submittal, see [Reviewing a Submittal](#).

To perform workflow actions,, see [Submittals Workflow](#).

11.5.2.3. Inviting Reviewers to Review a Submittal

- The submittal is in the **Submitted** workflow status.

You can invite project users to review the submittal before the submittal is forwarded to appropriate stakeholders for approval.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Collaboration**.

5. Click **Submittals**.

The **SUBMITTALS** list page is displayed.

6. Select the appropriate submittal that is in the **Submitted** workflow status, and then click **Edit**.

7. To invite project users to participate in discussions on the submittal, expand the **SUBMITTAL REVIEW** section, and then perform the following steps:
 - a. Click **Invite**.

The **New Submittal Review** dialog box is displayed.
 - b. In the **To** box, click and select the users to address a message to.

Alternatively, type the name of the user, and then select the appropriate user name.

Available user details are of users invited to the project.
 - c. In the **Message** box, enter the details of the message to the addressees.
 - d. From the **Due Date** calendar drop-down box, click and select the due date for the addressees to respond to the message.
 - e. Click **Save**.

A message row is created for every addressee.
- f. To manage the added messages, in the **SUBMITTAL REVIEW** section, perform any of the following steps:
 - To edit a message, in the appropriate row, in the **Message** column, click and enter the message details for the corresponding user.
 - To edit the due date to receive a response, in the appropriate row, click in the **Due Date** column, click , and then select the due date.
 - To post the message to the corresponding user, in the last column corresponding to the user, click .

On saving the record, the submittal record with the message is available to the addressed users. For information on performing other discussion activities, see [Working with Internal Discussion Forums](#).

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Submittals Workflow](#).

11.5.2.4. Working with Internal Discussion Forums

You can perform the following activities:

- [Respond to a message](#)

You can respond to a message that is addressed to you. Once you post a response to a message, the **Status** of the message is set to **Closed**.

- [Hide a closed message](#)

If you addressed a message to a user, and the message is closed by the user, you can hide the message from other users invited to the discussion.

- [Show a hidden message](#)

If you have hidden a message, you can make the message visible again to all users invited to the discussion.

- [Delete a message](#)

You can only delete a message if you have posted the message to a user. The message is deleted for you and the user to whom you have addressed the message.

11.5.2.4.1. Responding to a Message

- The **Status** column of the message displays **Open**.

If a message is addressed to you, you can respond to the message and thereby close the message.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then expand the **Collaboration** folder.
5. Click **Submittals**.

The **SUBMITTALS** page is displayed.

6. Select the appropriate submittal that is in the **Submitted** workflow status, and then click **Edit**.
7. To post a response to a message, in the **Submittal Review** section perform the following steps:
 - a. In the appropriate message row, in the **Response** column, click and enter the response to the message.
 - b. In the **Response Date** column, click , and then select the response date for the message.
 - c. In the last column, click .

The **Status** column of the message displays **Closed**, and the **Response Date** column of the message displays the date the message was responded to.

Note: You cannot revert the posted response after you have saved the record. For information on reverting a posted response, see [Reverting a Message Activity](#).

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

11.5.2.4.2. Hiding a Closed Message

- The **Status** column of the message displays **Closed**.

You can hide messages with responses from participants invited to the discussion

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
 3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
 4. In the navigation pane, expand the appropriate contract folder, and then expand the **Collaboration** folder.
 5. Click **Submittals**.
- The **SUBMITTALS** page is displayed.
6. Select the appropriate submittal that is in the **Submitted** workflow status, and then click **Edit**.
 7. To hide a message, in the **Submittal Review** section, in the appropriate message row with the **Status** column that displays **Closed**, in the last column, click .
 8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The message is hidden from all users invited to the discussion but is visible only to the user who initiated the message.

11.5.2.4.3. Making a Hidden Message Visible

You can make hidden messages visible to all participants invited to the discussion.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then expand the **Collaboration** folder.
5. Click **Submittals**.

The **SUBMITTALS** page is displayed.

6. Select the appropriate submittal that is in the **Submitted** workflow status, and then click **Edit**.
7. To hide a message, in the **Submittal Review** section, in the appropriate message row with the **Status** column that displays **Closed**, in the last column, click .
8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The message is made visible to all users invited to the discussion.

11.5.2.4.4. Reverting a Message Activity

- The form is not saved.

You can undo an activity performed on a message. That is, you can revert the following message activities:

- Posting a message
- Responding to a message

You can revert a message activity only until the record is saved.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.

4. In the navigation pane, expand the appropriate contract folder, and then expand the **Collaboration** folder.

5. Click **Submittals**.

The **SUBMITTALS** page is displayed.

6. Select the appropriate submittal that is in the **Submitted** workflow status, and then click **Edit**.

7. To undo a message activity, in the **Submittal Review** section, in the appropriate message row, in the last column, click .

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

11.5.2.4.5. Deleting a Message

- You have posted the message.

You can only delete a message if you posted the message. On deleting a message, the message is deleted for you and the user to whom you have addressed the message.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Collaboration**.
5. Click **Submittals**.

The **SUBMITTALS** page is displayed.

6. Select the appropriate submittal that is in the **Submitted** workflow status, and then click **Edit**.
7. To delete a message, in the **Submittal Review** section, in the appropriate message row, in the last column, click .

The message is deleted for you and for the user to who you have addressed the message.

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

11.5.2.5. Approving a Submittal

- The submittal is in the **Pending Approval** workflow status.

You can select a submittal response to either approve and close the submittal, or create a new submittal as a revision to the current submittal.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Collaboration**.
5. Click **Submittals**.

The **SUBMITTALS** list page is displayed.

6. Select the appropriate submittal that is in the **Pending Approval** workflow status, and then click **Edit**.
7. Expand the **SUBMITTAL APPROVAL** section.

8. From the **Submittal Response** drop-down list, select the appropriate response for the submittal.

Note: If the selected option is **Revise and Resubmit**, **Submit Specified Item** or **Rejected**, on performing the **Transmit** workflow action, a revised submittal form is automatically created in the **Draft** workflow status, and the workflow status of the current submittal is set to **Returned**.

For information on submittal responses, see [Submittal Response](#).

9. In the **Approver Comments** box, enter any comments for the submittal.
10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Submittals Workflow](#).

Note: Also, you can manually create a revision to a submittal that is in the **Returned** workflow status. For more information, see [Creating a Submittal Revision](#).

11. To return the **Submittals** record, perform the following steps:
 - a. In the list page, select the appropriate record that is in the **Pending Approval** workflow status, and then click **Select Actions**.
 - b. Click **Transmit**, and in the dialog box, click **OK**.

The workflow status of the record is set to **Returned**.

11.5.2.6. Creating a Submittal Revision

- The submittal is in the **Returned** workflow status.

You can create a revision of a submittal.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Collaboration**.
5. Click **Submittals**.

The **SUBMITTALS** list page is displayed.

6. Select the appropriate submittal that is in the **Returned** workflow status, and then click **Revision**.

A new submittal with the same **Submittal ID** as the original submittal is created.

The newly created submittal contains the following information:

- The **Revision Number** is incremented by 1 from the **Revision Number** of the original submittal.
- The same information as the original submittal with the link to the original submittal is displayed in the **LINKED RECORDS** section. Also, the original submittal contains the link to the newly created submittal revisions in the **LINKED RECORDS** section.

11.5.2.7. Creating Submittal Packages

A submittal package is a collection of submittals. You can create a submittal package to categorize and compile submittals specific to a particular topic, trade, or subcontractor. For example, you can create a submittal package to contain all plumbing-related submittals in a construction project.

You can use submittal packages to track and report the status of multiple submittals.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Collaboration**.
5. Click **Submittal Package**.

The **SUBMITTAL PACKAGE** list page is displayed.

6. Click **New**.

Submittal Package Page

SUBMITTAL PACKAGE

Package ID : <Auto Generated>	Project Code : PR-39333
Contract Name : Widen Tranco Road wide	Project Name : Widen Tranco Road project
Package Owner : DENNIS PARKING LOT MAINTENANCE, INC.	Created By : Smith
Sub Contractor : Select	Created Date : 10/23/2023
Transmittals Created : 0	Status : Draft
Specification Section : <input type="text"/>	
Package Title * : <input type="text"/>	
Description : <input type="text"/>	

SUBMITTALS

<input type="checkbox"/>	Submittal ID	Submittal Title	Revision Number	Submittal Type	Status	
No records to display.						

The **SUBMITTAL PACKAGE** page displays the following non-editable fields:

Field	Description
Package ID	On saving the record, a unique identification code is automatically generated for the record.
Contract Name	The name of the contract for which the submittal package is being created.
Package Owner	The name of the prime contractor for the contract.
Transmittals Created	The number of transmittals created for the submittals with this submittal package.
Project Code	The identification code of the project for which the submittal package is being created.
Project Name	The name of the project for which the submittal package is being created.
Created By	The user name of the logged-in user.
Created Date	The current date.

Field	Description
Status	The current workflow status of this record.

7. To select the sub-contractor creating the submittal package, in the **Sub Contractor** box, click and select the required sub-contractor.
Alternatively, type the name of the sub-contractor, and then select the appropriate sub-contractor.
Available options are sub-contractors selected for the contract. For information on sub-contractors of the contract, see [Managing Contractor Details](#).
8. In the **Specification Section** box, enter the details of the references to sections in any document.
9. In the **Package Title** box, enter the title of the submittal package.
10. In the **Description** box, enter the description of the submittal package.
11. To add submittals to the package, in the **SUBMITTALS** section, perform the following steps:
 - a. Click **Add**.

The **Select Submittals** dialog box is displayed.

Available options are submittals in the **Submittals** module. Only submittals that are not part of any other submittal packages, and the latest revision of submittals are available.

- b. Select the required submittals, and then click **Select**.

The selected submittals are added to the **SUBMITTALS** section.

Note: If a submittal is revised, the original submittal is substituted with the latest revised submittal.

12. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

11.5.2.8. Submittals Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Submittals** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Issue	Issued	-
2	Issued	Submit	Submitted	<p>At the Submitted status, you can invite project users to collaborate and discuss on the submittal.</p> <p>For information on inviting users to collaborate on the submittal, see Reviewing a Submittal.</p>
3	Submitted	Forward for Approval	Pending Approval	<p>At the Pending Approval status, you can provide a response on the submittal and then approve the submittal.</p> <p>For more information, see Approving a Submittal.</p>

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
4	Pending Approval	Transmit	Returned	<p>On performing this workflow action, if the option selected in the Submittal Response drop-down list is Revise and Resubmit, Submit Specified Item or Rejected, a revised submittal form is automatically created in the Draft workflow status, and the workflow status of the current submittal is set to Returned.</p> <p>Note: You can also manually create a revision to a submittal that is in the Returned workflow status. For information on manually creating a revision to a submittal, see Revising a Submittal.</p> <p>The newly created submittal contains the following information:</p>

11.5.3. Transmittals

11.5.3.1. Transmittals

You can create a transmittal to send contents of a submittal or a submittal package to appropriate recipients. A transmittal contains details of the selected submittal package or submittal, the email addresses of recipients of the transmittal, and a cover letter to package the attachments of the selected submittal package or submittal.

You can perform the following tasks:

- [Create a transmittal](#).
- [Perform workflow actions to implement the business process](#).

11.5.3.2. Creating a Transmittal

- A **Submittals** or **Submittal Package** record is created.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Collaboration**.
5. Click **Submittals**.

The **SUBMITTALS** list page is displayed.

Alternatively, click **Submittal Package**.

The **SUBMITTAL PACKAGE** list page is displayed.

6. Select the appropriate submittal or submittal package, click **Transmittals**, and then click **OK**.

Transmittals Page

TRANSMITTALS

Save & Exit Save & Continue Cancel Workflow Select Actions

Transmittal ID : TRN-PR-39333-0001 Project Code : PR-39333
 Subject * :
 Created By : Smith Project Name : Widen Tranco Road project
 Contract Name : Widen Tranco Road wide Created Date : 10/23/2023
 To * : Select
 CC : Select
 Transmittal Template * : Select Issue Purpose : Select
 Inclusions : Select Approval Response : Select
 Comments :

LINKED SUBMITTALS/SUBMITTAL PACKAGES

<input type="checkbox"/>	Record Identifier	<input type="text"/>	Source Form	<input type="text"/>	Contract Name	<input type="text"/>	Notes	<input type="text"/>
No records available.								

ATTACHMENTS

<input type="checkbox"/>	Document Name	Url/Link	Title	Uploaded By	Uploaded Date	File Size	Signed Copy	<input type="text"/>
No Attachments available								

[Link Document](#) [Upload Document](#)

The **TRANSMITTALS** page displays the following non-editable fields:

Field / Section	Description
Transmittal ID	On saving the record, a unique identification number for the record is automatically generated.
Created By	The name of the logged-in user.
Contract Name	The name of the contract for which the transmittal is being created.
Project Code	The identification code of the project for which the transmittal is being created.
Project Name	The name of the project for which the transmittal is being created.
Created Date	The current date.

Field / Section	Description
LINKED SUBMITTALS/ SUBMITTAL PACKAGES	<p>Displays either of the following:</p> <ul style="list-style-type: none">• The link to the submittal if the transmittal is created for a submittal.• The link to the submittals part of the submittal package if the transmittal is created for a submittal package.
ATTACHMENTS	<p>Displays either of the following:</p> <ul style="list-style-type: none">• The link to documents uploaded in the submittal if the transmittal is created for a submittal.• The link to the documents uploaded in the submittals part of the submittal package if the transmittal is created for a submittal package.

7. Provide the appropriate information in the fields, as described in the following table:

Field	Description
Subject	Enter the subject for the transmittal.
To	<p>To add email addresses of recipients of the transmittal, perform either of the following:</p> <ul style="list-style-type: none">• Click and select the appropriate email addresses. Alternatively, type the email address, and then select the appropriate email address. Available options are email addresses of user accounts in the enterprise.• To add a new email address of the recipient, enter the email address, and then from the drop-down list, select the email address with the suffix (Add). <p>Note: Only the new email address is suffixed with (Add).</p>

Field	Description
CC	<p>To add email addresses of recipients of the copy, perform either of the following:</p> <ul style="list-style-type: none">Click and select the appropriate email addresses. Alternatively, type the email address, and then select the appropriate email address. Available options are email addresses of user accounts in the enterprise.To add a new email address of the recipient, enter the email address, and then from the drop-down list, select the email address with the suffix (Add). <p>Note: Only the new email address is suffixed with (Add).</p>
Transmittal Template	<p>Click and select the appropriate template for email notification to be sent to the recipients. Available options are email templates defined for the Transmittals form in the Mail Merge Configuration library catalog. For more information, see Mail Merge Configuration on page 213.</p>
Issue Purpose	<p>Click and select the appropriate purposes of the transmittal. Alternatively, type the purpose of the transmittal, and then select the appropriate purpose. Available options are issue purposes defined in the Issue Purpose library catalog.</p>
Inclusions	<p>Click and select the appropriate types of the documents included in the transmittal. Alternatively, type the document type, and then select the appropriate type. Available options are inclusion types defined in the Inclusions library catalog.</p>
Approval Response	<p>Click and select the appropriate approval response. Alternatively, type the approval response, and then select the appropriate response. Available options are approval responses defined in the Submittal Response library catalog.</p>

Field	Description
Comments	Enter any comments for the transmittal.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Transmittals Workflow](#) on page 839.

11.5.3.3. Transmittals Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Transmittals** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Release	Released	-

11.6. Change Management

11.6.1. Change Management

The Change Management module enables you to manage contract changes, and receive approvals for contract changes.

You can perform the following tasks:

- [Create a request for information](#).
- [Create request for proposal](#).
- [Create a potential change order](#).
- [Create contract change order](#).

11.6.2. Request for Information

11.6.2.1. Request for Information

The Request for Information (RFI) form is used as a formal mode of communication between the contractor and project users. The RFI form is used primarily to facilitate a contractor to address questions to the project users, and receive resolutions from the project users and vice versa.

You can perform the following tasks:

- [Create an RFI record for the contract.](#)
- [Respond to an RFI.](#)
- [Perform workflow actions to receive business decisions.](#)

11.6.2.2. Initiating an RFI

A contractor can create an RFI form to request for information or clarifications from the project manager of the project.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract, and then expand **Change Management**.
5. In the navigation pane, click **Request for Information**.

The **REQUEST FOR INFORMATION** list page is displayed.

6. Click New.

Request For Information Page

The screenshot shows the 'REQUEST FOR INFORMATION' page. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these are several input fields:

- RFI ID ***: A text input field.
- Subject**: A text input field.
- Drawing Location**: A text input field.
- Specification Page**: A text input field.
- Submitted Date**: A dropdown menu set to '10/20/2023'.
- Target Response Date**: A dropdown menu set to '10/20/2023'.
- Project Code**: PR-39333
- Project Name**: Widen Tranco Road project
- Contract Name**: Widen Tranco Road wide
- Schedule Impact**: Radio buttons for Low (selected), Medium, and High.
- Cost Impact?**: Radio buttons for No (selected) and Yes.

Below these are sections for 'TITLE OR SECTION OF WORK' and 'REQUEST TO:' and 'REQUEST FROM:' which contain similar sets of input fields for Title, Item, User, and Email. There are also sections for 'QUESTION OR CLARIFICATION:' and 'PROPOSED SOLUTION:' with large text input areas. At the bottom left is an 'ATTACHMENTS' section with a toolbar containing icons for file operations like delete, copy, move, etc.

The **REQUEST FOR INFORMATION** page displays the following non-editable fields:

Field	Description
Project Code	The identification code of the project.
Project Name	The name of the project.
Contract Name	The name of the contract.

7. Provide the appropriate information in the fields, as described in the following table.

Field	Description
RFI ID	Enter a unique identification code for the RFI record.
Subject	Enter the subject of the RFI being initiated.
Drawing Location	Enter the drawing location for the RFI being initiated.

Field	Description
Specification Page	Enter a specification page for the RFI being initiated.
Submitted Date	Select the submitted date of the RFI.
Target Response Date	Select the date by which the project manager is expected to reply to the RFI initiated.
Schedule Impact	Click Low , Medium , or High based on the impact of the RFI to the project schedule.
Cost Impact	Click Yes if the RFI impacts the project cost. Otherwise, click No .
Value	<p>Note: This field is available only if the Cost Impact is Yes.</p> <p>Enter the project cost value associated with the RFI.</p>

8. In the **TITLE OR SECTION OF WORK**, provide the appropriate information, as described in the following table.

Field	Description
Title	Enter a title for the RFI being initiated.
Item	Select the item for which the RFI is being initiated. Available options are the contract items associated with the contract. Based on the item selected, the Description of Work field is automatically updated.

9. To add the details of the user to whom the RFI is requested, in the **REQUEST TO:** section, provide the appropriate information, as described in the following table.

Field	Description
To	Click either Project Users or Contractors .

Field	Description
User	<p>Note: This field is displayed only if Project Users is selected in the To field.</p> <p>Select the appropriate user. Available options are users invited to the project.</p>
Contractor	<p>Note: This field is displayed only if Contractors is selected in the To field.</p> <p>Select the appropriate user. Available options are prime contractor and subcontractors associated with the project.</p>
Email	Upon selecting the Project Users or Contractor , the email address associated with them is automatically displayed. Optionally, enter the appropriate email address.

10. To add the details of the user from whom the RFI is requested, in the **REQUEST FROM:** section, provide the appropriate information, as described in the following table.

Field	Description
From	Select either Project Users or Contractors.
User	<p>Note: This field is displayed only if Project Users is selected in the To field.</p> <p>Select the appropriate user. Available options are users invited to the project.</p>
Contractor	<p>Note: This field is displayed only if Contractors is selected in the To field.</p> <p>Select the appropriate user. Available options are prime contractor and sub contractors associated with the project.</p>

Field	Description
Email	Upon selecting the Project Users or Contractor , the email address associated with them is automatically displayed. Optionally, enter the appropriate email address.

11. In the **QUESTION OR CLARIFICATION** box, enter questions or clarifications for the RFI being initiated.
12. In the **PROPOSED SOLUTION** box, enter the details of the solution proposed to mitigate the problem.
13. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).
14. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.
To perform workflow actions, see [Request for Information Workflow](#).

11.6.2.3. Responding to an RFI

- The RFI record is in the **Awaiting Response** workflow status.

You can respond to queries through the RFI and send it back to the initiator.

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the appropriate list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract, and then expand **Change Management**.
5. In the navigation pane, click **Request for Information**.

The **REQUEST FOR INFORMATION** list page is displayed.

6. Select the appropriate record that is in the **Awaiting Response** workflow status, and then click **Edit**.

RFI Response Section

The screenshot shows the 'REQUEST FOR INFORMATION' screen. At the top, there are buttons for Save & Exit, Save & Continue, Cancel, Workflow, Select Actions, and CheckList. Below these are two large text input fields: 'PROPOSED SOLUTION:' and 'RESPONSE:', each with scroll bars. Underneath the 'RESPONSE:' field are three input fields: 'Contract Change' (radio buttons for Yes or No, with Yes selected), 'Spec No' (text input field), and 'Response Date' (date picker set to 10/20/2023). A section titled 'ATTACHMENTS' follows, featuring a table with columns for Document Name, Url/Link, Title, Uploaded By, Uploaded Date, File Size, and Signed Copy. The table shows 'No Attachments available'. At the bottom of this section are two buttons: 'Link Document' and 'Upload Document'.

7. In the **RESPONSE** section, provide the appropriate information in the fields, as described in the following table.

Note: This section is available only if the workflow status of the record is **Awaiting Response**.

Field	Description
RESPONSE	Enter the response for the questions and clarifications requested.
Contract Change	Select the option based on whether a change in contract is required or not.
Spec No	Enter the specification number associated with the RFI.
Response Date	Select the date on which the response for the RFI is submitted. By default, the current date is displayed.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Request for Information Workflow](#).

11.6.2.4. Request for Information Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Request for Information** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Awaiting Response	In the Awaiting Response workflow status, the RESPONSE section is editable.
2	Awaiting Response	Respond	Response Received	-
		ReDraft	Draft	
3	Response Received	Close	Closed	-

11.6.3. Request for Proposal

11.6.3.1. Request for Proposal

You can use a Request for Proposal (RFP) form to propose modifications to a project, and provide estimated details of resources required to complete the activities for the identified modifications. You can record details, such as the cost and time estimates, and the resources required to complete the activities. The RFP form also enables you to open a discussion forum and invite users to contribute ideas or provide solutions for the identified activities.

You can perform the following tasks:

- [Initiate a request for proposal](#).
- [Work with discussions](#).
- [Perform workflow actions to implement the business process](#).

11.6.3.2. Issuing a Request for Proposal

- Contract items are locked.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Change Management**.

5. In the navigation pane, click **Request for Proposal**.

The **REQUEST FOR PROPOSAL** list page is displayed.

6. Click New.

Request for Proposal Page

The **REQUEST FOR PROPOSAL** page displays the following non-editable fields:

Field	Description
Record ID	On saving the record, an identification code for the record is automatically generated.
Project Code	The identification code of the project.
Project Name	The name of the project.
Created By	The name of the logged-in user.
Created Date	The current date.

- 7.** From the **Respond By** calendar drop-down box, select the date by when the response for the RFP form is required.
- 8.** From the **Submitted On** calendar drop-down box, select the date by when the response for the RFP form is required.

9. From the **Contractor** drop-down list, select the contractor requesting the changes.

Available options are contractors selected for the contract. For information on contractors, see [Managing Contractors](#).

10. From the **Request Type** drop-down list, select the type of request for the RFP.

Available options are request types defined in the **RFP Request Type** library catalog.

11. From the **Reason** drop-down list, select the reason for the RFP.

Available options are RFP reasons defined in the **RFP Reason** library catalog.

12. To select the user to address the RFP form to, in the **To** box, click and select the appropriate user.

Alternatively, type the user name of the appropriate user, and then from the box select the appropriate user.

Available options are users invited to the contract. For information on invitations to a contract, see [Managing Contract Users](#).

13. To record details of the modifications requested and the details of the response from the approver, in the **Request and Response** tab, perform the following steps:

- a. In the **Subject** box, enter the subject for the RFP.
- b. From the **Priority** drop-down list, select the priority of the RFP.
- c. In the **Description of Change in Scope/Work** box, enter the details of the changes in scope or work being requested in the RFP.
- d. From the **Impact to Scope** drop-down list, select the appropriate option for the impact of the changes on the scope of the contract.
- e. From the **Impact to Cost** drop-down list, select the appropriate option for the impact of the changes on the cost of the contract.
- f. In the **High Level Cost Estimate (\$)** box, enter the high level cost estimate for the requested changes.
- g. From the **Impact to Schedule** drop-down list, select the appropriate option for the impact of the changes on the schedule of the contract.
- h. In the **High Level Time Estimate (\$)** box, enter the high level time estimate for implementation of the requested changes.

Note: The **Approver's Notes/Response** box is available in the Submitted workflow status of the RFP to record notes from the approver of the RFP. For information on the workflow of the RFP form, see [Request for Proposal Workflow](#).

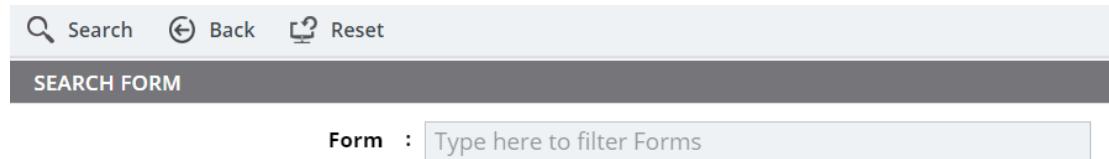
14. To record details of the proposal, and to derive the cost estimate of the changes requested in the RFP, perform the following steps:

- a. Click the **Proposal Details** tab.
- b. To link the records of the forms in the project, in the **LINKED RECORDS** section, perform the following steps:

- i. Click **Add**.

The **SEARCH FORM** page is displayed.

Search Form Page



- ii. In the **Form** field, click and select the form you want to associate. Alternatively, type the name of the form, and then select the appropriate form. Available forms in the list are forms with the **IsSearchable** form attribute set to **True**. For additional information on form attributes, see [Form Builder](#). All fields available in the selected form are displayed. To associate records, you can search for records of the form.
 - iii. In the form fields, enter the appropriate criteria to search.
 - iv. Optionally, expand the **Filter By Attachment** and **Filter By Workflow Status** sections, and enter additional criteria to search.
 - v. In the toolbar, click **Search**. The information that matches the criteria is displayed in the **SEARCH RESULTS** section. Search results contain information of only projects you are invited to.
 - vi. Optionally, to clear existing search results to search with new criteria, click **Reset**.
 - vii. In the **SEARCH RESULTS** section, select the appropriate records, and then click **Link**. The selected records are added to the **LINKED RECORDS** section.

Note: To view the details of a linked record, in the **Record Identifier** column, click the appropriate hyperlink.

- c. To add details of personnel required, in the **RESOURCE TITLE(S)** section, perform the following steps:

i. Click **Add**.

A row is added to the table.

Alternatively, to add personnel information from the library, perform the following steps:

a) Click **Add From Library**.

The **Select Personnel** dialog box is displayed.

Available options are personnel details defined in the **Personnel** library catalog.

b) Select the appropriate personnel, and then click **Select**.

The selected personnel details are added to the table.

ii. In the **Resource Title(s)** column, in the appropriate row, click and enter the name of the personnel.

iii. In the **Description** column, in the appropriate row, click and enter the description of the work to be performed by the personnel.

iv. In the **Hours Estimated** column, in the appropriate row, click and enter the estimated number of hours of the work to be performed by the personnel.

v. In the **Rate per Hour** column, in the appropriate row, click and enter the cost per hour of work performed by the personnel.

The **Total Cost** column displays the total cost of the personnel for the defined estimated number of hours of work.

d. To add details of equipment required, in the **EQUIPMENT** section, perform the following steps:

i. Click **Add**.

A row is added to the table.

Alternatively, to add equipment information from the library, perform the following steps:

a) Click **Add From Library**.

The **Select Equipment** dialog box is displayed.

Available options are equipment details defined in the **Equipment** library catalog.

b) Select the appropriate equipment, and then click **Select**.

The selected equipment details are added to the table.

ii. In the **Equipment** column, in the appropriate row, click and enter the name of the equipment.

iii. In the **Description** column, in the appropriate row, click and enter the specifications of the equipment.

- iv. In the **Hours Estimated** column, in the appropriate row, click and enter the estimated number of hours of work to be performed by the equipment.
 - v. In the **Rate per Hour** column, in the appropriate row, click and enter the cost per hour of work performed by the equipment.
The **Total Cost** column displays the total cost of the equipment for the defined estimated number of hours of work.
- e. To add details of materials required, in the **MATERIALS** section, perform the following steps:
- i. Click **Add**.
A row is added to the table.
Alternatively, to add material information from the library, perform the following steps:
 - a) Click **Add From Library**.
The **Select Materials** dialog box is displayed.
Available options are materials defined in the **Materials** library catalog.
 - b) Select the appropriate materials, and then click **Select**.
The selected materials are added to the table.
 - ii. In the **Description** column, in the appropriate row, click and enter the description of the material.
 - iii. In the **Quantity** column, in the appropriate row, click and enter quantity of the material required.
 - iv. In the **Unit Price** column, in the appropriate row, click and enter the cost per unit of the material. **Amount** column displays the total cost of the material for the defined quantity. The **Total Cost of Proposal** box displays the sum of the totals of the personnel, equipment, and materials required for the implementation of work as specified in the proposal.
- f. In the **Response/Notes** box, enter any notes for the proposal.

15. To invite project users to participate in discussions on the RFP, perform the following steps:

- a. Click the **Internal Discussion Forum** tab.
- b. Click **Invite Users**.

The **New Internal Discussion** dialog box is displayed.

- c. In the **To** box, click and select the users to address the message to.

Alternatively, type the name of the user, and then select the appropriate user name.

Available user details are of users invited to the project.

- d. In the **Message** box, enter the details of the message to the addressees.
- e. From the **Due Date** calendar drop-down list, click and select the due date for the addressees to respond to the message.
- f. Click **Save**.

A message row is created for every addressee, and the **Status** is set to **Open**.

- g. To manage the added messages, perform any of the following steps in the **INTERNAL DISCUSSION** section:

- To edit a message, in the **Message** column of the appropriate row, click and enter the message details for the corresponding user.
- To edit the due date to receive a response, click in the **Due Date** column of the appropriate row, click , and then select the due date.
- To post the message to the corresponding user, in the last column corresponding to the user, click .

On saving the record, the message is available to the addressed users. For information on performing other discussion activities, see [Working with Internal Discussion Forums](#).

- To undo a posted message, click .
- To remove a user, in the last column corresponding to the user, click .

16. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

17. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The messages posted in the **INTERNAL DISCUSSIONS** section are made available to the recipients to whom it was posted.

To perform workflow actions, see [Request for Proposal Workflow](#).

11.6.3.3. Working with Internal Discussion Forums

You can perform the following activities:

- [Respond to a message](#)

You can respond to a message that is addressed to you. Once you post a response to a message, the **Status** of the message is set to **Closed**.

- [Hide a closed message](#)

If you addressed a message to a user, and the message is closed by the user, you can hide the message from other users invited to the discussion.

- [Show a hidden message](#)

If you have hidden a message, you can make the message visible again to all users invited to the discussion.

- [Revert a message activity](#)

If you have performed any activity, such as posted a message, or responded to a message, you can revert the activity. You can revert an activity only until the record is saved. That is, you cannot undo an activity if you have saved the record.

- [Delete a message](#)

You can only delete a message if you have posted the message to a user. The message is deleted for you and the user to whom you have addressed the message.

11.6.3.3.1. Responding to a Message

- The **Status** column of the message displays **Open**.
- The message is addressed to you.

If a message is addressed to you, you can respond to the message and thereby close the message.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the appropriate contract, and then expand **Change Management**.

4. In the navigation pane, click **Request for Proposal**.

The **REQUEST FOR PROPOSAL** page is displayed.

5. Select the appropriate RFP form, and then click **Edit**.

6. To post a response to a message, in the **Internal Discussion** section perform the following steps:
 - a. In the appropriate message row, in the **Response** column, click and enter the response to the message.
 - b. In the last column, click .

The **Status** column of the message displays **Closed**, and the **Response Date** column of the message displays the current date.

 - c. To undo a message activity, in the last column of the appropriate message row, click .

Note: You cannot revert the posted response after you have saved the record.

7. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

11.6.3.3.2. Hiding a Closed Message

- The **Status** column of the message displays **Closed**.

You can hide messages with responses from participants invited to the discussion.

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the appropriate contract, and then expand **Change Management**.
4. In the navigation pane, click **Request for Proposal**.
The **REQUEST FOR PROPOSAL** page is displayed.
5. Select the appropriate RFP form, and then click **Edit**.
6. To hide a message, in the **Internal Discussion** section, in the appropriate message row with the **Status** column that displays **Closed**, in the last column, click .
7. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The message is hidden from all users invited to the discussion but is visible only to the user who initiated the message.

11.6.3.3.3. Making a Hidden Message Visible

You can make hidden messages visible to all participants invited to the discussion.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the appropriate contract, and then expand **Change Management**.

4. In the navigation pane, click **Request for Proposal**.

The **REQUEST FOR PROPOSAL** page is displayed.

5. Select the appropriate RFP form, and then click **Edit**.

6. To hide a message, in the **Internal Discussion** section, in the appropriate message row with the **Status** column that displays **Closed**, in the last column, click .

7. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The message is made visible to all users invited to the discussion.

11.6.3.3.4. Reverting a Message Activity

- The form is not saved.

You can undo an activity performed on a message. That is, you can revert the following message activities:

- Posting a message.
- Responding to a message.

You can revert a message activity only until the record is saved.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the appropriate contract, and then expand **Change Management**.

4. In the navigation pane, click **Request for Proposal**.

The **REQUEST FOR PROPOSAL** page is displayed.

5. Select the appropriate RFP form, and then click **Edit**.

6. To undo a message activity, in the **Internal Discussion** section, in the appropriate message row, in the last column, click .

11.6.3.3.5. Deleting a Message

- You have posted the message.

You can only delete a message if you posted the message. On deleting a message, the message is deleted for you and the user to whom you have addressed the message.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the appropriate contract, and then expand **Change Management**.
4. In the navigation pane, click **Request for Proposal**.

The **REQUEST FOR PROPOSAL** page is displayed.

5. Select the appropriate RFP form, and then click **Edit**.
6. To delete a message, in the **Internal Discussion** section, in the appropriate message row, in the last column, click .

The message is deleted for you and for the user to whom you have addressed the message.

11.6.3.4. Request for Proposal Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Request for Proposal** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit RFP	Submitted	-
2	Submitted	Review Response	Review Response	-
		ReDraft	Draft	-
3	Review Response	Submit RFP	Submitted	-
		Close RFP	Closed	-

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
		Initiate CO	Closed	A change order is created with the ID and Description details of the RFP copied to the Short Description box of the change order. For information on change orders, see Contract Change Orders .

11.6.4. Potential Change Order

11.6.4.1. Potential Change Order

A Potential Change Order (PCO) is a project condition that is identified as being a possible change to the contract. The contractor expects or anticipates that it might result in extra work or additional costs. You can capture all the changes related to the additional cost, hours worked, new materials, and equipment requirements in the PCO form.

The engineer, upon inspecting the validity of the PCO, can enter notes and revised estimate cost.

You can perform the following tasks:

- [Initiate a potential change order](#).
- [Perform workflow actions to implement the business process](#).

11.6.4.2. Creating a Potential Change Order

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then expand the **Change Management** folder.

5. In the navigation pane, click **Potential Change Order**.

The **POTENTIAL CHANGE ORDER** list page is displayed.

6. Click **New**.

The **POTENTIAL CHANGE ORDER** page is displayed.

Potential Change Order Page

The screenshot shows the 'POTENTIAL CHANGE ORDER' creation page. It includes fields for PCO Number, Type, Description, Initiating Person, Responsible Person/Firm, Schedule Impact, Initial Date, Action Required Date, and Priority. Below these are sections for Potential Change Details and Schedule Impact Details. Under Engineer's Analysis, there are fields for Estimated Engineer's cost, Budget Availability, and Internal Notes. A Revision Log table is also present.

User	Log Date	Comments	Hour(s)	Amount in \$
No records to display.				

7. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Name	
PCO No	Enter a unique identification number for the PCO.
PCO Type	Select the type of PCO.

Field Name	Description
Item	Enter the contract item number to associate with the PCO.
Description	Enter the description of the PCO.
Initiator	Enter the Person name of the user initiating the PCO.
Initial Date	Select the date on which the PCO is initiated.
Responsible Person/Firm	Select the person or firm responsible for the creation of the PCO. Available user details are of users invited to the project.

Field	Description
Name	
Action Date	Select the date by which the action on the PCO should be completed.
Schedule Impact	Enter the impact of the PCO on the overall completion of the project.
Priority	Select the appropriate priority of the PCO. Available options are Low , Medium , and High .
POTENTIAL CHANGE DETAILS	Enter the details of the PCO.
SCHEDULE IMPACT DETAILS	Enter the impact of the PCO on the schedule of the project.

8. Optionally, to enter the cost impact of the PCO, in the **ENGINEER'S ANALYSIS** section, perform the following steps:
 - a. In the **Estimated Engineer's cost** box, enter the approximate cost impact of the PCO.
 - b. In the **Budget Available** field, click **Yes** if budget is available for the PCO. Otherwise, click **No**.
 - c. In the **Internal Notes** box, enter any additional notes from the engineer.
9. To add the revision details, in the **REVISION LOG** sections, perform the following steps:
 - a. Click **Add**.
The **New Revision Log** dialog box is displayed.
Available user details are of users invited to the project.
 - b. From the **User** drop-down list, select the name of the user creating the revision.
Available user details are of users invited to the project.
 - c. From the **Log Date** drop-down calendar, select the date of the revision log.
 - d. In the **Comments** box, enter any comments for the revision log.
 - e. In the **Hour(s)** box, enter the number of hours required for the revision.
 - f. In the **Amount in \$** box, enter the amount for the revision.
 - g. Click **Save**.
10. To add personal details, in the **RESOURCE TITLE(S)** section, perform the following steps:
 - a. Click **Add**.
 - b. From the **Resource Title(s)** drop-down list, select the appropriate resource.
Available options are resource titles defined in the **Resource Titles** library catalog.
 - c. In the **Description** box, enter a description of the personnel.
 - d. In the **Hours Worked** box, enter the number of hours worked by the personnel.
 - e. In the **Rate in \$** box, enter the amount for the number of hours worked by the personnel.
 - f. Click **Save**.

11. To add equipment details, in the **MATERIALS** section, perform the following steps:

- a. Click **Add**.
- b. From the **Material** drop-down box, select the appropriate material.
Available options are materials defined in the **Materials** library catalog.
- c. In the **Description** box, enter a description of the material.
- d. In the **Quantity** box, enter the quantity of the material.
- e. In the **Rate in \$** box, enter the amount for the material.
- f. Click **Save**.

12. To add equipment details, in the **EQUIPMENTS** section, perform the following steps:

- a. Click **Add**.
- b. From the **Equipments** drop-down box, select the appropriate equipment.
Available options are equipment defined in the **Equipment** library catalog.
- c. In the **Description** box, enter a description of the equipment.
- d. In the **Hours Worked** box, enter the number of hours the equipment has been used.
- e. In the **Rate in \$** box, enter the amount for the number of hours the equipment has been used.
- f. Click **Save**.

13. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

14. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Potential Change Order Workflow](#).

11.6.4.3. Potential Change Order Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Potential Change Order** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submit	-
2	Submit	Re-Draft	Draft	-
		Approve	Approved	-

11.6.5. Contract Change Orders

11.6.5.1. Change Orders

A Change Order (CO) is an instrument of agreement between the owner and the contractor for modifications to the contract. The owner and contractor validate change orders agreeing to the changes in quantities of existing items, additions of new items, and modifications to the contract duration.

You create a contract change order for the following purposes:

- Revision in item quantities.
- Item over-runs and under-runs.
- Addition of new identified items.
- Change in contract duration.

The functional flow of the Change Order module is as follows:

1. [Create a new CO.](#)
2. [Add new contract items or modify existing contract items.](#)
3. [Create a new balance CO.](#)
4. [Perform workflow actions to implement the business process.](#)

11.6.5.2. Creating a Change Order

- Contract items are locked.

You can create a change order to modify the contract item list that is locked, or change the duration of the contract.

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Change Management**.
5. In the navigation pane, click **Contract Change Order**.

The **CHANGE ORDER** list page is displayed.

6. Click **New**, and then click **New Change Order**.

Change Order Details Page

The screenshot shows the 'CHANGE ORDER DETAILS' page. At the top, there are tabs for 'CHANGE ORDER DETAILS' and 'CHANGE ORDER ITEMS', with 'CHANGE ORDER DETAILS' being active. Below the tabs are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. The main content is divided into sections:

- GENERAL**: Fields include Original Contract Amount (600,000.00), Current Contract Amount (600,000.00), Net Change this Order (0.00), Contract Amount after Change (600,000.00), Change Order By (Contractor), PCO Reference (None), Short Description, Description and Location of Work, Original Contract Duration (280 Days), Original Calendar (Version) (Calendar (1)), Date (10/20/2023), Approval Date (None), Priority (Low), and RFI Reference (None).
- CONTRACT TIME**: Fields include Time Type (Working Days), Beginning Date (02/01/2020), Current Calendar Days (295), Current Completion Date (03/19/2021), Current Calendar (Version) (Calendar (1)), Completion Date after Change (03/19/2021), Additional Calendar Days (0), and Description.
- ATTACHMENTS**: A table with columns for Document Name, Url/Link, Title, Uploaded By, Uploaded Date, File Size, and Signed Copy. It shows 'No Attachments available'. Buttons at the bottom are 'Link Document' and 'Upload Document'.

The **CHANGE ORDER DETAILS** page displays the following non-editable fields:

Section	Field	Description
GENERAL	Original Contract Amount	The contract amount when the Contract Items list was locked.
	Original Contract Duration	The initial contract duration when the Contract Items list was locked.

Section	Field	Description
	Current Contract Amount	The current contract amount includes the amount added to or deducted from the original contract amount by approved change orders. That is, the sum of the Original Contract Amount and the sum of amounts of all the approved change orders.
	Original Calendar (Version)	The calendar selected and the calendar version associated with the contract when contract items are locked. If a calendar was not associated with the locked contract, None is displayed.
	Net Change this Order	The contract change order amount based on the change order items in the Change Order Items tab. For more information, see Managing Change Order Items .
	Date	The current date.
	Contract Amount after Change	Contract amount including the current change order amount. That is, the sum of the Current Contract Amount and the Net Change this Order .
	Approval Date	On approval of the change order, the date of approval.
CONTRACT TIME	Time Type	<ul style="list-style-type: none">• Displays Working Days if a calendar is selected for the contract.• Displays Calendar Days if no calendar is selected for the contract.
	Beginning Date	The date the contract begins as specified during contract creation.

Section	Field	Description
	Current Calendar Days / Current Working Days	<ul style="list-style-type: none">If a calendar is selected for the contract, the Current Working Days box displays the number of days calculated based on the following:<ul style="list-style-type: none">The latest version of the calendar.The Beginning Date and Completion Date selected for the contract.If no calendar is selected for the contract, the Current Calendar Days box displays the number of days calculated based on the Beginning Date and Completion Date selected for the contract.
	Current Completion Date	The current completion date is current contract end date.
	Current Calendar (Version)	The calendar and calendar version currently associated with the contract.
	Completion Date after Change	Date of completion is calculated based on the Additional Calendar Dates specified, and if a calendar is selected for the contract, then the latest version of the calendar selected for the contract.

7. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Change Order By	Select the change order initiator.
Priority	Select the priority accorded to the current change order.
Short Description	Enter a brief description of the current change order.
Description and Location of Work	Enter description of the changes requested and the location of work.

Field	Description
Additional Calendar Days or Additional Working Days	To extend the duration of the contract, enter the number of extra days required for the contract. Alternatively, to decrease the contract duration, press the Minus sign (-), and then enter the number of days to be decreased from the contract duration. The Completion Date after Change box displays the date of completion calculated based on the number of days specified, and if a calendar is selected for the contract, then the latest version of the calendar selected for the contract.
Description	Enter purpose for the requested change in duration.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The **CHANGE ORDER** list page is displayed.

You can now add items, modify existing items, or convert non-contracts items to contract items. For more information, see [Managing Change Order Items](#).

To perform workflow actions, see [Change Order Workflow](#).

11.6.5.3. Managing Change Order Items

With a change order, you can modify the following in a locked Contract Items list:

- [Create a container](#).
- [Add items to a contract](#).
- [Change the quantity of an existing item](#).
- [Convert a non-contract item to a contract item](#).

With a change order, you cannot modify the unit of measure or unit cost of an item in the contract item list. However, with a change order, you can add the same item with the revised unit cost or a different unit of measure to the contract.

11.6.5.3.1. Creating a Container

You can add a container to the contract item list.

1. In the module menu, click **Projects**.
2. In the list page, click the appropriate project, and then click **View**.

3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then expand the **Change Management** folder.
5. In the navigation pane, click **Contract Change Order**.

The **CHANGE ORDER** list page is displayed.

6. Select the appropriate change order, and then click **Edit**.
7. Click the **CHANGE ORDER ITEMS** tab.
8. Click **New**, and then click **New Container**.

The **CONTAINER** page is displayed.

Container Page

CONTAINER

Save & Exit Save & Continue Cancel

Name *:

Description :

Notes :

Parent Container :

9. In the **Name** box, enter the name of the container.
10. In the **Description** box, enter the description of the container.
11. In the **Notes** box, enter the notes for the container.
12. From the **Parent Container** list, click the container in which the current container must be made available.

Note: For the first container, the only **Parent Container** option is **Root**.

13. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The container is created.

11.6.5.3.2. Adding Items to a Contract Using a Change Order

You can add new items to the locked contract item list of a contract with a change order. On approval of a change order with new items added to a contract, the contract cost increases.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contract**.
4. In the navigation pane, expand the appropriate contract, and then expand **Change Management**.

5. In the navigation pane, click **Contract Change Order**.

The **CHANGE ORDER** list page is displayed.

6. Select the appropriate change order, and then click **Edit**.

The **CHANGE ORDER DETAILS** page is displayed.

7. Click the **CHANGE ORDER ITEMS** tab.

8. Perform either of the following:

- Click **New**, and then click **Add CO Item**.
- To add the item within a selected container, select the required container, click **New**, and then click **Add CO Item**.

The **NEW CHANGE ORDER ITEM** page is displayed.

New Change Order Item Page

The screenshot shows the 'New Change Order Item' page. At the top, there are four buttons: 'Save & Exit', 'Save & Continue', 'Save & Create New', and 'Cancel'. Below these are several input fields and dropdown menus:

- Container :** A dropdown menu with a '...' button.
- Pay Item No. ***: An input field with a 'Clear' link.
- Description ***: An input field.
- Unit ***: A dropdown menu with a 'Select' option.
- Group ***: A dropdown menu with a 'Default' option.
- Budget Item :** An input field with a 'Clear' link.
- Funding Rule :** A dropdown menu with a 'Select' option.
- Accounting Code :** An input field.
- Quantity ***: An input field showing '0.0000' with a 'Sub Items' link.
- Unit Price in \$:** An input field.
- Amount in \$:** An input field.
- Complete :** A checkbox.
- Notes :** A text area.
- Rework Item :** A checkbox.

To the right of the main form is a sidebar titled 'Select Item from Library' with the following options:

- Standard Item Table :** A dropdown menu set to 'StandardItems'.
- Ignore Containers of Standard Items**: A checkbox.
- Select**: A button.

At the bottom left, there's a 'RESOURCES' section with a table header:

<input type="checkbox"/>	Title ID	Title	Resource Category	Resource Type	Units	Fixed Price in \$	Variable Price in \$/Unit	No. of Resources	Quantity in Units
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No data to display

Below the table are buttons for 'Select Resource Type', 'Add From Library', 'Add Manually', and 'Delete'. At the very bottom is an 'ATTACHMENTS' section with icons for file operations.

9. Provide the appropriate information in the fields, as described in the table.

Field	Description
Container	<p>If you have selected a container, the name of the selected container is displayed.</p> <p>To select a different container to categorize the item, perform the following steps:</p> <ol style="list-style-type: none">Click .The SELECT CONTAINER page is displayed.Click the appropriate container.

Field	Description
Pay Item No.	<p>Enter the item number.</p> <p>Alternatively, to select an item from the library, perform the following steps:</p> <ol style="list-style-type: none">In the Select Item from Library section, from the Standard Item Table drop-down list, select the standard table in which the appropriate item is defined. Available options are standard item tables defined in the Standard Items Table library catalog. For more information, see Standard Items Table.Optionally, select the Ignore Containers of Standard Items check box to only select the item and not the container of the item. If the check box is selected, only the item is added. If the check box is cleared, the item and its container are added.Click Select to select an item from the selected standard items table. The item selection dialog box is displayed. Available options are items defined in the selected standard items table that is defined in the Standard Items Table library catalog. For more information, see Standard Items Table.Click an item, and then click Select. The Pay Item No., Description, Unit, Group, Accounting Code, and Unit Price in \$ are displayed.
Description	Enter the description of the item. Item description is displayed automatically if you have selected the item from the library.
Unit	Select the unit of measure for the item. Available options are measurement units defined in the measurement system selected for the contract. For more information, see Editing Contract Details . For information on measurement systems, see Measurement Systems .
Group	Select the group name for the item. For information on groups, see Configuring Groups .

Field	Description
Budget Item	To associate the contract item with a budget item, perform the following steps: <ol style="list-style-type: none">Click . The Select Budget Item dialog box is displayed. Available options are approved budget estimate items of the project. For more information, see Budget Estimates.Click the appropriate budget item, and then click Select. If you associate a budget item to a change order item, new forecasts created for the budget are impacted when an expense is incurred for the associated change order item. New forecasts created, being a blended forecast, display spent amount in past dates and the remaining amount is distributed in the future dates.
Funding Rule	Select the funding rule for the item. Available options are approved funding rules defined for the project. For information on funding rules, see Project Fund Rules . Note: You can change the fund rule of an item at anytime. For information on associating a funding rule to an item, see Viewing Fund Rule Association History .
Accounting Code	Enter the accounting code assigned to the item. Accounting code of the item is displayed automatically if you have selected the item from the library.
Quantity	Enter the appropriate quantity of the item.
Unit Price in \$	Enter the cost per unit. The Amount in \$ box displays the total amount of the item calculated as the product of quantity of the item and unit price of the item.
Complete	Select the check box to mark the item as complete. On marking an item as complete, the item will not be available for item postings to be processed in a pay estimate. For information on item postings, see Posting Items for Payments .
Notes	Enter any additional information relevant to the item.

Field	Description
Rework Item	Select the check box to mark the item as a rework item.

10. To add resources to the work item, in the **RESOURCES** section, perform either of the following steps:

- To add resources from the library, perform the following steps:
 - a. In the **Select Resource Type** drop-down list, select the appropriate resource to be added to the work item.
 - b. Click **Add From Library**.

The **Resource Picker** dialog box is displayed.

Available options are based on the resource type selected in the **Select Resource Type** drop-down list.

Available options are resources defined in the corresponding library catalog for the selected resource type. For example, if you have selected **Equipment** from the **Select Resource Type** drop-down list, then the available options are from the **Equipment** library catalog.

- c. Select the appropriate resources, and then click **Select**.

The selected resources are added to the table.
Resource information, such as Resource ID, Title, Resource Category, Resource Type, Units, Fixed Price in \$, Variable Price in \$/Unit are displayed for the selected resources.
- d. Double-click the following columns in the table, and enter information as described in the following table.

Column	Description
No. of Resources	Enter the number of resources appropriate.

Column	Description
Quantity in Units	Enter the number of units for each resource.

The following information is displayed.

Column	Description
Amount in \$	The amount in \$ is calculated as: $\text{Amount in \$} = (\text{No. of Resources}) * (\text{Fixed Price} + (\text{Variable Price} * \text{Quantity in Units}))$

- To add resources manually, perform the following steps:
 - a. Click **Add Manually**.
A row is added to the table.
 - b. Double-click the following columns in the table, and enter information as described in the following table.

Column	Description
Title	Enter title for the resource.
Resource Category	Select the resource category for the resource.
Resource Type	Select the resource type for the resource. Perform either of the following steps: <ul style="list-style-type: none">■ If the selected Resource Category is either Equipment or Material, then select NA in the Resource Type drop-down list.■ If the selected Resource Category is Resource Titles, then from the Resource Type drop-down list, select Internal, Contractor, or Consultant.
Units	Select the appropriate unit of measure. Available units are all the units of measure defined in the Measurement Systems library catalog. For more information, see Measurement Systems . If the selected Resource Category is Resource Titles , then from the Units drop-down list, select Hour , Day , Month , or Year .
Fixed Price in \$	Enter the fixed price for the resource.

Column	Description
Variable Price in \$/ Unit	Enter the variable price for the resource.
No. of Resources	Enter the appropriate number of resources.
Quantity in Units	Enter the number of units for each resource.

The following information is displayed:

Column	Description
Amount in \$	The amount in \$ is calculated as: $\text{Amount in \$} = (\text{No. of Resources}) * (\text{Fixed Price} + \text{Variable Price} * \text{Quantity in Units})$

The **Total Item Estimate in \$** value displays the sum of the **Amount in \$** of the item and the total of the **Amount in \$** column of the resources added to the work item.

11. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

12. To save the item, perform any of the following as applicable:

- Click **Save & Exit** to return to the items list page.
- Click **Save & Continue** to save and continue on the same page.
- Click **Save & Create New** to save the current item and continue creating a new item.

11.6.5.3.3. Modifying Existing Item Quantity

You can modify the quantity of an existing contract item to either increase the quantity or decrease it. You can define the modification (increase or decrease) in quantity by entering the value of change.

To remove an item completely, the **Change in Quantity** should be decreased by the same value as the remaining quantity of the item. By doing so, the quantity of the contract item becomes zero once the change order is approved.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.

4. In the navigation pane, expand the appropriate contract folder, and then expand the **Change Management** folder.

5. In the navigation pane, click **Contract Change Order**.

The **CHANGE ORDER** list page is displayed.

6. Select the appropriate change order, and then click **Edit**.

The **CHANGE ORDER DETAILS** page is displayed.

7. Click the **CHANGE ORDER ITEMS** tab.

8. Click **New**, and then click **Modify Existing Item**.

Alternatively, to modify an item within a selected container, select the appropriate container, click **New**, and then click **Modify Existing Item**.

The **MODIFY EXISTING ITEM** page is displayed.

9. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Pay Item No.	To select the item to modify its quantity, perform the following steps: <ol style="list-style-type: none">a. Click . The list of all items is displayed.b. Click the appropriate item, and then click Select. The Container, Description, Unit, Accounting Code, and Unit Price in \$ of the selected item are displayed.
Change in Quantity	To increase the quantity of the selected item, enter the quantity of the item that is additionally required. To decrease the quantity of the selected item, press the Minus Sign (-), and then enter the quantity to be decreased from the original locked quantity of the item in the contract. To remove the item from the contract item list, press the Minus Sign (-), and then enter the item quantity remaining in the contract after approved item postings.
Notes	Enter any notes for the change in quantity of the item.

10. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

11. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Change Order Workflow](#).

11.6.5.3.4. Converting Non-Contract Items to Contract Items with a Change Order

Non-contract items are work items that are part of the contract but the cost of which is set to zero. You can convert a non-contract item to a contract item to be tracked for budget utilization. On converting a non-contract item to a contract item, the unit cost of the item is multiplied by the quantity of the item and then added to the contract amount.

1. In the module menu, click **Projects**.
2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then expand the **Change Management** folder.
5. In the navigation pane, click **Contract Change Order**.

The **CHANGE ORDER** list page is displayed.

6. Select the appropriate change order, and then click **Edit**.
The **CHANGE ORDER DETAILS** page is displayed.
7. Click the **CHANGE ORDER ITEMS** tab.
8. Click **New**, and then click **Non Contract to Contract**.

The item selection dialog box is displayed.

Available items are items that are marked as non-contract items in the contract item list.

9. Click the appropriate non-contract item to be converted to a contract item, and then click **Select**.
The item is added to the **CHANGE ORDER ITEMS** page.

10. Click the **CHANGE ORDER DETAILS** tab, and then click **Save & Exit**.

The **CHANGE ORDER** list page page is displayed.

To perform workflow actions, see [Change Order Workflow](#).

11.6.5.4. Creating a Balance Change Order

- Contract items are locked.

Balance Change Order is a type of Change Order used to update item quantities automatically based on Contract Quantity and Posted Quantity. That is, a balance change

order is a negative change order for the unutilized contract amount. Also, the change order amount of a balance change order is calculated as the sum of all unused items in the contract.

A balance change order is generally created at the end of a contract to determine the difference between the payments made to the contractor and the current contract amount. A Balance Change Order is used when an adjustment is needed at the end of the contract to balance the overruns and underruns.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Change Management**.
5. In the navigation pane, click **Contract Change Order**.

The **CHANGE ORDER** list page is displayed.

6. Click **New**, and then click **New Balance Change Order**.

Balance Change Order Details Page

BALANCE CHANGE ORDER DETAILS

GENERAL

Original Contract Amount : 600,000.00	Original Contract Duration : 280 (Days)
Current Contract Amount : 600,000.00	Original Calendar (Version) : Calendar (1)
Net Change this Order : -310,000.00	Date : 10/20/2023
Contract Amount after Change : 290,000.00	Approval Date : None
Change Order By : Contractor	Priority : Low
PCO Reference : None	RFI Reference : None
Short Description :	
Description and Location of Work :	

CONTRACT TIME

Time Type : Working Days	Beginning Date : 02/01/2020
Current Calendar Days : 295	Current Completion Date : 03/19/2021
Current Calendar (Version) : Calendar (1)	Completion Date after Change : 03/19/2021
Additional Calendar Days : 0	
Description :	

ATTACHMENTS

<input type="checkbox"/>	Document Name	Url/Link	Title	Uploaded By	Uploaded Date	File Size	Signed Copy
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The **BALANCE CHANGE ORDER DETAILS** page displays the following non-editable fields:

Section	Field	Description
GENERAL	Original Contract Amount	The contract amount when the Contract Items list was locked.
	Original Contract Duration (Days)	The initial contract duration when the Contract Items list was locked.

Section	Field	Description
	Current Contract Amount	The current contract amount includes the amount added to or deducted from the original contract amount by approved change orders is displayed. That is, the sum of the Original Contract Amount and the sum of amounts of all the approved change orders is displayed.
	Original Calendar (Version)	The calendar selected and the calendar version associated to the contract when contract items are locked. If a calendar was not associated with the locked contract, None is displayed.
	Date	The current date is displayed.
	Net Change this Order	If the Contract Quantity value is greater than Posted Quantity value for an item, negative change order quantity of the difference is considered. If the Contract Quantity value is lesser than Posted Quantity value for an item, positive change order quantity of the difference is considered. Note: A zero amount indicates that the contract amount is equal to the sum of all approved item postings. That is, all items in the contract have been utilized.
	Contract Amount after Change	For a balance change order, the sum of the approved item postings is displayed.
	Approval Date	On approval of the change order, the date of approval is displayed.
CONTRACT TIME	Time Type	<ul style="list-style-type: none">• Displays Working Days if a calendar is selected for the contract.• Displays Calendar Days if no calendar is selected for the contract.

Section	Field	Description
	Beginning Date	The date the contract begins as specified during contract creation is displayed.
	Current Calendar Days or Current Working Days	<ul style="list-style-type: none"> If a calendar is selected for the contract, the Current Working Days box displays the number of days calculated based on the following: <ul style="list-style-type: none"> The latest version of the calendar. The Beginning Date and Completion Date selected for the contract. If no calendar is selected for the contract, the Current Calendar Days box displays the number of days calculated based on the Beginning Date and Completion Date selected for the contract.
	Current Completion Date	Date of completion of the contract as specified during contract creation is displayed.
	Current Calendar (Version)	The calendar and calendar version currently associated with the contract.
	Completion Date after Change	Date of completion is calculated based on the Additional Calendar Dates specified, and if a calendar is selected for the contract, then the latest version of the calendar selected for the contract.
		<p>Note: The Completion Date after Change must be within the end date of the project.</p>

7. Provide the appropriate information in the fields as described in the following table.

Field	Description
Change Order By	From the list, select the change order initiator.

Field	Description
Priority	Select the priority accorded to the current change order.
Short Description	Enter a brief description of the current change order.
Description and Location of Work	Enter description of the changes requested and the location of work.
Additional Calendar Days or Additional Working Days	To extend the duration of the contract, enter the number of extra days appropriate for the contract. Alternatively, to decrease the contract duration, press the Minus Sign (-), and then enter the number of days to be decreased from the contract duration. The Completion Date after Change box displays the date of completion calculated based on the number of days specified, and if a calendar is selected for the contract, then the latest version of the calendar selected for the contract.
Description	Enter purpose for the requested change in duration.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The **CHANGE ORDER** list page is displayed.

To perform workflow actions, see [Change Order Workflow](#).

11.6.5.5. Change Order Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Change Order** and **Balance Change Order** records.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Complete	Complete	-
2	Complete	Re-Draft	Draft	-

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
		Approve	Approved	<p>On approval of a Change Order record, the following occur:</p> <ul style="list-style-type: none">Associated change order items are added or modified in the Contract Items list and the value of the contract is adjusted accordingly.Funds associated with the items being added are allocated from the associated project fund sources, and funds associated with the items being modified are allocated from or returned to the associated project fund sources.

11.6.5.6. Generating Change Order Reports

The scope and value of contracts vary based on approved change orders. Contract managers require sufficient and timely information to take appropriate actions or make correct decisions on change orders that are pending approval. The **CO Log Report** lists details of all change orders created for the contract at the time of report generation.

To generate the **CO Log Report**, perform the following steps:

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Change Management**.
5. In the navigation pane, click **Contract Change Order**.
The **CHANGE ORDER** list page is displayed.
6. Click **Reports**, and then click the **CO Log Report**.
The report is generated and displayed.
For information on the various report features available, see [Standard Report Functions](#).

11.7. Forecast Management

11.7.1. Forecasts and Scheduling

Forecasts for a project enable you to forecast project costs along the timeframe of the project. You can forecast budgets, and contracts, and manage how the expenses for the project span out across the complete duration of the project.

The contract calendar is considered for forecast distribution for contract items.

With the Forecasts module, you can perform the following tasks:

- [Schedule item usage](#).
- [Forecast item costs within the duration of the item usage](#).
- [Modify forecasted values](#).
- [Perform workflow actions to implement the business process](#).

Contract items are forecasted to view the cash flow in the contract over the contract duration. Forecast values for contract items are calculated linearly at the commencement of the contract period. That is, when there are no approved item postings in approved pay estimates, forecast values for an item over the contract period are calculated as the quantity of items divided by the number of months of the contract period.

Forecast values of auto-generated forecasts are based on the item utilization periods defined in the Gantt chart. For elapsed periods, the actual amounts are displayed based on approved pay estimates. For upcoming and current periods, forecast values are based on the remaining quantity of the items.

11.7.2. Scheduling – Gantt View

The implementation schedule of a project can be illustrated as a Gantt chart. The Gantt chart displays graphically the start dates and end dates of utilization of cost of items, the container schedule of the items in the container, and the overall project and contract schedule. You can export and import forecast values to generate the Gantt view of the contract.

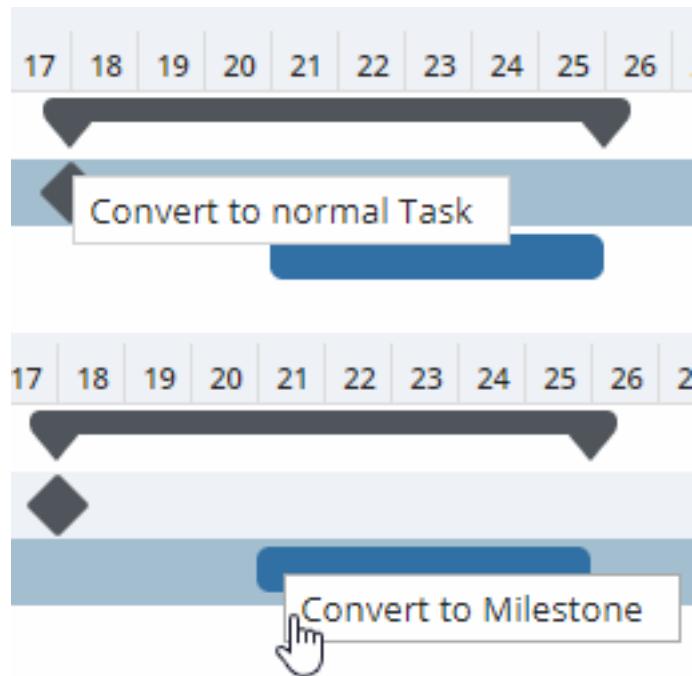
The standard features available in the Gantt table include:

- Specify the Start Date and Time, and End Date of utilization of cost of items. The duration of the task is calculated based on the Start Date and End Date defined for the item.
- Specify the progress of a task in the Progress % column.
- Link tasks with the Predecessors column. In the column list the task ID numbers for the predecessor tasks on which the task depends before it can be started or finished. Each predecessor task is represented by its task ID number, optionally followed by a dependency type. The dependency types for predecessors are FS (finish-to-start), FF (finish-to-finish), SS (start-to-start), and SF (start-to-finish). The dependency types are illustrated in [Interactive dependency line connection in the Gantt chart](#).

The standard features illustrated in the Gantt chart include:

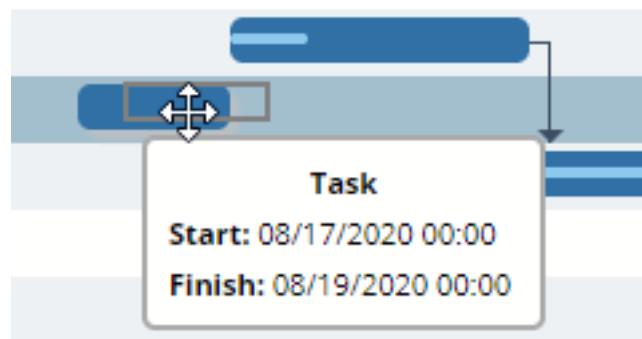
- Convert milestones to tasks, and tasks to milestones:

Gantt Chart



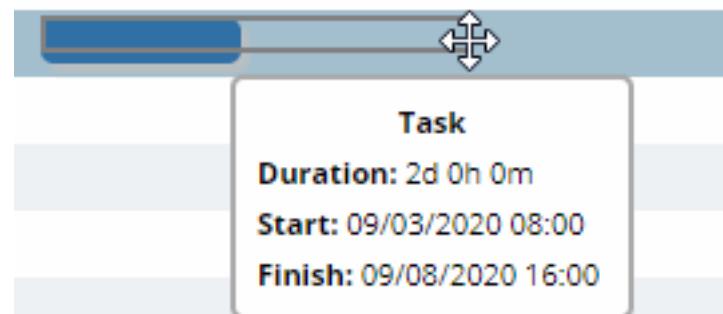
- Move bar to schedule items

Updating Task



- Drag the slider right end to the right to extend task duration

Extending Finish Date



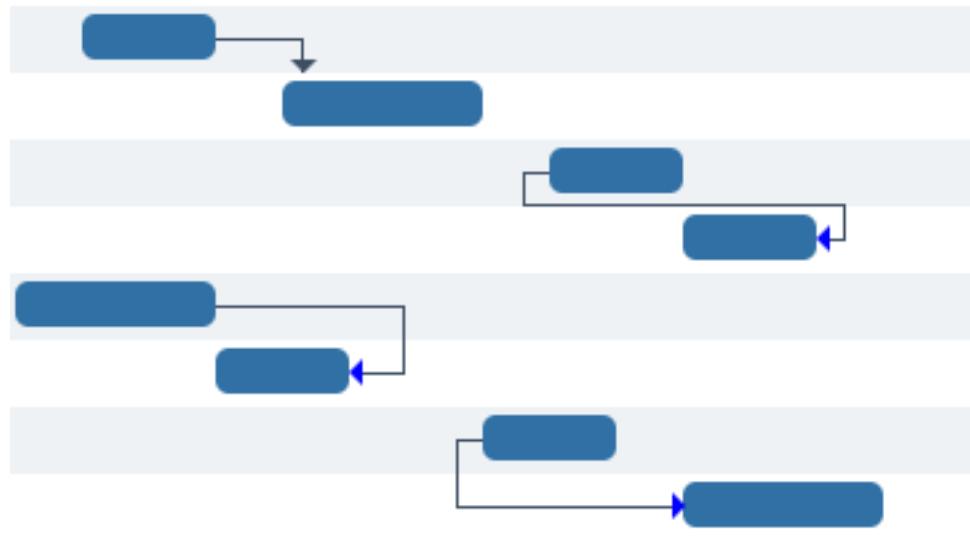
- Edit the item schedule in the Gantt table

Calendar

08/31/2020		08/31/2020				
< Aug 2020 >						
Su	Mo	Tu	We	Th	Fr	Sa
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	1	2	3	4	5

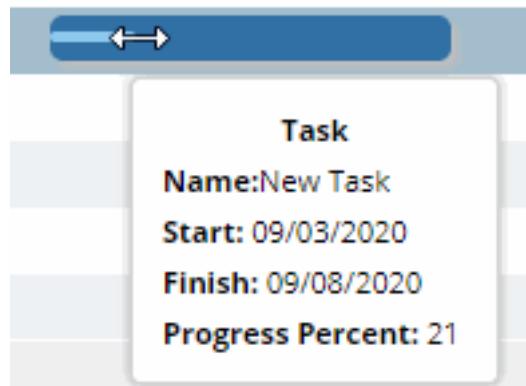
- Interactive dependency line connection in the Gantt chart

Interactive Dependency



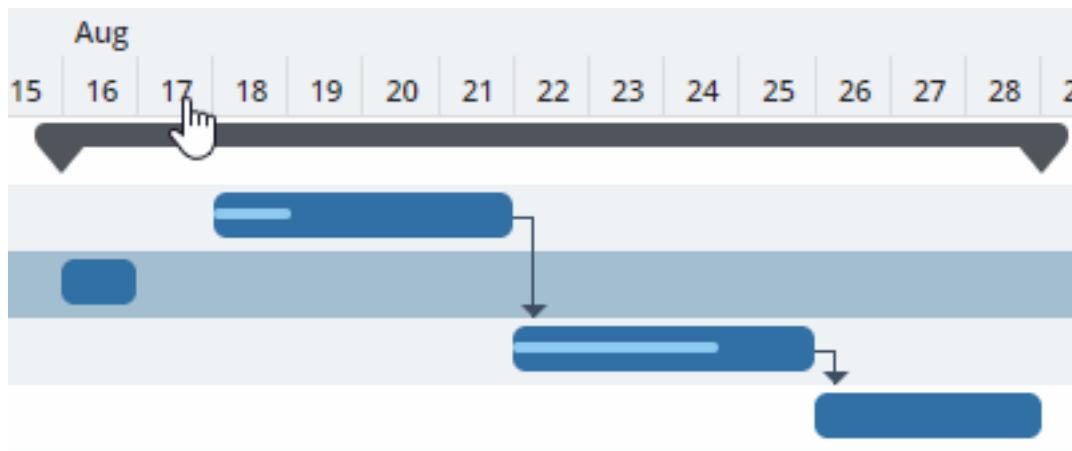
- Edit item progress

Progress Percent



- To zoom in/out, drag right or left on the date row

Zoom



1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. Double-click the appropriate project.

3. To access a forecast of a contract, perform the following steps:

- a. In the navigation pane, expand the project folder, expand **Contracts**, and then expand the appropriate contract folder.

- b. Click **Forecasts**.

The **FORECAST LIST** page is displayed.

4. Select the appropriate forecast, and then click **Edit**.

The **EDIT FORECAST** page is displayed.

5. Click **Scheduling - Gantt View**.

6. Update the Gantt chart, and then click **Save and Forecast** to save your changes.

Based on the latest version of the **Contract Calendar** defined for the contract, non-working days are not available for selection in **Start Date** and **End Date** columns. Also, the **Duration** is calculated based on the calendar defined. For information calendars, see [Calendar](#). For information on the contract calendar, see [Contract Calendar](#).

Note:

If an inflation rule is applied to an item, the **Amount in \$** column is highlighted and displays the inflated amount of the item based on the effective date of the applied inflation rule. The **Amount in \$** value is calculated as:

$$Ai = ((1 + [r] / 100) ^ (n/365)) * [A]$$

Where:

- Ai - Inflated Amount
- r - Annual Inflation Rate (in %)
- n - Number of days between **Effective from** date and **Start Date** of the item if inflation is applicable
- A - Amount in \$ (That is, Quantity x Unit Price in \$)
- Start Date - The start date of the item

11.7.3. Forecasting Item Costs

You can create a forecast in any of the following methods:

- [Auto-generating a forecast](#)
- [Manually creating a forecast](#)
- [Importing forecast details](#)
- [Copying a forecast](#)

You can schedule items and then forecast item costs in the duration of the item. Prior to scheduling items, the duration of contract items is considered as the duration of the contract. For information on scheduling items, see [Scheduling Items](#).

You can also generate and view a detailed forecast report that is also provided with a graphical illustration of the forecast values.

11.7.3.1. Generating a Forecast Automatically

You can get the application to generate a forecast by linearly distributing item costs over the scheduled duration of the item. The default scheduled duration of any item is the duration of the contract. That is, the start date and end date of the contract are considered as the start date and end date of all items.

After the first forecast is generated, you can schedule item duration using the [Scheduling - Gantt View](#) feature.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. Double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand the **Contracts** folder, expand the appropriate contract folder, and then click **Contract Items**.

The **CONTRACT ITEMS** page is displayed.

4. Click **Forecasts**.

The **FORECASTS** list page is displayed.

A forecast for the contract items is automatically generated.

5. To update the forecast, edit the automatically generated forecast.

For information on editing a forecast, see [Editing Forecast Details](#).

11.7.3.2. Manually Creating a Forecast

- The latest forecast is in the **Approved** workflow status, or the forecast is the first forecast being created for the contract.

You can create forecasts for contract items.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. Double-click the appropriate project.

3. In the navigation pane, expand the project folder, expand **Contracts**, and then expand the appropriate contract folder.

4. Click **Forecasts**.

The **FORECASTS** list page is displayed.

5. Click **New**, and then click **New**.

The **NEW FORECAST** page is displayed.

New Forecast Page

The screenshot shows the 'NEW FORECAST' page. At the top, there is a toolbar with buttons for Save & Exit, Save & Continue, Cancel, Workflow, and Select Actions. Below the toolbar, the form fields are arranged as follows:

- ID :** (This field is not visible in the screenshot.)
- Description ***: A text input field.
- Notes** : A text input field.
- Start Date** : 02/01/2020
- End Date** : 03/19/2021

Below these fields is a section titled **ATTACHMENTS**. It includes a toolbar with icons for delete, edit, download, and search. A table lists attachments with columns: Document Name, Url/Link, Title, Uploaded By, Uploaded Date, File Size, and Signed Copy. The table displays the message "No Attachments available". At the bottom of the attachments section are two buttons: **Link Document** and **Upload Document**.

6. In the **Description** box, enter a brief description of the forecast.

7. In the **Notes** box, enter any notes for the forecast.

The **Start Date** and the **End Date** display the contract start date and the contract end date.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).
9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.
10. To enter forecast details for upcoming months and the current period, select a forecast, and click **Edit**.
The **EDIT FORECAST** page is displayed.
11. Click **Item Details**.
The **ITEM DETAILS** page is displayed.
For elapsed periods, the actual amounts are displayed based on approved pay estimates and approved expenses.
For upcoming and current periods, forecast values are based on the remaining cost of the items. Forecast values can be modified for upcoming and current periods.
For upcoming and current periods, expand the appropriate container and double-click an item to modify the upcoming months' forecast values.
12. Enter the appropriate forecasted amount in each of the columns.
13. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

Note: Ensure the **Remaining Amount** column for each item displays zero after cost distribution. This ensures that the entire budget has been used for the item in the contract duration.

11.7.3.3. Copying a Forecast

- The latest forecast is in the **Approved** workflow status, or the forecast is the first forecast being created for the contract.

You can create a forecast by copying a forecast for contract items.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. Double-click the appropriate project.
3. In the navigation pane, expand the project folder, expand **Contracts**, and then expand the appropriate contract folder.
4. Click **Forecasts**.

The **FORECASTS** list page is displayed.

5. Click **New**, and then click **Copy from Existing**.

The **COPY FORECAST** page is displayed.

Copy Forecast Page

COPY FORECAST

Save & Exit Save & Continue Cancel Workflow Select Actions

Select Forecast :

ID :

Description * :

Notes :

Start Date : 02/01/2020

End Date : 03/19/2021

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[Link Document](#) [Upload Document](#)

6. From the **Select Forecast** drop-down list, select the appropriate forecast to be copied.
7. In the **Description** box, enter a brief description of the forecast.
8. In the **Notes** box, enter any notes for the forecast.

The **Start Date** and the **End Date** display the contract start date and the contract end date.

9. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).

10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

11. To enter forecast details for upcoming months and the current period, select a forecast, and click **Edit**.

The **EDIT FORECAST** page is displayed.

12. Click **Item Details**.

The **ITEM DETAILS** page is displayed.

For elapsed periods, the actual amounts are displayed based on approved pay estimates, and approved expenses. For upcoming and current periods, forecast values are based on the remaining cost of the items. Forecast values can be modified for upcoming and current periods.

For upcoming and current periods, expand the appropriate container and double-click an item to modify the upcoming months' forecast values.

13. Enter the appropriate forecasted amount in each of the columns.
14. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

Note: Ensure the **Remaining Amount** column for each item displays zero after cost distribution. This ensures that the entire budget has been used for the item in the contract duration.

11.7.4. Uploading Forecast Details of Contract Items in Bulk

You can update forecast values of contract items in bulk using a Microsoft Excel workbook. You can only edit forecast values of an existing contract forecast.

The high-level process of updating and uploading forecast details of contract items is as follows:

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. Export the forecast to an Excel workbook.

- a. In the list page, double-click the appropriate project.
- b. In the navigation pane, expand the project folder, expand **Contracts**, and then expand the appropriate contract folder.
- c. Click **Forecasts**.

The **FORECASTS** list page is displayed.

- d. Click the forecast you want to update, and then click **Edit**.
- e. Click **Excel Import / Export**, and then click **Excel Export**.

An Excel workbook with the details of the forecast is downloaded to your local storage.

3. Update forecast information in the forecast workbook.

- a. Open the Excel workbook with the details of the forecast that is downloaded to your local storage.

The following table describes the columns in the contract forecast items workbook to enable you to update forecast distribution values of contract items in the workbook.

The following contract item information is displayed.

Column	Description
ItemID	The unique identification code for the contract item is displayed.
Name	The name of the contract item is displayed. Note: This is the value specified in the Pay Item No. box when creating the contract item.
Description	The description of the contract item is displayed. Note: This is the description specified in the Description box while creating the contract item.
Amount in \$	The amount allocated for the contract item is displayed. Note: This is the value calculated in the Amount in \$ box when creating the contract item.

Column	Description
Unit	<p>The unit of measurement for the contract item is displayed.</p> <p>Note: This is the value selected in the Unit drop-down list when creating the contract item.</p>
Remaining Amount in \$	<p>The remaining amount calculated before the workbook was exported is displayed.</p> <p>The value of the remaining amount is calculated as: Amount in \$ - Total forecast value.</p> <p>Note: Once the forecast distribution values are updated in the workbook and the workbook is imported to the application, the remaining amount is calculated and updated in the application.</p>

b. Update the following columns:

Columns	Description
Yearly or Monthly columns based on the forecast distribution settings. For more information, see Forecast Settings .	<p>In the columns with names of months or years, enter the contract item's forecast distribution values for all the months or years in the contract duration.</p> <p>Note:</p> <ul style="list-style-type: none">• The forecast distribution period is the contract duration specified when creating the contract.• To perform a workflow action, ensure the sum of all item values is equal to Amount in \$ value. Also, this ensures that the entire item cost has been distributed for the item in the contract duration.

c. Save the Excel workbook with contract forecast information.

4. Import the updated Excel workbook back to Masterworks.
 - a. In the **EDIT FORECAST** page, click **Excel Import / Export**, and then click **Excel Import**.
The **IMPORT DETAILS FROM EXCEL FILE** page is displayed.
 - b. Click **Choose File** to select the workbook with updated form information.
The **Open** dialog box is displayed.
 - c. Select the workbook with the updated forecast values, and then click **Open**.
 - d. Click **Upload** to import information from the Excel workbook to the form.
 - e. On encountering errors while importing an Excel workbook, perform the following steps:
 - i. In the toolbar, click **Error Log**.
The error log workbook is downloaded to your local storage.
 - ii. Open the error log workbook to view the errors in the various columns.
Error messages in the cells are highlighted in red. Tabs in the workbook are also highlighted to indicate the presence of errors.
 - iii. Open the Excel workbook and modify the details as specified in the error log workbook.
Optionally, you can make relevant corrections in the error log workbook and upload it.
 - iv. Save and upload the Excel workbook to import the updated information.
 - f. Click **Save**.
 - g. Click **Back** to view the **EDIT FORECAST** page.

11.7.5. Editing a Forecast

You can edit details of forecasts for contract items.

Note: If an inflation rule is applied to an item, the inflation rate is considered for the forecast of the item.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. Double-click the appropriate project.

3. To access a forecast of a contract, perform the following steps:

- a. In the navigation pane, expand the project folder, expand **Contracts**, and then expand the appropriate contract folder.

- b. Click **Forecasts**.

The **FORECASTS** list page is displayed.

4. Select the appropriate forecast, and then click **Edit**.

The **EDIT FORECAST** page is displayed.

Edit Forecast Page

EDIT FORECAST

Save & Exit Save & Continue Cancel Workflow Select Actions More

ID : 5

Description *: Quantity planning created due to invalidation of latest QP record.

Notes :

Start Date : 02/01/2020

End Date : 03/19/2021

Created On : 04/30/2020

Created By : shane bond

Approved On :

Approved By :

ATTACHMENTS

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Link Document **Upload Document**

5. In the **Description** box, enter a brief description of the forecast.

6. In the **Notes** box, enter any notes for the forecast.

7. Click **Save & Continue** to save the details.

8. To edit item details, in the toolbar, click **Item Details**.

The **ITEM DETAILS** page is displayed.

9. Click **Next Period** to view the item distribution in the forthcoming time periods.

10. Double-click the item cell for a specified month, and enter the forecast value.

11. Click **Save** to save any changes to the forecasted values.

12. Click **Back** to return to the **EDIT FORECAST** page.

13. Click **Save** to save any changes in the **EDIT FORECAST** page.

The **Forecast List** is refreshed with the changes made.

11.7.6. Forecast Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Forecast** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Complete	Completed	You cannot perform this workflow action if the item amount is zero.
2	Completed	Submit	Submitted	-
		Re-Draft	Draft	-
3	Submitted	Approve	Approved	-
		Reject	Rejected	-
4	Approved	Un-Approve	Submitted	-
		Close	Closed	-
5	Rejected	Close	Closed	-

11.8. Progress Tracking

11.8.1. Daily Progress Report

Project Tracking enables you to record worksite information and track the progress of work on a particular day.

Using the **Daily Progress Report (DPR)** form, you can record the general information and weather conditions at the worksite on a particular day.

You can create a DPR to record the following worksite information:

- General information and weather conditions
- Work activity, and equipment
- Manpower on-site, and visitors at the worksite
- Traffic maintenance and notes

Additionally, you can tag the records that you add in the sections, such as **WORK ACTIVITY**, **EQUIPMENT**, and **VISITORS**. This enables you to search for the appropriate

records at the enterprise level. For more information on enterprise search, see [Using the Enterprise Search Utility](#) on page 117.

You can perform the following tasks:

- [Create a DPR](#).
- [Perform workflow actions to implement the business process](#).

11.8.2. Creating a Daily Progress Report

- Prime contractor is selected for the contract.
- Contract items are created and locked.

You can create a DPR in two ways:

- [Create a daily progress report manually and enter all details](#).
- [Create a copy of a daily progress report and edit required details](#).

11.8.2.1. Creating a Daily Progress Report Manually

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then expand the **Progress Tracking** folder.
5. In the navigation pane, click **Daily Progress Report**.

The **DAILY PROGRESS REPORT** list page is displayed.

6. Click **New**.

Daily Progress Report Page

The screenshot shows the 'DAILY PROGRESS REPORT' page. At the top, there are buttons for 'Save & Exit', 'Save & Continue', 'Cancel', 'Workflow', and 'Select Actions'. Below these are two tabs: 'DPR DETAILS' (selected) and 'LINKED RECORDS'. Under the 'GENERAL INFORMATION' section, several fields are displayed:

DPR Number	<Auto Generated>	Inspector	▼
Contract Code	PR-39333	Location *	▼
Date Created *	10/23/2023	DPR Date *	10/23/2023 ▼
Contractor	DENNIS PARKING LOT MAINTEN ▾	Shift *	▼
Summary	▼		

Below the general information, there is a list of expandable sections:

- + WORK ACTIVITY
- + EQUIPMENT
- + MANPOWER ON-SITE
- + VISITORS
- + WEATHER
- + INSPECTION CHECKLIST
- + ATTACHMENTS

The **DAILY PROGRESS REPORT** page is displayed.

The **DPR DETAILS** tab displays the following non-editable fields:

Field	Description
DPR Number	On saving the record, a unique identification code for the DPR is automatically generated.
Contract Code	The Contract Code as defined for the contract.
Date Created	The current date is considered as the DPR creation date.

7. In the **GENERAL INFORMATION** section, provide the appropriate information in the fields, as described in the following table.

Field	Description
Inspector	Select the inspector initiating the progress report. Available users in the list are users invited to the project with Inspector role assigned.

Field	Description
Location	Enter the location details of the worksite for the DPR.
Contractor	By default, the prime contractor selected for the contract is displayed. Optionally, you can select a different contractor. Available options are prime contractor and sub-contractors selected for the contract. For information on contractors, see Managing Contractor Details .
DPR Date	By default, the current date is displayed. Optionally, select the date for which the DPR is being created.
Shift	Select the work shift for which the DPR is being created. Available options are work shifts defined in the Shift library catalog.
Summary	Enter a summary of the DPR recorded at the worksite.

8. To add details of the activities performed at the worksite, expand the **WORK ACTIVITY** section, and then perform the following steps:
 - a. Click **Add**.
The **New Work Activity** dialog box is displayed.
The **Date & Time** field displays the current date and time.
 - b. Provide the required information in the fields as described in the following table.

Field	Description
Contractor	By default, the prime contractor selected for the contract is displayed. Optionally, you can select a different contractor. Available options are the prime contractor and sub-contractors selected for the contract. For information on contractors, see Managing Contractor Details .
Tags	Select the appropriate tags. Alternatively, type the name of the tag, and then select the appropriate tag. Available options are the tags defined in the Tags library catalog.

Field	Description
Description	Enter a detailed description of the work activity.

- c. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).
 - d. Click **Save**.
9. To add the details of the equipment used at the worksite, expand the **EQUIPMENT** section, and then perform the following steps:
- a. Click **Add**.
The **New Equipment** dialog box is displayed.
The **Date & Time** field displays the current date and time.
 - b. Provide the required information in the fields as described in the following table.

Field	Description
Contractor	By default, the prime contractor selected for the contract is displayed. Optionally, you can select a different contractor. Available options are the prime contractor and subcontractors selected for the contract. For information on contractors, see Managing Contractor Details .
Type of Equipment	Select the appropriate equipment. Available options are equipment defined in the Equipment library catalog.
Make	Enter the name of the company that produces the equipment.
Model	Enter the model number of the equipment.
No of Units	Enter the number of units used at the worksite.
Duration (Hrs)	Enter the amount of time that the equipment is consumed or employed at the worksite.
Stand By (Qty)	Enter the quantity of the stand by equipment.
Year	Select the year in which a equipment was manufactured.

Field	Description
Tags	Select the appropriate tags. Alternatively, type the name of the tag, and then select the appropriate tag. Available options are the tags defined in the Tags library catalog.
Description	Enter a detailed description of the equipment.

- c. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

- d. Click **Save**.

10. To add manpower onsite details, expand the **MANPOWER ON-SITE** section, and then perform the following steps:

- a. Click **Add**.

The **New Manpower On-site** dialog box is displayed.

The **Date & Time** field displays the current date and time.

- b. Provide the required information in the fields as described in the following table.

Field	Description
Contractor	By default, the prime contractor selected for the contract is displayed. Optionally, you can select a different contractor. Available options are the prime contractor and subcontractors selected for the contract. For information on contractors, see Managing Contractor Details .
Shift	Select the appropriate work shift. Available options are work shifts defined in the Shift library catalog.
Start Date	Select the start date of the contractor.
Start Time	Click  and select the start time of the contractor.
End Date	Select the end date of the contractor.
End Time	Click  and select the end time of the contractor.

Field	Description
No Of Supervisors	Enter the number of supervisors employed at the worksite.
No Of Skilled Personnel	Enter the number of skilled personnel employed at the worksite.
No Of Labour	Enter the number of laborers employed at the worksite.
Tags	Select the appropriate tags. Alternatively, type the name of the tag, and then select the appropriate tag. Available options are the tags defined in the Tags library catalog.
Description	Enter a detailed description of the manpower onsite.

- c. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).
 - d. Click **Save**.
11. To add details of the visitors at the worksite, expand the **VISITORS** section, and then perform the following steps:

- a. Click **Add**.
The **New Visitors** dialog box is displayed.
The **Date & Time** field displays the current date and time.
- b. Provide the required information in the fields as described in the following table.

Field	Description
Contractor	By default, the prime contractor selected for the contract is displayed. Optionally, you can select a different contractor. Available options are the prime contractor and sub-contractors selected for the contract. For information on contractors, see Managing Contractor Details .
No of Visitors	Enter the number of visitors at the worksite.
Start Date	Select the start date of the visit.

Field	Description
Start Time	Click  and select the time the visitor arrived at the worksite.
End Date	Select the end date of the visit.
End Time	Click  and select the time the visitor left the worksite.
Tags	Select the appropriate tags. Alternatively, type the name of the tag, and then select the appropriate tag. Available options are the tags defined in the Tags library catalog.
Description	Enter a detailed description of the visitors at the worksite.

- c. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).
 - d. Click **Save**.
12. To record the details of the weather conditions at the worksite, expand the **WEATHER** section, and then perform the following steps:

- a. Click **Add**.

The **New Weather** dialog box is displayed.

The following information is displayed.

Field	Description
Date & Time	The current date and time.

Field	Description
Location	<p>The location is captured using the mobile device.</p> <p>Note: Ensure the GPS location service in your device is turned on.</p> <p>The worksite location is displayed.</p>

- b. Provide the required information in the fields as described in the following table.

Field	Description
Contractor	<p>By default, the prime contractor selected for the contract is displayed.</p> <p>Optionally, you can select a different contractor.</p> <p>Available options are the prime contractor and subcontractors selected for the contract.</p> <p>For information on contractors, see Managing Contractor Details.</p>
Skies	<p>Select the appropriate option based on the metrics recorded at the worksite.</p> <p>Available options are sky conditions defined in the Skies library catalog.</p>
Temperature (F)	Enter the metrics recorded at the worksite.
Wind Speed (mph)	
Precipitation (in)	
Humidity (%)	
Tags	<p>Select the appropriate tags.</p> <p>Alternatively, type the name of the tag, and then select the appropriate tag.</p> <p>Available options are the tags defined in the Tags library catalog.</p>
Description	Enter a detailed description of the weather.

- c. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

- d. Click **Save**.

13. To add traffic maintenance details at the worksite, expand the **INSPECTION CHECKLIST**, and then in the **TRAFFIC CONTROL** tab, perform the following steps:

- a. Click **Add**.

The **New** dialog box is displayed.

The **Date & Time** field displays the current date and time.

- b. Provide the required information in the fields as described in the following table.

Section	Field	Description
-	Tags	Select the appropriate tags. Alternatively, type the name of the tag, and then select the appropriate tag. Available options are the tags defined in the Tags library catalog.
	Description	Enter a detailed description of the weather.
Questions	Is the traffic control set up according to the approved traffic control plan?	Click the appropriate option.
	Are devices in acceptable condition?	
	Have all conflicting pavement markings been removed?	
	Have all unneeded devices/signs been removed as per the hazard mitigation sheet?	
	Has there been a major change in the traffic pattern?	
	Results of safety Inspections/ Accidents?	Enter the details of safety inspection results or any accidents at the worksite.

- c. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).
 - d. Click **Save**.
14. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).
15. To add references of records of forms in the project, click the **LINKED RECORDS** tab, and then in the **LINKED RECORDS** section, perform the following steps:

- a. Click **Add**.

The **SEARCH FORM** page is displayed.

Search Form Page

A screenshot of the 'SEARCH FORM' page. At the top is a toolbar with three buttons: a magnifying glass for 'Search', a circular arrow for 'Back', and a circular arrow with a minus sign for 'Reset'. Below the toolbar is a dark grey header bar with the text 'SEARCH FORM' in white. At the bottom is a light grey search form with a text input field. The input field has the placeholder 'Type here to filter Forms' and is preceded by the word 'Form :'. To the left of the input field is a small icon of a computer monitor.

- b. In the **Form** field, click and select the form you want to associate.

Alternatively, type the name of the form, and then select the appropriate form.

Available forms in the list are forms with the **IsSearchable** form attribute set to **True**. For additional information on form attributes, see [Form Builder](#).

All fields available in the selected form are displayed. To associate records, you can search for records of the form.

- c. In the form fields, enter the appropriate criteria to search.
- d. Optionally, expand the **Filter By Attachment** and **Filter By Workflow Status** sections, and enter additional criteria to search.
- e. In the toolbar, click **Search**.

The information that matches the criteria is displayed in the **SEARCH RESULTS** section. Search results contain information of only projects you are invited to.

- f. Optionally, to clear existing search results to search with new criteria, click **Reset**.
- g. In the **SEARCH RESULTS** section, select the appropriate records, and then click **Link**.

The selected records are added to the **LINKED RECORDS** section.

Note: To view the details of a linked record, in the **Record Identifier** column, click the appropriate hyperlink.

16. In the **COMMENTS** box, enter any comments for the DPR.
17. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Daily Progress Report Workflow](#).

11.8.2.2. Copying a Daily Progress Report

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then expand the **Progress Tracking** folder.
5. In the navigation pane, click **Daily Progress Report**.

The **DAILY PROGRESS REPORT** list page is displayed.

6. Select the appropriate DPR, and then click **Copy and Edit**.

A new DPR record is created. All information from the selected DPR is copied to the new DPR.

7. Make the appropriate changes.

For information on editing information, see [Creating a Daily Progress Report](#).

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Daily Progress Report Workflow](#).

11.8.3. Daily Progress Report Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Daily Progress Report** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-
2	Submitted	Approve	Approved	-
3	Approved	Undo Approve	Draft	-

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
		Close	Closed	

11.8.4. Item Postings

The **Item Postings** form is used to post contract items available or partially complete by the contractor or sub-contractor on a given day to track work progress. You can also post non-contract items. Item postings for non-contract items will not be included in pay estimates unless the items are converted to contract items using change orders.

On approving items posted, you can generate a pay estimate for the work completed.

You can perform the following tasks:

- [Post items for payments.](#)
- [Perform workflow actions to implement the business process.](#)

11.8.5. Posting Items for Payments

You can create item posting in two ways:

- [Create an item posting record and enter all details.](#)
- [Create a copy of an item posting record and edit required details.](#)

11.8.5.1. Creating an Item Posting Record

- You are invited to the associated project and contract.
- Contract items are created and locked.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the appropriate contract folder, and then expand the **Progress Tracking** folder.
5. In the navigation pane, click **Item Posting**.

The **ITEM POSTING** list page is displayed.

6. Click **New**.

Item Posting Page

The screenshot shows the 'ITEM POSTING' page with the following details:

ITEM POSTING

Buttons: Save & Exit, Save & Continue, Cancel, Workflow, Select Actions, Add Last Items.

Fields:

- Project Code : PR-39333
- Project Name : Widen Tranco Road project
- Contract Code : PR-39333
- Contract Name : Widen Tranco Road wide
- Item Posting ID : <Auto Generated>
- Contractor : DENNIS PARKING LOT MAINTEN
- Inspector :
- Created Date : 10/23/2023
- Created By : Smith

ITEMS POSTED

<input type="checkbox"/>	Line No.	Pay Item No.	Description	Posted Date	Posted Quantity	Total Quantity	Remaining Quantity	Unit Price in \$	Cost in \$	From Station	To Station	Is Complete	Need Attention
No records to display.													

Add, Delete buttons.

LINKED RECORDS

<input type="checkbox"/>	Record Identifier	Source Form	Contract Name	Notes

The **Item Posting** page displays the following non-editable fields:

Field	Description
Project Code	The project code as defined for the project.
Project Name	The name of the project.
Contract Code	The contract code as defined for the contract.
Contract Name	The name of the contract.
Item Posting ID	On saving the record, a unique identification code for the item posting is automatically generated.
Created Date	The current date is considered as the item posting creation date.
Created By	The user name of the user posting items.

7. Provide appropriate information in the fields, as described in the following table.

Field	Description
Contractor	Select the contractor at the worksite. Available options are prime contractor and subcontractors selected for the contract. For information on contractors, see Managing Contractor Details .
Inspector	Select the inspector initiating the progress report. Available users in the list are users invited to the project.

8. To add items to post, perform either of the following:

Note: Items that are marked as **Complete** are not available for posting.

- To add posted items of the previous Item Posting you created, in the toolbar, click **Add Last Items**.
- To manually add items, in the **ITEMS POSTED** section, perform the following steps:
 - a. Click **Add**.
The item selection dialog box is displayed.
All work items, inclusive of all non-contract items in the contract, are displayed.
 - b. Select the appropriate items for posting, and then click **Select**.
The following information is displayed:

Field	Description
Line No.	The line number of the item as defined in the contract items.
Pay Item No.	The identification number of the item.
Description	The description of the item.
Total Quantity	The total quantity of the item as available in the contract items. It is calculated as: Quantity in the original contract + Quantity of all approved change orders

Field	Description
Remaining Quantity	The remaining quantity of the selected item after calculating the sum of quantities of all approved item postings. It is calculated as: Total Quantity - Sum of quantities of all approved item postings of the item
Unit Price in \$	Unit price of the pay item.
Cost in \$	Based on the value entered in the Posted Quantity column, the cost is calculated as: Unit Price in \$ * Posted Quantity

- c. Provide the appropriate information in the columns, as described in the following table.

Column	Description
Posted Date	By default, the current date is displayed. To select the date for which the item is being posted, click  and select the date.
Posted Quantity	Click and enter the posting quantity. Note: <ul style="list-style-type: none">■ You can make a negative item posting to delete the specified item quantity from the posted quantity. To make a negative item posting, press the Minus sign (-), and then enter the quantity to be decreased from the total posted quantity of the item.■ For lump sum quantities, you can post a fraction of the quantity. To post a fraction of an item quantity, enter the appropriate decimal number.
From Station	Click and enter the location details of the starting station.

Column	Description
To Station	Click and enter the location details of the destination station.
Is Complete?	<p>If the implementation of the pay item is complete, perform the following steps:</p> <ol style="list-style-type: none"><li data-bbox="632 473 981 511">i. Select the check box. A confirmation dialog box is displayed.<li data-bbox="632 579 806 617">ii. Click OK. The pay item will be unavailable for posting in subsequent item postings.
Need Attention	Select the check box to flag the pay item for attention.

9. To link the records of the forms in the project, in the **LINKED RECORDS** section, perform the following steps:

- a. Click **Add**.

The **SEARCH FORM** page is displayed.

Search Form Page

A screenshot of a web-based application interface titled "Search Form Page". At the top, there is a toolbar with icons for "Search", "Back", and "Reset". Below the toolbar, a dark grey header bar contains the text "SEARCH FORM". Underneath the header, there is a search input field with the placeholder text "Form : Type here to filter Forms".

- b. In the **Form** field, click and select the form you want to associate.

Alternatively, type the name of the form, and then select the appropriate form.

Available forms in the list are forms with the **IsSearchable** form attribute set to **True**. For additional information on form attributes, see [Form Builder](#).

All fields available in the selected form are displayed. To associate records, you can search for records of the form.

- c. In the form fields, enter the appropriate criteria to search.
- d. Optionally, expand the **Filter By Attachment** and **Filter By Workflow Status** sections, and enter additional criteria to search.
- e. In the toolbar, click **Search**.

The information that matches the criteria is displayed in the **SEARCH RESULTS** section. Search results contain information of only projects you are invited to.

- f. Optionally, to clear existing search results to search with new criteria, click **Reset**.
- g. In the **SEARCH RESULTS** section, select the appropriate records, and then click **Link**.

The selected records are added to the **LINKED RECORDS** section.

Note: To view the details of a linked record, in the **Record Identifier** column, click the appropriate hyperlink.

10. In the **COMMENT** box, enter any comments for the item posting.
11. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

12. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Item Posting Workflow](#).

On approval of an item posting, the pay items of the item posting are utilized and are available for generating the pay estimate.

11.8.5.2. Copying an Item Posting Record

- Contract items are created and locked.

- In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

- In the list page, click the appropriate project, and then click **View**.
- In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
- In the navigation pane, expand the appropriate contract folder, and then expand the **Progress Tracking** folder.
- In the navigation pane, click **Item Posting**.

The **ITEM POSTING** list page is displayed.

- Select the appropriate Item Posting record, and then click **Copy and Edit**.

All information from the selected Item Posting record is copied to the new Item Posting record that is created.

Note: Items that are marked as **Complete** are not available for posting.

- Make the appropriate changes.

For information on editing information, see [Creating an Item Posting record](#).

- Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Item Posting Workflow](#).

11.8.6. Item Posting Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Item Posting** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-
2	Submitted	Approve	Approved	You cannot perform this workflow action if an item quantity exceeds the remaining quantity. To approve the item posting, see Item Posting Settings on page 920.
		ReDraft	Draft	-

11.8.7. Item Posting Settings

Using the item posting **Settings** page, you can enable approving items with quantities exceeding the remaining quantity.

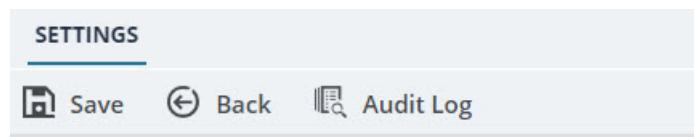
1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Progress Tracking**.
5. In the navigation pane, click **Item Posting**.

The **ITEM POSTING** list page is displayed.

6. In the toolbar, click **Settings**.

The **SETTINGS** page is displayed.

Settings Page



7. To allow the quantity of items in the item posting to be greater than the remaining quantity, select the **Allow Item Posting Quantity greater than Contract Quantity** check box.
8. Click **Save**.
9. Click **Back** to return to the **ITEM POSTING** list page.

11.8.8. Request For Sublet Work

11.8.8.1. Request For Sublet Work

The **Request For Sublet Work** form enables you to sublet work to sub-contractors associated with a contract. You can allocate a percentage of the contract work to each sub-contractor.

You can edit the **Request For Sublet Work** record at anytime.

11.8.8.2. Creating a Request For Sublet Work

- You must have **Create** permissions to create a record.
- Contract Items must be locked.

For more information, see [Locking the Contract Item List](#) on page 815.

You can sublet the work to sub-contractors associated with a contract. Additionally, you can allocate a percentage of the contract work the overall contract value.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

Alternatively, perform the following steps:

- a. In the module menu, click **Planning**.

The **PLANNING DASHBOARD** is displayed.

- b. In the navigation pane, click **Planned Projects**.

The **PLANNED PROJECTS** list page is displayed.

2. In the list page, double-click the appropriate project.

The **PROJECT DASHBOARD** page is displayed.

3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.

4. In the navigation pane, expand the appropriate contract.

5. Expand the **Progress Tracking** folder, and then click **Request For Sublet Work**.

The **REQUEST FOR SUBLT WORK** list page is displayed.

6. Click **New**.

The **REQUEST FOR SUBLT WORK** page is displayed.

The following information is displayed:

Field	Description
Sequence Number	On saving the record, a unique sequence number for the sublet is automatically generated.
Project Code	The identification code of the project.
Prime Contractor	The prime contractor associated with the contract. This information is retrieved from the Contractors form of the contract.
Current Contract Amount in \$	The total amount of the locked contract items.
Project Description	The description of the project.

7. To select sub-contractors and allocate the sublet amount to each sub-contractor, in the **SUMMARY OF SUBCONTRACT WORK** section, perform the following steps:

- a. Click **Add**.

The **Contractors List** dialog box is displayed.

Available options are sub-contractors defined in the **Contractors** form of the contract.

- b. Select the appropriate sub-contractors, and then click **Select**.

The selected sub-contractors are added to the **SUMMARY OF SUBCONTRACT WORK** section.

- c. To enter sublet amount for the sub-contractors, perform the following steps:

- i. Select the appropriate contractor, and then click **Edit**.

The **Edit Summary of Subcontract Work** dialog box is displayed.

- ii. In the **Amount in \$** field, enter the sublet amount.

The **Percent Of Contract** is automatically calculated as:

(Amount in \$ / Current Contract Amount in \$) * 100

- iii. Click **Save**.

The entered details are displayed for the corresponding sub-contractor.

8. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

11.9. Billings and Payments

11.9.1. Billings and Payments

The Billings and Payments module enables you to track advances paid on materials and payments made for items that are partially completed or are completed in the contract.

You can perform the following tasks:

- [Manage advances for materials on hand](#).
- [Manage pay estimates](#).

11.9.2. Materials on Hand

11.9.2.1. Materials on Hand

You can create a Materials on Hand (MOH) record to receive approvals to make advance payments to a contractor. These advance payments are for the use of materials in the inventory of the contractor for an item in the contract. Once you pay an advance to a

contractor for a MOH, you can recover the advance amount paid from pay estimates that are generated after the advance on the MOH has been paid in an approved pay estimate.

After a MOH record is approved, the MOH amount is automatically added as an advance amount paid on the item to a pay estimate that is generated for the time period within which the MOH was approved. When this MOH item is posted in an item posting, and the item posting is approved, the item is automatically added to the pay estimate that is generated for the time period within which the item posting was approved.

Based on the recovery quantity defined for the item in the MOH record, the amount is credited from that pay estimate. Recovery for the advance paid for the MOH continues in all pay estimates generated for the MOH item until the entire advance on the MOH is recovered.

You can perform the following steps:

- [Make advance payments for materials on hand.](#)
- [Perform workflow actions to implement the business process.](#)

11.9.2.2. Making Advance Payments for Materials on Hand

- Contract items are locked.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Billings & Payments**.
5. In the navigation pane, click **Materials on Hand**.

The **MATERIALS ON HAND** list page is displayed.

6. Click New.

Materials on Hand Page

MATERIALS ON HAND

Save & Exit Save & Continue Cancel Workflow Select Actions

MOH Date : 10/23/2023

Comments :

MATERIAL ADVANCE

Material * :

CONTRACT ITEMS

<input type="checkbox"/>	Line No.	Pay Item No.	Description	Amount in \$	Recovery Quantity Range	Recovery Quantity	Recovery Rate in \$	Recovered Quantity	Recovered Amount	Is Complete
No records to display.										

Add Delete

Amount in \$: 0.00

The **MATERIALS ON HAND** page is displayed.

7. From the **MOH Date** calendar drop-down box, select the date the request for MOH advance is created.
 8. In the **Comments** box, enter any notes.
 9. To select the material on hand, in the **MATERIAL ADVANCE** section, perform the following steps:
 - a. Click .
- The material selection dialog box is displayed.
- Available options are materials defined in the **Materials** library catalog.
- b. Click the appropriate material, and then click **Select**.

10. To associate contract items with the selected material, in the **CONTRACT ITEMS** section, perform the following steps:

- Click **Add**.

The **Items List** dialog box is displayed.

The list of contract items in the contract, inclusive of all the approved change orders items, is displayed.

Note: Only contract items that are not yet posted through [item posting](#) are available for selection. Non-contract items and items marked as completed are not available for selection.

- Select the appropriate items, and then click **Select**.

In the **CONTRACT ITEMS** section, the following information is displayed:

Column	Description
Amount in \$	Displays the maximum amount that can be provided as an advance toward the purchase of the material. That is, the original contract amount of the item plus the sum of amounts of all approved change orders on the item minus the sum of amounts of all approved posted quantities of the item.
Recovery Quantity	Displays the item quantity required to recover the MOH amount paid.
Recovered Quantity	Displays the quantity of the item recovered till date for the given advance. That is, the number of approved posted items in approved pay estimates for which recovery was processed.
Recovered Amount	Displays the amount of the item recovered till date for the given advance. That is, the product of the number of approved posted items in approved pay estimates (from when the MOH was approved) and the Recovery Rate of the item.

Column	Description
Is Complete	Displays whether the item has been marked complete.

- c. For every item added, in the **Amount in \$** column, click and enter the advance amount payable for the MOH.

Based on the amount entered in the **Amount in \$** column, the **Recovery Quantity Range** displays the range of the number of items that are recoverable with the maximum being equal to the available quantity of the contract items.

- d. In the **Recovery Quantity** column, click and enter the quantity to be recovered for the MOH in every pay estimate.

Note: The number entered in the **Recovery Quantity** column must be within the **Recovery Quantity Range**.

Based on the value entered in the **Recovery Quantity** column, the **Recovery Rate in \$** column displays the rate of the item per recovery quantity.

11. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Materials on Hand Workflow](#).

11.9.2.3. Materials on Hand Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Materials On Hand** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-
2	Submitted	Approve	Approved	-
3	Approved	Close Out	Closed	-

11.9.3. Pay Estimates

11.9.3.1. Pay Estimates

Pay estimates are estimations for payment to contractors for the completed work items that have been posted and approved. The Pay Estimates module enables you to generate pay estimates for approved item postings to process payments to a contractor. The

periodicity of generating pay estimates depends on the contract agreement between the owner, the prime contractor of the contract, and the subcontractors of the contract. You can generate pay estimates for partially or fully completed items posted and approved.

The percentage or quantities of completed work of contract items is determined through approved item postings, and the total amount due to the contractor after deducting applicable retention is calculated using a pay estimate form.

Pay estimates are required to process payments that are to be made to a contractor, after recovering contract advances and retainage. A negative Pay Estimate indicates that a payment should be made from the contractor to the project owner.

Masterworks automates the process of consolidating approved item postings for the contract, and also the recovery of retention that is entered manually and calculated on the work done.

You can perform the following tasks:

- [Generate a pay estimate.](#)
- [Perform workflow actions to implement the business process for pay estimates.](#)
- [Generate a final pay estimate.](#)
- [Perform workflow actions to implement the business process for final pay estimates.](#)
- [Generate pay estimate reports.](#)

11.9.3.2. Pay Estimate Settings

Using the pay estimate **Settings** page, you can define the following:

- Allow the pay estimate quantity to be greater than the contract quantity of the item.
- The limit beyond the contract amount up to which pay estimates can be processed.
- Retention percentage in pay estimates.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Billings & Payments**.
5. In the navigation pane, click **Pay Estimates**.

The **PAY ESTIMATES LIST** page is displayed.

6. Click **Settings**.

The **SETTINGS** page is displayed.

Settings Page

The screenshot shows the 'SETTINGS' page with the title 'CONTROL PAY ESTIMATE GENERATION'. It includes sections for 'Pay Estimate For Prime Contractor' (radio buttons for 'From Item Postings' and 'Approved Postings', with 'From Item Postings' selected), 'Allow Pay Estimate Quantity greater than Contract Quantity' (checkbox, unchecked), 'Pay Estimate % above Contract' (text input box showing '0.00%'), and 'Retention Percentage' (text input box showing '0.00%').

7. To allow the item quantity in the pay estimate to be greater than that of the item quantity defined in the contract, select the **Allow Pay Estimate Quantity greater than Contract Quantity** check box.
8. To define the percentage of the amount that can be paid in pay estimates in excess of the contract amount, in the **Pay Estimate % above Contract** box, enter the percentage value.
9. To define the retention percentage in pay estimates of that contract, in the **Retention Percentage** box, enter the retention percentage on the net work done in the pay estimate.

Note: By default, the **Retention Percentage** box displays the retention percentage value as defined in the Administration module. For information on pay estimate configuration settings, see [Contract Management](#).

The retention percentage of all new pay estimates generated in that contract is always set to the defined retention percentage.

10. Click **Save**.
11. Click **Back** to return to the **PAY ESTIMATES LIST** page.

11.9.3.3. Generating a Pay Estimate

- Contract items are locked.

- You can generate only one pay estimate for a selected date range.

Pay estimates are generated periodically to pay contractors for the work done. Work done is measured from approved item postings. Generating a pay estimate depends on the [Pay Estimate Settings](#) for the contract.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Billings & Payments**.
5. In the navigation pane, click **Pay Estimates**.

The **PAY ESTIMATES LIST** page is displayed.

6. Click **New**, and then click **New Pay Estimate**.

New Pay Estimate Page

NEW PAY ESTIMATE

Save & Exit Save & Continue Cancel Workflow Select Actions

Contractor : HAWKINS CONSTRUCTION CO

Pay Estimate Number : 1

From Date : 01/01/2020

To Date : 01/01/2020 **Generate**

OVERVIEW

Net Work Done (C) : \$ 0.00

Retainage deduction (Calculated on C) : in % in Amount

Retainage Retention % : 10.00

Retainage Retention \$: 0.00

Release previously held Retentions (\$ 0.00) : in % in Amount

Retainage Release % : 0.00

Retainage Release \$: 0.00

NET AFTER RETAINAGE (D) : \$ 0.00

Total Advance Payments : \$ 0.00

Total Adjustments : \$ 0.00

Total Advance Recovered : \$ 0.00

NET TO BE PAID IN THIS BILL (E) : \$ 0.00

WORK DONE ADVANCE PAYMENTS ADJUSTMENTS ADVANCE RECOVERIES NOTES

<input type="checkbox"/>	Line No.	Pay Item No.	Description	Posting Date	Quantity	Rate in \$	Amount in \$
No records to display.							

The **NEW PAY ESTIMATE** page displays the following non-editable fields:

Field	Description
Contractor	The Prime Contractor selected for the project.
Pay Estimate Number	The sequential order of the estimate generated.

Field	Description
From Date	<p>For the first pay estimate, the date the contract item list was locked.</p> <p>For subsequent pay estimates, the date the previous pay estimate was generated plus one day.</p> <p>Note: You cannot select the From Date as you cannot have overlapping dates to generate pay estimates. That is, you can generate only one pay estimate for a selected time period.</p>

7. Provide the required information in the fields, as described in the following table.

Field	Description
To Date	Select the date up to which the pay estimate must be generated.
Invoice No	Enter the invoice number associated with the pay estimate.
Cheque Date	Select the date on which the cheque was issued for the payment.
Cheque No	Enter the sequential number of the cheque.

8. Click **Generate** to view the approved item postings that are made in the selected period.

The **Work Done** tab displays the list of all approved item postings that have not been included in any previous pay estimates and have **Posted Date** on or before the pay estimate's **To Date**.

9. Optionally, to delete item postings that are not relevant to the pay estimate, select the appropriate item postings, and then click **Delete**.

The **TOTAL WORK DONE INCLUDED IN THIS BILL (A)** displays the sum of all item postings displayed in the **Work Done** tab.

10. To withhold part of the amount payable, in the **Hold Payment in this BILL (calculated on (A))** section, click **%**, and enter the percentage of the total bill to be held.

Alternatively, click **Amount in \$**, and enter the amount to be held.

The amount held can be released in subsequent pay estimates using the **Release previously held payment** option.

11. To specify the release amount of the previously held amount, in the **Release previously held payment** section, click %, and enter the percentage of the held amount to be released.

Alternatively, click **Amount in \$**, and enter the amount to be released.

Note: This field is unavailable if there is no amount remaining of previously held amounts to be released.

The **NET WORKDONE PAYMENT IN THIS BILL (B)** is calculated as the difference between the **TOTAL WORK DONE INCLUDED IN THIS BILL (A)** and **Hold Payment in this BILL (calculated on (A))** amount, plus **Release previously held payment**.

In the **Overview** section, **Net Work Done (C)** is the same as **NET WORKDONE PAYMENT IN THIS BILL (B)**.

12. To retain part of the payable amount, in the **Retainage deduction (Calculated on C)** section, click %, and enter the percentage of the **Net Work Done (C)** amount to be retained.

Alternatively, click **Amount in \$**, and enter the amount to be retained.

Note:

- This field is not available if there is no amount remaining of previously held amounts to be released.
- By default, the retainage percentage as defined in the [SETTINGS](#) page is displayed.

13. The **Release previously held retentions (\$ <value>)** displays the previously held retainage value.

To release the specified amount from the previously held retainage amount, select and change either the % value or the **Amount in \$**.

The **NET AFTER RETAINAGE (D)** is calculated as the difference between the sum of **Net Work Done (C)** and released retention amount, and the **Retainage Deduction**.

14. To view the MOHs associated with the pay estimate, click the **Advance Payments** tab.

This section displays all approved MOH records that have not been included in any previous pay estimates and have **Approved On** date on or before the pay estimate's **To Date**.

15. To enter adjustment details pertaining to the pay estimate, click the **Adjustments** tab, and then perform the following steps:

Note: Adjustments amount is not considered in the retention calculations.

- a. Click **Add** to add an adjustment amount.

The **Adjustments List** dialog box is added.

Available options are adjustment types defined in the **Adjustments** library catalog.

- b. Select the appropriate adjustment types, and click **Select**.
- c. In the **Description** column, enter the description of the adjustment.
- d. In the **Amount in \$** column, enter the adjustment amount.

Note: Prefix the adjustment value with - (Minus sign) to denote deductions.

16. Click the **Advance Recoveries** tab to view the recoveries section.

Note: The complete MOH amount can be recovered in the next pay estimate without posting the item.

17. Double-click and enter the recovery amount in the **Recover In This Bill in \$** cell.

18. Enter any additional information in the **Notes** tab if required.

19. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

20. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Pay Estimate Workflow](#).

11.9.3.4. Generating the Final Pay Estimate

- The final pay estimate can be generated for a contract only if the following tasks are completed.

Form	Validation	Type
Contract Items	All items should be marked as Complete .	Mandatory
Change Orders	All change orders should be in the Approved workflow status.	Mandatory

Form	Validation	Type
Balance Change Order	Approved balance change order should exist.	Mandatory
Request for Proposal	All RFPs should be in the Approved workflow status.	Mandatory
Item Posting	All item postings and DPRs should be in the Approved workflow status.	Mandatory
Materials on Hand	All materials on hand records should be in the Closed workflow status.	Mandatory
Pay Estimates	All regular pay estimates should be in the Approved workflow status.	Mandatory
Request for Information	All RFIs should be in the Approved workflow status.	Optional
Submittals	All submittals should be in the Approved workflow status.	Optional
Transmittals	All transmittals should be in the Approved workflow status.	Optional
Punch List	All the Punch List records for the selected contract should be in the Closed workflow status.	Optional

All task types marked as **Mandatory** must be completed, and all task types marked as **Optional** must be completed based on the settings as defined in the **Administration** module. For information on pay estimate configurations, see [Contract Management](#).

The Final Pay Estimate is generated at the end of a project when it is certified that the quantities for payment in this estimate have been properly completed, and the contract is ready to be closed. The value of the Final Pay Estimate is calculated based on the pending Pay Estimate amounts, and the remaining Advance Recoveries and Retention amounts to be released. The final pay estimate, at the end of a project, determines whether the project owner owes money to the contractor, or contrariwise. The final pay estimate also determines the pending recovery for all the advances paid.

At the end of a contract, the final pay estimate lists all pending transactions in a single pay estimate. Only one final pay estimate can be generated for a contract.

Note the following factors when creating a Final Pay Estimate:

- You cannot select a **To Date** earlier than the latest in all **Posting Dates** and **Advance Recovery Dates**.
- The **Generate** button is not available as all pending records (from **Item Postings** and **Advance Recoveries**) are automatically calculated and generated.
- All past amounts held or retained are released. You cannot edit the amount to be released.
- You cannot retain or withhold any amounts.
- No new advances can be included in the **Final Pay Estimate**, and therefore the **Advances** tab is not available.
- You can add **Adjustments** and enter **Notes**.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Billings & Payments**.
5. In the navigation pane, click **Pay Estimates**.

6. Click **New**, and then click **New Final Pay Estimate**.

New Final Pay Estimate Page

NEW FINAL PAY ESTIMATE

Save & Exit Save & Continue Cancel Workflow Select Actions

Contractor : HAWKINS CONSTRUCTION CO

Pay Estimate Number : 1 [Final Pay Estimate]

From Date : 01/01/2020

To Date : 01/01/2020

OVERVIEW

Net Work Done (C) : \$ 0.00

Release previously held Retentions (\$ 0.00) : \$ 0.00

NET AFTER RETAINAGE (D) : \$ 0.00

Total Adjustments : \$ 0.00

Total Advance Recovered : \$ 0.00

NET TO BE PAID IN THIS BILL (E) : \$ 0.00

WORK DONE ADJUSTMENTS ADVANCE RECOVERIES NOTES

<input type="checkbox"/>	Line No.	Pay Item No.	Description	Posting Date	Quantity	Rate in \$	Amount in \$
No records to display.							
							0.00

TOTAL WORK DONE INCLUDED IN THIS BILL (A) : \$ 0.00

Release previously held payment (\$ 0.00) : \$ 0.00

NET WORKDONE PAYMENT IN THIS BILL (B) : \$ 0.00

ATTACHMENTS

[Attachment icons: trash, edit, download, search, etc.]

The **NEW FINAL PAY ESTIMATE** page displays the following non-editable fields:

Field or Tab	Description
Contractor	The Prime Contractor selected for the project is displayed.
Pay Estimate Number	The sequential order of the estimate generated is displayed.

Field or Tab	Description
From Date	<p>For the first pay estimate, the date the contract item list is locked is displayed.</p> <p>For subsequent pay estimates, the date the previous pay estimate was generated plus one day is displayed.</p> <p>Note: You cannot select the From Date as you cannot have overlapping dates to generate pay estimates. That is, you can generate only one pay estimate for a selected time period.</p>
Net Work Done (C)	Sum of all work done and previously held payments.
Release Previously Held Retentions	Sum of all previously held retentions.
Overview section - NET AFTER RETAINAGE (D)	Sum of Net Work Done and Released Retentions .
Net to be paid in this bill (E)	Sum of Net After Retainage and Total Adjustments .
Work Done tab - TOTAL WORK DONE INCLUDED IN THIS BILL (A)	All pending item postings that have not been included in any previously approved pay estimates are displayed.
Work Done tab - Release previously held payment	<p>The sum of all previously held payments is displayed.</p> <p>All previously held payments are released in the final pay estimate.</p>
Work Done tab - NET WORKDONE PAYMENT IN THIS BILL (B)	The sum of TOTAL WORK DONE INCLUDED IN THIS BILL (A) value and Release previously held payment value.
Adjustments tab - Total Adjustments	The sum of all adjustment amounts is displayed.

Field or Tab	Description
Advance Recoveries tab - Total Advance Recovery	The sum of all pending advance recoveries from MoH payments is displayed. Note: Since all pending recoveries are listed, for each column, the Remaining Amount in \$ is the same value as Recover in this Bill in \$.

7. From the **To Date** drop-down box, click the date up to which the pay estimate is being created.
8. To enter adjustment details pertaining to the pay estimate, click the **Adjustments** tab.
 - a. Click **Add** to add an adjustment amount.

Note: Prefix the adjustment value with - (Minus sign) to denote deductions.

- b. Click the appropriate adjustment type, and click **Select**.
- c. Enter the **Amount in \$** to specify the amount.
9. To enter any notes on the final pay estimate, click the **Notes** tab, and in the box enter the appropriate notes.
10. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).
11. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.
To perform workflow actions, see [Final Estimate Workflow](#).

11.9.3.5. Pay Estimate Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Pay Estimates** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-
2	Submitted	Approve	Approved	-

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
		Re-Draft	Draft	
3	Approved	Close	Closed	-
		Undo Approve	Draft	

11.9.3.6. Final Pay Estimate Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Final Pay Estimate** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-
2	Submitted	Approve	Approved	-
		Re-Draft	Draft	
3	Approved	Close	Closed	-
		Undo Approve	Draft	

11.9.3.7. Generating Pay Estimate Reports

You can generate various pay estimate reports that illustrate various information views.

1. In the module menu, click **Projects**.
The **PROJECTS** list page is displayed.
2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Billings & Payments**.
5. In the navigation pane, click **Pay Estimates**.
6. Select a pay estimate.
7. Click **Reports**, and then click the appropriate report.

For more information about reports, see [Standard Report Functions](#).

You can generate the following reports:

- [Overview Report](#).
- [Details Report by Container](#).
- [Details Report by Group](#).

11.9.3.7.1. Pay Estimate Overview Report

The Pay Estimate Overview report provides an overview of the selected pay estimate.

The following information is displayed:

- Project Name - Name of the project.
- Project Code - Identification code of the project.
- Contract Code - Identification code of the contract for which the pay estimate was generated.
- Contractor - Prime contractor of the contract.
- Pay Estimate Number - Identification number of the pay estimate.
- Construction Through - Range of dates for which the pay estimate was generated.
- Comments - Notes from the pay estimate.
- Original Contract Amount
 - Upto previous - The original contract value.
 - Current - Not applicable.
 - Total - Not applicable.
- Net Change by Change Order
 - Upto previous - Total value of all approved change order amounts up to the previous pay estimate date.
 - Current - Total value of all change order amounts approved since the previous pay estimate date.
 - Total - Total value of all approved change orders inclusive of the current approved change order amount.
- Contract Amount to Date
 - Upto previous - Not applicable.
 - Current - Not applicable.
 - Total - Current contract value inclusive of all approved change order amounts.
- Total Work Completed
 - Upto previous - Work completed up to the previous pay estimate date.
 - Current - Work completed in the current pay estimate.
 - Total - Total of work done; that is, the sum of the current pay estimate amount and the all the previous pay estimate amounts.
- Hold Amount
 - Upto previous - Amount on hold up to the previous pay estimate.
 - Current - Amount on hold in current pay estimate.
 - Total - Total of all amounts held; that is, the sum of amounts held in all the previous pay estimates and the current pay estimate.

- Hold Release
 - Upto previous - Amount released from the held amount up to the previous pay estimate.
 - Current - Amount released from the held amount in the current pay estimate.
 - Total - Total amount released from the held amount; that is, the sum of amounts held in all the previous pay estimates and the current pay estimate.
- Material On Hand (Payment)
 - Upto previous - MOH amount paid up to the previous pay estimate.
 - Current - MOH amount paid in the current pay estimate.
 - Total - Total of all MOH amounts paid; that is sum of all MOH payments made up to the previous pay estimates and the MOH payment made in the current pay estimate.
- Material On Hand (Recovery)
 - Upto previous -Amount of MOH recovered up to the previous pay estimate.
 - Current - Amount of MOH recovered in the current pay estimate.
 - Total - Total amount of MOH recovered in all the previous and the current pay estimate.
- Adjustments
 - Upto previous - Adjustment amount up to the previous pay estimate.
 - Current - Adjustment amounts in the current pay estimate.
 - Total - Total amount of adjustments in all the previous and the current pay estimate.
- Total amount before Retainage:
 - Upto previous - Calculated as: [Total Work Completed - Hold Amount + Hold Release] up to the previous pay estimate.
 - Current - Calculated as: [Total Work Completed - Hold Amount + Hold Release] in the current pay estimate.
 - Total - Calculated as: [Total Work Completed - Hold Amount + Hold Release] in the previous and current pay estimate.

- Retainage [n]%-
 - n%: Percentage retention from selected PE
 - Upto previous - Calculated as: n% of [Total Work Completed - Hold Amount + Hold Release] up to the previous pay estimate.
 - Current - Calculated as: n% of [Total Work Completed - Hold Amount + Hold Release] in the current pay estimate.
 - Total - Calculated as: n% of (Sum of 'Up to Previous' value and the Current value of [Total Work Completed - Hold Amount + Hold Release]) in the previous and selected pay estimate.
- Total Less Retainage - Difference between the [Total Amount before Retainage] value and the [Retainage n%] value in the previous and selected pay estimate.
- Retainage Release
 - Upto previous - Retainage amount released up to the previous pay estimate.
 - Current - Retainage released in the current pay estimate.
 - Total - Total of retainage released in all previous and the current pay estimate.
- Payment Due
 - Upto previous - Not applicable.
 - Current - Calculated as the sum of [Total Less Retainage] value and the [Retainage Release] value.
 - Total - Not applicable.

11.9.3.7.2. Details Report by Container

The Details Report by Container displays the pay estimate break up for the selected pay estimate, for each contract item.

The following information is displayed:

- Project Code - The identification code of project for which the pay estimate was generated.
- Project Name - The name of the project for which the pay estimate was generated.
- Contract Number - The identification code of the contract for which the pay estimate was generated.
- Contract Name - The name of the contract for which the pay estimate was generated.
- Contractor - The prime contractor of the contract for which the pay estimate was generated.
- Pay Estimate Number - Identification code of the selected pay estimate.
- Run Date - Date on which the report is generated.
- Construction Through - The date range for which the pay estimate was generated.
- Container Name - Name of the container. Items are grouped by container.

- Line No/ Pay Item No/ Description - Details of the contract item.
- Estimated Quantity - This column displays 2 of quantities:
 - Quantity of item at the time of the contract was locked.
 - Change in quantities through approved change orders. These values are appended by a delta (Δ) symbol.
- Unit - Unit of measure used to quantify the contract item.
- Unit Price in \$ - Unit price of the contract item.
- Estimated Value in \$ - Value of the contract item. This is calculated as Unit Price x Quantity.
- Quantity
 - Upto Previous - Calculated as Quantity of Work Done on the contract item up to the previous pay estimate.
 - Current - Calculated as Quantity of Work Done on the contract item in the selected pay estimate.
 - Cumulative - Calculated as cumulative value of Quantity of Work Done on the contract item.
- Amount in \$
 - Upto Previous - Calculated as Work Done (in \$) on the contract item up to the previous pay estimate.
 - Current - Calculated as Quantity of Work Done (in \$) on the contract item in the selected pay estimate.
 - Cumulative - Calculated as the cumulative value of Quantity of Work Done (in \$) on the contract item.
 - Remaining Work - Quantity calculated as Estimated Quantity - Cumulative Quantity (of Work Done).
 - Value in \$ - Calculated as the Estimated Value in \$ - Cumulative Amount in \$.

Totals are displayed at:

- Item level
- Container level
- Grand Total

Summary by Container

The following information is displayed:

- Description - The container name.
- Estimated Value in \$ - Total contract value of items in the container.

- Amount in \$
 - Upto Previous - Calculated as Total Work Done (in \$) on the contract items up to the previous pay estimate.
 - Current - Calculated as Total Quantity of Work Done (in \$) on the contract items in the selected pay estimate.
 - Cumulative - Calculated as the Total Cumulative Value of Quantity of Work Done (in \$) on the contract item.
 - Remaining - For the Contract Items (Estimated Value in \$ - Cumulative Amount in \$).

Adjustments

The following information is displayed:

- Adjustment - The name of the adjustment.
- Description - The description of the adjustment.
- Upto Previous - The sum of adjustments up to the previous pay estimate.
- Current - Adjustments in the current pay estimate.
- Cumulative - Total value of adjustments (Up to Previous + Current).

Items Newly Added

The following information is displayed:

- Line No - Line number of the added item.
- Pay Item No - Pay item number of the added item.
- Description
 - Quantity - Quantity of the added item.
 - Unit - Unit of measure of the added item.
 - Unit Price in \$ - Unit price in \$ of the added item.
 - Amount in \$ - Amount in \$ of the added item.

Summary of NC Items

The following information is displayed:

- Line No - Line number of the non-contract item.
- Pay Item No - Pay item number of the non-contract item.
- Description
 - Quantity - Quantity of the non-contract item.
 - Unit - Unit of measure of the non-contract item.
 - Unit Price in \$ - Unit price of the non-contract item.
 - Amount in \$ - Amount of the non-contract item.

Advance Details

The following information is displayed:

- Advance Description - Description of the advance paid.
- Paid Amount in \$ - Advance amount paid.
- Previous Recovery Amount in \$ - Advance recovered up to the previous pay estimate for the advance.
- Current Recovery Amount in \$ - Advance recovered in the selected pay estimate.
- Total Recovery Amount in \$ - Total amount recovered. That is, sum of amount recovered in all the previous and current pay estimate.

Hold Details

The following information is displayed:

- Hold - Description of hold amount.
- Hold Amount in \$ - Hold amount up to previous pay estimate.
- Current Hold Amount in \$ - Hold amount up to previous pay estimate.
- Total Hold Amount in \$ - Total hold amount recovery (Upto Previous + Current).

Prev Hold Details

The following information is displayed:

- Pay Estimate Number - Pay estimate number.
- To Date - Amount held to date.
- Previous Hold Amount in \$ - Hold amount up to previous pay estimate.

Hold Release Details

The following information is displayed:

- Hold - Hold Release.
- Previous Hold Release Amount in \$ - Amount released up to the previous pay estimate.
- Current Hold Release Amount in \$ - Amount released in current pay estimate.
- Total Hold Release Amount in \$ - Total amount released; that is amount released in all previous pay estimates and the current pay estimate.

Prev Hold Release Details

The following information is displayed:

- Pay Estimate Number - Pay estimate number.
- To Date - To date of pay estimate.
- Previous Hold Release Amount in \$ - Amount released up to previous pay estimate.

Retainage Details

The following information is displayed:

- Retainage - Retainage
- Previous Retention Amount in \$ - Amount retained up to the previous pay estimate.
- Current Retention Amount in \$ - Amount retained in the current pay estimate.
- Total Retainage Amount in \$ - Total retention amount in all previous pay estimates and the current pay estimate.

Prev Retainage Details

The following information is displayed:

- Pay Estimate Number - Pay estimate number.
- To Date - Date until when the pay estimate is generated.
- Previous Retention Amount in \$ - Retainage amount up to previous pay estimate.

Retainage Release Details

The following information is displayed:

- Retainage Release - Retainage amount that is released.
- Previous Retention Release Amount in \$ - Retention amount released up to previous pay estimate.
- Current Retention Release Amount in \$ - Retention amount released in current pay estimate.
- Total Retainage Release Amount in \$ - Total retention released in all previous and current pay estimate.

Prev Retainage Release Details

The following information is displayed:

- Pay Estimate Number - Pay estimate number.
- To Date - Date until when the pay estimate is generated.
- Previous Retainage Release Amount in \$ - Retainage amount released up to previous pay estimate.

11.9.3.7.3. Details Report by Group

The Details Report by Group displays the pay estimate break up for the selected pay estimate, for each contract item.

The following information is displayed:

- Project Code - The identification code of the project for which the pay estimate was generated.

- Project Name - The name of project for which the pay estimate was generated.
- Contract Number - The identification code of the project for which the pay estimate was generated.
- Contract Name - The name of the contract for which the pay estimate was generated.
- Contractor - The prime contractor of the contract for which the pay estimate was generated.
- Pay Estimate Number - Pay estimate number of the selected pay estimate.
- Run Date - Date on which the report is generated.
- Construction Through - Date range for which the pay estimate is generated.
- Group Name - Name of the group. Items are grouped by pay item groups.
- Line No/ Pay Item No/ Description - These are the details of the contract item.
- Estimated Quantity - This column displays 2 of quantities:
 - Quantity of item at the time of the contract was locked.
 - Change in quantities through approved change orders. These values are appended by a delta (Δ) symbol.
- Unit - Unit of measure used to quantify the contract item.
- Unit Price in \$ - Unit price of the contract item.
- Estimated Value in \$ - Value of the contract item. This is calculated as Unit Price x Quantity.
- Quantity
 - Upto Previous - Calculated as Quantity of Work Done on the contract item up to the previous pay estimate.
 - Current - Calculated as Quantity of Work Done on the contract item in the selected pay estimate.
 - Cumulative - Calculated as the cumulative value of the Quantity of Work Done on the contract item.
- Amount in \$
 - Upto Previous - Calculated as Work Done (in \$) on the contract item up to previous pay estimate.
 - Current - Calculated as Quantity of Work Done (in \$) on the contract item in the selected pay estimate.
 - Cumulative - Calculated as the cumulative value of Quantity of Work Done (in \$) on the contract item.
 - Remaining Work - Quantity calculated as Estimated Quantity - Cumulative Quantity (of Work Done).
 - Value in \$ - Calculated as the difference of the Estimated Value in \$ and the Cumulative Amount in \$.

- Remaining Work
 - Quantity - Calculated as Estimated Quantity - Cumulative Quantity (of Work Done).
 - Value in \$ - Calculated as Estimated Value in \$ - Cumulative Amount in \$
- Totals are displayed at:
 - Item level
 - Container level
 - Grand Total

Summary by Group

The following information is displayed:

- Description - Group name.
- Estimated Value in \$ - Total contract value of items in the group.
- Amount in \$
 - Upto Previous - Calculated as Total Work Done (in \$) on the contract items up to the previous pay estimate.
 - Current - Calculated as Total Quantity of Work Done (in \$) on the contract items in selected pay estimate.
 - Cumulative - Calculated as Total Cumulative - Calculated as value of Quantity of Work Done (in \$) on the contract item.
 - Remaining - Calculated as Estimated Value in \$ - Cumulative Amount in \$ for the contract items.

Adjustments

The following information is displayed:

- Adjustment - Adjustment name.
- Description - Description of the adjustment.
- Upto Previous - Sum of adjustments up to the previous pay estimate.
- Current - Adjustments in the current pay estimate.
- Cumulative - Total value of adjustments; that is sum of adjustments up to the previous pay estimate and the current pay estimate.

Items Newly Added

The following information is displayed:

- Line No - Line number of the added item.

- Pay Item No - Pay item number of the added item.
- Description
 - Quantity - Quantity of the added item.
 - Unit - Unit of measure of the added item.
 - Unit Price in \$ - Unit price of the added item.
 - Amount in \$ - Amount of the added item.

Summary of NC Items

The following information is displayed:

- Line No - Line number of the non-contract item.
- Pay Item No - Pay item number of the non-contract item.
- Description
 - Quantity - Quantity of the non-contract item.
 - Unit - Unit of measure of the non-contract item.
 - Unit Price in \$ - Unit price of the non-contract item.
 - Amount in \$ - Amount of the non-contract item.

Advance Details

The following information is displayed:

- Advance Description - Description of the advance.
- Paid Amount in \$ - Advance amount paid.
- Previous Recovery Amount in \$ - Advance recovered up to the previous pay estimate for the advance paid.
- Current Recovery Amount in \$ - Advance recovered in the selected pay estimate.
- Total Recovery Amount in \$ - Total amount recovered. That is, sum of amount recovered in all previous and current pay estimate.

Hold Details

The following information is displayed:

- Hold - Description of the amount held.
- Hold Amount in \$ - Amount held up to the previous pay estimate.
- Current Hold Amount in \$ - Amount held in the current pay estimate.
- Total Hold Amount in \$ - Total amount held; that is sum of amounts held in all previous and current pay estimate.

Prev Hold Details

The following information is displayed:

- Pay Estimate Number - Identification code of the pay estimate.
- To Date - Amount held to date.
- Previous Hold Amount in \$ - Hold amount up to previous pay estimate.

Hold Release Details

The following information is displayed:

- Hold - Hold Release.
- Previous Hold Release Amount in \$ - Amount released up to previous pay estimate.
- Current Hold Release Amount in \$ - Amount released in current pay estimate.
- Total Hold Release Amount in \$ - Total amount released; that sum of amount released in all previous pay estimates and current pay estimate.

Prev Hold Release Details

The following information is displayed:

- Pay Estimate Number - Identification code of the pay estimate.
- To Date - Date until when the pay estimate is generated.
- Previous Hold Release Amount in \$ - Amount released up to the previous pay estimate.

Retainage Details

The following information is displayed:

- Retainage - Retainage.
- Previous Retention Amount in \$ - Retention implemented up to previous pay estimates.
- Current Retention Amount in \$ - Retention in \$ applied in current pay estimate.
- Total Retainage Amount in \$ - Total retention amount; that is sum of amounts retained in all previous pay estimates and the current pay estimate.

Prev Retainage Details

The following information is displayed:

- Pay Estimate Number - Identification code of the pay estimate.
- To Date - Date until when the pay estimate is generated.
- Previous Retention Amount in \$ - Retainage amount up to previous pay estimate.

Retainage Release Details

The following information is displayed:

- Retainage Release - Retainage that is released.

- Previous Retention Release Amount in \$ - Retention released up to previous pay estimate.
- Current Retention Release Amount in \$ - Retention released in \$ applied in current pay estimate.
- Total Retainage Release Amount in \$ - Total retention released (Up to previous pay estimate + current pay estimate).

Prev Retainage Release Details

The following information is displayed:

- Pay Estimate Number - Pay estimate number.
- To Date - Date until when the pay estimate is generated.
- Previous Retainage Release Amount in \$ - Retainage amount released up to the previous pay estimate.

11.10. Punch List

11.10.1. Punch List

The **Punch List** form enables you to record the details of incomplete work items, work items deviating from contract specifications, incidental damages, and tasks that need to be addressed prior to the closure of the contract. Also, you can use map markers to mark the location of the punch item.

You can perform the following tasks:

- [Create a punch list](#).
- [Perform workflow actions to implement the business process](#).

11.10.2. Creating a Punch List

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the required contract folder, and then click **Punch List**.

The **PUNCH LIST** page is displayed.

5. Click New.

Punch List Page

PUNCH LIST

Save & Exit Save & Continue Cancel Workflow Select Actions

Project Code : PR-39333	Project Name : Widen Tranco Road project
Contract Code : PR-39333	Contract Name : Widen Tranco Road wide
ID : <Auto Generated>	Initiated By * : Smith <input type="text"/>
Punch Item * : <input type="text"/>	
Description : <input type="text"/>	
Created On : 10/23/2023	Created By : Smith
Due Date * : None <input type="button"/>	

LOCATION

Add Feature: Select

No write layers configured for the map. Please visit [here](#) to do the configuration.

Map View

Base Map: Topographic M

Layer(s):
BRIDGE
CIP
USA MAP SERVER
WATERNETWORKGROUPLAYERS

Note: Layer(s) displayed in blue will only display features added in other records of this form

The **PUNCH LIST** page displays the following non-editable fields:

Field	Description
Project Code	The identification code of the project.
Project Name	The name of the project.
Contract Code	The identification code of the contract.
Contract Name	The name of the contract.
ID	On saving the record, an identification code for the record is automatically generated.
Created On	The current date.
Created By	The name of the logged-in user.

6. If the punch list item is being initiated by a different user than the logged-in user, then in the **Initiated By** box, perform the following steps:

- a. Corresponding to the displayed user name, click .
- b. Click and select the required user.

Alternatively, type the name of the user, and then select the required user.

Available user names are of users invited to the contract.

7. In the **Punch Item** box, enter the title for the punch item.

8. In the **Description** box, enter the details of the punch item.

9. From the **Due Date** drop-down box, select the date by when the punch item must be addressed.

When the **Due Date** is crossed, an email is sent to the user selected in the **Initiated By** field.

10. In the **LOCATION** section, add the location details of the punch item.

To add the location of the punch item, see [Managing Project Location Details on a Map](#).

11. To link the records of the forms in the project, in the **LINKED RECORDS** section, perform the following steps:

- a. Click **Add**.

The **SEARCH FORM** page is displayed.

Search Form Page

A screenshot of a web-based application interface titled "Search Form Page". At the top, there is a toolbar with icons for "Search", "Back", and "Reset". Below the toolbar, a dark grey header bar contains the text "SEARCH FORM". Underneath the header, there is a search input field with the placeholder text "Form : Type here to filter Forms".

- b. In the **Form** field, click and select the form you want to associate.

Alternatively, type the name of the form, and then select the appropriate form.

Available forms in the list are forms with the **IsSearchable** form attribute set to **True**. For additional information on form attributes, see [Form Builder](#).

All fields available in the selected form are displayed. To associate records, you can search for records of the form.

- c. In the form fields, enter the appropriate criteria to search.
- d. Optionally, expand the **Filter By Attachment** and **Filter By Workflow Status** sections, and enter additional criteria to search.
- e. In the toolbar, click **Search**.

The information that matches the criteria is displayed in the **SEARCH RESULTS** section. Search results contain information of only projects you are invited to.

- f. Optionally, to clear existing search results to search with new criteria, click **Reset**.
- g. In the **SEARCH RESULTS** section, select the appropriate records, and then click **Link**.

The selected records are added to the **LINKED RECORDS** section.

Note: To view the details of a linked record, in the **Record Identifier** column, click the appropriate hyperlink.

12. To add comments to the punch item, in the **COMMENTS** section, perform the following steps:

- a. Click **Add**.

The **New Comments** dialog box is displayed.

The **Created By** field displays the name of the logged in user.

The **Created On** field displays the current date.

- b. In the **Comments** box, enter any comments for the punch item.
- c. Click **Save**.

13. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

14. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

11.10.3. Punch List Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Punch List** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-
2	Submitted	Complete	Completed	-
3	Completed	Close	Closed	-
		Resubmit	Submitted	

11.11. Issue Tracking

11.11.1. Punch List

A punch list is generally a list of tasks or "to-do" items. Towards the closure of project, an inspection is conducted and a punch list is created which comprises incomplete or unsatisfactory work items. Masterworks enables tracking and maintaining a punch lists for each project. If all punch list records have the status set to **Complete**, then the punch list is considered completed.

11.11.2. Creating a Punch List

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the required project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, expand the required contract folder, and then expand the **Issue Tracking** folder.

5. In the navigation pane, click **Punch List**.

The **PUNCH LIST** list page is displayed.

6. Click **New**.

Punch List Page

The screenshot shows the 'PUNCH LIST' page. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these are several input fields and dropdown menus:

- Item * :** A dropdown menu set to 'Select'.
- Description of Work :** A large text input field.
- Name * :** An input field.
- Initial Date :** A dropdown menu set to '10/23/2023'.
- Description * :** An input field.
- Due Date :** A dropdown menu set to '10/23/2023'.
- Initiating Person :** A dropdown menu set to 'a'.
- Final Date :** A dropdown menu set to '10/23/2023'.
- Responsible Person/Firm :** An input field.
- Status :** A dropdown menu set to 'Complete'.

Below this is a section titled 'PUNCH LOG' containing a table with two columns: 'Date' and 'Notes'. The table has a single row with the message 'No records to display.'

At the bottom of the page are three buttons: 'Add' (highlighted in blue), 'Edit', and 'Delete'.

The **PUNCH LIST** page is displayed.

7. Provide the required information in the fields, as described in the following table.

Field	Description
Item	Select the item for which the punch list is issued. Available options are contract items defined for the contract. For information on contract item, see Contract Items on page 787. On selecting an item, the Description of Work box displays the description of the selected contract item.
Name	Enter the name of the authority responsible for the work
Initial Date	Select the initial date for the activity.
Description	Enter a detailed description of the punch list.
Due Date	Select the due date when the remaining work is required to be completed.
Initiating Person	Enter the name of the person generating the punch list ideally the owner of the project.
Final Date	Select the final date for completion of the pending work.
Responsible Person/Firm	Enter the name of the person or the firm responsible for the creation of the punch list.
Status	Select the status of the pending work.

8. To add a log for the punch list, in the **PUNCH LOG** section, perform the following steps:

- a. Click **Add**.

The **New Punch Log** dialog box is displayed.

- b. In the **Date** box, select the date for the punch log. By default, the current date is displayed.
- c. In the **Notes** box, enter the accompanying notes.
- d. Click **Save**.

9. To edit punch log information or delete a punch log, in the **PUNCH LOG** section, perform either of the following steps:
 - To edit punch log information, perform the following steps:
 - a. Click the appropriate punch log, and then click **Edit**.
The **Edit Punch Log** dialog box is displayed.
 - b. In the **Date** box, select the date for the punch log.
 - c. In the **Notes** box, update the accompanying notes.
 - d. Click **Save**.
 - To delete a punch log entry, perform the following steps:
 - a. Click the appropriate punch log, and then click **Delete**.
The confirmation dialog box is displayed.
 - b. Click **OK**.
The punch log is deleted.
10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

11.12. Generating Contract Reports

You can generate various contract reports that illustrate various information views. These reports enable various project and contract stakeholders to stay up-to-date on the status of the contract.

1. In the module menu, click **Projects**.
2. Double-click the appropriate project.
3. In the navigation pane, expand the project folder, expand the **Contracts** folder, expand the required contract folder.
4. In the navigation pane, click **Contract Report Gallery**.
5. In the **CONTRACT REPORT GALLERY** page, double-click the appropriate report.
The report is generated and displayed.
For information on the various report features available, see [Standard Report Functions](#).

You can generate the following reports:

- [Change Order By Date Report](#)
- [Completed Items Report](#)
- [Contract Summary Report](#)
- [Contractor Summary Report](#)
- [Incomplete Items Report](#)

- [Item Reconciliation Report](#)
- [Rework Items Report](#)
- [Item Postings By Item Progress](#)
- [Item Postings Report](#)

Completed Items Report

You can mark an item as Complete once it is completely utilized using the Item Postings or Change Order forms. This report displays the list of items that are marked Complete in a contract.

The following information is displayed:

- Project Code - Identification code of the project.
- Project Name - The name of the project.
- Contract Code - The identification code of the contract.
- Contract Name - The name of the contract.
- Line No. - The line number of the contract item that is marked Complete.
- Pay Item No. - The pay item number of the contract item that is marked Complete.
- Description - The description of the contract item that is marked Complete.
- Unit - The unit of measure of the contract item that is marked Complete.
- Quantity - The quantity of the contract item that is marked Complete.
- Unit Price (\$) - The unit price of the contract item that is marked Complete.
- Amount (\$) - The amount of the contract item that is marked Complete.
- Total at the Group Level, and the Grand Total of the contract items that are marked Complete.

Incomplete Items Report

You can mark an item as Complete once it is completely utilized using the Item Postings or Change Order forms. This report displays the list of items that are not marked Complete in a contract.

The following information is displayed:

- Project Code - The identification code of the project.
- Project Name - The name of the project.
- Contract Code - The identification code of the contract.
- Contract Name - The name of the contract.
- Line No. - The line number of the contract item that is not marked Complete.
- Pay Item No. - The pay item number of the contract item that is not marked Complete.
- Description - The description of the contract item that is not marked Complete.
- Unit - The unit of measure of the contract item that is not marked Complete.

- Quantity - The quantity of the contract item that is not marked Complete.
- Unit Price (\$) - The unit price of the contract item that is not marked Complete.
- Amount (\$) - The amount of the contract item that is not marked Complete.
- Total at the Group Level, and the Grand Total of the contract items that are not marked Complete.

Item Reconciliation Report

The value of a contract changes with time based on approved change orders. The value of the contract is impacted by the change in quantity of contract items by the addition or removal of change order items.

With the Item Reconciliation Report, you can monitor the changes in each item quantity to analyze its impact to the contract value. This report lists all contract items, grouped by containers. You can filter information displayed in the report using the following filter criteria:

- Select Approved Change Orders to view item information from the original contract and all approved change orders.
- Select All Change Orders to view item information from the original contract and all change orders.
- Select No Change Orders to view item information from the original contract.

Based on the filter criteria selected, the following information is displayed:

- Contract Code - The identification code of the contract.
- Contract Name - The name of the contract.
- Contractor - The prime contractor with the address, city, state, zip code, phone, and fax number information of the contractor.
- Owner - The owner with the address, city, state, zip code, phone, fax number information of the owner.
- Description - Item information, such as:
 - Line No. - Line number of the contract item.
 - Pay Item No. - Pay item number of the contract item.
 - Item Description - Description of the contract item.
- Quantity - Quantity of the incomplete contract item.
- Unit - Unit of measure used for the incomplete contract item.
- Unit Price (\$) - Unit price of the incomplete contract item.
- Estimate Value (\$) - Amount of the incomplete contract item.
- Final Quantities
 - Quantity - Total Quantity (including change orders if selected in the filter criteria).
 - Value (\$) - Total Quantity x Unit Price.

- Increase (\$) - Calculated as the difference between Final Value and Estimated Value if quantity of item has increased.
- Decrease (\$) - Calculated as the difference between Estimated Value and Final Value if quantity of item has decreased.
- Items are grouped by Container.
- Container Total - The total of all items in the container.
- Grand Total - Total of all contract items in the contract. The amount of non-contract items is zero.

Contract Summary Report

You can use the Contract Summary Report to view a short summary of a contract.

The following information is displayed:

- Project Code - The identification code of the project.
- Project Name - The name of the project.
- Contract Code - The identification code of the contract.
- Contract Name - The name of the contract.
- Prime Contractor - The prime contractor of the contract.
- Original Contract Amount - The total of all contract items at the time of locking the contract.
- Current Contract Amount - The total of all contract items, and all approved contract change orders.

Contractor Summary Report

You can use the Contractor Summary Report to view the prime contractor and the list of sub-contractors of the contract.

The following information is displayed:

- Project Code - The identification code of the project.
- Project Name - The name of the project.
- Contract Code - The identification code of the contract.
- Contract Name - The name of the contract.
- Prime Contractor - The prime contractor of the contract .
- Sub Contractors - The list of sub-contractors of the contract.

Change Order By Date Report

This Change Order By Date Report displays the list of all approved change orders part of the contract.

You can filter information in the report using the following filter criteria:

- From Date
- To Date

The following information is displayed:

- Pay Item No. - Name of the existing pay item or the new pay item added in the change order.
- Line No. - Line number of the pay item.
- Description - Description of the pay item.
- Unit - Unit of measure of the pay item.
- Change Order No. - Change order number in the contract.
- Approval Date - The date the change order was approved.
- Proposed Qty - The new quantity of the item that is specified in the change order.

Rework Items Report

The Rework Items Report displays the list of approved change orders that have items marked as rework items.

You can filter information in this report using the following filter criteria:

- From Date
- To Date

The following information is displayed:

- Pay Item No. - Pay item number of the rework pay item.
- Line No. - Line number of the pay item.
- Description - Description of the pay item.
- Unit - Unit of measure of the pay item.
- Change Order No. - Change order number of the rework item.
- Approval Date - Date the change order was approved.
- Quantity - Change in quantity of the rework item.
- Unit Price - Change in unit price of the rework item.
- Total - Total amount for rework item.

Item Postings By Item Progress

The Item Postings By Item Progress Report displays the details of the total progress of the contract and progress of the individual work items to estimate if the contract is on schedule, under budget, and other factors on the progress of the contract.

You can filter information in this report using the following filter criteria:

- Item Groups
- Container

- Non Contract Item
- Containers Expanded

The following information is displayed:

- Project Code - The identification code of the project.
- Project Name - The name of the project.
- Contract Code - The identification code of the contract.
- Contract Name - The name of the contract.
- Container - Name of the container.
- Line No. - The line number of the posted item.
- Pay Item No. - The pay item number of the posted item.
- Description - The description of the of the posted item.
- Total Qty - Total quantity of the of the posted item.
- Posted Qty - Number of items posted.
- Remaining Qty - Quantity of the item remaining. Calculated as the difference of the Total Qty and the Posted Qty.
- Unit - Unit of measure of the posted item.
- %Complete
 - Item progress - Calculated as: Posted Qty / Total Qty.
 - Total progress - Calculated as: Average of Item Progress / Number of items.
- Is Complete? - Displays Y if the item is marked Complete; displays N if the item is not marked Complete.
- Needs Attention? - Displays Y if the item is marked for attention; displays N if the item is not marked for attention.

Item Postings Report

The Item Postings Report displays item postings that are marked for attention, belong to specific contractor, are created by a specific user, are marked complete, or are created on a specific date.

You can filter information in the report using the following filter criteria:

- Container
- Contractor
- Attention
- Inspector
- Posting Date
- Pay Item No
- Is Complete

- Non Contract Item?

The following information is displayed:

- Project Code - The identification code of the project.
- Project Name - The name of the project.
- Contract Code - The identification code of the contract.
- Contract Name - The name of the contract.
- Container - The name of the container.
- Group - The name of the group the item belongs to.
- Pay Item No. - The pay item number of the posted item.
- Description - The description of the of the posted item.
- Total Qty - Total quantity of the of the posted item.
- Posted Qty - Number of items posted.
- Remaining Qty - Quantity of the item remaining. Calculated as the difference of the Total Qty and the Posted Qty.
- Unit - Unit of measure of the posted item.
- From Station - Name of the from station.
- To Station - Name of the to station.
- Posted Date - Dates the item was posted.
- Is Complete? - Displays Y if the item is marked as complete; displays N if the item is not marked as complete.
- Needs Attention? - Displays Y if the item is marked for attention; displays N if the item is not marked for attention.
- Non Contract Item? - Displays Y if the item is a non-contract item; displays N if the item is a contract item.
- Unit Cost in \$ - Unit price of the posted item.
- Cost in \$ - Cost of the items remaining. Calculated as: Remaining Qty * Unit Cost in \$.
- Totals are displayed at:
 - Container
 - Grand Total

11.13. Accessing Contract Dashboards

Contract dashboards provide a quick view of contract information.

The information displayed in dashboards is based on the following criteria:

- Roles – Based on the roles assigned to the user, only selected information is displayed.

- Contracts – Only selected information is displayed for the contracts to which the user is invited.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand the **Contracts** folder.
4. In the navigation pane, click the appropriate contract.

The **CONTRACT DASHBOARD** page is displayed.

5. From the **Select Dashboard** drop-down list, select the appropriate dashboard to view.

The following dashboards are available:

- Financial Summary
- Change Management
- Work Progress
- Billings & Payments

For information on customizing widgets on the planning dashboard, see [Working with Dashboards](#).

12. Work Orders and Contracts

12.1. Work Orders and Contracts

A master contract is awarded to a consultant to implement sections of work in multiple projects in a specified time period. Master contracts are cost and time effective, and also ease the process of project implementation. Master contracts streamline similar sections of work to a single consultant thus decreasing project costs and saving time by minimizing recurring negotiations with multiple consultants for similar sections of work.

The Work Orders and Contracts module enables you to create a master contract for every awarded consultant, establish the price list of services provided by the consultant, and issue work orders to consultants pursuant to the master contract.

Once a master contract is approved, you can issue work orders on the contract. Work orders issued to consultants enable them to implement the assignment defined in the work order for projects identified in the work order.

The Work Orders and Contracts module enables you to initiate work orders for projects from outside the Project module.

You can perform the following tasks:

- [Manage master contracts.](#)
- [Manage work orders.](#)

12.2. Master Contracts

12.2.1. Master Contract

A master contract is a collective agreement the terms of which apply to all projects associated with it over a specific time duration.

You can create a master contract for a consultant awarded to implement sections of work in one or multiple projects in a specified time period. For every master contract, you can create a price list of all the services, goods, or items provided by the consultant.

You can perform the following tasks in the **Master Contracts** module.

- [Create a master contract for a consultant.](#)
- [Create a price list of services, goods, and items provided by the consultant.](#)
- [Perform workflow actions to implement the business process.](#)
- [Revise approved master contracts.](#)

12.2.2. Creating a Master Contract

You can create a master contract for every awarded consultant, and record the price list of services, goods, and items provided by the consultant.

1. In the module menu, click **Work Orders and Contracts**.

The **WORK ORDERS AND CONTRACTS** dashboard is displayed.

2. In the navigation pane, click **Master Contracts**.

The **MASTER CONTRACTS** list page is displayed.

3. Click **New**.

Master Contracts Details Page

The screenshot shows the 'MASTER CONTRACT DETAILS' page. At the top, there are tabs for 'MASTER CONTRACT DETAILS' and 'PRICE LIST'. Below the tabs are standard form controls: Save & Exit, Save & Continue, Cancel, Workflow, Select Actions, and a toolbar. The main area contains the following fields:

Code : <Auto Generated>	Name * :
Awarded Consultant * :	Category * :
Contract Manager * :	Ceiling Value in \$ * :
Start Date * :	End Date * :
Solicitation ID :	Measurement System * :
Created By : MikeRoss	Created On : 10/19/2023 9:08:10 PM
Description :	

Below this section, there is a heading 'WORK ORDERS' followed by a table:

Number	Title	Description	Status	Value in \$
No records to display.				

The **MASTER CONTRACTS DETAILS** page displays the following non-editable fields:

Section Name	Field	Description
-	Code	An automatically generated alphanumeric code that uniquely identifies the master contract.
	Created By	The name of the logged in user.
	Created On	The date and time the master contract is created.
WORK ORDERS	Work Orders	Initially, the section is empty. Once the work orders are created and approved for the master contract, the list of associated work orders are displayed. For information on Work Orders, see Work Orders .

Section Name	Field	Description
	Total Value of Work Orders in \$	Sum of all work order amounts in the Value column.
	Remaining Amount in \$	The remaining amount for which work orders can be issued. The amount is calculated as: Remaining Amount = Ceiling Value - Total Value of Work Orders.

4. Provide the required information in the fields, as described in the following table.

Field	Description
Name	Enter the name of the master contract.
Awarded Consultant	To select the awarded consultant for the master contract, perform the following steps: a. Click  . The Consultants dialog box is displayed. Available options are contractors defined in the Contractors library catalog. For more information, see Contractors . b. Click the required consultant, and then click Select .
Contract Manager	To select the contract manager for the master contract, perform the following steps: a. Click  . The Master Contract Manager dialog box is displayed. Available options are user names of users with the Project Manager role assigned to them. For more information, see User Accounts . b. Click the required user name, and then click Select .
Category	Select the category of the master contract. Available options are categories defined in the Master Contract Category library catalog.

Field	Description
Ceiling Value in \$	<p>Enter the maximum amount for which work orders can be issued on the master contract.</p> <p>Note: The sum of amounts of all the work orders issued to a consultant must not exceed the ceiling value amount.</p>
Start Date	Select the start date of the master contract.
End Date	Select the end date of the master contract.
Solicitation ID	Enter the solicitation identification code of the master contract.
Measurement System	Select the measurement system that will be used in the price list of the services, goods, and items provided by the consultant. Available options are measurement systems defined in the Measurement Systems library catalog. For information, see Measurement Systems .
Description	Enter the description of the master contract.

5. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The **MASTER CONTRACTS** list page is displayed.

You can now add the price list of services, goods, and items provided by the consultant. For information on adding items to a master contract, see [Managing Price List Items](#).

Optionally, you can submit the record for approval even if there is no pay item in the **Price List** tab, provided that, in the **Master Contract Category** library catalog, **Allow Master Contract Approval Without Item(s)** is **Yes**.

To perform workflow actions, see [Master Contract Revision Workflow](#).

12.2.3. Managing Price List Items

12.2.3.1. Managing Price List Items

You can add items, enter the price of each item, and attach relevant reference files and documents to each item.

You can create containers to categorize price list items.

- [Managing Containers](#) on page 971

You can add price list items in various ways.

- [Add a single item](#).
- [Add multiple items](#).

You can also edit item details.

- [Quick edit of details of an item](#).
- [Edit other item details](#).

12.2.3.2. Managing Containers

You can create containers in a price list to categorize items. You can also delete an entire container with the items in it from the price list.

The following topics enable you to manage containers.

- [Create container](#).
- [Delete container](#).

12.2.3.2.1. Creating a Container

You can create containers to categorize price list items.

1. In the module menu, click **Work Orders and Contracts**.
The **WORK ORDERS AND CONTRACTS** dashboard is displayed.
2. In the navigation pane, click **Master Contracts**.
The **MASTER CONTRACTS** list page is displayed.
3. Select the appropriate master contract, and then click **Edit**.
The **MASTER CONTRACTS DETAILS** page is displayed.
4. Click the **PRICE LIST** tab.

- Click **New**, and then click **New Container**.

The **CONTAINER** page is displayed.

Container Page

The screenshot shows the 'CONTAINER' page with the following fields:

- Name ***: A text input field.
- Description :** A text area for notes.
- Notes :** Another text area for notes.
- Parent Container :** A dropdown menu with options:
 - Root
 - Misc

- In the **Name** box, enter the name of the container.
- In the **Description** box, enter the description of the container.
- In the **Notes** box, enter the notes for the container.
- In the **Parent Container** list, click the container in which the current container must be created.

Note: For the first container, the only **Parent Container** option is **Root**.

- Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The container is created.

12.2.3.2.2. Deleting a Container

On deleting a container, the items in the container are also deleted from the price list.

- In the module menu, click **Work Orders and Contracts**.
The **Work Orders and Contracts** dashboard is displayed.
- In the navigation pane, click **Master Contracts**.
The **MASTER CONTRACTS** page is displayed.
- Select the appropriate master contract to add price list items.
- Click **Edit**.

The **MASTER CONTRACTS DETAILS** page is displayed.

5. Click the **PRICE LIST** tab.
6. Select the appropriate container, and then click **Delete**.
A confirmation message is displayed.
7. Click **OK**.

The container and the items in the container are deleted from the price list.

12.2.3.3. Creating a Price List

You can add details and the price of items, services, and good provided by the consultant to a master contract. You can add details of items in the following ways.

- [Manually entering the required information of all items](#)
- [Adding items from the predefined set of standard items from the Masterworks library](#)

12.2.3.3.1. Adding a Price List Item

1. In the module menu, click **Work Orders and Contracts**.

The **WORK ORDERS AND CONTRACTS** dashboard is displayed.

2. In the navigation pane, click **Master Contracts**.

The **MASTER CONTRACTS** list page is displayed.

3. Select the appropriate master contract, and then click **Edit**.

The **MASTER CONTRACTS DETAILS** page is displayed.

4. Click **PRICE LIST** tab.

5. Click **New**, and then click **New**.

Alternatively, to add the item to a selected container, select the required container, click **New**, and then click **New**.

The **NEW PRICE LIST ITEM** page is displayed.

New Price List Item

NEW PRICE LIST ITEM

Save & Exit Save & Continue Save & Create New Cancel

Container :	...
Pay Item No. *	<input type="text"/> Clear
Description *	<input type="text"/>
Unit *	Select
Unit Price in \$ *	<input type="text"/>
Notes :	<input type="text"/>

Select Item from
Standard Item
 Ignore Co

ATTACHMENTS

<input type="checkbox"/>	File View Status	Document Name	Url/Link	Title	Upload
No Attachments available					
	Link Document	Upload Document			

Page 

6. Provide the required information in the fields, as described in the following table.

Field	Description
Container	<p>If you have selected a container, the name of the selected container is displayed.</p> <p>To select a different container, perform the following steps.</p> <ol style="list-style-type: none"><li data-bbox="536 489 743 534">a. Click .<li data-bbox="536 545 1208 590">The SELECT CONTAINER page is displayed.<li data-bbox="536 601 981 646">b. Click the required container. <p>For information on creating a new container, see Creating a Container.</p>
Pay Item No.	<p>Enter the item number.</p> <p>Alternatively, to select an item from the library, perform the following steps.</p> <ol style="list-style-type: none"><li data-bbox="536 938 1410 1073">a. In the Select Item from Library section, from the Standard Item Table drop-down list, select the standard table in which the required item is defined.<li data-bbox="536 1084 1346 1219">Available options for standard item tables are defined in the Standard Items Table library catalog. For more information, see Standard Items Table.<li data-bbox="536 1230 1410 1364">b. Optionally, select the Ignore Containers of Standard Items check box to only select the item and not the container of the item.<li data-bbox="536 1376 1330 1465">If the check box is selected, the item is added to the selected container.<li data-bbox="536 1477 1394 1567">If the check box is cleared, the item and its container are added to the price list.<li data-bbox="536 1578 1394 1712">c. Click Select to select an item from the selected standard items table.<li data-bbox="536 1724 1192 1769">The item selection dialog box is displayed.<li data-bbox="536 1780 1410 1914">Available options are items defined in the selected standard items table that is defined in the Standard Items Table library catalog. For more information, see Standard Items Table.<li data-bbox="536 1926 1092 1971">d. Click an item, and then click Select.<li data-bbox="536 1982 1426 2049">The Pay Item No., Description, Unit, and Unit Price in \$ are displayed.

Field	Description
Description	Enter the description of the item. Item description is displayed automatically if you have selected the item from the library.
Unit	Select the unit of measure for the item. Available options are measurement units defined in the measurement system selected for the master contract. Measurement system of the master contract is defined in the MASTER CONTRACT DETAILS page. For more information, see Measurement Systems .
Unit Price in \$	Enter the cost per unit of the item.
Notes	Enter any additional information relevant to the item.

7. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

8. To save the item, perform any of the following as applicable:

- Click **Save & Exit** to return to the items list page.
- Click **Save & Continue** to save and continue on the same page.
- Click **Save & Create New** to save the current item and continue creating a new item.

12.2.3.3.2. Adding Multiple Price List Items

To save time and effort, you can add multiple price list items at once from the library to the master contract.

1. In the module menu, click **Work Orders and Contracts**.

The **WORK ORDERS AND CONTRACTS** dashboard is displayed.

2. In the navigation pane, click **Master Contracts**.

The **MASTER CONTRACTS** list page is displayed.

3. Select the required master contract to add price list items.

4. Click **Edit**.

5. Click **PRICE LIST** tab.

6. Click **New**, and then click **Add Multiple**.

The **ADD STANDARD ITEMS** page is displayed.

Add Standard Items Page

7. From the **Standard Item list** drop-down list, select the standard items table from which you can add items to the price list.

Available options are standard items tables defined in the **Standard Items Table** library catalog. For more information, see [Standard Items Table](#).

8. Optionally, select the **Ignore Containers of Standard Items** check box to only select the item and not the item container.

If the check box is selected, the item is added to the selected container.

If the check box is cleared, the item and its container are added to the price list.

9. Click **Add** to select items from the selected standard items table.

The item selection dialog box is displayed.

Available options are items defined in the selected standard items table that is defined in the **Standard Items Table** library catalog. For more information, see [Standard Items Table](#).

10. Select the required items, and then click **Select**.

Alternatively, to select all items from the list, click **Select All Records**, and in the confirmation dialog box, click **OK**.

The **Pay Item No.**, **Description**, **Container**, **Unit**, **Unit Price in \$**, and **Group Name** are displayed.

11. Click **Save**.

The **PRICE LIST** page is displayed with the selected items.

To update item information, perform either of the following steps:

- To update the item description, unit, and unit price, see [Inline Editing](#).
- To modify other information, see [Editing Other Details](#).

To perform workflow actions, see [Master Contract Workflow](#).

12.2.3.4. Editing Item Details

You can edit item details, such as quantity, unit price, containers, and so on in the following ways.

- [Inline editing](#)
- [Using the Edit option](#)

12.2.3.4.1. Inline Editing

Inline Editing enables you to modify and save item details by directly editing details in the list page. You can only edit the **Item Description**, **Unit Price in \$**, and **Unit** fields.

1. In the module menu, click **Work Orders and Contracts**.

The **WORK ORDERS AND CONTRACTS** dashboard is displayed.

2. In the navigation pane, click **Master Contracts**.

The **MASTER CONTRACTS** list page is displayed.

3. Select the appropriate master contract to edit details of price list items.

4. Click **Edit**.

The **MASTER CONTRACTS DETAILS** page is displayed.

5. Click the **PRICE LIST** tab.

6. Right-click on a row, and click **Expand All** to expand all containers and view item details.

7. Double-click the row of the item you want to edit.

The editable cells are highlighted.

8. Enter the appropriate information.

9. Click **Save**.

12.2.3.4.2. Using the Edit Option

You can modify and save price list item details in the **EDIT ITEM** page.

1. In the module menu, click **Work Orders and Contracts**.

The **Work Orders and Contracts** dashboard is displayed.

2. In the navigation pane, click **Master Contracts**.

The **MASTER CONTRACTS** page is displayed.

3. Select the required master contract to edit details of price list items.

4. Click **Edit**.

The **MASTER CONTRACTS DETAILS** page is displayed.

5. Click the **PRICE LIST** tab.

6. Right-click on a row, and click **Expand All** to expand all containers and view item details.
7. Select the appropriate item, and then click **Edit**.

The **EDIT PRICE LIST ITEM** page is displayed.

Edit Price List Item Page

The screenshot shows the 'EDIT PRICE LIST ITEM' page. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these are several input fields:

- 'Container' dropdown set to 'Root/Misc'.
- 'Pay Item No.' input field containing '103000' with a 'Clear' link.
- 'Description' input field containing 'ARTIST INVOLVEMENT'.
- 'Unit' dropdown set to 'LS'.
- 'Unit Price in \$' input field containing '100.00'.
- 'Notes' text area.

To the right, there is a 'Select Item from Library' panel with a 'Standard Item Table' dropdown set to 'StandardItems' and a checkbox 'Ignore Containers of Standard Items' followed by a 'Select' button. At the bottom left, there is an 'ATTACHMENTS' section with a table header and a message 'No Attachments available'.

8. Enter the appropriate information.
9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

12.2.4. Master Contract Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Master Contract** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	In the Master Contract Category library catalog, if Allow Master Contract Approval Without Item(s) is Yes , then you can submit the record even if there is no pay item in the Price List tab. If Allow Master Contract Approval Without Item(s) is No , then you must define at least one non-zero dollar item in the Price List tab to submit the record.
2	Submitted	Approve	Approved	You cannot edit details of the master contract. For information on revising a master contract, see Master Contract Revision .
3	Approved	Re-Draft	Draft	-
		Close	Closed	-

12.2.5. Master Contract Revision

12.2.5.1. Master Contract Revision

Once a master contract is approved, you cannot modify any details of the approved master contract. You cannot add or delete items that are part of the price list of the approved master contract.

To amend an approved master contract, to modify the start and end dates, or the ceiling value, or to add items to an approved master contract, you can initiate a master contract revision process using the **Master Contract Revision** form.

You can revise the following information of an approved master contract.

- [Revise details of an approved master contract.](#)
- [Add items to revise an approved master contract.](#)
- [Perform workflow actions to implement the business process.](#)

12.2.5.2. Revising an Approved Master Contract

- Approved master contract is available.
- Master contract revision records in the **Draft** or **Submitted** workflow status are not available.

1. In the module menu, click **Work Orders and Contracts**.

The **Work Orders and Contracts** dashboard is displayed.

2. In the navigation pane, click **Master Contracts**.

The **MASTER CONTRACTS** list page is displayed.

3. In the list page, double-click the appropriate approved master contract.

4. In the navigation pane, expand the **Master Contracts** folder, expand the master contract folder, and then click **Master Contract Revision**.

The **MASTER CONTRACT REVISION** list page is displayed.

5. Click New.**Master Contract Revision Details Page**

The screenshot shows the 'MASTER CONTRACT REVISION DETAILS' page. At the top, there are buttons for Save & Exit, Save & Continue, Cancel, Workflow, and Select Actions. A note says 'Revision ID : <Auto Generated>'. Below are several input fields: 'Original Ceiling Value in \$' (20,000.00), 'Current Ceiling Value in \$' (20,000.00), 'Current Start Date' (10/01/2023), 'Current End Date' (12/31/2024), 'Measurement System' (IS System), 'Short Description', 'Revised Start Date' (10/01/2023), 'Revised End Date' (12/31/2024), 'Revised Ceiling Value in \$' (20,000.00), and a large 'Description' text area. At the bottom, 'Created By' is MikeRoss and 'Created On' is 10/19/2023 9:17:17 PM.

ATTACHMENTS

<input type="checkbox"/>	File View Status	Document Name	Url/Link	Title	Uploaded By	Uploaded Date	File Size	Signed Copy
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The **MASTER CONTRACT REVISION DETAILS** page displays the following non-editable fields:

Field	Description
Revision ID	An automatically generated alphanumeric code that uniquely identifies the master contract revision.
Original Ceiling Value	The ceiling value of the master contract as defined during the creation of the master contract.
Current Start Date	The original start date of the master contract if the start date of the master contract has not been revised. The current start date of the master contract based on the latest approved master contract revision.
Current Ceiling Value	The original ceiling value of the master contract if the ceiling value of the master contract has not been revised. The current ceiling value of the master contract based on the latest approved master contract revision.
Current End Date	The original end date of the master contract if the end date of the master contract has not been revised. The current end date of the master contract based on the latest approved master contract revision.
Measurement System	The measurement system of the master contract.

Field	Description
Created By	The name of the logged-in user.
Created On	The date and time the master contract revision is created.

6. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Short Description	Enter a short description for the master contract revision.
Revised Start Date	Select the revised start date of the master contract.
Revised End Date	Select the revised end date of the master contract.
Revised Ceiling Value	Enter the revised ceiling value of the master contract.
Description	Enter the detailed description of the master contract revision.

7. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The **MASTER CONTRACT REVISION** list page is displayed.

You can now add items to the revision of the master contract. For information on adding items to the revision of the master contract, see [Adding Items to a Master Contract Revision](#).

Optionally, you can submit the record for approval even if there is no pay item in the **Price List** tab, provided that, in the **Master Contract Category** library catalog, **Allow Master Contract Approval Without Item(s)** is **Yes**.

To perform workflow actions, see [Master Contract Revision Workflow](#).

12.2.5.3. Managing Containers

You can create containers in a price list to categorize items. You can also delete an entire container with the items in it from the price list.

The following topics enable you to manage containers.

- [Create container](#).
- [Delete container](#).

12.2.5.3.1. Creating a Container

1. In the module menu, click **Work Orders and Contracts**.

The **WORK ORDERS AND CONTRACTS** dashboard is displayed.

2. In the navigation pane, click **Master Contracts**.

The **MASTER CONTRACTS** list page is displayed.

3. In the list page, double-click the appropriate approved master contract.

4. In the navigation pane, expand the **Master Contracts** folder, expand the master contract folder, and then click **Master Contract Revision**.

The **MASTER CONTRACT REVISION** list page is displayed.

5. Select the appropriate master contract revision record, and then click **Edit**.

6. Click the **PRICE LIST** tab.

7. Click **New**, and then click **New Container**.

The **CONTAINER** page is displayed.

Container Page

CONTAINER

Name *:

Description :

Notes :

Parent Container : Root
 Misc

8. In the **Name** box, enter the name of the container.
9. In the **Description** box, enter the description of the container.
10. In the **Notes** box, enter the notes for the container.
11. In the **Parent Container** list, click the container in which the current container must be created.

Note: For the first container, the only **Parent Container** option is **Root**.

12. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The container is created.

12.2.5.3.2. Deleting a Container

On deleting a container, the items in the container are also deleted from the price list.

1. In the module menu, click **Work Orders and Contracts**.
The **Work Orders and Contracts** dashboard is displayed.
2. In the navigation pane, click **Master Contracts**.
The **MASTER CONTRACTS** page is displayed.
3. In the **MASTER CONTRACTS** page, double-click the required approved master contract.
4. In the navigation pane, expand the **Master Contracts** folder, expand the master contract folder, and then click **Master Contract Revision**.
The **MASTER CONTRACT REVISION** list page is displayed.
5. Select the appropriate master contract revision record, and then click **Edit**.
6. Click the **PRICE LIST** tab.
7. Select the appropriate container, and then click **Delete**.
A confirmation message is displayed.
8. Click **OK**.

The container and the items in the container are deleted from the price list.

12.2.5.4. Adding Items to a Master Contract Revision

Using the **Master Contract Revision** form, you can add items to a master contract revision to amend the approved master contract. On approval of a master contract revision to add items, the new items are added to the price list of the master contract.

You can add items in the following ways.

- [Add a single item](#).
- [Add multiple items](#).

12.2.5.4.1. Adding an Item

1. In the module menu, click **Work Orders and Contracts**.
The **WORK ORDERS AND CONTRACTS** dashboard is displayed.
2. In the navigation pane, click **Master Contracts**.
The **MASTER CONTRACTS** list page is displayed.
3. In the list page, double-click the appropriate approved master contract.

4. In the navigation pane, expand the **Master Contracts** folder, expand the master contract folder, and then click **Master Contract Revision**.

The **MASTER CONTRACT REVISION** list page is displayed.

5. Select the appropriate master contract revision record, and then click **Edit**.
6. Click the **PRICE LIST** tab.
7. Click **New**, and then click **New**.

Alternatively, to add the item to a selected container, select the appropriate container, click **New**, and then click **New**.

The **NEW PRICE LIST ITEM** page is displayed.

New Price List Item Page

ATTACHMENTS

<input type="checkbox"/>	File View Status	Document Name	Url/Link	Title	Uploaded By	Uploaded Date	File Size
No Attachments available							

[Link Document](#) [Upload Document](#)

8. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Container	If you have selected a container, the name of the selected container is displayed. To select a different container, perform the following steps. <ol style="list-style-type: none">a. Click .b. The SELECT CONTAINER page is displayed.c. Click the appropriate container. For information on creating a new container, see Creating a Container .

Field	Description
Pay Item No.	<p>Enter the item number.</p> <p>Alternatively, to select an item from the library, perform the following steps.</p> <ol style="list-style-type: none">In the Select Item from Library section, from the Standard Item Table drop-down list, select the standard table in which the appropriate item is defined. Available options are standard item tables defined in the Standard Items Table library catalog. For more information, see Standard Items Table.Optionally, select the Ignore Containers of Standard Items check box to only select the item and not the container of the item. If the check box is selected, the item is added to the selected container. If the check box is cleared, the item and its container are added to the price list.Click Select to select an item from the selected standard items table. The item selection dialog box is displayed. Available options are items defined in the selected standard items table that is defined in the Standard Items Table library catalog. For more information, see Standard Items Table.Click an item, and then click Select. The Pay Item No., Description, Unit, and Unit Price in \$ are displayed.
Description	<p>Enter the description of the item.</p> <p>Item description is displayed automatically if you have selected the item from the library.</p>
Unit	<p>Select the unit of measure for the item.</p> <p>Available options are measurement units defined in the measurement system selected for the master contract.</p> <p>Measurement system of the master contract is defined in the MASTER CONTRACT DETAILS page. For more information, see Measurement Systems.</p>
Unit Price in \$	Enter the cost per unit of the item.

Field	Description
Notes	Enter any additional information relevant to the item.

9. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

10. To save the item, perform any of the following as applicable:

- Click **Save & Exit** to return to the items list page.
- Click **Save & Continue** to save and continue on the same page.
- Click **Save & Create New** to save the current item and continue creating a new item.

12.2.5.4.2. Adding Multiple Items to a Master Contract Revision

To save time and effort, you can add multiple price list items at once from the library to the master contract revision.

1. In the module menu, click **Work Orders and Contracts**.

The **WORK ORDERS AND CONTRACTS** dashboard is displayed.

2. In the navigation pane, click **Master Contracts**.

The **MASTER CONTRACTS** list page is displayed.

3. In the list page, double-click the appropriate approved master contract.

4. In the navigation pane, expand the **Master Contracts** folder, expand the master contract folder, and then click **Master Contract Revision**.

The **MASTER CONTRACT REVISION** list page is displayed.

5. Select the appropriate master contract revision record, and then click **Edit**.

6. Click the **PRICE LIST** tab.

7. Click **New**, and then click **Add Multiple**.

The **ADD STANDARD ITEMS** page is displayed.

Add Standard Items Page

Pay Item No.	Description	Container	Unit	Unit Price In \$	Group Name
No Data available.					

8. From the **Standard Item list** drop-down list, select the standard items table from which you can add items to the price list.

Available options are standard items tables defined in the **Standard Items Table** library catalog. For more information, see [Standard Items Table](#).

9. Optionally, select the **Ignore Containers of Standard Items** check box to only select the item and not the item container.

If the check box is selected, the item is added to the selected container.

If the check box is cleared, the item and its container are added to the price list.

10. Click **Add** to select items from the selected standard items table.

The item selection dialog box is displayed.

Available options are items defined in the selected standard items table that is defined in the **Standard Items Table** library catalog. For more information, see [Standard Items Table](#).

11. Select the appropriate items, and then click **Select**.

Alternatively, to select all items from the list, click **Select All Records**, and in the confirmation dialog box, click **OK**.

The **Pay Item No.**, **Description**, **Container**, **Unit**, **Unit Price in \$**, and **Group Name** are displayed.

12. Click **Save**.

The **PRICE LIST** page is displayed with the selected items.

To update item information, perform either of the following steps:

- To update the item description, unit, and unit price, see [Inline Editing](#).
- To modify other information, see [Editing Other Details](#).

To perform workflow actions, see [Master Contract Revision Workflow](#).

12.2.5.5. Editing Item Details

You can edit item details, such as quantity, unit price, containers, and so on in the following ways.

- [Inline Editing](#)
- [Using the Edit menu option](#)

12.2.5.5.1. Inline Editing

Inline Editing enables you to modify and save item details by directly editing details in the list page. You can only edit the **Item Description**, **Unit Price in \$**, and **Unit** fields.

1. In the module menu, click **Work Orders and Contracts**.

The **WORK ORDERS AND CONTRACTS** dashboard is displayed.

2. In the navigation pane, click **Master Contracts**.

The **MASTER CONTRACTS** list page is displayed.

3. In the **MASTER CONTRACTS** page, double-click the appropriate approved master contract.

4. In the navigation pane, expand the **Master Contracts** folder, expand the master contract folder, and then click **Master Contract Revision**.

The **MASTER CONTRACT REVISION** list page is displayed.

5. Select the appropriate master contract revision record, and then click **Edit**.

6. Click the **PRICE LIST** tab.

7. Right-click on a row, and click **Expand All** to expand all containers and view item details.

8. Double-click the row of the item you want to edit.

The editable cells are highlighted.

9. Enter the appropriate information.

10. Click **Save**.

12.2.5.5.2. Using the Edit Option

You can modify and save item details in the **EDIT ITEM** page.

1. In the module menu, click **Work Orders and Contracts**.

The **Work Orders and Contracts** dashboard is displayed.

2. In the navigation pane, click **Master Contracts**.

The **MASTER CONTRACTS** list page is displayed.

3. In the list page, double-click the appropriate approved master contract.

4. In the navigation pane, expand the **Master Contracts** folder, expand the master contract folder, and then click **Master Contract Revision**.

The **MASTER CONTRACT REVISION** list page is displayed.

5. Select the appropriate master contract revision record, and then click **Edit**.

6. Click the **PRICE LIST** tab.

7. Right-click on a row, and click **Expand All** to expand all containers and view item details.

8. Select the appropriate item, and then click **Edit**.

The **EDIT PRICE LIST ITEM** page is displayed.

Edit Price List Item Page

EDIT PRICE LIST ITEM

Save & Exit Save & Continue Cancel

Container : Root/Misc ...

Pay Item No. * : 103000 [Clear](#)

Description * : ARTIST INVOLVEMENT

Unit * : LS

Unit Price in \$ * : 100.00

Notes :

Select Item from Library

Standard Item Table : StandardItems

Ignore Containers of Standard Items [Select](#)

ATTACHMENTS

<input type="checkbox"/>	File View Status	Document Name	Url/Link	Title	Uploaded By	Uploaded Date	File Size
No Attachments available							

[Link Document](#) [Upload Document](#)

9. Enter the appropriate information.

10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

12.2.5.6. Master Contract Revision Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Master Contract Revision** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
2	Submitted	Approve	Approved	<p>On approval of the Master Contract Revision record, the associated Master Contract Details page is updated with the latest revised ceiling value, start date, and end date.</p> <p>The following information is also displayed:</p> <ul style="list-style-type: none"> • Original Ceiling Value in \$ • Original Start Date • Original End Date

12.3. Work Orders

12.3.1. Work Orders

Work orders are issued to authorize consultants to implement assigned tasks in the associated projects.

You can issue multiple work orders for a master contract. The cost of work order items adhere to the price list of the associated master contract. The total amount of the work orders issued for a master contract must not exceed the ceiling value defined for the associated master contract.

You can perform the following tasks in the **Work Orders** module.

- [Create work orders.](#)

- [Manage work order items.](#)
- [Perform workflow actions to implement the business process.](#)
- [Revise approved work orders.](#)

12.3.2. Creating a Work Order

- An approved master contract is available. For information on master contracts, see [Master Contract](#) on page 967.

You can create a work order for a consultant for multiple projects.

The **Work Order** form provides an option to create a **Contract** or **Purchase Order** in the project. If you select the **Work Order Type** as:

- **Contract:** A contract is created in the associated project.
- **Purchase Order:** A purchase order is created in the associated project with the details in the respective work order.

1. In the module menu, click **Work Orders and Contracts**.

The **Work Orders and Contracts** dashboard is displayed.

2. In the navigation pane, click **Work Orders**.

The **WORK ORDERS** list page is displayed.

3. Click New.

The **WORK ORDERS DETAILS** page is displayed.

Work Order Details Page

The screenshot shows the 'WORK ORDER DETAILS' page. At the top, there are tabs for 'WORK ORDER DETAILS' and 'WORK ORDER ITEMS'. Below the tabs are buttons for 'Save & Exit', 'Save & Continue', 'Cancel', 'Workflow', and 'Select Actions'. The main form area contains the following fields:

- Number :** <Auto Generated>
- Master Contract Code ***: [Input field]
- Awarded Consultant :** [Input field]
- Title ***: [Input field]
- Master Contract Name :** [Input field]
- Measurement System :** [Input field]
- Business Unit :** [Input field]
- Work Order Manager ***: [Input field]
- Start Date ***: [Input field]
- Work Order value in \$:** 0.00
- End Date ***: [Input field]
- Work Order Requisition Reference :** [Input field]
- Work Order Type :** Contract Purchase Order
- Description :** [Text area]

Below this, there is a section titled 'PROJECTS' with a table:

Project Name	Project Code
No records to display.	

The below information is displayed.

Field	Description
Number	An automatically generated alphanumeric code that uniquely identifies the work order.
Created By	The name of the logged-in user.
Work Order value in \$	Calculated based on the unit price and quantity of items added to the work order. For information on adding work order items, see Managing Work Order Items on page 997.
Created On	The date and time the work order is created.

4. Provide the appropriate information in the respective fields, as described in the below table.

Field	Description
Title	Enter the title of the work order.

Field	Description
Master Contract Code	<p>To select the master contract to issue the work order, perform the following steps:</p> <p class="list-item-l1">a. Click . The Master Contract Details dialog box is displayed. Available options are details of master contracts that are in the Approved workflow status. For information on master contracts, see Master Contract on page 967.</p> <p class="list-item-l1">b. Click the required master contract, and then click Select. The Master Contract Name, Awarded Consultant, Measurement System, Start Date, and End Date are displayed.</p>
Work Order Manager	<p>To select the work order manager for the work order, perform the following steps:</p> <p class="list-item-l1">a. Click . The Work Order Manager dialog box is displayed. Available options are user names of users with the Project Manager role assigned to them. For information on user accounts, see User Accounts on page 1078.</p> <p>Note: On approval of this record, the selected work order manager is automatically invited to the projects selected in the Projects section.</p> <p class="list-item-l1">b. Click the required work order manager, and then click Select.</p>
Start Date	<p>The start date of the selected master contract is displayed.</p> <p>Optionally, select a different start date of the work order.</p>
End Date	<p>The end date of the selected master contract is displayed.</p> <p>Optionally, select a different end date of the work order.</p>

Field	Description
Work Order Requisition Reference	Enter the work order requisition reference code. Note: This code is generated when a work order is issued.
Work Order Type	Click the appropriate work order type. Available options are Contract and Purchase Order .
Purchase Order Type	Note: This field is enabled only if you select the Work Order Type as Purchase Order . Select the type of the purchase order. Available options are purchase order types defined in the Purchase Order Type library catalog.
Description	Enter the description of the work order.

5. To associate projects to the work order, in the **Projects** section, perform the following steps:
 - a. Click **Add**.
The **Select Projects** dialog box is displayed.
 - b. Select the appropriate projects.
Available options are the projects to which you are invited.
 - c. Click **Select**.
The selected projects are added to the **Projects** section.
6. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).
7. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.
The **WORK ORDER** list page is displayed with the new record.
You can now add items to the work order. For information on adding items to a work order, see [Master Contract](#) on page 967.

12.3.3. Managing Work Order Items

12.3.3.1. Managing Work Order Items

You can add items to a work order, enter the price of each item, and attach relevant reference files and documents to each item. You can add items to a work order from the price list of the associated master contract.

You can also add new items to a work order from the Standard Items library, if **Allow New Item(s) in Work Order** is Yes in the **Master Contract Category** library catalog. For more information on Master Contract Category, see [Master Contract Category](#) on page 200.

You can create containers to categorize price list items.

- [Managing Containers](#) on page 997

You can add work order items in various ways.

- [Add a single item](#).
- [Add multiple items](#).

You can also edit item details.

- [Quick edit of details of an item](#).
- [Edit other item details](#).

12.3.3.2. Managing Containers

You can create containers in a work order item list to categorize items. You can also delete an entire container to remove items of that container from the work order item list.

The following topics enable you to manage containers.

- [Create container](#).
- [Delete container](#).

12.3.3.2.1. Creating a Container

You can create containers to categorize price list items.

1. In the module menu, click **Work Orders and Contracts**.
The **Work Orders and Contracts** dashboard is displayed.
2. In the navigation pane, click **Work Orders**.
The **WORK ORDERS** list page is displayed.
3. Select the appropriate work order to edit, and then click **Edit**.
The **WORK ORDER DETAILS** page is displayed.
4. Click the **WORK ORDER ITEMS** tab.

- Click **New**, and then click **New Container**.

The **CONTAINER** page is displayed.

Container Page

The screenshot shows the 'CONTAINER' page with the following interface elements:

- Name ***: A text input field.
- Description :** A text area for entering notes.
- Notes :** A text area for entering notes.
- Parent Container :** A dropdown menu showing options: **Root** (selected) and **Misc**.

- In the **Name** box, enter the name of the container.
- In the **Description** box, enter the description of the container.
- In the **Notes** box, enter the notes for the container.
- In the **Parent Container** list, click the container in which the current container must be created.

Note: For the first container, the only **Parent Container** option is **Root**.

- Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The container is created.

12.3.3.2.2. Deleting a Container

On deleting a container, the items in the container are also deleted from the price list.

- In the module menu, click **Work Orders and Contracts**.
The **Work Orders and Contracts** dashboard is displayed.
- In the navigation pane, click **Work Orders**.
The **WORK ORDERS** list page is displayed.
- Select the appropriate work order to edit, and then click **Edit**.
The **WORK ORDER DETAILS** page is displayed.
- Click the **WORK ORDER ITEMS** tab.

5. Select a container to delete.
6. Click **Delete**.

A confirmation message is displayed.

7. Click **OK**.

The container and the items in the container are deleted from the work order item list.

12.3.3.3. Creating a Work Order Item List

You can add items to a work order from the price list of the associated master contract.

You can also add new items to a work order from the Standard Items library, if **Allow New Item(s) in Work Order** is **Yes** in the **Master Contract Category** library catalog. For more information on Master Contract Category, see [Master Contract Category](#) on page 200.

You can add items to a work order list in following ways:

- [Manually entering the required information of all items](#)
- [Adding items from the master contract](#)

12.3.3.3.1. Adding an Item

1. In the module menu, click **Work Orders and Contracts**.

The **Work Orders and Contracts** dashboard is displayed.

2. In the navigation pane, click **Work Orders**.

The **WORK ORDERS** list page is displayed.

3. Select the appropriate work order to add items, and then click **Edit**.

The **WORK ORDER DETAILS** page is displayed.

4. Click the **Work Order Items** tab.

5. Click **New**, and then click **New Price List Item**.

Alternatively, to add the item within a selected container, select the appropriate container, click **New**, and then click **New Price List Item**.

The **NEW WORK ORDER ITEM** page is displayed.

New Work Order Item Page

ATTACHMENTS

6. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Container	If you have selected a container, the name of the selected container is displayed. To select a different container to categorize items, perform the following steps. <ol style="list-style-type: none">Click .The SELECT CONTAINER page is displayed.Click the appropriate container. For information on creating a new container, see Creating a Container .

Field	Description
Pay Item No.	<p>To select a work order item from the price list of the associated master contract:</p> <p class="list-item-l1">a. Click . The item selection dialog box is displayed. Available items are items defined in the price list of the master contract associated with the work order. For information on master contracts, see Master Contracts.</p> <p class="list-item-l1">b. Click the appropriate item.</p> <p class="list-item-l1">c. Click Select. The Pay Item No., Description, Unit, and Unit Price of the selected price list item are displayed.</p> <p>Alternatively, if Allow New Item(s) in Work Order is Yes in the Master Contract Category library catalog, you can select an item from the Standard Items Table library catalog. The Pay Item No., Description, Unit, Group, Accounting Code, and Unit Price in \$ are displayed.</p>
Description	The item description of the selected price list item is displayed. You can modify the description of the item.
Project	Select the project for the work order item. Available options are projects associated with the work order. Projects are associated with a work order during work order creation. For information on creating a work order, see Creating a Work Order .

Field	Description
Budget Item	To associate a budget estimate item to a work order item, perform the following steps. <ol style="list-style-type: none">Click . The Select Budget Item dialog box is displayed. Available items are budget estimate items defined for the selected project. For information on budget estimates, see Budget Management.Click the appropriate item.Click Select. The budget estimate item is associated with the work order item.
Quantity	Enter the appropriate quantity of the item. Based on the unit price and quantity of the item, the Amount box displays the total amount of the item.
Notes	Enter any additional information relevant to the item.

7. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

8. To save the item, perform any of the following as applicable:

- Click **Save & Exit** to return to the items list page.
- Click **Save & Continue** to save and continue on the same page.
- Click **Save & Create New** to save the current item and continue creating a new item.

12.3.3.3.2. Adding Multiple Items

To save time and effort, you can add multiple work order items at once from the price list of the associated master contract.

You can also add multiple items to a work order from the Standard Items library, if **Allow New Item(s) in Work Order** is **Yes** in the **Master Contract Category** library catalog. For more information, see [Master Contract Category](#) on page 200.

1. In the module menu, click **Work Orders and Contracts**.

The **Work Orders and Contracts** dashboard is displayed.

2. In the navigation pane, click **Work Orders**.

The **WORK ORDERS** list page is displayed.

3. Select the appropriate work order to add items, and then click **Edit**.

The **WORK ORDER DETAILS** page is displayed.

4. Click the **Work Order Items** tab.

5. Click **New**, and then click either of the following:

- **Add Multiple price list item**

The **Select User Item** dialog box is displayed. Available options are price list items defined in the associated master contract. For information on master contracts, see [Master Contracts](#).

- a. Select the appropriate items, and then click **Select**.

The **WORK ORDER ITEMS** page is displayed with the selected items.

- b. To update item information, perform either of the following steps.

- To update the item description, unit, and unit price, see [Inline Editing](#).
- To modify other information, see [Editing Other Details](#).

- c. To associate a project to the work order items, see [Associating Projects to Work Order Items](#).

- **Add Multiple**

The **ADD STANDARD ITEMS** page is displayed.

- a. From the **Standard Item list** drop-down list, select the standard table from which you can add items to the work order.

Available options are standard item tables defined in the **Standard Items Table** library catalog. For more information, see [Standard Items Table](#).

- b. Optionally, select the **Ignore Containers of Standard Items** check box to only select the item and not the item container.

- c. Click **Add** to select an item from the selected standard items table.

The item selection dialog box is displayed.

Available options are items defined in the selected standard items table that is defined the **Standard Items Table** library catalog. For more information, see [Standard Items Table](#).

- d. Select the appropriate items, and then click **Select**.

Alternatively, to select all items from the list, click **Select All Records**, and in the confirmation dialog box, click **OK**.

The **Pay Item No., Description, Container, Unit, Unit Price in \$, and Group Name** are displayed.

6. Click **Save**.

To perform workflow actions, see [Work Order Workflow](#).

12.3.3.4. Associating a Work Order Item to a Project

- Projects are associated with the work order during the work order creation. For information on creating a work order, see [Creating a Work Order](#).

You can associate a project to multiple work order items. You can also change the project associated with a work order item.

1. In the module menu, click **Work Orders and Contracts**.

The **Work Orders and Contracts** dashboard is displayed.

2. In the navigation pane, click **Work Orders**.

The **WORK ORDERS** list page is displayed.

3. Select the appropriate work order, and then click **Edit**.

The **WORK ORDER DETAILS** page is displayed.

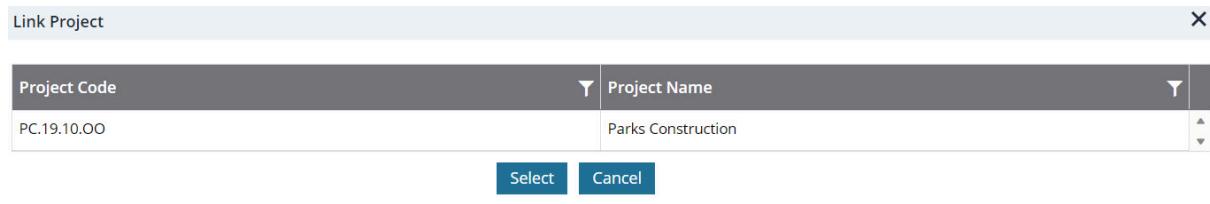
4. Click the **WORK ORDER ITEMS** tab.

5. Select the appropriate work order items.

6. Click **Associate Projects**.

The **Link Project** dialog box is displayed.

Link Project Dialog Box



Available options are projects associated with the work order. For information on creating a work order, see [Creating a Work Order](#).

7. Click the appropriate project, and then click **Select**.

The selected project is associated with the work order items.

12.3.3.5. Editing Item Details

You can edit item details, such as quantity, unit price, containers, and so on in the following ways.

- [Inline Editing](#)
- [Using the Edit menu option](#)

12.3.3.5.1. Inline Editing

Inline Editing enables you to modify and save item details by directly editing details in the list page. You can only edit the **Item Description**, and **Quantity** field.

1. In the module menu, click **Work Orders and Contracts**.

The **Work Orders and Contracts** dashboard is displayed.

2. In the navigation pane, click **Work Orders**.

The **WORK ORDERS** list page is displayed.

3. Select the appropriate work order to edit, and then click **Edit**.

The **WORK ORDER DETAILS** page is displayed.

4. Click the **WORK ORDER ITEMS** tab.

5. Right-click on a row, and click **Expand All** to expand all containers and view item details.

6. Double-click the row of the item you want to edit.

The editable cells are highlighted.

7. Enter the appropriate information.

8. Click **Save**.

12.3.3.5.2. Using the Edit Option

You can modify and save item details in the **EDIT ITEM** page.

1. In the module menu, click **Work Orders and Contracts**.

The **Work Orders and Contracts** dashboard is displayed.

2. In the navigation pane, click **Work Orders**.

The **WORK ORDERS** list page is displayed.

3. Select the appropriate work order to edit, and then click **Edit**.

The **WORK ORDER DETAILS** page is displayed.

4. Click the **WORK ORDER ITEMS** tab.

5. Right-click on a row, and click **Expand All** to expand all containers and view item details.

6. Select the item you want to edit.

7. Click **Edit**.

The **EDIT WORK ORDER ITEM** page is displayed.

Edit Work Order Item Page

The screenshot shows the 'Edit Work Order Item' page. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these are several input fields:

- Container :** Root/Default
- Pay Item No. ***: 103000
- Description ***: ARTIST INVOLVEMENT
- Unit ***: LS
- Project ***: Select
- Budget Item**: (empty)
- Funding Rule**: Select
- Quantity ***: 0.0000
- Unit Price in \$**: 100.00
- Amount in \$**: 0.00
- Notes**: (empty)

To the right of the main form is a sidebar titled 'Select Item from Library' with the following options:

- Standard Item Table :** StandardItems
- Ignore Containers of Standard Items**
- Select** button

ATTACHMENTS

8. Enter the appropriate information.

9. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

12.3.4. Work Order Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Work Order** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
2	Submitted	Approve	Approved	<p>On approval of a work order, the following changes occur:</p> <ul style="list-style-type: none">• If the Work Order Type is selected as Contract, a new contract is created in all the associated projects. Work order contracts are identified by a blue folder in the Contracts module of a project. <p>For information on contracts created by approved work orders, see Work Order Contracts on page 1023.</p> <p>For information on contract management, see 1007 Contract</p>

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
		Re-Draft	Draft	-

12.3.5. Work Order Revision

12.3.5.1. Work Order Revision

Once a work order is approved, you cannot modify any details of the approved work order. You cannot add or delete items, nor modify details of items that are part of the work order item list of the approved work order.

To amend an approved work order to modify the start and end dates, or to add items, or modify details of existing items of an approved work order, you can initiate a work order revision process using the Work Order Revision form.

You can revise the following information of an approved work order.

- [Revise details of an approved work order.](#)
- [Add items to revise an approved work order.](#)
- [Modify quantity of items of an approved work order.](#)
- [Perform workflow actions to implement the business process.](#)

12.3.5.2. Revising an Approved Work Order

- Approved work order is available.
- Related work order revision is not available in **Draft** or **Submitted** workflow status.

You can initiate revision of an approved work order in the following ways:

- Creating a change order in the work order contract that is automatically created in the associated project when the work order was approved. For information on work order contracts, see [Work Order Contracts](#) on page 1023. For information on creating a change order, see [Creating a Change Order](#) on page 864.
- Revising a work order directly using the **Work Order Revision** form.

You can also create a purchase order revision from an Approved work order by revising a work order directly using the **Work Order Revision** form. To create a purchase order revision from an Approved work order, the following conditions must be adhered to:

- The related Approved work order type must be **PurchaseOrder**.
- The related purchase order must be available in **Received** workflow status.

1. In the module menu, click **Work Orders and Contracts**.

The **WORK ORDERS AND CONTRACTS** dashboard is displayed.

2. In the navigation pane, click **Work Orders**.

The **WORK ORDERS** list page is displayed.

3. In the list page, double-click the appropriate Approved work order.

The **WORK ORDER DETAILS** page is displayed.

4. In the navigation pane, expand the **Work Order Revision** folder.

The **WORK ORDER REVISION** list page is displayed.

5. Click **New**.

The **WORK ORDER REVISION DETAILS** page is displayed.

The below information is displayed.

Field	Description
Revision ID	An automatically generated alphanumeric code that uniquely identifies the work order revision.
Master Contract Code	The master contract code of the associated master contract.
Master Contract Name	The master contract name of the associated master contract.
Original Work Order Value in \$	The work order value as defined during the creation of the work order.
Current Work Order Value in \$	If the work order value has not been revised, the original work order value. The current work order value based on the latest approved work order revision.
Current Start Date	If the work order value has not been revised, the original start date of the work order. The current start date of the work order based on the latest approved work order revision.
Current End Date	If the work order value has not been revised, the end date of the work order. The current end date of the work order based on the latest approved work order revision.
Awarded Consultant	The awarded consultant of the master contract associated with the work order.

Field	Description
Work Order Manager	The work order manager as selected during the creation of the work order.
Measurement System	The measurement system as selected during the creation of the work order.
Revised Start Date	The original start date of the work order.
Revised Work Order Value in \$	Based on the items added to revise the work order, the sum of amounts of all the work orders items. For information on adding work order items, see Adding Items to a Work Order Revision on page 1012.
Projects	The projects associated with the work order.

6. Provide the appropriate information in the respective fields, as described in the below table.

Field	Description
Short Description	Enter a short description for the work order revision.
Revised End Date	Select the revised end date for the work order.

7. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

8. Click **WORK ORDER REVISION ITEMS** tab and click **OK**.

9. To manage items, perform either of the following steps as applicable:

- To add new items, see [Adding Items to a Work Order Revision](#) on page 1012.
- To revise the quantity of an existing item, see [Modifying Item Quantity](#) on page 1019.

10. Click **WORK ORDER REVISION DETAILS** tab.

11. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The **WORK ORDER REVISION** list page is displayed with the new record.

To perform workflow actions, see [Work Order Revision Workflow](#).

12.3.5.3. Managing Containers

You can create containers in a work order revision items list to categorize items. You can also delete an entire container with the items in it from the work order revision items list.

The following topics enable you to manage containers.

- [Create container.](#)
- [Delete container.](#)

12.3.5.3.1. Creating a Container

1. In the module menu, click **Work Orders and Contracts**.

The **Work Orders and Contracts** dashboard is displayed.

2. In the navigation pane, click **Work Orders**.

The **WORK ORDERS** list page is displayed.

3. In the list page, double-click the appropriate approved work order.
4. In the navigation pane, expand the **Work Orders** folder, expand the work order folder, and then click **Work Order Revision**.

The **WORK ORDER REVISION** list page is displayed.

5. Select the appropriate work order revision record, and then click **Edit**.
6. Click the **Work Order Revision Items** tab.
7. Click **New**, and then click **New Container**.

The **CONTAINER** page is displayed.

Container Page

CONTAINER

Save & Exit Save & Continue Cancel

Name * :

Description :

Notes :

Parent Container :

8. In the **Name** box, enter the name of the container.
9. In the **Description** box, enter the description of the container.
10. In the **Notes** box, enter the notes for the container.

11. In the **Parent Container** list, click the container in which the current container must be created.

Note: For the first container, the only **Parent Container** option is **Root**.

12. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The container is created.

12.3.5.3.2. Deleting a Container

On deleting a container, the items in the container are also deleted from the work order revision items list.

1. In the module menu, click **Work Orders and Contracts**.

The **Work Orders and Contracts** dashboard is displayed.

2. In the navigation pane, click **Work Orders**.

The **WORK ORDERS** list page is displayed.

3. In the list page, double-click the appropriate approved work order.

4. In the navigation pane, expand the **Work Orders** folder, expand the work order folder, and then click **Work Order Revision**.

The **WORK ORDER REVISION** list page is displayed.

5. Select the appropriate work order revision record, and then click **Edit**.

6. Click the **Work Order Revision Items** tab.

7. Select a container to delete.

8. Click **Delete**.

A confirmation message is displayed.

9. Click **OK**.

The container and the items in the container are deleted from the work order revision items list.

12.3.5.4. Adding Items to a Work Order Revision

Using the Work Order Revision form, you can add items to a work order revision to amend the approved work order. On approval of a work order revision to add items, the new items are added to the price list of the work order.

You can add items in two ways.

- [Add a single item](#).
- [Add multiple items](#).

12.3.5.4.1. Adding an Item

- Change orders are not associated with the work order revision.
1. In the module menu, click **Work Orders and Contracts**.
The **Work Orders and Contracts** dashboard is displayed.
 2. In the navigation pane, click **Work Orders**.
The **WORK ORDERS** list page is displayed.
 3. In the list page, double-click the appropriate approved work order.
 4. In the navigation pane, expand the **Work Orders** folder, expand the work order folder, and then click **Work Order Revision**.
The **WORK ORDER REVISION** list page is displayed.
 5. Select the appropriate work order revision record, and then click **Edit**.
 6. Click the **Work Order Revision Items** tab.

7. Click **New**, and then click **New Price List Item**.

Alternatively, perform either of the following steps.

- To add the item within a selected container, elect the appropriate container, click **New**, and then click **New**.
- To convert an existing item to a container and add the item to the container, select the appropriate item, click **New**, and then click **New**. In the confirmation box, click **OK**.

The **NEW WORK ORDER REVISION ITEM** page is displayed.

New Work Order Revision Item Page

NEW WORK ORDER REVISION ITEM

Save & Exit Save & Continue Save & Create New Cancel

Container :	<input type="text"/>	...
Pay Item No. *	<input type="text"/>	Clear
Description *	<input type="text"/>	
Unit *	Select	▼
Project *	Select	▼
Budget Item :	<input type="text"/>	...
Funding Rule :	Select	▼
Accounting Code :	<input type="text"/>	
Quantity *	<input type="text"/> 0.00	Sub Items
Unit Price in \$:	<input type="text"/>	
Amount in \$:	<input type="text"/>	
Notes :	<input type="text"/>	

8. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Container	<p>If you have selected a container, the name of the selected container is displayed.</p> <p>To select a different container to categorize items, perform the following steps.</p> <ol style="list-style-type: none"><li data-bbox="600 534 806 590">Click .<li data-bbox="647 601 1283 635">The SELECT CONTAINER page is displayed.
Pay Item No.	<p>To select an item from the item list of the associated work order.</p> <ol style="list-style-type: none"><li data-bbox="600 938 806 994">Click .<li data-bbox="647 1005 1251 1039">The item selection dialog box is displayed.<li data-bbox="647 1050 1426 1129">Available items are items defined in the price list of the associated master contract.<li data-bbox="600 1162 1029 1196">Click the appropriate item.<li data-bbox="600 1207 838 1241">Click Select.<li data-bbox="647 1252 1410 1331">The Pay Item No., Description, Unit, and Unit Price of the selected work order list item are displayed.
Description	The item description of the selected price list item is displayed. You can modify the description of the item.
Project	<p>Select the project for the work order item.</p> <p>Available options are projects associated with the work order.</p> <p>Projects are associated with a work order during work order creation. For more information, see Creating a Work Order.</p>

Field	Description
Budget Item	To associate a budget estimate item to a work order item, perform the following steps. <ol style="list-style-type: none">Click . The Select Budget Item dialog box is displayed. Available items are budget estimate items defined for the selected project. For more information, see Budget Management.Click the appropriate item.Click Select. The budget estimate item is associated with the work order item.
Quantity	Enter the appropriate quantity of the item. Based on the unit price and quantity of the item, the Amount box displays the total amount of the item.
Notes	Enter any additional information relevant to the item.

9. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

10. To save the item, perform any of the following as applicable:

- Click **Save & Exit** to return to the items list page.
- Click **Save & Continue** to save and continue on the same page.
- Click **Save & Create New** to save the current item and continue creating a new item.

12.3.5.4.2. Adding Multiple Items

- Change orders are not associated with the work order revision.

To save time and effort, you can add multiple work order items at once.

- In the module menu, click **Work Orders and Contracts**.

The **Work Orders and Contracts** dashboard is displayed.

- In the navigation pane, click **Work Orders**.

The **WORK ORDERS** list page is displayed.

- In the **Work Orders** list page, double-click the required approved work order.

4. In the navigation pane, expand the **Work Orders** folder, expand the work order folder, and then click **Work Order Revision**.

The **WORK ORDER REVISION** list page is displayed.

5. Select the required work order revision record, and then click **Edit**.
6. Click the **Work Order Revision Items** tab.
7. Click **New**, and then click **Add Multiple**.

The **Select User Item** dialog box is displayed.

Available items are items defined in the associated master contract.

8. Select the required items, and then click **Select**.
Alternatively, to select all items from the list, click **Select All Records**, and in the confirmation dialog box, click **OK**.
9. Click **Save**.

The **WORK ORDER REVISION ITEMS** page is displayed with the selected items.

To update item information, perform either of the following steps.

- To update the item description, unit, and unit price, see [Inline Editing](#).
- To modify other information, see [Editing Other Details](#).

To perform workflow actions, see [Work Order Revision Workflow](#).

12.3.5.5. Editing Item Details

You can edit item details, such as quantity, unit price, containers, and so on in the following ways.

- [Inline Editing](#)
- [Using the Edit menu option](#)

12.3.5.5.1. Inline Editing

Inline Editing enables you to modify and save item details by directly editing details in the list page. You can only edit the **Item Description**, **Unit Price in \$**, and **Unit** fields.

1. In the module menu, click **Work Orders and Contracts**.

The **Work Orders and Contracts** dashboard is displayed.

2. In the navigation pane, click **Work Orders**.

The **WORK ORDERS** list page is displayed.

3. In the list page, double-click the appropriate approved work order.
4. In the navigation pane, expand the **Work Orders** folder, expand the work order folder, and then click **Work Order Revision**.

The **WORK ORDER REVISION** list page is displayed.

5. Select the appropriate work order revision record, and then click **Edit**.
6. Click the **Work Order Revision Items** tab.
7. Right-click on a row, and click **Expand All** to expand all containers and view item details.
8. Double-click the row of the item you want to edit.
The editable cells are highlighted.
9. Enter the appropriate information.
10. Click **Save**.

12.3.5.5.2. Using the Edit Option

You can modify and save item details in the **EDIT ITEM** page.

1. In the module menu, click **Work Orders and Contracts**.
The **Work Orders and Contracts** dashboard is displayed.
2. In the navigation pane, click **Work Orders**.
The **WORK ORDERS** list page is displayed.
3. In the list page, double-click the appropriate approved work order.
4. In the navigation pane, expand the **Work Orders** folder, expand the work order folder, and then click **Work Order Revision**.
The **WORK ORDER REVISION** list page is displayed.
5. Select the appropriate work order revision record, and then click **Edit**.
6. Click the **Work Order Revision Items** tab.
7. Right-click on a row, and click **Expand All** to expand all containers and view item details.
8. Select the item you want to edit.

9. Click **Edit**.

The **EDIT WORK ORDER REVISION ITEM** page is displayed.

Edit Work Order Revision Item

EDIT WORK ORDER REVISION ITEM

Save & Exit Save & Continue Cancel

Container :	Root/Misc	...	
Pay Item No. *	104160	...	Clear
Description *	PUBLIC NOTIFICATION		
Unit *	LS		
Project *	Select		
Budget Item :	Clear
Funding Rule :	Select		
Accounting Code :			
Quantity *	1.00	Sub Items	
Unit Price in \$:	1,000.00		
Amount in \$:	1,000.00		
Notes :			

10. Enter the appropriate information.

11. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

12.3.5.6. Modifying Item Quantity

Using the **Work Order Revision** form, you can modify the quantities of items of an approved work order to amend the work order.

1. In the module menu, click **Work Orders and Contracts**.

The **Work Orders and Contracts** dashboard is displayed.

2. In the navigation pane, click **Work Orders**.

The **WORK ORDERS** list page is displayed.

3. In the list page, double-click the appropriate approved work order.

4. In the navigation pane, expand the **Work Orders** folder, expand the work order folder, and then click **Work Order Revision**.

The **WORK ORDER REVISION** list page is displayed.

5. Select the appropriate work order revision record, and then click **Edit**.

6. Click the **Work Order Revision Items** tab.

7. Click **New**, and then click **Modify Existing Item**.

The **MODIFY EXISTING ITEM** page is displayed.

8. Provide the appropriate information in the fields, as described in the following table.

Field	Description
Pay Item No.	<p>To select the item to modify its quantity, perform the following steps.</p> <ol style="list-style-type: none">a. Click .The list of all work order items is displayed.b. Click the appropriate work order item.The Description, Unit, Accounting Code, and Unit Price in \$ of the selected item is displayed.
Budget Item	<p>To associate a budget estimate item to a work order item, perform the following steps.</p> <ol style="list-style-type: none">a. Click .The Select Budget Item dialog box is displayed.Available items are budget estimate items defined for the selected project.For information on budget estimates, see Budget Management.b. Click the appropriate item.c. Click Select.The budget estimate item is associated with the work order item.
Change in Quantity	<p>To increase the quantity of the selected item, enter the quantity of the item that is additionally appropriate.</p> <p>To decrease the quantity of the selected item, press the Minus Sign (-), and then enter the quantity to be decreased from the original approved quantity of the item in the work order.</p>

Field	Description
Notes	Enter any notes for the change in quantity of the item.

9. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

11. Click the **Work Order Revision Details** tab.

The **Revised Work Order Value** box displays the value calculated based on the work order revision items added or deleted.

To perform workflow actions, see [Work Order Revision Workflow](#).

12.3.5.7. Work Order Revision Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Work Order Revision** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
2	Submitted	Approve Approved		<p>On approval of a work order revision, the following changes occur:</p> <ul style="list-style-type: none">• If the Work Order Type is Contract, a change order is created. This record is available in the Contract Change Order form of the respective contracts of the associated projects.• If the Work Order Type is Purchase Order, a purchase order revision record is automatically created. This record is available with the same work order revision number in the Purchase Order Revision form of the associated projects.■ The purchase order revision is created in Committed workflow status with a hyperlink for the respective work order revision.

Note:

You cannot delete the purchase order revisions or revert the workflow status to **Created** for the purchase order revisions created from work order revisions.

- You can revise the purchase orders created from work orders using the **Work Order Revision**

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
	Re-Draft	Draft	-	

12.3.6. Work Order Contracts

When you approve a work order, contracts are created automatically in the **Contracts** module of the associated projects. The work order contracts that are created automatically comprise all the forms of a regular contract.

You must invite users to work order contracts. For information on inviting users to a contract, see [Managing Contract Users](#).

The following are the characteristics of a work order contract.

Module/Form	Description
Contracts	<ul style="list-style-type: none">The folder color of a work order contract is blue.The name of the folder, that is the Contract Name, is copied from the Title field. <p>To view a work order contract in a project, perform the following steps.</p> <ol style="list-style-type: none">In the module menu, click Projects.Double-click the required project.In the navigation pane, expand the project folder, and then expand the Contracts folder. <p>The work order contract is available.</p>

Module/Form	Description										
Contract Details	<p>The following field information is copied from the work order:</p> <table border="1" data-bbox="795 361 1419 704"><thead><tr><th data-bbox="827 372 1076 417">Contract Details</th><th data-bbox="1076 372 1403 417">Work Order Details</th></tr></thead><tbody><tr><td data-bbox="827 451 1017 496">Contract Code</td><td data-bbox="1108 451 1235 496">Number</td></tr><tr><td data-bbox="827 518 1017 563">Contract Name</td><td data-bbox="1108 518 1187 563">Title</td></tr><tr><td data-bbox="827 585 954 630">Start Date</td><td data-bbox="1108 585 1267 630">Start Date</td></tr><tr><td data-bbox="827 653 986 698">Closure Date</td><td data-bbox="1108 653 1251 698">End Date</td></tr></tbody></table>	Contract Details	Work Order Details	Contract Code	Number	Contract Name	Title	Start Date	Start Date	Closure Date	End Date
Contract Details	Work Order Details										
Contract Code	Number										
Contract Name	Title										
Start Date	Start Date										
Closure Date	End Date										
Contractors	The consultant is selected as the prime contractor for the work order contract.										
Contract Change Order	You can create change orders for work order contracts. You can only add or modify items that are part of the master contract associated with the work order. You cannot approve change orders. For information on the change order workflow, see Change Order Workflow . For information on approving change orders in work order contracts, see Work Order Revision .										

13. Vendor Management

13.1. Vendor Management

Vendor management is the process of managing vendor details, reducing potential risks related to vendors, and ensuring the best-suited vendors for implementation of projects.

The **Vendor Management** module in Masterworks enables you to create and classify vendors, define vendor evaluation standards and criteria, evaluate and identify the qualified vendors, and manage a repository of vendors in the application to select only qualified contractors for execution of projects.

You can evaluate vendors based on their performance in projects. Vendor evaluation is performed to rate and rank vendors based on various criteria to streamline the selection process of a vendor for a project.

You can evaluate vendors at the following levels:

- Project level
- Enterprise level

At the project level, using the **Vendor Evaluation** form, you can evaluate and approve the associated vendor's performance at various status of a project. The rating is compared with the minimum predefined standards set for that project. Additionally, you can create a **Consolidated Vendor Evaluation** to get the average performance score of the vendor at different status of the project.

At the enterprise level, using the **Vendor Scoring** form, you can evaluate and approve a vendor's performance across all the projects for a Statement Of Qualification (SOQ) cycle duration. Finally, you can create and approve a **Statement of Qualification** to qualify or disqualify the vendor based on the performance at the projects and enterprise level for a SOQ cycle duration. If the SOQ record is approved, the selected list of vendors is made available for new contracts that are to be awarded.

13.2. Evaluating Vendors

- The prime contractor and the sub-contractors are defined for the project. For information on prime contractor and sub-contractors of the project, see [Managing Contractor Details](#).

Vendor evaluation is a process for recording and ranking the performance of a vendor. You can review and rate a vendor based on the performance of the vendor at various status of the project.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, double-click the required project.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. Expand the required contract, and then click **Vendor Evaluation**.

The **VENDOR EVALUATION** list page is displayed.

5. Click **New**.

Vendor Evaluation Page

The screenshot shows the 'VENDOR EVALUATION' page. At the top, there are buttons for Save & Exit, Save & Continue, Cancel, Workflow, and Select Actions. Below this is a section titled 'RATING INFORMATION' containing fields for Project Number (18754), Project Name (Parks Construction), Created By (MikeRoss), Created On (10/19/2023), Vendor Name (with a red asterisk), Vendor Category, Remarks, and Vendor Sub-Category. Under 'VENDOR PERFORMANCE RATING', there is a dropdown for Review Stage. The 'EVALUATION SCORING' section contains a table for 'VENDOR SCORING CRITERIA' with columns for Evaluation Category, Criterion, Max Score, My Score, Comments, and Normalized Score. A message indicates 'No records to display.'

The **VENDOR EVALUATION** page displays the following non-editable fields:

Field	Description
Project Number	The identification number of the associated project is displayed.
Project Name	The name of the associated project is displayed.
Created By	The name of the user who created the project is displayed.
Created On	The current date is displayed.

6. Provide the required information as described in the following table.

Section	Field	Description
RATING INFORMATION	Vendor Name	To select the name of the vendor to be evaluated, perform the following steps: a. Click  . The Vendors List dialog box is displayed. Available options are prime contractor and sub-contractors associated with the project. b. Click the required vendor, and then click Select . The Vendor Category and Vendor Sub-Category of the selected vendor are displayed. Also, the scoring criteria, such as Evaluation Category , Criterion , and Max Score are displayed in the VENDOR SCORING CRITERIA section.
	Remarks	Enter any remarks for the selected vendor.
VENDOR PERFORMANCE RATING	Review Status	Select the review status for the selected vendor. Available options are review status defined with the Is Active check box selected in the Vendor Category to Review Status library catalog.

7. To provide a score for the selected vendor, in the **VENDOR SCORING CRITERIA** section, perform the following steps:

- a. In the **My Score** column, click and enter the score for the selected vendor.

Note: The score should be less than or equal to the **Max Score**.

- b. In the **Comments** column, click and enter any comments for the vendor rating.

- In the **Normalized Score** column, the normalized score is automatically calculated and displayed.

The score is calculated as:

Normalized Score = My Score * Weightage of that category / (Sum of weightages within that vendor category)

- The **Total Score** displays the sum of the **Normalized Score** column for the vendor.

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Vendor Evaluation Workflow](#).

13.3. Vendor Evaluation Workflow

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-
2	Submitted	Re-Draft	Draft	-
		Approve	Approved	
		Reject	Rejected	

13.4. Consolidating Vendor Evaluation

- An approved evaluation is available for the vendor at the project level. For information on evaluating the prime contractor and subcontractors of the project, see [Evaluating Vendors](#).

The **Consolidated Vendor Evaluation** form enables you to calculate the average performance score of a vendor at the different status of the project. This evaluation begins

after the vendor completes a certain percentage of the contract. The vendor is evaluated for a contract and then compared with the predefined standard to see if they qualify or not.

1. In the module menu, click **Projects**.

The **PROJECTS** list page is displayed.

2. In the list page, click the appropriate project, and then click **View**.
3. In the navigation pane, expand the project folder, and then expand **Contracts**.
4. In the navigation pane, expand the appropriate contract, and then expand **Vendor Management**.
5. In the navigation pane, click **Consolidated Vendor Evaluation**.

The **CONSOLIDATED VENDOR EVALUATION** list page is displayed.

6. Click **New**.

Consolidated Vendor Evaluation page

The screenshot shows the 'CONSOLIDATED VENDOR EVALUATION' page. At the top, there are buttons for Save & Exit, Save & Continue, Cancel, Workflow, and Select Actions. Below this is a section titled 'RATING INFORMATION' containing fields for Project Number (18754), Project Name (Parks Construction), Created By (MikeRoss), Created On (10/19/2023), Vendor Name (with a placeholder box and ellipsis button), Vendor Category (placeholder box), Remarks (text area with scroll bars), and Vendor Sub-Category (placeholder box). Under 'VENDOR PERFORMANCE RATING', there is a dropdown for Review Stage. In the 'EVALUATION SCORING' section, there is a dropdown for Evaluation Scoring. The 'VENDOR SCORING CRITERIA' section contains a table with columns: Evaluation Category, Criterion, Max Score, Category Avg. Score, and Comments. A message 'No records to display.' is shown below the table.

The **CONSOLIDATED VENDOR EVALUATION** page displays the following non-editable fields:

Field	Description
Project Number	The identification number of the associated project is displayed.
Project Name	The name of the associated project is displayed.
Created By	The name of the user who created the project is displayed.

Field	Description
Created On	The current date is displayed.

7. Provide the required information as described in the following table.

Section	Field	Description
RATING INFORMATION	Vendor Name	To select the name of the vendor to be evaluated, perform the following steps: a. Click  . The Vendors List dialog box is displayed. Available options are prime contractor and sub-contractors associated with the project. b. Click the required vendor, and then click Select . The Vendor Category and Vendor Sub-Category of the selected vendor are displayed. Also, the scoring criteria, such as Evaluation Category , Criterion , and Max Score are displayed in the VENDOR SCORING CRITERIA section.
	Remarks	Enter any remarks for the selected vendor.
VENDOR PERFORMANCE RATING	Review Status	Select the review status for the selected vendor. Available options are review status defined with the Is Active check box selected in the Vendor Category to Review Status library catalog.

8. In the **VENDOR SCORING CRITERIA** section, in the **Comments** column, click and enter any comments for the vendor rating.

The **Total Score** displays the sum of the **Category Avg. Score** column for the vendor.

9. Optionally, in the **ATTACHMENTS** section, upload or link related files.

For information on attachments, see [Attachments](#).

10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Consolidated Vendor Evaluation Workflow](#).

13.5. Consolidated Vendor Evaluation Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Consolidated Vendor Evaluation** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-
2	Submitted	Re-Draft	Draft	-
		Approve	Approved	
		Reject	Rejected	

13.6. Scoring Vendors

- The vendor details are defined in the **Vendors** library catalog module. For more information, see [Vendors](#).

You can record and rank the performance of a vendor at the global level across all projects the vendor has worked on. Scoring a vendor enables selection of the most appropriate vendor for a specific project requirement.

Using the **Vendor Scoring** form, you can evaluate and approve potential vendors. Additionally, you can make adjustments to the evaluator's submitted score based on the vendor's past performance in various projects.

1. In the module menu, click **Home**.

The **Enterprise Dashboard** is displayed.

2. In the navigation pane, expand **Vendor Management**, and then click **Vendor Scoring**.

The **VENDOR SCORING** list page is displayed.

3. Click New.

Vendor Scoring Page

The screenshot shows the 'VENDOR SCORING' page. At the top, there are buttons for 'Save & Exit', 'Save & Continue', 'Cancel', 'Workflow', and 'Select Actions'. The 'VENDOR INFORMATION' section contains fields for 'Created By' (Administrator), 'Created On' (10/18/2023), 'Vendor Name' (with a dropdown arrow), 'Vendor Category' (greyed out), 'SOQ Cycle' (Mar 23-Feb 24), 'Vendor Sub-Category' (greyed out), 'Remarks' (with a dropdown arrow), and 'Work Size' (greyed out). The 'EVALUATION SCORING' section has a table header with columns: Evaluation Category, Criterion, Max Score, My Score, Comments, and Normalized Score. Below the header, it says 'No records to display.'

The **VENDOR SCORING** page displays the following non-editable fields:

Field	Description
Created By	The name of the logged in user is displayed.
Created On	The current date is displayed.

4. In the VENDOR INFORMATION section, provide the required information in the fields, as described in the following table.

Field	Description
Vendor Name	<p>To select the name of the vendor to be evaluated, perform the following steps:</p> <ol style="list-style-type: none"> Click . The Vendors List dialog box is displayed. Available options are prime contractor and sub-contractors associated with the project. Click the required vendor, and then click Select. The Vendor Category and Vendor Sub-Category of the selected vendor are displayed. Also, the scoring criteria, such as Evaluation Category, Criterion, and Max Score are displayed in the VENDOR SCORING CRITERIA section.

Field	Description
SOQ Cycle	Select the SOQ cycle for the vendor. Available options are based on the start month, end month, and duration defined in the SOQ Configuration library catalog.
Remarks	Enter any remarks for the selected vendor.

5. To provide a score for the selected vendor, in the **VENDOR SCORING CRITERIA** section, perform the following steps:

- In the **My Score** column, click and enter the score for the selected vendor.

Note: The score should be less than or equal to **Max Score**.

- In the **Comments** column, click and enter any comments for the vendor rating.

- In the **Normalized Score** column, the normalized score is automatically calculated and displayed.
The score is calculated as: Normalized Score = My Score * Weightage of that category / (Sum of weightages within that vendor category)
- The **Evaluator's Score** displays the sum of the **Normalized Score** column for the vendor.

6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The **VENDOR SCORING** list page is displayed.

7. To submit the record for the Vendor Scoring Approver's verification, perform the following steps:

- In the **VENDOR SCORING** list page, select the required record that is in the **Draft** workflow status, and then click **Select Actions**.
- Click **Submit**, and in the dialog box, click **OK**.

The workflow status of the record is set to **Submitted**.

8. To make an adjustment on the score submitted by the evaluator, based on the vendor's past performance, perform the following steps:
 - a. From the **VENDOR SCORING** list page, select the required record that is in the **Submitted** workflow status, and then click **Edit**.
The **VENDOR SCORING** page is displayed.
 - b. To enter an adjustment score, in the **VENDOR SCORING CRITERIA** section, in the **Past Performance Evaluation Adjustment** box, based on the value entered in the [SOQ Configuration](#) catalog, enter the evaluation adjustment score.

Note: Based on the value entered in the [SOQ Configuration](#) catalog, you can enter a negative score to reduce the value from the submitted evaluator's score.

- c. In the **Notes** text box, enter any notes for the evaluation score adjustment.
The **Total Score** field displays the final score after the adjustment.
The score is calculated as: **Total Score = Evaluator's Score + Past Performance Evaluation Adjustment**.
- d. Optionally, in the **ATTACHMENTS** section, upload or link related files.
For information on attachments, see [Attachments](#).
- e. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Vendor Scoring Workflow](#).

13.7. Vendor Scoring Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Vendor Scoring** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	In the Submitted workflow status, the following fields are enabled: <ul style="list-style-type: none">• Past Performance Evaluation Adjustment• Total Score• Notes
2	Submitted	Re-Draft	Draft	-
		Approve	Approved	
		Reject	Rejected	

13.8. Statement of Qualification

- An approved consolidated evaluation is available for the vendor at the project level for at least one project. For information on evaluating the prime contractor and subcontractors of the project, see [Consolidating Vendor Evaluation](#).

The Statement of Qualification form enables you to determine if a vendor has been qualified according to the minimum requirements set by the organization.

1. In the module menu, click **Home**.

The **Enterprise Dashboard** is displayed.

2. In the navigation pane, expand **Vendor Management**, and then click **Statement of Qualification**.

The **STATEMENT OF QUALIFICATION** list page is displayed.

3. Click **New**.

Statement Of Qualification Page

The screenshot shows the 'STATEMENT OF QUALIFICATION' page. At the top, there are buttons for Save & Exit, Save & Continue, Cancel, Workflow, and Select Actions. Below these are fields for 'Created By' (Mike Ross), 'Created On' (10/18/2023), 'SOQ Cycle' (Mar 23-Feb 24), and 'Remarks'. A table titled 'EVALUATION SCORING' shows a 'VENDOR SCORE' section with columns for Vendor Name, Vendor Category, Vendor Sub-Category, Work Size, Avg Vendor Score, Avg Project Score, Total Score, and Is Qualified. The table displays 'No records to display.' and has buttons for 'Add' and 'Delete'.

The **STATEMENT OF QUALIFICATION** page displays the following non-editable fields:

Field	Description
Created By	The name of the logged in user is displayed.
Created On	The current date is displayed.

4. Provide the required information in the fields, as described in the following table.

Section	Field	Description
STATEMENT OF QUALIFICATION	SOQ Cycle	Select the SOQ cycle for the statement of qualification. Available options are based on the start month, end month, and duration defined in the SOQ configuration library catalog.
	Remarks	Enter any remarks for the statement of qualification.

5. To add the required vendors to be qualified or disqualified, in the **VENDOR SCORE** section, perform the following steps:

- Click **Add**.

The **Vendors List** dialog box is displayed.

Available options are vendors associated with a project and evaluated.

- Select the required vendors, and then click **Select**.

In the **VENDOR SCORE** section, the following information of the selected vendors are displayed:

Field	Description
Vendor Name	The name of the vendor is displayed.
Vendor Category	The vendor category is displayed.
Vendor Sub-Category	The vendor sub-category is displayed.
Work Size	The work size of the vendor is displayed.
Avg Vendor Score	An average approved score of the vendor created in the Vendor Scoring form at the enterprise level.
Avg Project Score	An average approved project scores (average of all available status) for which rating has been done at the project level.
Total Score	The total score for the vendor is displayed. The total score is calculated as: $\text{Total Score} = (\text{Average Vendor Score} * \text{Enterprise Score Weightage}) + (\text{Average Project Score} * \text{Project Score Weightage})$

6. The **Is Qualified** column check box is automatically selected if the **Total Score** of the vendor is more than or equal to the percentage value entered in the **Minimum Qualify Percentage** field in the **SOQ Configuration** library catalog.

Optionally, select the **Is Qualified** column check box to mark the required vendor as qualified.

7. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

To perform workflow actions, see [Statement of Qualification Workflow](#).

13.9. Statement of Qualification Workflow

The following table provides the workflow actions and status (current and subsequent status) of the **Statement of Qualification** record.

For information on setting a workflow status to the next status, see [Workflow Status Transitions](#).

Phase	Current Workflow Status	Action	Subsequent Workflow Status	Comments
1	Draft	Submit	Submitted	-
2	Submitted	Re-Draft	Draft	-
		Approve	Approved	
		Reject	Rejected	

14. Administration

14.1. Administration

The Masterworks **Administration** module enables you to configure and manage various functionalities that apply to the entire Masterworks application.

Using the **Administration** module, you can perform activities such as security management, user management, reports management, manage custom forms, and workflows.

14.2. System Configurations

14.2.1. System Configurations

The **System Configurations** section enables you to configure various settings that have impacts across the application.

You can manage application-level settings for the following aspects:

- [Application Settings](#)
- [Authentication and Login Settings](#)
- [Workflow Settings](#)
- [Mobile Settings](#)
- [GIS](#)

14.2.2. Application Settings

The **APPLICATION SETTINGS** page enables you to perform the following tasks:

- Configure application settings: Create, store, and maintain application-level preferences in the application.
- Configure mail settings: Set up mail server name and credentials, sender e-mail address and name, and recipient e-mail address details.
- Customize regional options: Customize regional options, such as the decimal places in dollar amounts and quantities, time and date formats, and date separators.

Regional Options enables you to define application settings for dollar amount type, unit price, item quantity, date, and time formats. The following options must be set before the initial use of Masterworks:

- Decimal settings for dollar amounts, unit prices, and quantities to define the number of digits after the decimal.
- Time format to define a standard time format. For example, HH:MM.
- Date format to define a standard date format. For example, DD/MM/YYYY.

- Date separator character to demarcate the day, month, and year.
- Configure the following **My Tasks** settings:
 - Define the number of days to view notifications received within that range.
 - Define the number of filter windows to view notifications for the specific date range.
 - Enable the option of viewing historical records.
- Define the sharing frequency for Logi reports: You can define the frequency for sharing the Logi Analysis or Reports with the user roles added in the **SHARE** page of the Ad-hoc Reports.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. Expand **System Configurations**, and then click **Application Settings**.

The **APPLICATION SETTINGS** page is displayed.

3. Provide the appropriate information in the fields, as described in the following table:

Section	Field	Description
-	Application Name	Enter the name that should be displayed as the tab name of the browser when the application is opened in the browser.
	Allowed File Types	By default, a set of allowed file types are displayed. Optionally, enter file extensions of file types that can be uploaded into the application. Only files of the specified file types can be uploaded to the application in the document management system, or as attachments in any forms and when performing workflow transitions.
	Max allowable Document Size in Attachment (in MB)	Enter the maximum size (in MB) of a file that can be uploaded as an attachment in a form in the application.
MAIL CONFIGURATIONS	Server Name	Enter the SMTP server IP address to enable the application to send email notifications to the configured SMTP server. For example, <i>outlook.<company>.com</i> .

Section	Field	Description
		Click the Send Test Mail button to send a test email to verify the configured application SMTP server address. If the configured SMTP server does not exist, an error message is displayed.
	Server User Name	Enter the SMTP server user name.
	Server Password	Enter the password to secure the SMTP server.
	Server Port	Enter the SMTP server port number.
	Enable SSL	Select the check box to enable SSL.
	Sender Email ID	Enter the official email address from which notifications will be sent to users from the application. For example, <i>admin@<company>.com</i> .
	Sender Name	By default, the sender name is displayed as Administrator . If required, enter the name that is displayed as the name of the sender when notifications are sent to users from the application.
	Events Recipient Email ID	The default email address is displayed as administrator@aurigo.com . If required, enter the email address of the application administrator who is notified of the events in the application after the scheduled event occurs.
REGIONAL CONFIGURATIONS	Time Zone	Select the appropriate time zone applicable in the application.
	Amount Format	Select the number of digits after the decimal for dollar amount related fields in the application.
	Quantity Format	Select the number of digits after the decimal for quantity related fields in the application.
	Unit Price Format	Select the number of digits after the decimal for price related fields in the application.
	Date Format	Select the date format for the application. For example, dd/mm/yyyy or mm/dd/yyyy.

Section	Field	Description
	Date Separator	Select the date separator character. For example, / or -.
	Time Field Format	Select the format to display time. For example, hh:mm:ss or hh:mm:ss:tt, where hh corresponds to hours, mm to minutes, ss to seconds, and tt to AM/PM in a 12-hour format.
MY TASKS CONFIGURATION	Filter Window Range (in Days)	<p>Enter the number of days for which the tasks must be displayed.</p> <p>Note: You can enter any value between 1 to 30. The default value is set to 7.</p> <p>All tasks falling within the defined number of days are displayed in the following locations:</p> <ul style="list-style-type: none">The My Tasks section at the Masterworks user interface. For more information on viewing all Masterworks notifications from My Tasks, see the Notification Icon feature in the Introduction to the Masterworks User Interface on page 26.The MY TASKS page at the enterprise and project levels. For more information on viewing MY TASKS at the enterprise level, see Viewing My Tasks at the Enterprise Level on page 115. For more information on viewing MY TASKS at the project level, see Viewing My Tasks at the Project Level on page 428.

Section	Field	Description
	No. Of Filter Windows	<p>Enter the number of filter windows for the filter window range.</p> <p>Note: You can enter any value between 1 to 5. The default value is set to 5.</p> <p>From the Select Period drop-down list, you can select the specific window of the date range for which you want to view the assigned tasks. This option is available in the MY TASKS page at the enterprise and project levels.</p> <p>For more information on viewing tasks within a specific date range at the enterprise level, see Viewing My Tasks within a Date Range at the Enterprise Level.</p> <p>For more information on viewing tasks within a specific date range at the project level, see Viewing My Tasks within a Date Range at the Project Level.</p>
	Show Historical Records	Select the check box to enable this option in the MY TASKS page at the enterprise and project levels. In the MY TASKS page, you can click this option to view all the records that do not fall under the defined filter window range.
LOGIC CONFIGURATION	Refresh Frequency For Logi Report Sharing (in hrs)	Enter the number to define the frequency at which new users or security roles details must be refreshed. On the subsequent refreshing instance, the analysis or reports are automatically shared with all the new users associated with the roles added in the SHARE page of the Ad-hoc Reports. For more information on sharing the reports, see Sharing Analysis and Reports .

- Click **Save**.

14.2.3. Authentication and Login Settings

The **AUTHENTICATION & LOGIN SETTINGS** page enables the Administrator to define settings and configurations around logging into the system. Most of these configurations are set prior to initial use of Masterworks. The settings include defining:

- Login mode and authentication method

- Timeout periods
- Password configurations
- Login attempts configurations
- Login attempt configurations

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. Expand **System Configurations**, and then click **Authentication & Login Settings**.

The **AUTHENTICATION & LOGIN SETTINGS** page is displayed.

3. Provide the required information in the fields, as described in the following table.

Field	Description
Login Mode	<p>Select a login mode from the drop-down list. The available options are:</p> <ul style="list-style-type: none">• Masterworks: Select this option to login through the user account created in Masterworks. For more information on user accounts, see User Accounts on page 1078.• External IDP: Select this option to login using the third party IDP, such as ADFS, BigF5, and so on.• Mixed: Select this option to use both the options – Local and External IDP logins. <p>Note: The login page is launched based on the login mode you select.</p>
Authentication Method	For External IDP or Mixed login modes, select the required authentication method.
Reset Password Timeout	Enter the time duration (in hours) after which the reset password link which is sent by email, expires.
Session Timeout Notification Prior (in seconds)	Enter the time in seconds. The session timeout notification is displayed after the specified time duration prior to the session expiry.

4. In the **PASSWORD CONFIGURATIONS** section, provide the required information in the fields, as described in the following table.

Field	Description
Minimum Password Length	Enter the number to define the minimum number of characters required in a password.
Must include lower case letters	Select the check box to define the characteristics of the password.
Must include upper case letters	
Must include numbers	
Must include special characters	
User ID or part of User ID should not be the part of password	
Default Password expiration period (in days)	Enter the number of days after which the default password that is set for user accounts created by bulk upload of user account information expires. For information on creating user accounts in bulk, see Creating User Accounts in Bulk .
	By default, the Never Expire check box is enabled, which means the password never expires.
Send Email Notification Prior to Password Expiry Date	<p>Note: This field is not available if the Never Expire check box is selected.</p> Select the check box to send email reminders to users everyday prior to password expiry date.
Number of Days	<p>Note: This field is displayed if the Send Email Notification Prior to Password Expiry Date check box is selected.</p> Enter how many days prior to the expiry date the reminder should be sent to the users.

Field	Description
Select a Template	<p>Note: This field is displayed if the Send Email Notification Prior to Password Expiry Date check box is selected.</p>
	<p>Select the appropriate mail body template to send a standard automated email notification to the users with password expiration details.</p> <p>Available options are templates defined in the Mail Body Templates library catalog.</p> <p>For more information on defining mail body templates, see Mail Body Templates on page 215.</p>
	<p>Select the check box to notify the users to change the password at first logon.</p> <p>Alternatively, clear the check box to continue using the password as set when the account is created.</p>
Enforce Password History	By default, the Not Defined check box is selected.
	To enforce password history, remove the check box and enter the number of unique new passwords that must be associated with a user account before an old password can be reused.

5. In the **LOGIN ATTEMPTS CONFIGURATIONS** section, provide the required information in the fields, as described in the following table.

Field	Description
Maximum Login Attempts	Enter the value to set the maximum number of unsuccessful login attempts that will cause a user account to be locked.
Reset unsuccessful Login attempt counter (in mins)	By default, the counter is set to 60 minutes. Enter the value to define the number of minutes that must pass to reset the account that is locked due to maximum number of unsuccessful login attempts.

6. Click **Save**.

14.2.4. Authentication and Login Settings with AIS

14.2.4.1. Configuring Authentication and Login Settings

Administrators and users with administrator privileges can enable 2FA and configure an external identity provider using the **Authentication & Login Settings** page.

Note: To enable the Aurigo Identity Service (enable/disable 2FA), Multi Factor Settings, and External IDP Configurations on Masterworks, administrators should set the value to AurigoldentityService in the database. By default, the AuthLoginService value will be set to MWAuthenticationService.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **System Configurations**, and then click **Authentication & Login Settings**.
3. In the **AUTHENTICATION & LOGIN SETTINGS** page, complete the following:

Field	Description
Login Mode	Select a login mode from the drop-down list. The available options are: <ul style="list-style-type: none">• Masterworks: Select this option to login through the database.• External IDP: Select this option to login using the third party IDP, such as ADFS, BigF5, and so on.• Mixed: Select this option to use both the options – Local and External IDP logins. <p>Note: The login page is launched based on the login mode you select.</p>
Identity Service Provider	Select the appropriate IDP service.
Session Timeout Notification Prior	Enter the session timeout in seconds. If a user does not interact with the application for the specified time, the application displays a pop-up notification to continue or cancel the session.
Password Configurations	

Field	Description
Minimum Password Length	Enter the number to define the minimum number of characters required in a password.
Must include lower case letters	Select the check box to define the characteristics of the password.
Must include upper case letters	
Must include numbers	
Must include special characters	
User ID or part of User ID should not be the part of password	
Default Password expiration period (in days)	<p>You can set an expiration period after which the default password that is set for user accounts created by bulk upload of user account information expires. For information on creating user accounts in bulk, see Creating User Accounts in Bulk.</p> <p>By default, the Never check box is enabled, which means the password never expires.</p> <p>To set an expiration period, enter the number of days after which the default password expires.</p>
User Must Change the Password at First Logon	<p>Select the check box to notify the users to change the password at first logon.</p> <p>Alternatively, clear the check box to continue using the password as set when the account is created.</p>
Enforce Password History	<p>By default, the Not Defined check box is selected.</p> <p>To enforce password history, remove the check box and enter the number of unique new passwords that must be associated with a user account before an old password can be reused.</p>
Login Attempts Configurations	
Maximum Login Attempts	Enter the value to set the maximum number of unsuccessful login attempts that will cause a user account to be locked.

Field	Description
Reset unsuccessful Login attempt counter (in mins)	By default, the counter is set to 60 minutes. Enter the value to define the number of minutes that must pass to reset the account that is locked due to maximum number of unsuccessful login attempts.
Multi-factor Authentication Configurations	
Enable 2 Factor Authentication	Select this check box to enable 2FA authentication. When you enable 2FA to your account, you need to provide username, password, plus authenticator code (passcode) received in your mobile device.
Force 2 Factor Authentication to all Users	Select this check box to enable 2FA authentication to all users. Once you select this check box, all users must download the two-factor authenticator application (Microsoft Authenticator or Google Authenticator) on your mobile device.
External IDP Configurations	
Name	Enter the name of the external identity service provider.
IDP Identifier	Enter the URL to specify the IDP identifier. For example, if the login is through ADFS, then provide the ADFS URL.
Protocol	Select the routing protocol that facilitates the authentication process.
Sign On Binding	Select the HTTP method from the drop-down list during the sign on process. Note: Ensure to select Http Post when you configure Azure ADFS as an external IDP. Note: You need not configure the Sign On Binding value when you use the WS Federation protocol.

Field	Description
Logout Binding	Select the HTTP method from the drop-down list during the log out process. Note: You need not configure the Logout Binding value when you use the WS Federation protocol.
Sign On URL	Enter the login URL of the external IDP. This URL specifies the login page of the IDP where the user enters credentials to log in to the Masterworks application.
Logout URL	Enter the URL of the external IDP, which is the landing page of the user after logging out of the Masterworks application.
Metadata Address	Enter the URL of ADFS through which the AIS portal fetch the metadata to perform login and authorization process.
Logo	You can upload an image file to appear as a logo icon of the external IDP. Click Choose File and navigate to the image file. Select the file and click Open . The image can be in PNG, JPG, GIF, or JPEG format.
Bulk Import Users Configurations	
Client Id	The Client Id is a unique identifier Azure AD issues to an application registration. The client identifier identifies a specific application and its associated configurations. This application identifier (Client Id) is used when performing authentication requests and is provided to the authentication libraries at the time of development.
Tenant Id	The Tenant Id identifies the instance of the Azure AD on which the application is configured. This is a Name or GUID of the Azure Active Directory.
Secret Key	The Secret Key is the Client Secret String used to access the registered Azure AD application.
Graph API Endpoint	Azure AD Graph API enables access to permission scopes that enable secure access to Azure AD data using OAuth 2.0.

Field	Description
Azure AD Instance	The URL of the Azure AD Instance to authenticate with an application to receive the token endpoint.

4. Click **Save**.

14.2.4.2. Managing Two-factor Authentication

You can configure the authenticator application, enable or disable 2FA, and reset the authenticator key.

You can perform the following tasks:

- [Enable Two-Factor Authentication](#).
- [Remove Two-Factor Authentication](#).
- [Reset the Authenticator Key](#).
- [Generate Two-factor Authentication Recovery Codes](#).

Enabling Two-Factor Authentication

You can add 2FA authentication for your account.

1. From the profile menu drop-down list, select **Manage Two-factor Authentication**.
The **TWO-FACTOR AUTHENTICATION** page is displayed.
2. Click **Configure Authenticator App**.
The **ENABLE AUTHENTICATOR** page is displayed.
3. Use your mobile device and scan the QR code.
4. In the **Verification Code** field, enter the verification code provided by the authenticator application.
5. Click **Verify**.

The 2FA configuration provides 10 recovery authentication codes to use them in the absence of the authenticator device and authenticator login code. You can use these codes only once and can use it as substitution to the authenticator code.

Note: Aurigo recommends that you save these 10 recovery authenticator codes in a notepad for future use.

Removing Two-Factor Authentication

You can remove 2FA authentication for your account.

1. From the profile menu drop-down list, select **Manage Two-factor Authentication**.
The **TWO-FACTOR AUTHENTICATION** page is displayed.

2. In the **Disable Two-factor Authentication (2FA)** section, click **Disable 2FA**.
Masterworks displays a confirmation message that 2FA is disabled for your account.

Note: Removing 2FA for your account makes the recovery authenticator codes unavailable. Additionally, administrators can remove 2FA from the **USER LIST** and **USER DETAILS** pages using the **Reset 2 Factor Auth** button. When the **Is 2 Factor Configured?** check box is selected, 2FA is configured. Select the user and click **Reset 2 Factor Auth** to remove 2FA for the selected user.

Resetting the Authenticator Key

You can reset your authenticator key.

1. From the profile menu drop-down list, select **Manage Two-factor Authentication**.
The **TWO-FACTOR AUTHENTICATION** page is displayed.
2. Click **Reset Authenticator Key**.
This will disable your 2FA and recovery codes until you verify the authenticator application.
The **ENABLE AUTHENTICATOR** page is displayed.
3. Use your mobile device and scan the QR code.
4. In the **Verification Code** field, enter the verification code provided by the authenticator application.
5. Click **Verify**.
The 2FA configuration provides 10 recovery authentication codes to use them in the absence of the authenticator device and authenticator login code. You can use these codes only once and can substitute the authenticator code.

Note: Aurigo recommends that you save these 10 recovery authenticator codes in a notepad for future use.

Generating Two-Factor Authentication Recovery Codes

Additionally, you can generate ten new recovery codes when you lose your device and don't have the recovery codes.

1. From the profile menu drop-down list, select **Manage Two-factor Authentication**.
The **TWO-FACTOR AUTHENTICATION** page is displayed.

2. Click **Reset Recovery Codes**.

The 2FA configuration provides 10 new recovery authentication codes.

Note: Aurigo recommends that you save these 10 recovery authenticator codes in a notepad for future use.

14.2.4.3. Logging Out of Masterworks

You can log out of the Masterworks application.

1. In the **Logo** area (where your user name is displayed), click **Manage Two-factor Authentication** from the drop-down list.
2. Click **Logout**.
3. When prompted for confirmation, click **Yes** to log out of the identity server. When you click **No**, you will log out of the Masterworks application and not from the identity server.

14.2.5. Workflow Settings

The **Workflow Settings** page enables you to define the settings related to workflow transitions.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **System Configuration**, and then click **Workflow Settings**.

The **WORKFLOW SETTINGS** page is displayed.

3. Provide the required information in the fields, as described in the following table.

Field	Description
Max size of Document to attach during Workflow action (in MB)	<p>Enter the maximum size of the attachment that can be uploaded during a workflow transition.</p> <p>Note: For attachments during workflow transitions, this value takes precedence over the maximum file size defined in the Max allowable Document Size in Attachment (in MB) in the Application Settings page. For information on application settings, see Application Settings on page 1039.</p>

Field	Description
Default Mail Body Template for Workflow Notification	<p>Select the appropriate mail body template to send a standard automated email notification to the action stakeholders of the subsequent stage whenever the workflow action is performed.</p> <p>Available options are templates defined for the form in the Mail Body Templates library catalog.</p>
Default Days to Complete an Action	<p>Enter the number of days before which an action must be performed in the current workflow stage. When you configure properties for a workflow stage, the defined number is used as a default. For information on creating workflows, see Creating a Workflow.</p>
Send a reminder prior to due date	<p>Select the check box to send a reminder email to the stakeholders with the due date details.</p>
Number Of Days	<p>Note: This field is displayed if the Send a reminder prior to due date check box is selected.</p> <p>Enter the number of days prior to due date on which a reminder email is sent to the action stakeholders with the due date details. The due date is defined in the Days to Complete field in the stage properties pane of the Workflow Management page. For information on creating workflows, see Creating a Workflow.</p>
Select Template	<p>Note: This field is displayed if the Send a reminder prior to due date check box is selected.</p> <p>Select the appropriate mail body template for the reminder email. Available options are templates defined for the form in the Mail Body Templates library catalog.</p>
Send reminder to action stakeholders past due date	<p>Select the check box to send a reminder email after the due date is crossed if the stakeholder does not perform a workflow action. The due date is defined in the Days to Complete field in the stage properties pane of the Workflow Management page. For information on creating workflows, see Creating a Workflow.</p>

Field	Description
Select Template	<p>Note: This field is displayed if the Send reminder to action stakeholders past due date check box is selected.</p> <p>Select the appropriate mail body template for the reminder email. Available options are templates defined for the form in the Mail Body Templates library catalog.</p>
Show Workflow History in Details Report	Select the check box to add the Workflow History section in the Details Report .

4. Click **Save**.

14.2.6. Mobile Settings

You can configure mobile settings to manage the cache of all mobile devices with the Masterworks mobile application installed.

The cache saves information on the structure of forms and library information. On modifications in form structure, and addition, deletion, or modification to library information, the cache must be refreshed. The cache is refreshed automatically every configured number of hours. However, the cache must be manually refreshed for the modifications to take immediate effect. Latest form structure and library information is available to mobile users on the next successful device synchronization.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **System Configuration**, and then click **Mobile Settings**.

The **MOBILE SETTINGS** page is displayed.

3. Click **Rebuild Now** for changes in the structure of forms, and for the latest library information to take immediate effect in mobile forms. On the subsequent instance of device synchronization, the information on the mobile device is updated.

4. Click **Save**.

14.2.7. GIS

14.2.7.1. GIS Settings

14.2.7.1.1. GIS

The Geographic Information System (GIS) application is an information management system that enables us to capture, analyze and present geographical information on a

map. Information about the world is captured in a collection of thematic layers, based on the geography. Each layer contains data about different geographical details – like streets, rivers, and so on. Data sets from the feature layers can be visualized in maps, graphs, or charts to analyze and make informed business decisions.

To enable users to utilize GIS in Masterworks, the GIS Map Control is included in forms in which geo-location data needs to be captured or viewed. Map Controls that are used in every form need to be configured in terms of Base Maps, Feature Layers, Write Layer details, and so on.

To utilize GIS in Masterworks, perform the following tasks:

- [Configure GIS Settings in Masterworks.](#)
- [Enable Map Control using Form Builder.](#)
- [Mark the location pertaining to a project in Location form.](#)
- [See a consolidated view of all Project Locations.](#)

14.2.7.1.2. GIS Settings

Geographic Information System (GIS) application is an information database used to secure, store, update, analyze, manage, and display all kinds of spatial and geographical information.

The **GIS SETTINGS** page enables you to configure the map controls, such as Layers and Base Maps that are required to perform the following activities:

- Display the geographical information of the location.
- Mark location points and boundaries on the map.
- View the marked location points on the map at project and enterprise level.

The following settings are configured using **GIS Settings**:

- **GIS IN MOBILE**

Enabling GIS in mobile enables you to enter location data pertaining to the site through GIS rather than entering locations using latitude and longitude or manually entering the location address. Also, you can capture location information (points or lines or shapes) using Masterworks in mobile devices in offline mode.

- **GIS AUTHENTICATION**

OAuth is an industry standard protocol for authorization. ArcGIS (ESRI) uses OAuth to safely exchange ArcGIS identity with external applications. You can enable OAuth for the application for enhanced security while accessing ArcGIS (ESRI).

- **BASE MAPS**

A Base Map serves as a reference map on which you overlay data from layers and visualize geographic information. The ArcGIS (ESRI) website provides several predefined base map layers for you to use in your maps.

- **LAYERS**

A layer is a database of points used to mark a location in the map. Layers can be editable or read-only. Layers are created in the ArcGIS (ESRI) website. While creating a layer in ArcGIS (ESRI), you can specify the geometry and data fields for mapping Masterworks data fields with ESRI data fields.

- **Geometry**

A location can be marked in a map using different shapes - point, line, or polygon.

When you use a form to capture the project location, the drawing tools that are displayed for an editable layer are based on the selected shape.

- **Fields**

The data fields defined for GIS in Masterworks must be mapped to those in ESRI.

It is mandatory to map the following data fields for each layer - PID, ParentID, InstanceID, ModuleID, MapControlName, GeometryID.

Note: These 6 fields are defined in ESRI and must be mapped for each layer used in the map control for the Save to ESRI for any location from the map control to succeed.

- **LAYER ALIASES**

You can configure Tooltips for geometries present in each non-editable layer by creating Aliases for ArcGIS (ESRI) Outfields. The Aliases are used instead of the ArcGIS (ESRI) field names when displaying data in a tooltip in the map.

- **DEFAULT MAP LOCATION**

You can configure the default location of the map using the geographic coordinate systems.

- **SERVICE AUTHENTICATION SETTINGS**

You can configure the authentication of services.

- **GEOMETRY SERVICE SETTINGS**

The Geometry Service enables you to create and modify feature geometries.

- **OFFLINE EXTENT**

You must define the boundary or extent within which the data pertaining to the base map should be downloaded when the mobile application is offline. Defining such a rectangular extent will ensure that all Offline Base Maps imagery present within the framed area will be visible to the user.

- **OFFLINE BASE MAPS**

You can configure the URLs of Offline Base Maps and validate if they are Valid for Offline Download.

- **ESRI SAVE SETTINGS**

The location data created in Masterworks using map controls is saved in ArcGIS (ESRI). Sometimes Save to ESRI may fail due to various reasons, such as interrupted network connection. The system will automatically retry to write the location data to ESRI based on the configured number of retries. Also, a failure notification is sent to the specified recipients. You can configure the maximum number of retries and the recipients of the failure notification in the ESRI Save Settings.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **System Configurations**.
3. Expand **GIS**, and then click **GIS Settings**.

The **GIS SETTINGS** page is displayed.

4. To enable GIS in the Masterworks mobile application, in the **GIS IN MOBILE** section, select the **Enable GIS in Mobile** check box.

By enabling GIS in mobile, you can view the following forms in the Masterworks mobile application:

- Project Location form.
- Map Controls used in forms that are available offline.

5. To enable OAuth authentication for GIS with ESRI, in the **GIS AUTHENTICATION** section, select the **Enable OAuth** check box.

6. To configure base maps, in the **BASE MAPS** section, perform the following steps:

- a. Click **Add**.

The **New Base Maps** dialog box is displayed.

- b. In the **Name** box, enter a unique alphanumeric name for the new base map.
- c. In the **URL** box, enter the URL of the new base map available in ArcGIS (ESRI).

Note: In the forms using map control, you can see a view of the Base Map, accessible at the specified URL in ArcGIS (ESRI).

- d. To set the base map as the default map, select the **Is Default** check box.

Note: Only one base map can be selected as default. The default base map is displayed in the map view across the application.

- e. Click **Save** to save the new base map details.

All the saved base maps are available for selection in the map view.

Every base map serves as a spatial canvas for the user to view location data.

7. To configure layers, in the **LAYERS** section, perform the following steps:

- a. In the **Transparency of Drawing tools in %** box, enter the appropriate value.

The value can be between 0 to 100%, where 0% is fully opaque and 100% is fully transparent.

This value defines the transparency of the geometrical shapes created by user to clearly distinguish the overlapping boundaries.

- b. To add a new layer, perform the following steps:

- i. Click **Add**.

The **New Layer** dialog box is displayed.

- ii. In the **Name** box, enter the name of the layer.
 - iii. In the **URL** box, enter the URL of the layer.

Note: Layers are created beforehand in ArcGIS (ESRI).

- iv. To indicate that the URL is a group of layers, select the **Group URL** check box.

When a group of layers is selected in a form, the data from all the layers in the URL is visible on the map.

Note: You cannot edit a group layer after the group layer is saved.

- v. Select the **Enable Editing** check box, to set the layer as editable.

The **Geometry** field is enabled.

Note: If **Group URL** is selected, then the **Enable Editing** check box is not available for selection.

- vi. Optionally, if the layer is marked as **Private** in the ArcGIS (ESRI) settings, enter the **User ID**, **Password**, and **ConfirmPassword** to enable user authentication to access the layer in ArcGIS (ESRI).

- vii. In the **Geometry** drop-down list, select the required geometry, if the layer is enabled for editing.

- viii. Enter the **Transparency in %** value.

Values can be between 0 to 100%, where 0% is fully opaque and 100% is fully transparent.

By default, transparency of the layer when placed over the Base Map is set to 50%.

- ix. Click **Save** to save the new layer details.

The **ID** is automatically generated on saving the new layer.

- c. To ensure that the added layers are available for offline download in the mobile application, click **Validate**.

The **Valid for offline Download** column displays one of the following options:

Option	Description
Yes	Validation is successful, the layer is available for offline download.
No	Validation is unsuccessful, the layer is unavailable for offline download. You can perform any of the following actions to enable the layer for offline download: <ul style="list-style-type: none">• In case the URL provided for the Layer is incorrect, edit it and validate again.• In case the Layer is not enabled for Offline in ESRI, enable the layer for Offline and validate again.
NA	Layer is pending validation.

8. To configure aliases that will be displayed in the tooltips for non-editable layers, in the **LAYER ALIASES** section, perform the following steps:

Note: For every Map Control being used in a form, the tooltip fields are configured in **GIS Settings** (for non-editable layers) and in Data Mappings in **Form Builder** (for editable layers).

- a. From the **Layer Name** drop-down list, select the appropriate layer.
The **Layer Aliases** information of the selected layer is displayed in the table.
- b. To create an outfield alias for a non-editable layer, perform the following steps:
 - i. Click **Add**.
The **New Alias** dialog box is displayed.
 - ii. Provide the following information:

Field	Description
Layer Name	From the drop-down list, select the layer name. Available options are the non-editable layers configured in the LAYERS section.

Field	Description
Sub Layer Name	From the drop-down list, select the sub-layer name. Available options are the sub layers contained within the selected group layer.
Outfield Name	Enter the name of the outfield attribute as defined in ArcGIS (ESRI) database.
Outfield Alias	Enter the outfield alias to be displayed in the tooltips in the map view.

- iii. Click **Save** to save the new layer alias details.

Layer aliases enable you to easily identify the outfield attribute when displayed in the tooltips in the map view.

9. To configure the default map location, in the **DEFAULT MAP LOCATION** section, for the **Default Map Type**, select either of the following options:

Field	Description
Zoom Level	a. Enter the values for X and Y coordinates. b. Enter the zoom level.
Extent	a. Enter the Starting X (longitude) and Y (latitude) coordinates. b. Enter the End X (longitude) and Y (latitude) coordinates.

10. To configure service authentication settings, in the **SERVICE AUTHENTICATION SETTINGS** section, provide the following details required for service authentication:

- **Client Login Service**

Enter the URL that is used to authenticate the application being integrated with ArcGIS (ESRI).

- **User Login Service**

Enter the URL that is used to authenticate a named user.

- **Referrer**

Enter the recipient URL to which authentication response is sent.

- **Client ID**

Enter the client's ID that is used to authenticate the application.

- **Client Secret**

Enter the client's password that is used to authenticate the application.

11. To support the spatial reference other than the default spatial reference, in the **GEOMETRY SERVICE SETTINGS** section, **Geometry Service URL** box, enter the geometry service URL defined in ESRI.
12. To set a boundary or extent for the offline Base Map when displayed in the Masterworks mobile application, in the **OFFLINE EXTENT** section, perform the following steps:

Note: It is recommended to set the **Offline Extent** coordinates same as the **Default Map Location**.

- a. Enter the **Start Y Coordinate** and **End Y Coordinate**.
- b. Enter the **Start X Coordinate** and **End X Coordinate**.

13. To configure URLs of Offline Base Maps, in the **OFFLINE BASE MAPS** section, perform the following steps:
- Click **Add**.
The **New Offline Base Map** dialog box is displayed.
 - In the **Name** box, the name of Base Map that appears for user to select in the Mobile application.
 - In the **URL** box, enter the URL of the offline Base Map.
 - From the **From Level** and **To Level** drop-down lists, select the probable value of levels of base map that can be downloaded to the Mobile application.
 - Select the **Is Default** to make the map the default base map for map controls.
- Note:** Only one offline Base Map can be selected as default.
- Click **Save**.
The new offline base maps details are saved.
 - To validate that the base maps are available for offline download in the mobile application, click **Validate**.
- The **Valid for Offline Download** column displays any of the options described below:
- **Yes** – Validation is successful, the layer is available for offline download.
 - **No** – Validation is unsuccessful, the layer is unavailable for offline download.
You can perform any of the following actions to enable the layer for offline download:
 - In case the Layer is not enabled for **Offline** in ESRI, enable the layer for **Offline** and validate again.
 - In case the URL provided for the Layer is incorrect, edit it and validate again.
 - **NA** – Base Map is pending validation.
14. To configure additional settings for Feature Layer writing, in the **ESRI SAVE SETTINGS** section, perform the following steps:
- In the **Maximum Number of Retries** box, enter the maximum number of attempts to be made by the system to write location data on to the feature layer in ArcGIS (ESRI) after the first failed attempt.
 - In the **Failure Notification Recipient Email(s)** box, select the users to whom the notification of failure must be sent.
Available options are user accounts available in Masterworks.

15. Click **Save** to save the changes.

14.2.7.2. ESRI Logs

The ESRI Log displays information on the failed activity to save the location data from Masterworks to ArcGIS (ESRI). You can view the description of the form and the error message.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **System Configuration**.

3. Expand **GIS**, and then click **ESRI Logs**.

The **ESRI LOGS** list page is displayed.

14.3. Functional Configurations

14.3.1. Functional Configurations

The **Functional Configurations** section enables you to configure various management settings.

- [Feature Settings](#)
- [Planning Management](#)
- [Budget Management](#)
- [Contract Management](#)
- [Resource Management](#)
- [Issue Log Color Configurations](#)
- [Mobile Application Settings](#)
- [Important Notifications](#)
- [Report Management](#)
- [Business Units](#)

14.3.2. Feature Settings

The **Feature Settings** page lists the module components that are configured in the Masterworks application. To activate or deactivate a component, you can turn on or turn off specific component in the module.

For example, to display the project code along with the name of the project in the navigation pane, mark the **Show Project Code in Tree** component in the **Core Module** as **Active**.

1. In the module menu, click **Administration**.

The **Administration** page is displayed.

2. In the navigation pane, expand **Functional Configurations** and then click **Feature Settings**.

The **FEATURE SETTINGS** page is displayed.

3. Perform either of the following steps:

- To deactivate the functionality of the component, select the required component that has the **Active** check box selected, and then click **Mark as Active/Inactive**.
- To activate the functionality of the component, select the required feature that has the **Active** box cleared, and then click **Mark as Active/Inactive**.

14.3.3. Business Units

14.3.3.1. Business Units

The **Business Unit** form enables you to categorize projects and users based on operational functions of the organization. Users assigned to a particular business unit can access only projects that are associated with that business unit. You can assign multiple business units to a user, and only one business unit to a project.

The **Business Units** module enables you to perform the following tasks:

- [Create a business unit](#).
- [Assign a business unit to a user](#).
- [Revoke a business unit from a user](#).
- [Deactivate a business unit](#).

14.3.3.2. Creating a Business Unit

You can create business units to categorize projects and users based on the operational functions of the organization.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **Functional Configurations**, and then click **Business Unit**.

The **BUSINESS UNIT** page is displayed.

3. Click **New**.

4. In the **Business Unit** box, enter the name of the business unit.

5. From the **Is Root?** options, click either of the following:
 - Click **Yes** to set the business unit as a high-level option in the business unit hierarchy.
 - Click **No** to set the business unit as a sub-level option to a high-level business unit in the business unit hierarchy. If **No** is the selected option, then from the **Parent Business Unit** drop-down list, select the high-level business unit in the business unit hierarchy. Available parent business units are high-level business units that are marked as Active.
 6. In the **Description** box, enter the description of the business unit.
 7. Ensure the **Is Active** check box is selected.
- Note:** If the check box is cleared, the business unit cannot be available for selection during project creation or user account creation. Also, the business unit is made unavailable to create a sub-level business unit.
8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

14.3.3.3. Assigning Business Units to a User

Assigning business units to users and projects enables you to limit project access to users belonging to the business unit of the project.

1. In the module menu, click **Administration**.
The **ADMINISTRATION** page is displayed.
2. In the navigation pane, expand **User Management**, and then click **User Accounts**.
The **USER ACCOUNTS** page is displayed.
3. Select the required user account to add business units, and then click **Edit**.
4. From the **Business Unit** drop-down list, select the required business units.
5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

14.3.3.4. Revoking Business Units from a User Account

On revoking a business unit assigned to a user account, the projects associated with the business unit are made inaccessible by the user.

1. In the module menu, click **Administration**.
The **ADMINISTRATION** page is displayed.
2. In the navigation pane, expand **User Management**, and then click **User Accounts**.
The **USER ACCOUNTS** page is displayed.

3. Select the required user account to remove business units, and then click **Edit**.
4. From the **Business Unit** drop-down list, clear the required business units.
5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

14.3.3.5. Deactivating Business Units

You can deactivate business units to make them unavailable for selection during creation of projects, and users accounts. Also, a deactivated business unit is unavailable to create a sub-level business unit.

1. In the module menu, click **Administration**.
The **ADMINISTRATION** page is displayed.
2. In the navigation pane, expand **Functional Configurations**, and then click **Business Unit**.
The **BUSINESS UNIT** page is displayed.
3. Select the required business unit, and then click **Edit**.
4. Clear the **Is Active** check box.
5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

14.3.4. Configuring Planning Management

Planning Management configurations define forecast distribution in programs. You can also define if project dates must be updated on approval of a program containing the project.

The **Program Cycle** configurations help you define multiple fiscal years and the duration of the program. You can select the start month and the number of years for which the program is scheduled.

1. In the module menu, click **Administration**.
The **ADMINISTRATION** page is displayed.
2. In the administration navigation pane, expand **Functional Configurations** and then click **Planning Management**.
The **PLANNING MANAGEMENT** page is displayed.
3. In the **Update project dates on Program approval** options section, click the appropriate option.

In a program, a user can move projects from one year to another and then approve. If set to **Yes**, on approval of a program, the project start date and finish date are updated basis the change in project dates.

4. To configure a new program cycle, in the **PROGRAM CYCLE CONFIGURATIONS** section, perform the following steps:
 - a. Click **Add**.
The **New Program Cycle Configurations** dialog box is displayed.
 - b. In the **Name** box, enter the name of the new program cycle.
 - c. From the **Fiscal Start** drop-down list, select the month of initiation of the program.
The **Fiscal End** is calculated as the **Fiscal Start** month + 11 months.
 - d. From the **Program Duration (Yearly)** drop-down list, select the number of years to define the program period.
 - e. Click **Save**.
The new program cycle is added to the **PROGRAM CYCLE CONFIGURATIONS** table.
 - f. To edit a program cycle, select the program cycle, and click **Edit**.

Note:

You cannot edit a program cycle that has been used to create a program, funding plan, or project.

- g. To delete a program cycle, select the program cycle, and click **Delete**.

Note:

You cannot delete a program cycle that has been used to create a program, funding plan, or project.

5. In the **Allow Project/Phase What-If For In-Progress Projects** options, click the appropriate option.
 - If **Yes** is selected, you can modify the start and end dates of projects that are in the **Pre-Award**, **In-Progress**, **Planned**, or **Published** workflow status.
 - If **No** is selected, you can modify the start and end dates of projects that are in the **Planned** and **Published** workflow statuses only.
6. Click **Save**.

14.3.5. Configuring Budget Management

You can configure forecast distribution for budget estimates of all projects in the enterprise. Based on the budget management configuration, budget estimate forecast values are distributed monthly or yearly for the duration of the project.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **Functional Configurations** and then click **Budget Management**.

The **BUDGET MANAGEMENT** page is displayed.

3. From the **Budget Estimate Forecast Distribution** drop-down list, select either of the following:

- Select **Yearly** to distribute budget estimate values yearly for the duration of the project.
- Select **Monthly** to distribute budget estimate values monthly for the duration of the project.

4. Click **Save**.

All budget estimate forecasts for all the projects are distributed based on the budget management configuration.

14.3.6. Managing Contract Configurations

You can configure forms related to contract management module that are displayed in the contract navigation pane.

1. In the module menu, click **Administration**.

The **Administration** page is displayed.

2. In the navigation pane, expand **Functional Configurations**, and then click **Contract Management**.

The **CONTRACT MANAGEMENT** page is displayed.

3. Provide the required information in the fields, as described in the following table.

Description
Default Retention Percent ESTIMATE retention percentage for pay estimates. CONTRACT MANAGEMENT Percentage of all pay estimates of all contracts that are created is set to this defined percentage value.
Required Validation ESTIMATE Select the check box to enforce the corresponding validation when generating the ESTIMATE of a contract. These validations are enforced for all new contracts CONSIDERATIONS

4. Click **Save**.

14.3.7. Configuring Resource Management

Resource Management configurations define threshold percentage of the resource utilization in the application. This ensures the resources are utilized efficiently and identify the parameters as defined below:

- Over Utilization – Resources that are used more than the Optimal-Utilization Threshold percentage.
- Optimal Utilization – Resources that are used within the Optimal-Utilization Threshold percentage.
- Under Utilization – Resources that are used less than the Optimal-Utilization Threshold percentage.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the administration navigation pane, expand **Functional Configurations** and then click **Resource Management**.

The **RESOURCE MANAGEMENT** page is displayed.

3. In the **UTILIZATION THRESHOLDS (IN %)** section, enter the following information:

- a. **Over-Utilization** – Enter the maximum allowable utilization in % for a resource.
- b. **Under-Utilization** – Enter the minimum allowable utilization in % for a resource.
- c. **Optimal-Utilization** – Enter the optimal utilization in % for a resource.

4. Click **Save** to save the changes.

14.3.8. Configuring the Issue Log List Page

You can define the highlight color of issue log records that have passed the **Due Date** specified.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the administration navigation pane, expand **Functional Configurations**, and then click **Issue Log Color Configuration**.

The **ISSUE LOG COLOR CONFIGURATION** page is displayed.

3. From the **Issue's due Color** drop-down list, select the color to highlight issue log records that have passed their specified due date.

Available options are colors defined in the **Color Grade** library catalog.

4. Click **Save**.

14.3.9. Configuring Mobile Application Settings

You can configure document management settings for the mobile application.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the administration navigation pane, expand **Functional Configurations**, and then click **Mobile Application Settings**.

The **MOBILE APPLICATION SETTINGS** page is displayed.

3. To enable data synchronization at the form level of a project, in the **SELECTIVE SYNC** section, select the **Enable Selective Sync** check box.

On enabling selective sync, the **Sync** button is displayed in the list page of the form.

4. In the **DOCUMENT MANAGEMENT CONFIGURATIONS** section, perform the following steps:

- a. Select the **Enable Document Viewer and Annotation** check box to enable the online document viewer and the annotation features in the application.
- b. Select the **Get Inactive Projects in Outlook Plugin** check box to view in the Outlook plugin projects that are marked inactive.

5. In the **FORM SETTINGS** section, perform the following steps:

- a. In the **Last number of days plus current day Approved/Final Stage records to be maintained offline** box, enter the number of days the records will be available on the offline device.

To ignore all the Approved or Final Stage records, enter zero.

- b. To select the forms for which the form settings is applied, in the **Form Name** table, click **Add**.

The **Forms** dialog box is displayed.

Available options are the forms marked as **Offline** in the application.

- c. Select the required forms, and then click **Select**.

Alternatively, to select all the forms, click **Select All Records**.

6. Click **Save**.

14.3.10. Enabling Meeting Scheduler

The Meeting Scheduler feature enables you to create Zoom meetings in Masterworks. For information in Meeting Scheduler, see [Meeting Scheduler](#).

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **Functional Configurations**, and then click **Meeting Settings**.

The **MEETING SETTINGS** page is displayed.

3. By default, the **Enable Zoom Meeting Scheduler** check box is selected that indicates the Meeting Scheduler feature is enabled in the application.

To turn off the Meeting Scheduler feature, clear the check box.

14.3.11. Important Notifications

You can display notification messages on the login page of the application using the **Important Notifications** form. The latest published message is displayed on the login screen of the application.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **Functional Configurations**, and then click **Important Notifications**.

The **IMPORTANT NOTIFICATIONS** page is displayed.

3. Click **New**.

4. In the **Description** box, enter the description of the message to be displayed on the login page of the application.

Note: This information is not published on the login page of the application.

5. In the **Login Message** text box, enter the message to be displayed on the login page of the application.

You can use the various text formatting options to format the information to be displayed.

You can perform any of the following tasks to create and edit the login message:

Note: By default, the **Design** mode is selected.

- Bold, italicize, underline, strike-through letters and words.
- Use subscripts and superscripts.
- Select the font and its size.
- Select the font color and the background color for the content.
- Insert and manage tables, and hyperlinks.
- Use bullets and numbering.
- Use clipboard operations to cut, copy, and paste the text.
- Use indents and outdents.
- To add HTML code, click **</> HTML** and then type the code.
- To preview the HTML code entered, click **Preview**.

6. In the **Requested By** text box, enter the name of the user requesting the message to be displayed.

Note: This information is not published on the login page of the application.

7. From the **Requested On** drop-down list, select the date of the message request.

Note: This information is not published on the login page of the application.

8. To select the display style, click either of the following options:

- **Inline** - To display the message in the login page.
- **PopUp** - To display the message in a dialog box.

9. Select the **Published** check box to publish the message on the application login page.

10. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

The latest published message is displayed on the application login page.

14.3.12. Report Management

14.3.12.1. Report Management

The Report Management enables the user to configure report-associated settings.

- [Setting Report Permissions](#)
- [Configuring a Report](#)
- [Unsubscribing to Reports](#)

14.3.12.2. Configuring a Report

You can define the settings for reports and dashboards to display information if needed.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the administration navigation pane, expand **System Configurations**.

3. Expand **Report Management**, and then click **Report Configurations**.

The **REPORT CONFIGURATIONS** page is displayed.

4. In the **Report Logo** box, click the image to change the logo in the report.

The **Open** dialog box is displayed.

5. Select the new image and upload the new report logo.

The new logo is displayed on all reports that are generated in the application.

6. In the **Fiscal Year Start Month** box, select the start month of the fiscal year that is displayed in the reports.

7. To define the settings for the project summary dashboard, in the **PROJECT SUMMARY DASHBOARD** section, perform the following steps:
 - a. To define a minimum and maximum value insights of the project schedule and budget, in the **BUDGET HEALTH** and **SCHEDULE HEALTH** sections, perform the following steps:
 - i. In the **Legend** column, double-click and select the appropriate option. Available options are **Green**, **Yellow**, and **Red**.
 - ii. In the **Min** column, click and enter the minimum value for the respective legend.
 - iii. In the **Max** column, click and enter the maximum value for the respective legend.
 - b. To define a minimum and maximum budget value of the project, in the **PORTFOLIO PROJECT DISTRIBUTION DASHBOARD** section, perform the following steps:
 - i. Click **Add**.
The **New** dialog box is displayed.
 - ii. In the **Minimum Budget** box, enter the appropriate minimum budget value.
 - iii. In the **Maximum Budget** box, enter the appropriate maximum budget value.
 - iv. Click **Save**.

Note: You can add only three budget ranges.

8. To define the settings for the billings and payments dashboard, in the **BILLINGS AND PAYMENTS DASHBOARD** section, in the **Pay Estimates Pending Approval Days (N)** box, enter the number of days the pay estimates are pending for approval.
9. To define the settings for the risk and issues dashboard, in the **RISK AND ISSUES DASHBOARD** section, perform the following steps:
 - a. In the **Due Days (N)** box, enter the number of days by when a resolution for the issues and risks is expected.
 - b. In the **TOP N ISSUES** section, in the **Top High Priority Issues (N)** box, enter the number of records that should be displayed in the report. The report displays all the high priority issues in the project. The number of records displayed is based on the number defined.
 - c. In the **TOP N RISKS** section, in the **Top High Priority Risks (N)** box, enter the number of records that should be displayed in the report box.
The report displays all the high priority risks in the project. The number of records displayed is based on the number defined.

10. Click **Save**.

The new report configurations are saved.

14.3.12.3. Unsubscribing to Reports

- You are assigned the **Administrator** role.

You can stop the delivery of a subscribed report by unsubscribing to that report. Only a user with the Administrator role can delete report subscriptions.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **Functional Configurations**, expand **Report Management**, and then click **Report Subscriptions**.

The **REPORT SUBSCRIPTIONS LIST** page is displayed.

3. Select a report subscription, and then click **Delete**.

A confirmation message is displayed.

4. Click **OK**.

The selected report subscription is deleted, and delivery of the report is stopped for the user who was subscribed to the report.

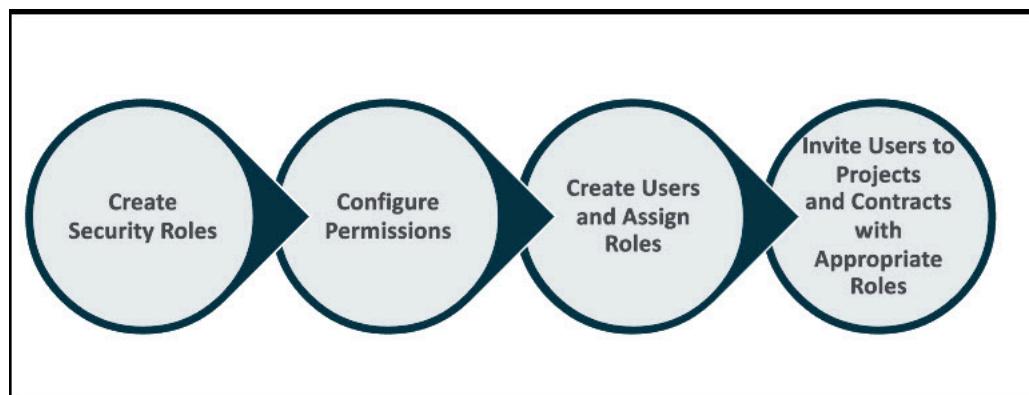
14.4. User Management

14.4.1. User Management

The User Management feature enables you to create and manage security roles, user accounts, and permissions in the Masterworks application.

A security role is a task-based privilege providing the same level of access to modules and application data for a specific group of user accounts. Permissions are configured on a role and users are assigned to the role to control how these users view or edit business data in the application.

User Management Process



The User Management module enables you to manage the following:

- [Manage roles.](#)
- [Manage role permissions.](#)
- [Manage user accounts.](#)
- [Manage rules for auto-invitations to projects.](#)
- [Manage online user registrations.](#)
- [Manage user settings.](#)

14.4.2. User Accounts

14.4.2.1. User Accounts

You must create a user account to provide access to a user with valid login details. The system authenticates the login details when a user logs on to the application and provides the user access to the application.

Managing user accounts includes the following tasks:

- [Configure user settings.](#)
- [Create a user account](#)
- [Create user accounts in bulk.](#)
- [Manage online account registrations.](#)
- [Change the password of a user account.](#)
- [Change the status of a user account.](#)
- [Edit user account details.](#)
- [Unlock a user account.](#)
- [Generate user account reports.](#)

14.4.2.2. Creating a User Account

- Business units are configured. For information on business units, see [Business Units](#).
- User roles are created. For information on creating roles, see [Creating a Security Role](#).

You can create an account for a user to log into and use the Masterworks application.

For information on creating multiple user accounts at once, see [Creating Multiple User Accounts in Bulk](#).

Note: These instructions are for users that are not in the Active Directory. Users in the Active Directory will automatically have an account created or updated through syncing with the Active Directory.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **User Accounts**.

The **USER ACCOUNTS** list page is displayed.

3. Click **New**.

The **ADD USER** page is displayed.

Add User Page

The screenshot shows the 'ADD USER' form with the following fields:

- User Name *: [Text Input]
- First Name *: [Text Input]
- Middle Name : [Text Input]
- Last Name : [Text Input]
- Email *: [Text Input]
- Fax : [Text Input]
- Company : [Text Input]
- Mobile Number : [Text Input]
- Telephone : [Text Input]
- Certificate Number : [Text Input]
- Password *: [Text Input]
- Confirm Password *: [Text Input]
- Type *: Internal [Select Box]
- Address Line 1 : [Text Input]
- Address Line 2 : [Text Input]
- Address Line 3 : [Text Input]
- City : [Text Input]
- State : [Text Input]
- Country : [Text Input]
- Zip Code : [Text Input]
- Account Expiry Date : 11/19/2023 [Select Box]
- Send Email Notification :
- Business Unit *: Select [Select Box]

4. Provide the required information in the fields, as described in the following table.

Field	Description
User Name	Enter a unique identification name for the user account. The user name is used to login to the application. Note: Once the record is saved, you cannot edit the entered user name.
First Name	Enter the first name of the user.
Middle Name	Enter the middle name of the user.
Last Name	Enter the last name of the user.
Email	Enter the email address of the user.

Field	Description
Fax	Enter the fax number of the user for facsimile communication.
Company	Enter the company name of the user.
Mobile Number	Enter the mobile number of the user.
Telephone	Enter the telephone number of the user.
Certificate Number	Enter the access certificate number assigned to the user.
Password	Enter a password for the user account. The password must adhere to the settings as defined in the AUTHENTICATION & LOGIN SETTINGS page.
Confirm Password	Retype the password to verify that the entered password is correct.
Type	Select either of the following options: <ul style="list-style-type: none">• Internal - Select this option if the user belongs to the organization.• External - Select this option if the user belongs to a different organization. For example, contractors. Selecting the account type as External for an account ensures only specific and limited information in the application is available to the user.
Address Line 1, Address Line 2, and Address Line 3	Enter the address of the user.
City	Enter the name of the city where the user resides.
State	Enter the name of the state where the user resides.
Country	Enter the name of the country where the user resides.
Zip Code	Enter the zip code for the address where the user resides.
Account Expiry Date	Enter a date until which the account will be valid. The user will be denied access to the application after this date.
Send Email Notification	Select the check box to send an email notification with login details to the user.

Field	Description
Business Unit	Select the business unit to assign to the user. Available options are business units defined in the application. For information on business units, see Business Units .
Vendor	<p>Note: This field is available only if the selected Type is External.</p> <p>Select the vendor associated with the user. Alternatively, type the name of the vendor, and then select the appropriate vendor. Available options are contractors defined in the Vendors library catalog.</p>

5. To assign roles to the user, in the **ASSIGN ROLES** section, perform the following steps:
 - a. In the **Available Roles** box, click the role to assign to the user.
To select multiple roles, press and hold CTRL, and then click the required roles.
 - b. Click ➤ .
The selected roles are displayed in the **Associated Role(s)** box.
The consolidated set of permissions of all roles associated with the user account are made available to the user. For information on creating roles, see [Creating a Security Role](#).
6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.
The user account is created.

Note: To deny application access to a user, change the status of the user to inactive. For information on changing the status of a user, see [Changing the Status of a User Account](#).

14.4.2.3. Creating Multiple User Accounts in Bulk

You can create multiple user accounts at once by importing a Microsoft Excel file that contains user details. The high-level process of bulk uploading of user account details is as follows:

1. Download the predefined Excel template from Masterworks. The Excel template contains user information required for user account creation as columns.
2. Enter user account details in the template workbook.
3. Import the workbook with user details to Masterworks.

The password for user accounts created by importing account information using an Excel file is set to **Aurigo@2023**. All users with accounts created using the bulk import feature can login to the application with their username and the default password **Aurigo@2023**. Users are prompted to reset their password on first login.

1. In the module menu, click **Administration**.
The **ADMINISTRATION** page is displayed.
2. In the navigation pane, expand **User Management**, and then click **User Accounts**.
The **USER ACCOUNTS** page is displayed.
3. Click **Excel Import / Export**, and then click **Excel Template**.
The template is saved to your local storage.
4. Open the Excel template workbook.
5. Enter information for each of the columns, as described in the following table.

Field	Description
InternalID	Do not enter information in the InternalID column. When you import the Excel workbook, a unique identification code for the corresponding user record is automatically generated.
UserName	Enter a unique alphanumeric name to identify the user.
FirstName	Enter the first name of the user.
LastName	Enter the last name of the user.
Email	Enter the email address of the user for email communication.
IsActive	Enter YES to specify that the user is active. Enter NO to deny application access to the user. Note: To revoke application access from a user, change the status of the user to Inactive. For information on changing the status of a user, see Deactivating a User Account .

Field	Description
MobileNo	Enter the mobile number of the user.
AccountExpiryDate	Enter the date until which the account will be active. Enter the date in the format as defined in the USER SETTINGS page. The user is denied access to the application after this date.
Roles	Enter the role names for the user separated by a comma. Ensure the role names entered here are as defined in the application. To view the list of role names defined in the application, in the Administration navigation pane, expand User Management , and then click Security Roles .
BusinessUnit	Enter the business units to which the user belongs. Enter the business unit names separated by a comma. Ensure the business unit names entered here are as defined in the application. To view the list of business unit names defined in the application, in the navigation pane, expand Functional Configuration , and then click Business Unit .
MiddleName	Enter the middle name of the user.
CompanyName	Enter the company name of the user.
Address1, Address2, and Address3	Enter the address of the user.
City	Enter the name of the city where the user resides.
State	Enter the name of the state where the user resides.
Country	Enter the name of the country where the user resides.
Zipcode	Enter the zip code for the address where the user resides.
Telephone	Enter the telephone number of the user.
Fax	Enter the fax number of the user for facsimile communication.
CertNo	Enter the access certificate number assigned to the user.

Field	Description
Type	Enter either of the following options: <ul style="list-style-type: none">• Internal - Enter this option if the user belongs to the organization.• External - Enter this option if the user belongs to a different organization. For example, contractors.
Vendor	If the Type is External , then enter the vendor associated with the user. To view the list of vendors, see the Vendors library catalog.
Send Email	Enter YES for the user to receive an email notification with login details on user account creation.
IsADUser	<p>Note: This column is available only if the option selected in the Login Mode field in the AUTHENTICATION & LOGIN SETTINGS page is External IDP or Mixed.</p> <p>Enter YES if the user is registered in the External Identity Provider. Otherwise, enter No.</p>

6. To import the Excel workbook with user details, click **Excel Import / Export**, and then click **Excel Import**.

The **IMPORT DETAILS FROM EXCEL FILE** page is displayed.

7. Click **Choose File**.

The **Open** dialog box is displayed.

8. Select the workbook with the updated information, and then click **Open**.

9. Click **Upload**.

The information in the Excel file is displayed.

10. On encountering errors while importing an Excel workbook, perform the following steps:

- a.** In the toolbar, click **Error Log**.

The error log workbook is downloaded to your local storage.

- b.** Open the error log workbook to view the errors in the various columns.

Error messages in the cells are highlighted in red. Tabs in the workbook are also highlighted to indicate the presence of errors.

- c.** Open the Excel workbook and modify the details as specified in the error log workbook.

Optionally, you can make relevant corrections in the error log workbook and upload it.

- d.** Save and upload the Excel workbook to import the updated information.

11. Click **Save**.

The information in the Excel file is imported to Masterworks.

14.4.2.4. Editing User Account Details

You can modify user account details, such as address, email address, telephone or FAX numbers, status, expiry date, and user roles of a user account.

For users that are in the Active Directory, the system administrator must edit their user account for Business Unit and assign roles.

- 1.** In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

- 2.** In the navigation pane, expand **User Management**, and then click **User Accounts**.

The **USER ACCOUNTS** page is displayed.

3. Select the required user account, and then click **Edit**.

The **EDIT USER** page is displayed.

Edit User Page

The screenshot shows the 'EDIT USER' page with the following fields:

User Name *		Address Line 1 :
User Name *	MikeRoss	Address Line 1 :
First Name *		Address Line 2 :
First Name *	MikeRoss	Address Line 2 :
Middle Name :		Address Line 3 :
Middle Name :		Address Line 3 :
Last Name :		City :
Last Name :		City :
Email *		State :
Email *	mr@amail.com	State :
Fax :		Country :
Fax :		Country :
Company :		Zip Code :
Company :		Zip Code :
Mobile Number :		Send Email Notification :
Mobile Number :		<input type="checkbox"/>
Telephone :		
Telephone :		
Certificate Number :		
Certificate Number :	NA	
Business Unit *		Status :
Business Unit *	HeadOffice; Default	Status : Active
Password :		Password Last Changed :
Password :	Change Password	10/19/2023
Password Expiry :		Account Expiry Date :
Password Expiry :	Never	11/18/2023
Type *		
Type *	Internal	

4. Make changes in the appropriate fields.

For information on editing user details, see [Creating a User Account](#) Step 4.

5. To manage the role of the user, in the **ASSIGN ROLES** section, perform the following steps:

- a. To assign a role to the user, perform the following step:

- In the **Available Roles** box, select the required role, and then click . To select multiple roles, press and hold CTRL, and then click the required roles. The selected roles are added to the **Associated Role(s)** box.

- b. To remove a role from the user, perform the following step:

- In the **Associated Role(s)** box, select the required role, and then click .

The selected role is added to the **Available Roles** box.

6. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

14.4.2.5. Changing the Password of a User Account

You can change the password of a Masterworks user account for administrative purposes and send the new password details to the user. An email notification is sent automatically to the user with the details of the new password.

Users in the Active Directory cannot change their password as the password is maintained through syncing with the directory.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **User Accounts**.

The **USER ACCOUNTS** page is displayed.

3. Select the required user account, and then click **Edit**.

The **EDIT USER** page is displayed.

4. Corresponding to the **Password** field, click **Change Password**.

The **CHANGE PASSWORD** page is displayed.

Change Password Page

The screenshot shows a 'CHANGE PASSWORD' form. At the top, there are 'Save' and 'Cancel' buttons. Below them, the user's details are listed: 'User Name : MikeRoss' and 'Full Name : MikeRoss'. The next section contains fields for password changes:
- 'Enter the current password * :'
- 'Choose a new password * :'
- 'Confirm the new password * :'

5. In the **Choose a new password** box, enter the new password.
6. In the **Confirm the new password** box, re-enter the password to verify the new password.
7. Click **Save**.
8. Click **Back** to return to the list page.

14.4.2.6. Changing the Status of a User Account

You can [deactivate an active user account](#) to prevent a user from accessing the application. On deactivating an account, the user cannot log into the application. However, the account is not deleted and all details of the account are retained and available.

You can [activate a deactivated account](#). On activating an account, the user can log in to resume working on the application.

14.4.2.6.1. Activating a User Account

- The check box in the **Is Active?** column of the user account is cleared.

You can activate an inactive user account to allow a user access to the application. On activating an account, the user can log in to the application.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **User Accounts**.

The **USER ACCOUNTS** list page is displayed.

3. Select the appropriate deactivated user account.
4. Click **Mark Active/InActive**.

Alternatively, perform the following steps:

- a. Select the required inactive user account, and then click **Edit**.

The **EDIT USER** page is displayed.

- b. From the **Status** drop-down list, select **Active**.
- c. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

14.4.2.6.2. Deactivating a User Account

- The check box in the **Is Active?** column of the user account is selected.

You can deactivate an active user account to prevent a user from accessing the application. On deactivating an account, the user cannot log in to the application. However, the account is not deleted and all details of the account are retained and available.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **User Accounts**.

The **USER ACCOUNTS** list page is displayed.

3. Select the appropriate active user accounts, and then click **Mark Active/InActive**.

Alternatively, perform the following steps:

- a. Select the required active user account, and then click **Edit**.
The **EDIT USER** page is displayed.
- b. From the **Status** drop-down list, select **Inactive**.
- c. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

14.4.2.7. Unlocking a User Account

Masterworks automatically locks a user account when a user exceeds the maximum number of allowed failed log on attempts. A user with a locked account cannot log in to the application until the account is reset. A request with account details can be sent to the Administrator to reset the account. Also, a user can initiate a request to unlock the account and reset the password from the login page of the application.

The system will automatically reset the account after the time defined in **Reset unsuccessful Login attempt counter (in mins)** on the **Authentication & Login Settings** page.

For information on user account settings, see [Configuring the User Account Settings](#).

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **User Accounts**.

The **USER ACCOUNTS** page is displayed.

3. Select the required locked user account.

4. Click **Unlock**.

A confirmation message is displayed.

5. Click **OK**.

14.4.2.8. Generating User Accounts Reports

You can generate various reports for information on user accounts.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **User Accounts**.

The **USER ACCOUNTS** list page is displayed.

3. Click **Reports**, and then click the required report.

The report is generated and displayed.

For information on the various report features available, see [Standard Report Functions](#).

You can generate the following reports:

- [User Details Report](#)
- [User Access Details Report](#)
- [Weekly Access Summary](#)
- [User Account - Logs Report](#)
- [Login - Logs](#)

User Details Report

The **User Details Report** displays basic information of all the users of the enterprise, the number of active users, inactive users, user registrations pending approval, and the total number of users in the enterprise.

The following user information is displayed:

- Active Users - Total number of active users in the application.
- Inactive Users - Total number of inactive users in the application.
- Pending Registrations - Total number of users who have requested to get access to the application.
- Total Users - Total number of users in the application.
- Last Name - Last name of the user.
- First Name - First name of the user.
- User Name - User name of the user.
- Active - Displays **Yes** if the user is active.
- Locked - Displays **Yes** if the user account is locked. The user cannot access the application until the user account is unlocked. For additional information on unlocking, see [Unlocking a User Account](#).
- Pending for Registration - Displays **Yes** if the user is waiting to get access to the application and the administrator must grant access.
- Role - Roles of the user in the application.

User Access Details Report

This report displays the list of users with their login time and logout time.

You can filter information in this report using the following filter criteria:

- From
- To

- Users

The following information is displayed:

- Login Date - Date of login into the application.
- User Name - Name of the user whose access details are displayed.
- Login Time - Time of login into the application.
- Module- The module accessed.
- URL - The form accessed.
- No. of Pages Visited - The total number of pages accessed.
- First login - The time the user accessed the application first time on that day.
- Last logout - The time the user accessed the application last time on that day.
- Duration - Session duration.

Weekly Access Summary

The **Weekly Access Summary** report displays statistics of the number of pages the users of the application visited that day, the number of users who logged into the application, the number of users who did not login to the application, the time of first and last login, and the total time duration the user was logged into the application.

You can filter information in this report using the following filter criteria:

- Start Date
- User Name

The following information is displayed:

- Department - The department or business unit the user belongs to.
- User Name - Name of the user who accessed the application.
- Date - Date the user accessed the application.
- Pages Visited - Total number of pages accessed by the user.
- First Access - Time of first access by the user.
- Last Access - Time of last access by the user.
- Duration (min) - Duration of the session.

User Account - Logs Report

This report displays the date and time user accounts were created or modified. You can filter information in this report using the following filter criteria:

- Start Date
- To Date
- Action

The following information is displayed:

- Action - The action performed.
- User Name - User name of the user whose account details were changed.
- Full Name - Full name of the user whose account details were changed.
- Action By - User name of the user who made the changes.
- Date Time - Date and time when the change was made.
- Field Name - Name of the field that was modified.
- Previous Value - The value of the field before modification.
- Current Value - New value in the field.

Login - Logs

This report displays the success or failure of login attempts, the login attempt date and time, user name, first name and last name of the user, and information if the user account is locked, and if the user is an active user. Information displayed in the report is grouped on the login ID of the user, the latest login attempts are recorded in reverse chronological order. The report also displays the number of successful login attempts and unsuccessful login attempts in the selected date range.

You can filter information in this report using the following filter criteria:

- Start Date
- End Date
- Include Failed

The following information is displayed:

- Login Id - The user name of the user.
- First Name - First name of the user.
- Last Name - Last name of the user.
- Is Locked? – Displays **Yes** if the user account of the user is locked.
- Is Active? - Displays **Yes** if the user account of the user is marked as active.
- Login Date Time - The date and time the user logged in or attempted to login.
- Success? - Displays if the login attempt was successful or not.
- Total number of successful logins - Total number of successful login attempts within the specified date range.
- Total number of failed logins - Total number of failed login attempts within the specified date range.

14.4.3. Security Roles

14.4.3.1. Security Roles

A security role is an application-specific logical grouping of users, classified by user profile or job title. It is a privilege granted to a user or a group of users to access various modules and resources of the application.

In Masterworks, roles are the specific grouping of user permission to access the information in the application. For example, estimators, supervisors, engineers, managers, and owners may access the application. Each of these categories is called a role. Each role has varied access control on the application and can perform tasks based on the permissions provided to each of these roles.

The Administrator must create security roles that define access privileges and restrictions to application resources or modules. The Administrator must map these roles to various users based on their job profile.

You can perform the following tasks:

- [Create a security role.](#)
- [Configure permissions.](#)
- [Assign roles to users.](#)
- [Edit role information.](#)

14.4.3.2. Creating Security Roles

Creating roles enables you to manage the security of the system by defining permissions to a role and restricting user access to selective modules or forms in the application.

For example, a role called **Project Manager** has access to all application modules and permissions to create, edit, delete, approve, or reject any project-related information. Any user or group of users assigned the Project Manager role would have access to all the privileges granted to a project manager.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Security Roles**.

The **SECURITY ROLES** list page is displayed.

3. To create user roles, perform either of the following procedures:

- To create a single role:

- a. Click **New**.

The **SECURITY ROLES** page is displayed.

Security Roles Page

The screenshot shows a form titled "SECURITY ROLES". At the top, there are three buttons: "Save & Exit", "Save & Continue", and "Cancel". Below the buttons, there are two input fields. The first field is labeled "Role *:" and contains a text input box. The second field is labeled "Description *:" and contains a text input box with scroll bars.

- b. In the **Role** box, enter the name of the role.
 - c. In the **Description** box, enter a description for the role.
 - d. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page. For information on setting role permissions, see [Configuring Role Permissions](#).
- Create multiple roles by importing role information in an Excel worksheet:
 - a. Click **Excel Import / Export**, and then click **Excel Template**.
 - b. Save the Excel template to your local storage.
 - c. Open the saved Excel template.
 - d. In the **RoleName** column, enter the role name.
 - e. In the **RoleDescription** column, enter the description of the role.
 - f. Save the Excel workbook.
 - g. To import role information, click **Excel Import / Export**, and then click **Excel Import**.
The **IMPORT DETAILS FROM EXCEL FILE** page is displayed.
 - h. Click **Choose File**, and select the updated Excel workbook with role information.
The **Open** dialog box is displayed.
 - i. Select the workbook with the updated information, and then click **Open**.
Click **Upload**.
The information in the Excel file is displayed.
 - j. Click **Save**.

The roles defined in the Excel file are updated to the list of roles. For information on setting role permissions, see [Configuring Role Permissions](#).

Note: Once the security role is created, role permissions will need to be configured for the role.

14.4.3.3. Assigning a Role to Users

You can assign a role to multiple users in the application.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Security Roles**.

The **SECURITY ROLES** page is displayed.

3. Select a role.

4. Click **Manage Users**.

The **MANAGE USERS** page is displayed.

Manage Users Page

The screenshot shows the 'MANAGE USERS' page. At the top, there are 'Save' and 'Cancel' buttons. Below them, a message says 'Associate users to the role : Lead Program Manager'. There are two lists: 'Available Users' on the left containing 'Molly', 'Mujeeb', 'Muzammil', and 'muzeeb', and 'Users added to this role' on the right which is currently empty. Between the lists are two buttons: a right-pointing arrow (>>) and a left-pointing arrow (<<). The entire interface is contained within a light gray box.

5. In the **Available Users** list, click the required user.

Alternatively, to select multiple users, press and hold CTRL, and click each of the required users.

6. Click **>**.

The selected users are added to the **Users added to this role** box.

7. Click **Save**.

14.4.3.4. Editing Role Information

Editing role information enables you to manage the security of the system by defining permissions to a role and restricting user access to selective modules or forms in the application.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Security Roles**.

The **SECURITY ROLES** list page is displayed.

3. Select the appropriate role, and then click **Edit**.

The **SECURITY ROLES** page is displayed.

4. Update the **Role** and **Description** fields with the appropriate information.

For information on permissions, see [Configuring Role Permissions](#).

5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

If the role name is modified, ensure that the associated workflows' stakeholders are updated at every stage. For information on updating a workflow, see [Editing a Workflow](#).

14.4.3.5. Deleting a Security Role

- No users are invited to the role.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Security Roles**.

The **SECURITY ROLES** page is displayed.

3. Select a role and click **Delete**.

A confirmation message is displayed.

4. Click **OK**.

14.4.4. Permissions

14.4.4.1. Permissions

You can configure permissions for various roles defined in the application. Roles are assigned permissions as a security measure to protect the integrity, limit access to data, and define decision-making powers. A user in a specific role is permitted access to modules or forms that are relevant to the role and the tasks that the user is permitted to perform within that form.

For example, a user who logs on as a Contract Administrator is given access to the Contract Invoice form and is expected to be able to create and edit the Contract Invoice form.

Users can have multiple roles. Each role's permissions are consolidated for the user.

You can assign permissions in two ways:

- [Assign permissions to a role](#)

You can set form permissions for a selected role. For example, once you create a role, you can then assign permissions to the role for each of the forms.

- [Assign permissions to a form or report](#)

You can set role permissions for a selected form or report. For example, once you create a form, you can then assign permissions on the form for each of the roles.

Permission options available for selection depend on the features available in the form or module.

Note: The Administrator role is permitted access to all the forms and features available in the application.

You can also configure [role permissions in bulk using an Excel workbook](#).

14.4.4.2. Configuring Role Permissions

You can assign permissions to a role for each of the forms available in the application.

You can also configure [role permissions in bulk using an Excel workbook](#).

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Permissions**.

The **PERMISSIONS** page is displayed.

Permissions Page

The screenshot shows the 'PERMISSIONS' page with the following interface elements:

- Toolbar:** Includes Save, Undo, Redo, Cancel, and Excel Import / Export buttons.
- Filter:** A dropdown menu labeled 'By Roles' is selected, with an alternative 'By Forms' option.
- Role Selection:** A dropdown menu labeled 'Roles :'.
A second dropdown menu labeled 'Copy Permissions From :'.
A 'Copy' button and a help icon (?) are located next to the 'From' dropdown.
- Tab Navigation:** Two tabs are visible: 'Form Permissions' (selected) and 'Report Permissions'.

3. To set permissions for a role, in the **By Roles** tab, from the **Roles** drop-down list, select the required role to assign permissions.

Available options are all roles created in the application. For information on creating a role, see [Creating a Security Role](#).

Alternatively, type the name of the role, and then select the required role.

Available options are role names that match the entered role name. For information on creating a role, see [Creating a Security Role](#).

The permissions for the selected role are available in the **Form Permissions** tab.

Note: If you select the **Create** or **Edit** check boxes, the **View** check box is automatically selected. But, when you clear the **Create** or **Edit** check boxes, the **View** check box is not cleared automatically.

Note: In the first check box row, if the column **Create**, **Edit**, **View**, or **Delete** displays:

- - indicates that permission is granted to all the roles or forms that are available in the permission matrix
- indicates that permission is not granted to any of the roles or forms that are available in the permission matrix
- - indicates that permission is granted to some of the roles or forms that are available in the permission matrix

4. To define permissions for forms, in the **Form Permissions** tab, perform any of the following:

- Copy permissions from an existing role, and modify required permissions:
 - a. From the **Copy Permissions From** drop-down list, select the required role to copy the permissions from.
 - b. Click **Copy**.

The form permissions of the selected role are copied to the role selected in the **Roles** drop-down list.

 - c. Optionally, select or clear the required permissions from the permission matrix to grant or revoke access.
- Select all or revoke all standard permissions for all forms, and modify required permissions:
 - a. In the **Create, Edit, View, or Delete** columns, select the check boxes in the top check box row to grant access or clear the check boxes to revoke access to the selected role.
 - b. Optionally, select or clear the required permissions from the permission matrix to grant or revoke access.
- Search for a specific form, and define permissions:
 - a. In the **Module** column, in the search box, enter the name of the form, and then select the form.
 - b. In the corresponding row of the selected form, select or clear the check boxes in the **Create, Edit, View, Delete, and Others** columns to set permissions.

Alternatively, to set the same permissions for all the forms that are displayed in the permission matrix, select or clear the check boxes in the row below the **Create, Edit, View, or Delete** column.
- Select all or revoke all permissions of a form or module:
 - a. In the **Module** column, select or clear the check box corresponding to a module or form.
 - If the check box corresponding to a form is selected or cleared, all permissions on the form are granted or revoked.
 - If the check box corresponding to a module is selected or cleared, all permissions on all the forms in that module are granted or revoked.

Note: If you are assigning permissions at the module level, the permissions are assigned to all the associated forms displayed in the permission matrix. If a form is not displayed in the permission matrix, the permissions are not assigned to the form, even though the form is associated with the module.

5. To set permissions for a report, click the **Report Permissions** tab, and perform any of the following procedures:

- Copy permissions from an existing role, and modify required permissions:
 - a. From the **Copy Permissions From** drop-down list, select the required role to copy the permissions from.
 - b. Click **Copy**.
The report permissions for the selected role in the **Copy Permissions From** drop-down list are copied to the role selected in the **Roles** drop-down list.
 - c. Optionally, select or clear the required permissions from the permission matrix to grant or revoke access.
- Select all or revoke all permissions of a report or module:
 - a. In the **Module** column, select or clear the check box corresponding to a module or report.
 - If the check box corresponding to a report is selected or cleared, all permissions on the report are granted or revoked.
 - If the check box corresponding to a module is selected or cleared, permissions on all the reports in that module are granted or revoked.

Note: If you are assigning permissions at the module level, the permissions are assigned to all the associated reports displayed in the permission matrix. If a report is not displayed in the permission matrix, the permissions are not assigned to the report, even though the report is associated with the module.

- Search for a specific report, and define permissions:
 - a. In the **Module** column, in the search box, enter the name of the report, and then select the report.
 - b. Select or clear the required check boxes to grant or revoke permissions for the selected report.

6. Click **Save**.

14.4.4.3. Configuring Form Permissions

You can assign permissions on the form for each of the roles in the application.

You can also configure [role permissions in bulk using an Excel workbook](#).

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Permissions**.

The **PERMISSIONS** page is displayed.

Permissions Page

3. To set permissions for a form, click the **By Forms** tab.

4. From the **Forms** drop-down list, select the required form to assign permissions.

Available options are forms available in the application.

Note: If you select the **Create** or **Edit** check boxes, the **View** check box is automatically selected. However, when you clear the **Create** or **Edit** check boxes, the **View** check box is not cleared automatically.

Note: The first check box row in the **Create**, **Edit**, **View**, or **Delete** columns displays:

- - indicates that permission is granted to all the roles or forms that are available in the permission matrix
- - indicates that permission is not granted to any of the roles or forms that are available in the permission matrix
- - indicates that permission is granted to some of the roles or forms that are available in the permission matrix

- To define permissions on roles, perform any of the following steps:
 - Search for a specific role, and define permissions:
 - a. In the **Roles** column, in the box, enter the name of the role. All role names matching the entered text are displayed.
 - b. In the rows corresponding to the role name, in the **Create**, **Edit**, **View**, **Delete**, and **Others** columns, select or clear the check boxes to set permissions.
Alternatively, to set the same permissions on all the roles that are visible in the permission matrix, select or clear the check boxes in the row below the **Create**, **Edit**, **View**, **Delete** rows.
 - c. Select or clear the appropriate permissions from the permission matrix to grant or revoke access.
 - Select all or revoke all permissions of a role, in the **Roles** column, select or clear the check box corresponding to a role.
- To define permissions for a report, click the **Report Permissions** tab, and perform any of the following steps:
 - a. In the **Roles** column, in the box, enter the name of the role. All role names matching the entered text are displayed.

- b. In the **Reports** column, select or clear the required check boxes to grant or revoke report permissions for the selected form. Alternatively, to grant permissions to all reports for a role, in the **Roles** column, select the check box for the required role.
5. Click **Save**.

14.4.4.4. Configuring Permissions in Bulk Using an Excel Workbook

You can configure role permissions on each form in bulk using the Excel Import/Export feature.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Permissions**.

The **PERMISSIONS** page is displayed.

3. Click **Excel Import / Export**, and then click **Excel Template**.

All configured permissions are downloaded in an Excel workbook to your local storage.

Alternatively, to download the template without any data, click **Excel Template With Data**.

The template as an Excel file is downloaded to your local storage.

The Excel workbook comprises the following columns:

- Module Name - The path and name of the module.
- FormId - The form identification code.
- Form Name - The name of the form.
- Permissions - The permissions defined for the form.
- Roles - Roles defined in the application.

If you have exported permission configurations to an Excel workbook, a **Y** in the columns with role names signifies a granted permission and an **N** signifies a revoked permission.

Note: All permissions that have the check box cleared in the **PERMISSIONS** page are exported to the Excel workbook with the corresponding permissions set as **N**.

4. To update a permission, corresponding to the required form, permission, and role, enter **Y** to grant the permission or enter **N** to revoke the permission.

Alternatively, enter the required information in the columns as follows:

- Module Name - Enter the path and name of the module.
- FormId - Enter the form identification code.
- Form Name - Enter the name of the form.
- Permissions - Enter the permissions defined for the form.
- Roles - Corresponding to each role, enter **Y** to grant the permission or enter **N** to revoke the permission.

5. Save the Excel workbook.

6. In the application, click **Excel Import / Export**, and then click **Excel Import**.

The **IMPORT DETAILS FROM EXCEL FILE** page is displayed.

7. Click **Choose File** to select the workbook with updated permission information.

The **Open** dialog box is displayed.

8. Select the appropriate workbook, and then click **Open**.
9. Click **Upload** to import permission information from the Excel workbook.
10. On encountering errors while importing an Excel workbook, perform the following steps:

- a. In the toolbar, click **Error Log**.

The error log workbook is downloaded to your local storage.

- b. Open the error log workbook to view the errors in the various columns.

Error messages in the cells are highlighted in red. Tabs in the workbook are also highlighted to indicate the presence of errors.

- c. Open the Excel workbook and modify the details as specified in the error log workbook.

Optionally, you can make relevant corrections in the error log workbook and upload it.

- d. Save and upload the Excel workbook to import the updated information.

11. Click **Save**.

The items in the uploaded Excel workbook are uploaded to the page.

14.4.5. Auto Invite

14.4.5.1. Auto Invite

The **Auto Invite** feature is used to automatically invite users with specific security roles to multiple projects and contracts based on defined conditions. The users associated with the security roles that are part of an auto invite rule will be automatically invited to projects and contracts that adhere to conditions specified in the auto invite rule.

For example, if the projects use the grant funding, then at some point in the workflow, all the projects require approval from the Chief Financial Officer (CFO). In this example, the CFO needs to be invited to all such projects. Instead of manually inviting the CFO to each project, you can use the **Auto Invite** feature to automatically invite the CFO to all the projects.

You can create an auto invite rule and define filter conditions related to projects, contracts, and users. You can create multiple auto invite rules. A role can be used in multiple rules. For example, you can mark the user role Project Manager in Rule 1 and Rule 2.

When a new user account is created and saved in Masterworks, the user roles assigned to the user is compared with all the active auto invite rules. If any of the assigned user roles are part any of the auto invite rules, then the auto invite rule is executed, and the user is automatically invited to the projects and contracts that adhere with the conditions specified in the rules.

When a new project or contract is created and saved in Masterworks, the project or contract details are compared with all the active auto invite rules. If the project or contract details adhere to any of the conditions defined in the auto invite rules, then these auto invite rules are executed, and the pre-defined users are automatically invited to the project or contract.

When you create a new auto invite rule or update an existing rule, you can manually run them and invite the required users to the projects and contracts. You can run an existing auto invite rule at any point in time.

14.4.5.2. Creating an Auto Invite Rule

You can create an auto invite rule and define filter conditions related to projects, contracts, and users.

1. In the module menu, click **Administration**.
The **ADMINISTRATION** page is displayed.
2. In the navigation pane, expand **User Management**, and then click **Auto Invite**.
The **AUTO INVITE** list page is displayed.

3. Click **New**.

The **AUTO INVITE** page is displayed.

Auto Invite Page

The screenshot shows the 'AUTO INVITE' configuration page. At the top, there are four action buttons: 'Save & Exit', 'Save & Continue', 'Cancel', and 'Save & Run'. Below these are two input fields: 'Rule Name *' and 'Description :'. A checked 'Active' checkbox is present. The main area is divided into three filter sections: 'PROJECT FILTER', 'CONTRACT FILTER', and 'USER FILTER', each with a 'Select All' checkbox and an 'AND/OR' logic selector. A green button at the bottom right of each section allows for adding rules or groups.

AUTO INVITE

Save & Exit Save & Continue Cancel Save & Run

Rule Name *:

Description :

Active :

PROJECT FILTER

Select All Projects

AND OR + Add rule + Add group

CONTRACT FILTER

Select All Contracts

AND OR + Add rule + Add group

USER FILTER

Select All Users

AND OR + Add rule + Add group

ROLES TO BE INVITED

- 4.** In the **Rule Name** box, enter the required rule name.
- 5.** In the **Description** box, enter the description for the rule.
- 6.** Ensure the **Active** check box is selected, to specify that the rule is active and available for use.

7. To create a project filter, in the **PROJECT FILTER** section, perform either of the following:

- To automatically invite users of selected roles to all projects, select the **Select All Projects** check box.
- To automatically invite users of selected roles to projects that adhere to specified conditions, create a project rule and define the conditions.

To create a project rule, perform the following steps:	To create a group of rules with a combination of multiple AND and OR conditions, perform the following steps:
<p>a. Click Add Rule. A new row with a drop-down list is added. The AND and OR buttons present at the top are unavailable.</p> <p>b. From the drop-down list, select the required project field. For example, select Program Year. Available options are fields in the Project Details form. When a project field is selected, two new fields are added to the row. The second field is a drop-down list and based on the project field selected, the third field can be any of the following:</p> <ul style="list-style-type: none">■ Drop-down list■ Option list■ Text box■ Numeric text box■ Calendar drop-down box <p>c. From the second drop-down list, select the operator. For example, select equal. The operator creates the condition between the project field you select in the first drop-down list and the value that you enter or select in the third field. From the second drop-down list, if you select either between or not between, the third and the fourth fields appear, which can be one of the following:</p> <ul style="list-style-type: none">■ Numeric text box■ Calendar drop-down box<p>d. Based on the project field you select in the first field, enter or select a value in the third field. For example, enter 10000.</p><p>e. Optionally, to add multiple rules to the group, repeat the above steps 1 – 4.</p>	<p>a. Click Add Group. A new row with a drop-down list is added. The AND and OR buttons present at the top are available.</p> <p>b. From the drop-down list, select the required project field. For example, select Project Value. Available options are fields in the Project Details form.</p> <ul style="list-style-type: none">■ Drop-down list■ Option list■ Text box■ Numeric text box■ Calendar drop-down box <p>c. From the second drop-down list, select the operator. For example, select greater than. The operator creates the condition between the project field you select in the first drop-down field and the value you enter or select in the third field. From the second drop-down list, if you select either between or not between, the third and the fourth fields appear, which can be one of the following:</p> <ul style="list-style-type: none">■ Numeric text box■ Calendar drop-down box<p>d. Based on the project field you select in the first field, enter or select a value in the third field. For example, enter 10000.</p><p>e. Optionally, to add multiple rules to the group, repeat the above steps 1 – 4.</p>

8. To create a contract filter, in the **CONTRACT FILTER** section, perform either of the following:

- To automatically invite users of selected roles to all contracts of the projects selected in the **PROJECT FILTER** section, select the **Select All Contracts**.
- To automatically invite users of a selected roles to contracts of the projects selected in the **PROJECT FILTER** that adhere to specified conditions, create a contract rule and define the conditions.

To create a contract rule, perform the following steps:	To create a group of rules with a combination of multiple AND and OR conditions, perform the following steps:
<p>a. Click Add Rule. A new row with a drop-down list is added. The AND and OR buttons present at the top are unavailable.</p> <p>b. From the drop-down list, select the appropriate contract field. For example, select Contract Name. Available options are fields in the Contract Details form. When a contract field is selected, two new fields are added to the row. The second field is a drop-down list and based on the project field selected, the third field can be any of the following:</p> <ul style="list-style-type: none">■ Drop-down list■ Option list■ Text box■ Numeric text box■ Calendar drop-down box <p>c. From the second drop-down list, select the operator. For example, select contains. The operator creates the condition between the contract field you select in the first field and the value that you enter or select in the third field.</p> <p>d. Based on the contract field you select in the first field, enter or select a value in the third field. For example, enter Design.</p> <p>e. Optionally, to add multiple rules to the contract filter, repeat the above steps 1 to 4. When you add more than one rule, then the AND and OR buttons present at the top of the group are</p>	<p>a. Click Add Group. A new row with a drop-down list is added. The AND and OR buttons present at the top are enabled.</p> <p>b. From the drop-down list, select the appropriate contract field. For example, select Measurement System. When a contract field is selected, two new fields are added to the row. The second field is a drop-down list and based on the project field selected, the third field can be any of the following:</p> <ul style="list-style-type: none">■ Drop-down list■ Option list■ Text box■ Numeric text box■ Calendar drop-down box <p>c. From the second drop-down list, select the operator. For example, select not equal. The operator creates the condition between the contract field you select in the first field and the value you enter or select in the third field.</p> <p>d. Based on the contract field you select in the first field, enter or select a value in the third field. For example, select IS System.</p> <p>e. Optionally, to add multiple rules to the group, repeat the above steps 1 to 4. When you add more than one rule, then the AND and OR buttons present at the top of the group are</p>

9. To create a user filter, in the **USER FILTER** section, perform either of the following:

- To automatically invite all users of selected roles to projects selected in the **PROJECT FILTER** section and contracts selected in the **CONTRACT FILTER** section, select the **Select All Users** check box.
- To automatically invite users of a selected roles that adhere to specified conditions to projects selected in the **PROJECT FILTER** section and contracts

selected in the **CONTRACT FILTER** section, create a user rule and define the conditions.

To create a user rule, perform the following steps:	To create a group of rules with a combination of multiple AND and OR conditions, perform the following steps:
<p>a. Click .</p> <p>A new row with a drop-down list is added.</p> <p>The AND and OR buttons present at the top are unavailable.</p> <p>b. From the drop-down list box, select the appropriate user field.</p> <p>For example, select Status.</p> <p>Available options are fields in the Add User form.</p> <p>When a user field is selected, two new fields are added to the row.</p> <p>The second field is a drop-down list and based on the project field selected, the third field can be any of the following:</p> <ul style="list-style-type: none">■ Drop-down list■ Option list■ Text box■ Numeric text box■ Calendar drop-down box <p>c. From the second drop-down list, select the operator.</p> <p>For example, select equal.</p> <p>The operator creates the condition between the user field you select in the first field and the value you enter or select in the third field.</p> <p>d. Based on the user field you select in the first field, enter or select a value in the third field.</p> <p>For example, select Active.</p> <p>e. Optionally, to add multiple rules to the user filter, repeat the above steps 1 to 4.</p> <p>When you add more than one rule,</p>	<p>a. Click .</p> <p>A new row with a drop-down list is added.</p> <p>The AND and OR buttons present at the top are enabled.</p> <p>b. From the drop-down list, select the appropriate user field.</p> <p>For example, select Assign Roles-Role.</p> <p>Available options are fields in the Add User form.</p> <p>When a user field is selected, two new fields are added in the row.</p> <p>The second field is a drop-down list and based on the project field selected, the third field can be any of the following:</p> <ul style="list-style-type: none">■ Drop-down list■ Option list■ Text box■ Numeric text box■ Calendar drop-down box <p>c. From the second drop-down list, select the operator.</p> <p>For example, select equal</p> <p>The operator creates the condition between the user field you select in the first field and the value you enter or select in the third field.</p> <p>d. Based on the user field you select in the first field, enter or select a value in the third field.</p> <p>For example, select Project Manager.</p> <p>e. Optionally, to add multiple rules to the group, repeat the above steps 1</p>

10. To define the roles to be auto invited to projects selected in the **PROJECT FILTER** section and contracts selected in the **CONTRACT FILTER** section, in the **ROLES TO BE INVITED** section, perform either of the following:

- To invite users of all roles to selected projects and contracts, select the **All Roles** check box.
- To select roles to be automatically invited to selected projects and contracts, from the **Select Role(s)** drop-down list, select the required user roles. Available roles are based on the user's parameter selected in the **USER FILTER** drop-down list, select the required user roles.

Available roles are based on the user's parameter selected in the **USER FILTER** section.

The users associated with the selected roles are automatically invited to the defined projects and contracts created in Masterworks.

11. To define invitation duration to the auto invite rule, in the **INVITATION DURATION** section, perform the following steps:

- a. From the **Invitation Start Date** drop-down box, select the date from when the users are invited to the selected projects.
- b. From the **Invitation End Date** drop-down box, select the date until when the users are invited to the selected projects.
- c. Select the **Is Primary** check box to invite the user as a primary user to the projects and associated contracts.

12. Click **Save & Continue** to continue adding details to the auto invite rule.

Alternatively, click **Save & Exit** to save the auto invite rule.

Alternatively, click **Save & Run** to run the newly created auto invite rule.

Based on the conditions defined for projects, contracts, users, and roles, all appropriate users are invited to the selected projects and contracts.

Note: The auto invite feature does not invite users who are already invited to that project or contract.

In the **AUTO INVITE** list page, the **Status** column displays the current status of an auto invite rule and the **Last Executed Time** column displays the time when the rule was last executed.

The following are the various statuses of an auto invite rule:

Status	Description
Queued	The rule is triggered for execution and is waiting to be executed.
In Progress	The rule is currently under execution.
Completed	The rule was executed successfully.
Failed	The rule failed during execution.
Blank	The rule has never been executed.

14.4.5.3. Editing an Auto Invite Rule

You can edit and execute an existing auto invite rule to automatically invite users who are new and not automatically or manually invited to selected projects and contracts.

Note: When an existing rule is edited, it does not revoke access of users who were automatically invited based on the rule before it was edited.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Auto Invite**.

The **AUTO INVITE** list page is displayed.

3. Select the appropriate rule, and then click **Edit**.
4. Make the required changes.

5. Click **Save & Continue** to continue editing the auto invite rule.

Click **Save & Exit** to save the changes.

Alternatively, click **Save & Run** to execute the rule.

14.4.5.4. Administering an Auto Invite Rule

The auto-invite rule is not triggered automatically when the details of an existing project, contract, or user are modified. In such cases, you can administer an existing auto invite rule. If you administer an existing auto-invite rule, only the following users are invited to the projects and contracts that match the rule:

- New users.
- Existing users with new roles that match the auto invite rule.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Auto Invite**.

The **AUTO INVITE** list page is displayed.

3. Select the appropriate auto invite rule, and then click **Run**.

Based on the rule, the appropriate users are identified and are invited to the projects and contracts that adhere to the rule.

Note: Executing a rule ad-hoc does not revoke the access of the users who were already invited into the projects and contacts.

14.4.5.5. Deleting an Auto Invite Rule

- The status of the rule is not **In Progress**.

You can delete an existing auto invite rule. Deleting an auto invite rule does not impact users who were automatically invited to projects and contracts using the rule.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Auto Invite**.

The **AUTO INVITE** list page is displayed.

3. Select the appropriate rule, and then click **Delete**.

Note: You cannot delete an auto invite rule with **In Progress** status.

14.4.6. Managing Online Account Registration Requests

The **Pending Registrations** form of the User Management feature provides the list of users who have registered requests to obtain login details to use the Masterworks application. You can either [approve](#) or [reject](#) a registration request. On approving a registration request, the user is allowed access to the application. On rejecting a registration request, the user is denied access to the application.

On approval or rejection of a registration request, an email notification is sent to the user.

14.4.6.1. Approving a Pending Registration Request

You can approve a pending user account registration for non-Active Directory users. After approving the pending account, you will need to access the user account and assign roles to the new user.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Pending Registrations**.

The **PENDING REGISTRATIONS LIST** page is displayed.

3. Select the required user registration request to approve.
4. Click **Approve**.

A confirmation message is displayed.

5. Click **OK**.

The user is added to the application database. You can view the user account in the **USER ACCOUNTS** page.

Note: The approved user accounts require the Administrator to define the user details, roles, and business units.

For information on accessing the **USER ACCOUNTS** page, see [User Accounts](#).

14.4.6.2. Rejecting a Pending Registration Request

You can reject a pending user account registration for pending user requests.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Pending Registrations**.

The **PENDING REGISTRATIONS LIST** page is displayed.

3. Select the required user registration request to reject.
4. Click **Reject**.

A confirmation message is displayed.

5. Click **OK**.

14.4.7. External Identity Provider User

The **External Identity Provider User** page lists all the users registered through third-party IDP such as ADFS.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **External Identity Provider User**.

The **EXTERNAL IDENTITY PROVIDER USER** list page is displayed.

3. To view the details, select a record and click **View**.

14.4.8. Online Users

14.4.8.1. Online Users

The Online Users section enables you to view the list of user accounts that are online, and log out a user:

- [Viewing the List of Online Users](#)
- [Logging Out a User](#)

14.4.8.1.1. Viewing the List of Online Users

You can view the list of users who are currently logged in to the application.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Online Users**.

The **ONLINE USERS LIST** page is displayed.

The page lists the user names of all the currently logged in users.

14.4.8.1.2. Logging Out a User

Based on the roles assigned to you, you can also log out an online user from the application.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane expand **User Management**, and then click **Online Users**.

The **ONLINE USERS LIST** page is displayed.

The page lists the user names of all the currently logged in users.

3. To remotely log off a user, click the required user in the list, and then click **Log Out**.

Log Out Option

ONLINE USERS LIST						
UserEmail	User Name	First Name	Last Name	Login DateTime	Idle Time	IP Address
mr@amail.co... :	MikeRoss	MikeRoss		10/20/2023 16:30:09	00:00:01	163.116.205.153
rashmi.manj...	rashmi.manjunat...	Rashmi	Manjunath	10/20/2023 15:48:35	00:05:50	163.116.214.45

14.4.9. User Settings

The **User Settings** page enables you to define validations and restrictions on user accounts to access the application for enhanced security.

You can define the default account expiry period for user accounts. The default user account expiry date is set as the default date when creating a user account in the [Account Expiry Date](#) field of the **ADD USER** page. For information on creating a user account, see [Creating a User Account](#).

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **User Settings**.

The **USER SETTINGS** page is displayed.

User Settings Page

USER SETTINGS

Save Audit Log

USER ACCOUNT CONFIGURATIONS

Account Expiration Period Type : Date Enter Date : 11/19/2023

3. In the **USER ACCOUNT CONFIGURATIONS** section, from the **Account Expiration Period Type** drop-down list, select the period type to specify the validity period of a user account.

4. Based on the option selected in the **Account Expiration Period Type** drop-down list, enter either of the following details:
 - If you have selected **Date**, from the **Enter Date** calendar drop-down box, select the date on which the user account will expire.
 - If you have selected **Weeks**, in the **Enter Weeks** box, enter the number of weeks after which the user account will expire.
5. Click **Save**.

14.4.10. Delegation of Authority

14.4.10.1. Delegation of Authority

When a user is unavailable or unable to perform tasks in Masterworks, you can transfer all the tasks of that user to other users. The users to whom the tasks are transferred to can then perform the associated tasks and workflow actions of the transferer.

Using the **DELEGATION OF AUTHORITY** form, you can delegate tasks of one user to another user with the same role in Masterworks for specific projects.

Note: Only users with the **Administrator** role can perform these activities.

You can perform the following tasks:

- [Delegate authorities](#).
- [View delegated records](#).
- [Edit delegated records](#).
- [Delete delegated records](#).
- [Revoke a delegation](#).

14.4.10.2. Delegating Authorities

- The delegated user must have the same role as the original activity owner.
- The delegated user must not be invited to the project.

Delegation of Authority form enables you to assign roles and projects of one user to another user of the same role. The process of delegating authority includes the following tasks in the order specified:

1. Select the user from whom you want to delegate activities.
2. Select the role you want to delegate.
3. Select the user to whom you want to delegate activities of the selected role.
4. Select the dates within which the delegated user must remain invited to the projects or contracts.
5. Assign projects and contracts to the delegated user.

6. Save the record.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Delegation of Authority**.

The **DELEGATION OF AUTHORITY** list page is displayed.

3. Click **New**.

The **DELEGATION OF AUTHORITY** page is displayed.

Delegation Of Authority

The screenshot shows the 'DELEGATION OF AUTHORITY' form. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these are two main sections: 'DELEGATE A ROLE' and 'PROJECT SELECTION'.

DELEGATE A ROLE

- Delegate From User ***: A dropdown menu labeled 'Select'.
- User Role ***: A dropdown menu labeled 'Select One'.
- Delegate To User ***: A dropdown menu labeled 'Select'.
- From Date** : A dropdown menu showing '10/20/2023'.
- To Date** : A dropdown menu showing 'None'.
- Description** : A text area with a scroll bar.

PROJECT SELECTION

- Select All Project**
- A table with columns 'Project Code' and 'Project Name'. It shows a single row with the message 'No records available.'

4. In the **Delegate From User** drop-down list, select the user from whom you want to delegate activities.

Available options are all active users in the application.

5. To provide information of the user to whom you want to delegate authority and the role for delegation, in the **DELEGATE A ROLE** section, perform the following steps:

- a. In the **User Role** drop-down list, select the role of the user from whom you want to delegate activities.

Available user roles are the unique roles the user selected in the **Delegate From User** field currently has in the application.

- b. In the **Delegate To User** drop-down list, select the user to whom you want to delegate activities. Alternatively, type the name of the user, and then select the required user.

Available users are:

- Users who have the same role as the role selected in the **User Role** field.
- All the active users not invited to the projects that the user selected in the **Delegate From User** field is part of.

- c. In the **From Date** drop-down list, select the date on which the user selected in the **Delegate To User** field is to be invited to the projects or contracts.
- d. In the **To Date** drop-down list, select the date until which the delegated user must remain invited to the projects or contracts.

The system revokes the delegated user's invitation to the project by the end of the day on the selected date.

- e. In the **Description** box, enter any notes for the delegation of authority.

6. To assign projects to the delegated user, in the **PROJECT SELECTION** section, perform the following steps:

- a. Click **Add**.

The **Projects List** dialog box is displayed.

Available options are the projects the transferer is part of with the role selected in the **User Role** field.

- b. Select the appropriate projects, and then click **Select**.

The **Project Code** and the **Project Name** values are displayed.

7. To assign contracts to the delegated user, in the **CONTRACT SELECTION** section, perform the following steps:

- a. Click **Add**.

The **Contracts List** dialog box is displayed.

Available options are contracts based on the following:

- Projects selected in the **PROJECT SELECTION** section.
- Role of the user selected in the **User Role** field for the user selected in the **Delegate From User** field.

- b. Click the appropriate contract, and then click **Select**.

The **Project Code**, **Project Name**, **Contract Code**, and **Contract Name** of the associated project are displayed.

8. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

Based on the **From Date** selected, the saved record can be in any of the following statuses:

- Awaited - The status indicates that the delegation is yet to be executed on a future date.
- Delegated - The status indicates that the delegation is executed.
- Failure - The status indicates that the delegation is failed due to discrepancies in data.

Based on the **To Date** selected, the saved record can be in any of the following statuses:

- Revoked - The status indicates that the delegation is revoked on the **To Date** selected.
- Failure - The status indicates that the delegation is failed due to discrepancies in data.

14.4.10.3. Editing Delegation Details

- The status of the record is either **Awaiting** or **Delegated**.

You can edit delegation details.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Delegation of Authority**.

The **DELEGATION OF AUTHORITY** list page is displayed.

3. Select the appropriate record, and then click **Edit**.

The **DELEGATION OF AUTHORITY** page is displayed.

Delegation Of Authority

The screenshot shows the 'DELEGATION OF AUTHORITY' page. At the top, there are three buttons: 'Save & Exit', 'Save & Continue', and 'Cancel'. Below these buttons, the 'Delegate From User' field is set to 'MikeRoss'. Under the 'DELEGATE A ROLE' section, the 'User Role' is listed as 'Administrator', 'Delegate To User' is 'Abhash', and the 'From Date' and 'To Date' both show '06/02/2021'. A large text area for 'Description' is present. In the 'PROJECT SELECTION' section, there is a checkbox for 'Select All Project'. Below it is a table header row with columns for 'Project Code', 'Project Name', and 'Is Delegated'. The 'Is Delegated' column has a checked checkbox by default.

4. Make the required changes.

- If the record is in the **Awaiting** status, then you can modify all the details of the record.
 - If the record is in the **Delegated** status, then you can only modify the **To Date** and the **Description** of the record.
- The **Is Delegated** check box is selected by default for the delegated projects in the **PROJECT SELECTION** section or delegated contracts in the **CONTRACT SELECTION** section.

5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

14.4.10.4. Viewing Delegation Details

- The status of the record is either **Awaiting** or **Delegated**.

You can view delegation details.

- In the module menu, click **Administration**.
The **ADMINISTRATION** page is displayed.
- In the navigation pane, expand **User Management**, and then click **Delegation of Authority**.

The **DELEGATION OF AUTHORITY** list page is displayed.

3. Select the appropriate record, and then click **View**.

The **DELEGATION OF AUTHORITY** page is displayed.

The **Is Delegated** check box is selected by default for the delegated projects or contracts.

4. Click **Save**.

14.4.10.5. Revoking a Delegation

- The record is in the **Delegated** status.

You can revoke a delegation after the responsibilities of a user have been delegated to any user.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Delegation of Authority**.

The **DELEGATION OF AUTHORITY** list page is displayed.

3. Select the appropriate record, and then click **Edit**.

The **DELEGATION OF AUTHORITY**.

Delegation Of Authority

DELEGATION OF AUTHORITY

Save & Exit Save & Continue Cancel

Delegate From User : MikeRoss

DELEGATE A ROLE

User Role : Administrator

Delegate To User : Abhash

From Date : 06/02/2021

To Date : 06/02/2021

Description :

PROJECT SELECTION

Select All Project

<input type="checkbox"/>	Project Code	Project Name	<input type="checkbox"/>	Is Delegated

4. To revoke a delegation, change the **To Date** as appropriate.

The delegated user's invitation to projects is revoked by the end of the day on the selected date. For example, if you select the current date in the **To Date** field, the system revokes the delegated user's invitation to the projects at the end of the day.

Note: You cannot select a past date.

5. Click **Save & Exit** to save the record and return to the list page. Optionally, click **Save & Continue** to save the record and continue on the same page.

14.4.10.6. Deleting a Delegated Record

- The record is in the **Awaiting** status.

You can delete a delegated record.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **User Management**, and then click **Delegation of Authority**.

The **DELEGATION OF AUTHORITY** list page is displayed.

3. Select the appropriate record, and then click **Delete**.

14.5. Configuration Toolkit

14.5.1. Configuration Toolkit

The Masterworks Configuration Toolkit enables you to build custom forms and configure workflows.

Form Builder

With the Form Builder tool, you can build a form, include validation rules or formula, and publish your new form to the appropriate users. To build forms in Masterworks, programming knowledge is not a requirement.

Workflow Management

With the powerful workflow engine, you can configure workflows to automate any process, form, or document. To configure workflows in Masterworks, programming knowledge is not a requirement.

Error Message Configurator

The Error Message Configurator tool enables you to view, create, and modify error messages in the UI. To modify error messages in Masterworks, programming knowledge is not a requirement.

Package Management

The Package Management tool enables you to export published forms, workflows, and its dependencies as a package and deploy it to the production environment with the approved changes.

14.5.2. Form Builder

14.5.2.1. Form Builder

The Masterworks Form Builder is a powerful tool, which enables you to develop customized forms and publish them to the application. Masterworks provides XML templates to create and configure new forms. This feature provides you with a free hand in adding new forms based on the evolving needs of the organization.

The Form Builder tool is integrated with Config+ that enables you to configure business logic within a form. For more information, see [Form Builder Using Config+](#) on page 1133.

In addition, the Workflow Management integrated with the Form Builder enables you to automate any business process according to the business requirements.

The following sections describe in detail the various features of the Masterworks Form Builder:

- [Terminologies used in Form Builder](#)
- [Lifecycle of a Form](#)

The following sections describe the procedures to create a form, import a form, and publish a created form using Form Builder:

- [Creating a Form Using Form Builder](#)
- [Importing a form](#)
- [Publishing a Form](#)

The following section describes the procedure to configure business logic within a form:

- [Configuring Business Logic in a Form](#) on page 1178

Before you Begin - Terminologies used in Form Builder

Form Builder is usable with ease to create a wide variety of forms based on business requirements.

However, before you start creating them, here are some terminologies that you should be familiar with:

- **Group Layout**

A layout holds the controls that define a form. The layout is the framework on which the form is defined.

Following are the various types of layouts available.

Layout	Description
Section	A Section is defined as the part of the form that separates the action items. Multiple sections can be added as required in a form depending on the actions and the purpose. Each section can also be made visible or hidden in the definition of the form based on the workflow requirement.
Spacer	A spacer is used to provide spaces within the form ideally in between sections or grids. It can also accommodate controls within it similar to any other container and is hence listed under containers. You cannot add a section to a spacer.
Tabs Container, Tab	A Tab Container enables you to introduce a tab control within a form. To introduce more than one tab, add the Tab control to the Tabs Container.
Section without Header, Section with Border	These options are available only when you switch to the advanced mode. You can create sections without a header and with a border using the Group Layout types Section without Header and Section with Border.
Two Column Layout, Three Column Layout	These options are available only when you switch to the advanced mode. A column layout introduces two or three sections with two or three text boxes organized in columns. This enables you to organize with ease sections and controls within the two or three columns.
Stage	This option is available only when you switch to the advanced mode. A Stage can contain sections and controls that can be made visible or hidden based on the progress of the associated workflow. You can manage visibility and edit properties of the contents of this stage through Workflow Configuration of the form at stage-level. For information on workflows, see Workflow Management .

Layout	Description
Include	This option is available only when you switch to the advanced mode. Include enables embedding one form in another. This is useful when you have multiple forms that have the common fields. Improves efficiency by enabling definition of elements in a separate form and include the form in appropriate forms.

- **Simple Input Controls**

In simple mode, only simple attributes and controls are available.

The default mode of a form builder is simple mode.

To change the form builder mode to advanced mode, click **Switch to Advanced**.

Control	Description
Autogenerated	The autogenerated field automatically increments its value every time the form is used and saved.
Single line text, Multi line text	The single line text, and multiline text allows text input.
Date, Time Input, Date Time	The Date and Time Input options allow date and time entries.
Numeric, Integer	The Numeric, and Integer options allow numeric inputs.
Drop Down, List Box, Check Box List, Check Box, Radio Button List, Label	These controls enable you to define options for a list of values from a data source.
Formatted Input, Password	The options allow formatted input by specifying the format in which you can enter alpha-numeric information.
Hidden	This option can be used as a placeholder text box and is not visible on the form.
Rich Text	This option is available only when you switch to the advanced mode. The rich text option allows you to enter text in HTML.
Drop Down Tree	This option is available only when you switch to the advanced mode. These controls enable you to define options for a list of values from a data source.

- **Advanced Controls**

In addition to the controls listed in the **SIMPLE INPUT CONTROLS** pane, you can see an **ADVANCED CONTROLS** pane when the advanced mode is selected.

The default mode of a form builder is simple mode. To change the form builder mode to advanced, click **Switch to Advanced**.

To go back to the simple mode, click **Switch to Simple**.

New Tabs

The following tabs are available only when you switch to the advanced mode:

Tab	Description
FORM BUSINESS LOGIC	This tab comprises of several events and blocks that enables you to configure business logic in the form details page.
LIST PAGE BUSINESS LOGIC	This tab comprises of only one event and same blocks similar to the FORM BUSINESS LOGIC tab except one block. The events and blocks enable you to configure business logic in the list page.

These following options are available only when you switch to the advanced mode:

Control	Description
MultiSelect Drop Down	The control enables you to insert a multi-select drop-down list.
Multi Picker	The control enables you to insert a combination of two list boxes, one to show the available options and other to hold the selected options.
Link	The control enables you to insert a link.
Set	This is similar to a text box type control with left and top labels for reference and is used to place controls next to each other. Can be a text box, radio button list, drop-down list, and so on.
Picker With Textbox	The control enables you to insert a text box with a picker that opens a dialog box to select options.
Picture	The control enables you to insert a picture in the section.
Button	The control enables you to insert a button.

Control	Description
Formula	The control enables defining a formula for fields in the section.
Map	The control inserts a map control in the form.
GISDataMapper	When a map control is added to a form, this control enables configuration of user-friendly names for tooltips to be displayed in GIS maps.
File	The control inserts the standard attachment control to the form. You can upload files as attachments to the form.
Picker Trigger	The option inserts the picker control that opens a dialog box to select options.
Picture Taker	The option inserts a control to click a photo or upload an image.

- **Child Data Container**

Following are the various options to create child data containers in a form:

Container	Description
Dynamic Grid	These are grids or tables where the number of rows is variable, but the number of columns is fixed as specified when creating the table.
Picker	This allows data configuration for all the Picker Triggers placed in the form.
Static Grid	This option is available only when you switch to the advanced mode. A static grid is defined as a grid or a table where the number of rows and columns are fixed and are defined at the design stage of the form.
CheckList Group	This option is available only when you switch to the advanced mode. These are collection of similar types of checklist items required for recording information while performing a certain operation. Every new checklist item group contains only similar type of controls within them. We are required to create different checklist groups for different types of controls.

Container	Description
Row	This option is available only when you switch to the advanced mode. A row is used to modify the rows in a static grid. The number of rows to be inserted has to be specified during design time of the form.
Check List	This option is available only when you switch to the advanced mode. Checklists define a set of actions to be performed in a specific order.
Client Dynamic Grid	This option is available only when you switch to the advanced mode. This control is a form of Dynamic Grid where number of rows are variable. However, this is a client control and hence data is stored and validated at the client instead of server.
Discussion Control	This option is available only when you switch to the advanced mode. This is used to insert a discussion control where users can record discussions between two users, a question can be raised and the respondent can respond to the question.
Task Control	This option is available only when you switch to the advanced mode. The task control is used where users can assign tasks to another user, can set due dates, respond to the task, and close the task.
LinkTo Grid Control	This option is available only when you switch to the advanced mode. This control is used to link records of one form to another.

Lifecycle of a Form

The typical lifecycle of a form is as below:

1. Design time

As a form author, you can:

- Initiate the creation of a new form from the **FORM BUILDER** page.
- Edit the form definition from the **Form Builder** editor.
- Specify form location within Masterworks.
- Associate a Workflow to automate business processes.
- Save the form definition.

2. Publishing

Once a form is designed and saved, the form is published to make it available in the application. On publishing a form, the form is made available in the module as defined during form design. The toolbar of the form is the predefined Masterworks standard toolbar and is automatically created by the tool.

On publishing a form, you can define role-based permissions for the form. For information on defining permissions, see [Configuring Role Permissions](#).

3. Runtime

As a user of the form, you can:

- Initiate the creation of a new form from the form's list page.
- Enter data into the form.
- Review, save, submit, or download form data.
- View the created form in a PDF format.
- Search for a form using form data.
- Delete form data.
- Perform workflow actions on the form.

14.5.2.2. Form Builder Using Config+

14.5.2.2.1. Form Builder Using Config+

Config+ is the first built-in Do it Yourself (DIY) No-Code engine within Masterworks. The drag-and- drop user interface (UI) of Config+ enables you to configure business processes based on your requirements.

Config+ enables you to configure business logic in Masterworks using deep integration with Blockly.

In the **Switch to Advanced** mode of the **Form Builder** form, two new tabs are available:

- [FORM BUSINESS LOGIC](#) – Used to configure business logic in the form details page.
- [LIST PAGE BUSINESS LOGIC](#) – Used to configure business logic in the list page.

14.5.2.2.2. Form Business Logic

The **FORM BUSINESS LOGIC** tab enables you to configure business logic when you access the Form Details page. In the **FORM BUSINESS LOGIC** tab, there are events and blocks. For more information on events and blocks, see [Events](#) and [Blocks](#) respectively.

14.5.2.2.2.1. Events

14.5.2.2.2.1.1. Events

Events act as activation points on which the logic is executed and are considered starting points. To create an event, you can click the appropriate event from the **Select Event** drop-down list in the left pane. Once the appropriate event is selected, it appears in the right pane design area where you can configure the logic.

The following events are available in the **FORM BUSINESS LOGIC** tab:

- [Modify Form](#)
- [Form Load](#)
- [Before Save](#)
- [After Save](#)
- [Workflow Action Complete](#)

14.5.2.2.2.1.1.1. Modify Form

The **Modify Form** event enables you to change the form specification before the form is generated. For example, you can modify the name of a field, whether a field should be visible or read-only, and so on. The logic is executed when you click **New**, **Edit**, **View**, or double-click the record, and the execution is completed before the form is generated.

14.5.2.2.2.1.1.2. Form Load

The **Form Load** event enables you to set values and attributes on a form after the form is generated. The logic is executed when you click **New**, **Edit**, or **View** the record, and the execution is completed when the form is generated.

In the RFI form, if you want the company of the contractor to display automatically when a contractor is creating any record, then you can use the **Form Load** event to set the value for the appropriate field based on the user role.

14.5.2.2.2.1.1.3. Before Save

The **Before Save** event is executed when you click **Save** or **Save & Continue** and the logic is executed before you save the event. This event is used to validate the conditions before the form is saved.

14.5.2.2.2.1.1.4. After Save

The **After Save** event is executed when you click **Save** or **Save & Continue** and the logic is executed after the record is saved.

14.5.2.2.2.1.1.5. Workflow Action Complete

The **Workflow Action Complete** event enables you to execute the logic once you perform a workflow action. You can use this event to execute a logic on clicking the workflow action.

14.5.2.2.2.2. Blocks

14.5.2.2.2.2.1. Blocks

Blocks are elements within the business logic configurator that must be connected to each other to complete the business logic. Blocks are used to design logic within an event.

The following blocks are available in the **FORM BUSINESS LOGIC** tab:

- [Conditions](#)
- [Definitions](#)

- [Update](#)
- [Data Operations](#)
- [Actions](#)

14.5.2.2.2.2.1.1. Conditions

The **CONDITIONS** blocks enable you to configure business logic by defining conditions, such as **If**, **Boolean** and **Loops**. The **If** blocks enable you to check if the condition passes. The **Boolean** blocks enable you to determine the success criteria of the If statement. The **Loops** blocks enable you to iterate against a list of rows.

The **CONDITIONS** block has two types of entities:

- [Logic](#)
- [Loops](#)

14.5.2.2.2.2.1.1.1. Logic

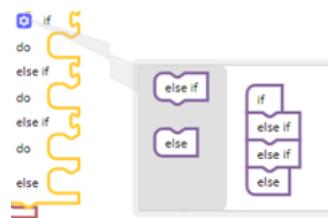
The **Logic** blocks enable you to define any conditional logic. You can define the **If** condition to validate if the condition passes or the **Boolean** condition to define if a condition is true or false.

If Block

The **If** block has two connectors: one input and one output. The condition is specified under the **if** entry point and the action if the condition passes is specified under the **do** entry point.



The **If** block has multiple additional options to define multiple conditions. You can click to add any level of conditions by dragging either the **else** or **else if** block under the **If** block.



The **else** or **else if** blocks are used only for multiple conditions. For example, if you need to check the logged in user, you can set the conditions as follows:

- if the logged in user role is **Contractor**, then hide **Amount** field,
- else if current user role is **Consultant**, then set the **Amount** field to **Read-only**, and
- if the current user role is **Project Manager**, then set the **Amount** field to **Mandatory**.

If all the above conditions fail, you can also use a generic fail-safe **else** condition.

Boolean Block

The output of a Boolean block is always either true or false, irrespective of which block you choose. There are five types of Boolean blocks:

- Simple Boolean block
- Dual-check Boolean block
- Not block
- True/False block
- Null block

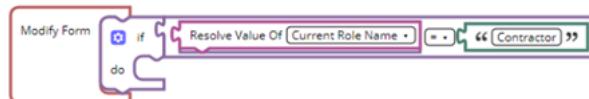
Simple Boolean Block

The Simple Boolean block enables you to define comparators in the conditions block. For example, if you want to check the logged in user role of **Contractor**, then a simple Boolean block must be used and connected to the **If** block.



The first entry of the condition check is a data operation block to check the role of the logged in user, and the second entry is a text field where you type **Contractor**.

The configuration of this scenario is illustrated in the following image:



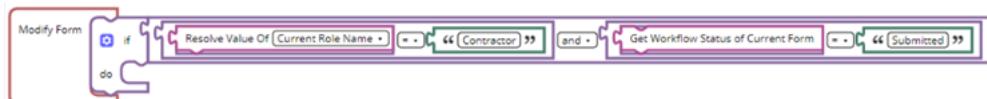
Dual-check Boolean Block

The Dual-check Boolean block is the next block in the Boolean condition category. This block has two slots that enable you to check both the conditions.



For example, if you want to check if the logged in user belongs to the **Contractor** role and the current stage is **Submitted**, then a simple Boolean block is added to each slot.

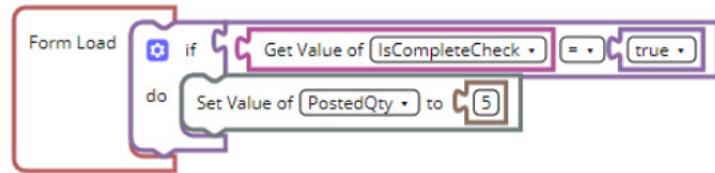
The configuration of this scenario is illustrated in the following image:



True/False Block

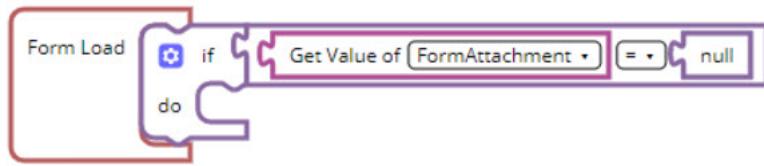
The **true** or **false** block enables you to validate if the condition is true or false.

For example, if you want to check if a check box is set to **true** or **false** and then execute a condition based on it, you can use the **true** or **false** block as required.



Null Block

The **null** block enables you to check if the information is null and perform appropriate action where information is missing.



14.5.2.2.2.2.1.1.2. Loops

The **Loops** blocks enable you to run an iterative check for a list of items or to perform the same condition **n** number of times. For example, if you want to count the rows in a grid and update that information to another field, then you can use the **Loops** block.

For Loops Block

The **for Loops** blocks enable you to iterate each row in the dynamic grid or multiple records from a table, and then update the count or sum of that list.

14.5.2.2.2.2.1.2. Definitions

The **DEFINITIONS** blocks are reusable entities that enable you to use many logic components.

The **DEFINITIONS** block has two types of entities:

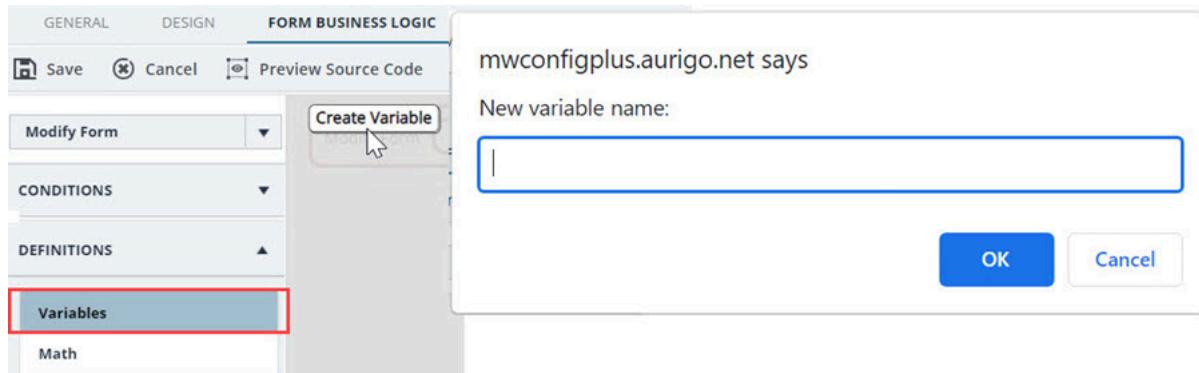
- [Variables](#)
- [Math](#)

14.5.2.2.2.2.1.2.1. Variables

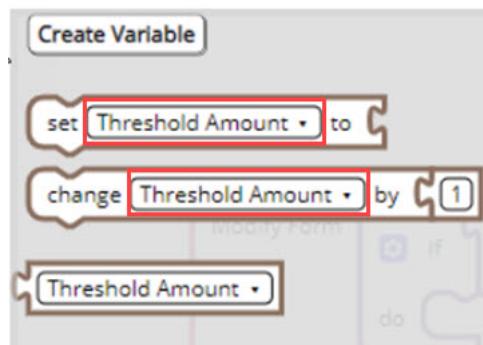
Variables enable you to collect information and execute conditions to perform checks.

For example, if you want to get the **Project Type** from the **PROJECT DETAILS** page and execute conditions on the **Project Type**, then you can use the **Read Data** block to get the **Project Type** and collect it for a variable that can be used to execute conditions.

To create a variable, you can click **Create Variable** and provide a name to the variable.



Once the variable is created, you can use it in blocks.



14.5.2.2.2.1.2.2. Math

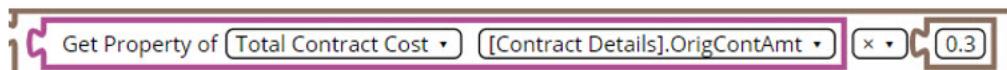
The **Math** operations enable you to add numbers into the logic or to execute arithmetic operations in the logic.

Number Block

The Number block enables you to use a number field in the logic. For example, if you want to check if the value of a field is greater than a value, then you can use the Number block.

Arithmetic Operations Block

The Arithmetic Operations block enables you to execute arithmetic operations. This block has an input operand and an output block. For example, if you want to check whether a field value is greater than 30% of another field value, then you can use the Arithmetic Operations block.



14.5.2.2.2.2.1.3. Update

The **UPDATE** block enables you to update static texts in the logic.

It has two types of entities:

- [Text](#)

- [Lists](#)

14.5.2.2.2.1.3.1. Text

The **Text** block enables you to write single or multiple line text that can be used to configure business logic.

Single Line Text Block

The Single Line Text block enables you to write a single line text and use that text in business logic. For example, if you want to perform a specific action if the current role = **Contractor**, then you can use the Single line Text block to the type Role name = Contractor.



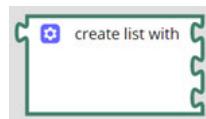
Multi Line Text Area Block

The Multi Line Text Area block is very similar to Single Line Text block. It enables you to write long texts in multiple lines.

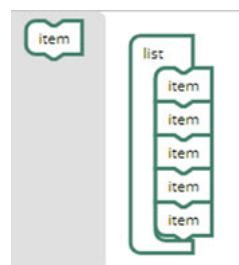


14.5.2.2.2.2.1.3.2. Lists

The **Lists** block enables you to create a list of items. For example, if you want to apply any condition or logic on a list of items, then you can use the List block.



If you want to add more items to the list, you can click and drag the item to the list.



14.5.2.2.2.1.4. Data Operations

The **DATA OPERATIONS** block enables you to read, insert, or update information from any form in Masterworks. You can configure **SELECT**, **INSERT**, or **UPDATE** queries using blocks by specifying from where the information must be retrieved and the destination to which the information must be updated or inserted.

The **DATA OPERATIONS** block has three types of entities:

- [Get](#)
- [Read Data](#)
- [Fields](#)

14.5.2.2.2.2.1.4.1. Get

The **Get** blocks enable you to get values of the current form or the information stored in variables. The following table provides information on the blocks available in the **Get** block:

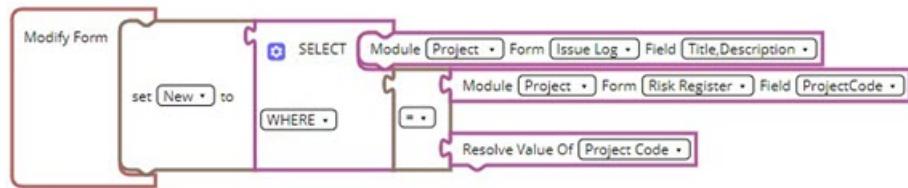
Block	Description
Get Value of	Enables you to get the value of any field that is available in the current form.
Get Property of	Enables you to get the information that is stored in any variable. You can select the name of the variable and the property for that variable. Note: Properties are useful when multiple fields are stored in a variable, and you can specify which field you want to select.
Get Workflow Status of Current Form	Enables you to get the workflow status of the current form.
Get Workflow Status for	This block is very similar to the Get Workflow Status of Current Form block. Additionally, you can configure the specific Module and Form for which the workflow status must be returned. It can be connected to the SELECT block that can retrieve the ID or specific record details to which workflow information must be returned.

14.5.2.2.2.2.1.4.2. Read Data

The **Read Data** block enables you to get information from any form in Masterworks. You can configure the source form from where the information must be retrieved and specify the destination form to which the information must be updated. All blocks under **Read Data** block must be connected to a variable.

Select Block

The **SELECT** block enables you to configure the source form from where the information must be retrieved.



The first part of the **SELECT** block enables you to specify the appropriate value for the following entities from where the information must be retrieved:

- **Module:** The name of the module.
- **Form:** The name of the form in the selected module.
- **Select Field:** The name of the fields in the selected form. It is a multi-select drop-down list and the information from all the specified fields is selected.

You can also click to use multiple advance options within the **SELECT** block.

- **Group By:**

The **GROUP BY** block enables you to group the information that is retrieved using the **SELECT** block by a common parameter. You can choose the appropriate module and drag and drop the **GROUP BY** block to connect it with the **WHERE** block.

Once this is done, you can specify the appropriate values in the **Module**, **Form** and **Field** entities where the data must be grouped together.

- **Order By:**

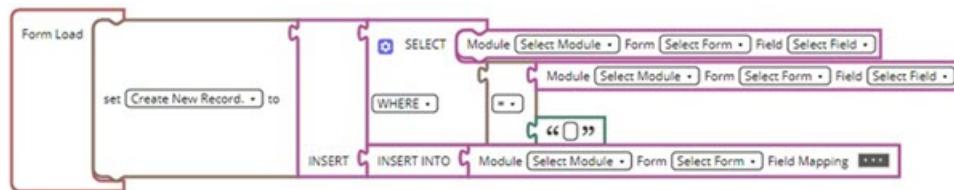
The **ORDER BY** block enables you to sort the resulting data set in a specific order. For example, ascending, alphabetical, and so on.

The next part of the **SELECT** block is the **WHERE** block. It has two parts.

- **Input** – In the **Module**, **Form**, and **Select Field** entities, you can enter the values that act as input from which the records must be filtered. It can be based on a project or a field which has reference to a record.
- **Output** – The output is the Resolver value that is entered after the operand and is equated with respect to the input. It can be either a hard-coded text value where you can enter a text or can use a resolver from the **Fields** drop-down list, or you can specify the module selector.

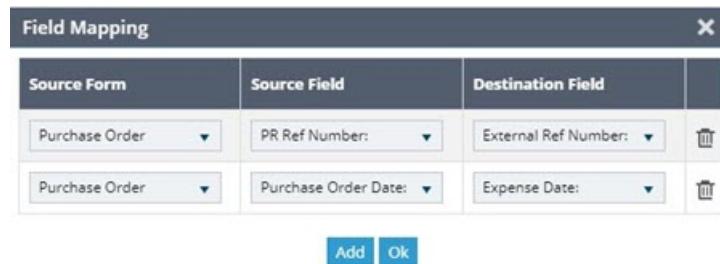
Insert Block

The **INSERT** block enables you to get information from any module, form, or field in Masterworks and create a new record or create a new row in the dynamic grid. The **INSERT** block must always be connected to a variable.



The first part of the **INSERT** block is the select statement that you can configure in the same way as the **SELECT** block. For information on configuring the **SELECT** block, see [Select Block](#).

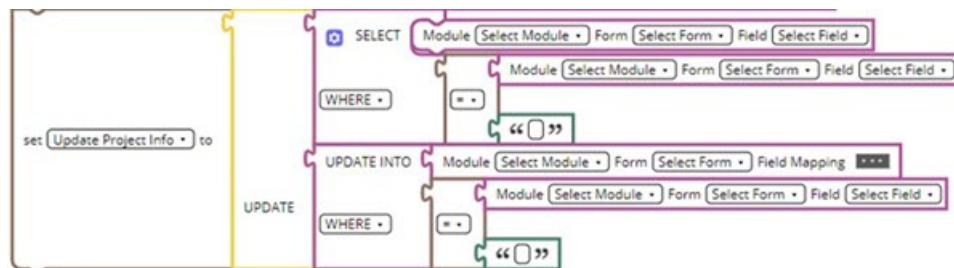
The second part of the **INSERT** block is the **INSERT INTO** block that enables you to configure the destination to which the information must be inserted. You can specify the **Module** and **Form** and define the **Field Mapping** for fields.



You can select the fields from the **Source Form** and **Source Field** that is defined in the select block and **Destination Field** to which this information must be mapped.

Update Block

The **UPDATE** blocks enable you to select information from Masterworks and update a specific field or set of fields in another form. The **UPDATE** blocks must always be connected to a variable.



The first part of the **UPDATE** block is the select statement that you can configure in the same way as the **SELECT** block. For information on configuring the **SELECT** block, see [Select Block](#).

The second part of the **UPDATE INTO** block is the **WHERE** block that enables you to specify the filtering conditions. The **WHERE** block is configured in the same way as the **SELECT** block. For information on configuring the **WHERE** block, see [Select Block](#).

14.5.2.2.2.2.1.4.3. Fields

The **Fields** blocks enable you to execute operations on a common dataset.

Count Block

The **COUNT** block enables you to count the records or rows from any module or form. For example, if you want to count the number of rows in a grid, then you can use the **COUNT** block.



Top Block

The **TOP** block enables you to get the top **n** records or rows from any data and Distinct block enables you to get the distinct values from a dataset.



14.5.2.2.2.2.1.5. Actions

The **ACTIONS** block is the final output of the business logic that you need to configure. This block enables you to perform various actions at different events.

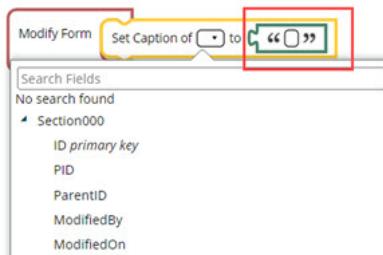
It has three types of entities:

- [Change Caption](#)
- [Error](#)
- [Set](#)

14.5.2.2.2.2.1.5.1. Change Caption

The **Change Caption** block is available only for the **Modify Form** event as the logic of this event is triggered before the form is generated and you change the caption for the appropriate field.

From the drop-down list of **Set Caption of** field, you can select the appropriate field name for which the caption must be changed and enter the new caption in the adjacent text box.



14.5.2.2.2.1.5.2. Error

The **Error** block enables you to configure messages based on defined conditions. This block is available on all events.



Messages are of three types:

- Error – Stops you from proceeding further.
- Warning – Allows you to continue operation but a warning message is displayed.
- Information – Displays a message with additional information

You can choose the type of error message that you want to configure and the content of the message. The configured messages appear as a Toast Message.

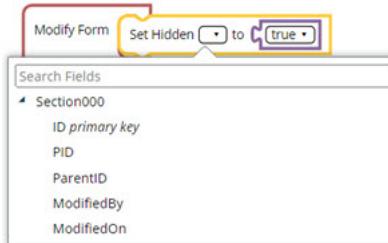
Note: Toast message is a type of message that appears on the top-right corner of the page in red, yellow, or green based on the type of message.

14.5.2.2.2.1.5.3. Set

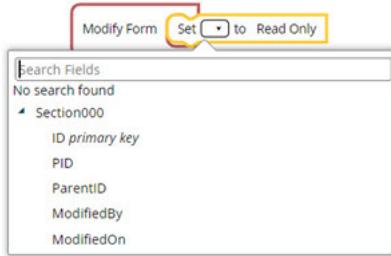
The **Set** block enables you to update a default value for a field in the current form. This block is available on all events except **After Save** and **Workflow Action Complete**. However, the available options in **Set** block are different for **Modify Form** event when compared to **Load Form** and **Before Save** events.

In the **Modify Form** event, you can select any of the following **Set** block options as applicable:

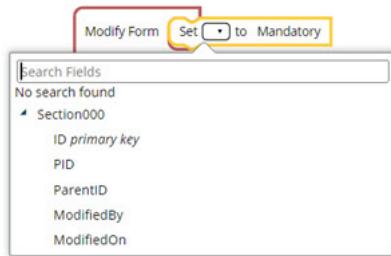
- From the drop-down list of **Set Hidden** field, you can select the field name that must be hidden or available, and then update the value as `true` or `false` in the adjacent field as applicable.



- From the drop-down list of **Set** field, you can select the field name that must be set to read only.



- From the drop-down list of **Set** field, you can select the field name that must be set to mandatory.



In the **Load Form** and **Before Save** events, from the drop-down list of **Set Value of** field, you can select the field name for which the default value must be set, and then update the value in the adjacent field.

- If the selected field name is a text box field type, then a text box is created adjacent to the selected field.



- If the selected field name is a drop-down list with a defined list of values, then a drop-down list is created adjacent to the selected field.



14.5.2.2.3. List Page Business Logic

The **LIST PAGE BUSINESS LOGIC** tab enables you to configure business logic in Masterworks when you access the list page of a form. It consists of only one event – **Customize Toolbar**. For more information on this event, see [Customize Toolbar Event](#).

The blocks available in the **LIST PAGE BUSINESS LOGIC** tab are similar to the **FORM BUSINESS LOGIC** tab except for the **ACTIONS** block. The **ACTIONS** block is the final output of the business logic that you must configure once you navigate to the list page.

The **LIST PAGE BUSINESS LOGIC** tab consists of the following blocks:

- [Conditions](#)

- [Definitions](#)
- [Update](#)
- [Data Operations](#)
- [Actions](#)

14.5.2.2.3.1. Customize Toolbar Event

The **Customize Toolbar** event enables you to show or hide a toolbar menu item based on some conditions. It is the only available event in the **LIST PAGE BUSINESS LOGIC**. For more information on events, see [Events](#) on page 1133.

14.5.2.2.3.2. Actions Block

The blocks available in **FORM BUSINESS LOGIC** and **LIST PAGE BUSINESS LOGIC** are same except for the **ACTIONS** block. The **ACTIONS** block is the final output of the business logic that you must configure once you navigate to the list page.

For more information on other blocks, see [Blocks](#) on page 1134.

The following table provides information on the blocks available in the **ACTIONS** block:

Block	Description
Set MenuItem Hidden	Enables you to hide a toolbar option
Set MenuItem Disable	Enables you to disable a toolbar option

14.5.2.3. Importing XML File or Form into Form Builder

The Import XML feature enables you to either upload an XML file or import an existing XML-based form in Form Builder.

This feature enables you to:

- Customize the existing XML-based forms in Form Builder.
- Import a customized XML-based form into Form Builder.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand the **Configuration Toolkit** folder, and then click **Form Builder**.

The **FORMS LIST** page is displayed.

3. Click **Import XML**.

The **IMPORT FORM** page is displayed.

4. To import from a file, perform the following steps:

- a. Select **File Upload**.
- b. In the **Select File** box, click **Choose File**.

The **Open** dialog box is displayed.

- c. Select the required XML file to be uploaded, and then click **Open**.
- d. Click **Import**.

A form is created and displayed in the **FORMS LIST** page.

- e. To modify and update the imported form, select the imported form, and click **Edit**.

5. To import from an existing form, perform the following steps:

- a. Select **Form Import**.

- b. In the **Select Form** box, click and select the required form from the drop-down list.

Available forms are the forms in Masterworks that are created using XML.

- c. Click **Import**.

A form with the same **Form ID** and **Form Header** of the selected form is created and displayed in the **FORMS LIST** page.

- d. To modify and update the imported form, select the imported form, and click **Edit**.

14.5.2.4. Creating a Form Using Form Builder

The following procedure describes the steps to create a form. The example controls and options selected in the procedure are for instructional purposes.

The procedure illustrates the following controls:

GROUP LAYOUT	SIMPLE INPUT CONTROLS	ADVANCED CONTROLS	CHILD DATA CONTAINERS
<ul style="list-style-type: none">• Section• Tabs Container• Tab• Section without Header• Two Column Layout	<ul style="list-style-type: none">• Auto Generated• Single Line Text• Multi Line Text• Date• Numeric• Drop Down• List Box• Check Box List• Check Box• Radio Button List• Formatted Input• Date Time	<ul style="list-style-type: none">• Set• Picker With Textbox• Formula• Map• Picker Trigger	<ul style="list-style-type: none">• Dynamic Grid• Picker• Static Grid

Note: To prevent timing out, it is recommended to regularly save the form as you create it.

1. In the module menu, click **Administration**.

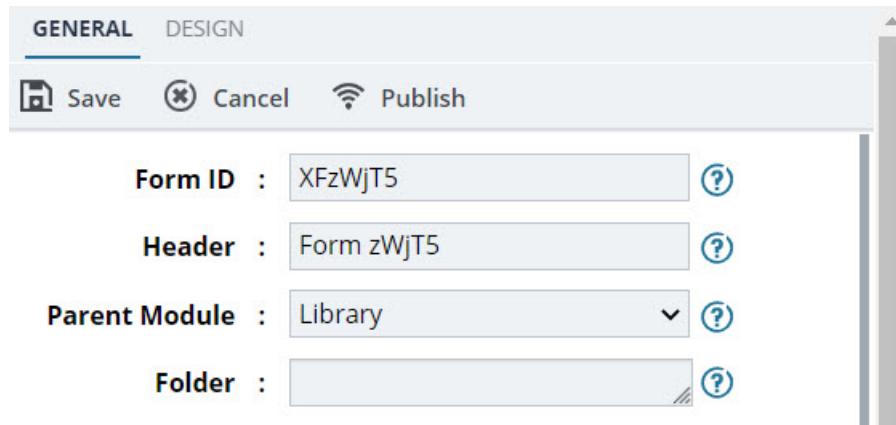
The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand the **Configuration Toolkit** folder, and then click **Form Builder**.

The **FORMS LIST** page is displayed.

3. Click **New**.

Form Builder - GENERAL Tab



Two tabs, **GENERAL** and **DESIGN** are displayed.

- The **GENERAL** tab enables you to define the form name (Header), and the module (Parent Module) where the form must be available in the application at runtime.
- The **DESIGN** tab displays the form structure. The tab is divided into three sections:
 - Controls pane – It lists the controls to design the form.
 - Design area – It displays the structure and design of the form.
 - Attributes pane – It displays the control's attributes.

4. In the **GENERAL** tab, provide the appropriate information, as described in the following table.

Field	Description
Form ID	This determines the unique identification number for the form. By default, an auto-generated ID is displayed. Optionally, enter an ID according to the requirements. Note: The Form ID must be of seven unique alphanumeric characters.
Header	This determines the name of the form. By default, an auto-generated name is displayed. Enter the appropriate name.

Field	Description
Parent Module	<p>This determines the parent module in the application for the form.</p> <p>By default, the Library module is selected and displayed. Select the appropriate module.</p>
Folder	<p>This determines the folder name where the form will be placed in the navigation tree of the selected module.</p> <p>Type the complete path of the folder using the '/' separator.</p> <p>If the folder already exists, the form will be placed in the folder.</p> <p>Otherwise, the folder will be created as defined, and the form will be placed in that folder.</p> <p>For example, enter Resources/Employees in the Folder box. This creates two new folders named Resources and Employees in the selected parent module. The Employees folder is created as a sub-folder in the Resources folder.</p>

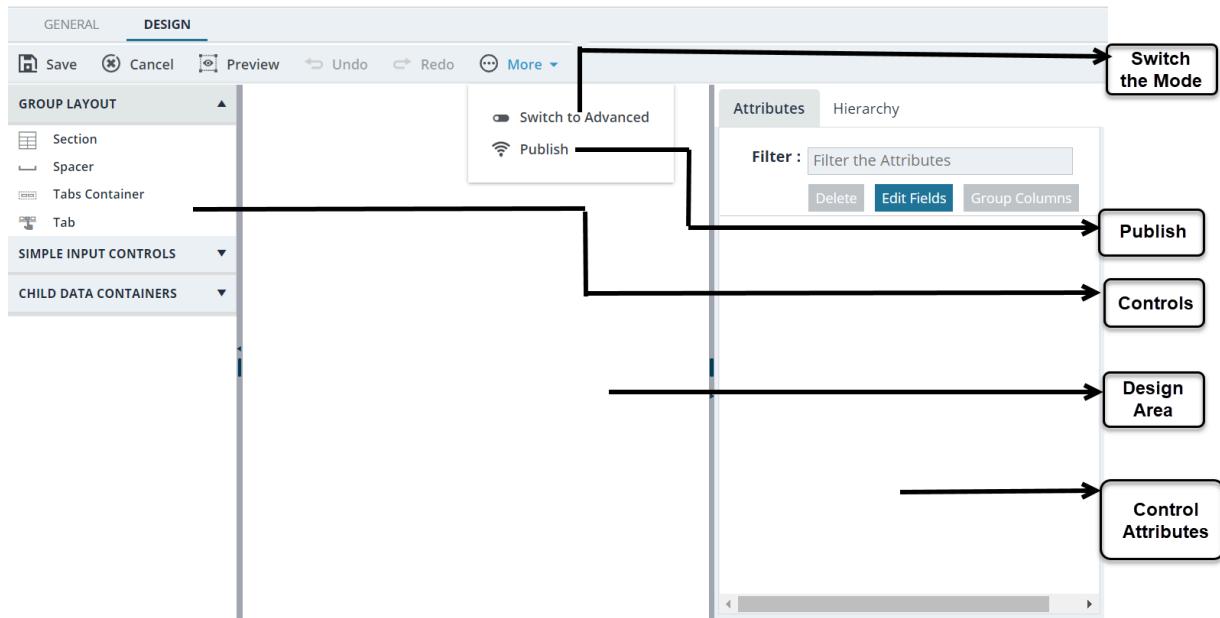
GENERAL Tab (Example)

The screenshot shows the 'GENERAL' tab of a configuration interface. At the top, there are tabs for 'GENERAL' (which is selected) and 'DESIGN'. Below the tabs are buttons for 'Save' (with a blue icon), 'Cancel' (with a red icon), and 'More' (with a grey icon). The main area contains four configuration fields:

- Form ID :** XFzWjT5 (with a blue question mark icon)
- Header :** Employee Details (with a blue question mark icon)
- Parent Module :** Project (with a blue question mark icon)
- Folder :** Resources/Employees (with a blue question mark icon)

5. Click the DESIGN tab.

Form Builder – DESIGN Tab



6. To create a form using advanced features, click **Switch to Advanced**.

In the controls pane, the **ADVANCED CONTROLS** section is added, and the existing sections are updated with a few advanced controls.

7. To view or modify the form-level attributes, click on the design area.

In the attributes pane, the form attributes are displayed.

Form Attributes

The screenshot shows the 'Attributes' tab selected in the top navigation bar. Below it is a search bar labeled 'Filter : Filter the Attributes'. Underneath are three buttons: 'Delete', 'Edit Fields' (which is highlighted in blue), and 'Group Columns'. The main area is titled 'COMMON ATTRIBUTES' and contains the following list of attributes:

Attribute	Description
Name :	XFuqcYc
ParentModuleID :	LIBRARY
PrimaryKeyName :	ID
AllowAttachments :	False
Header :	Form uqcYc
ExcelFileName :	
AllowExcelExport :	True
ShowDetailsReport :	True
ShowListPageReport :	True
ShowGISMapView :	False
Width :	100%
EnableAuditLog :	true

Below this section is a header for 'ADVANCED ATTRIBUTES'.

Attribute	Description
IgnoreDefaultCaption :	False

In the **COMMON ATTRIBUTES** section, the form attributes are displayed as described in the following table.

Attribute	Description
Name	Displays the ID as defined in the Form ID field in the GENERAL tab. Optionally, update the ID according to the requirements.

Attribute	Description
ParentModuleID	Displays the name of the module as defined in the Parent Module field in the GENERAL tab. Optionally, update the module according to the requirements.
PrimaryKeyName	This is a default value for the form and should not be modified in normal circumstances. The primary key for the database container. This usually is an auto increment integer. When using the SmartFormGenerator, this field is autogenerated.
AllowAttachments	Select True to include the ATTACHMENTS section in the form.
Header	Displays the name as defined in the Header field in the GENERAL tab. Optionally, update the form's name.
ExcelFileName	Enter the name of the template Excel file for bulk import or export of form information.
AllowExcelExport	Select True to include the Excel Export functionality in the list page of the form.
ShowDetailsReport	Select True to include the Details Report in the Reports menu option.
ShowListPageReport	Select True to include the List Page Report in the Reports menu option.
ShowGISMapView	Select True to include the Map View button on the list page is available. This functionality is applicable only to list page of the forms enabled with Map controls. For more information, see Enabling Map Control in a Form Using Form Builder .
Width	The width of the form based on its contents. Defaulted to 100% . However, you can use the pixel values.

Attribute	Description
EnableAuditLog	Select True to enable the Audit Log functionality for the form. This is used for auditing purposes.

In the **ADVANCED ATTRIBUTES** section, the following form attributes are displayed.

Note: These attributes are available only when you are in the advanced mode.

Attribute	Description
IgnoreDefaultCaseConversion	Select True to ignore default conversion of caption to uppercase.
TableName	Every time a form is created, a table is also created in the database. This is the name of the table that can be specified for identification. By default, displays a unique system generated table name.
Attributes	To define the CSS attributes for the control, perform the following steps: <ol style="list-style-type: none">Click .The Attribute Editor dialog box is displayed.In the Border, Background, Font, and Box tabs, define the appropriate attributes.Click Ok.
HidelnSearch	Select True to hide the form in the Enterprise Search utility in the Home module. By default, it is set to False .
AttachmentsVisibility	By default, it is set to None . <ul style="list-style-type: none">Select Expanded to keep the ATTACHMENTS section expanded in the form.Select Collapsed to keep the ATTACHMENTS section collapsed in the form.
CollapsibleAttachments	Select True to make the ATTACHMENTS section as collapsible.
MinimumNumberOfAttachments	Enter the minimum number of files that must be attached to save the form. Defaulted to 0 .

Attribute	Description
ValidateAttachmentCount	Enter the workflow status on which the minimum number of files that must be attached to perform the action.
CaptionStyle	<p>You can define the CSS style for the container controls, such as Section, Tabs Container, Static Grid, and so on. This will override the default caption format of all the container controls that you add to the form.</p> <p>To define the style, perform the following steps:</p> <ol style="list-style-type: none"><li data-bbox="536 624 732 669">Click .<li data-bbox="536 680 1208 725">The Attribute Editor dialog box is displayed.<li data-bbox="536 736 1383 826">In the Border, Background, Font, and Box tabs, define the appropriate attributes.<li data-bbox="536 837 711 882">Click Ok.
DropIfExists	Select True to delete the corresponding table in the database while publishing a form.
LinkToControlViewName	Enter the name of the database that is the reference for the Link control. This is generally used by the developers.
IsActive	Select True to make the form available in the navigation tree. If set to False , the form is not available in the navigation tree. However, it will still be available for APIs.
IsSearchable	Select True to make the form available for the Enterprise Search utility in the Home module.
IsTemplate	Select True to make the form not available in the UI. This attribute is typically used for forms that are only utilized in APIs.
ShowInMyReports	Select True to make the form available as data source in Ad-hoc Reports creation.
ShowInStages	<p>ShowInStages is the basis for integrating the form into workflow.</p> <p>Select True to disable the sections based on the approval stage a form is in.</p>
GroupBy	Enter the name of control or controls (Semicolon separated). Based on the parameter specified here, the records in the list page are grouped together.

Attribute	Description
DisplayNew	Select True to include the New icon in the list page.
DisplayEdit	Select True to include the Edit icon in the list page.
DisplayView	Select True to include the View icon in the list page.
DisplayDelete	Select True to include the Delete icon in the list page.
AllowExcelImport	Select True to include the Excel Import / Export functionality in the list page.
AllowExcelExportTemplateWithData	Select True to include the Excel Template With Data option in the Excel Import / Export list.
ControlCaptionWidth	Enter a default width for all field captions in this form. Defaulted to 150px .
FormKey	Enter the name of the controls that needs to be shown in the My Tasks details column. This will be used only if a workflow for the form is enabled.
ShowValidationSummary	Select True , on saving a form, to view all the validation messages in an alert box, instead of showing next to the control.
AllowOffline	Select True to enable the offline mode for the form. During project creation, you can select the form to manage the project in the mobile app.
RestrictEditInitialStage	Select True to restrict the record in the initial workflow stage only to the user created. The records is not shown to other users.
ShowInPermissions	Select True to enable permission settings on the form.
EnableMailMerge	Select True if mail merge should be enabled for the form.
ModuleMainDLL	If a form also serves as a module (e.g Contract Management serves form as well as a module). This property should be used to set Module's MainDLL property.
ModuleBLClassName	Enter the BL class name if the form also serves as a module (For example, Contract Management serves form as well as a module). This property should be used to set Module's BLClassName property.
ReportPageOrientation	Select Landscape or Portrait to define the layout for the List and Details Page reports.

Attribute	Description
ReportPageSize	Select Letter or A4 to define the page size for the Details Page report.
ListReportPageSize	Select the report size of List Page report.
ExportReportFileName	Enter the default name of the file which is downloaded from the Details Page report.
EnableCopyAndEdit	Select True to enable users to copy and edit the form.
FormVersion	Enter the version number of the Form. For any major update in the form, this version number needs to be incremented by 1.
HideInAuditLog	Select True to hide the form in Audit Log.
SingleInstance	Select True to make the form as single instance. If set to False , a list page is enabled for this form and you can create multiple records.

8. To create a form, you should design the layout of the form. The layout of a form can vary depending on the information that needs to be entered. The following procedure covers a few important layout controls:
 - a. A section provides a boundary in the design area to add controls. To add a section control, perform the following steps:
 - i. In the controls pane, expand **GROUP LAYOUT**, and then drag and drop **Section** to the design area.
The label **SECTION <number>** is displayed in the design area.
 - ii. In the design area, click **SECTION <number>**.
The attributes pane displays the attributes for the section control.
 - iii. In the attributes pane, define the appropriate attributes for the control. For more information on defining the attributes, see [Common and Advanced Attributes](#) on page 1189.
 - b. To add a section control without the header name, perform the following steps:
 - i. In the controls pane, expand **GROUP LAYOUT**, and then drag and drop **Section without Header** to the design area.
The section is displayed in the design area.
 - ii. In the design area, click the section.
The attributes pane displays the attributes for the section control.
 - iii. In the attributes pane, define the appropriate attributes for the control. For more information on defining the attributes, see [Common and Advanced Attributes](#) on page 1189.
 - c. To add a section with two column layout, perform the following steps:
 - i. In the controls pane, expand **GROUP LAYOUT**, and then drag and drop **Two Column Layout** to the design area.
The section is displayed in the design area.
 - ii. In the design area, click **SECTION <number>** to define the attributes for the section, and click **TextBox <number>** to define the attributes for the text boxes.
The attributes pane displays the attributes for the section control.
 - iii. In the attributes pane, define the appropriate attributes for the control. For more information on defining the attributes, see [Common and Advanced Attributes](#) on page 1189.
 - d. To add a tab control to the form, perform the following steps:
 - i. In the controls pane, expand **GROUP LAYOUT**, and then drag and drop **Tabs Container** to the design area.
In the design area, the **Tabs Container** is added with a section and text box.

- ii. To add multiple tabs, from **GROUP LAYOUT**, drag and drop **Tab** next to **TAB < number>** in the design area.
- iii. In the design area, click **TAB <number>**.
The attributes pane displays the attributes for the control.
- iv. In the attributes pane, define the appropriate attributes for the control. For more information on defining the attributes, see [Common and Advanced Attributes](#) on page 1189.

9. To add an auto generated field in the form, perform the following steps:

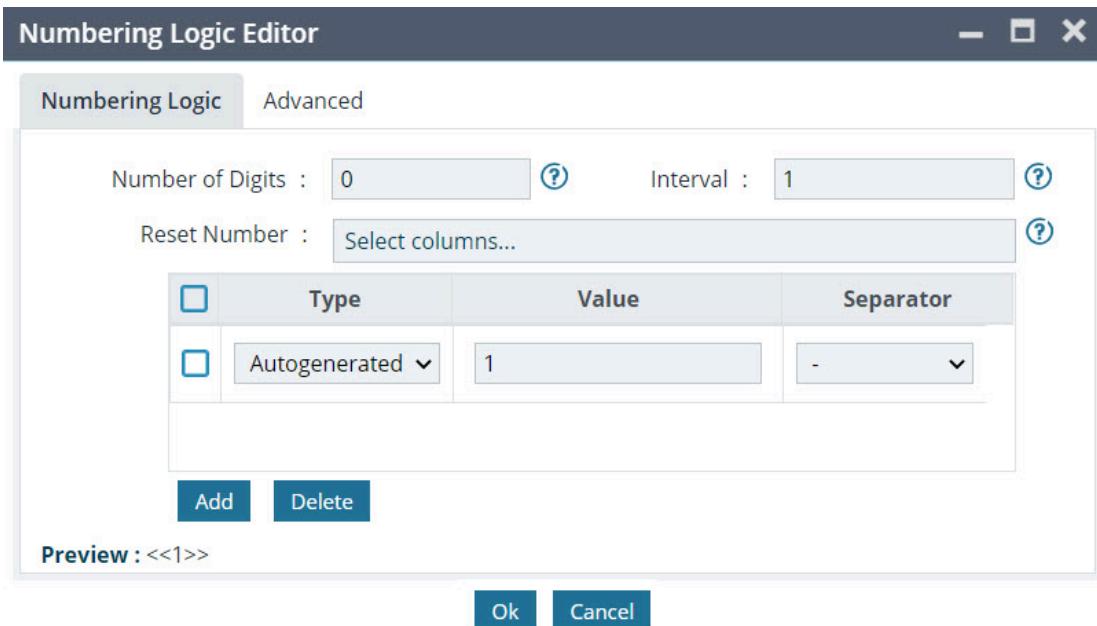
- a. In the controls pane, expand **SIMPLE INPUT CONTROLS**, and then drag and drop **Auto Generated** into the section.
- b. Double-click **AutoIncrement <number>** and enter a title.

The **Attributes** pane displays the auto-generated attributes.

- c. To define a logic and format for the field entry, perform the following steps:

- i. In the **Attributes** pane, in the **NumberingLogic**, click .

The **Numbering Logic Editor** dialog box is



displayed.

- ii. In the **Number of Digits** box, enter the number of digits for the auto-generated number.

For example, selecting **3** will show auto-generated section numbering in three digits, such as **001**.

- iii. In the **Interval** box, enter the interval of numbers to be generated. For example, an interval of **2** generates numbers in sequence like 2, 4, 6, and so on. The **Preview** field displays the numbering format.

- iv. To identify a column that if the value is changed should trigger a reset back to starting number, from the **Reset Number** drop-down list, select the column name.

- v. To provide additional elements, such as a static prefix or suffix to the auto-generated number, perform the following steps:

- a) In the **Type** column, select the type of element.

- **Fixed** is a static text.
- **Autopopulated** pulls information from an identified data source.

- **Autogenerated** defines the starting number for auto generation.
- b)** In the **Value** column, enter or select the value for the types.
For example, selecting EMP for **Fixed** type, displays **EMP** as the beginning of the employee code.
- c)** In the **Separator** column, select the required separator.
- d)** Click **Add** to include additional rows.
- vi.** Click **OK**.

10. To add a text box control, perform the following steps:

- a.** In the controls pane, expand **SIMPLE INPUT CONTROLS**, and then drag and drop **Single Line Text** into the section in the design area.

Note: Drop the control within the confines of the section that you already added.

- b.** In the design area, click **TextBox <number>**.

The attributes pane displays the attributes for the control.

- c.** In the attributes pane, define the appropriate attributes for the control. For more information on defining the attributes, see [Common and Advanced Attributes](#) on page 1189.

11. To add a text box that accepts one or more lines of text, such as address, description, comments, and so on, perform the following steps:

- a.** In the controls pane, expand **SIMPLE INPUT CONTROLS**, and then drag and drop **Multi Line Text** into the section in the design area.

Note: Drop the control within the confines of the section that you already added.

- b.** Click **TextArea <number>** in the design area.

The attributes pane displays the attributes for the control.

- c.** In the **COMMON ATTRIBUTES** section, in the **Caption** attribute, enter a title for the control.
- d.** In the **Height** and **Width** attributes, enter the appropriate value for the text box.

Based on the value entered, the text area is increased or decreased.

For more information on defining other attributes, see [Common and Advanced Attributes](#) on page 1189.

12. To add a date control, perform the following steps:

- a. In the controls pane, expand **SIMPLE INPUT CONTROLS**, and then drag and drop **Date** into the section in the design area.

Note: Drop the control within the confines of the section that you already added.

- b. In the design area, click **Date <number>**.

The attributes pane displays the attributes for the control.

- c. In the **COMMON ATTRIBUTES** section, in the **Caption** attribute, enter a title for the control.
- d. In the attributes pane, define the appropriate attributes for the control. For more information on defining the attributes, see [Common and Advanced Attributes](#) on page 1189.

13. To add a drop-down list control, perform the following steps:

- a. In the controls pane, expand **SIMPLE INPUT CONTROLS**, and then drag and drop **Drop Down** into the section in the design area.

Note: Drop the control within the confines of the section that you already added.

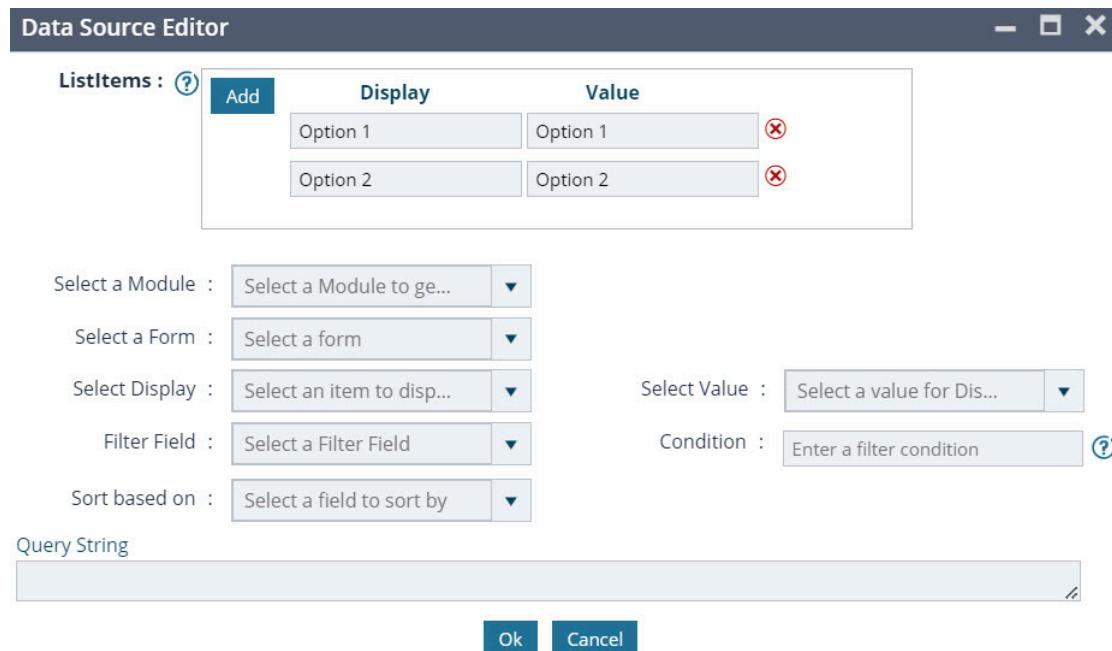
- b. Click **DropDownList <number>** in the design area.

The attributes pane displays the attributes for the control.

- c. In the **COMMON ATTRIBUTES** section, in the **Caption** attribute, enter a title for the control.
- d. To define a data source for the drop-down list control, in the **DataSource** attribute, perform the following steps:

- i. Click .

The **Data Source Editor** dialog box is displayed.



- ii. Perform either of the following steps:

- To define static values for the control, in the **ListItems** section, perform the following steps:
 - a) In the **Display** column, enter a title for the option that should be displayed.
 - b) In the **Value** column, retain the default value for each button option. This determines the unique identification number for each option.
 - c) Optionally, to add additional options, click **Add**.

- To define dynamic data source for the control, provide the required information in the fields, as described in the following table.

Field	Description
Select a Module	Select the appropriate module.
Select a Form	Select the appropriate form.
Select Display	Select the appropriate field.
Select Value	Select a value for the field. In the Query String box, based on the option selected, a string is automatically displayed.
Filter Field	Select the appropriate field to filter the data.
Sort based on	Select the appropriate field to sort the data.
Condition	Enter the filter condition for the data to be displayed. You can filter the data source with operators, such as >=, =, != . Also, you can enter any SQL where clause.

iii. Click **Ok**.

For more information on defining other attributes, see [Common and Advanced Attributes](#) on page 1189.

14. To add a list box control that enables the user to make a single selection from a list of predetermined values, perform the following steps:

- a. In the controls pane, expand **SIMPLE INPUT CONTROLS**, and then drag and drop **List Box** into the section in the design area.

Note: Drop the control within the confines of the section that you already added.

- b. In the design area, click **Listbox <number>**.

The attributes pane displays the attributes for the control.

- c. In the **COMMON ATTRIBUTES** section, in the **Caption** attribute, enter a title for the control.
- d. To define a data source for the control, in the **DataSource** attribute, perform the following steps:

- i. Click .

The **Data Source Editor** dialog box is displayed.

- ii. In the **ListItems** section, perform the following steps:
 - a) In the **Display** column, enter a title for the option that should be displayed.
 - b) In the **Value** column, retain the default value for each button option. This determines the unique identification number for each option.
 - c) Optionally, to add additional options, click **Add**.
- iii. Click **Ok**.
- e. In the attributes pane, define the other appropriate attributes for the control. For more information on defining the attributes, see [Common and Advanced Attributes](#) on page 1189.

15. To add a check box control that enables the user to make single check box selection, perform the following steps:

- a. In the controls pane, expand **SIMPLE INPUT CONTROLS**, and then drag and drop **Check Box** into the section in the design area.

Note: Drop the control within the confines of the section that you already added.

- b. In the design area, click **CheckBox <number>**.

The attributes pane displays the attributes for the control.

- c. In the attributes pane, define the appropriate attributes for the control. For more information on defining the attributes, see [Common and Advanced Attributes](#) on page 1189.

16. To add a check box list control that enables the user to make multiple check box selections, perform the following steps:

- a. In the controls pane, expand **SIMPLE INPUT CONTROLS**, and then drag and drop **Check Box List** into the section in the design area.

Note: Drop the control within the confines of the section that you already added.

- b. In the design area, click **CheckBoxList <number>**.

The attributes pane displays the attributes for the control.

- c. In the attributes pane, define the **DataSource** and other appropriate attributes for the control. For more information on defining the attributes, see [Common and Advanced Attributes](#) on page 1189.

17. To add a date and time control, perform the following steps:

- a. In the controls pane, expand **SIMPLE INPUT CONTROLS**, and then drag and drop **Date Time** into the section in the design area.

Note: Drop the control within the confines of the section that you already added.

- b. In the design area, click **DateTime <number>**.

The attributes pane displays the attributes for the control.

- c. In the attributes pane, define the appropriate attributes for the control. For more information on defining the attributes, see [Common and Advanced Attributes](#) on page 1189.

18. To add an input control that accepts the user input in a specific format, perform the following steps:

- a. In the controls pane, expand **SIMPLE INPUT CONTROLS**, and then drag and drop **Formatted Input** into the section in the design area.

Note: Drop the control within the confines of the section that you already added.

- b. In the design area, click **Formatted <number>**.

The attributes pane displays the attributes for the control.

- c. In the **COMMON ATTRIBUTES** section, in the **Format** attribute, enter the appropriate format for the control.

For example, if the user input should be a phone number, enter **(###)-###-####**.

- d. In the attributes pane, define the appropriate attributes for the control. For more information on defining the attributes, see [Common and Advanced Attributes](#) on page 1189.

19. To add a field that is visible based on a specific condition, use the **VisibleIf** attribute.

Note: To view this attribute, ensure the **Advanced** mode is enabled.

For example, the field **Number of Years** must be visible only if the option selected in the field **Is Experienced?** is **Yes**, as shown in the following image:

SAMPLE	SAMPLE
<p>Is Experienced ? : <input checked="" type="radio"/> Yes <input type="radio"/> No</p> <p>Number of Years : <input type="text" value="0.00"/></p>	<p>Is Experienced ? : <input type="radio"/> Yes <input checked="" type="radio"/> No</p>

For this, you must introduce a **Radio Button List** control, and then add a **Numeric** control.

- a. To introduce a **Radio Button List** control, perform the following steps:
 - i. In the controls pane, expand **SIMPLE INPUT CONTROLS**, and then drag and drop **Radio Button List** into the section in the design area.

Note: Drop the control within the confines of the section that you already added.

By default, two radio buttons **Option 1** and **Option 2** are added.

- ii. In the design area, click **RadioButtonList <Number>**.
The attributes pane displays the attributes for the control.
 - iii. In the **COMMON ATTRIBUTES** section, in the **Caption** attribute, enter a title for the control. For example, enter **Is Experienced?**.
 - iv. In the **Name** attribute, enter a name to identify the control. For example, enter **Experienced**.
 - v. In the **DataSource** attribute, click .
The **Data Source Editor** dialog box is displayed.
 - vi. In the **ListItems** section, perform the following steps:
 - a) in the **Display** column, enter a title for each button option.
For example, enter **Yes** and **No** for **Option 1** and **Option 2** respectively.
 - b) In the **Value** column, retain the default value for each button option. This determines the unique identification number for each option.
 - c) Optionally, to add additional radio buttons, click **Add**.
 - d) Click **Ok**.

Note: The options below the **ListItems** section are not applicable to the radio button control.

vii. Click **OK**.

To define other attributes of the radio button control, see [Common and Advanced Attributes](#) on page 1189.

b. To create a numeric text box control, perform the following steps:

- i. In the controls pane, expand **SIMPLE INPUT CONTROLS**, and then drag and drop **Numeric** into the section in the design area.
- ii. In the design area, click **Numeric <Number>**.
The attributes pane displays the attributes for the control.
- iii. In the **COMMON ATTRIBUTES** section, in the **Caption** attribute, enter a title for the control. For example, **Number of Years**.
- iv. Expand the **ADVANCED ATTRIBUTES** section, and in the **VisibleIf** attribute, type **\$<control name>=<value>**. For example, enter **\$Experienced=Option 1**.

Note: Ensure the **Switch to Advanced** option is enabled to view this section.

This implies that if the option selected in the **Is Experienced?** field is **Yes**, the field **Number of Years** is displayed.

To define other attributes for the control, see [Common and Advanced Attributes](#) on page 1189.

20. To add a **Static Grid** control, perform the following steps:

Note: In a static grid, the number of rows and columns is fixed. The user input is limited to the available numbers of rows and columns. For example, if you wanted two references for an employee.

- a. In the controls pane, expand **CHILD DATA CONTAINERS**, and then drag and drop **Static Grid** to the design area and outside the confines of the section.
A dialog box to specify the number of rows and columns to be displayed.
- b. Enter the number of rows and columns, and then click **Ok**.
In the design area, the **Static Grid** is added.
- c. In the design area, double-click each column name in the static grid and enter column headers.
- d. Click **STATICGRID <number>**.
The attributes pane displays the attributes of the control.
- e. In the **COMMON ATTRIBUTES** pane, in the **Caption** attribute, enter a title for the grid.
- f. In the attributes pane, define the other attributes for the control. For more information on defining the attributes, see [Common and Advanced Attributes](#) on page 1189.

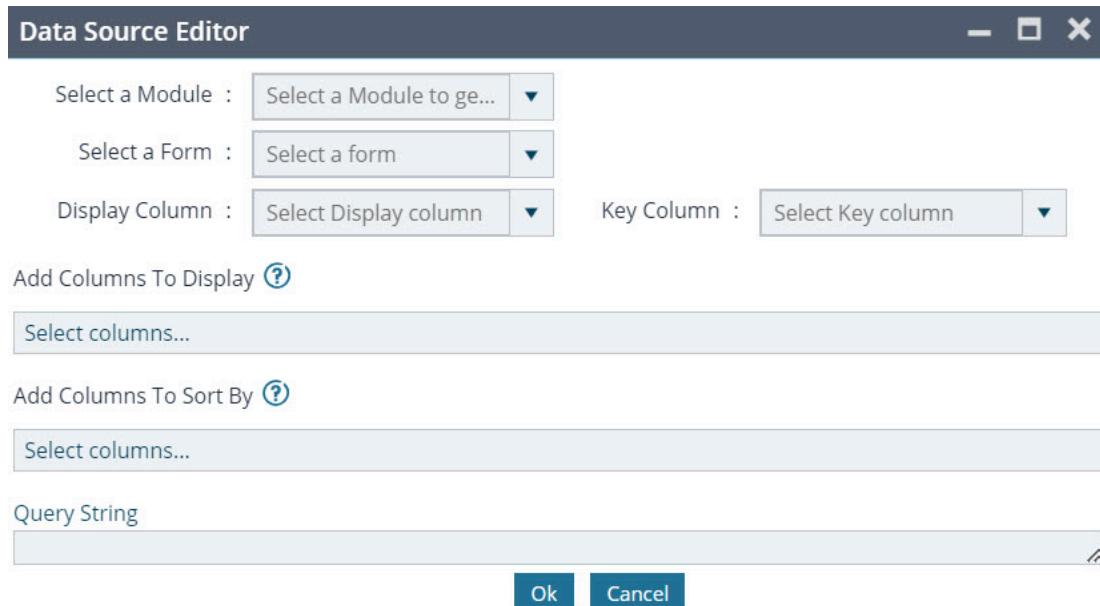
21. To add a **Dynamic Grid** control, perform the following steps:

- a. In the controls pane, expand **CHILD DATA CONTAINERS**, and then drag and drop **Dynamic Grid** to the design area and outside the confines of the section.
A dialog box to specify the number columns to be displayed.
- b. Enter the number for the columns, and then click **Ok**.
In the design area, the **Dynamic Grid** is added.
- c. In the design area, double-click each column name and enter column headers.
- d. Click **DYNAMICGRID <number>**.
The attributes pane displays the attributes of the control.
- e. In the **COMMON ATTRIBUTES** pane, in the **Caption** attribute, enter a title for the grid.
- f. In the attributes pane, define the other attributes for the control. For more information on defining the attributes, see [Common and Advanced Attributes](#) on page 1189.

22. To add a picker control that accepts the text, you must first add a **Picker** control followed by **Picker With Textbox** control.

- a. To add the **Picker** control, perform the following steps:

- i. In the controls pane, expand **CHILD DATA CONTAINERS**, and then drag and drop **Picker** into the design area (not within any section).
The **Data Source Editor** dialog box is displayed.



- ii. Provide the required information in the fields, as described in the following table:

Field	Description
Select a Module	Select the appropriate module.
Select a Form	Select the form that the data will be drawn from.
Display Column	Select the column that should be displayed in the picker text box.
Key Column	Select the key column that should be displayed in the picker text box.
Add Column To Display	Select column to display in the picker dialog box.
Add Columns To Sort By	Select the columns in the order they should display in the picker dialog box.
Query String	Based on the options selected, a string is automatically generated and displayed.

iii. Click **Ok**.

Picker reference appears in the design area.

- b. To add the **Picker With Textbox** control, perform the following steps:
 - i. In the controls pane, expand **ADVANCED CONTROLS**, and then drag and drop **Picker With Textbox** into a section.

Note: Drop the control within the confines of the section that you already added.
 - ii. In the design area, click on **Set <number>**.
The attributes pane displays the attributes of the control.
 - iii. In the **COMMON ATTRIBUTES** section, perform the following steps:
 - a) In the **Caption** attribute, enter the title.
 - b) From the **SelectResolver** attribute, select **True**.
To define other attributes for the control, see [Common and Advanced Attributes](#) on page 1189.
 - iv. In the design area, click on the text box, and in the attributes pane, perform the following steps:
 - a) In the **Value** attribute, click .
A **Value Editor** dialog box is displayed.
 - b) From the **Select Resolver** drop-down list, select **Picker**.
A couple of attributes are added.
 - c) In the **Select Picker** field, select the previously created picker.
 - d) In the **Select Column** field, select the field that should be displayed in the text box.
Based on the selections, a **Resolver String** is displayed.
 - e) Click **OK**.
To define other attributes for the control, see [Common and Advanced Attributes](#) on page 1189.
 - v. In the design area, click on the picker trigger  icon.
The attributes pane displays the attributes of the control.
 - vi. In the **COMMON ATTRIBUTES** section, in the **PickerName** attribute, perform the following steps:
 - a) Click 
The **Select Picker** dialog box is displayed.
 - b) In the **Select Picker** field, select the previously created picker.
 - c) In the **Select Unique Column ID** field, select a column.

Note: The field selected must have unique records, such as the **ID** field.

- d) Click **OK**.

To define other attributes for the control, see [Common and Advanced Attributes](#) on page 1189.

23. To add a formula control that displays a value based on the calculation defined, perform the following steps:

- In the controls pane, expand **ADVANCED CONTROLS**, then drag and drop **Formula** into a section.

Note: Drop the control within the confines of the section that you already added.

- In the design area, click **Formula <number>**.

The attributes pane displays the attributes for the control.

- In the **COMMON ATTRIBUTES** section, in the **Value** attribute, click .

The **Value Editor** dialog box is displayed.

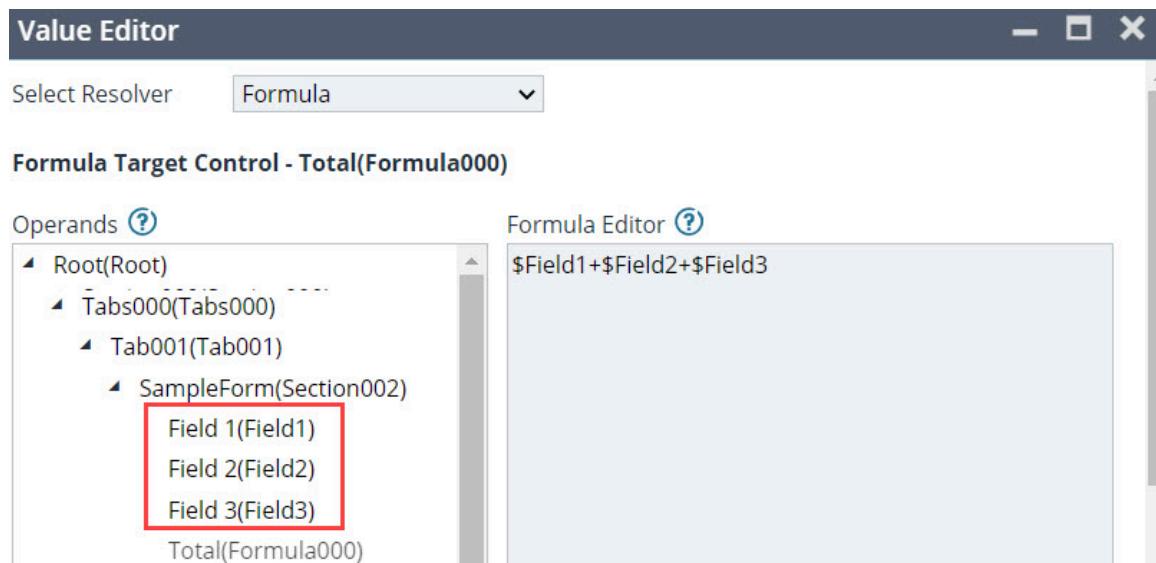
- From the **Select Resolver** drop-down list, select **Formula**.

- In the **Formula Editor** section, enter the appropriate formula.

Alternatively,

From the **Operands** section, drag and drop the appropriate fields to the **Formula Editor** section, and then include the appropriate operator between fields.

For example, to display the sum value of three fields, drag and drop the fields, and then include the operator **+** as shown in the following image:



- Click **Ok**.

The defined formula is applied to the field.

To define other attributes for the control, see [Common and Advanced Attributes](#) on page 1189.

24. In the toolbar, click **Preview** to preview the form.

25. Click **Back** to return to the **DESIGN** tab.

26. Click **Save**.

The **FORMS LIST** page is displayed.

27. To publish the form to be made available in the application, in the list page, select the appropriate form, and then click **Publish**.

The form is now available in the application.

28. To verify if the form is published, perform the following steps:

a. Navigate to the module where the form is published.

The form is available in the navigation pane.

b. In the navigation pane, click the form.

The form list page is displayed.

c. Click **New** to display a new form.

d. Enter the details, and then click **Save** to save the form.

After a form is created and published:

- You can associate a workflow to the form.

For information on associating a workflow to the form, see [Associating a Workflow](#) on page 75.

- You will need to assign permissions to the form.

For information on defining role-based permissions to the form, see [Configuring Role Permissions](#).

Note: If the form is located in the library, you do not need to assign permissions as all library catalogs have the same permissions.

14.5.2.5. Enabling Map Control in a Form using Form Builder

- **GIS SETTINGS** page is configured. To configure GIS Settings, see [GIS Settings](#).

The **GIS Map Control** feature facilitates to record and view the geo-location information in a form. Using **Form Builder**, you can enable one or more map controls in a form and manage unique specifications for each map control.

1. In the **DESIGN** tab, create a section. For information on creating a section, see [Creating a Form Using Form Builder](#).
2. In the controls pane, expand the **ADVANCED CONTROLS** list, drag and drop the **Map** control into the section. The map control area is displayed.

3. Perform the following steps to enable the data mapping of location details in the application to ESRI Outfields:

- a. In the controls pane, expand the **ADVANCED CONTROLS** list, and drag and drop the **GISDataMapper** control into the section.

The selection dialog box is displayed.

- b. From the **Layer** drop-down list, select the required layer.

Available options are the editable layers that are configured in GIS Settings. For information on adding layers, see [Adding Layers](#).

- c. From the **Mapping Type** drop-down list, select the data type required to be mapped with the ESRI Outfields.

Note: It is mandatory to map the following data types for each layer:

- PID
- ParentID
- InstanceID
- ModuleID
- MapControlName
- GeometryID

- d. In the **Outfield Name** box, enter the name of the outfield attribute as defined in ArcGIS database.
- e. From the **MW Field** drop-down list, select the MW field name corresponding to the outfield name.

Note: MW Field for the mapping types **ModuleID** and **ControlName** are fetched within the application.

- f. To continue mapping data for all data types, perform the following steps:
 - i. Click **Add**.
A row is created.
 - ii. Repeat steps a to e.
 - iii. Click **Ok**.

4. To turn on the **GIS Map View** control in the list page of the form, perform the following steps:
 - a. In the **DESIGN** tab, click the **Attributes** tab.
The form attributes are displayed.
 - b. From the **ShowGISMapView** drop-down list, select **True**.

Note: This functionality is applicable only to forms that have list pages.

5. Click the **Settings** tab to specify form details.

The fields displayed in this page are:

- **Form Id:** This determines the unique ID for the form. Rename the form according to requirements.
- **Header:** This denotes the text to be displayed as header to the form after being published.
- **Parent Module:** This determines the location where the XML form will be available in the application.

6. In the **Header** box, enter the name of the form.
7. From the **Parent Module** list, select the parent module.
8. Click **Save**.

The **FORMS LIST** page is displayed.

The form must now be published to be made available in the application. For information on publishing a form, see [Publishing a Form](#).

14.5.2.6. Configuring Business Logic in a Form

This section explains the procedure to configure business logic in forms using the **FORM BUSINESS LOGIC** tab available in **Form Builder**. The example fields and options selected in the business scenarios are for instructional purposes.

See the following business scenarios to achieve a better knowledge of configuring business logic in forms:

- [Business Scenario – Display a New Field Based on a Field Selection in the Expense Form](#) on page 1179
- [Business Scenario – Create a New Error Message and Modify this Message in Error Message Configurator](#) on page 1182
- [Business Scenario – Using a Default Message in Form Builder](#) on page 1185

14.5.2.6.1. Business Scenario – Display a New Field Based on a Field Selection in the Expense Form

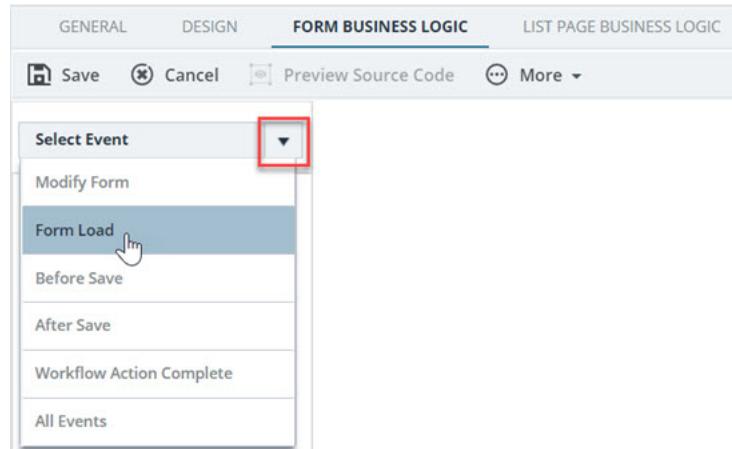
In an **Expense** form, if **Direct Expenses** is selected, it has a **Purchase Order No** associated to it. Once the **Purchase Order No** is selected, the **Total PO Cost** field must be displayed for the associated **Purchase Order**.

1. Create an **Expense** form.

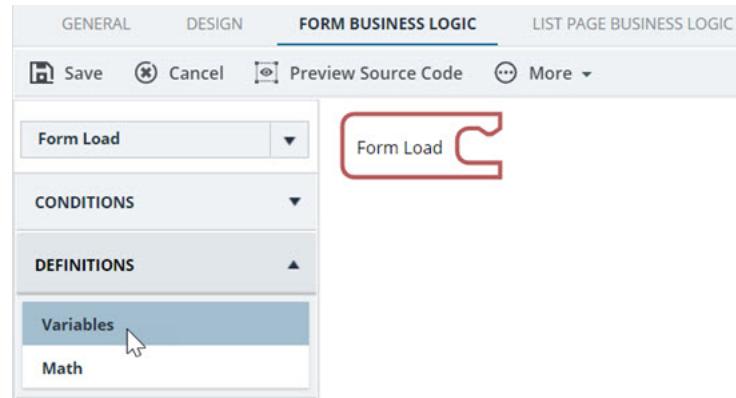
For information on how to create a form, see [Create a form using Form Builder](#).

Alternatively, you can import an **Expense** form. For information on how to import a form, see [Importing XML File or Form into Form Builder](#).

2. To modify and update the **Expenses** form, select the form, and click **Edit**.
3. In the controls pane, click **SIMPLE INPUT CONTROLS**, and then drag and drop **Numeric** control to the design area.
4. Double-click the **Numeric** control and enter **Total PO Cost** for the text box.
5. To make the **FORM BUSINESS LOGIC** tab available, in the toolbar, click **Switch to Advanced**.
6. Click the **FORM BUSINESS LOGIC** tab.
7. In the controls pane, from the **Select Event** drop-down list, select the **Form Load** event.

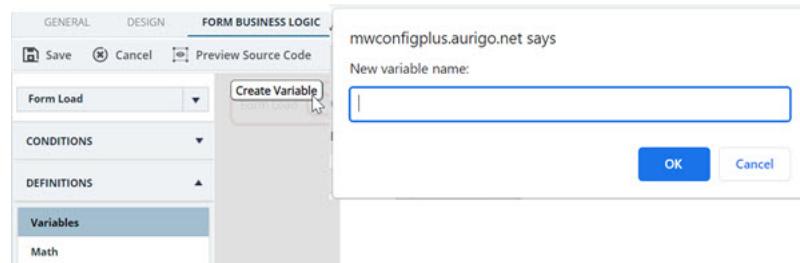


8. Expand the **DEFINITIONS** block, and then click the **Variables** block.



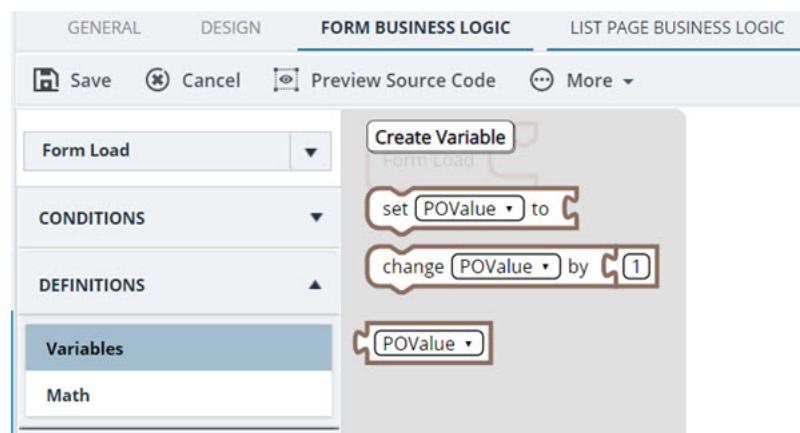
9. Click **Create Variable**.

A pop-up message appears to provide the variable name.

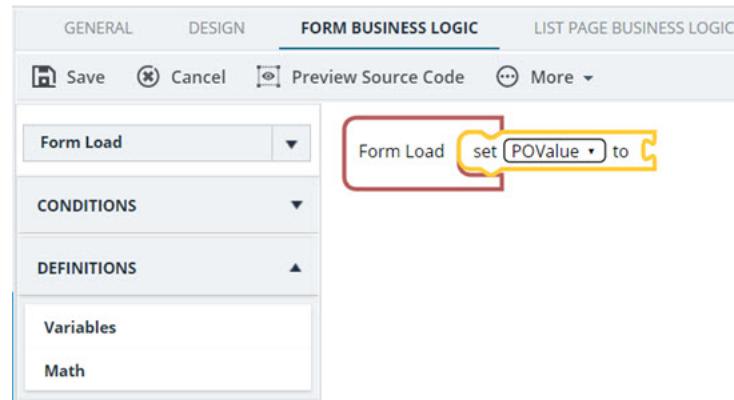


10. In the **New variable name** field, enter the variable name as `POValue`, and click **OK**.

The newly created variable is available in the variable list with the `set` operator.



11. Drag and connect the **set** operator to the **Form Load** event.

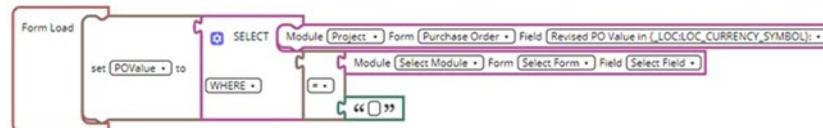


12. Expand the **DATA OPERATIONS** block, and then click the **Read Data** block.

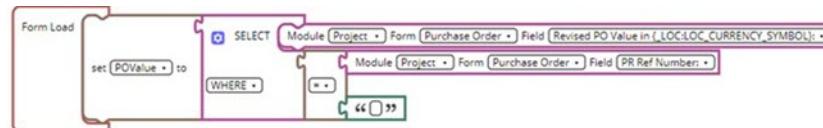
The available options of the **Read Data** block are displayed.

13. Drag and connect the **SELECT** block to the **set** operator.

14. In the **SELECT** block, select the **Module** as Project, **Form** as Purchase Order, and **Field** as Revised PO Value in `{_LOC:LOC_CURRENCY_SYMBOL}`:



15. In the **WHERE** block, select the **Module** as Project, **Form** as Purchase Order, and **Field** as PR Ref Number.

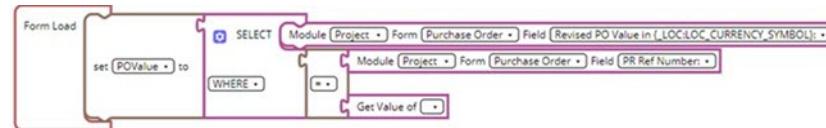


16. To equate the conditions of the **SELECT** and **WHERE** blocks, perform the following steps:

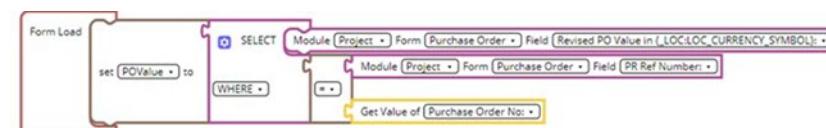
- a. Expand the **DATA OPERATIONS** block, and then click the **GET** block.

The available options of the **Get** block are displayed.

- b. Drag and connect the **Get Value of** block to the **WHERE** block.



- c. Select the value of the **Get Value of** field as Purchase Order No:.

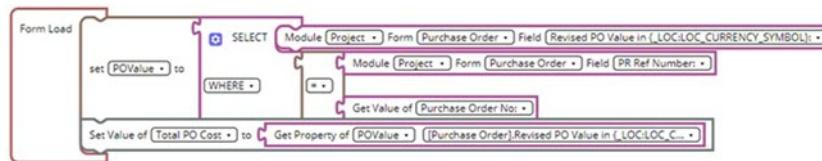


17. To execute the business logic as per the conditions defined in the **SELECT** and **WHERE** blocks, perform the following steps:

- a. Expand the **ACTIONS** block, and then click the **Set** block.
- b. Drag and connect the **Set Value of** block to the **Form Load** event.
- c. Select the value of the **Set Value of** field as **Total PO Cost**.
- d. Expand the **DATA OPERATIONS** block, and then click the **GET** block.

The available options of the **Get** block are displayed.

- e. Drag and connect the **Get Property of** block to the **Set Value of** block.
- f. Select the value of the **Get Property of** field as **POValue** and in the next drop-down list, select the value as **PurchaseOrder**. Revised PO Value in **{_LOC:LOC_CURRENCY_SYMBOL} :**



18. Click **Save**.

The form is saved and displayed in the **FORMS LIST** page.

The form must now be published to be made available in the application. For information on publishing a form, see [Publishing a Form](#).

14.5.2.6.2. Business Scenario – Create a New Error Message and Modify this Message in Error Message Configurator

In an **Issue Log** form, if the Start date is greater or equal to the Project Start date, then an error message must be displayed. You can create this error message using the **Business Logic** feature of **Form Builder**. Once the error message is created, it is automatically synced with **Error Message Configurator**.

If you want to modify this new error message, you can do it using **Error Message Configurator**. To modify the newly created error message, update the appropriate content for the message in **Error Message Configurator** for the associated form.

To configure this business logic for creating a new error message in **Form Builder**, we should use the **Before Save** event available in the **FORM BUSINESS LOGIC** tab.

1. Create an **Issue Log** form.

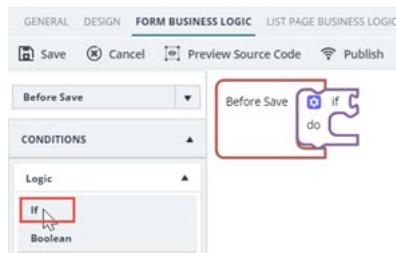
For information on how to create a form, see [Create a form using Form Builder](#).

Alternatively, you can import an **Issue Log** form. For information on how to import a form, see [Importing XML File or Form into Form Builder](#).

2. To configure the business logic in the form, click **Switch to Advanced**.

The **FORM BUSINESS LOGIC** and **LIST PAGE BUSINESS LOGIC** tabs are available.

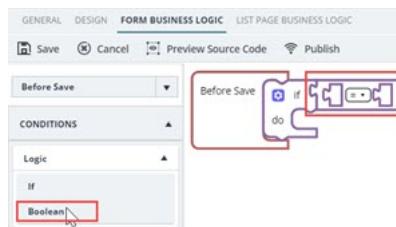
3. Click the **FORM BUSINESS LOGIC** tab.
4. In the controls pane, from the **Select Event** drop-down list, select the **Before Save** event.
5. Expand the **CONDITIONS** block, then expand the **Logic** block, and click the **If** block.
The available options of the **If** block are displayed.
6. Drag and connect the appropriate **If** block to the **Before Save** event.



7. Under the **Logic** block, click the **Boolean** block.

The available options of the **Boolean** block are displayed.

8. To equate the condition, drag and connect the Simple Boolean block to the **if** block.



9. Expand the **DATA OPERATIONS** block, and then click the **Get** block.

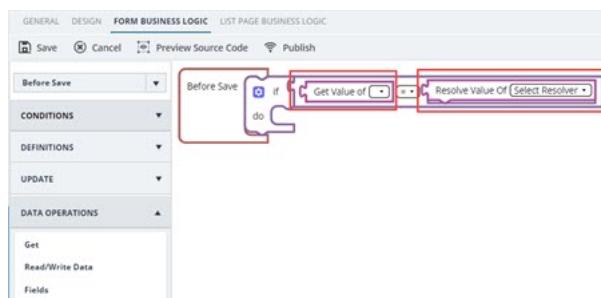
The available options of the **Get** block are displayed.

10. Drag and connect the **Get Value of** block to the first part of the Simple Boolean block.

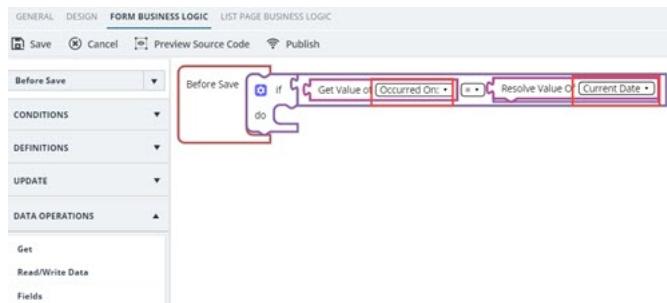
11. Under the **DATA OPERATIONS** block, click the **Fields** block.

The available options of the **Fields** block are displayed.

12. Drag and connect the **Resolve Value Of** block to the second part of the Simple Boolean block.

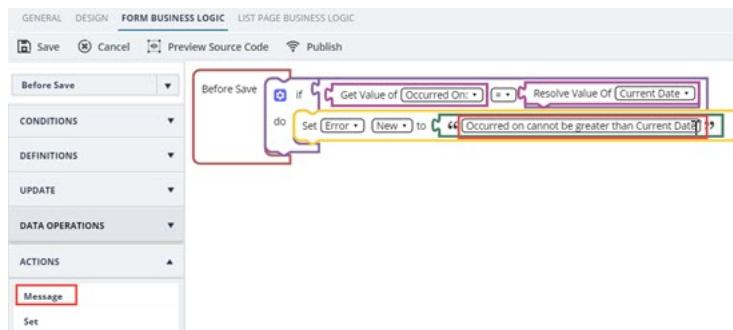


13. From the drop-down list of **Get Value of** field, select **Occurred On**.
14. From the drop-down list of **Resolve Value Of** field, select **Current Date**.



15. If the condition defined in the **if** block is met, then to create the error message, perform the following steps:

- a. Expand the **ACTIONS** block, and then click the **Message** block.
- b. Drag and connect the **Message** block to the **do** block.
- c. In the Single Line Text block, enter Occurred on cannot be greater than Current Date.



- d. Click **Save**.

Note: The **Issue Log** form along with the newly created error message is saved and this error message is automatically synced to **Error Message Configurator**.

- After the form is saved, it is displayed in the **FORMS LIST** page.
- e. To make the form available in the application, in the **FORMS LIST** page, select the appropriate form, and then click **Publish**.

16. To modify the newly created error message, perform the following steps:

- a. In the navigation pane, click **Error Message Configurator**.

The **ERROR MESSAGE CONFIGURATOR** list page is displayed.

- b. In the **ERROR MESSAGE CONFIGURATOR** list page, in the **Form Name** column, enter **Issue Log**.

A list of error messages related to the **Issue Log** form is displayed.

- c. Select the appropriate error message, and then click **Edit**.

The **ERROR MESSAGE CONFIGURATOR** page is displayed.

- d. To replace or modify the existing message in the **Value** field, enter the new message in the **New Error Message** field. For example, Occurred on date should be less than or equal to Current Date.

- e. Click **Save & Exit**.

The modified error message is displayed in the **ERROR MESSAGE CONFIGURATOR** list page and it will be now available for the **Issue Log** form.

14.5.2.6.3. Business Scenario – Using a Default Message in Form Builder

All default messages of Masterworks are synced with **Error Message Configurator**. For any arbitrary form, if any default message must be displayed, then we can define it using the **Business Logic** feature of **Form Builder**.

To configure this business logic where a default message available in **Error Message Configurator** must be displayed, we should use the **Before Save** event available in the **FORM BUSINESS LOGIC** tab.

1. [Create a form](#).

Alternatively, [import a form](#).

2. To configure the business logic in the form, click **Switch to Advanced**.

The **FORM BUSINESS LOGIC** and **LIST PAGE BUSINESS LOGIC** tabs are available.

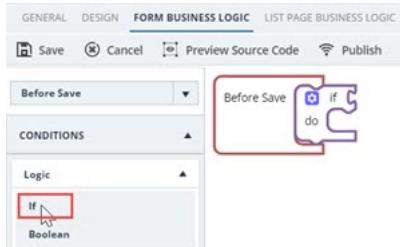
3. Click the **FORM BUSINESS LOGIC** tab.

4. In the controls pane, from the **Select Event** drop-down list, select the **Before Save** event.

5. Expand the **CONDITIONS** block, then expand the **Logic** block, and click the **If** block.

The available options of the **If** block are displayed.

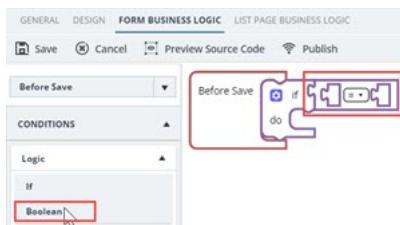
6. Drag and connect the appropriate **If** block to the **Before Save** event.



7. Under the **Logic** block, click the **Boolean** block.

The available options of the **Boolean** block are displayed.

8. To equate the condition, drag and connect the Simple Boolean block to the **if** block.

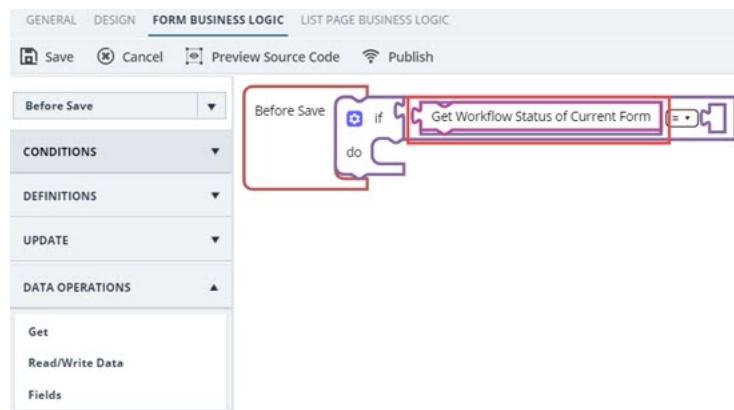


9. To define the condition in the first part of the Simple Boolean block and then equate it to the value in the second part of the Simple Boolean block, perform the following steps:

- Expand the **DATA OPERATIONS** block, and then click the **Get** block.

The available options of the **Get** block are displayed.

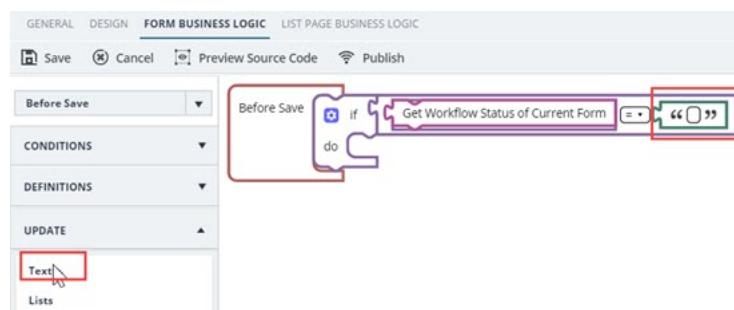
- Drag and connect the **Get Workflow Status of Current Form** block to the first part of the Simple Boolean block.



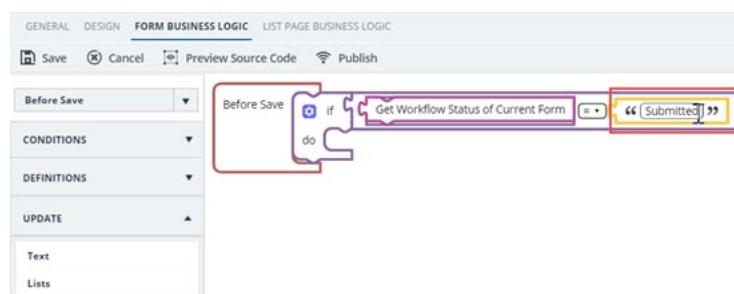
- Expand the **UPDATE** block, and then click the **Text** block.

The available options of the **Text** block are displayed.

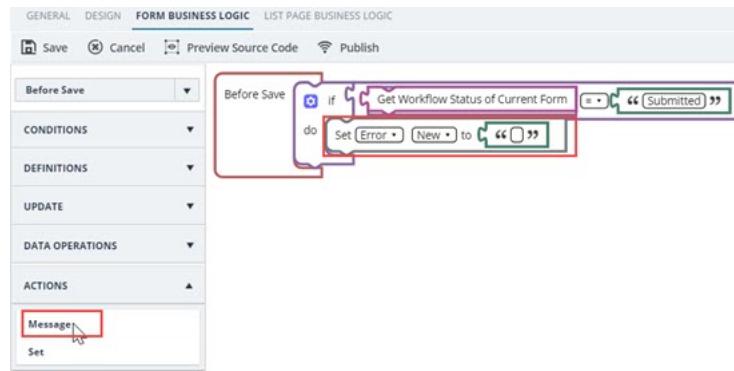
- Drag and connect the Single Line Text block to the second part of the Simple Boolean block.



- Enter **Submitted** in the Single Line Text block.



10. If the condition defined in the **if** block is met, then to use the appropriate error message from **Error Message Configurator** database, perform the following steps:
- Expand the **ACTIONS** block, and then click the **Message** block.
 - Drag and connect the **Message** block to the **do** block.

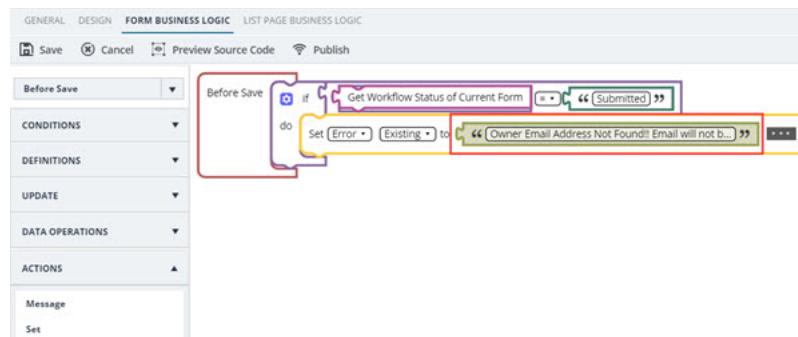


- From the drop-down list of **New** field, select **Existing**.
- Click **...** at the end of the **Message** block.

The **Error Configuration** dialog box displays a list of error messages associated to the Core Module and the current form.

- Select the appropriate error message as required.

The selected error message is displayed in the Single Line Text block of the **Message** block.



11. Click **Save**.

The form is saved along with the selected error message.

The form must now be published to be made available in the application. For information on publishing a form, see [Publishing a Form](#).

14.5.2.7. Publishing a Form

You must publish a form to be made available in the application.

- In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand the **Configuration Toolkit** folder, and then click **Form Builder**.

The **FORMS LIST** page is displayed.

3. Select the newly created form.
4. Click **Publish**.

The form is now available in the application.

5. To verify if the form is published, perform the following steps:
 - a. Navigate to the module where the form is published; Library for the example described here.
The form is available in the navigation pane.
 - b. In the navigation pane, click the form.
The form list page is displayed.
 - c. Click **New** to display a new form.
 - d. Enter the details, and click **Save** to save the form.
6. To define permissions for the form, see [Managing Permissions](#).

14.5.2.8. Common and Advanced Attributes

When you add controls to a form, the **COMMON ATTRIBUTES** and **ADVANCED ATTRIBUTES** sections provide more granular options to define the attributes of the controls.

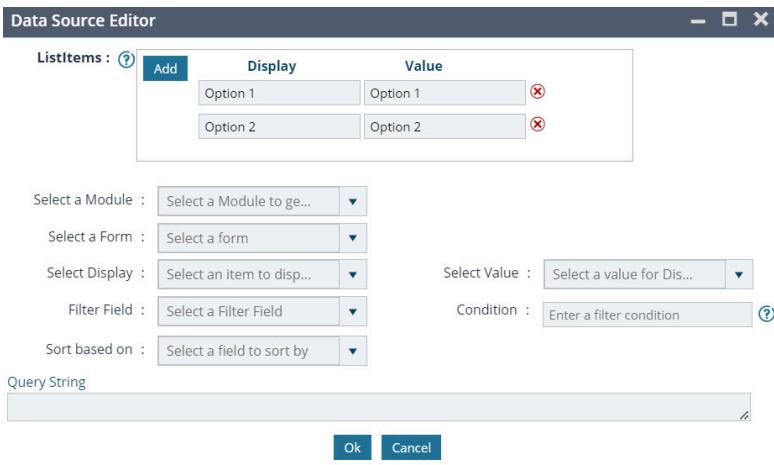
Note: The following steps cover high-level information of all the controls' attributes.

1. In the attributes pane, in the **COMMON ATTRIBUTES** section, provide the required information in the attributes, as described in the following table.

Attribute	Description
Caption	Enter the title of the control to be displayed in the form.
Name	A name is automatically generated to identify the control and need not be modified. Optionally, enter a name to identify the control. This is also the name of the control in the database, and is used to derive the name of the HTML item that is rendered. Note: No spacing is allowed in the entered name.

Attribute	Description
HelpToolTip	Enter the tool tip that should be displayed on mouse hover on the field's Help ('?') icon.
HelpDescription	Enter the description that should be displayed when the field's Help ('?') icon is clicked.
Height	Enter the height of a control in the user interface. Enter it in the pixel or % format.
Width	Enter the width of a control in the user interface. Enter it in the pixel or % format.
Type	Based on the control added, a default type is displayed. Optionally, select the required type of control. For example, the default Type for the Date control is Date , and optionally, you can select Date Time to change the control's type.

Attribute	Description
Value	<p>To define a default value to be displayed in the control, perform the following steps:</p> <p class="list-item-l1">a. Click . The Value Editor dialog box is displayed.</p> <p class="list-item-l1">b. From the Select Resolver drop-down list, select the appropriate resolver to retrieve system-level information during display processing.</p> <p>Based on the option selected, the Resolver String section displays one of following format values:</p> <ul style="list-style-type: none">• {CURRENTUSER} - Displays the user name of the logged-in user.• {CURRENTUSERNAME} - Displays the first name of the logged-in user.• {CURRENTDATE} - Displays the current date.• {CURRENTDATETIME} - Displays the current date and time.• {CURRENTTIME} - Displays the current time.• {PROJECTNAME} - Displays the name of the project.• {PROJECTCODE} - Displays the project code.• {CONTRACTNAME} - Displays the name of the contract.• {CONTRACTCODE} - Displays the contract code.• {PRIMECONTRACTOR} - Displays the prime contractor of the contract.• {_FORMULA: formula}• {_REQUEST: state info field}• {_DB: db expression}• {_Picker: [name of the picker that is defined for this form]}• "any static text" - Displays the text entered here. <p class="list-item-l1">c. Click Ok.</p>

Attribute	Description								
DataSource	<p>You can define the data source for the controls, such as Radio Button, Drop Down List, and Picker.</p> <ul style="list-style-type: none"> To define static values for the control, perform the following steps: <ol style="list-style-type: none"> Click . <p>The Data Source Editor dialog box is displayed.</p>  <ol style="list-style-type: none"> Click . <p>The Data Source Editor dialog box is displayed.</p> <ol style="list-style-type: none"> In the Display column, enter a title for the option that should be displayed. In the Value column, retain the default value for each button option. This determines the unique identification number for each option. Optionally, to add additional options, click Add. Click Ok. <ul style="list-style-type: none"> To define dynamic data source for the control, perform the following steps: <ol style="list-style-type: none"> Click . <p>The Data Source Editor dialog box is displayed.</p> <ol style="list-style-type: none"> Provide the required information in the fields, as described in the following table. <table border="1"> <thead> <tr> <th data-bbox="652 1791 843 1870">Field</th><th data-bbox="843 1791 1426 1870">Description</th></tr> </thead> <tbody> <tr> <td data-bbox="652 1870 843 2016">Select a Module</td><td data-bbox="843 1870 1426 2016">Select the appropriate module.</td></tr> <tr> <td data-bbox="652 2016 843 2161">Select a Form</td><td data-bbox="843 2016 1426 2161">Select the appropriate form.</td></tr> <tr> <td data-bbox="652 2161 843 2245">Select Display</td><td data-bbox="843 2161 1426 2245">Select the appropriate field.</td></tr> </tbody> </table> 	Field	Description	Select a Module	Select the appropriate module.	Select a Form	Select the appropriate form.	Select Display	Select the appropriate field.
Field	Description								
Select a Module	Select the appropriate module.								
Select a Form	Select the appropriate form.								
Select Display	Select the appropriate field.								

Attribute	Description
NumberingLogic	<p>To add the numbering logic for the auto-generated fields, perform the following steps:</p> <ol style="list-style-type: none"> Click . The Numbering Logic Editor dialog box is displayed. In the Number of Digits box, enter the number of digits for the auto-generated number. For example, selecting 3 will show auto-generated section numbering in three digits, such as 001. In the Interval box, enter the interval of numbers to be generated. For example, an interval of 2 generates numbers in sequence like 2, 4, 6, and so on. The Preview field displays the numbering format. To identify a column that if the value is changed should trigger a reset back to starting number, from the Reset Number drop-down list, select the column name. To provide additional elements, such as a static prefix or suffix to the auto-generated number, perform the following steps: <ol style="list-style-type: none"> In the Type column, select the type of element. <ul style="list-style-type: none"> Fixed is a static text. Autopopulated would pull information from an identified data source. Autogenerated would be the numbering identified in this editor. In the Value column, enter or select the value for type. In the Separator column, select the required separator. Click Add to include the additional rows. <p>For example, EMP-<<ResourceType>>-<<1>> For the above example, you can fill the table as shown in the following</p>

	Type	Value	Separator
<input type="checkbox"/>	Fixed	EMP	-
<input type="checkbox"/>	Autopopulated	Resource Type	-
<input type="checkbox"/>	Autogenerated	1	-

Add **Delete**

Attribute	Description
NewModeText	Enter a string to show the auto-generated text in the new mode.
IsSelected	Select True to make the tab selected when the form first renders.
ReadOnly	Select True to make the field read-only and the user cannot modify the data.
MaxLength	Enter a value to set the maximum number of characters that can be entered in the text box.
EnableAuditLog	Enter true to enable audit log for the form.
DisableSave	Select True to ignore server side save.
PrimaryKeyName	Enter the primary key for the database container. This usually is an auto increment integer.
PickerName	<p>You can define the data source for the control from the previously created picker.</p> <p>To select the appropriate picker for the control, perform the following steps:</p> <ol style="list-style-type: none">Click . The Select Picker dialog box is displayed.In the Select Picker field, select the previously created picker.In the Select Unique Column ID field, select a column. <p>Note: The field selected must have unique records, such as the ID field.</p> <ol style="list-style-type: none">Click OK.
PickerButtonText	Enter the text to be displayed in the picker button. Usually, it should be ... (three dots).
PickerButtonWidth	Enter the width of the picker button in px.
EnableMultiSelect	Select True to enable selection of multiple entries from picker.
ShowAddButton	Select True to enable the Add button in the Grid control.
ShowEditButton	Select True to enable the Edit button in the Grid control.

Attribute	Description
ShowDeleteButton	Select True to enable the Delete button in the Grid control.
EditButtonText	Enter the text to be displayed in Edit button.
ShowViewButton	Select True to enable the View button in the Grid control.
AllowInlineEdit	Select True to enable the inline editing of rows in the Grid control.
PickerIdColumn	It is the name of the column that is marked as KeyColumnName in the Picker. This column should exist in the Grid as well. Use this Attribute if you don't want the picker to display the rows that already exists in the Grid.
AllowFiltering	Select True to enable the filtering option in the dynamic grid columns.
AllowSorting	Select True to enable the sorting option in the dynamic grid columns.
AllowMultiSelect	Select True to enable selection of multiple rows in the dynamic grid.
AllowPaging	<p>By default, the option None is selected and displayed.</p> <ul style="list-style-type: none">Select Pagination to break the records into pages in the dynamic grid (Instead of displaying all the records at the same time) as shown in the following image: <p>The screenshot shows a dynamic grid with four columns labeled 'Column 000' through 'Column 003'. A message 'No records to display.' is centered. Below the grid is a navigation bar with icons for back, forward, and page numbers (1, 20). A dropdown menu for 'Page size' is open, showing '20'. To the right, it says '0 items in 1 pages'. The entire navigation bar is highlighted with a red box.</p> <ul style="list-style-type: none">Select Virtual_Scroll to enable a vertical scroll bar in the dynamic grid as shown in the following image: <p>The screenshot shows a dynamic grid with four columns labeled 'Column 000' through 'Column 003'. A message 'No records to display.' is centered. On the right side of the grid, there is a vertical scroll bar. The scroll bar track and slider are highlighted with a red box.</p>
PageSize	Enter the total number of records on a page to be displayed in the dynamic grid. By default, it displays 20 .

Attribute	Description
RowHeight	Enter the height of the dynamic grid row in px.
EnableVirtualization	Select True to display more than 1000 records in the grid in View Only mode.

2. In the attributes pane, expand the **ADVANCED ATTRIBUTES** section, and then provide the required information in the attributes, as described in the following table.

Note: To view this section, in the toolbar, ensure the **Advanced** mode is enabled.

Attribute	Description
Visible	Select True if the control should be visible to user in the form.
RequiredIf	To make the field as mandatory based on a condition of another field.
Attributes	To define the CSS attributes for the control, perform the following steps: <ol style="list-style-type: none">Click . The Attribute Editor dialog box is displayed.In the Border, Background, Font, and Box tabs, define the appropriate attributes.Click Ok.
HideInSearch	Select True to hide the control in the Enterprise Search utility in the Home module.
DisableRender	Select True to disable the control when the form first renders.
IgnoreCaseControl	Select True to change the control's title from uppercase to lowercase.
HideTabOnRender	Select True to hide the tab when the form renders. But, all the controls in the tab are accessible.
Orientation	Select Horizontal – All immediate child sections will be rendered horizontally one next to another. Select Vertical – All immediate child sections will be rendered vertically one after another.

Attribute	Description
Stage	Enter the name of the workflow stage on which the section should be disabled if the record is not pending on the logged-in user.
TabName	Enter the name of the tab under which this container should be rendered.
HideCaption	Select True to hide the visibility of caption in the UI for the controls inside SET control.
EditMode	<ul style="list-style-type: none">• Select Edit to make the control in editable in the form.• Select View to make the control in not editable in the form.• Select Hidden to hide the control in the form.
ErrorMessage	Enter the error message that should be displayed if a validation error occurs on the control.
FilterKey	Select True to filter the data. This is actually used in the scenarios where the same kind of data from different Parents/Forms is stored in one SQL Table. For example - Data from different contracts is stored in the same table against the respective contract IDs. So, if you are viewing that data for one contract using filter key would help to filter out the data for that contract. You can have more than one filter keys in the form.
ForeignKey	Select True if the control represents the foreign key of the parent container.
Hidden	Select True to hide the control in the form.
ListColumnWidth	Enter the column width of the control in the list page of the form.
PrimaryKey	Select True if this control represents the primary key of the parent container.
ReportWidth	Enter the width of this control in the List Page Report .
ValidationExpression	Enter an expression to define the control's format.
Validations	Enter a validation to validate the control while saving the form. For example, to make a field mandatory, enter Required . A * mark is displayed corresponding to the field indicating it is a mandatory field.

Attribute	Description
AddReferenceWith	Enter the expression if the control references data from another form. Syntax: ModuleID;CustomMessage
VisibleIf	To determine if the control needs to be visible or hidden based on a condition, perform the following steps: <ol style="list-style-type: none">Click . The Editor dialog box is displayed.Enter the appropriate string, and then click Ok. For example, enter \$EmployeeType=Contractor Here, the field is visible only if the option selected in the Employee Type field is Contractor.
ReEvaluate	Select True if the control's value has to be evaluated every time instead of fetching it from the database. This is mainly used for Modified on and Modified By fields.
IgnoreUpdate	Select True if the value should not be updated while updating records.
Enabled	This is to set the control in read only or editable format.
HideInAuditLog	Select True to hide the control in the Audit Log.
DBType	Enter the type of the control in the database. DBType must closely match the Type attribute.
EnableIf	Enter a condition to determine if this control needs to be editable or read only.
Visibility	By default, the option None is selected and displayed. <ul style="list-style-type: none">• Select Expanded to keep the section expanded in the form.• Select Collapsed to keep the section collapsed in the form.
AllowRowReOrder	Select True to enable the option to re-order the rows in the dynamic grid.
RowOrderColumnName	Enter the name of the column that will be used to sort in the dynamic grid.

Attribute	Description
MinimumNumberOfRows	Enter the minimum number of rows that should be added in the dynamic grid before saving the form.

3. To define the list page columns and reorder the controls, in the attributes pane, perform the following steps:
 - a. Click the **Hierarchy** tab.
The hierarchy of the tabs, sections, and controls is displayed.
 - b. To reorder the controls, drag and drop the control, such as grid, section, or picker to the appropriate position or tab.
 - c. To define the columns to be displayed in the form's list page, perform the following steps:
 - i. Click **Set List Columns**.
The selectable controls are highlighted in blue check box.
 - ii. Select the appropriate controls, and then click **Save**.
On publishing the form, the selected controls are displayed in the list page of the form.
 - d. Optionally, to delete a control from the form, select the appropriate control, and then click **Delete**.

14.5.3. Workflow Management

14.5.3.1. Workflow Management

The **Workflow Management** feature enables you to perform the following:

- Automate business process for granting approvals and clearances using pre-defined templates, and configurable workflows to eliminate inconsistencies and errors. You can also change a pre-defined business process to suit your organizational needs.
- Integrate with the Form Builder or XML allowing you to automate any business process.
- Define new workflows and modify existing workflows for custom created XML forms and in-built forms.

User role permission is defined at two levels. The first level of permission is given at the form level and the second level of permission is given at the workflow level.

- Workflow level permissions are given on top of form level permissions. For example, a user role that has **Edit** permission at the form level and action stakeholder permission at the workflow level can only perform workflow action. A user role that has **Edit** permission at the form level and view stakeholder permission at the workflow level

cannot perform workflow action and can only view the record. A user role that does not have **Edit** permission at the form level can still perform workflow action if the workflow is enabled for **Allow Workflow Action by All Stakeholders**.

Note: If a role is not selected as view or action stakeholder, then that role will not be able to view any records irrespective of their form level permission.

- Workflow level permission options (action/view stakeholder) allow you to configure user role access at every stage of the workflow based on the business process requirement.

The [Terminologies Used in Workflow Builder](#) section describes in detail the various features of the Masterworks workflow engine.

The [Creating a Workflow](#) section describes the procedure to create a basic workflow.

Post creating a basic workflow, based on the complexity of the business process, you can use either of the following ways to create a workflow:

- [Create a workflow using simple mode](#) – The simple mode has limited functionality to create a workflow. Using simple mode, you can customize a pre-created workflow, and add the required additional stages, define conditions, validations, and so on.
- [Create a workflow using advanced mode](#) – Using advanced mode, you can create a complex workflow. Advanced mode enables you to use advanced features, such as expressions, condition block, morph workflow, get form data, set form data, create new form, call form resource, set form status, set due date, set stakeholders, and so on.

The following section describes the procedure to configure business logic within a workflow:

- Configuring Business Logic in Workflow

Before You Begin - Terminologies Used in Workflow Management

You can use the Workflow Management utility with ease to create workflows for various forms. However, before you start creating them, here are some terminologies that you should be familiar with:

- **Stage:** A stage forms the building block of a workflow. A workflow can be broadly defined as a collection of stages logically associated with each other with predefined actions defined at every stage. There is no limit to the number of stages you can have in a workflow and the number of actions that can be associated with them. Stages can be broadly classified into three types: Start stage, Intermediate stage, and End stage. It is important to define stages and associate them with their respective stages in a workflow for ease of use.

- **Simple Activities and Dynamic Activities:** An activity enables you to plug any action into the Masterworks workflow engine. The configurable actions include flow control blocks, such as **if** and **if-else**. Actions enable you to change the value of business objects, create new business objects, and so on. Masterworks enables you to configure various events or actions through activities. In the Advanced mode, you can access these events or actions using the **Call Form Resource** Activity in the **Workflow** tab of the **NEW WORKFLOW** or **EDIT WORKFLOW**.
- **Action Stake Holders:** An action stakeholder is a user who can go and perform an action on the form. For a role to be available in the list of action stakeholders, the **Edit** permission must be enabled at the form level. Action stakeholder can be assigned at every stage of a workflow. For a role to perform an action on the form, role should have both **Edit** permission at the form level and selected as action stakeholder at the workflow stage level. Also, if a workflow is enabled for **Allow Workflow Action by All Stakeholders**, then all stakeholders with **Edit** or **View** or both permissions at the form level can perform workflow action.
- **View Stake Holders:** A view stakeholder is a user who can only view the form and cannot perform any action on the form. View stakeholders can be assigned at every stage of a workflow. If a workflow is enabled for **Allow Workflow Action by All Stakeholders**, then all stakeholders including the view stakeholders can perform workflow action.
- **Days to Complete:** This determines the number of days due for the next action to be performed by the next action stakeholder.
- **Action:** An action defined within a stage is a button that performs a set of actions, one of which can be transitioning a form from one stage to another.
- **Status:** The status is the name of the current workflow stage of the form.
- **Validation:** Workflows that are marked as **Validation** cannot be modified. You can create a copy of these workflows and then modify the copy as per your business needs.
- **Mark as Default:** In the **WORKFLOW LIST** page, you can set the selected workflow as the default workflow for a form. There could be more than one workflow defined for a single form, but only one workflow can be marked as default for a single form. When a workflow is not associated to a form, then that form will start using the workflow marked as default.
- **Pending On Role(s):** This determines the user roles associated with the workflow that are yet to perform the next workflow action. In every stage, roles are displayed in the **Pending On Role(s)** column in the form list page, except the final stage. When the workflow is in the final stage, the **Pending On Role(s)** column is displayed as **None**.
- **Pending On User(s):** This shows the names of the users that are assigned with the roles associated with the workflow that are yet to perform the next workflow action. In

every stage, user names are displayed in the **Pending On User(s)** column in the form list page, except the final stage. When the workflow is in the final stage, the **Pending On User(s)** column is displayed as **None**.

Note: The **Pending On User(s)** column is not displayed in the form list by default, you can click **Show Pending On User(s)** in the list page ribbon to display **Pending On User(s)** column in the form's list page.

14.5.3.2. Creating a Workflow

- The role of the logged-in user has permission to create the workflow. For information on permissions, see [Managing Permissions](#).

The following procedure describes the steps to create a basic workflow using the Workflow Builder.

The **Project Fund Transaction** form is used for the sample workflow.

1. In the module menu, click **Administration**.
The **ADMINISTRATIONS** page is displayed.
2. In the navigation pane, expand **Configuration Toolkit**, and then click **Workflow Management**.
The **WORKFLOW LIST** page is displayed.

3. Click **New**.

The **NEW WORKFLOW** page is displayed.

New Workflow

The screenshot shows the 'NEW WORKFLOW' page with the 'General Details' tab selected. The interface includes a toolbar with various icons at the top. The 'General Details' section contains fields for 'Name *' (Workflow Name), 'Description :', and 'Select Form *' (dropdown menu showing '-- Select a Form --'). Below these are three checkboxes for permissions: 'Configure View Permissions', 'Enable Editing by Non Action Stakeholders', and 'Allow Workflow Action By All StakeHolders'. A large blue 'Apply' button is located at the bottom of the form.

Name *: Workflow Name

Description :

Select Form *: -- Select a Form --

Configure View Permissions [?](#)

Enable Editing by Non Action Stakeholders [?](#)

Allow Workflow Action By All StakeHolders [?](#)

Apply

4. To add information about the workflow, in the **General Details** tab, perform the following steps:

- a. In the **Name** box, enter the name of the workflow.
- b. In the **Description** box, enter a description of the workflow.
- c. From the **Select Form** drop-down list, select the form for which the workflow is being created.

Alternatively, type the name of the form, and then select the required form.

The options available are all forms available in the application. For example, to create a workflow for Project Fund Transaction, select **Project Fund Transaction** form from the **Select Form** drop-down list. To create a new business process,

the first step is to create the form, and then create the workflow. For information creating a form, see [Creating a Form Using Form Builder](#) on page 1147.

- d. To select stakeholders who can view records in a stage but not perform any workflow actions, select the **Configure View Permissions** check box.

For example, you can enable this check box when you want to specifically allow or deny view of the record to a user role at any stage of the workflow.

Note:

- During the workflow creation, you can view the **View Stake Holders** box only if the **Configure View Permissions** check box is selected in the **General Details** tab.
- You cannot select or clear the **Configure View Permissions** check box after clicking **Apply** in the **General Details** tab.
- If the user role is not an action stakeholder and is not selected in the **View Stake Holders** box, then that user role cannot view the record on the list page of the form selected in the **Select Form** drop-down list.

- e. To enable the users who have **Edit** permission on the form to edit the record, even if they are not action stakeholders, select the **Enable Editing by Non Action Stakeholders** check box.

For example, you can select this check box when you want a non-action stakeholder with **Edit** permission at the form level to edit the record at any workflow stages.

Note:

- You can select or clear the **Enable Editing by Non Action Stakeholders** check box at any time while creating or while editing the workflow.
- The non-action stakeholders with **Edit** permission at the form level can only edit the record and cannot perform workflow action.

- f. To enable all the stakeholders who have edit or view or both permissions on the form to perform workflow actions, select the **Allow Workflow Action by All Stakeholders** check box.

For example, you can enable this check box when you want a user role to only perform workflow action without editing the record.

Note:

- You can select or clear the **Allow Workflow Action by All Stakeholders** check box at any time while creating or while editing the workflow.
- Selecting **Allow Workflow Action by All Stakeholders** check box lists all the roles having edit or view or both permissions at the form level in the **Action Stake Holders** drop-down list.

g. Click Apply.

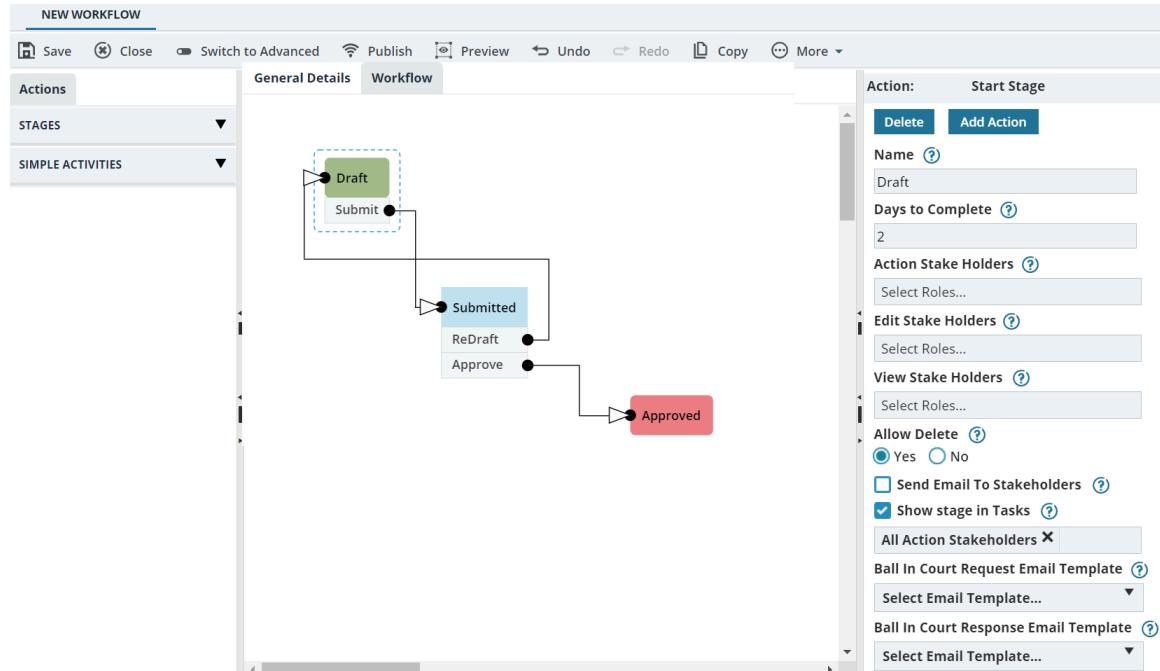
A pre-created three-stage workflow is displayed in the **Workflow** tab. By default, the workflow is created in simple mode.

5. To configure the properties for a start stage, such as the **Draft** stage, in the **Workflow** tab, perform the following steps:

- Click the **Draft** stage.

The **Draft** stage properties are displayed in the right pane, as illustrated in the following image:

Workflow Draft



- In the **Start Stage** properties pane, provide the required information in the fields, as described in the following table:

Field	Description
Name	Enter the name of the stage. The default stage name is displayed as Draft . If required, enter a new name for the stage.
Days to Complete	Enter the number of days before which an action must be performed in the current workflow stage. If the stakeholder does not perform an action in the specified number of days, an escalation email is sent to users in the Administrator role. By default, the number of days defined in the WORKFLOW SETTINGS page is displayed. For information on workflow settings, see Workflow Settings .

Field	Description
Action Stake Holders	<p>Select the roles with which a user can perform the workflow action for the stage. The Action Stake Holder box lists all the roles that are assigned with the Edit permission at the form level. For information on roles, see Security Roles.</p> <p>Also, if Allow Workflow Action by All Stakeholders is selected in the General Details tab, then all stakeholders with the Edit or View or both permissions at the form level are listed in the Action Stake Holders drop-down list.</p> <p>Note:</p> <ul style="list-style-type: none">For a role to be available in the list of action stakeholders, the Edit permission must be enabled for the role at the form level. To modify permissions, see Editing Role Information.Ensure that the stakeholders selected in the Action Stake Holders box are also selected in the View Stake Holders box.
View Stake Holders	<p>Select the roles with which a user can view the records that are in the workflow stage but not perform any workflow actions. The View Stake Holders box lists all the roles that are assigned with View permission at the form level. For information on roles, see Security Roles.</p> <p>Note:</p> <ul style="list-style-type: none">You can view the View Stake Holders box only if the Configure View Permissions check box is selected in the General Details tab.If the role is not selected in the View Stake Holders box, then that role cannot view the record in the selected form list page.
Allow Delete	<p>Click Yes, to allow the users to delete the record in this stage. Click No, to restrict the users from deleting the record in this stage.</p>

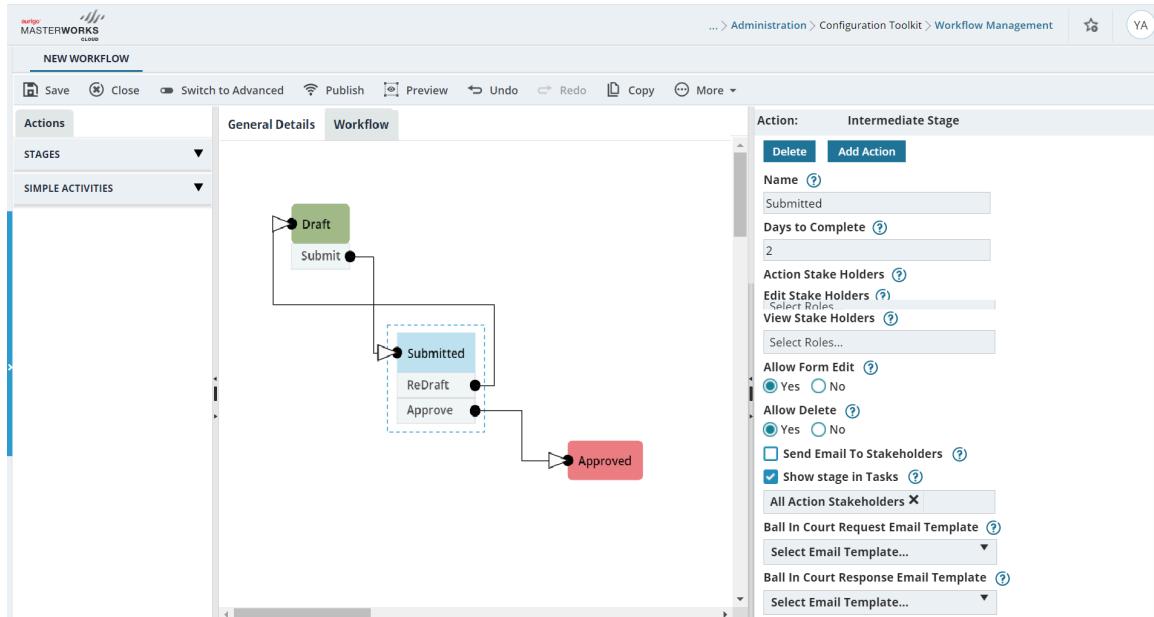
Field	Description
Send Email To Stakeholders	<p>Select the check box to send a standard automated email notification to the action stakeholders of the subsequent stage whenever the workflow action is performed.</p> <p>The email template is based on the default template selected in the WORKFLOW SETTINGS page. For information on workflow settings, see Workflow Settings.</p>
Show stage in Tasks	<p>Ensure the check box is selected, to list the subsequent workflow action in the My Tasks list of all stakeholders of the subsequent workflow stage.</p>
Ball In Court Request Email Template	<p>Select the required email template to be used to send an automated notification to the user selected to receive form information using the Ball in Court feature.</p> <p>Available templates are based on the form that is selected for the workflow.</p> <p>Available options are templates defined for the form in the Mail Body Templates library catalog. For information on the Ball in Court feature, see Ball in Court.</p>
Ball In Court Response Email Template	<p>Select the required email template to be used to send an automated response notification to the user who initiated the Ball in Court notification.</p> <p>Available templates are based on the form that is selected for the workflow.</p> <p>Available options are templates defined for the form in the Mail Body Templates library catalog. For information on the Ball in Court feature, see Ball in Court.</p>

6. To configure the properties for an intermediate stage, such as **Submitted** stage, perform the following steps:

- a. In the **Workflow** tab, click the **Submitted** stage.

The **Submitted** stage properties are displayed in the right pane, as illustrated in the following image:

Workflow Submitted



- b. In the **Intermediate Stage** properties pane, provide the required information in the fields, as described in the following table:

Field	Description
Name	Enter the name of the stage. The default stage name is displayed as Submitted . If required, enter a new name for the stage.
Days to Complete	Enter the number of days before which an action must be performed in the current workflow stage. If the stakeholder does not perform an action in the specified number of days, an escalation email is sent to users in the Administrator role. By default, the number of days defined in the WORKFLOW SETTINGS page is displayed. For information on workflow settings, see Workflow Settings .

Field	Description
Action Stake Holders	<p>Select the roles with which a user can perform the workflow action for the stage. The Action Stake Holder box lists all the roles that are assigned with the Edit permission at the form level. For information on roles, see Security Roles.</p> <p>Also, if Allow Workflow Action by All Stakeholders is selected in the General Details tab, then all stakeholders with the Edit or View or both permissions at the form level are listed in the Action Stake Holders drop-down list.</p> <p>Note:</p> <ul style="list-style-type: none">For a role to be available in the list of action stakeholders, the Edit permission must be enabled for the role at the form level. To modify permissions, see Editing Role Information.Ensure that the stakeholders selected in the Action Stake Holders box are also selected in the View Stake Holders box.
View Stake Holders	<p>Select the roles with which a user can view the records that are in the workflow stage but not perform any workflow actions. The View Stake Holders box lists all the roles that are assigned with View permission at the form level. For information on roles, see Security Roles.</p> <p>Note:</p> <ul style="list-style-type: none">You can view the View Stake Holders box only if the Configure View Permissions check box is selected in the General Details tab.If the role is not selected in the View Stake Holders box, then that role cannot view the record in the selected form list page.
Allow Form Edit	Click Yes , to allow the user to edit the record in this stage. Click No , to restrict the users from editing the record in this stage.

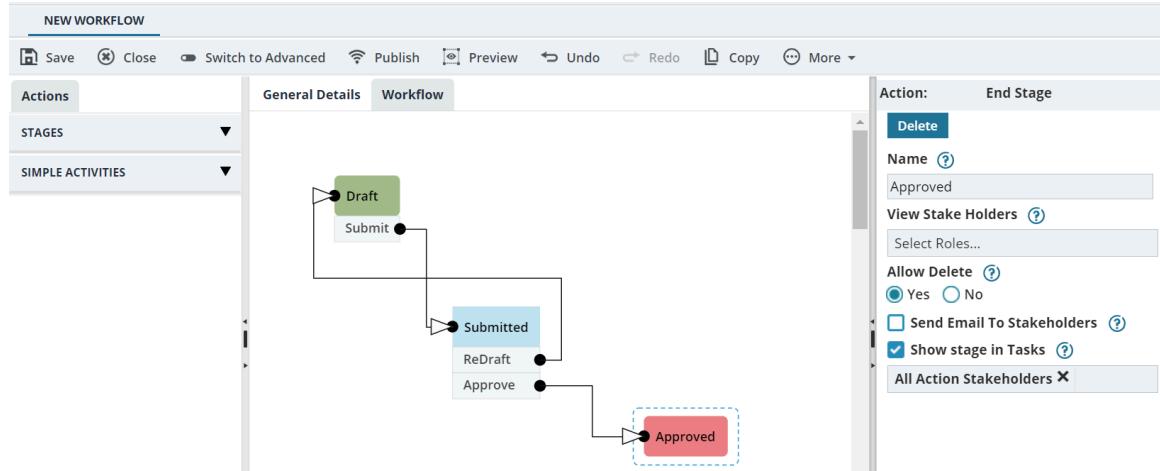
Field	Description
Allow Delete	Click Yes , to allow the users to delete the record in this stage. Click No , to restrict the users from deleting the record in this stage.
Send Email To Stakeholders	Select the check box, to send a standard automated email notification to the action stakeholders of the subsequent stage whenever the workflow action is performed. The email template is based on the default template selected in the WORKFLOW SETTINGS page. For information on workflow settings, see Workflow Settings .
Show stage in Tasks	Ensure the check box is selected, to list the subsequent workflow action in the My Tasks list of all stakeholders of the subsequent workflow stage.
Ball In Court Request Email Template	Select the required email template to be used to send an automated notification to the user selected to receive form information using the Ball in Court feature. Available templates are based on the form that is selected for the workflow. Available options are templates defined for the form in the Mail Body Templates library catalog. For information on the Ball in Court feature, see Ball in Court .
Ball In Court Response Email Template	Select the required email template to be used to send an automated response notification to the user who initiated the Ball in Court notification. Available templates are based on the form that is selected for the workflow. Available options are templates defined for the form in the Mail Body Templates library catalog. For information on the Ball in Court feature, see Ball in Court .

7. To configure the properties for an end stage such as the **Approved** stage, perform the following steps:

- a. In the **Workflow** tab, click the **Approved** stage.

The **Approved** stage properties are displayed in the right pane, as illustrated in the following image:

Workflow Approved



- b. In the **End Stage** properties pane, provide the required information in the fields, as described in the following table:

Field	Description
Name	Enter the name of the stage. The default stage name is displayed as Approved . If required, enter a new name for the stage.
View Stake Holders	Select the roles with which a user can view the records that are in the workflow stage but not perform any workflow actions. The View Stake Holders box lists all the roles that are assigned with View permission at the form level. For information on roles, see Security Roles .

Note:

- You can view the **View Stake Holders** box only if the **Configure View Permissions** check box is selected in the **General Details** tab.
- If the role is not selected in the **View Stake Holders** box, then that role cannot view the record in the selected form list page.

Field	Description
Allow Delete	Click Yes , to allow the users to delete the record in this stage. Click No , to restrict the users from deleting the record in this stage.
Send Email To Stakeholders	Select the check box, to send a standard automated email notification to the action stakeholders of the subsequent stage whenever the workflow action is performed. The email template is based on the default template selected in the WORKFLOW SETTINGS page. For information on workflow settings, see Workflow Settings .
Show stage in Tasks	Ensure the check box is selected, to list the subsequent workflow action in the My Tasks list of all stakeholders of the subsequent workflow stage.

8. Click **Save**.

The workflow is saved and listed on the **WORKFLOW LIST** page.

You can enhance your workflow to include additional features.

- [Workflow using simple mode](#) – Using the simple mode, you can customize a pre-created workflow, and add the required additional stages, define conditions, validations, and so on.
- [Workflow using advanced mode](#) – Using the advanced mode, you can create a complex workflow. Advanced mode enables you to use advanced features, such as expressions, condition block, morph workflow, get form data, set form data, create new form, call form resource, set form status, set due date, set stake holders, and so on.

The workflow must now be published to be made available in the application. For information on publishing a workflow, see [Publishing a Workflow](#).

14.5.3.3. Creating a Workflow Using Simple Mode

- The role of the logged-in user has permission to create or edit a workflow.

This procedure describes the steps to add the following controls to a workflow.

- Add a stage with two actions.
- Add a condition to the workflow using the conditions block.
- Configure the workflow to send a standard automated email notification to stakeholders when the associated form is transitioned from one workflow stage to the next workflow stage.

- Define conditions on the users performing a workflow action.

1. [Create a basic workflow.](#)

Alternatively, [edit a workflow.](#)

2. To add a stage to the workflow, perform the following steps:

- In the **Actions** navigation pane, expand **STAGES**, and then drag the **Stage** action item to the **Workflow** tab.

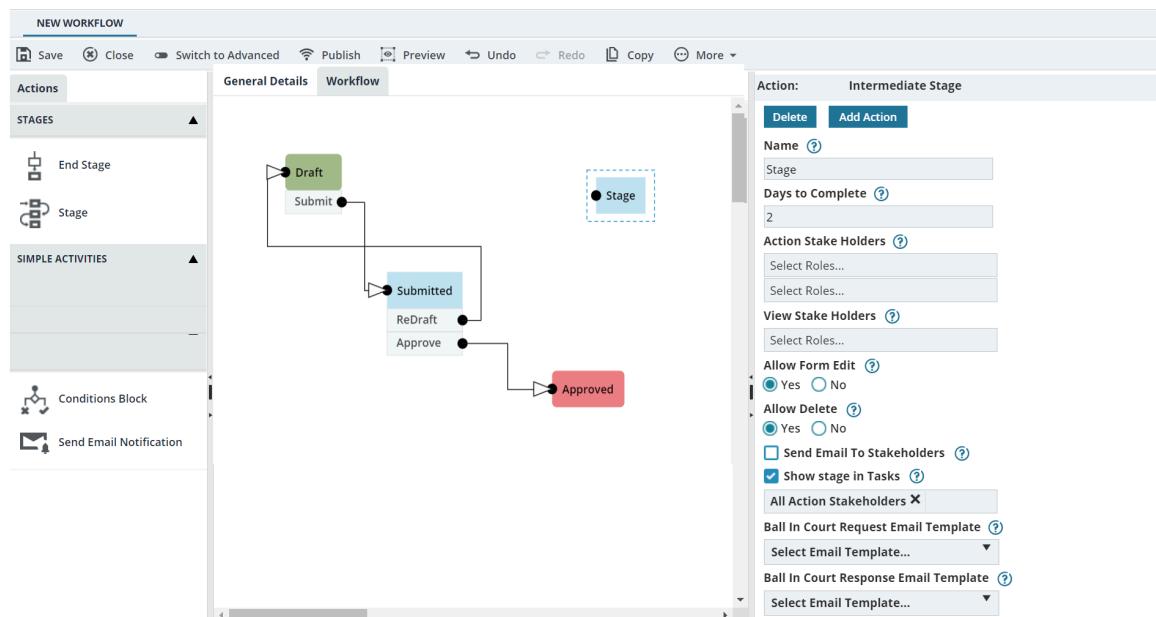
The new stage item is displayed on the canvas.

Alternatively, to copy a stage, perform the following steps:

- Click the intermediate stage to be copied.
 - Click **Copy**.
- The selected intermediate stage is copied.
- Click an action element, and in the properties pane, click **Delete**.
Similarly, delete all the other action elements.
- In the **Workflow** tab, click the stage.

The stage properties are displayed in the right pane, as illustrated in the following image:

Workflow Stage Properties



- In the **Intermediate Stage** properties pane, provide the required information in the fields, as described in the following table:

Field	Description
Name	Enter the name of the stage. For example, enter In Review .

Field	Description
Days to Complete	<p>Enter the number of days before which an action must be performed in the current workflow stage.</p> <p>If the stakeholder does not perform an action in the specified number of days, an escalation email is sent to users in the Administrator role.</p> <p>By default, the number of days defined in the WORKFLOW SETTINGS page is displayed. For information on workflow settings, see Workflow Settings.</p>
Action Stake Holders	<p>Select the roles with which a user can perform the workflow action for the stage. The Action Stake Holder box lists all the roles that are assigned with the Edit permission at the form level. For information on roles, see Security Roles.</p> <p>Also, if Allow Workflow Action by All Stakeholders is selected in the General Details tab, then all stakeholders with the Edit or View or both permissions at the form level are listed in the Action Stake Holders drop-down list.</p> <p>Note:</p> <ul style="list-style-type: none">For a role to be available in the list of action stakeholders, the Edit permission must be enabled for the role at the form level. To modify permissions, see Editing Role Information.Ensure that the stakeholders selected in the Action Stake Holders box are also selected in the View Stake Holders box.

Field	Description
View Stake Holders	<p>Select the roles with which a user can view the records that are in the workflow stage but not perform any workflow actions. The View Stake Holders box lists all the roles that are assigned with View permission at the form level. For information on roles, see Security Roles.</p> <p>Note:</p> <ul style="list-style-type: none">• You can view the View Stake Holders box only if the Configure View Permissions check box is selected in the General Details tab.• If the role is not selected in the View Stake Holders box, then that role cannot view the record in the selected form list page.
Allow Form Edit	<p>Click Yes, to allow the user to edit the record in this stage. Click No, to restrict the users from editing the record in this stage.</p>
Select Visibility Of Form Divisions	<p>Sets the visibility of the various sections defined in the form. Click any of the following:</p> <ul style="list-style-type: none">• Edit - Enables stakeholders to edit the information in the section in the current workflow stage.• View - Enables stakeholders to view information in the section in the current workflow stage.• Hide – Hides the information in the section in the current workflow stage. Stakeholders at this workflow stage cannot view information in the section.
Allow Delete	<p>Click either of the following options:</p> <ul style="list-style-type: none">• Click Yes, to allow the users to delete the record in this stage.• Click No, to restrict the users from deleting the record in this stage.

Field	Description
Send Email To Stakeholders	<p>Select the check box, to send a standard automated email notification to the action stakeholders of the subsequent stage whenever the workflow action is performed.</p> <p>The email template is based on the default template selected in the WORKFLOW SETTINGS page. For information on workflow settings, see Workflow Settings.</p>
Show stage in Tasks	<p>Ensure the check box is selected, to list the subsequent workflow action in the My Tasks list of all stakeholders of the subsequent workflow stage.</p>
Ball In Court Request Email Template	<p>Select the required email template to be used to send an automated notification to the user selected to receive form information using the Ball in Court feature.</p> <p>Available templates are based on the form that is selected for the workflow.</p> <p>Available options are templates defined for the form in the Mail Body Templates library catalog. For information on the Ball in Court feature, see Ball in Court.</p>
Ball In Court Response Email Template	<p>Select the required email template to be used to send an automated response notification to the user who initiated the Ball in Court notification.</p> <p>Available templates are based on the form that is selected for the workflow.</p> <p>Available options are templates defined for the form in the Mail Body Templates library catalog. For information on the Ball in Court feature, see Ball in Court.</p>

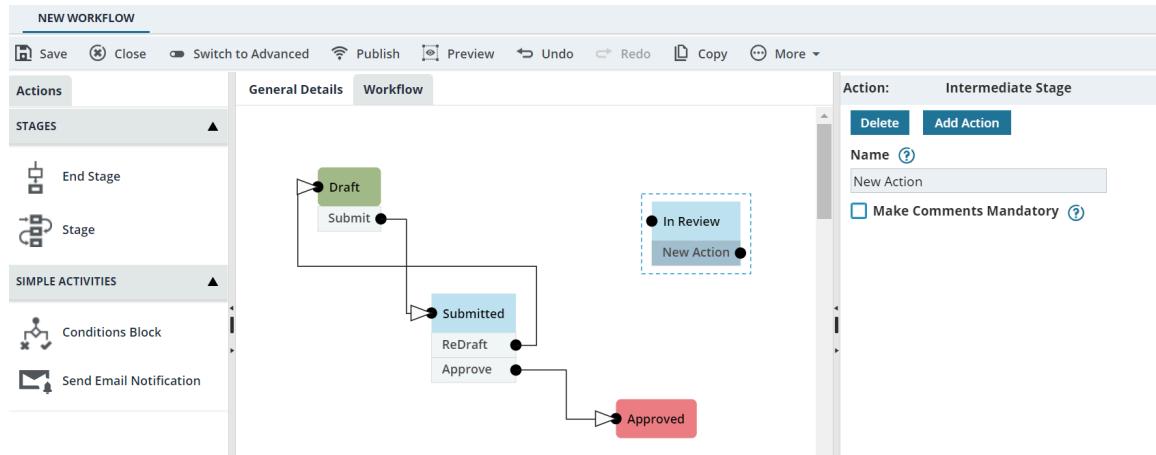
3. To add an action to the workflow stage, perform the following steps:

- In the right pane, click **Add Action**.

Alternatively, right-click the new stage item in the canvas, and then click **New Action**.

The **New Action** box is displayed below the **In Review** stage as illustrated in the following image:

Workflow New Action



- In the **Workflow** tab, click the **New Action** item.

The properties of the action item are displayed in the right pane.

- In the **Name** box, enter the name of the new action. For example, enter **Review Complete**.
- Select **Make Comments Mandatory** check box to ensure comments are provided mandatorily in the **Notes** box before performing the next workflow action.

Note: To delete an action, right-click the action item, and click **Delete Action**.

4. You can add a condition to the workflow using the conditions block. To add a **Simple Conditions Block** action item to the workflow, perform the following steps:

- From the **Actions** pane, expand **SIMPLE ACTIVITIES**, and then drag the **Conditions Block** action item to the **Workflow** tab.

The **Conditions Block** item is displayed on the canvas.

- In the **Workflow** tab, click the **Conditions Block** item.
- In the right pane, click **Add Condition**.

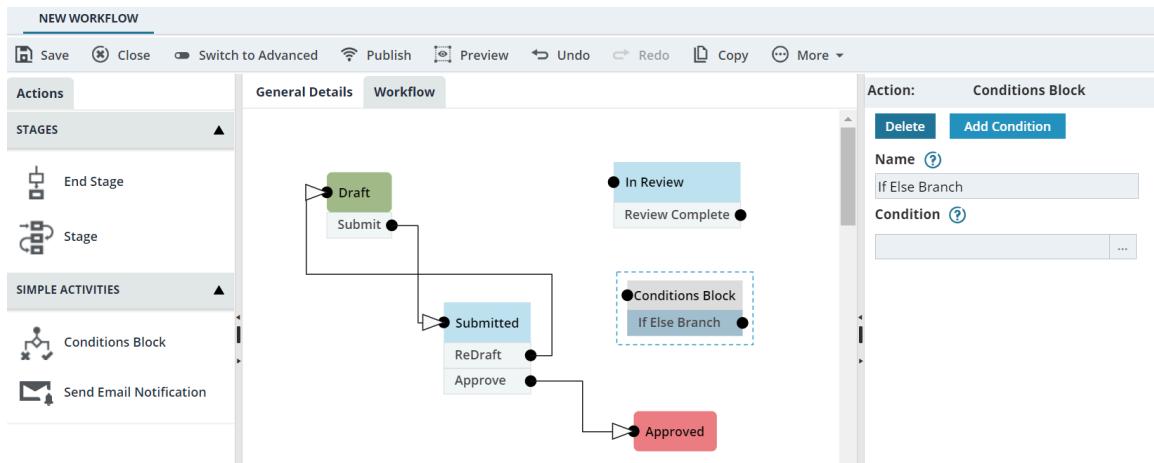
Alternatively, right-click the **Conditions Block** item in the canvas, and then click **New If Else Branch**.

The **If Else Branch** is displayed below the conditions block item.

- In the **Workflow** tab, click the **If Else Branch** item.

The **If Else Branch** properties are displayed in the right pane, as illustrated in the following image:

Workflow Conditions Block



- In the **Name** box, enter the name for the condition.

For example, enter **Amount Greater than 1000**.

- In the **Conditions** field, click .

The **RESOURCES** dialog box is displayed.

In the **RESOURCES** dialog box, two sections are displayed as illustrated in the following image:

Using the first section, you can create workflow conditions with the fields of the form selected in the **General Details** tab. Using the second section, you can create

workflow conditions with the fields of the **Project Details** and **Contract Details** forms.

Form Attributes

Resources X

FORM ATTRIBUTES

AND OR

AND OR

+ Add rule ⊕ Add group ⊖ Delete

+ Add rule ⊕ Add group ⊖ Delete

⊖ Delete

+ Add rule ⊕ Add group ⊖ Delete

⊖ Delete

Save Close

5. To create a rule or group of rules and define conditions for the workflow, in the **RESOURCES** dialog box, perform the following steps:

- a. Click **Add rule**.

A new row with a drop-down list is added.

Note: The **AND** and **OR** buttons present at the top are unavailable.

Alternatively, to create a group of rules with a combination of multiple AND and OR conditions, click **Add Group**.

A new row with a drop-down list is added.

Note: The **AND** and **OR** present at the top are enabled.

- b. From the drop-down list, select the required form field.

For example, select **Amount in \$**.

Available fields are associated with the form selected in the **General Details** tab.

When a form field is selected, two new fields are added to the row. The second field is a drop-down list and based on the form field selected, the third field can be any of the following.

- Drop-down list
- Option list
- Text box
- Numeric text box
- Calendar drop-down box

- c. From the second drop-down list, select the operator.

For example, select greater than **>**.

The operator creates the condition between the form field you select in the first drop-down list and the value that you enter or select in the third field.

From the second drop-down list, if you select either between or not between, the third and the fourth fields appear, which can be one of the following:

- Numeric text box
- Calendar drop-down box

- d. Based on the form field you select in the first field, enter or select a value in the third field. For example, enter **1000**.
 - e. Optionally, to add multiple rules to the workflow or group, repeat the above steps 1 to 4.

When you add more than one rule, then the **AND** and **OR** buttons present at the top are enabled. Based on the workflow condition, click either of the following:

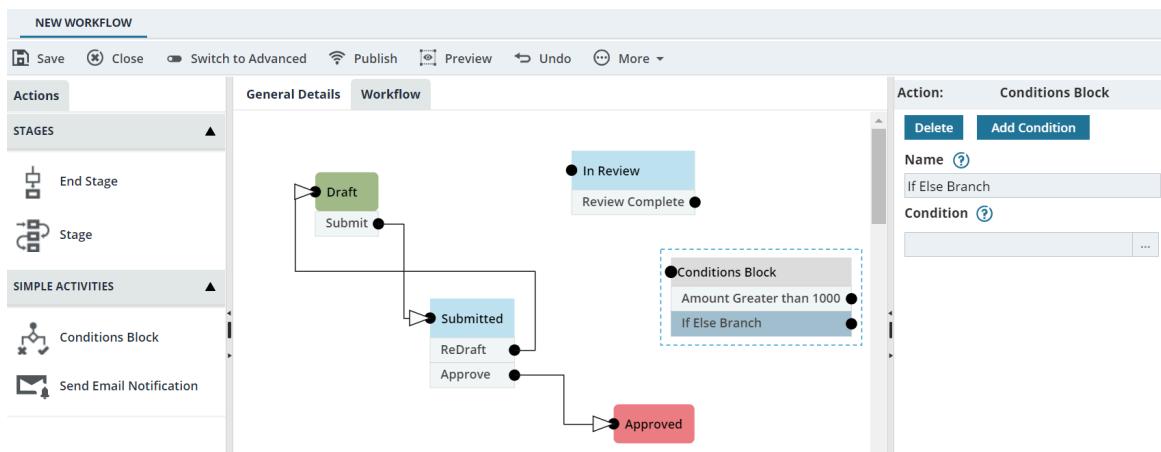
- If all the rules must be true to execute the workflow condition, click **AND**.
For example, Amount in \$ > 1000 AND Remaining Amount in \$ < 500.
The subsequent workflow stage is **In Review** if the amount entered in the field **Amount in \$** is greater than **1000** and the amount entered in the field **Remaining Amount in \$** is less than **500**.
 - If any one of the rules must be true to execute the workflow condition, click **OR**.
For example, Amount in \$ > 1000 OR Remaining Amount in \$ < 500.
The subsequent workflow stage is **In Review** if the amount entered in the field **Amount in \$** is greater than **1000** or the amount entered in the field **Remaining Amount in \$** is less than **500**.
- f. Optionally, in the second row, create workflow conditions using the fields of the **Project** and **Contract Details** forms.
 - g. Optionally, to delete a row, click **Delete** corresponding to the appropriate row.
 - h. Click **Save**.

6. To add another condition, perform the following steps:

- a. In the **Workflow** tab, click the **Conditions Block** item.
- b. In the right pane, click **Add Condition**. Alternatively, right-click the **Conditions Block** item in the canvas, and then click **New If Else Branch**.

The **If Else Branch** is displayed below the **Amount Greater than 1000** item as illustrated in the following image:

Workflow If Else Branch



- c. In the **Workflow** tab, click the **If Else Branch** item.

The **If Else Branch** properties are displayed in the right pane.

- d. In the **Name** box, enter the name for the condition.

For example, enter **Else**.

7. You can send a standard automated email notification to stakeholders when the associated form is transitioned from one workflow stage to the next workflow stage. To customize workflow email notifications, perform the following steps:

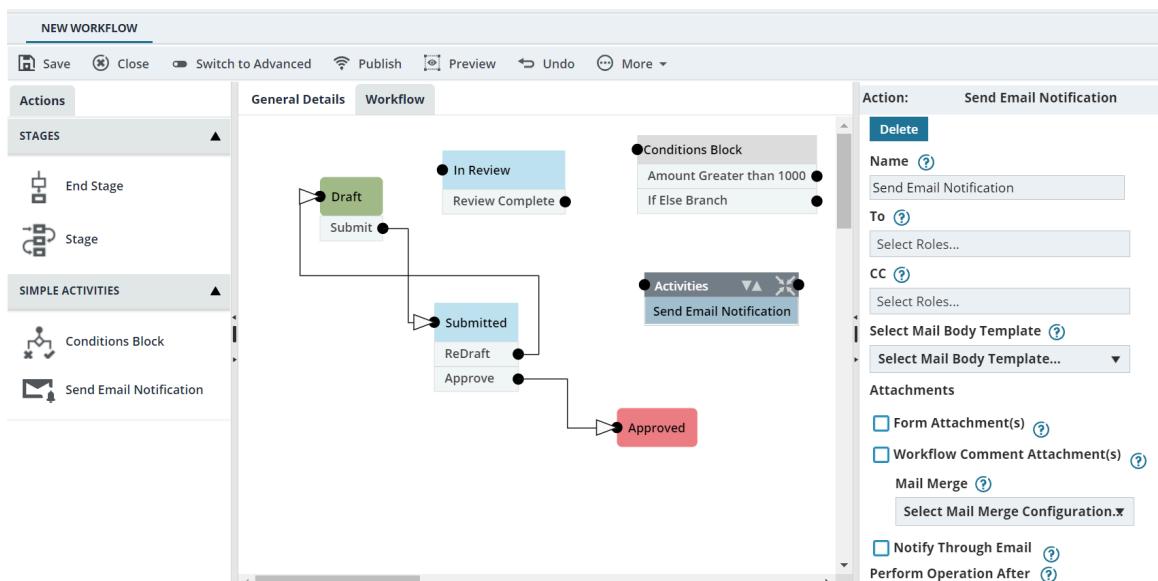
- In the **Actions** navigation pane, expand **SIMPLE ACTIVITIES**, and then drag the **Send Email Notification** action item to the **Workflow** tab.

The **Send Email Notification** item is displayed on the canvas.

- In the **Workflow** tab, click the **Send Email Notification** item.

The **Send Email Notification** properties are displayed in the right pane, as illustrated in the following image:

Workflow Email Notification



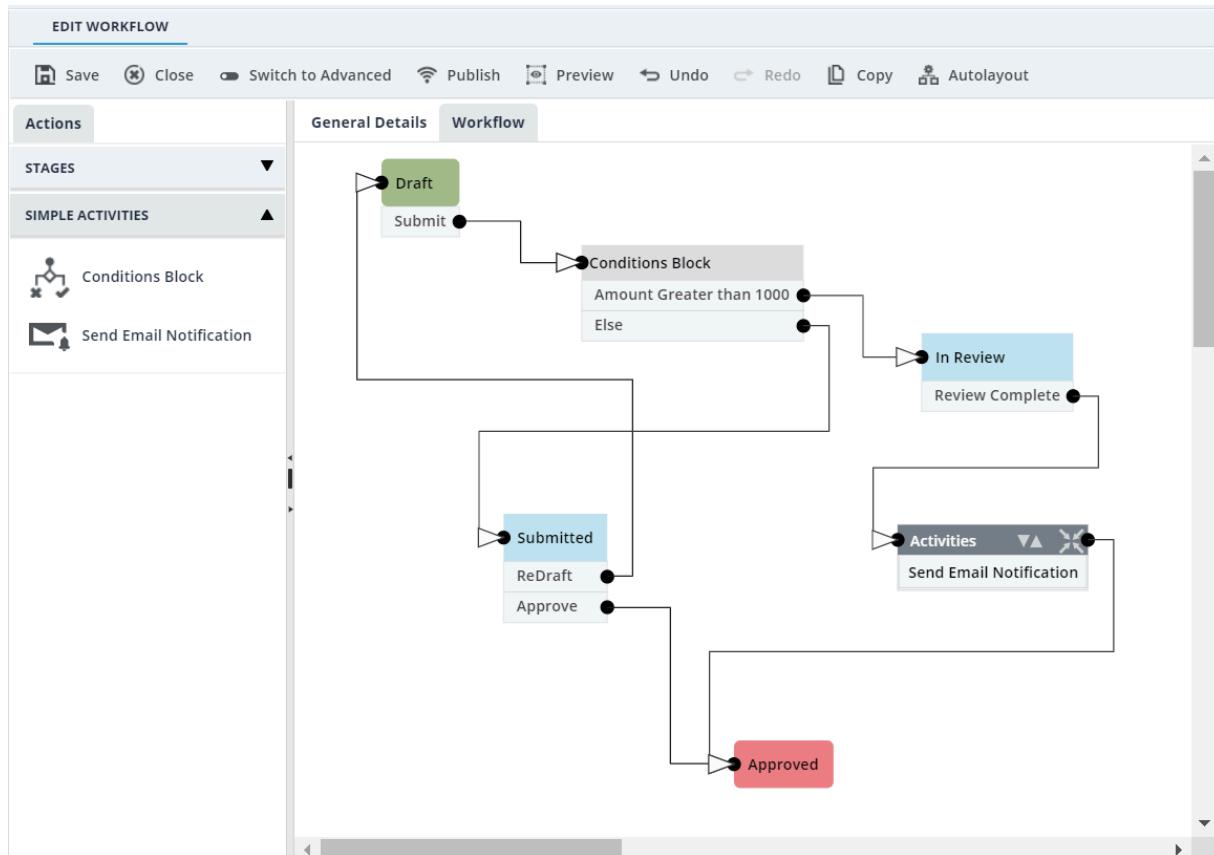
- In the **Send Email Notification** properties pane, provide the required information in the fields, as described in the following table:

Field	Description
Name	Enter the name of the stage. the default stage name is displayed as Send Email Notification . If required, enter a new name for the action item.
To	Select the required role the email notification will be sent to. Available options in the list are roles that are defined in the application with necessary permissions. Optionally, you can type the required email address (For example, <i>john@aurigo.com</i>).

Field	Description
CC	<p>Select the required roles a copy of the email notification will be sent to.</p> <p>Available options in the list are roles that are defined in the application with necessary permissions.</p> <p> Optionally, you can type the required email address. For example, <i>john@aurigo.com</i>.</p>
Select Mail Body Template	<p>Select the required mail body template that must be sent to the stakeholders.</p> <p> Available templates are based on the form that is selected for the workflow.</p> <p> Available options are templates defined for the form in the Mail Body Templates library catalog.</p>
Attachments	<ul style="list-style-type: none">• Form Attachment(s) – Select the check box to send the notification with the files that are attached to the record for which the workflow action is performed.• Workflow Comment Attachment(s) – Select the check box to send the notification with the files that are attached to the workflow comments.• Mail Merge – Select the required mail merge template. Available options are mail merge templates configured for the selected form. For information on Mail Merge, see Mail Merge.
Notify through Email	<p>Click the required option:</p> <ul style="list-style-type: none">• Click Any user completes action to specify that if any of the action stakeholders transition the record to the next workflow stage, the email notification is sent to the selected stakeholders.• Click All user(s) complete action to specify that all the action stakeholders must transition the record to the next workflow stage to send the email notification to the selected stakeholders.

8. To connect workflow items to complete the business process, click the port at the item, and drag the port to the port of the required item as illustrated in the following image:

Edit Workflow



Note: By default, the port is located on the right of the box. To change the location of the port, right-click the new action item and select **Reverse Port**.

9. To define conditions on the users performing a workflow action, perform the following steps:

- Click the required port.

The **Workflow Connection** properties are displayed on the right pane.

- In the **Perform Operation After** section, click the required option:

- Any user completes action:** To specify that if any of the action stakeholders transition the record to the next workflow stage, the record moves to the next workflow stage.
- All user(s) complete action:** To specify that all the action stakeholders must transition the record to the next workflow stage for the record to move to the next workflow stage.

10. Click **Save**.

The workflow is saved and listed on the **WORKFLOW LIST** page.

The workflow must now be published to be made available in the application. For information on publishing a workflow, see [Publishing a Workflow](#).

14.5.3.4. Creating a Workflow Using Advanced Mode

- The role of the logged-in user has permission to create or edit workflows.

The following procedure describes the steps to create a sample workflow using Workflow Management advanced activities. You can also use simple mode activities to create the workflow. For information on simple mode activities, see [Creating a Workflow Using Simple Mode](#).

The example illustrates the following activities:

- **Get Form Data** – The **Get Form Data** action item enables you to associate a form and its field information to the workflow. Based on the field data of the form, the business decisions can be defined.
- **Condition Block** – The **Condition Block** action item enables you to define conditions to the workflow.
- **Set Stake Holders** – The **Set Stake Holders** action item enables you to define the stakeholders for the workflow to obtain appropriate business decisions.

Form Used:

- Project Fund Transaction form.

Business Scenario Used:

- If the amount entered in the **Amount in \$** field of the **Project Fund Transaction** form is more than \$1000, then the transaction must be approved by the **Finance Administrator**.
- If the entered amount in the **Amount in \$** field of the **Project Fund Transaction** form is less than \$1000, then the approval of the **Finance Administrator** is not required.

1. [Create a basic workflow](#).

Alternatively, [edit a workflow](#).

2. To create a workflow using advanced features, in the toolbar, click **Switch to Advanced**.

The **ADVANCED ACTIVITIES** section is added to the **Actions** pane, and the **Expressions** tab is added to the canvas.

3. You can define a form parameter to the workflow that can be used as a condition in the **Conditions Block** action item. To add a form parameter to the workflow, perform the following steps:

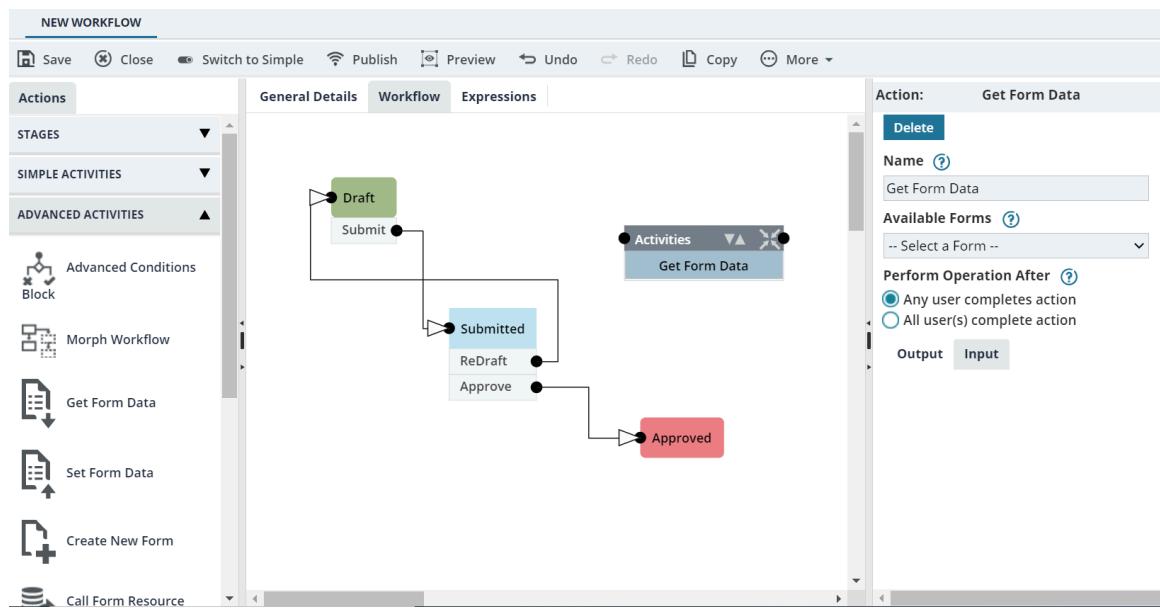
- In the **Actions** navigation pane, expand **ADVANCED ACTIVITIES**, and then drag the **Get Form Data** action item to the **Workflow** tab.

The new stage item is displayed on the canvas.

- In the **Workflow** tab, click the **Get Form Data** item.

The **Get Form Data** properties are displayed in the right pane, as illustrated in the following image:

Workflow Get Form Data



- In the **Get Form Data** properties pane, provide the required information in the fields, as described in the following table:

Field	Description
Name	Enter the name for the action. For example, enter Get Fund Data .

Field	Description
Available Forms	<p>Select the required form. For example, select the Project Fund Transaction form.</p> <p>Available options are forms that are defined in the application.</p> <p>Note: Based on the selected form, the associated field information of the form is displayed in the Output tab.</p>
Perform Operation After	<p>Click the required option:</p> <ul style="list-style-type: none">Click Any user completes action to specify that if any of the action stakeholders transition the record to the next workflow stage, the record moves to the next workflow stage.Click All user(s) complete action to specify that all the action stakeholders must transition the record to the next workflow stage for the record to move to the next workflow stage.
Input	<p>To select the workflow parameters, and perform the following steps:</p> <ol style="list-style-type: none">Click . The RESOURCES dialog box is displayed.Click Workflow Data.From the drop-down list, select Associated Form instance, and then click Save. Available options are parameters used to define the workflow for a form.
Output	<p>Select the required field information check box. The selected field information is used to create a condition for the workflow. For example, select Amount. Available field information are associated with the form selected in the Available Forms field.</p>

4. You can define a condition for the selected form parameter using the conditions block. To add a **Condition Block** action item to the workflow, perform the following steps:

- In the **Actions** pane, expand **ADVANCED ACTIVITIES**, and then drag the **Advanced Conditions** action item to the **Workflow** tab.

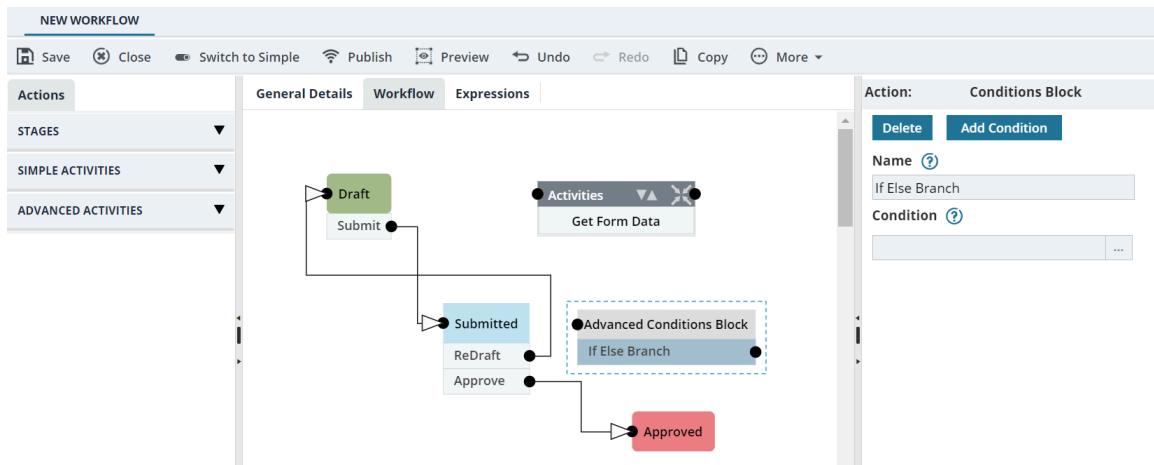
The **Advanced Conditions Block** item is displayed on the canvas.

- In the **Workflow** tab, click **Advanced Conditions Block** item.
- In the right pane, click **Add Condition**.

Alternatively, right-click the **Advanced Conditions Block** item in the canvas, and then click **New If Else Branch**.

The **If Else Branch** is displayed below the conditions block item as illustrated in the following image:

Workflow Advanced If Else Branch



Note: To delete an **If Else Branch**, right-click the **If Else Branch** item, and then click **Delete**.

- In the **Workflow** tab, click the **If Else Branch** item.

The **If Else Branch** properties are displayed in the right pane.

- In the **Name** box, enter the name for the condition.

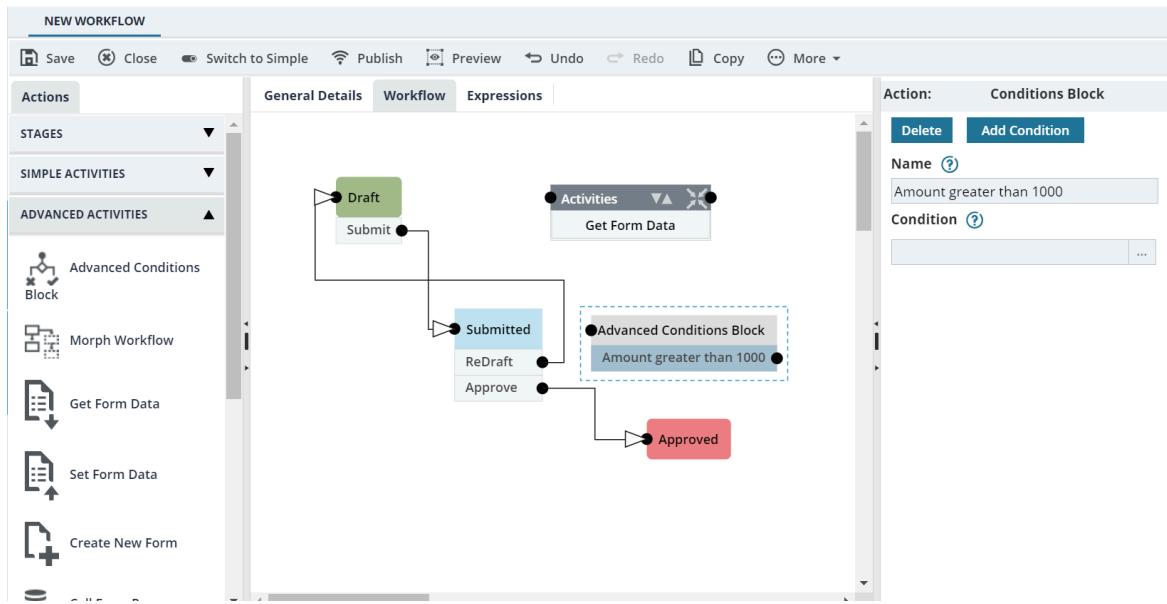
For example, enter **Amount Greater than 1000**.

- In the **Workflow** tab, click the **Conditions Block** item.
- In the right pane, click **Add Condition**.

Alternatively, right-click the **Conditions Block** item in the canvas, and then click **New If Else Branch**.

The **If Else Branch** is displayed below the **Amount Greater than 1000** item as illustrated in the following image:

Advanced Condition Block Example



- h. In the **Workflow** tab, click the **If Else Branch** item.

The **If Else Branch** properties are displayed in the right pane.

- i. In the **Name** box, enter the name for the condition.

For example, enter **Else**.

5. You can associate a stakeholder who can perform the next workflow action based on the condition defined in the condition block. To add a stakeholder to the workflow, perform the following steps:

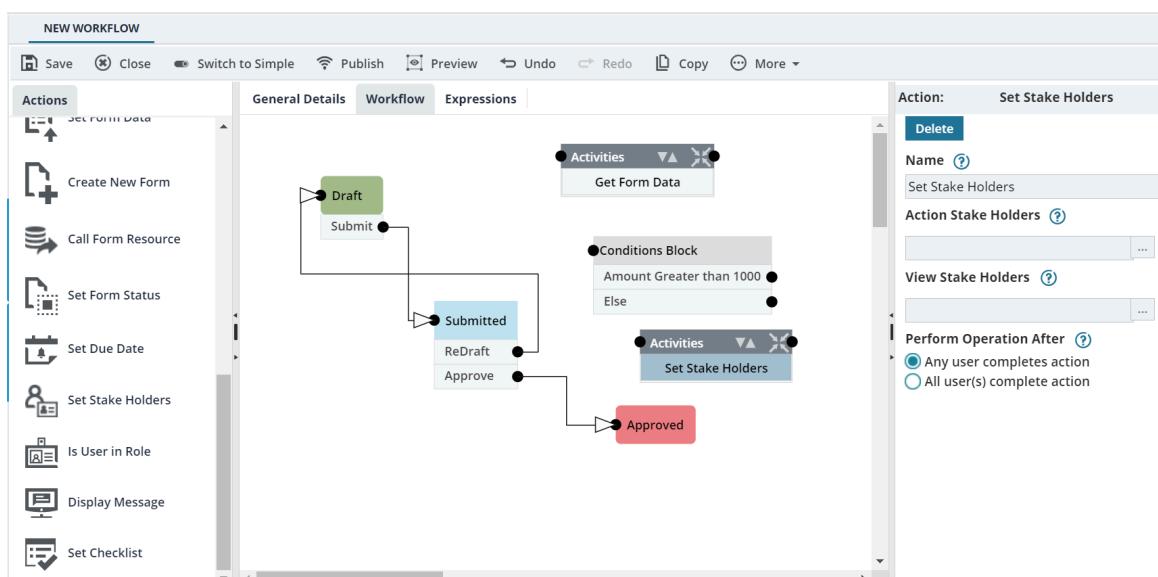
- In the **Actions** pane, expand **ADVANCED ACTIVITIES**, and then drag the **Set Stake Holders** action item to the **Workflow** tab.

The **Set Stake Holders** action item is displayed on the canvas.

- In the **Workflow** tab, click the **Set Stake Holders** item.

The **Set Stake Holders** properties are displayed in the right pane, as illustrated in the following image:

Stake Holders Settings



- In the **Name** box, enter the name for the action.

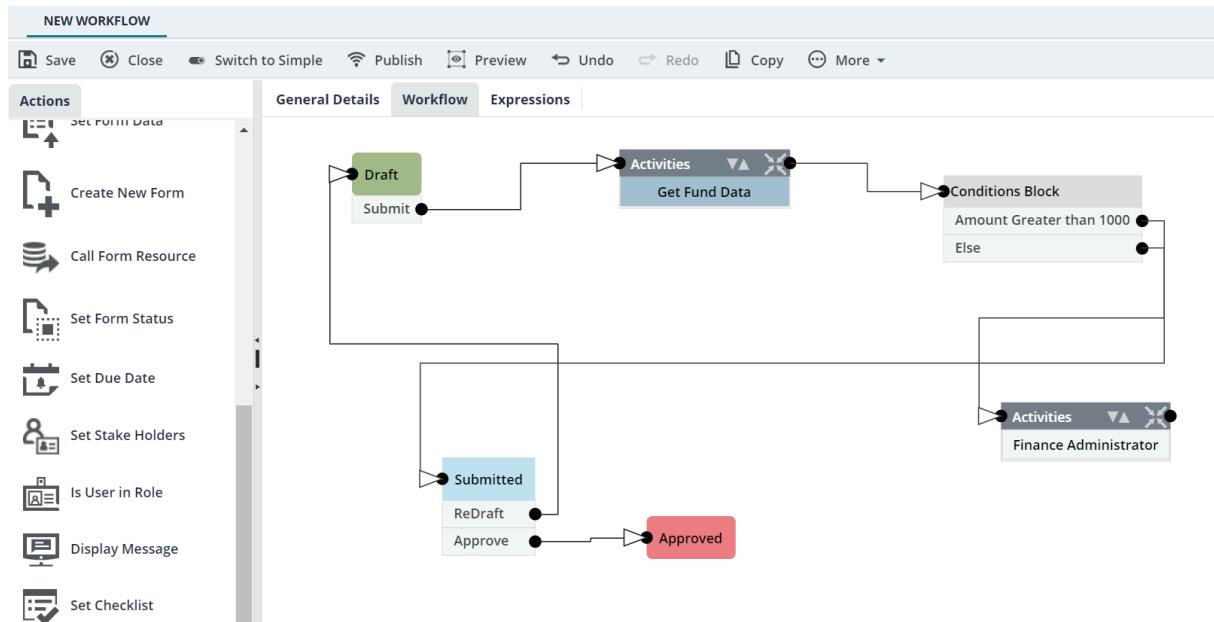
For example, enter **Finance Administrator**.

- In the **Perform Operation After** section, click the required option:

- Any user completes action:** To specify that if any of the action stakeholders transition the record to the next workflow stage, the record moves to the next workflow stage.
- All user(s) complete action:** To specify that all the action stakeholders must transition the record to the next workflow stage for the record to move to the next workflow stage.

6. To connect workflow items to complete the business process, click the port at the item, and drag the port to the port of the required item as illustrated in the following image:

Connecting Workflow Items



Note: By default, the port is located on the right of the box. To change the location of the port, right-click the new action item and click **Reverse Port**.

7. To define conditions on the users performing a workflow action, perform the following steps:

- a. Click the required port.

The **Workflow Connection** action is displayed on the right pane.

- b. In the **Perform Operation After** section, click the required option:

- **Any user completes action:** To specify that if any of the action stakeholders transition the record to the next workflow stage, the record moves to the next workflow stage.
- **All user(s) complete action:** To specify that all the action stakeholders must transition the record to the next workflow stage for the record to move to the next workflow stage.

8. Click the **Expressions** tab to define expressions for the workflows.

An expression is a programming language. It is a combination of one or more constants, variables, functions, and operators that the programming language understands and computes to produce another value.

9. To create expression for the **Conditions Block** action item, in the **Expressions** tab, perform the following steps:

- a. In the **Expressions in this workflow** section, click **Add**.

The **Create Expression** dialog box is displayed.

Creating Expression in Workflow

The screenshot shows the 'Create Expression' dialog box. At the top, there is a 'Save' button and fields for 'Display Name *' (set to 'AStringExpression') and 'Output Data Type' (set to 'Text'). Below these are sections for 'Expression Tree' and 'Resource Parameters'. The 'Expression Tree' section contains the text '---->RootNode:'. The 'Resource Parameters' section is a table with columns: Name, Type, IsArray, and InstanceID. It lists five parameters: '_AssociatedForm' (Type: System.String, IsArray: False), '_AssociatedFormInstanceId' (Type: System.Int32, IsArray: False), '_DueDate' (Type: System.String, IsArray: False), '_WorkflowInstanceId' (Type: System.String, IsArray: False), and '_CurrentUserId' (Type: System.Int32, IsArray: False).

Name	Type	IsArray	InstanceID
_AssociatedForm	System.String	False	
_AssociatedFormInstanceId	System.Int32	False	
_DueDate	System.String	False	
_WorkflowInstanceId	System.String	False	
_CurrentUserId	System.Int32	False	

- b. In the **Display Name** box, the default expression name is displayed as **AStringExpression**.

Enter a new name for the expression being created. For example, enter **Check Amount**.

- c. From the **Output Data Type** drop-down list, select the data type for the expression. For example, select **Boolean**.
- d. In the **Description** box, enter the description for the expression.
- e. In the **Expression Tree** section, click **RootNode**.
- f. In the **Resource Parameters** section, double-click the required default expression code for the **Amount in \$** field that is with the **Instance ID**.

The default expression code is displayed in the **Expression Text** box as illustrated in the following image:

Creating Expression Text

The screenshot shows the 'Create Expression' dialog box. At the top, there are fields for 'Display Name *' (Check Amount) and 'Output Data Type' (Boolean). Below these are sections for the 'Expression Tree' and 'Resources'. The 'Expression Tree' section shows a tree structure with a root node named 'RootNode'. The 'Expression Text' field contains the code `[(_NewTest_GetFundData_amount)]`. Buttons for 'Apply' and 'Close' are at the bottom of this section. Below the tree, there are buttons for 'Add Condition', 'Add Expression', and 'Validate'. The 'Resources' section includes buttons for 'Add/Edit Resource', 'Remove', and 'Add Custom Parameter'. A table titled 'Resource Parameters' lists several variables with their types and instance IDs:

Name	Type	isArray	InstanceId
_AssociatedForm	System.String	False	
_AssociatedFormInstance	System.Int32	False	
_DueDate	System.String	False	
_WorkflowInstanceId	System.String	False	
_CurrentUserId	System.Int32	False	

- g. In the **Expression Text** box, click and add the condition to the default expression code.

For example, edit the default expression code, according to the format illustrated in the following image:

Expression Text

The screenshot shows the 'Expression Text' dialog box. At the top, there is a 'Create Expression' button and a 'Save' button. Below these are fields for 'Display Name *' (set to 'Check Amount') and 'Output Data Type' (set to 'Boolean'). A 'Description' field contains 'Fund Approval'. On the left, an 'Expression Tree' pane shows a single node named 'RootNode'. On the right, an 'Expression Text' pane displays the code: 'return [(_NewTest_GetFundData_amount)] > 1000'. Below this are 'Apply' and 'Close' buttons. At the bottom, there are buttons for 'Add Condition', 'Add Expression', and 'Validate'. Resource management sections include 'Resources' (with 'Add/Edit Resource', 'Remove', and 'Add Custom Parameter' buttons) and 'Resource Parameters' (a table listing variables like '_AssociatedForm', '_AssociatedFormInstanceId', etc.).

- h. Click **Apply**.
- i. Click **Validate** to check the format and completeness of the edited expression.

On successful validation, the validation success message is displayed.

- j. Click **Save**.

The **Check Amount** expression is added to the **Expressions in this workflow** section.

You can use the following example expression codes to change the condition for the workflow:

Operator	Expression	Description
==	return [_NewTest_GetFundData_amount] == 1000;	If the amount entered in the Amount in Field of the Project Fund Transaction form is EQUAL to \$1000, then the transaction must be approved by the Director of Finance .

Operator	Expression	Description
!=	return [_NewTest_GetFundData_amount] != \$1000;	If the amount entered in the Amount in \$ field of the Project Fund Transaction form is NOT EQUAL to \$1000, then the transaction must be approved by the Director of Finance .
<	return [_NewTest_GetFundData_amount] < \$1000;	If the amount entered in the Amount in \$ field of the Project Fund Transaction form is LESS THAN \$1000, then the transaction must be approved by the Director of Finance .
<=	return [_NewTest_GetFundData_amount] <= \$1000;	If the amount entered in the Amount in \$ field of the Project Fund Transaction form is LESS THAN OR EQUAL to \$1000, then the transaction must be approved by the Director of Finance .
>=	return [_NewTest_GetFundData_amount] >= \$1000;	If the amount entered in the Amount in \$ field of the Project Fund Transaction form IS MORE THAN OR EQUAL to \$1000, then the transaction must be approved by the Director of Finance .
&&	return [_NewTest_GetFundData_amount] >= \$1000 && [_NewTest_GetFundData_amount] <= \$10000;	If the amount entered in the Amount in \$ field of the Project Fund Transaction form is MORE THAN OR EQUAL to \$1000 AND LESS THAN OR EQUAL to \$10000, then the transaction must be approved by the Director of Finance .
	return [_NewTest_GetFundData_amount] <= \$1000 [_NewTest_GetFundData_amount] >= \$10000;	If the amount entered in the Amount in \$ field of the Project Fund Transaction form is LESS THAN OR EQUAL to \$1000 OR MORE THAN OR EQUAL to \$10000, then the transaction must be approved by the Director of Finance .

10. To create expression for the **Set Stake Holder** action item, in the **Expressions** tab, perform the following steps:

- In the **Expressions in this workflow** section, click **Add**.

The **Create Expression** dialog box is displayed.

- In the **Display Name** box, the default expression name is displayed as **AStringExpression**.

Enter a new name for the expression being created. For example, enter **Stakeholder Finance**.

- From the **Output Data Type** drop-down list, select the data type for the expression output. For example, select **Text**.
- In the **Description** box, enter the description for the expression.
- In the **Expression Tree** section, click **RootNode**.

The **Expression Text** box is displayed as illustrated in the following image:

Expression Code

The screenshot shows the 'Create Expression' dialog box. In the 'Expression Tree' section, under 'RootNode', there is a text input field labeled 'Expression Text' containing a single character '|'. Below the dialog are sections for 'Resources' and 'Resource Parameters', which are currently empty.

Name	Type	isArray	InstanceId
_AssociatedForm	System.String	False	
_AssociatedFormInstanceId	System.Int32	False	
_DueDate	System.String	False	
_WorkflowInstanceId	System.String	False	
_CurrentUserId	System.Int32	False	

- In the **Expression Text** box, enter the expression code for the stakeholder.

For example, enter the expression code, according to the format illustrated in the following image:

Validating Expression

The screenshot shows the 'Create Expression' dialog box. At the top, there are fields for 'Display Name *' (Stakeholder Finance) and 'Output Data Type' (Text). Below these are sections for the 'Expression Tree' and 'Expression Text'. The 'Expression Type' is Boolean, named 'RootNode', with the expression text being 'return "Finance Administrator";'. Buttons for 'Apply' and 'Close' are at the bottom right. Below the main dialog are sections for 'Resources' (Add/Edit Resource, Remove, Add Custom Parameter) and 'Resource Parameters' (a table with columns: Name, Type, IsArray, InstanceID, containing rows for various workflow parameters like _AssociatedForm, _AssociatedFormInstanceId, etc.).

- g. Click **Apply**.
 - h. Click **Validate** to check the format and completeness of the entered code. On successful validation, the validation success message is displayed.
 - i. Click **Save**.
- The **Stakeholder Finance** expression is added to the **Expressions in this workflow** section.
- j. Click the **Workflow** tab.

11. To add the **Expression** to the **Amount Greater than 1000** action item, perform the following steps:

- a. In the **Workflow** tab, click the **Amount Greater than 1000** action item.

The **Amount Greater than 1000** item properties are displayed in the right pane.

- b. In the **Condition** box, click .

The **RESOURCES** dialog box is displayed.

- c. Click **Expression**.
- d. From the drop-down list, select the **Check Amount**.

Available options are expressions defined in the **Expressions** tab.

- e. Click **Save**.

12. To add the **Expression** to the **Finance Administrator** action item, perform the following steps:

- a. In the **Workflow** tab, click the **Finance Administrator** action item.

The **Finance Administrator** item properties are displayed in the right pane.

- b. In the **Action Stake Holders** box, click .

The **RESOURCES** dialog box is displayed.

- c. Click **Expression**.
- d. From the drop-down list, select the **Stakeholder Finance**.

Available options are expressions defined in the **Expressions** tab.

- e. Click **Save**.

- f. In the **View Stake Holders** box, click .

The **RESOURCES** dialog box is displayed.

- g. Click **Expression**.
- h. From the drop-down list, select the **Stakeholder Finance**.

Available options are expressions defined in the **Expressions** tab.

Optionally, you can create expressions to add a different view stakeholder.

- i. Click **Save**.

13. Click **Save**.

The workflow is saved and listed on the **WORKFLOW LIST** page.

The workflow must now be published to be made available in the application. For information on publishing a workflow, see [Publishing a Workflow](#).

14.5.3.5. Configuring Business Logic in Workflow

The **Business Logic in Workflow Management** form enables you to configure business logic in Masterworks workflows using deep integration with Blockly.

The business scenarios in the following sections describe the steps to configure a workflow using the **BUSINESS LOGIC** item.

See the following business scenarios to achieve a better knowledge of configuring business logic in workflow:

- [Business Scenario – Validate the Workflow Action of Minutes of Meeting Record Based on Action Items Status](#) on page 1242.
- [Business Scenario – Validate the Workflow Action of Expenses Record Based on User Role](#) on page 1250.

14.5.3.6. Business Scenario – Validate the Workflow Action of Minutes of Meeting Record Based on Action Items Status

The XML Form has discussion control with a hierarchical workflow status, such as **Draft**, **Submitted**, and **Approved**.

- If the workflow status of the Minutes of Meeting record is **Submitted**, then the workflow action **Approve** must be validated for all the items in the discussion control of the record.
- If the status of all items in the discussion control of the Minutes of Meeting record is **Closed**, then the workflow status of the record must be moved to **Approved**.
- If the status of any item in the discussion control of the Minutes of Meeting record is not **Closed**, then the next workflow action must be stopped along with a warning message.

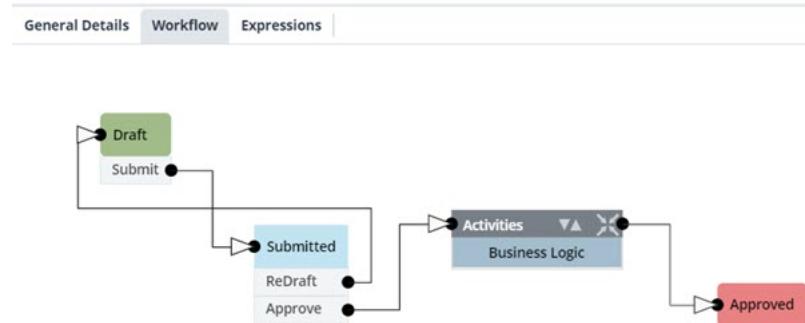
1. [Create a basic workflow](#).

Alternatively, [edit a workflow](#).

2. To load the **ADVANCED ACTIVITIES** list, click **Switch to Advanced**.

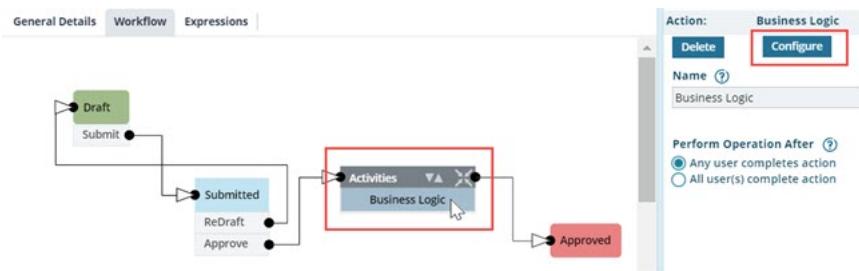
A new activity called **Business Logic** is displayed at the bottom of the **ADVANCED ACTIVITIES** list.

- To configure the business logic, drag and connect the **Business Logic** item to the appropriate workflow stage.



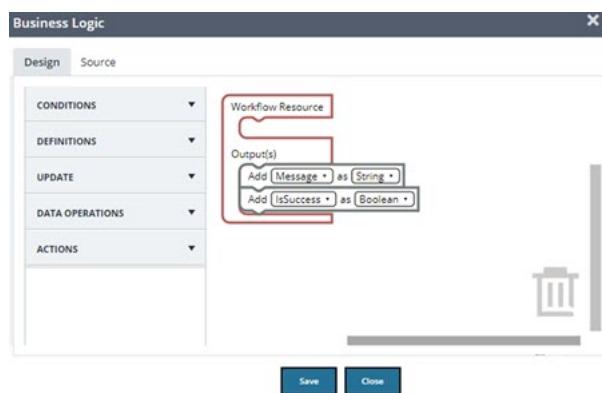
- To load the configuration settings for business logic, click the **Business Logic** item in the design pane area.

The **Business Logic** properties are displayed at the right pane of the page.



- In the **Name** field, enter a name for the **Business Logic** item as required.
- To configure the business logic with Blockly interface, click **Configure**.

The **Business Logic** dialog box is displayed.



7. To configure how the business logic must be executed, drag and drop the appropriate blocks to the design area. For information on configuring blocks, see [Configuring Business Logic in a Form](#) on page 1178.

The default block **Workflow Resource** has two default variables.

- **IsSuccess:** It is a flag variable. The default value is True. This helps to validate whether the business logic that is executed is successful or not.
- **Message:** It is a string variable. The default value is with the executed result message.

8. To read the appropriate data (discussion control data) from the selected form and store it as a variable, perform the following steps:

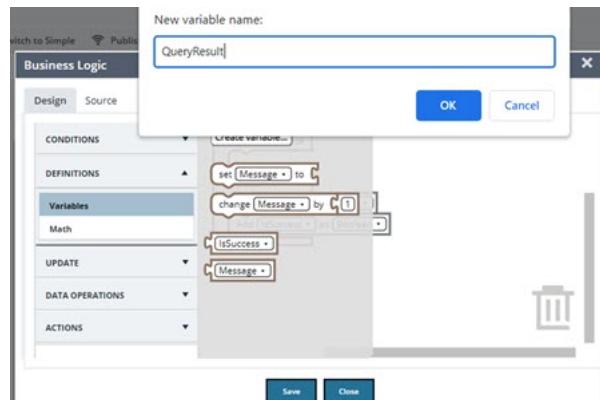
- a. Expand the **DEFINITIONS** block and click the **Variables** block.



- b. Click **Create Variable**.

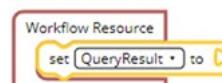
A pop-up message appears to provide the variable name.

- c. In the **New variable name** field, enter the variable name as **QueryResult**, and click **OK**.



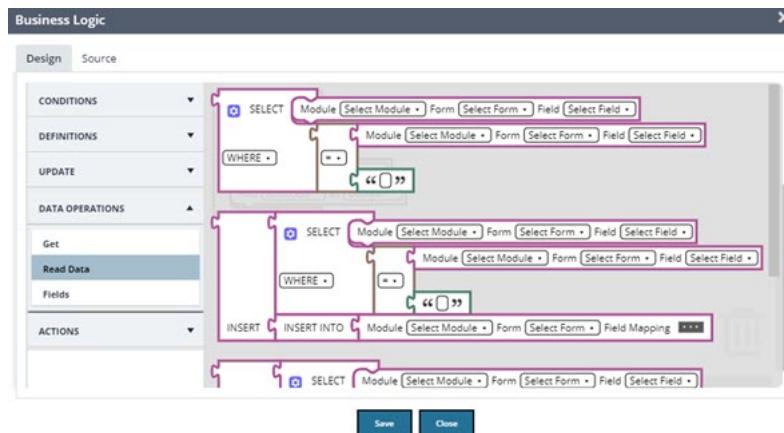
The newly created variable is available in the variable list with the **set** operator.

- d. Drag and drop the **set** operator to the design area.

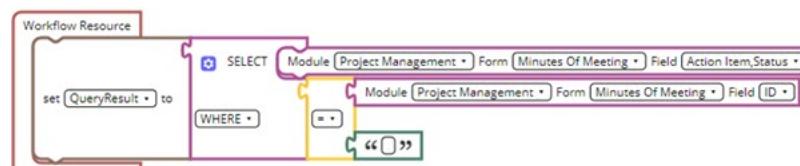


- e. Expand the **DATA OPERATIONS** block and click the **Read Data** block.

The available options of the **Read Data** block are displayed.

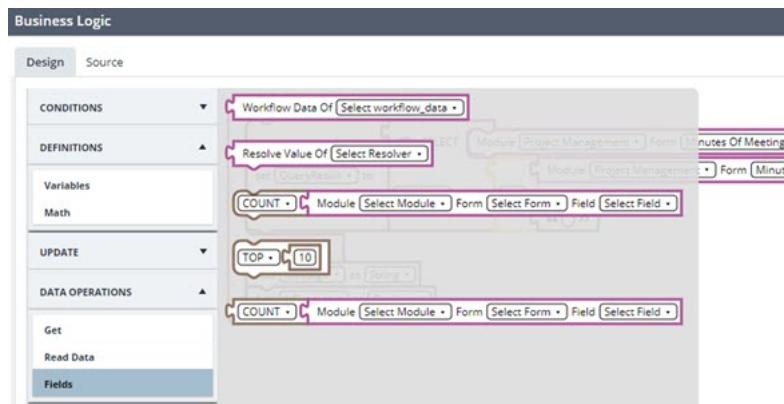


- f. Drag and connect the **SELECT** block to the **set** operator.

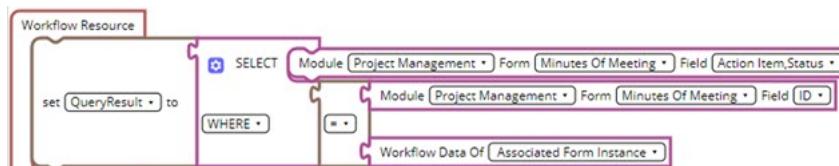


- g. Expand the **DATA OPERATIONS** block and click the **Fields** block.

The available options of the **Fields** block are displayed.



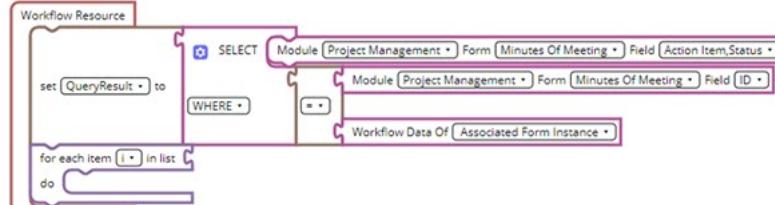
- h. To add the parameter resolver value that must be equivalent for the query execution, drag and connect the **Workflow Data Of** block to the **SELECT** block.



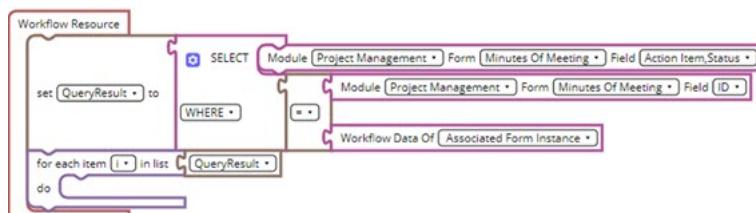
Note: The **SELECT** block executes the database query and stores the result in the **set** operator variable **Query Result**.

9. To validate the retrieved information in a loop for each information retrieved, perform the following steps:

- Expand the **CONDITIONS** block and click the **Loops** block.
- Drag and connect the **for loop** block below the **set** operator.

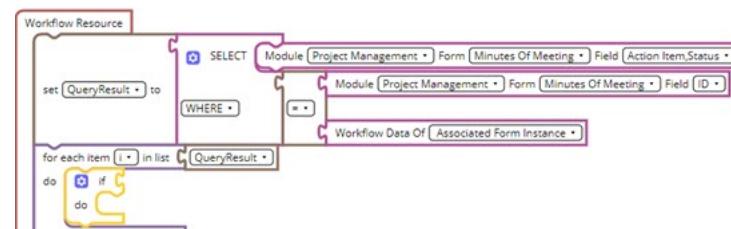


- Expand the **DEFINITIONS** block and click the **Variables** block.
- Drag and connect the **Query Result** variable to the **for loop** block.



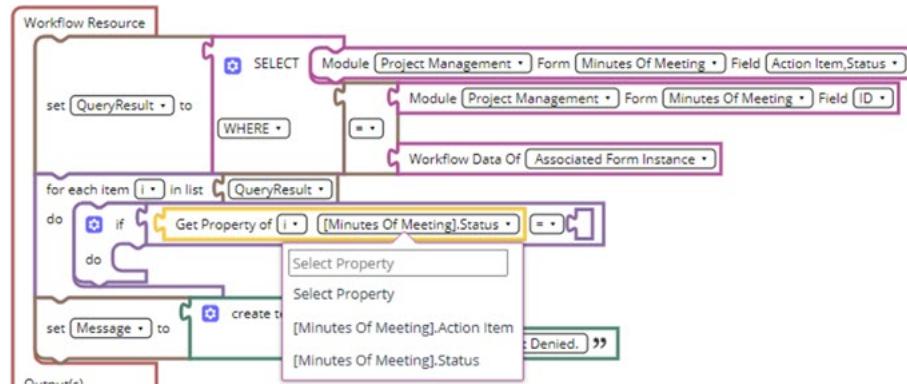
Note: The **for loop** block creates a default variable **i** for the increment of a loop for values passed.

- Expand the **CONDITIONS** block, then expand the **Logic** block, and click the **If** block.
- Drag and connect the **If** block to the **for loop** block.



- Expand the **DATA OPERATIONS** block and click the **Get** block.
- Drag and connect the **Get** block to the **If Block**.
- In the **Get Property of** block, define the values as follows:

- i. From the drop-down list of **Select Variable** entity, select i.



- ii. From the drop-down list of **Select Property** entity, select Status.

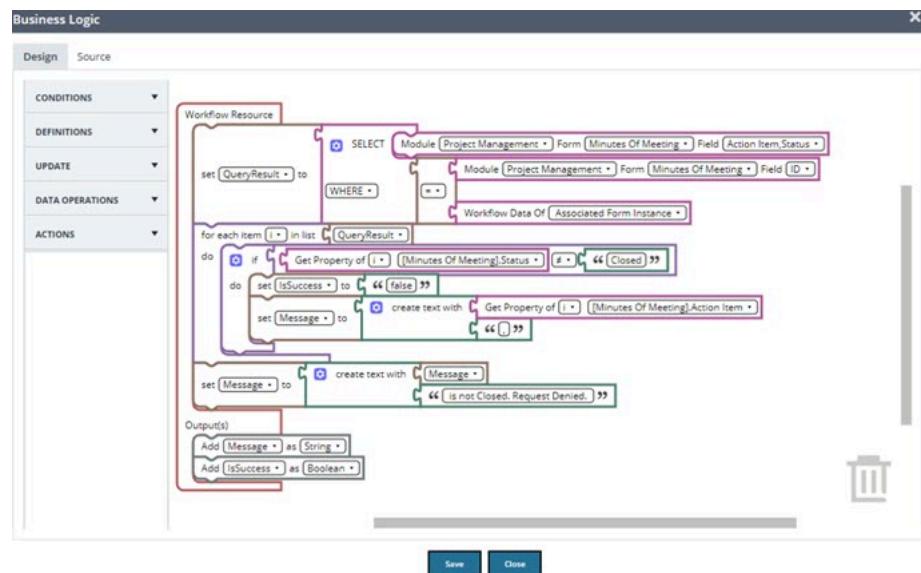
- iii. From the drop-down list of **Operator** entity, select ≠.

- j. Expand the **UPDATE** block, and then click the **Text** block.

- k. Drag and attach the empty string block to the ≠ operator entity of the **Get Property of** block and mention the resolver value as Closed.

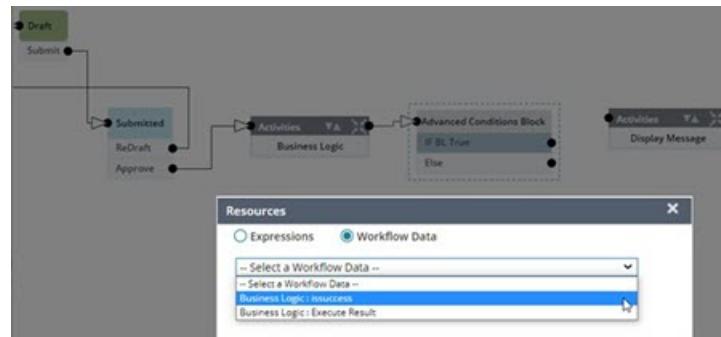
- l. If the resolver condition fails, to update the variable Is_success to false, drag and connect the **set** block to the **Get Property of** block.

- m. Set the value of the variable Message to {Action Item name} is not Closed. Request Denied.



10. Click **Save**.

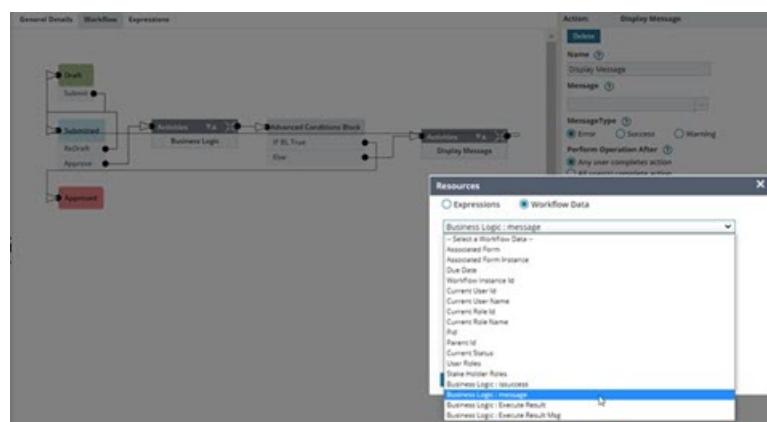
11. To validate the `Is_Success` flag variable of the **Business Logic** item, drag and drop the **Advanced Conditional Block** item to the design area.



12. If the condition fails, to display the **Business Logic** message, perform the following steps:

- Drag and drop **Display Message** item to the design area.
 - To load the configuration settings at the right side of the page, select the **Display Message** item in the design pane area.
- The **Display Message** tab is displayed at the right pane of the page.
- In the **Name** field, enter a name for the **Display Message** item.
 - To configure the display message logic, click .

The **Resources** dialog box is displayed.



- Click the **Workflow Data** button and from the drop-down list, select **Business Logic : message**.

13. Click **Save**.

The **NEW WORKFLOW** page is displayed.

14. Click **Save**.

The workflow is saved and displayed on the **WORKFLOW LIST** page.

The workflow must now be published to be made available in the application. For information on publishing a workflow, see [Publishing a Workflow](#).

14.5.3.7. Business Scenario – Validate the Workflow Action of Expenses Record Based on User Role

The XML Form has a hierarchical workflow status, such as **Draft**, **Review**, **Finance Review**, and **Approved**.

1. Based on the user role, once the Expenses record is submitted, the subsequent actions must occur accordingly:
 - If the Expenses record is submitted by a Contractor, then the following actions must occur:
 - The message Expenses submitted by Contractor. Submitted to Field Inspector review must be displayed.
 - A notification must be sent to the Field Inspector through an email.
 - The workflow status of the record must be set to **Field Inspector Review**.
 - If the Expenses record is submitted by any other roles except Contractor, then the following actions must occur:
 - The message Expenses submitted for Project Manager review must be displayed.
 - A notification must be sent to the Project Manager through an email.
 - The workflow status of the record must be set to **Project Manager Review**.
2. After the Field inspector or Project Manager approves the record, the workflow status of the record must move to **Finance Review**.
3. After the Administrator approves the record, the workflow status of the record must move to **Approved**.

1. [Create a workflow using Simple mode.](#)

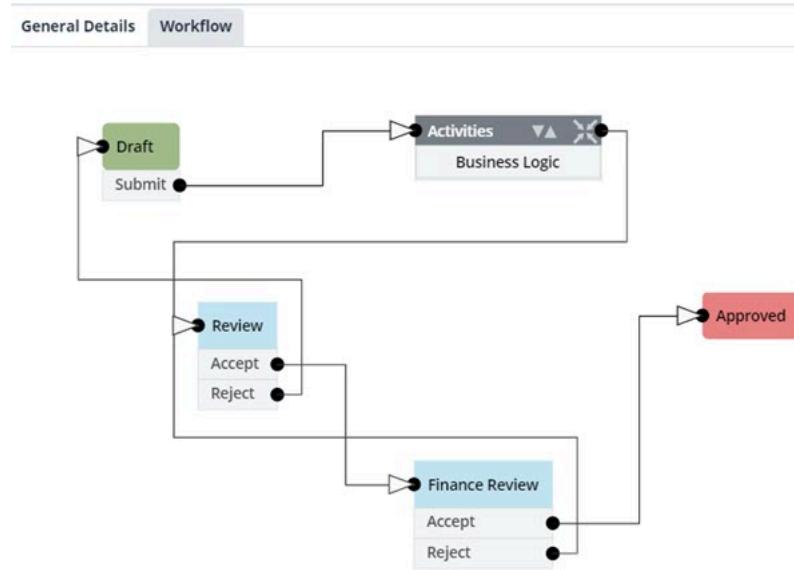
Alternatively, [edit a workflow](#).

A workflow with three-stage workflow status – **Draft**, **Submitted**, and **Approved** is displayed in the **Workflow** tab.

2. Rename the **Submitted** workflow stage as **Review** and add another workflow stage **Finance Review**.
3. To load the **ADVANCED ACTIVITIES** list, click **Switch to Advanced**.

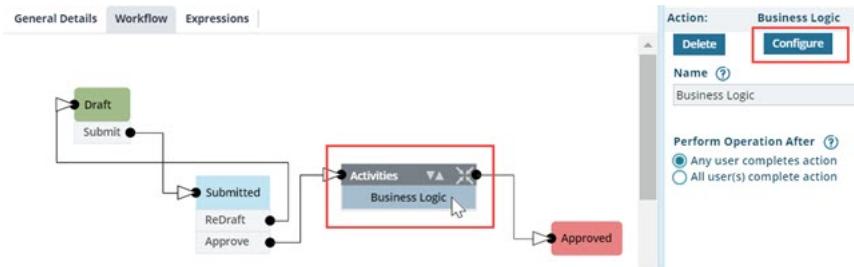
A new activity called **Business Logic** is displayed at the bottom of the **ADVANCED ACTIVITIES** list.

- To configure the business logic, drag and connect the **Business Logic** item to the appropriate workflow stage.



- To load the configuration settings, click the **Business Logic** item in the design pane area.

The **Business Logic** properties are displayed at the right pane of the page.



- In the **Name** field, enter a name for the **Business Logic** item as required.
- To configure the business logic with Blockly interface, click **Configure**.

The **Business Logic** dialog box is displayed.



8. To configure how the business logic must be executed, drag and drop the appropriate blocks to the design area. For information on configuring blocks, see [Configuring Business Logic in a Form](#) on page 1178.

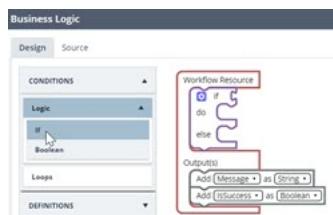
The default block **Workflow Resource** has two default variables.

- **IsSuccess:** It is a flag variable. The default value is True. This helps to validate whether the business logic that is executed is successful or not.
- **Message:** It is a string variable. The default value is with the executed result message.

9. Expand the **CONDITIONS** block, then expand the **Logic** block, and click the **If** block.

The available options of the **If** block are displayed.

10. Drag and connect the appropriate **If** block below the **Workflow Resource** block.



11. Under the **CONDITIONS** block, click the **Boolean** block.

The available options of the **Boolean** block are displayed.

12. Drag and connect the Simple Boolean block to the **if** block.

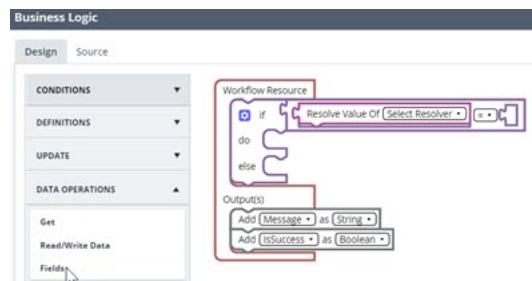


13. To validate the user role for executing the appropriate workflow action, perform the following steps:

- a. Expand the **DATA OPERATIONS** block, and then click the **Fields** block.

The available options of the **Fields** block are displayed.

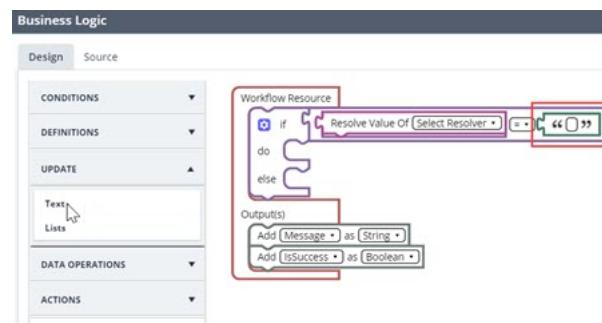
- b. Drag and connect the **Resolve Value Of** block to the first part of the Simple Boolean block.



- c. Expand the **UPDATE** block, and then click the **Text** block.

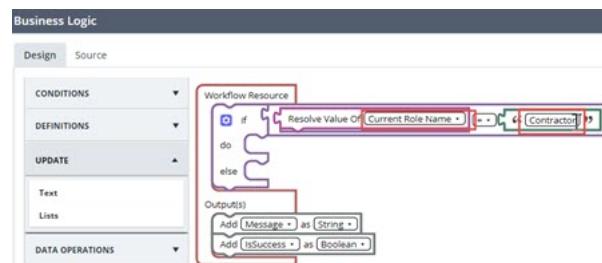
The available options of the **Text** block are displayed.

- d. Drag and connect the Single Line Text block to the second part of the Simple Boolean block.



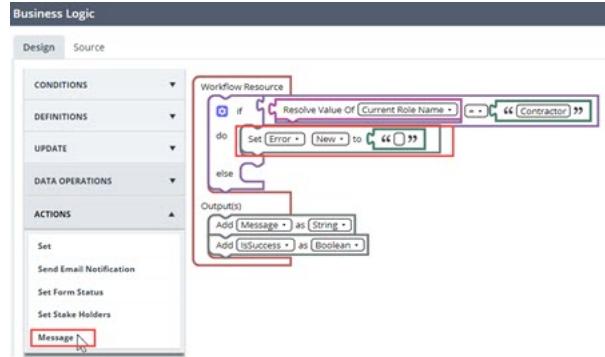
- e. From the drop-down list of **Select Resolver** field, select **Current Role Name**.

- f. Enter Contractor in the Single Line Text block.

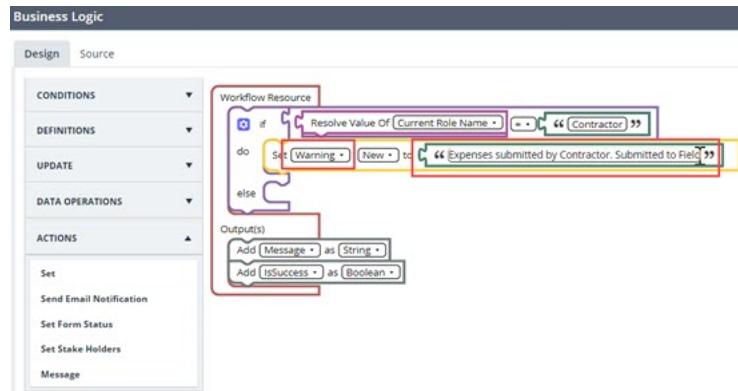


14. Based on the defined user role, to define a warning message to restrict the next workflow action, perform the following steps:

- Expand the **ACTIONS** block, and then click the **Message** block.
- Drag and connect the **Message** block to the **do** block.

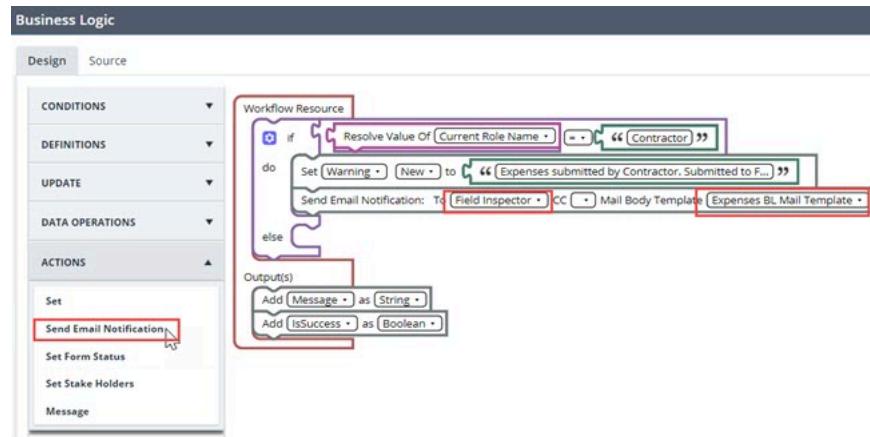


- From the drop-down list of **Error** field, select **Warning**.
- In the Single Line Text block, enter **Expenses submitted by Contractor. Submitted to Field Inspector review.**



15. Based on the defined user role, to define a email notification to restrict the next workflow action, perform the following steps:

- a. Under the **ACTIONS** block, click the **Send Email Notification** block.
- b. Drag and connect the **Send Email Notification** block below the **Set** block.
- c. From the drop-down list of **To** field, select **Field Inspector**.



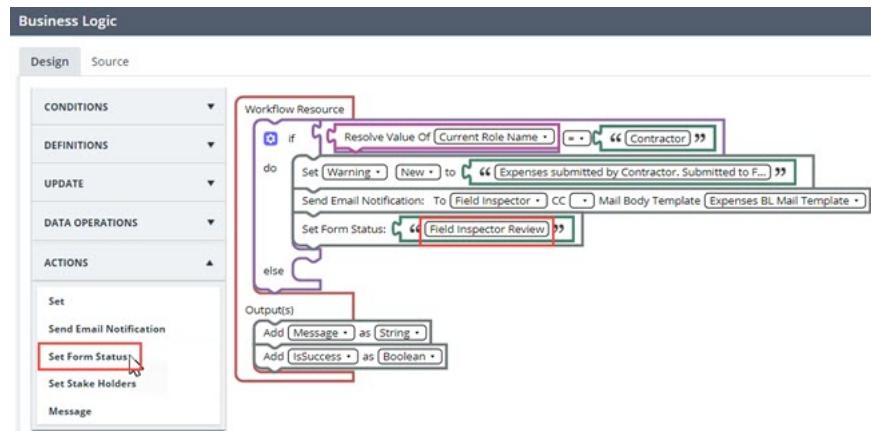
- d. From the drop-down list of **Mail Body Template** field, select **Expenses BL Mail Template**.

Note:

- Available templates are based on the form that is selected for the workflow.
- Available options are templates defined for the form in the **Mail Body Templates** library catalog.

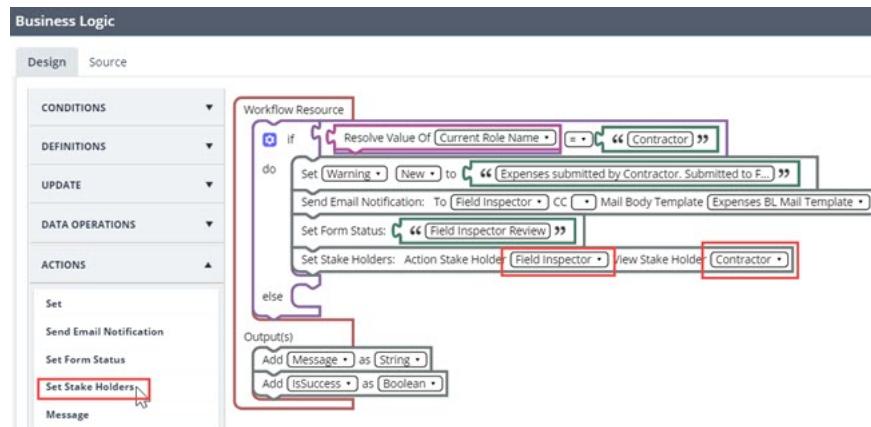
16. Based on the defined user role, to define the workflow status of the submitted record, perform the following steps:

- Under the **ACTIONS** block, click the **Set Form Status** block.
- Drag and connect the **Set Form Status** block below the **Send Email Notification** block.
- Enter **Field Inspector Review** in the Single Line Text block.



17. Based on the defined user role, to define the stakeholders for the newly defined workflow status, perform the following steps:

- Under the **ACTIONS** block, click the **Set Stake Holders** block.
- Drag and connect the **Set Stake Holders** block below the **Set Form Status** block.
- From the drop-down list of **Action Stake Holder** field, select **Field Inspector**.

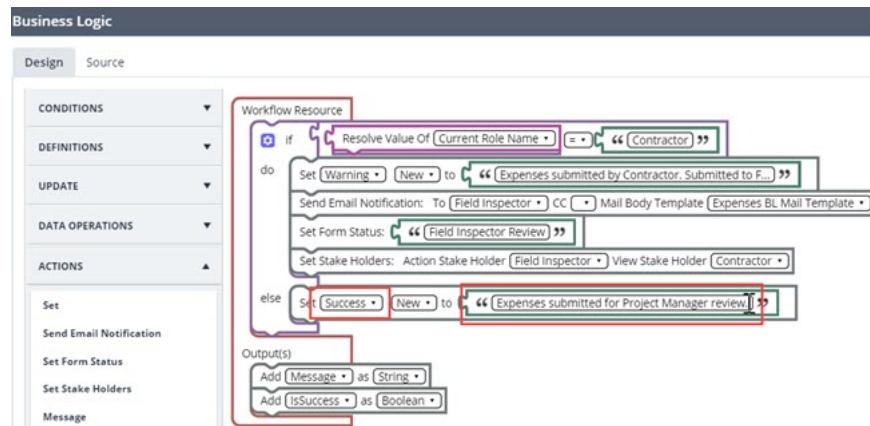


- From the drop-down list of **View Stake Holder** field, select **Contractor**.

The **View Stake Holder** field is available only if the **Configure View Permissions** check box is selected while creating the workflow.

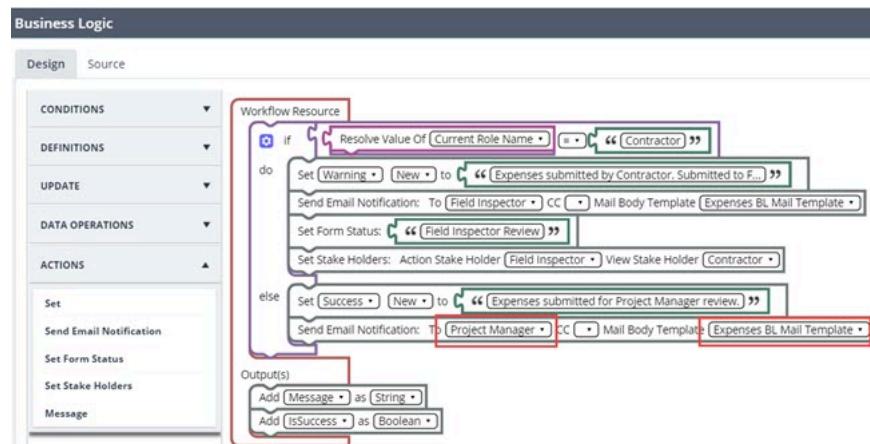
18. If the user role is not a Contractor, then to define the success message, perform the following steps:

- Under the **ACTIONS** block, click the **Message** block.
- Drag and connect the **Message** block to the **else** block.
- From the drop-down list of **Error** field, select **Success**.
- In the Single Line Text block, enter Expenses submitted for Project Manager review.



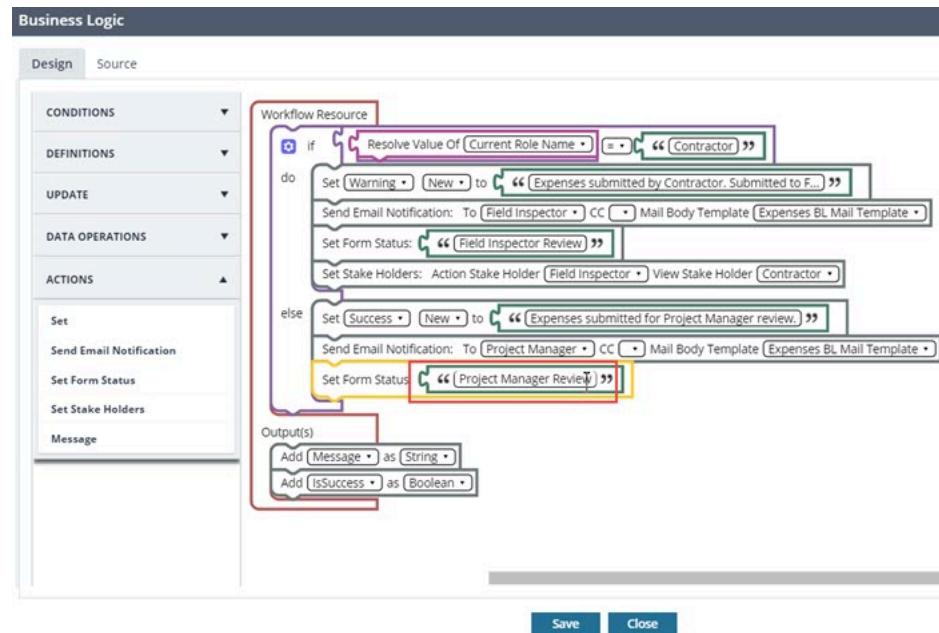
19. If the user role is not a Contractor, then to define the email notification, perform the following steps:

- Under the **ACTIONS** block, click the **Send Email Notification** block.
- Drag and connect the **Send Email Notification** block below the **Set** block.
- From the drop-down list of **To** field, select **Project Manager**.



- From the drop-down list of **Mail Body Template** field, select **Expenses BL Mail Template**.

20. If the user role is not a Contractor, then to define the workflow status of the submitted record, perform the following steps:
- Under the **ACTIONS** block, click the **Set Form Status** block.
 - Drag and connect the **Set Form Status** block below the **Send Email Notification** block.
 - Enter Project Manager Review in the Single Line Text block.



21. Click **Save**.

The **NEW WORKFLOW** page is displayed.

22. Click **Save**.

The workflow is saved and displayed on the **WORKFLOW LIST** page.

The workflow must now be published to be made available in the application. For information on publishing a workflow, see [Publishing a Workflow](#).

14.5.3.8. Editing a Workflow

- Workflow is not marked as a **Validation** workflow.

If the check box is selected in the **Validation** column, then the corresponding workflow is a validation workflow and cannot be edited. However, you can take a copy of the workflow and then make updates to the workflow.

Note: Any modifications to an existing workflow will take effect in new forms created after publishing the modified workflow.

For example, if you add new stages and actions to the workflow of the **Daily Progress Report** form and then publish the edited workflow, only newer instances of the **Daily Progress Report** form will reflect the saved changes, not those created before the modification.

You can edit an existing workflow that is not checked in the **Validation** column.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **Configuration Toolkit**, and then click **Workflow Management**.

The **WORKFLOW LIST** page is displayed.

3. Select the workflow to be edited, and then click **Edit**.

The **EDIT WORKFLOW** page is displayed.

Note: A published workflow is unpublished.

4. Make the required changes.

For information on creating workflows, see [Creating a Workflow Using Simple Mode](#) or [Creating a Workflow Using Advanced Mode](#).

5. Click **Save** to save the changes.

The **WORKFLOW LIST** page is displayed.

6. p

The workflow must now be published to be made available in the application. For information on publishing a workflow, see [Publishing a Workflow](#).

14.5.3.9. Publishing a Workflow

Once the workflow is created, you need to publish the workflow. Publishing a workflow makes the workflow available to the system. That is, workflow action buttons are made available in a form when a new instance of the associated form is created on the relevant list page in Masterworks.

Once the workflow is published, you can mark it as the default workflow for the respective form. For more information, see [Marking a Workflow as Default](#).

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand **Configuration Toolkit** folder, and then click **Workflow Management**.

The **WORKFLOW LIST** page is displayed.

3. To publish the workflow, perform either of the following steps:

- From the list page:

- a. Select the newly created workflow.

- b. In the toolbar, click **Publish**.

The **Published** column of the workflow is selected.

- From the details page of the workflow:

- a. Select the newly created workflow, and then click **Edit**.

- b. Click **Publish**.

In the list page, the **Published** column of the workflow is selected.

Note: When existing workflows are modified and published, only new instances of forms are affected. All forms created with the previous workflow continue to operate with the previous definition of the workflow.

4. To un-publish a workflow, perform the following steps:

Note: You can un-publish a workflow anytime. If the workflow of a form is unpublished, you can publish a new workflow for it.

- a. In the **WORKFLOW LIST** page, select the appropriate published workflow.

- b. In the toolbar, click **Un-Publish**.

In the list page, the **Published** column of the workflow is cleared.

14.5.4. Error Message Configurator

14.5.4.1. Error Message Configurator

In Masterworks, all the error messages that are displayed in the UI are compiled in one place so that you can create, view, and modify them based on the requirements. The **Error Message Configurator** form enables you to create, view, and modify error messages in the UI by changing the sentence structure without changing the code.

In the **ERROR MESSAGE CONFIGURATOR** list page, each error message displays the information to help you understand from which module these messages are generated and why these messages are generated.

The following sections describe types of error messages, creating error messages, viewing error messages, and modifying error messages:

- [Types of Error Messages](#) on page 1261
- [Creating Error Messages](#)
- [Viewing Error Messages](#) on page 1263
- [Modifying Error Messages](#) on page 1264

14.5.4.2. Types of Error Messages

The error messages are categorized into two types: Static messages and Dynamic messages.

- Static messages are standalone messages that have fixed content.
- Dynamic messages have one or more variables that are inserted based on the context from which the message is displayed. These variables can either be a data point from the same form or a related data point from a different form.

14.5.4.3. Creating Error Messages

You can create error messages for a specific form of your choice.

1. In the module menu, click **Administration**.
The **ADMINISTRATION** page is displayed.
2. In the navigation pane, expand the **Configuration Toolkit** folder, then click **Error Message Configurator**.

The **ERROR MESSAGE CONFIGURATOR** list page is displayed.

3. In the **ERROR MESSAGE CONFIGURATOR** list page, click **New**.

The **ERROR MESSAGE CONFIGURATOR** page is displayed.

Create a New Error Message Configurator

ERROR MESSAGE CONFIGURATOR

 Save & Exit  Cancel

Key : <Auto Generated>

Culture * : - Select Culture - ▾

Parent Module Name * : Select Parent Module ▾

Form Name * : Select

Form Id * : [Input field]

Field Name : [Input field] ▾

Description : [Text area]

Current Error Message (Value) * : [Text area]

Insert Fields

4. To create a new error message, provide the appropriate information in the fields, as described in the following table.

Note: The system automatically populates the **Key** field upon saving the form.

Field	Description
Culture	Select the required culture from the drop-down list. Available options are the list of cultures defined in the application.
Parent Module Name	Select the required module name from the drop-down list. Available options are the modules available in the application.

Field	Description
Form Name	Select the required form name from the drop-down list. Available options are the forms available in the module selected in the Parent Module Name field. The Form Id field displays the unique identification code of the form selected in the Form Name field.
Field Name	Select the required field from the drop-down list. Available options are the fields available in the selected form.
Description	Enter a brief description of the error message.
Current Error Message (Value)	Enter the actual error message that you want to be displayed. To insert a field from the same form in the error message, see Modifying Dynamic Messages by Inserting a Field of Same Form on page 1265 from Step 5 . To insert a field from a different form in the error message, see Modifying Dynamic Messages by Inserting a Field of Different Form on page 1267 from Step 5 .

- Click **Save & Exit**.

The new error message is displayed under the respective form name group on the **ERROR MESSAGE CONFIGURATOR** list page.

14.5.4.4. Viewing Error Messages

You can view error messages from the **ERROR MESSAGE CONFIGURATOR** list page.

- In the module menu, click **Administration**.
The **ADMINISTRATION** page is displayed.
- In the navigation pane, expand the **Configuration Toolkit** folder, and then click **Error Message Configurator**.
The **ERROR MESSAGE CONFIGURATOR** list page is displayed.
- To view the error message, in the **ERROR MESSAGE CONFIGURATOR** list page, select the appropriate error message.

4. Click View.

The **ERROR MESSAGE CONFIGURATOR** page displays the following non-editable fields:

Field	Description
Key	A unique identification code for each error message.
Culture	The geographic location of the error message.
Parent Module Name	The parent module name of the form for which the error message is generated.
Form Name	The name of the form for which the error message is generated.
Form Id	A unique identification code of the form name.
Field Name	The name of the fields from which the message is generated. The same message can generate in many fields, or the message can also generate from one or more fields.
Description	<ul style="list-style-type: none">Defines the error message meaning and when it is displayed.Defines the solution to the error message for the problem statement and explains why or how this message is generated.
Current Error Message (Value)	The error message that is currently displayed in Masterworks.
New Error Message	The modified error message that replaces the message in the Value field.

5. Click Cancel to return to the **ERROR MESSAGE CONFIGURATOR list page.****14.5.4.5. Modifying Error Messages****14.5.4.5.1. Modifying Error Messages**

The **Error Message Configurator** form enables you to modify error messages in the following modes:

- Modify error messages in UI.
 - [Modify static messages.](#)
 - Modify dynamic messages.
 - [Modify dynamic messages by inserting a field of same form through UI.](#)
 - [Modify dynamic messages by inserting a field of different form through UI.](#)
 - [Modify error messages in bulk through Excel upload.](#)

14.5.4.5.2. Modifying Static Messages

You can modify static messages directly in UI.

1. In the module menu, click **Administration**.
The **ADMINISTRATION** page is displayed.
2. In the navigation pane, expand the **Configuration Toolkit** folder, and then click **Error Message Configurator**.

- The **ERROR MESSAGE CONFIGURATOR** list page is displayed.
3. In the **ERROR MESSAGE CONFIGURATOR** list page, select the appropriate error message, and then click **Edit**.
The **ERROR MESSAGE CONFIGURATOR** page is displayed.
 4. Based on the error message in the **Current Error Message (Value)** field, rewrite the error message in the **New Error Message** field as per your requirement.
 5. Click **Save**.

The modified error message is displayed in the **ERROR MESSAGE CONFIGURATOR** list page for the respective record.

14.5.4.5.3. Modifying Dynamic Messages

You can modify dynamic messages in two modes:

- [By inserting a field of same form through UI](#)
- [By inserting a field of different form through UI](#)

14.5.4.5.3.1. Modifying Dynamic Messages by Inserting a Field of Same Form

You can modify dynamic messages by inserting a field of same form through UI using **Insert Current Form Field** option.

1. In the module menu, click **Administration**.
The **ADMINISTRATION** page is displayed.
 2. In the navigation pane, expand the **Configuration Toolkit** folder, and then click **Error Message Configurator**.
- The **ERROR MESSAGE CONFIGURATOR** list page is displayed.

3. In the **ERROR MESSAGE CONFIGURATOR** list page, select the appropriate error message, and then click **Edit**.

The **ERROR MESSAGE CONFIGURATOR** page is displayed.

4. Based on the error message in the **Current Error Message (Value)** field, rewrite the error message in the **New Error Message** field as per your requirement.
5. Place the cursor where the dynamic variable must be inserted in the **New Error Message** field.
6. Click **Insert Fields**.

A pop-up is displayed where you can search and retrieve the fields from other modules or forms.

Insert Fields

DATA OPERATIONS

Get Value of

Read Data

Dynamic Query

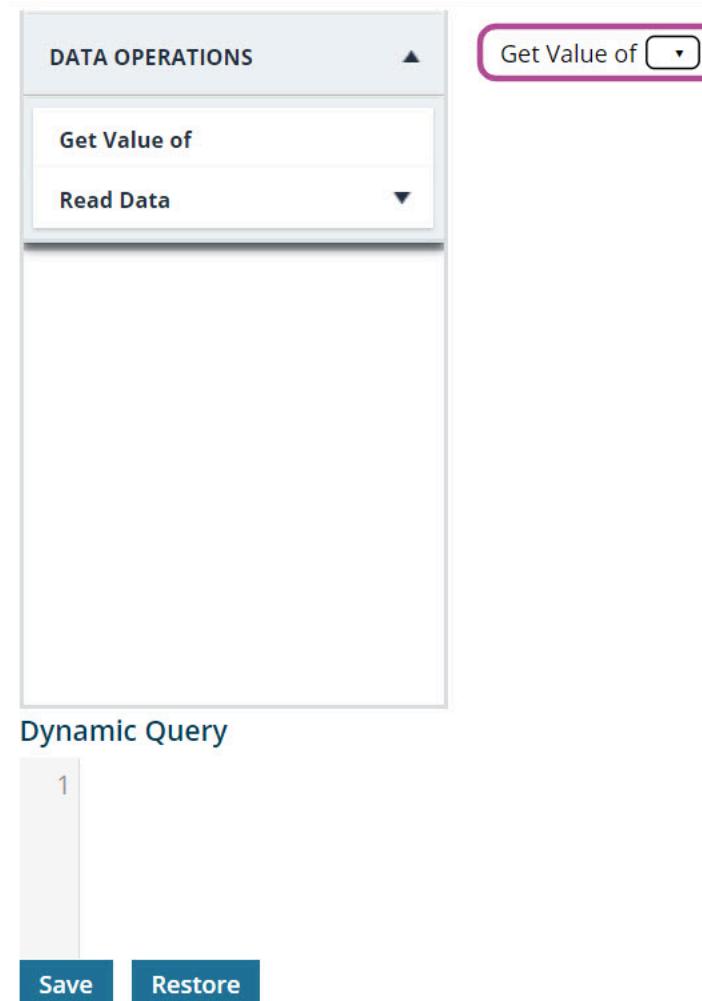
1

Save Restore

7. Under the **DATA OPERATIONS** block, click the **Get Value of** block.

The **Get Value of** drop-down field is displayed.

Get Value of



8. From the drop-down list of **Get Value of** field, select the required field name.

9. Click **Save**.

The selected field variables are added to the **Current Error Message (Value)** field.

10. Click **Save & Exit**.

The modified error message is displayed in the **ERROR MESSAGE CONFIGURATOR** list page for the respective record.

14.5.4.5.3.2. Modifying Dynamic Messages by Inserting a Field of Different Form

You can modify dynamic messages by inserting a field of different form through UI using **Insert Other Form Field** option. You can also modify the variables in the dynamic messages using Google Blockly (Blockly).

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand the **Configuration Toolkit** folder, and then click **Error Message Configurator**.

The **ERROR MESSAGE CONFIGURATOR** list page is displayed.

3. In the **ERROR MESSAGE CONFIGURATOR** list page, select the appropriate error message, and then click **Edit**.

The **ERROR MESSAGE CONFIGURATOR** page is displayed.

4. Based on the error message in the **Current Error Message (Value)** field, rewrite the error message in the **New Error Message** field.
5. Place the cursor where the dynamic variable must be inserted in the **New Error Message** field.
6. Click **Insert Fields**.

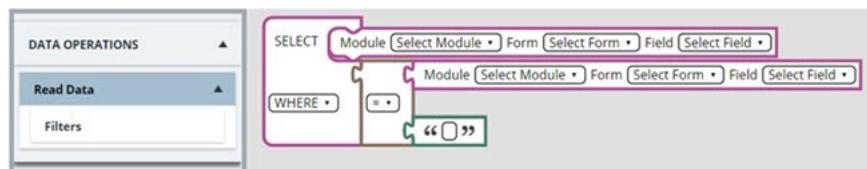
A pop-up is displayed where you can search and retrieve the fields from other modules or forms.

7. To search and retrieve the appropriate field information from other modules or forms, perform the following steps:

- Click **Read Data**.

Note: The **Read Data** feature retrieves the appropriate information from other modules or forms using a reference field that is common between the source and the destination form.

The following screen is displayed on the right pane of the screen.



- To search the appropriate information from the destination form, in the **SELECT** field, define the appropriate values in the **Select Module**, **Select Form**, and **Select Field**.

Note: The **SELECT** field searches for the defined values in the **Select Field** from the **Select Form** that belongs to the **Select Module** entities.

- To define the relationship between the destination form and the source form, in the **WHERE** field, define the appropriate values in the **Select Module**, **Select Form**, and **Select Field**.

Note:

- The **WHERE** field acts as the reference identifier between the source and the destination form.
- The **WHERE** field retrieves the defined values from the **Select Field** of the **Select Form** that belongs to the **Select Module** entities.

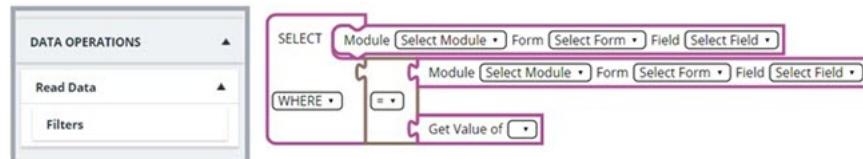
- To define the identifier of the record, click **Filters**, and then use the appropriate filters as applicable:

Note: Once added, you can remove the filter by dragging and dropping it to in the center right corner of the screen.

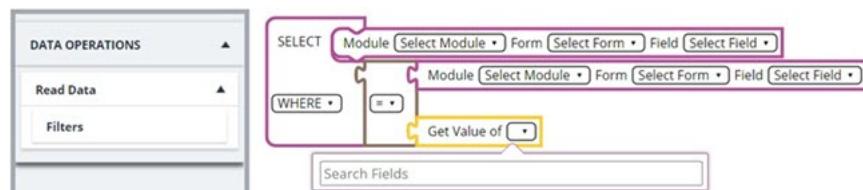
- Get Value of:** To retrieve a list of identifiers from the source form, perform the following steps:

- i. Drag and drop the **Get Value of** filter in the double quoted empty field.

Note: The **Get Value of** filter defines which identifier or reference field should be validated from the source form to retrieve a field from the destination form.



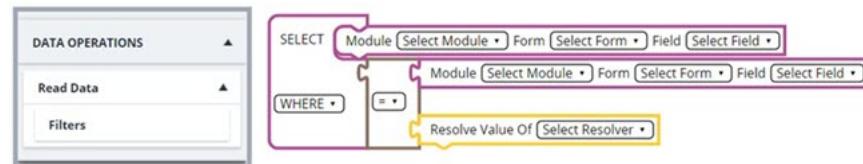
- ii. Place the cursor in the empty field adjacent to the **Get Value of** filter. The **Search Fields** bar is displayed.



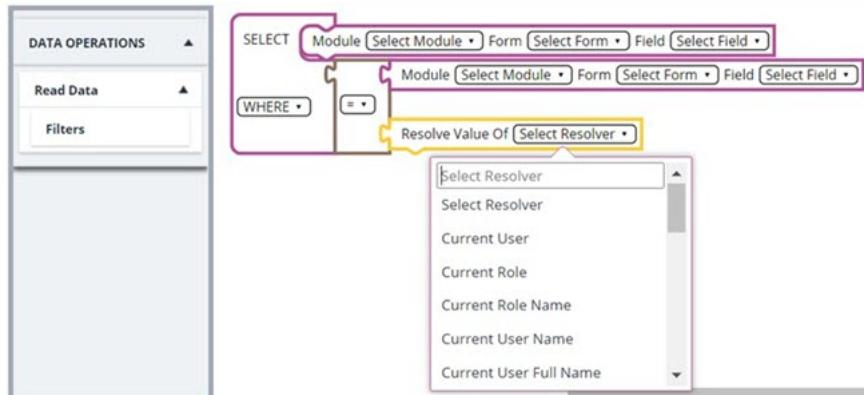
- iii. To add fields to the **Get Value of** filter, search the field name in the **Search Fields** bar, and select the appropriate field when it is displayed.
- **Resolve Value of:** To retrieve the common attributes between the source and the destination form, perform the following steps:

- i. Drag and drop the **Resolve Value of** filter in the double quoted empty field.

Note: The **Resolve Value of** filter consists of **Parent Module Id**, **Module ID**, Project details, and user details that are used as identifiers.



- ii. Click the **Select Resolver** field adjacent to the **Resolve Value of** filter.



- iii. From the **Select Resolver** drop-down list, select the appropriate attributes.

8. Click Save.

The selected variables are added to the appropriate place in the **New Error Message** field.

Alternatively, you can click **Restore** to modify the values.

9. Click Save & Exit.

The modified error message is displayed in the **ERROR MESSAGE CONFIGURATOR** list page for the respective record.

14.5.4.5.4. Modifying Error Messages in Bulk through Excel Upload

You can import multiple error messages to the **ERROR MESSAGE CONFIGURATOR** page using a Microsoft Excel template workbook.

The high-level process of uploading error messages in bulk is as follows:

1. Export the template workbook.
 2. Modify the error messages in the template workbook.
 3. Import the updated workbook.
1. In the module menu, click **Administration**.
- The **ADMINISTRATION** page is displayed.
2. In the navigation pane, expand the **Configuration Toolkit** folder, and then click **Error Message Configurator**.
- The **ERROR MESSAGE CONFIGURATOR** list page is displayed.

3. Click **Excel Import / Export, and then click **Excel Template With Data**.**

An Excel workbook template with the details of all the available error messages in Masterworks is downloaded to your local storage.

The screenshot shows a software interface titled "ERROR MESSAGE CONFIGURATOR". At the top, there is a dropdown menu labeled "Excel Import / Export" with a downward arrow, and a "More" button with a three-dot icon. Below this is a table with three columns: "Name", "FieldName", and "Key". The table contains several rows of data, with the last row being highlighted in blue. The highlighted row contains the value "[v (or) Edit] [Final Pay Estimate (or) Pay Estimate]" in the "Name" column. The table has three rows of data below the header:

Name	FieldName	Key
[v (or) Edit] [Final Pay Estimate (or) Pay Estimate]		86028B23-190D-4422-BBD8-B7860782E65C
[or] Edit] [Final P...		4FA0E2FC-B7E5-4D24-9F15-5BFC22336597
[or] Edit] [Final P...		84FC6F55-0B8B-49D7-8C44-AEEF6F750870
[or] Edit] [Final P...		6AE984B6-C791-499C-9955-00E1FF8AC3EF

4. To modify the error messages in the Excel workbook, perform the following steps:

- a. Open the Excel workbook.**
- b. Update the error message in the **Current Error Message (Value)** column.**

Note: You can also modify the variables in the dynamic messages if you are familiar with the specific dynamic variables to be inserted.

- c. Save the Excel workbook with the modified error messages.**

5. To import the updated Excel workbook to Masterworks, perform the following steps:

- a. Click **Excel Import / Export**, and then click **Excel Import**.

The **IMPORT DETAILS FROM EXCEL FILE** page is displayed.

- b. To select the updated Excel workbook, click **Choose File**.

The **Open** dialog box is displayed.

- c. Browse and select the appropriate Excel workbook, and then click **Open**.

- d. Click **Upload**.

Masterworks validates the information in the Excel workbook for any errors.

- If there are any errors, an error log is generated that includes all the issues that must be resolved.

IMPORT DETAILS FROM EXCEL FILE

Back Error Log

The excel uploaded is invalid. Please check the error log for more details

Select File : Choose File No file chosen

Upload Save

Records which are non-editable will not be updated.

Note: You can click **Error Log** in the toolbar to download the error log to your local storage.

- If no errors are found, Masterworks detects the new messages that are not currently available in the application but uploaded through import without a GUID/Key. In such cases, a GUID/Key is generated and assigned to each message, and displays them in the **New Records** grid.
- If no errors are found, Masterworks detects the new messages that are not currently available in the application but created and uploaded through import with a GUID/Key and Culture. It displays those new messages in the **New Records** grid. The existing messages that are updated are displayed in the **Updated to Existing Records** grid, along with a comparison between the existing information in Masterworks and the updated information uploaded

in the Excel workbook. You can choose whether to update or retain the previous information by selecting or deselecting the check box.

Resource Type	Parent Module Name	Form Id	Form Name	Field Name	Key	Current Error Message (Value)	Description	Culture
1.00	Administration	USBMGMT	User Accounts		07D86EE3-1650-465D-B659-8FF7C52F9A2F	Please select the business unit.	Error message	en-US

Resource Type	Parent Module Name	Form Id	Form Name	Field Name	Key	Current Error Message (Value)	Description	Culture	Modified_Current_Error_Message (Value)	Modified_Description
<input checked="" type="checkbox"/> 1	Library Management	RISKCL	Risk Grade	"Min Risk Score", "Max Risk Score"	347B71A1465A	Invalid range. Min value should be lesser or equal to Max value.	Validation to define the Min and Max Risk score	en-US	Invalid range. Value entered in "Min Risk Score" should be lesser or equal to value entered in the "Max Risk Score."	Validation to define the Min and Max Risk score

6. Click **Save**.

The updated error messages in the Excel workbook are uploaded to the **ERROR MESSAGE CONFIGURATOR** list page.

14.5.4.6. Syncing Error Messages

You need to keep the **Error Message Configurator** list page in sync with the application. When new default error messages are configured in the application or when modifications are done to the default error messages in the application, then you need to sync with the application to see those updates in the list page.

To sync the **Error Message Configurator** list page with the application, perform the following steps:

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand the **Configuration Toolkit** folder, and then click **Error Message Configurator**.

The **ERROR MESSAGE CONFIGURATOR** list page is displayed.

3. In the **ERROR MESSAGE CONFIGURATOR** list page, click **Sync**.

The **ERROR MESSAGE CONFIGURATOR** list page is refreshed and all the default error messages are synced with the application.

14.5.5. Package Management

14.5.5.1. Package Management

The **Package Management** tool enables you to generate a package along with its dependencies and deploy it to the production environment with the latest changes. Once the changes are ready for deployment, you can migrate the metadata changes between the staging and production environments using the available deployment tools.

In the staging environment, you can configure and change codes in a sandbox using the configuration toolkit. It helps you configure and verify the requirements without affecting

the production environment or its users. Later, you can log into the training or development environment that replicates the production environment to validate new features prior to their deployment.

The **Package Management** list page acts as a common location to export a package and view the log of the exported packages. For more information on exporting a package, see [Exporting Package from Package Management](#) on page 1275.

14.5.5.2. Exporting Package from Package Management

In **Package Management**, the **Export** feature enables you to generate a package with configuration entities, such as forms and workflows, and download it to the local hard drive.

Once you download the package, the **Download** feature is not available anymore.

1. In the module menu, click **Administration**.

The **ADMINISTRATION** page is displayed.

2. In the navigation pane, expand the **Configuration Toolkit** folder, and then click **Package Management**.

The **PACKAGE MANAGEMENT** list page is displayed.

3. Click **Export** .

The **EXPORT PACKAGE** page displays the following non-editable fields:

Field	Description
Package Number	Upon saving the search result, a unique identification number is automatically generated. The package number is generated in the following format: <three-digit increment Number 3 digit>-PKG-<Date in MMDDYYYY format>-<Time with seconds in 24-hour format> For example, 001-PKG-07212023-13.44.28
Core Version	The core version of the current application is displayed.
Generated By	The logged-in user name is displayed.
Generated On	The current date and time of generating the package are displayed.

4. To define the search criteria and generate the search result for the export package, perform the following steps:

- a. Provide the appropriate information in the fields, as described in the following table.

Field	Description
From Date	By default, the current date is displayed. Optionally, from the From Date calendar drop-down list, select the appropriate date.
To Date	By default, the current date is displayed. Optionally, from the To Date calendar drop-down list, select the appropriate date.
Description	Enter the description for the search criteria.

- b. Click **Search**.

Based on the defined search criteria, the **ITEMS INCLUDED FOR PACKAGE EXPORT** section displays the following non-editable fields for the published records:

Tab	Field	Description
FORMS	Form ID	The unique identifier of the form from Form Builder.
	Form Header	The header name of the form as defined in Form Builder.
	Current Version	The current version of the form.
	Modified By	The user who recently modified the form in Form Builder.
	Modified On	The recent date and time of modifying the form in Form Builder.
WORKFLOWS	Workflow Name	The name of the workflow from Workflow Management.
	Associated Form	The name of the form associated with the workflow.

Tab	Field	Description
	Is Default	The selection as defined for the workflow in Workflow Management.
	Modified By	The user who recently modified the workflow in Workflow Management.
	Modified On	The recent date and time of modifying the workflow in Workflow Management.

5. Optionally, to modify the list of forms to include in the final package, perform the following steps:

- To add additional forms to the package that do not fall under the search criteria, perform the following steps:
 - a. In the **FORMS** tab, click **Add**.
The **Forms List** dialog box is displayed.
Available options are all published forms in the application except the forms added in the **FORMS** tab as part of the search result.
 - b. Select the appropriate forms, and then click **Select**.
You can select multiple forms.
- To remove forms from the package, perform the following steps:
 - a. In the **FORMS** tab, select the appropriate forms, and then click **Delete**.
A confirmation message is displayed.
 - b. Click **OK**.

6. Optionally, to modify the list of workflows to include in the final package, perform the following steps:

- To add additional workflows to the package that do not fall under the search criteria, perform the following steps:
 - a. In the **WORKFLOWS** tab, click **Add**.
The **Workflow List** dialog box is displayed.
Available options are all published workflows in the application except the workflows added in the **WORKFLOWS** tab as part of the search result.
 - b. Select the appropriate forms, and then click **Select**.
You can select multiple workflows.
- To remove workflows from the package, perform the following steps:
 - a. In the **WORKFLOWS** tab, select the appropriate workflows, and then click **Delete**.
A confirmation message is displayed.
 - b. Click **OK**.

7. Click **Save**.

Upon performing this action, the **Download** feature is displayed, and a log entry is created for the package export in the **PACKAGE MANAGEMENT** list page.

Note: Once you save the export package, you cannot make any changes to the search criteria or the list of forms or workflows.

8. Click **Download** .

The package is downloaded in zip file format to the local hard drive.

The package consists of the following:

- Metadata file about the package (about the package and application versions).
- XML files: Forms selected for export.
- XOML files: Workflows selected for export.

Note: Once you download the package, the **Download** feature is not available anymore.