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SCM Cloud
Using Manufacturing

Release 12

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Oracle® SCM Cloud Using Manufacturing

Part Number E74115-07

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Preface

This preface introduces information sources that can help you use the application.

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1 **Overview**

Oracle Manufacturing Cloud: Overview

Introduction

Oracle Manufacturing Cloud delivers core discrete manufacturing capabilities in the cloud that allow you to efficiently set up, manage, execute, and cost your production operations. It supports in-house, or contract manufacturing of standard or configured products executed to plan, or to order. It complements other Oracle Supply Chain Management Cloud applications in providing a comprehensive and complete supply chain solution for discrete manufacturing companies.

Key Capabilities to Support Discrete Manufacturing

Oracle Manufacturing Cloud and Oracle Cost Management Cloud provide a breadth of capabilities that allow you to do the following:

Set Up Manufacturing Plant Data

Oracle Manufacturing empowers manufacturing engineers with intuitive visualization, and web-based interface tools to build a foundation of manufacturing plant data, and design the discrete manufacturing process for items.

Manufacturing enables you to quickly define the necessary manufacturing setup data of your plant hierarchy. It helps you establish process standards with a standardized data model for production operations, which can be adapted to changing business processes and market conditions. The manufacturing plant data includes the following:

- **Manufacturing Plant:** Defines an organization where manufacturing setup data is specified, manufacturing processes are run, and materials management is supported.

- **Manufacturing Calendar:** Defines a production calendar to represent plant working times that includes work days, shifts, and exceptions.

- **Plant Parameters and Profile Options:** Associates a manufacturing calendar to the plant, and set up parameters and profile options to determine the behavior of work definition, work order, and work execution in a plant.

- **Work areas:** Defines work areas to represent locations in a plant. Each work area comprises of one or more work centers.

- **Production Resources:** Defines generic equipment or labor resources used in production, and the corresponding resource rates.

    ✏ **Note:** Resource rates are defined in Oracle Cost Management.

- **Work Centers:** Defines work centers such as departments or production lines where an operation is performed. Work centers comprise production resources for which the capacity and availability information is maintained.

- **Standard Operations:** Defines a predefined library of standardized production operations and their resources and usages, in order to add to work definitions and work orders.

In addition, Manufacturing enables you to do the following:

- You can visually design the production process on a work definition. This helps combine the item structure and manufacturing steps into a single view representing the discrete manufacturing process, materials, and resources to make a standard or an Assemble to Order (ATO) product. Using an advanced graphical editing tool with drag

and drop interactions and data visualization, it enables you to build a sequence of operations, and identify how each operation is executed.

- Provides you the ability to print a work definition report and share it internally within the organization, or externally with contract manufacturers. In addition, users can determine primary and alternate production processes based on priorities for planning and costing purposes, and calculate manufacturing lead times for the product.

- Manufacturing engineers can coordinate engineering changes and revisions to item structures through automated notifications received in manufacturing. They can quickly assess the impact to the work definitions referencing the item structure and revise them accordingly.

- Provides you the ability to quickly create or update work definition data using ADFdi (ADF Desktop Integrator), and enables you to print work definition reports.

- Leveraging the power of social collaboration in manufacturing operations through embedded Oracle Social, Manufacturing enables you to stay connected with key stakeholders in managing work definitions, and collaborate real-time with cross functional teams.

Monitor and Manage Production

Oracle Manufacturing provides several capabilities that enable production supervisors to effectively monitor and manage production activities. All of these are designed and optimized for use on a tablet, enabling users to take action while on the move. It enables production supervisors to review how their plant, work area, or work centers are performing by providing visibility into the following key production information:

- Work Orders Performance
- Work Order Exceptions
- Operations Performance
- Operations Exceptions

✎ **Note:** Manufacturing provides production supervisors single click access to drill into the details, and take action to resolve issues.

Manufacturing enables production supervisors to visually manage plant, work center resource working times by defining shift and resource exceptions. Manufacturing helps in managing work order-based standard and nonstandard production by allowing users to do the following:

- Create and manage standard work orders using a work definition as a means to initiate regular production.

- Create and manage nonstandard work orders with or without a work definition, typically used for nonstandard production activities such as prototyping, rework, and repair.

- Perform forward, backward, or midpoint scheduling in an unconstrained mode.

- Perform mass actions to update status, change work order priorities, and print work order reports for multiple work orders.

- Capture additional information by using descriptive flexfields.

- Review and manage work attachments such as standard operation procedures and quality specifications.

- Print work order traveler, components list and product labels.

- Enforce serialization-enabled manufacturing by associating predefined serial numbers to work orders.

- Manage work order supplies in advanced fulfillment scenarios such as back to back, or configure to order by providing visibility into the corresponding reservation details.

- Collaborate socially to manage work orders and resolve shop floor issues using embedded social.

- Create and update work orders through the file based data import infrastructure using predefined macro-enabled spreadsheet templates.

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Oracle Transactional Business Intelligence (OTBI) for Manufacturing offers real-time, self-service reporting, directly off manufacturing transactions. It provides four different manufacturing subject areas used by production supervisors to analyze production performance, and is as follows:

- Work order performance
- Material usage
- Resource usage
- Actual production

Execute Production

Manufacturing offers robust capabilities for work order-based and orderless execution. With interfaces designed and optimized for use on a tablet, it provides rich user experience for production operators. It facilitates information driven execution by providing insight into production information with several visual cues allowing users to take appropriate actions. It helps improve productivity of shop floor personnel through simplified reporting, and ability to enter data using scanning devices.

Through a simple, intuitive, easy to use dispatch list, it provides a single place for production operators to do the following:

- Review work order operations sequenced to be worked upon for their specific work center and shift.
- Review work order details.
- Report operation transactions, such as complete, scrap, reject, and material and resource usages.
- Print work order traveler and product labels.

Manufacturing also helps in:

- Minimizing user interactions by providing the ability to record material, resource, and operation transactions in just two clicks.
- Enabling users to review work order and operation attachments, and enter additional details, such as lot and serial information, if required to complete a transaction. In addition, it enables users to capture additional information required for reporting production transactions by using descriptive flexfields.
- Enforcing users to report production transactions by specific product serial numbers that are pre-associated to work orders. This is to comply with serialization-enabled manufacturing.
- Providing the ability to automatically or manually report material and resource usages. Users can report material and resource usages based on the work order requirements or on a dynamic basis based on actual usage. For serialization enabled manufacturing, the material usages can be reported in reference to specific product serial numbers.
- Supporting companies to go lean with the capability to report orderless production by allowing users to report production activities without the need to create work orders. Users can report orderless completion, or scrap of an item with reference to a work definition.
- Enabling review of work order-based or orderless production transaction history by production supervisors and operators. The transaction details are displayed in a reverse chronological order.
- Enabling users to import material, resource and operation transactions through the file-based data import infrastructure. This is possible with the provision of predefined macro-enabled spreadsheet templates.
- Allowing external applications to import material and operation transactions into Manufacturing, by using the publicly available web services.

Analyze and Control Production Costs

Oracle Cost Management provides robust support for planning, cost accounting, and analysis of manufacturing costs. It enables users to determine which work definitions to use in costing, efficiently enter material and resource costs with a

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spreadsheet import, perform cost rollup and gives a flexible means to cost work orders costing by supporting all the costing methods. Costing methods include, standard, actual, and FIFO (first-in, first-out).

Oracle Cost Management provides a view of costs by work order, or breakdown of the costs by operation and cost element, and work order variances, and helps identify the manufactured items that are out of compliance to defined plant cost standards.

> ✏ **Note:** For more information on Manufacturing Accounting, refer to the Oracle Supply Chain Management Cloud Using Supply Chain Managerial Accounting Guide.

Manufacturing Job Roles and Work Areas: Overview

Oracle Manufacturing Cloud provides the following three predefined job roles::

- **Manufacturing Engineer:** A role responsible for developing, maintaining, and improving manufacturing processes needed to achieve production goals according to product specifications.
- **Production Supervisor:** A role responsible for managing shop floor production resources and activities, to ensure on-time production of products at the required quality levels that meet customer expectations.
- **Production Operator:** A role responsible for efficient operation of equipment, or assembly of goods, based on standard operating procedures, and reporting production progress.

Based on the roles assigned to the user, manufacturing tasks are accessed and performed through the following two distinctly different work areas:

- **Work Definition:** This work area provides insight into key setup information for a manufacturing plant, and lists all the tasks to define and manage manufacturing setup data.
- **Work Execution:** This work area provides insight into plant, work area, and work center level production information, and lists all the tasks to manage and execute production activities.

> ✏ **Note:** For more information about manufacturing roles and privileges, refer to the Oracle Supply Chain Management Cloud Security Reference for Manufacturing and Supply Chain Materials Management Guide.

Manufacturing in Supply Chain Management Business Processes: Overview

Being a part of the Oracle Supply Chain Management Cloud, Oracle Manufacturing Cloud plays an important role in supporting the following cross-functional and advanced fulfillment processes:

Plan-to-Produce

Plan-to-produce refers to scenarios where products are manufactured based on a forecast. Sales orders are typically filled from existing stock, and work orders are created to replenish that stock based on planning recommendations.

The plan-to-produce process starts with running the plan in Supply Chain Planning, and releasing the planned order recommendations for work execution. This leads to the creation of Supply Orders in Supply Chain Orchestration, which

then initiates the creation of work orders in Manufacturing. Once created, the work orders are released to the shop floor for production.

After reporting product completion at the final operation, the finished goods inventory is updated, and work orders are finally closed.

Back-to-Back

Back-to-back order fulfillment flow refers to scenarios where the supply for fulfilling a sales order is created only after the order is booked. And in some cases, the demand is fulfilled by manufacturing the product representing a build to order scenario.

The back-to-back process begins with order capture, and scheduling of the sales order in Oracle Order Management. Once scheduled, Oracle Fusion Global Order Promising promises the back-to-back orders, and releases supply recommendations or the supply picture to Supply Chain Orchestration. Once the sales order fulfillment line is scheduled, Oracle Order Management releases fulfillment line information or the demand picture to Supply Chain Orchestration. Supply Chain Orchestration processes the demand picture from Oracle Order Management, and the supply picture from Global Order Processing, to create a supply order in Supply Chain Orchestration.

In a scenario where the product needs to be manufactured to fulfill the order, the supply document is a work order, and Supply Chain Orchestration initiates the creation of the work order in Manufacturing. As soon as the work order is created in Manufacturing, it is tied to the back-to-back sales order in the form of a reservation in Oracle Fusion Inventory Management.

Production activities are reported for the work order and the final operation completion transaction yields finished goods to inventory, which are then shipped to the customer to fulfill the back-to-back sales order.

> ✎ **Note:** For more information about back-to-back order fulfillment, refer to the Implementing Back-to-Back Fulfillment chapter in the Oracle Supply Chain Management Cloud Implementing Manufacturing and Supply Chain Materials Management Guide.

Configure to Order

Configure to Order process is essentially a back-to-back fulfillment process with a few key differences in the processing of a configured item in relation to a standard item. This flow assumes that the order is created in Oracle Order Management, but the source of configured orders could be Oracle Configure, Price, and Quote Cloud, Oracle Order Management, Oracle Configurator, or another source.

- This process starts with a sales order customer being created in Oracle Order Management with the Assemble to Order (ATO) model item as the ordered item. When an ATO model is ordered, the customer has the ability to configure the model, and select the options.

- Once the options are selected, the model and selected options are sent to Supply Chain Orchestration to determine if the configuration already exists.

- If a match is found, the existing configured Item is passed back to Oracle Order Management. If there is no match, the configured item creation process is initiated, and a new configured item is created in Product Model using attributes values from the base model item. The new item is then passed back to Order Management.

- Next, the sales order is booked in Order Management, and is sent to Global Order Promising so that the order can be scheduled and the source of supply can be determined based upon sourcing rules set up at the model level. The supply and demand information for the configured item is then sent to Supply Chain Orchestration, and a supply order is created.

- If the supply has to be fulfilled by manufacturing the configured item, Supply Chain Orchestration initiates the creation of the work order for the configured item in Manufacturing. The work order for the configured item is created using a dynamically-generated configured item work definition based on the ATO model work definition in Oracle Manufacturing Cloud.

- The work order is then executed and completed. Once the configured product is available, it is shipped to the customer, showing the model and options selected on the bill of lading, and the order is fulfilled.

Contract Manufacturing

Contract manufacturing refers to scenarios where an original equipment manufacturer (OEM) outsources the manufacturing of a product to an external supplier referred to as a contract manufacturer (CM).

A contract manufacturing flow could be initiated either to fulfill a sales order created in Oracle Order Management, or as a result of running a supply chain plan in Planning Central and releasing the planned orders. In either case, supply orders are created in Supply Chain Orchestration, following which it initiates the creation of a work order in Oracle Manufacturing Cloud to track the progress of manufacturing at the contract manufacturer's facility.

Supply Chain Orchestration then sends a request to Oracle Purchasing for creating a purchase order on the contract manufacturer for the contract manufacturing service item. Once the manufacturing process is completed, the contract manufacturer reports completion to the OEM. Oracle Manufacturing Cloud receives the details and automatically invokes the creation of a receipt of the contract manufacturing service item against the purchase order.

Next, it automatically reports completion of the last operation of the work order that results in increasing the contract manufacturing finished good item inventory, and backflushing of contract manufacturing service item in the contract manufacturing organization.

> ✏ **Note:** For more information about Contract Manufacturing, refer to the Implementing Contract Manufacturing chapter in the Oracle Supply Chain Management Cloud Implementing Manufacturing and Supply Chain Materials Management Guide.

Inventory Replenishment: Min-Max Planning

Min-max planning is an inventory replenishment method where replenishment supply requests are generated based on the specification of minimum and maximum inventory levels for items.

Min-max planning in Oracle Fusion Inventory Management optionally considers work order supply and work order component demand in replenishment calculations, and generates replenishment work order requests for manufactured items. This in turn leads to the creation of supply orders in Supply Chain Orchestration, which then initiates the creation of work orders in Oracle Manufacturing Cloud. Production activities are reported for the work orders and the final operation completion transaction replenishes the finished goods in inventory.

> ✏ **Note:** For more information about Min-Max Planning, refer to the Plan Inventory Replenishment chapter in the Oracle Supply Chain Management Cloud Using Inventory Management Guide.

Dependencies and Interactions With Other Supply Chain Management Cloud Applications: Overview

To support discrete manufacturing business processes, Oracle Manufacturing Cloud integrates with the following supply chain management cloud applications:

Oracle Fusion Product Model: Oracle Manufacturing Cloud references items and item structures maintained in Oracle Fusion Product Model to create and maintain work definitions, work orders, and record material transactions. Manufacturing lead times calculated in Oracle Manufacturing Cloud are updated in the Product Model.

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Oracle Fusion Supply Chain Management Common Components: Oracle Manufacturing Cloud references Plant Parameters, Unit of Measure (UOM), subinventories, locators, calendars, shifts, and exceptions maintained in the Supply Chain Management Common Components application, for work definition and work execution.

Oracle Fusion Planning Central Cloud Service: Oracle Manufacturing Cloud interacts with Planning Central for manufacturing lead time calculation, and unconstrained work order scheduling. Planning Central collects manufacturing data for supply chain planning.

Oracle Inventory Management: Lots and serials maintained in Oracle Inventory Management are used in Oracle Manufacturing Cloud for work order-based and orderless execution. Material transactions created in Manufacturing are interfaced to Inventory Management. On-hand and reservation details maintained in the Inventory Management application are displayed in work orders. Work order supply reservations in Inventory Management are updated upon performing operations transactions in Oracle Manufacturing Cloud.

Supply Chain Orchestration: Supply Chain Orchestration interacts with Oracle Manufacturing Cloud to create and update work orders against supply orders. It listens to work order business events to get the details related to progress on a work order.

Oracle Cost Management: Resource rates and work definitions maintained in Oracle Manufacturing Cloud are referenced by Oracle Cost Management for cost planning. Work order status updates, operations and resource transactions in Oracle Manufacturing Cloud are transferred to Cost Management for cost accounting.

Oracle Fusion Purchasing: For Contract Manufacturing, Oracle Manufacturing Cloud references the purchase order details maintained in Oracle Fusion Purchasing for display in the contract manufacturing work orders.

Oracle Fusion Receiving: Oracle Manufacturing Cloud interacts with Oracle Fusion Receiving for the creation of the receipt of the contract manufacturing service item.

2 Manage a Manufacturing Plant

Manufacturing Plant: Overview

A manufacturing plant is a type of inventory organization in which the manufacturing of a product is carried out. It can be further categorized into in house manufacturing plant and contract manufacturing plant. You can set an organization as a manufacturing plant in the **Manage Inventory Organization Parameters** page.

In a manufacturing plant, you use a work definition to define the manufacturing process for a product. You associate the appropriate operations, operation items, and resources in a work definition to specify the process and resource requirements. You use a work order to track the production activities. You perform the production transactions to report materials, operations, and resources either in an order-based or orderless execution. You can also print various reports specific to manufacturing activities.

Before you go about defining a manufacturing process or doing your day-to-day manufacturing duties, you are required to perform a few setups. The following shows the flow of setups that you must perform:

1. You must create the required work areas for the manufacturing plant. Every manufacturing plant has a specific region allocated for performing the production activities. This region is referred to as work area. A manufacturing plant must have at least one work area defined for it. You can also define multiple work areas for a manufacturing plant.
2. You must create the resources that you need in the manufacturing plant. A resource can be of type labor or equipment.
3. You must create the required work centers and associate each of them with the appropriate work area. A work center is a production unit that consists of people or equipment.
4. Then, you must allocate the resources to the desired work centers. The work center specific UI enables you to assign shifts and maintain a work center resource calendar for each resource.
5. Although optional, the next logical step is to create the standard operations where you define the attributes and assign specific resources to it. So, when you allocate a standard operation to a work definition, all its attributes and resources are carried forward to the work definition. This helps save effort and time by enabling reuse of the standard operation.

Manage Work Areas: Explained

A work area is the specific region in a manufacturing plant where the production activities are executed. In other words, a work area identifies a physical, geographical or logical grouping of work centers.

At least one work area must be defined for a manufacturing plant. However, a plant can have one or more work areas defined within it. A work area consists of one or more work centers within it. The Production Operators can report material, resource, and operation transactions performed at work centers that belong to a specific work area.

The **Manage Work Areas** page in the **Work Definition** work area serves as a starting point to create, edit, and delete the work areas. However, based on your security privileges, you may have to manually add the Manage Work Areas task in the following manner:

1. In the Navigator, click Setup and Maintenance.
2. On the Setup and Maintenance page, click the Manufacturing and Supply Chain Materials Management offering, and then click Setup.

3. On the Setup: Manufacturing and Supply Chain Materials Management page, click the Manufacturing Master Data functional area, and then click the Manage Work Areas task.

Creating, Editing, and Deleting a Work Area

You create a work area by providing a unique name and code for the work area.

A work area is deactivated or reactivated by updating the Inactive On field. When a work area is deactivated, it is not available for further use until it is reactivated.

You can delete or deactivate a work area only if no work center is associated with it.

Manage Resources: Explained

The resources are the labors, equipment, and tools allocated to a work center. It can be categorized into two types: Labor and Equipment.

The **Manage Resources** page in the **Work Definition** work area serves as a starting point to create, edit, and delete the resources.

However, based on your security privileges, you may have to manually add the Manage Resources task in the following manner:

1. In the Navigator, click Setup and Maintenance.
2. On the Setup and Maintenance page, click the Manufacturing and Supply Chain Materials Management offering, and click Setup.
3. On the Setup: Manufacturing and Supply Chain Materials page, click the Manufacturing Master Data functional area, and then click the Manage Work Centers task.

Creating, Editing, and Deleting Resources

You must create a resource with unique name and code. Additionally, you must define the resource type and usage UOM of the resource at the time of creation.

You cannot change the usage UOM of a resource once it is associated to a work center. However, you can edit all other resource attributes at any time. A resource can be scheduled in the work definitions and work orders only if the usage UOM belongs to the UOM class as defined in the profile SCM Common: Default Service Duration class.

> ✏ **Note:** The usage UOM field indicates the unit of measure for the planned and actual usage of a resource.

A resource is deactivated or reactivated by updating the **Inactive On** field. When a resource is deactivated, it is not available for further use until it is reactivated. You can delete a resource only if the resource is not assigned to any work center.

Manage Work Centers: Explained

The work centers are specific production units that consist of people or equipment with similar capabilities. Each work center is associated with a valid work area and can be used for capacity requirement planning and detailed scheduling.

The **Manage Work Centers** page in the **Work Definition** work area serves as a starting point to perform the following tasks:

- Creating, Editing, and Deleting a Work Center
- Adding Resources to a Work Center and Allocating Resources to a Shift
- Viewing and Managing Resource Exceptions

However, based on your security privileges, you may have to manually add the Manage Work Centers task in the following manner:

1. In the Navigator, click Setup and Maintenance.
2. On the Setup and Maintenance page, click the Manufacturing and Supply Chain Materials Management offering, and click Setup.
3. On the Setup: Manufacturing and Supply Chain Materials page, click the Manufacturing Master Data functional area, and then click the Manage Work Centers task.

Creating, Editing, and Deleting a Work Center

You create a work center by providing a unique name and code for the work center, and a valid work area to which the work center is associated.

A work center is deactivated or reactivated by updating the **Inactive On** field.

You cannot delete a work center if:

- There is any resource associated with the work center.
- The work center is being referenced in work definition operation.
- The work center is being referenced in work order operation.

Adding Resources to a Work Center and Allocating Resources to a Shift

After creating a work center, you can add resources to it and then allocate shift hours to each resource.

You can add a resource to the work center by providing the following details:

Field	Description
Resource	The unique identifier of the resource. This is a required field.
Inactive On	The date on which the resource becomes inactive.
Default Units Available	Number of resource units available in a work center. This is a required field.
Available 24 Hours	Indicates whether a resource is available 24 hours a day. A resource that is not available 24 hours is available only during the shifts assigned to it.
Check Capable To Promise	Indicates whether the Global Order Promising engine considers the capacity of this resource during order promising.
Utilization	The percentage of the resource time available for the task. This is a required field.
Efficiency	The percentage of the time a resource takes to complete a task. This is a required field.

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Field	Description

Utilization and Efficiency Percentages:

The utilization and efficiency percentages are by default set to 100%. When these percentages are set to less than 100%, they extend the scheduled duration of the resource during work order scheduling. For example, if 2 hours of work is required to be done using resource LATHE1 starting from 9 AM on a specific work order, and if its efficiency is 50%, and utilization is 50%, then the scheduler will determine the end time for this resource as 5 PM, calculated as: 2/ (0.5*0.5) = 8 hours.

Resource Allocation:

A resource is available in shifts if the Available 24 Hours field is not selected. When a shift-based resource is associated to a work center, the default units of the resource are automatically assigned to all the shifts of the plant. You can update the availability of resource units across the shifts as required.

For example, consider that you have defined two 8 hour shift for the work center WC1: Day Shift and Night Shift. You associate two units each of four resources R1, R2, R3, and R4 to the work center WC1. The following table shows the key scenarios and their implementations:

Scenario	Implementation
You want the resource R1 available for 24 hours a day.	Consideration: You have not associated the resource R1 to the work center WC1 yet. Solution: Select the **Available 24 Hours** check box when associating the resource R1 to the work center WC1. Now, the two units of resource R1 are available 24 hours a day and you cannot assign any shift for it.
You want two units of the resource R2 available for the Day Shift only.	Consideration: You have already associated the resource R2 to work center WC1 with **Available 24 Hours** check box deselected. Solution: In the **Resource Availability** region, in the **Day Shift** column, enter 2 against the resource R2. Now, the two units of resource R2 is available for Day Shift. For the Night Shift, the resource R2 has zero or Null value.
You want one unit of the resource R3 available for Day Shift and one unit of resource R3 available for Night Shift.	Consideration: You have already associated the resource R3 to work center WC1 with **Available 24 Hours** check box deselected. Solution: In the **Resource Availability** region, in the **Day Shift** column, enter 1 against the resource R3 and in the **Night Shift** column, enter 1 against the resource R3. Now, one unit of resource R3 is available for the Day Shift and one unit of resource R3 is available for the Night Shift.
You want all the units of resource R4 available for both the Day Shift and Night Shift.	Consideration: You have already associated the resource R4 to work center WC1 with **Available 24 Hours** check box deselected. Solution: In the **Resource Availability** region, in the **Day Shift** column, enter 2 against the resource R4 and in the **Night Shift** column, enter 2 against the resource R4. Now, two units of resource R4 is available for both the Day Shift and the Night Shift.

Viewing and Managing Resource Exceptions

You use the work center resource calendar to view and manage the exceptions related to the resources. In case of a conflict, the exceptions granted in the work center resource calendar override the exceptions granted in production calendar.

Related Topics

- Manage Work Center Resource Calendars: Explained

- Create a Resource Exception: Worked Example

Manage Standard Operations: Explained

When you have similar operations in the manufacturing process, you can define them as standard operations which can then be reused in multiple work definitions and work orders.

Managing the Standard Operations

The **Manage Standard Operations** page in the **Work Definition** work area serves as a starting point to create a new standard operation and manage the existing standard operations.

The **Manage Standard Operations** page enables you to perform the following tasks:

- Search for the standard operations

- Create a standard operation

- Edit a standard operation

- Delete a standard operation

Search for the Standard Operations:

The **Manage Standard Operations** page shows all the standard operations along with their associated details. You can use the filter to search for a standard operation or narrow down the list of standard operation to be shown.

The following are some key usage points for the search feature:

- You can search for a standard operation using the name, code, description, work center, or work center code of the standard operation.

- You can select or deselect the **Include inactive operations** check box to include or exclude the standard operations that are inactive.

Create a Standard Operation:

The following is a brief procedure to create a standard operation:

1. On the **Manage Standard Operations** page, click the **Add** icon. The **Create Standard Operation** dialog box opens.
2. In the **Create Standard Operation** dialog box, enter or select the values as follows:

Field	Description
Name	The name of the standard operation.

Field	Description
Code	The code that uniquely identifies the standard operation. The operation code must be unique within the organization. The operation code cannot be updated when the standard operation is used in a work definition or a work order.
Description	The description of the standard operation.
Work Center	The name of the work center to which the standard operation is to be associated. Only the active work centers can be assigned to an operation.
Work Center Code	The unique code of the work center to which the standard operation is to be associated. The value is automatically derived based on the selected work center.
Work Center Description	The description of the work center to which the standard operation is to be associated. The value is automatically derived based on the selected work center.
Count point	Indicates that the standard operation completion must be explicitly reported. The Count point and Automatically transact attributes are mutually exclusive.
Automatically transact	Indicates that the standard operation is automatically completed, the pull components are backflushed, and the resources are automatically charged when the next count point operation is completed. The Count point and Automatically transact attributes are mutually exclusive.
Inactive Date	The date on which the standard operation becomes inactive.
Attachments	The attachments of type file, text, or URL in the standard operation.
Default for automatic work definition	Indicates that the standard operation is the default operation for automatic work definitions.

✎ **Note:** A standard operation is called an optional operation when both the **Count point** and **Automatically transact** check boxes are deselected for it.

3. In the **Create Standard Operation** dialog box, in the **Resources** region, click the **Add** icon. A new row is added. To assign a resource to the standard operation, enter or select the values as follows:

Field	Description
Sequence	The resource sequence of the standard operation resource. You can repeat a resource sequence to indicate the simultaneous resources.
Resource	The name of the resource. The associated resources must pertain to the designated standard operation work center and be active.
Units Assigned	The number of assigned resources. The assigned units cannot exceed the available units for the resource as defined in the work center resource availability definition.
Basis	The valid values are: Fixed and Variable. Select Fixed if the resource usage is fixed per product quantity produced. Select Variable if the resource usage varies with the product quantity produced.

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Field	Description
Usage	The usage amount of the standard operation resource.
Inverse Usage	Inverse Usage = 1/Usage. If the Usage field is entered, then the Inverse Usage field is calculated automatically. If the Inverse Usage field is entered, then the Usage field is calculated automatically.
UOM	The usage unit of measure as defined in the resource definition. This is a read only field inherited from the resource definition.
Scheduled	The indicator that the resource is a scheduled resource. A resource can be scheduled if the Resource UOM belongs to the UOM class defined in the profile option RCS_ DEFAULT_ UOM_ SRVICE_ DURATION_ CLASS.
Principal	The indicator that a resource is the principal resource within a group of simultaneous resources. The simultaneous resources must have only one resource designated as principal resource.
Charge Type	The valid values are: Automatic and Manual. ✎ **Note:** The charge type must be Manual for an optional operation.
Code	The code of the resource. This is a read only field inherited from the resource definition.
Inactive On	The date on which the resource becomes inactive.
Activity	The predefined values are: Setup, Run, and Tear Down. The lookup can be extended by adding new values.
Attachments	Attachments of type file, text, or URL in the resource.
Costing enabled	The indicator that the resource cost is charged to the work order. This is a read only field inherited from the resource definition.

4. Click the **Save and Close** button to save the standard operation.

Edit a Standard Operation:

In the **Manage Standard Operations** page, click the name of the standard operation that you want to edit. This opens the **Edit Standard Operation** dialog box. In the dialog box, you can do the following:

- Update the following attributes: Name, Description, Inactive Date, and Attachments.
- Update the Work Center attribute only if there are no resources associated with the standard operation.
- You can add, delete, and update the resources associated with the standard operation.

Delete a standard operation:

You can delete a standard operation in the **Manage Standard Operations** page. However, you cannot delete a standard operation if it is referenced in any of the work definitions or work orders.

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Using the Standard Operations

When you assign a standard operation to a work definition or a work order, all the attributes of the standard operation are inherited by the work definition or the work order. This includes the resources, descriptive flexfields, and attachments assigned to the standard operation.

You can use the standard operations in two different ways:

- You can directly use a standard operation in a work definition operation. To refer, select the **Referenced** check box when adding the standard operation in the work definition or work order. This is called a referenced operation in work definition. In this case, when you make any changes to the standard operation, it is automatically reflected in the work definitions that reference the standard operation.

- You can use a copy of a standard operation in a work definition or a work order. To use a copy, deselect the **Referenced** check box when adding the standard operation in the work definition or work order. In this case, any future changes to the standard operation will not be reflected in the work definitions and work orders that reference the standard operation. If any changes are required in the copied standard operation, it has to be manually done for the specific work definition or work order.

Manage Standard Operations in Spreadsheet

The Oracle Application Development Framework Desktop Integration (ADFdi) enables you to combine the third party desktop productivity applications with the Oracle web applications. So, you can use a program like Microsoft Excel as an interface to access the Oracle web application data.

In the **Navigator**, in the **Tools**, select the **Download Desktop Integration Installer** to install the desktop integration installer. After installing it, on **Work Definition Overview** page, in the **Tasks** pane, click the **Manage Work Definitions in Spreadsheet** link to download the worksheets. Then, you can log in and start working.

You can mass create and update the standard operations and resources by using the ADFdi. There are two worksheets representing the work definition header (Standard Operations) and standard operation resources (Standard Operations Resources).

You can search for the standard operation details based on the search criteria available at the top of each spreadsheet. To update the data, you can overwrite the data in the search results table. After the update, a triangle icon appears in the Changed column for each updated row. The cells with the gray shading are read only fields and are not included in the upload process. Press the Upload button when you are ready to synchronize the changes with the Oracle Fusion applications. Any data validation errors will be shown after the upload. And the success or failure of each row being uploaded is reflected in the Row Status column.

During creation, you must create the standard operation header details first, and then define the resource details for it. During update, you must first search for the standard operation header or resource details before you can update any of the attributes. You must not run a blind report with values not specified for any of the parameters.

> ✎ **Note:** Users can upload, query, or update the descriptive flexfields details in the work definitions using ADFdi. However, while uploading or updating the descriptive flexfields in the work definitions using ADFdi, only data type validations are performed.

Using the ADFdi feature is beneficial for you in the following ways:

- After you download the standard operation data hosted on the Oracle Manufacturing Cloud application to a spreadsheet, you can modify it even when you are disconnected from the application.

- You can perform bulk entry and update of data with ease through a spreadsheet.

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Related Topics

- Create Work Definitions: Explained

- Creating Standard Work Orders: Worked Example

- Creating Nonstandard Work Orders: Worked Example

3 Design Production Process

Design Production Process: Overview

A manufacturing engineer can use the work definitions feature in Oracle Manufacturing Cloud to design and manage production processes for standard items and Assemble to Order (ATO) models. With simple drag-and-drop interactions and data visualization views, you visually design a work definition that represents the production operations, materials, and resources needed to make a product.

Oracle Application Development Framework Desktop Integrator (ADFdi) enables you to mass create and update the work definitions using Microsoft Excel spreadsheet. The work definitions are uploaded into and downloaded from the Oracle Manufacturing Cloud.

Based on planning and costing priorities, you can define primary and alternate manufacturing processes. The manufacturing lead times are calculated based on the primary work definition. Work definition versions are used to monitor and implement the changes that occur in the manufacturing process. The work definition report includes information on all the operations and their associated materials and resource requirements. This report can be shared internally within the enterprise or externally with the contract manufacturers.

For the item structure changes implemented by a product engineer in Fusion Product Information Management, the manufacturing engineer is notified through the worklist notifications. Any user who has the manufacturing engineer role receives these notifications for the manufacturing plants to which they have the access. The manufacturing engineer can then assess the item structure change impact on the work definitions and make the necessary changes.

To summarize, you can perform the following tasks in the **Work Definition** work area:

- Manage the work definition names.
- Manage the work definitions in user interface.
- Manage the work definitions in spreadsheet.
- Assess the item structure change impact on the work definitions and make changes accordingly.
- Create the work definition versions.
- Calculate the manufacturing lead times.

Work Definition Work Area: Overview

The **Work Definition Overview** is the landing page for the manufacturing engineer. It provides a quick view of key setup matrix for a manufacturing plant and quick access to the daily tasks performed by a manufacturing engineer.

The following panels are shown in the **Work Definition Overview** page:

- **Recently Updated Work Definition:** Shows the most recent work definitions that were last updated either by a user or the application.
- **Plant Resources:** Shows the total number of resources that are of equipment type and the total number of resources that are of labor type.
- **Work Centers by Work Area:** Shows the top five work areas with the most number of work centers.
- **Work Center Resources:** Shows the top five work centers with the most number of resources.

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- **Tasks:** Shows the primary tasks performed by a manufacturing engineer.
- **Additional Tasks:** Shows the less frequent tasks performed by a manufacturing engineer.

Related Topics

- Manufacturing Plant: Overview

Manage Work Definition Names: Explained

The work definition names are used to define the different ways of making a given product. There may be a primary manufacturing process and other alternate manufacturing processes to make a product. A seeded work definition name with display name as Main and internal name as ORA_MAIN can be used to create the primary work definition for an item. If you need to define an additional work definition for the same item, you have to first create a work definition name, for example, Alternate.

> ✎ **Note:** The process to create work definition names should be centralized and controlled. The work definition names can be referenced by multiple products.

To create a work definition name, enter or select from the following fields:

Attribute	Description
Display Name	The name of the work definition that is shown.
Internal Name	The unique identifier of a work definition name. The value cannot be edited once the name is used in a work definition.
Description	The description of the work definition name.
Used in Planning	If selected, you can assign a production priority for the work definition that references the work definition name. As a result, the Oracle Planning Central Cloud will plan for the materials and resources based on the work definition.
Start Date	The date on which the work definition name becomes effective.
End Date	The date on which the work definition is no longer effective.

> ✎ **Note:** The work definition name is used in aligning lower level phantom work definitions in the work definition explosion process while creating the work order for the product. To explode a component that has been defined as phantom, the work definition explosion process selects the work definition of the phantom with the same name as the work definition of the finished good.

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Work Definitions: Overview

A work definition defines the manufacturing process for a product that consists of operations, materials, and resources. The work definition effectively combines an item structure and routing into a single view. It corresponds to a single buildable level of the item structure. If a product consists of several subassemblies that are also manufactured, then you define a work definition for the product and a work definition for the subassemblies. In other words, a work definition is a template for the work execution that is specific to a product and the manufacturing organization.

You can define more than one work definition for a product. A primary work definition of an item is the work definition with the production priority equal to 1. The primary work definition is used by the Oracle Planning Central Cloud to generate the planned orders and create the standard work orders of the item. You can also define alternate work definitions to account for variations in the operations, components, and resources. When there are more than one work definitions for an item, you can rearrange their priority; however there must always be a work definition with production priority equal to 1.

You can define a work definition that enables the serial tracking through the manufacturing process, provided that the item is set up as serial tracked enabled. You identify the work definition operation from which serial tracking must be enabled. Throughout the execution process, the serial tracking is enforced in operation completions, material and resource transactions.

A work definition consists of the following elements:

- Operations
- Operation items
- Operation resources

Operations:

The work definition operations define the sequence of manufacturing steps to be performed in making the item. The operations are executed in a linear path based on the operation sequence. A work definition must have at least one operation. An operation must be associated to a work center. You can use either standard operations, or you can manually enter the operations. If an operation is not indicated as a count point or an automatically transact operation, then it is considered as an optional operation.

Operation Items:

The operation items define the material requirements for operations. The components of the item structure of the product are assigned to the operations where they are required. You can also assign existing items to operations. Such an item is considered an ad hoc item. This functionality requires the Override Item Structure Components in Work Definition privilege.

Operation Resources:

The operation resources define the resource requirements for operations. The pool of resources available comes from the work center assigned to the operation. A resource represents either a labor or equipment that adds value to the manufacturing process.

> ✏️ **Note:** If you use a referenced standard operation, then you will not be able to add, edit, or delete the resources, as the resources are a part of the standard operation definition. You must update the resources on the **Manage Standard Operations** page.

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Manage Work Definitions in User Interface: Explained

The **Manage Work Definitions** page in the **Work Definition** work area serves as a starting point to create a new work definition and manage the existing work definitions. To have your key work definitions automatically shown, create a saved search, set it as default, and make it run automatically. The **Search Results** region shows the work definitions matching the search criteria.

Search for a Work Definition

To search for the existing work definitions on the **Manage Work Definitions** page, you can use either the basic search or advanced search. Advanced search enables you to use search operators other than equal to, and add additional search fields. You can save the search criteria if you wish, and it will be shown in the **Saved Search** drop-down list.

Create a Work Definition

You can create either a new work definition or copy an existing work definition.

The reasons for copying a work definition are:

- To define the same manufacturing process to make a different product.

- To define the same manufacturing process for an alternate item structure that makes the same product (the product is the same, but the structure name is different).

- To define an alternate manufacturing process to make the same product (the product and structure name are the same, but the work definition name is different).

Edit a Work Definition

Clicking on the work definition name link in the search results table takes you to the details page of the work definition where you can make the edits. You can update certain attributes of the work definition header, operations, operation items, and operation resources.

Create Work Definitions: Explained

You can create a work definition using two ways: by creating a work definition and by copying from an existing work definition.

Create a New Work Definition

The major steps in creating a new work definition are as follows:

1. Enter the work definition header details.
2. Create the operations.
3. Assign items to the operations.
4. Assign resources to the operations.

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Enter Work Definition Header Details

On the **Manage Work Definitions** page, click the **Add** icon or from the **Actions** menu, select: Add. This opens the **Create Work Definition** dialog box. Retain the option as **New work definition**. Then, click the **Show More** link to view more fields.

A work definition header has the following attributes:

Attribute	Description
Item	The product for which you are creating the work definition.
Description	The item description is automatically populated after you enter an item.
Structure Name	This is an optional field. If the item has a primary item structure, then that item structure is referenced. If you do not enter an item structure, then the item structure is not shown on the **Edit Work Definition Details** page.
Structure Item Type	The value is automatically populated after you enter an item structure. The item structure type is Standard for a standard item and Model for an ATO model.
Serial tracked	You can select the check box if the item is set up as serial tracked enabled.
Completion Subinventory	The value is derived from the plant parameter and can be overridden.
Completion Locator	The value is derived from the plant parameter and can be overridden.
Name	The name of the work definition that you are creating.
Version	The value is set to 1 and can be overridden.
Start Date	The value is set to the system date and can be overridden.
Production Priority	The value for the first work definition of an item, that is using a work definition name for which the **Used in Planning** check box is selected, is enforced as 1. The value for subsequent work definition for the same item is derived sequentially.
Costing Priority	This is an optional field. The value is used in costing planning scenario to determine which work definition is to be picked up when rolling up costs.
Costing Batch Output Size	This is an optional field. The value is the assumed batch size for the purposes of computing a standard cost.
Attachments	Attachments of type file, text, or URL in the work definition. The attachments are automatically carried over to the work order header.

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Create Operations

After entering the details of the work definition header, click the **Next** button to create the work definition operations.

There are 3 ways to create a work definition operation:

- Reference a standard operation: You can reference a standard operation by selecting the code of the standard operation and retaining the **Referenced** check box as selected. The attributes are shown as read only.

  ✎ **Note:** When you reference a standard operation, you cannot edit the resources assigned to the standard operation in the work definition. Referencing also ensures that any future changes to the standard operation are reflected in the work definition operation.

- Copy a standard operation: You can copy a standard operation by selecting the code of the standard operation and deselecting the **Referenced** check box. The attributes can now be edited and you can update the value. Once you remove the reference to a standard operation, you cannot reference it again.

  ✎ **Note:** When you remove the reference to a standard operation, you can add or delete the resources assigned to the standard operation in the work definition. Any future changes to the standard operation are not reflected in the work definition operation.

- Manually enter an operation: You can create an operation by manually entering the name, work center, and specifying whether it is a count point or automatically transact operation. To enter a description and add attachments, expand the operation row.

A work definition operation has the following attributes:

Attribute	Description
Sequence	The value is derived from the plant parameters Starting Operating Sequence and Operation Sequence Increment. The value can be overridden but must be unique.
Standard Operation Code	The code of the standard operation when you choose to reference or copy a standard operation.
Standard Operation Referenced	Indicates that the standard operation definition is referenced in the work definition operation. Any future changes to the standard operation are reflected in the work definition operation. Once you deselect the Referenced check box, you cannot select it again.
Name	The name of the operation.
Description	The description of the operation.
Work Center	The work center that is associated to the operation.
Work Center Inactive Date	The inactive date of the work center that is associated to the operation.
Start Date	The start date of the operation, which is aligned to the work definition version start date.
End Date	The end date of the operation, which is null initially.

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Attribute	Description
Count Point	Indicates that the operation completion needs to be explicitly reported. The last operation in a work definition has to be a count point operation. The Count Point and Automatically Transact attributes are mutually exclusive.
Automatically Transact	Indicates that the operation is automatically completed, the pull components are backflushed, and the resources are automatically charged when the next count point operation is completed. The Count Point and Automatically Transact attributes are mutually exclusive.
Serialization	Indicates that the operation is a serialization start operation. It can be selected only if the work definition item is set up as serial-tracked enabled.
Attachments	Attachments of type file, text, or URL in the work definition operation. The attachments are automatically carried over to the work order operation.

Assign Items to Operations

After creating operations, click the Save and Edit button. The Edit Work Definition Details page opens. The operations are shown in the work definition region. The item structure is shown in the Item Structure vertical tab. A count badge is shown against the components indicating their assigned quantity out of total quantity, for example, 0/1.

There are multiple ways to assign an item structure component to an operation:

- Drag and drop: You can drag and drop an item structure component to an operation for which the component is required. The entire quantity of the component is assigned. After a successful assignment, the component is shown in the work definition region against the operation. A check mark is shown against the component on the item structure indicating that all of the quantity is assigned.

- Right-click Assign action: You can right-click an item structure component and from the Actions menu, select Assign. The Assign Operation Item dialog box opens. You can edit the operation item attributes if needed, and then click the OK button.

- Multiselect item structure components: You can click the Collect icon (gray check mark icon) in the Item Structure vertical tab. The Not Collected icon (also a gray check mark icon) is shown against the item structure components. When you click the Not Collected icon to select a component, the icon turns to blue color. The component is now collected as indicated by the count against the Collected Items icon (basket icon). Select the other components that you want to assign. Drag and drop the basket icon to an operation for which they are required. Or right-click the basket icon and from the Actions menu, select Assign. The Assign Operation Items dialog box opens. You can edit the operation item attributes if needed and then click the OK button.

To assign an ad hoc item to an operation, click the Items vertical tab. Perform a search for the item. Then, from the search results, either drag and drop the item card to an operation or right-click the item and from the Actions menu, select Assign.

✎ **Note:** The Items vertical tab is not shown if you do not have the Override Item Structure Components in Work Definition privilege.

Assign Resources to Operations

The resource tree hierarchy is shown in the Resources vertical tab. It shows the work center and the resources available in the work center.

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There are multiple ways to assign a resource to an operation:

- Drag and drop: You can drag and drop a resource to an operation for which it is required. The Assign Operation Resource dialog box opens. You can edit the operation resource attributes if needed and then click the OK button. After a successful assignment, the resource is shown in the work definition region against the operation.

- Right-click Assign action: You can right-click a resource and from the Actions menu, select: Assign. The Assign Operation Resource dialog box opens. You can edit the operation resource attributes if needed and then click the OK button.

- Multiselect resources: You can click the Collect icon (gray check mark icon) in the Resources vertical tab. The Not Collected icon (also a gray check mark icon) is shown against the resources. When you click the Not Collected icon to select a resource, the icon turns to blue color. The resource is now collected as indicated by the count against the Collected Items icon (basket icon). Select the other resources that you want to assign. Drag and drop the basket icon to an operation for which they are required. Or right-click the basket icon and from the Actions menu, select: Assign. The Assign Operation Resources dialog box opens. You can edit the operation resource attributes if needed and then click the OK button.

Copy an Existing Work Definition

On the Manage Work Definitions page, click on the Add icon or from the Actions menu, select: Add. The Create Work Definition dialog box opens. Select the Existing work definition option. The Create Work Definition dialog box opens with Existing Work Definition region and New Work Definition region. Enter the Item and Work Definition Name of the existing work definition. Enter the Item, Structure Name, and Work Definition Name of the new work definition.

Rules for creating a new work definition from existing work definition:

- Operations and operation resources are copied.

- If the item and structure name are the same, then the operation items are copied.

- If the item is changed in the new work definition, then the operation items are not copied.

- If the item is the same, but the structure name is changed in the new work definition, then the operation items are not copied.

Edit Work Definitions: Explained

After a work definition is created, certain header information, operations, operation items, and operation resource attributes can be updated. However, you cannot add or delete an operation in the current effective work definition version. You will have to create a new version in order to add or delete an operation.

> **Note:** The start date of a work definition is set to the system date. While creating the work definition, you can update the start date to a future date so that you can continue adding or deleting operations while designing the work definition.

Edit Work Definition Header Details

You can update the production priority and costing priority either from the Search Results region on the Manage Work Definitions page or in the Edit Work Definition Details dialog box from the Edit Work Definition Details page. You can update the production priority and costing priority on Edit Priorities dialog box, which can be accessed either from the Search Results region on the Manage Work Definitions page or in the Edit Work Definition Details dialog box from the Edit Work Definition Details page.

The manufacturing work definition is a social object. If you enable it for use in Oracle Social Networking, the Social Icon will appear on the Edit Work Definition Header.

> ✎ **Note:** For more information about Oracle Social Networking (OSN) setups, refer to the Implementing Manufacturing chapter of the Oracle Supply Chain Management Cloud Implementing Manufacturing and Supply Chain Materials Management Guide.

Edit Operations

You can rename an operation and associate it to a different work center. You can rearrange the operations by updating the operation sequence. If you use a referenced standard operation whose definition no longer reflects how the operation is performed, you can deselect the Referenced check box. Now, the Count Point and Automatically Transact attributes can be edited. For example, a count point operation can now be made an automatically transact operation by deselecting the Count Point check box and selecting the Automatically Transact check box.

To add a new operation, click the Operations vertical tab, and drag and drop the new operation card into the work definition region. The Add Operation dialog box opens. Enter the details of the operation. You can also search for a standard operation, then drag and drop the standard operation card into the work definition region.

To copy an operation, right-click the operation card in the work definition region, and then from Actions menu, select: Duplicate. The Create Operation dialog box opens. The operation items and operation resources from the existing operation are copied to the new operation.

To delete an operation, right-click the operation card in the work definition region, and then from the Actions menu, select: Delete.

> ✎ **Note:** You cannot add or delete an operation in the current effective work definition version. You have to create a new version to add or delete an operation.

Edit Operation Items

The value for several of the work definition operation item attributes is derived from the item structure. Certain attributes require the Override Item Structure Components in Work Definition privilege to update the value that is derived from the item structure.

The following are the operation item related fields:

Field	Description
Operation	The operation to which the item is assigned.
Sequence	The material sequence of the operation item. The value must be unique in an operation.
Item	The name of the item.
Item Description	The description of the item.
Basis	Determines whether the quantity of the component that is used, is a fixed amount or varies linearly with the quantity produced. The value is either Fixed or Variable.

Field	Description
	Note: Basis is always referenced from the item structure and hence, cannot be updated.
Quantity	The quantity of the operation item required in an operation. In a standard item work definition, you can split the quantity of an item structure component to multiple operations. For example, if component A123 has quantity of 10, you can assign quantity of 6 to one operation and the remaining quantity of 4 to another operation.
	Note: You need the Override Item Structure Components in Work Definition privilege to update the total quantity of an operation item to exceed the quantity on the item structure.
Inverse Quantity	Inverse Quantity = 1/Quantity. If a value for the Quantity attribute is entered, then value for the Inverse Quantity attribute is calculated automatically. If a value for the Inverse Quantity attribute is entered, then value for the Quantity attribute is calculated automatically.
	Note: Inverse quantity is typically used in situations where the component quantity per assembly is a large fractional number that is difficult to enter and maintain while it is easy to enter the inverse of the fractional number. After you enter the inverse of fractional quantity in the Inverse Quantity field, the system automatically calculates and stores the desired component quantity per assembly. Storing the exact fractional quantity per assembly prevents any undesirable material usage variances that might occur in work orders with large build quantities.
UOM	The unit of measure of the operation item. The value is derived from the item structure.
	Note: You need the Override Item Structure Components in Work Definition privilege to update the unit of measure. The UOM drop-down list shows all the units of measure that have the standard UOM conversions and the item specific UOM conversions, including the inter-class and intra-class UOM conversions.
Item Yield	The amount of good or acceptable material available after the completion of a process. A yield factor of 0.90 means that only 90% of the usage quantity of the component is acceptable to be included into the finished good. The value is derived from the item structure.
	Note: You need the Override Item Structure Components in Work Definition privilege to update the item yield.
Supply Type	Controls how the materials are supplied to the work orders. The valid values are: Assembly Pull, Operation Pull, Push, Phantom, Bulk, and Supplier. The hierarchy to default the supply type is in the following order: item structure > item master. If the supply type is not defined in the item master, then it is set to Push. You can update the default value.
Supply Subinventory	The supply subinventory from which the material is supplied. The hierarchy to default the supply subinventory is in the following order: work center > item structure > item master > plant parameter. You can update the default value.
Supply Locator	The supply locator from which the material is supplied from. The hierarchy to default the supply locator is in the following order: work center > item structure > item master > plant parameter. You can update the default value.

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Field	Description
Start Date	The start date of the component in the item structure. This field is read only and the start date is referenced from the Oracle Fusion Product Information Management.
End Date	The end date of the component in the item structure. This field is read only and the end date is referenced from the Oracle Fusion Product Information Management.
Ad hoc item	The indicator that an operation item is an ad hoc item, which means that the item does not come from the item structure.
Attachments	Attachments of type file, text, or URL in the work definition operation. The attachments are automatically carried over to the work order operation item.

Edit Operation Resources

You can edit operation resource attributes if the work definition operation is manually entered or created by removing the reference to a standard operation. You can only view operation resource attributes if the work definition operation is created by referencing a standard operation.

The following the operation resource related fields:

Field	Description
Operation	The operation to which the resource is assigned.
Sequence	The resource sequence of the operation resource.
Resource	The name of the resource.
Resource Code	The code of the resource.
Units Assigned	The assigned units cannot exceed the available units for the resource as defined in the resource definition.
Basis	The valid values are: Fixed and Variable. Select Fixed if the resource usage is fixed per product quantity produced. Select Variable if the resource usage varies with the product quantity produced.
Usage	The usage amount of the operation resource.
Inverse Usage	Inverse Usage = 1/Usage. If the Usage attribute is entered, then the Inverse Usage attribute is calculated automatically. If the Inverse Usage attribute is entered, then the Usage attribute is calculated automatically.
UOM	The usage unit of measure as defined in the resource definition.
Scheduled	The indicator that the resource is a scheduled resource. A resource can be scheduled if the Usage UOM belongs to the UOM class defined in the profile option RCS_ DEFAULT_ UOM_ SRVICE_ DURATION_ CLASS.

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Field	Description
Principal	The indicator that a resource is the principal resource within a group of simultaneous resources (resources sharing the same resource sequence number).
Charge Type	The valid values are: Automatic and Manual.
Activity	The seeded values are: Setup, Run, and Tear Down. The lookup can be extended by adding new values.
Costing enabled	The indicator that the resource cost is charged to the work order.
Inactive On	The date on which the resource becomes inactive.
Attachments	Attachments of type file, text, or URL in the work definition operation resource. The attachments are automatically carried over to the work order operation resource.

Item Revision and Date

On the Edit Work Definition Details page, the Item Revision drop-down list and Date drop-down list are available at the top. The Item Revision drop-down list shows the item revisions that fall within the date range of the work definition version being viewed or edited. The Date drop-down shows the distinct component effective start dates that correspond to the item revision selected in the Item Revision drop-down list.

✏ **Note:** The new item revision and the component effective start dates may have been introduced through an Engineering Change Order implemented in the Oracle Fusion Product Information Management.

Selecting an item revision in the Item Revision drop-down list and a date in the Date drop-down list does the following:

- Updates the item structure view and shows the effective components as of that date.
- Updates the work definition region and shows the effective work definition as of that date.

Consider the following example:

Item A123							
Revision A				Revision B			
Date 1/1/16				Date 6/1/16			
Component	Quantity	Start Date	End Date	Component	Quantity	Start Date	End Date
C123	1	1/1/16		C123	1	1/1/16	
C124	3	1/1/16		C124	4	1/1/16	
C125	6	1/1/16		C125	8	1/1/16	
C126	1	3/1/16		C126	1	3/1/16	

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Item A123			
	C127	2	6/1/16
	C128	2	8/1/16

Work Definition of Item A123			
Version 1		Version 2	
Start Date: 1/15/16	End Date: 5/31/16	Start Date: 6/1/16	End Date:
Item Revision drop-down list	Date drop-down list	Item Revision drop-down list	Date drop-down list
Revision A	1/15/16	Revision B	6/1/16
	3/1/16		8/1/16

✏️ **Note:** If the work definition version start date is later than the item revision date, then the work definition version start date is shown in the Date drop-down list.

Search Within a Work Definition

On the Edit Work Definition Details page, expand the Search: Work Definition region to access the search functionality within a work definition. The Contains search is conducted across the operations, operation items, and operation resources based on the keywords, such as name, code, description, and supply type. The search result cards for the matching entities are displayed in the search results pane and they are also highlighted in the work definition region. You can then drag and drop the same type of objects to the Collected Items icon for updating. You can also right-click the search result card to perform an action, such as edit.

Manage Work Definitions in Spreadsheet: Explained

The Oracle Application Development Framework Desktop Integration (ADFdi) enables you to combine the third party desktop productivity applications with the Oracle web applications. So, you can use a program like Microsoft Excel as an interface to access the Oracle web application data.

In the **Navigator**, in the **Tools**, select the **Download Desktop Integration Installer** to install the desktop integration installer. After installing it, on **Work Definition Overview** page, in the **Tasks** pane, click the **Manage Work Definitions in Spreadsheet** link to download the worksheets. Then, you can log in and start working.

You can mass create and update the work definitions and their operations, items, and resources by using the ADFdi. There are four worksheets representing the Work Definitions and Operations, Operation Items for Standard Assemblies, Operation Items for ATO Model and Operation Resources. You can search for the work definition details based on the search criteria available at the top of each spreadsheet. To update the data, you can overwrite the data in the search results table. After the update, a triangle icon appears in the Changed column for each updated row. The cells with the gray shading are read only

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fields and are not included in the upload process. Press the Upload button when you are ready to synchronize the changes with the Oracle Fusion applications. Any data validation errors will be shown after the upload. And the success or failure of each row being uploaded is reflected in the Row Status column.

> ✎ **Note:** The attributes Optional and Planning Percent in Operation Item for ATO Model worksheet are displayed from Product Information Management and are read-only.

During creation, you must identify the product and work definition details, and then define the sequence of the operations. You must separately build the associations between the operations and the components and resources used in each operation. During update, you must first search for the work definitions, operations, operation items, or operation resources before you can update any of the attributes. You must not run a blind report with values not specified for any of the parameters.

If you have same work area, resources, work centers and standard operations defined in two organizations, you can use ADFdi to copy the work definitions from one organization to another organization. In the Work Definitions and Operations worksheet, create the work definition header and operations. Copy all the details of the organization from which you want to copy the work definition and paste them below in the same worksheet. Modify the dates as required and change the organization to the organization in which you want the copied work definition. Then, upload all the details.

> ✎ **Note:** The standard item and Assemble to Order (ATO) model work definitions are supported in ADFdi. However, the user cannot create, query, or update configured item work definitions in the user interface or ADFdi.

> ✎ **Note:** Users can upload, query, or update the descriptive flexfields details in the work definitions using ADFdi. However, while uploading or updating the descriptive flexfields in the work definitions using ADFdi, only data type validations are performed.

Using the ADFdi feature is beneficial for you in the following ways:

- Once you have downloaded the work definition data hosted on the Oracle Manufacturing Cloud application to a spreadsheet, you can modify it even when you are disconnected from the application.

- You can perform bulk entry and update of data with ease through a spreadsheet.

- You can use the Microsoft Excel features, such as macros and calculation.

Assemble to Order (ATO) Model Work Definitions: Explained

Oracle Manufacturing Cloud supports configured item fulfillment flow for a make-to-order configured product. The customer order is created with the ATO model as the ordered item. When an ATO model is ordered, the customer has the ability to configure the model and select the options. The selected options result in a configuration and for each unique configuration, the system creates a configured item. Then, the work order to fulfill the customer order is created against the configured item.

To create a work order for a configured item, a primary work definition for the ATO model must be defined first. There are a few traits about an ATO model work definition that are different from a standard item work definition. The specifics are highlighted and discussed below in more detail.

ATO Model Work Definition Operations

In an ATO model work definition, the Create Operation, Assign Operation, and Edit Operation dialog boxes display the Option Dependent Details region.

The fields in this region are:

Field	Description
Option dependent	Indicates that an operation is an option dependent operation. An option dependent operation is included in the configured item work order in case of either of the following: • The optional components that are assigned to the operation are selected in the configuration. • The criteria, as defined in the applicability rule, are met. If the option dependent check box is not selected, then the operation is considered as a mandatory operation. A mandatory operation is always included in the configured item work order.
Applicability Rule	Defines the criteria to include an option dependent operation in the configured item work order. There can be only one applicability rule for an option dependent operation.
Planning %	The percentage of the nominal resource usage that is applied when planning the resource capacity requirements to satisfy a demand forecast of the parent model item.

ATO Model Work Definition Operation Items

You can create an ATO model work definition only for the ATO model item structure with the structure name as Primary. The item structure visualization shows only the first level components of the ATO model item structure, which can be option classes, optional components, mandatory components, or child ATO models. Assigning an option class to an option-dependent operation means that the operation is included in the configured item work order if any of the options under the option class is selected.

✎ **Note:** There are no enforcements between the type of operations, that is, mandatory or option dependent, and the type of the component that can be assigned, that is, mandatory or optional. If you assign an optional component to a mandatory operation, then the operation is always included in the configured item work order. But the optional component is not included if it is not selected in the configuration.

There are two operation item attributes that are specific to ATO model work definitions. These attributes are referenced from Oracle Product Model and hence, cannot be updated. The operation item attributes specific to ATO model work definitions are:

- Planning %: The percentage that is used by Planning in forecast explosions. A planning percent can be greater than 100 to plan for a component in excess.

- Optional: Indicator that a component is an optional component. If the Optional check box is not selected, then the component is considered as a mandatory component.

✎ **Note:** In an ATO model work definition, you cannot split the quantity of a component to multiple operations. The assigned quantity must be the same as the component quantity on the item structure. You also cannot assign ad hoc items, which are existing items that are not components of the ATO model item structure.

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Applicability Rule

An applicability rule can be assigned to an option dependent operation. The rule defines the criteria to include the operation in the configured item work order. The operation is included in the work order only if the criteria are met. You can define an applicability rule using optional components, option classes, transactional item attributes (TIAs), or any of the combinations.

Consider an example, in which, there are two types of performance tests as a part of building tablets. Depending on the selected CPU option, one of the performance test operation is executed. You can model this by doing the following:

- Create two option dependent operations for the two types of performance tests.

- Assign an applicability rule defining the criteria to select the performance test based on which CPU option is selected.

If you want to use the TIAs in the applicability rule to determine when to include the option dependent operations, then while defining the TIAs, the TIAs must be assigned to application scope Configuration Matching. The TIAs are used in the configuration matching process to determine if a configuration already exists. The TIAs are also leveraged by Oracle Manufacturing Cloud to determine the operations that are to be executed to build a configured item.

Transactional item attributes are defined in Oracle Product Hub. Because TIA is associated with an item class, all items that belong to the item class will inherit the TIA. Based on the item class setup, you can define TIA for the top level ATO model, optional components, or child ATO models. You can define an applicability rule using transactional item attributes with either numeric or string data type, as long as the associated value sets have a validation type of either independent or subset.

✎ **Note:** Assign either the optional components or an applicability rule to an option-dependent operation. If you assign both, then the applicability rule is not evaluated.

Create an Applicability Rule

To create an applicability rule, you must select the Option dependent check box in the Option Dependent Details region. This enables the Add icon. Click the Add icon to open the Add Applicability Rule dialog box. Unlike the Edit Work Definition Details page, the item structure visualization in the Add Applicability Rule dialog box shows the multilevel item structure of an ATO model. However, only the optional components are displayed. The current and future effective components and TIAs are shown based on the date selected in the Date drop-down list on the Edit Work Definition Details page. From the first-level components, you can expand the option classes to view the lower-level optional components. You cannot expand a child ATO model. If you have defined the transactional item attributes, then they appear as the child nodes of a component. And expanding the transactional item attribute node shows the attribute values.

In the item structure, once you locate the item or TIA value that you need for defining the rule, you can do either of the following:

- Drag and drop the item or TIA card to the Rule Text region.

- Right-click the item or TIA card, from Actions menu, select: Insert into Rule Text.

After you drag and drop or insert the rule text, the Rule Text region shows the component hierarchy of the item or transactional item attribute. A component hierarchy is the relative path of the item node to the top level ATO model node. This following example describes the component hierarchy.

Item Structure		Component Hierarchy
ATO MODEL 1	OPTION CLASS 1	ATO MODEL 1.OPTION CLASS 1

Item Structure		Component Hierarchy
	OPTION 11	ATO MODEL 1.OPTION CLASS 1.OPTION 11
	OPTION 12	ATO MODEL 1.OPTION CLASS 1.OPTION 12
OPTION CLASS 1		ATO MODEL 1.OPTION CLASS 2
	OPTION 21	ATO MODEL 1.OPTION CLASS 2.OPTION 21
	OPTION 22	ATO MODEL 1.OPTION CLASS 2.OPTION 22

The Rule Text region has various operators that can be used to define an applicability rule. You can have a combination of items and TIAs in a rule, and build a complex expression using AND and OR conditions. Click the Validate button to validate the rule you are defining. If the rule fails to meet the valid syntax, an appropriate error message is shown. You have to correct the error before you can save the rule.

For numeric attributes, the valid operators are:

- = (Equal to)
- <> (Not equal to)
- < (Less than)
- <= (Less than or equal to)
- > (Greater Than)
- >= (Greater than or equal to)

For string attributes, the valid operators are:

- = (Equal to)
- <> (Not equal to)
- STARTSWITH
- ENDSWITH
- CONTAINS
- DOESNOTCONTAIN

Valid rule syntax:

- Keyword ITEM is used to specify an item, that is, ITEM='ATO MODEL 1'.'OPTION CLASS 1'
- Keyword TRANSACTIONALATTRIBUTE is used to specify a transactional item attribute, that is, 'ATO MODEL 1'.'OPTION CLASS 1'.'OPTION 11'. TRANSACTIONALATTRIBUTE ["Finish"] = "Matte"
- Item numbers are wrapped within single quotes
- Transactional item attribute name and value are wrapped within double quotes
- Dot is used as a separator in the component hierarchy
- Operators are in upper case and are not translatable

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The Add Applicability Rule dialog box shows the display name of a transactional item attribute, which is translatable. If the value set used by a TIA is translatable, then the item structure visualization shows the internal name of the value and the translated value next to it in parenthesis, for example, Black (Noir) and White (Blanc). The applicability rule is evaluated against the value of the internal name and not the translated value.

> ✏ **Note:** Using drag and drop or selecting Insert into Rule Text from the Actions menu ensures that the rule syntax is valid. However, you can also create or edit a rule in the Rule Text region by entering the syntax manually.

Related Topics

- Define Common SCM Configuration: Define Advanced Items

Configured Item Work Definitions: Explained

Configured to Order (CTO) is the process of ordering and fulfilling configured products. The configured products, also referred as configured items, are either procured or made to order. The configured item work definition defines the manufacturing process to build the configured item.

Process to Create a Configured Item Work Definition

When Oracle Manufacturing Cloud receives a request to create a work order for the configured item:

- First, it creates the configured item work definition.
- Then, based on the configured item work definition, it creates the configured item work order

A configured item work definition is created dynamically using the primary ATO model work definition, selected options, and transactional item attributes (TIAs). Unlike the ATO model work definition, the configured item work definition is not saved in the database. Also, you cannot create a work definition for a configured item manually or search for it in the user interface.

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The diagram shown below illustrates the steps to create a configured item work definition dynamically:
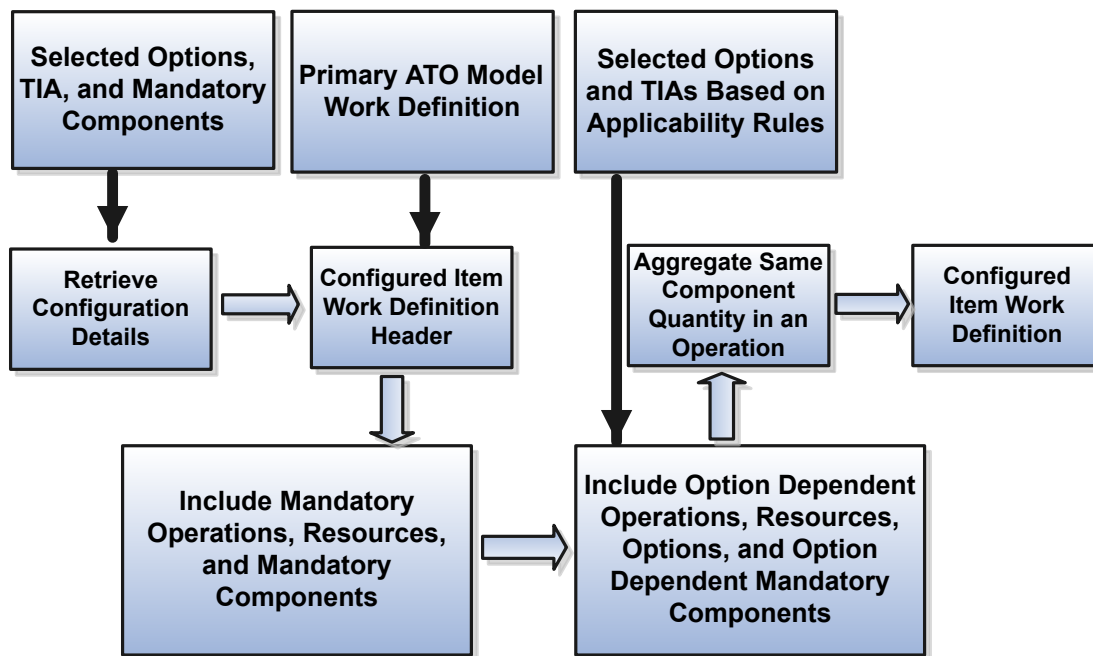
First, the system retrieves the configuration details that include the selected options, TIA, and mandatory components. Then, the system creates the configured item work definition header based on the base ATO model work definition header. It includes all the mandatory operations, mandatory components, and related resources. Based on the options and transactional item attributes that are selected during the configuration process, it includes the corresponding option-dependent operations along with the optional components and related resources. The system also explodes standard items with supply type as phantom under the ATO model and includes the components that make up the phantom according to the item structure. A configured item work order is then created based on the configured item work definition.

Example to Create a Configured Item Work Definition

The following example illustrates how a configured item work definition is created.

Item Structure			Selected Option
ATO MODEL 1	OPTION CLASS 1	OPTION 11	Y
		OPTION 12	
		MANDATORY COMP 13	
	OPTION CLASS 2	OPTION 21	Y
		OPTION 22	

Item Structure		Selected Option
		MANDATORY COMP 23 (Phantom)
	MANDATORY COMP 3	
	MANDATORY COMP 3	
MANDATORY COMP 23	COMP 231	
	COMP 232	

Work Definition for ATO Model 1:

Op Seq	Op Name	Option Dependent	Operation Item	Applicability Rule
10	Assembly	N	MANDATORY COMP 3 OPTION CLASS 1	
20	Hand insertion	Y	OPTION CLASS 2	
30	Performance Test A	Y		If OPTION 21 is selected
40	Performance Test B	Y		If OPTION 22 is selected
50	Pack	N	MANDATORY COMP 4	

Work Definition for Configured Item ATO Model 1*1:

Op Seq	Op Name	Operation Item
10	Assembly	MANDATORY COMP3 OPTION 11
20	Hand insertion	OPTION 21 COMP 231 COMP 232
30	Performance Test A	
50	Pack	MANDATORY COMP 4

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> ✎ **Note:** The component quantity is calculated in the configured item work definition based on the following points:
> - The quantity recorded on the sales order is the quantity that is used for selected options and child ATO models.
> - The quantity defined in Product Model is the quantity that is used for mandatory component.

Work Definitions for Contract Manufacturing: Explained

Contract manufacturing is a business process in which an organization, known as the original equipment manufacturer (OEM), outsources manufacturing to another organization, known as the contract manufacturer to manufacture a specific part or a full product. The contract manufacturer manufactures the product to exact specifications of the original equipment manufacturer's label. The original equipment manufacturer may supply some or all components to the contract manufacturer. Contract manufacturing allows the original equipment manufacturer to completely outsource their manufacturing process to the contract manufacturer.

The contract manufacturing business flow in Oracle Manufacturing Cloud involves two types of items:

- Contract Manufacturing Finished Good: Refers to the item that is in demand. It is the ordered item on the customer sales order. The work definition and work order in manufacturing is created for this item.

- Contract Manufacturing Service Component: Refers to the item with which the supply is fulfilled. It is the item on the purchase order. This item is issued to the manufacturing work order as a component.

In contract manufacturing scenarios, the work definition is the source document, business object that is used internally by the Supply Chain Orchestration (SCO) to create the work order and communicate with the contract manufacturer. The following is a quick overview of the manufacturing related business processes that are involved:
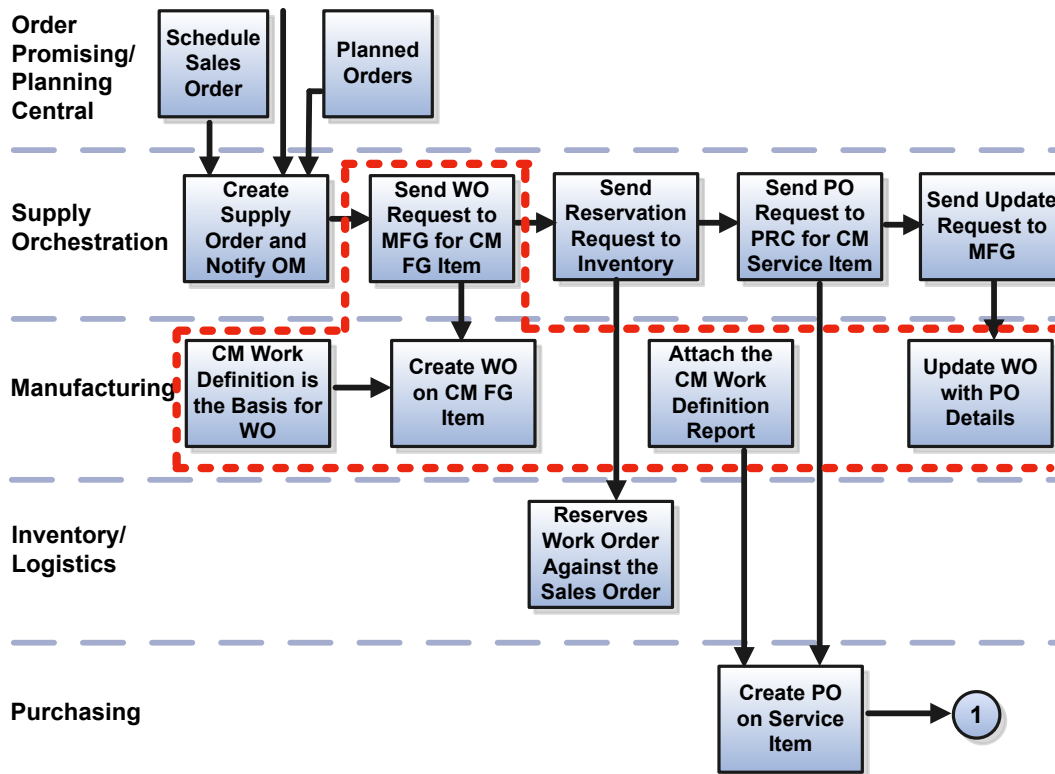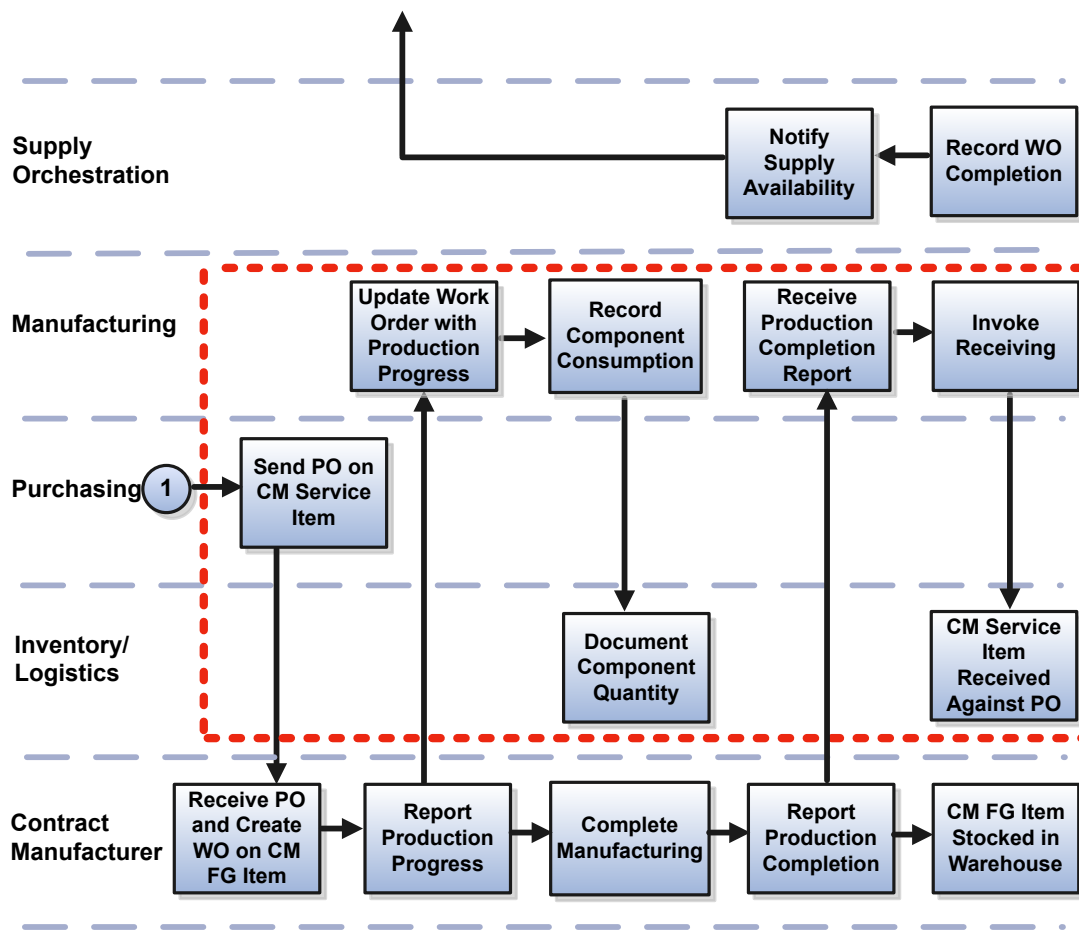
The following table summarizes key setup aspects in a contract manufacturing flow:

Setup	Considerations
Define the Contract Manufacturer	Do the following: • Set up a supplier and supplier site for the vendor that represents the contract manufacturer. • Setup a manufacturing plant that represents the facility of contract manufacturer. In the Plant Parameters UI, ensure you have set the plant as a contract manufacturer with the supplier and supplier site as defined above.
Grant access to the manufacturing plant modeled as the contract manufacturer	Same as that for an in house manufacturing plant.
Define the service item, that is, the contract manufactured item	Use the Contract Manufacturing Service Component item template provided in Oracle Fusion Product Information Management.

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Setup	Considerations
Define the contract manufactured item and complete the item structure in Oracle Fusion Product Information Management	Use the Contract Manufacturing Finished Goods item template provided in Oracle Fusion Product Information Management.
Complete the definition of the contract manufactured item by defining the item structure	Ensure that the service item is included as a component in the item structure or bill of materials. Also, ensure that the supply type of the component items is correct. For example, Supplier for the supplier provided components and Push for the OEM provided components.
Attachment categories and the related item setup in Oracle Fusion Product Information Management	Optional and is to ensure that the attachment of the work definition document is possible if used at the item definition level against the service item. In most of the scenarios, the work definition report is attached to the Blanket Purchase Agreement in Oracle Fusion Purchasing.

In order for SCO to create a work order for a Contract Manufacturing Finished Good item, a primary work definition must be defined first. The contract manufacturing work definition has a few different business rules compared to a standard item work definition. The specifics are highlighted and discussed below in more detail.

In the context of a contract manufacturing work definition operation, the following simple business rules are reinforced:

- The contract manufacturing service item must have a supply type of Assembly Pull. It is also recommended that there is only one service component on the work definition and consumed as such on the last count point operation of the work definition.

- All other operation items on the work definition can use the following supply types only: Phantom, Assembly Pull, or Operation Pull for Original Equipment Manufacturer provided items and Supplier for Supplier provided items.

✎ **Note:** It is important that the work definition is printed as a report after the production definition is complete. This report can then be made available in the business process flow, so that it is sent as an attachment to the contract manufacturer.

Related Topics

- Implementing Contract Manufacturing

Process Item Structure Changes to Work Definitions: Explained

While Oracle Manufacturing Cloud maintains the manufacturing process, that is the work definition, for a product; an item structure, which is maintained in Oracle Fusion Product Information Management, defines the product bills of materials. It is recommended that a business keeps these two structures aligned.

Based on the successful completion and the scheduled frequency of execution of the Process Item Structure Changes to Work Definitions program, the manufacturing engineer gets notified through a worklist notification of such item structure changes implemented in PIM. To reflect these changes in work definition, the enterprises typically implements one of the following practices:

- Edit an existing work definition version to reflect these item structure changes. The exact version to update mostly depends on the time from which these changes become effective.

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- Create a new effective work definition version to implement the item structure changes. A few examples of such changes are: for change order in PIM, for adding new operations, and for introducing a meaningful change to the production process.

The Notification Detail page provides a summary and detailed view of the item structure changes. You can click the Impacted work definitions link to navigate to the Manage Work Definitions page, which shows a previously queried subset of work definitions that were impacted by these changes. Any changes to the item attributes do not generate a notification. The notification consolidates all the component changes for a given item that have occurred at the time Process Item Structure Changes to Work Definitions program was executed.

A worklist notification is generated when all the following conditions are met:

- Item changes include at least one change to the item structure.

- Fusion Product Information Management (PIM) publishes the business events generated for item structure changes.

- The Process Item Structure Changes to Work Definitions delivered by Fusion Manufacturing picks up the business events published by PIM and the program completes successfully.

- There is at least one work definition in manufacturing for the item structure component change that was completed in PIM.

The item structure component attributes that need the manufacturing engineer's attention for a manual update to the work definitions are:

- Quantity

- Inverse Quantity

- Unit of Measure (UOM) (if overridden in the work definition)

- Yield (if overridden in the work definition)

Item structure component attributes that are automatically synchronized are:

- Planning Percent and Optional (for ATO models only)

- Basis

- All other attributes that are not used in work definitions

Supply type changes on the item are not automated for any type of item and are always at the discretion of the manufacturing engineer to decide whether or not to reflect them on the production process.

Synchronize Item Structure Changes to Work Definitions: Worked Example

This example demonstrates how to review the worklist notification and make changes to the production process for a standard product.

In this scenario, the manufacturing plant in Atlanta for **Computer Service and Rentals** has an effective work definition as of Aug 01 2015 to manufacture the standard item **Vision Tablet**. For compliance reasons, the manufacturing engineer initiates a change order ECO-2015-Tabs-204 for the Vision Tablet to add a new component SD20011, which is effective from Oct 30 2015. The change order is approved on Sept 02 2015. Additionally, the manufacturing engineer updated the item structure on Sept 01 2015, with the changes listed in the following table effective immediately:

Component	Attribute	Original Value	Updated Value
CM86324	Quantity	1	4
CM86324	Check ATP	No	Yes
CM86324	Basis	Variable	Fixed
CR40002	Required to Ship	No	Yes

The following table summarizes key considerations in this scenario:

Consideration	In this Example
You have been granted access to the manufacturing plant that is in context.	Yes
You have been granted the function privilege Manage Work Definitions so as to receive the manufacturing worklist notifications.	Yes
You have successfully completed the item structure change in Oracle Fusion Product Information Management.	Yes
A work definition for the item structure already exists in the manufacturing plant that is in context.	Yes
The scheduled program Process Item Structure Changes to Work Definitions has been successfully completed for the manufacturing plant that is in context.	Yes
After reviewing the item structure changes in the worklist notification, you decided to make the corresponding changes to the manufacturing work definitions.	Yes

As a response to the implemented item structure changes, the manufacturing engineer must perform the following tasks:

- Review the worklist notification to identify the impacted work definitions.
- Make the changes in the work definitions, either by creating a new work definition version or editing an existing work definition version.

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Review the Worklist Notification

Let us suppose that the scheduled program Process Item Structure Changes to Work Definitions, which ran successfully on Sept 02 2015, finds both the eligible changes to process. That is, the changes through ECO-2015-Tabs-204 approved on Sept 02 2015, and the changes completed on Sept 01 2015. The following two notifications are generated:

1. ECO-2015-Tabs-204: Separate notification for every change order line with the work definition item.
2. Changes completed with immediate effect on Sept 01 2015: The notification is consolidated for all non change order based changes in an item structure, since the last time the scheduled process was completed successfully. The manufacturing engineer with the necessary access and privilege reviews these changes in the Notification Detail page.

Make Changes to the Work Definition

The manufacturing engineer identifies that the item structure change performed on Sept 1 2015 impacts one manufacturing work definition and the impacted work definition must be edited. Further, the change order ECO-2015-Tabs-204 for the Vision Tablet to add a new component SD20011 necessitates the creation of a new work definition version.

For either of these two notifications, namely, the one for the change order, ECO-2015-Tabs-204, or the one with the rest of the attribute changes effective on Sept 01 2015, the manufacturing engineer performs the following steps to make the necessary changes to the work definitions:

1. On the **Notification Detail** page, the manufacturing engineer clicks the **Impacted Work Definitions** link. The **Manage Work Definitions** page opens in a new browser session.
2. The manufacturing engineer clicks the prerequeried work definition version for editing. The details of the work definition for a few relevant attributes are shown below:

Operation	Operation Item	Attribute	Assigned Value
10 (Assemble)	CM86324	Quantity	1
	CM86324	Check ATP	Not Applicable
	CM86324	Basis	Fixed
	CR40002	Required to Ship	Not Applicable
Not Applicable	SD20011		Not Assigned

3. The manufacturing engineer updates the quantity from 1 to 4 for the item CM86324 assigned to Operation 10. There is no user action required for the other attributes. Change to **Basis** attribute is reflected automatically. Changes to the other two attributes are also reflected automatically as these are not tracked in the Manufacturing Work Definition.
4. For the newly added component SD20011, the manufacturing engineer creates a new work definition version 1.1, with an effective start date of Sept 2 2015, to add a new operation, Operation 25. The manufacturing engineer then

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assigns the operation items and resources for the operation. The details of the newly added work definition for a few relevant attributes are displayed in the following table:

Operation	Operation Item	Attribute	Assigned Value
10 (Assemble)	CM86324	Quantity	4
	CM86324	Basis	Fixed
25 (Testing-Dest)	SD20011	Quantity	1

> **Note:** This is just a sample criteria and the business can have its own criteria that requires creating work definition versions.

5. The manufacturing engineer clicks **Save** and **Close**.

Work Definition Versions: Explained

A work definition version defines the dates for which a production process is effective. A work definition always has an effective start date, whereas the effective end date can be null. A work definition with an effective end date as null means that it is open ended and is effective indefinitely.

> **Note:** When you create the work definition for the first time for an item, it is implicitly created as the base or first version that is effective indefinitely. The subsequent versions that are created for the work definition become time bounded.

The work definition versions feature is designed to be flexible and simplistic by enabling you to decide the need for versioning based on the underlying business needs. The following explains the seeded rules that govern the creation of a work definition version:

Change	Seeded Business Rule
Adding a new operation	A new version is mandatory only if the work definition being edited is currently effective, that is, the version start date is earlier than or equal to the system date.
Deleting an existing operation	A new version is mandatory only if the work definition being edited is currently effective, that is, the version start date is earlier than or equal to the system date.
Any other changes	Allowed and whether or not to create a work definition version is at the discretion of the user or as per the business needs.

Create a Work Definition Version

You can use either of the following navigational flows to create a work definition version:

- On the Manage Work Definitions page, click the Versions icon. The Manage Versions dialog box opens. Click the Add icon and a new row with pre-populated data is shown. You can modify this data as per your needs.

- On the Edit Work Definition page, from the Actions menu, select Manage Versions.

> ✏️ **Note:** When you create a version, the current system date and time is set as the start date of the work definition version. You must ensure the correct start date before saving the version. Once saved, the start date cannot be updated. Additionally, if the start date of the prior version is a future date. The default start date is Null.

Typically, you can model upcoming production process changes by creating a future effective work definition version.

You create a new work definition version by entering or selecting values from the following:

Field	Description
Version	Enter a version number to uniquely identify the work definition version.
Start Date	Date from which the work definition version becomes effective.

Edit a Work Definition Version

Once you save a version, you cannot edit the Version and Start Date attributes. These are the unique identifiers of the version and hence, cannot be edited. Editing a work definition version is same as explained in the Edit Work Definitions: Explained topic.

Delete a Work Definition Version

Past and current effective work definition versions for an item cannot be deleted. Deleting a version is same as deleting the work definition for the version, that is, all the operation assignments and the operations are also physically deleted from the application.

Calculate Manufacturing Lead Times: Explained

The manufacturing lead time is the number of working days taken to manufacture the lot size of an item while considering the shift duration of the plant. It is always expressed in terms of days. The lead time calculation is based on the primary work definition of the item. The plant calendar shift exception or the work center resource exception is not considered in the calculation. At the end of the calculation process, the lead time attributes of the item is updated.

The manufacturing lead time is primarily made of two components:

- Fixed lead time: The fixed lead time represents the portion of manufacturing lead time which is independent of the order quantity (lot size). This is the time taken to manufacture a quantity of zero. It therefore represents the time to process all the manufacturing steps which are independent of the lot size. This may be entered manually or calculated by the lead time program.

- Variable lead time: The variable lead time represents the portion of manufacturing lead time which proportionately varies with the order quantity and is computed in days per unit. This is the time taken to manufacture a quantity of 1 unit after deducting the fixed component of the lead time. It therefore represents the time to process all the manufacturing steps which are dependent on the lot size. This may be entered manually or calculated by the lead time program.

The fixed and variable lead times are computed by the application based on primary work definition and other related resource setups. The sum of fixed lead time and variable lead time adjusted for the lead time lot size represents the manufacturing lead time.

> ✏ **Note:** The calculation of manufacturing lead time is not supported for the configured items.

Steps to Calculate the Manufacturing Lead Time

The following steps demonstrate how to calculate the manufacturing lead time and update the lead time attribute of the item:

1. In the **Navigator**, click the **Manage Work Definitions work area** link in **Manufacturing**.
2. On the **Work Definition Overview** page, in the **Additional Tasks** pane, click the **Calculate Manufacturing Lead Time** link. This launches another program parameter window.
3. On the **Calculate Manufacturing Lead Time** page, enter or select the values as follows:

Field	Value
Organization	Select the code of the manufacturing plant from the list.
From Item	Enter the item name at the beginning of the range.
To Item	Enter the item name at the end of the range.
Calculation Date	Enter the date until which the lead time is to be computed. The default value is the system date with time as 00:00:00.
Item Catalog	Enter the item catalog which may be striped by any of the functional areas in the application.
From Item Category	Enter the category name at the beginning of the range.
To Item Category	Enter the category name at the end of the range.
Planner	Enter the planner responsible for the items. If specified, the lead time calculation is restricted to the items belonging to the specified planner.
Include ATO Model	Select whether or not ATO Model should be included in the lead time calculation. o When set to No: The program excludes both the ATO configured items and ATO model items in the manufacturing lead time calculation. o When set to Yes: The program excludes only the ATO configured items in the manufacturing lead time calculation. The default value is No.

4. Click the **Submit** button. A scheduled process request is submitted. Note down the process request ID and click the **OK** button.
5. In the **Navigator**, click the **Scheduled Processes** link in **Tools**.
6. Review the progress of the submitted scheduled process. The Calculate Manufacturing Lead time program will calculate the lead times based on the primary work definition and then launch a child scheduled process called Item

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Import, which in turn may spawn off more child scheduled processes. Track the completion of all the scheduled processes until the status changes to Succeeded.

7. Click the Succeeded status link for Calculate Manufacturing Lead Time.
8. Click the **(1 more.)** link and open the text file to view the calculated lead times of the selected items.
9. In the **Navigator**, click the **Product Information Management** link in **Product Management**.
10. On the **Production Information Management** page, click the **Manage Items** link.
11. Search the item.
12. Click the item in the organization.
13. Click the **Specifications** tab, and then click the **Planning** link.
14. In the **Lead Times** region, verify the calculated fixed, variable, and processing lead times of the item.

Automatic Work Definitions

Automatic Work Definitions: Explained

If you have an applicable manufacturing scenario in your enterprise, you can choose to have your work definitions generated automatically. For example, there are some kitting and light assembly manufacturing scenarios that require minimum shop floor control and capacity requirements planning.

After the work definition is created automatically, you can use it to create a standard work order for execution.

The main advantage of creating a work order from an automatic work definition is that you do not have to manually maintain the work definition in case of item structure changes.

To create a work definition automatically, the Product Information Management work area must be used. You probably don't have access to this work area, so you must collaborate with the applicable person in your enterprise's product management group. The automatic work definition is created in Product Management for a primary item structure.

Automatic Work Definition Setup in the Work Definition Work Area

Some steps must be completed in the Work Definition work area before product management takes the action to create an automatic work definition.

The following are the required steps:

- Ensure that the predefined work definition name ORA_MAIN name is active. This predefined work definition name is used to create the automatic work definition.

- Select a standard operation that is to be used in automatic work definitions by enabling the attribute **Default for automatic work definition**.

  When a standard operation is selected as the default, the standard operation is enforced as count point enabled. You can update the default standard operation, but there can be only one default at a given point in time.

- Ensure that you don't create manual work definitions prior to creating an automatic work definition. When the application creates an automatic work definition, it is assigned production priority 1. If a manual work definition already exists with production priority 1, the automatic work definition creation fails.

Using Work Definitions Created Automatically

If your enterprise uses automatically created work definitions, the work definitions inherit certain specific characteristics.

They are as follows:

- On the Manage Work Definitions page, a column attribute named Automatic indicates that a work definition is created automatically.
- You can update the production priority and costing priority, but you cannot drill down to the detailed view of the work definition.
- You cannot search for your automatic work definitions using ADFdi.
- You cannot print a work definition report for an automatic work definition.

If the production process changes and you require more shop floor control you can create a manual work definition to use instead. Swap the manual work definition as the primary work definition by updating its production priority to 1.

Related Topics

- Work Orders Created from Automatic Work Definitions: Explained

Automatic Work Definitions: How They Are Created

Once you have determined that you will use work definitions that are created automatically, you must collaborate with the product management team. A member of the product management team must work in the Product Information Management work area to perform the action to generate a work definition automatically.

How Work Definitions Are Created Automatically

The product manager must follow these steps to create an automatic work definition:

1. Navigate to the Product Information Management work area and select the Manage Items task.
2. Search for the item and navigate to the Edit Item page.
3. On the Structures tab of the Edit Item page, click on the Actions menu.
4. Select the option Create Automatic Work Definition.

> ✏️ **Note:** The option is enabled only if the organization is set up as a manufacturing plant.

5. Save the changes.

The product manager can create an automatic work definition for only the primary item structure of an approved standard item.

An automatic work definition header has the following attributes:

Attribute	Value
Automatic	Yes
Item	Item Name
Structure Name	Primary
Structure Item Type	Standard

Attribute	Value
Serial Tracked	Enabled if the item serial generation is set to Predefined, otherwise not enabled
Completion Subinventory	From plant parameters
Completion Locator	From plant parameters, otherwise not specified
Work Definition Name	Main (internal name ORA_MAIN)
Version	1
Start Date	SYSDATE
End Date	Not specified
Production Priority	1
Costing Priority	Not specified
Costing Batch Output Size	From item master, otherwise not specified

Note: The action to create an automatic work definition only needs to be performed once for each item. Changes to the item structure will be automatically synchronized to the work definition.

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4 Manage Production

Managing Production: Overview

Oracle Manufacturing Cloud provides various capabilities that enable production supervisors to efficiently manage production activities.

By providing visibility into production performance and exceptions, it facilitates information driven management and helps in proactive resolution of shop floor issues. It enables production supervisors to manage production calendars by creating shift exceptions and work center resource exceptions to represent shop floor conditions.

Oracle Manufacturing Cloud supports both standard and nonstandard production and provides the ability to manage a work order through its entire life cycle. This includes creating standard or non standard work orders, releasing them to production, pre-assigning serials, editing the work order details to adapt to changes in production priorities, reviewing supply reservations and production progress, tracking production transaction history, and finally closing the work orders after production completion.

Through predefined macro-enabled spreadsheet templates, it enables users to create and update work orders using the file-based data import infrastructure.

A typical day in a life of a production supervisor starts by accessing the **Work Execution** work area to review key production information and manage production activities.

Related Topics
- Production Execution Tasks: Overview

- Manage Work Areas: Explained

- Manage Work Centers: Explained

- Manufacturing Plant: Overview

Work Execution Work Area: Overview

The **Overview** page in the **Work Execution** work area serves as a landing page for shop floor personnel to review, manage and report production activities. It provides insight into plant, work area, work center level production details, and lists all the work execution related tasks used to manage and execute discrete production.

The Work Execution work area displays summarized production information in four different panels. They are as follows:

Work Orders Performance

For the chosen plant, and the selected day (Today, Tomorrow, and Yesterday), this panel displays vertical bar graphs that represent the following:
- **Scheduled to Complete:** Number of work orders in Released status that are scheduled to be completed (based on the planned completion date) on the selected day.
- **Completed:** Number of work orders in Complete or Closed status that are scheduled to be completed (based on the planned completion date) on the selected day.

In addition, by clicking on either of the graphs, you can navigate to the **Manage Work Orders** page to review all the related work orders, and undertake any further action. The default display is based on the current day (Today). To review the details for a different day, select the desired day from the drop down list. To refresh the view with the latest production information, click on the refresh icon.

Work Order Exceptions

For the chosen plant, this panel displays counts of work orders that represent the following:

- **Past Due:** Number of work orders in Released status that are past due (based on the planned completion date) representing the current production backlog.

- **On-Hold:** Number of work orders in On Hold status.

- **Unreleased:** Number of work orders in Unreleased status that are yet to be released to the shop floor.

In addition, by clicking on any specific count, you can to navigate to the **Manage Work Orders** page to review the related work orders, and undertake any further action. To refresh the view with the latest production information, click the refresh icon.

Operations Performance

For the chosen work area, one or more work centers, and the selected shift (Current, Next, Prior), this panel displays vertical bar graphs that represent the following:

- **Ready:** Number of operations corresponding to work orders in Released or Completed status with quantities in Ready dispatch status for which the scheduled completion date and time of the operation falls in selected shift.

- **Complete:** Number of operations corresponding to work orders in Completed or Closed status with quantities in Complete dispatch status for which, the scheduled completion date and time of the operation falls in the selected shift.

In addition, by clicking on either of the graphs, you can navigate to the **Review Dispatch List** page to review the related work order operations, and undertake any further action. The default display is based on the first work area in alphabetical order (ascending), all its work centers, and the current shift. To review the details for a different shift, select the preferred shift from the drop down list. To review the details for a different work area and work centers, click the filter icon, and select the preferred work area and work centers in the **Operations Performance Filter** page. To refresh the view with the latest production information, click the refresh icon.

Operation Exceptions

For the chosen work area, and one or more work centers, this panel displays counts of work order operations that represent the following:

- **Past Due:** Number of operations corresponding to work orders in Released or Completed status, with quantities in Ready or Reject dispatch status, and are past due. This is based on the scheduled completion date and time of the operation and represents the current production backlog.

- **Reject:** Number of operations corresponding to work orders in Released or Completed status, and with quantities in Reject dispatch status.

- **Scrap:** Number of operations corresponding to work orders in Released or Completed status, and with quantities in Scrap dispatch status.

In addition, by clicking on any specific count, you can navigate to the **Review Dispatch List** page to review the related work order operations, and undertake any further action. The default display is based on the first work area in alphabetical order (ascending), and all its work centers. To review the details for a different work area and work centers, click the filter icon and select the preferred work area and work centers in the **Operation Exceptions Filter** page. To refresh the view with the latest production information, click the refresh icon.

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The **Overview** page in the Work Execution work area also serves as a gateway to access and perform following discrete manufacturing tasks:

- Manage Work Orders
- Close Work Orders
- Manage Production Calendar
- Manage Work Center Resource Calendar
- Review Dispatch List
- Report Resource Transactions
- Report Material Transactions
- Review Production Transaction History
- Print Components List
- Print Work Order Traveler
- Transfer Transactions from Production to Costing
- Import Work Orders
- Import Material Transactions
- Import Resource Transactions
- Import Operation Transactions
- Purge Records from Interface
- Report Orderless Completion
- Report Orderless Return

These tasks are displayed in the Task and Additional Task panels in the Work Execution work area, based on the privileges granted to the job roles that are assigned to the user.

Related Topics

- Manage Work Areas: Explained

- Manage Work Centers: Explained

- Production Execution Tasks: Overview

Manage Production Calendars: Explained

A production calendar represents the schedule associated with a manufacturing plant using the **Manage Plant Parameters** page. You can use the Setup and Maintenance work area to define the shifts, workday patterns, and schedules. Oracle Manufacturing Cloud only supports shifts that are of type as Time and shift detail that are of type as Punch or None. The production calendar indicates the operational time of a plant as determined by its schedule definition. You can define shift exceptions to make modifications to the shift duration. The shifts and shift exceptions displayed in the production calendar are interpreted in the plant time zone as defined in Manage Inventory Organization Parameters.

The shifts and shift exceptions in a production calendar are applicable for all the resources in the plant. However, a specific shift or a shift exception can be overridden for a resource by specifying the available resource units in the work center resource calendar. This cumulatively determines the resource availability for calculation of lead times and scheduling of work order dates.

Manage Shift Exceptions

A shift exception is a change in the shift assigned to a specific manufacturing plant. This exception affects the availability of all shift based work center resources defined within the plant. The shift exceptions are shown in the production calendar in specific colors to differentiate the shift exception from a standard shift.

You use the **Manage Production Calendar** page from the **Work Execution Overview** page to perform the following tasks:

- Creating a shift exception
- Editing a shift exception
- Deleting a shift exception

Creating a Shift Exception:

You can create a shift exception to add a new shift or make changes to an existing shift for a day or a period of time. The start time and end time displayed, or the start time entered on this page is assumed to be in the plant time zone.

Editing a Shift Exception:

You can edit a future shift exception only. However, you can edit the end date of a current shift exception.

To edit a shift exception, perform the following steps:

1. On the **Manage Production Calendar** page, click the shift exception in the calendar that you want to edit. Then, from the right-click menu or the **Actions** menu, select Edit Shift Exception.
2. On the **Manage Production Calendar: Edit Shift Exception** page, edit the fields that you want to change.
3. Click the **Save and Close** button.

Deleting a Shift Exception:

You can delete a future shift exception only. To delete a shift exception, on the **Manage Production Calendar** page, click the shift exception in the calendar that you want to edit. Then, from the right-click menu or the **Actions** menu, select Delete Shift Exception.

Create a Shift Exception: Worked Example

You can create the four types of shift exceptions in a production calendar: Add Shift, Change Shift, Remove Shift, and Split Shift. The following examples illustrate the steps to create each of these shift types.

Add Shift

Add Shift exception type is used when the plant needs an additional shift for any reason such as addressing the backlog or seasonal loads. To add a shift, perform the following steps:

1. On the **Manage Production Calendar** page, in the calendar, click a specific date for which you want to create the shift exception. Ensure that you click outside the existing shift time. Then, from the **Actions** menu, select: **Create Shift Exception**.
2. On the **Manage Production Calendar page: Create Shift Exception** page, enter a name for the shift exception.
3. In the **Reason** field, enter the reason for adding the shift exception. This is an optional field.
4. In the **Repeats Until** field, enter the end date of the new exception. This is the date until which the exception is created. You can add a shift exception for only a day by leaving this field blank.

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5. In the **Start Time** field, enter the start time of the new shift in the plant time zone.
6. In the **Duration** field, enter the duration of the new shift.
7. Click the **Save and Close** button.

Change Shift

Change shift exception type is used when the plant needs to have a different start time or end time or both for an existing shift for one or more workdays. To change a shift, perform the following steps:

1. On the **Manage Production Calendar** page, in the calendar, click a specific date for which you want to create the shift exception. Ensure that you click inside the shift time that you want to change. Then, from the right-click menu or the **Actions** menu, select: **Create Shift Exception**.
2. On the **Manage Production Calendar page: Create Shift Exception** page, enter a name for the shift exception.
3. In the **Reason** field, enter the reason for adding the shift exception. This is an optional field.
4. In the **Repeats Until** field, enter the end date of the new exception. This is the date until which the exception is created. You can add a shift exception for only a day by leaving this field blank.
5. From the **Exception Type** drop-down list, select: **Change Shift**.
6. In the **Start Time** field, enter a new time in the plant time zone if you want to change the start time of the shift.
7. In the **Duration** field, enter a new duration if you want to change the duration of the shift.
8. Click the **Save and Close** button.

Remove Shift

Remove Shift exception type is used when the plant does not need a shift for one or more workdays. To remove a shift, perform the following steps:

1. On the **Manage Production Calendar** page, in the calendar, click a specific date for which you want to create the shift exception. Ensure that you click inside the shift time that you want to change. Then, from the right-click menu or the **Actions** menu, select: **Create Shift Exception**.
2. On the **Manage Production Calendar page: Create Shift Exception** page, enter a name for the shift exception.
3. In the **Reason** field, enter the reason for adding the shift exception. This is an optional field.
4. In the **Repeats Until** field, enter the end date of the new exception. This is the date until which the exception is created. You can add a shift exception for only a day by leaving this field blank.
5. From the **Exception Type** drop-down list, select: **Remove Shift**.
6. Click the **Save and Close** button.

Split Shift

Split Shift exception type is used when a break is required within an existing shift for one or more workdays. To split a shift, perform the following steps:

1. On the **Manage Production Calendar** page, in the calendar, click a specific date for which you want to create the shift exception. Ensure that you click inside the shift time that you want to change. Then, from the right-click menu or the **Actions** menu, select: **Create Shift Exception**.
2. On the **Manage Production Calendar page: Create Shift Exception** page, enter a name for the shift exception.
3. In the **Reason** field, enter the reason for adding the shift exception. This is an optional field.
4. In the **Repeats Until** field, enter the end date of the new exception. This is the date until which the exception is created. You can add a shift exception for only a day by leaving this field blank.
5. From the **Exception Type** drop-down list, select: **Split Shift**.

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6. In the **Start Time** field, enter a time in the plant time zone at which you want to start the break in the shift. This time cannot be the start time of the shift.

7. In the **Duration** field, enter the duration of the break. This is a required field.
   You must ensure that the break time does not overlap with the start and end time of the shift

8. Click the **Save and Close** button.

Manage Work Center Resource Calendars: Explained

A resource exception is a change in the availability of units of a resource belonging to a work center. The exception is applicable to the specific work center resource only and does not affect the whole plant. You cannot define a resource exception for the resources that are 24 hours available. The exceptions created in the work center resource calendar overrides the shift exceptions created in the production calendar. The shifts and exceptions displayed in the work center resource calendar are interpreted in the plant time zone as defined in Manage Inventory Organization Parameters.

Manage Resource Exceptions

A resource exception is a collection of changes to one or more resources. The exception is applicable to one or many resources of the work center and does not affect the whole plant.

Example scenarios for such exception are:

- A few workers coming to work on a weekend to address a backlog.

- A few workers leaving the work on a workday to attend a mandatory training.

You use the **Manage Work Center Resource Calendar** page to perform the following tasks:

- Creating a resource exception

- Editing a resource exception

- Deleting a resource exception

The **Manage Work Center Resource Calendar** page can be accessed from the **Work Execution Overview** page and the **Edit Work Center** page.

Creating a Resource Exception:

You can create a resource exception to do the following:

- Add a new shift for one or more resources.

- Change the start time or duration of an existing shift for one or more resources. The start time entered on this page is assumed to be in the plant time zone.

- Change the resource availability in an existing shift.

Refer the Creating a Resource Exception: Examples topic for instruction on creating the resource exceptions to achieve different results.

Editing a Resource Exception:

You can edit a future resource exception only. However, you can edit the end date of a current resource exception.

To edit a resource exception, perform the following steps:

1. On the **Manage Work Center Resource Calendar** page, click the resource exception in the calendar that you want to edit. Then, from the right-click menu or the **Actions** menu, select Edit Resource Exception.

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2. On the **Manage Work Center Resource Calendar: Edit Work Center Resource Availability** page, edit the fields that you want to change.

3. Click the **Save and Close** button.

Deleting a Resource Exception

You can delete a future resource exception only. To delete a resource exception, on the **Manage Work Center Resource Calendar** page, click the resource exception in the calendar that you want to edit. Then, from the right-click menu or the **Actions** menu, select Delete Resource Exception.

Create a Resource Exception: Worked Example

You can create a resource exception in the work center resource calendar to fulfill the following requirements:

- Make a work center resource available

- Make few or all the units of a work center resource unavailable

The following examples illustrate steps to create a resource exception with respect to each of these two scenarios.

Make a Work Center Resource Available

When you want a work center resource to be available during a nonworking time such as duration outside a regular shift, you can create a resource exception. To create a resource exception for making a work center resource available, perform the following steps:

1. On the **Manage Work Center Resource Calendar** page, in the calendar, click a specific date for which you want to create the resource exception. Ensure that you click outside the existing shift time. Then, from the **Actions** menu, select Create Resource Exception.

2. On the **Manage Work Center Resource Calendar: Create Work Center Resource Availability** page, in the **Repeats Until** field, enter the end date of the new exception. This is the date until which the exception is created. You can add a work center resource exception for only a day by leaving this field blank.

3. In the **Start Time** field, enter the start time from which the resource availability is required to be changed. Ensure that the start time is a nonworking time for the resource and is defined in the plant time zone.

4. In the **Duration** field, enter the duration for the resource availability change. Ensure that the duration is such that the computed end time is also a nonworking time for the resource.

5. In the **Resource Availability and Overrides** region, the **Default Availability** column shows 0. In the **Availability Override** column, against the specific resource, enter the quantity of the resource units that you want to assign to the duration.

6. Click the **Save and Close** button.

Make Few or All the units of a Work Center Resource Unavailable

When you want a work center resource to be either completely unavailable or some units of the resource to be unavailable during a working time such as a duration within a regular shift, you can

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create a resource exception. To make few or all the units of a work center resource unavailable, perform the following steps:

1. On the **Manage Work Center Resource Calendar** page, in the calendar, click a specific date for which you want to create the resource exception. Ensure that you click inside the shift time that you want to change. Then, from the right-click menu or the **Actions** menu, select Create Resource Exception.

2. On the **Manage Work Center Resource Calendar: Create Work Center Resource Availability** page, in the **Repeats Until** field, enter the end date of the new exception. This is the date until which the exception is created. You can add a work center resource exception for only a day by leaving this field blank.

3. In the **Start Time** field, enter the start time from which the resource availability is required to be changed. Ensure that the start time is a working time for the resource and is defined in the plant time zone.

4. In the **Duration** field, enter the duration for the resource availability change. Ensure that the duration is such that the computed end time is also a working time for the resource.

5. In the **Resource Availability and Overrides** region, the **Default Availability** column shows the number of resource units that are available for that specific shift. In the **Availability Override** column, against the specific resource, enter either 0 to make the resource completely unavailable or a lesser number to make few units of the resource unavailable for the duration.

6. Click the **Save and Close** button.

Work Orders: Overview

In Oracle Manufacturing Cloud, a work order refers to a document that conveys the authority for the production of a specific product. It contains information about what, how to, how many, and when to manufacture a product. The product item, work definition details, operations, resources, components, quantities, and dates are specified in the work order. As a production supervisor, you can use the **Manage Work Orders** page to perform work execution tasks such as search, create, and update work orders. Manage Work Order pages are designed for tablet friendly user interfaces, and are optimized for a 1024 x 768 resolution.

Some of the key features of work orders are:

- Work orders are created by Supply Chain Orchestration as supplies for the following:
  - Planned orders from Oracle Fusion Planning Central Cloud Service
  - Sales orders for back-to-back ordered make items
  - Sales orders for configured items
  - Contract manufactured items

- Enables collaboration using Oracle Social Networking (OSN) to communicate with stakeholders for better fulfillment of work order supply.

- Supports serialized manufacturing by previously assigning serials.

- Helps to prioritize work orders by reviewing sales order reservation details of the work order.

- Maintains work order and production transactions history for each work order, which can be viewed at any time.

- Work orders can be created and updated through cloud import framework using the .xlsm template.

Search Work Orders

You can use the **Manage Work Orders** page to search for work orders to review or update. You can perform basic search using important attributes such as Work Order, Item, Status, Start Date and Completion Date. You can also perform advanced search using additional criteria such as work order Type, Subtype, Work Definition, Priority, Customer, Serial Number, Work Center, and so on.

By default, the search enables you to retrieve all work orders which start today and the next seven days, in statuses Unreleased, Released, or On Hold. You can personalize the search criteria using the saved search feature, and set them as the default search if required. Work order records are presented in a tabular format with visual indicators to highlight past due work orders, and indicate work order progress.

> ✎ **Note:** For a work order, you can print Components List, Labels, or Work Order Traveler from the Manage Work Orders page.

Create Work Orders

The **Create Work Order** page captures minimal mandatory information to quickly create work orders. You can create work orders based on attributes such as Item, Work Order Quantity, Start Date or Completion Date, Work Definition, and so on.

You can also create standard and nonstandard work orders for an item. You can create work orders for standard discrete production by referencing a work definition, or for other nonstandard production activities such as prototyping, repair and rework, with or without referencing a work definition.

Update Work Orders

You can update the following work order details:

- Work order header attributes such as Quantity, Start Date, Completion Date and so on
- Manage operations, material and resource requirements
- Add or delete attachments
- You can also perform mass actions to update work order status or priority

Attachments

Attachments for the work order entity can be used to readily access files such as work instructions, drawings, checklists, standard operating procedures, and so on. Work orders support attachments at the following levels:

- Work Order Header
- Operations
- Operation Items
- Operation Resources

During work order creation, if a work definition is specified, all attachments from the work definition which correspond to the earlier mentioned levels are copied into the work order. When a standard operation is added to the work order, the operation and operation resource level attachments are copied to the work order. Once the attachments are copied, they reside independently within the work order. You can add more attachments, or delete existing attachments as required.

Descriptive Flexfields

Descriptive flexfields (DFF) allow users to extend the work order entity to capture additional information. Work orders support descriptive flexfields to capture user defined data for the following levels:

- Work Order Header
- Operations
- Operation Items
- Operation Resources

The descriptive flexfields if enabled are available as Additional information in the user interface. You can also manage descriptive flexfields through work order import.

Social Collaboration

Work orders are enabled for social collaboration using Oracle Social Network (OSN). The production supervisor can use this framework to collaborate with stakeholders. You can enable the following attributes for the work order object, so that it is shared on the OSN object wall and the subsequent streaming updates.

- Work Order Number

- Start Date

- Completion Date

- Item

- Item Description

- Quantity

- Unit of Measure (UOM)

- Status

- Actual Completion Date

- Customer

Related Topics
- Work Definitions: Overview

- Production Execution Tasks: Overview

Standard Work Orders: Overview

Standard work orders are used as a means to initiate regular production. It is a type of work order and always has a work definition. When a user creates a standard work order, the automatic pre-selection logic is used to derive the work definition name and version based on the item, and the date specified on the work order.

A standard work order is created quickly with minimal header details. On saving the work order record, the application automatically does the following:

- For the specified work definition, the work definition explosion logic is used to determine the work order material and resource requirements for all the operations.

- Using the scheduling logic, the work order, operation, material and resource dates are determined.

Creating Standard Work Orders: Worked Example

The standard work order is created in the following sequence in the user interface:

1. Specify the item to be manufactured. A primary work definition must exist for the item to create a standard work order.
2. Specify the work order quantity. This will always be in the primary unit of measure of the item.
3. The work order start date is by default the current date and time. You can update the field if required. If the work order is created by specifying the start date, the application automatically performs a forward scheduling to calculate the rest of the dates.

> **Note:** By specifying the above mentioned minimal information, a standard work order is created. The application selects the primary work definition of the item to explode the operation, material and resource requirements into the work order and perform scheduling to compute the rest of the dates of the work order. All other information required for the creation of work order is automatically derived in the background, and the standard work order is created in unreleased status.

> **Note:** To create a standard work order with additional details, click the **Show More** link.

4. Optionally, you can enter a work order number manually. The application automatically generates a unique work order number if you do not enter the number.
5. If you enter the completion date of the work order, the start date of the work order is blanked out. When the work order is saved, the application performs a backward scheduling from the completion date to calculate the rest of the dates.
6. The primary work definition is selected by default and displayed in the user interface. You can select an alternate work definition, if available.
7. Work definition date is displayed by default from either the start or completion date, as provided by the user. You can modify the work definition date to a specific date, if it is required to select the corresponding version of the work definition.
8. On selecting the work definition name and work definition date, the work definition version and the item structure details such as item structure name, revision and version are automatically displayed on the user interface.
9. Status field is by default Unreleased. You can also select Released or On Hold status for the work order to be created in the specified status.
10. Optionally, you can specify the work order description and work order subtype.

> **Note:** When you save the work order with the above mentioned additional information, the application uses the specified work definition of the item to explode the operation, material and resource requirements into the work order, and perform scheduling to compute the rest of the dates of the work order.

> **Note:** Attachments are copied over from the work definition to the work order. All other information required for the creation of work order is automatically derived in the background.

Related Topics

- Work Definition Work Area: Overview

Phantom Explosion in Work Orders: Overview

A phantom represents a product that is physically built but not stocked, before being used in the next stage or level of manufacturing. It is a method to move around a group of components under one item name. When you create a work definition for a parent product item, you can specify the supply type of a component as phantom. You can define work definitions for phantoms in the same way as any other product items.

During the creation of a work order which references a work definition, the following happens:

- The application selects the appropriate work definition version based on the work definition date specified and explodes the work definition by copying its operations, resources and component items.

- When a component item with phantom supply is encountered for an operation, the application looks for a work definition for the phantom item, explodes the same by copying its constituent components and resources to the same operation.

- The behavior of whether only components or both components and resources must be inherited is determined by the plant parameter Phantom Operation Inheritance.

- If multiple levels of phantoms are encountered during the explosion process, the application keeps exploding though all levels until no further child phantoms are encountered.

- At any level, if the explosion process does not find a work definition for a phantom, it uses the item structure to explode that phantom level and its lower levels. If an item structure is also not defined for a phantom item, further explosion is not performed for that node.

✏️ **Note:** Phantom assemblies act like normal assemblies when they represent a top level assembly, such as when you create a work order on it. However, as a subassembly, they lose their identity as distinct assemblies, and are a collection of their components and resources.

✏️ **Note:** The same item can be used in a phantom supply in certain work definitions and a regular stock component in other work definitions.

Work Order Scheduling: Explained

Oracle Manufacturing Cloud uses unconstrained scheduling engine in the background to schedule work orders during create and certain update actions. In addition, the scheduling engine is also used to compute the manufacturing lead time of a product based on its primary work definition.

The scheduling engine uses the information provided at the resource definition, work order operation resource level and the resource's calendar to determine the resource's start date and completion date. While scheduling work orders, resources are assumed to have infinite capacity and the scheduling engine disregards loads on the resources from other work orders. It rolls up the resource dates to determine the start and completion dates of each operation. Eventually the operation dates are rolled up to determine the work order dates. The required date of the operation items are updated to the start date of the operation. The following types of scheduling methods are supported by the scheduling engine:

- Forward Scheduling
- Backward Scheduling
- Midpoint Scheduling

Forward Scheduling: When a work order is forward scheduled, the scheduling engine uses the start date of the work order as an input to determine the start and completion dates for each scheduled resource, the start and completion dates for each operation and eventually the completion date of the work order. The application automatically performs forward scheduling when the start date of a work order is provided. Forward scheduling is also used by the lead time calculation program to determine the manufacturing lead time of the product.

Backward Scheduling: When a work order is backward scheduled, the scheduling engine uses the completion date of the work order as an input to determine the start and completion dates for each scheduled resource, the start and completion

dates for each operation and eventually the start date of the work order. The application automatically performs backward scheduling when the completion date of a work order is provided.

Midpoint Scheduling: When a work order is midpoint scheduled, the user selects an operation to perform midpoint scheduling by specifying either the operation start date or the operation completion date. If Midpoint scheduling is performed from the operation start date, all resources of the prior operations are backward scheduled while the resources of the selected operation and succeeding operations are forward scheduled. If Midpoint scheduling is performed from the operation completion date, all resources of the prior operations and the selected operation are backward scheduled while the resources of the succeeding operations are forward scheduled.

The following actions trigger scheduling or rescheduling of work orders:

- **Create Work Orders:** When work definition is specified, application automatically performs either forward or backward scheduling depending on whether start date or completion date is provided.

- **Update Work Order - Start Date or Completion Date:** Updating one of these date nulls out the other and application automatically performs either forward or backward scheduling.

- **Update Work Order - Work Definition name or Work Definition Date or Work Order Quantity:** Updating any of these fields on the work order triggers the application to prompt forward scheduling or backward scheduling method to reschedule the work order.

The following attributes influence the scheduling behavior:

- **Work Order Start Date or Completion Date:** Serves as the anchor point to perform forward or backward scheduling.

- **Work Order Operation Start Date or Completion Date:** Serves as the anchor point to perform midpoint scheduling.

- **Work Order Operation Resources Sequence Number:** Resources which have unique sequence numbers within an operation are scheduled sequentially in the ascending order. Resources which share a common sequence number within an operation are considered as simultaneous resources and are scheduled in parallel.

- **Work Order Operation Resources- Sequence Number:** Resources which have unique sequence numbers within an operation are scheduled sequentially in the ascending order one after the other. Resources which share a common sequence number within an operation are considered as simultaneous resources and are scheduled in parallel.

- **Work Order Operation Resources Name:** Used by the scheduling engine to determine the work center resource calendar to schedule the resources.

- **Work Order Operation Resources -Required Usage:** Used by the scheduling engine to schedule the resource duration.

- **Work Order Operation Resources - UOM:** Used by the scheduling engine to schedule the resource duration. The resource usage is converted from the specified unit of measure to the scheduling unit of measure using the profile **Hour Unit of Measure**. The UOM set in this profile must belong to the UOM class specified in the other profile **SCM Common: Default Service Duration Class**.

- **Work Order Operation Resources - Scheduled Indicator:** Resources which have Scheduled = Yes are considered by the scheduling engine to compute the duration of the resource. The resources which have Scheduled = No are not scheduled and assumed to have the zero duration, such as start date = completion date.

- **Work Order Operation Resources - Assigned Units**: The required usage of the resource is divided by the assigned units to compute the scheduled duration of the resource.

- **Work Center Resources - Available 24 Hours Indicator:** Resources which have this indicator set to **No** are scheduled within the shifts associated with it. Resources which have this indicator set to **Yes**, are assumed to be available 24 hours.

- **Work Center Resources - Efficiency and Utilization Percentages:** The scheduling engine inflates the required usage of a resource if its efficiency and, or utilization percentages are less than 100%.

- **Work Center Resources - Shift Assignments:** Scheduling engine considers the availability of resources based on the shifts assigned to the work center resource.

- **Work Center Resource Availability:** Scheduling engine considers the shift exceptions and work center resource exceptions to determine the availability of resources within shifts assigned to it.

Work Order Scheduling: Worked Example

Work order scheduling behavior and the various scheduling methods are explained using the following example. A plant works continuously in a single 9 hour shift from 8:00 a.m. to 5:00 p.m. on all days of a week. This shift time is interpreted in the plant time zone.

The following resources are available in the plant to manufacture a product **A**:

Work Center	Resource Name	Efficiency Percentage	Utilization Percentage	Available 24 Hours
Machine Shop	CNC Milling	100%	50%	No
	Technician	100%	100%	No
	QA Inspector	100%	100%	No
Assembly Line	Operator	100%	100%	No
	Conveyor Line	100%		
Packing Line	Auto Packer	50%	100%	Yes

All the **Conveyor Line** resources belonging to **Assembly Line** work center are unavailable on day 2 from 9:00 am to 11:00 am due to the monthly preventive maintenance schedule. To reflect this in the application, the supervisor defines a work center resource exception.

To manufacture a quantity of **8** each of a product **A**, the following operations of a work order are used:

Work Order 123, with **Operation** 10: Machining, and **Work Center** Machine Shop.

Sequence	Resource Name	Required Usage	UOM	Assigned Units	Scheduled
10	CNC Milling	2	Hours	1	Yes
20	Technician	2	Hours	2	Yes
30	QA Inspector	1	Hours	1	No

Work Order 123, with **Operation** 20: Assembly, and **Work Center** Assembly Line.

Sequence	Resource Name	Required Usage	UOM	Assigned Units	Scheduled
10	Operator	4	Hours	1	Yes

Sequence	Resource Name	Required Usage	UOM	Assigned Units	Scheduled
10	Conveyor Line	4	Hours	2	Yes

Work Order 123, with **Operation** 30: Packing, and **Work Center** Packing Line.

Sequence	Resource Name	Required Usage	UOM	Assigned Units	Scheduled
10	Auto Packer	1	Hours	1	Yes

1. During the scheduling process, the application computes the duration of a resource in the following manner: Resource duration = (Required usage / Assigned units) / (Resource Efficiency % * Resource Utilization %)

2. In operation 10, the resource **CNC Milling** has a utilization of 50%. This has an effect of extending the usage of this resource by twice its required usage.

3. In operation 10, since the resource sequence number of the resources is different, the resources are scheduled sequentially. In operation 20, since the resources share the same resource sequence number, the resources are scheduled in parallel.

4. The **Conveyor** resource used in operation 20 is unavailable for 2 hours on day two, and so the application does not schedule this resource during that period.

5. In operation 30, the resource **Auto Packer** has an efficiency of 50%. This has an effect of extending the usage of this resource by twice its required usage.

6. The resource **Auto Packer** is available 24 hours and so its resource usage is done even if it is outside the plant shift duration.

Forward Scheduling

If the work order is created using the start date of day 1 at 8:00 a.m., the application forward schedules the work order and computes the completion date as day 1 at 7:00 p.m. The resource duration is displayed in the following chart:

If the work order is created using the start date of day 1 at 8:00 a.m., the application forward schedules the work order and computes the completion date as day 1 at 7:00 p.m.

Operation Sequence	Resource Sequence	Resource Name	Resource Duration	Scheduled Dates With Explanation
10	10	CNC Milling	(2/1)/ (50% *100%) = 4 hours	Forward Scheduling logic is applied from the first resource of the first operation. The first operation is the Machining operation. Since the work order is being requested to start at 8:00 a.m., the first resource required for this operation is CNC Milling with required resource duration of 4 hours. The CNC Milling resource is scheduled from 8:00 a.m. to 12:00 noon.
10	20	Technician	(2/2)/ (100% *100%) = 1 hour	The Technician performing the task after CNC Milling resource is scheduled from 12:00 noon to 1:00 p.m.
10	20	QA Inspector	(0 hours (Since Scheduled= N)	The QA Inspector has no duration but shares the same resource sequence as the Technician, so the scheduled start and end time is 1:00 p.m.
20	10	Operator	(4/1) / (100%*100%) = 4 hours	The next operation is the Assembly operation. The Operator takes 4 hours to complete the task and is scheduled from 1:00 p.m. to 5:00 p.m.
20	10	Conveyor Line	(4/2) / (100%*100%) = 2 hours	The Conveyor Line resource is used in Assembly operation and is scheduled to start in parallel with the Operator. So the conveyor line operation starts at 1:00 p.m.and ends at 3:00 p.m.
30	10	Auto Packer	(2/2) / (50%*100%) = 2 hours	The Packing operation starts after Assembly operation at 5:00 p.m. and ends at 7:00 p.m. With this, the work order is completed.

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Backward Scheduling

If the work order is created using the completion date of day 2 at 1:00 p.m., the application backward schedules the work order and computes the start date as day 1 at 9:00 a.m. The resource duration is displayed in the following chart:

If the work order is created using the completion date of day 2 at 1:00 p.m., the application backward schedules the work order and computes the start date as day 1 at 11:00 a.m.

Operation Sequence	Resource Sequence	Resource Name	Resource Duration	Scheduled Dates With Explanation
30	10	Auto Packer	(2/2) / (50%*100%) = 2 hours	Backward Scheduling logic is applied and we start with the last resource of the last operation and compute the start date by scheduling operations in a reverse sequence of forward scheduling. Since the work order is being requested to be completed on day 2 1:00 p.m., and the Auto Packer resource requires 2 hours, Packing operation starts on day 2 at 11:00 a.m. and ends at 1:00 p.m.
20	10	Conveyor Line	(4/2) / (100%*100%) = 2 hours	Next the prior operation Assembly is scheduled. The Conveyor Line resource used in this operation is unavailable for 2 hours on day 2 from 9:00 a.m. to 11:00 a.m., and so the application does not schedule this resource during that period. The Conveyor Line resource is used in Assembly operation and is scheduled from 8:00 a.m to 9:00 a.m. on day

Operation Sequence	Resource Sequence	Resource Name	Resource Duration	Scheduled Dates With Explanation
				2, and 4:00 p.m. to 5:00 p.m. on day 1.
20	10	Operator	(4/1) / (100%*100%) = 4 hours	The Operator working in the Assembly operation takes 4 hours to complete the task and is scheduled from 8:00 a.m. to 11:00 a.m. on day 2, and 4:00 p.m. to 5:00 p.m. on day 1.
10	20	QA Inspector	(0 hours (Since Scheduled= N)	The QA Inspector has no duration but shares the same resource sequence as the Technician, so the scheduled start and end times is 4:00 p.m. on day 1.
10	20	Technician	(2/2)/ (100% *100%) = 1 hour	The Technician performing the Machining operation is scheduled from 3:00 p.m. to 4:00 p.m. on day 1.
10	10	CNC Milling	(2/1)/ (50% *100%) = 4 hours	CNC Milling requires 4 hours and is scheduled from 11:00 a.m. to 3:00 p.m. on Day 1 based on Backward Scheduling. So, the work order starts on day 1 at 11:00 a.m.

Midpoint Scheduling

If the work order is updated by invoking midpoint scheduling of work order operation 20 such that the operation 20 starts on day 2 at 11:00 am, the application performs midpoint scheduling as displayed in the following chart, such that the work order's start date is day 1 at 3:00 p.m. and completion date is day 2 at 5:00 p.m.

If the work order is updated by invoking midpoint scheduling of work order operation 20 such that the operation 20 starts on day 2 at 11:00 am, the application performs midpoint scheduling as displayed in the following chart, such that the work order's start date is day 1 at 3:00 p.m. and completion date is day 2 at 5:00 p.m.

Operation Sequence	Resource Sequence	Resource Name	Resource Duration	Scheduled Dates With Explanation
20	10	Operator	(4/1) / (100%*100%) = 4 hours	Invoking Midpoint Scheduling of work order operation 20, such that operation 20 starts on day 2 at 11:00 a.m. The Operator takes 4 hours to complete the task and is scheduled from 11:00 a.m. to 3:00 p.m. on day 2.
20	10	Conveyor Line	(4/2) / (100%*100%) = 2 hours	All downstream operations are scheduled using Forward Scheduling logic. So, the Conveyor Line resource is used in Assembly operation from 11:00 a.m. to 1:00 p.m. on day 2.
30	10	Auto Packer	(2/2) / (50%*100%) = 2 hours	The Packing operation starts on day 2 at 3:00 p.m. and ends at 5:00 p.m. With this the work order is completed.
10	20	QA Inspector	(0 hours (Since Scheduled= N)	All upstream operations are scheduled using Backward Scheduling logic. So, the QA Inspector has no duration but shares the same resource sequence as the Technician, so the scheduled start and end times is 11:00 a.m. on day 2.
10	20	Technician	(2/2)/ (100% *100%) = 1 hour	Invoking Backward Scheduling, the Technician performing the Machining operation is scheduled from 10:00 a.m. to 11:00 a.m. on day 2.
10	10	CNC Milling	(2/1)/ (50% *100%) = 4 hours	The Technician shift time ends at 11:00 a.m. on day 2. The resource duration required is 4 hours. The CNC

Operation Sequence	Resource Sequence	Resource Name	Resource Duration	Scheduled Dates With Explanation
				Milling resource shift is scheduled from 8:00 a.m. to 10:00 a.m. on day 2 and from 3:00 p.m. to 5:00 p.m. on day 1. This determines the work order start day as day 1 at 3:00 p.m.

Nonstandard Work Orders: Overview

Nonstandard work orders are used to initiate rework, repair, prototype work, and other non-regular production activities. It is a type of work order and can be created with or without a work definition. If a work definition is referred, the behavior is same as that of the standard work order. The nonstandard work order is created in Unreleased or On Hold status, if the work definition is not specified. The next step is to add operations, components, and resources for the operations. After an operation is added to the work order, the work order can be released.

Creating Nonstandard Work Orders: Worked Example

The nonstandard work order is created in the following sequence using the user interface:

1. Optionally, you can enter a work order number manually. The application automatically generates a unique work order number if this is not provided.
2. Specify the item to be manufactured. A work definition need not exist for this item.
3. Specify the work order quantity. This will always be in the primary unit of measure of the item.
4. A work definition is not selected by default, and the valid work definitions are available for you to select.
5. The work order start date is by default the current date and time. You can update the field if required. If a work definition is specified, you must provide either a start date or completion date. If a work definition is not specified, you can provide both the start date and completion date.
6. Status field is by default Unreleased. If a work definition is specified, you can create the work order in Unreleased, Released or On Hold status. If a work definition is not specified, but you can create the work order only in Unreleased or On Hold status.
7. If a work definition is specified, the work definition date is displayed by default from the start or completion date fields, as provided earlier. You can modify the work definition date to a specific date, if it is required to select the corresponding version of the work definition.
8. On selecting the work definition name and work definition date, the work definition version and the item structure details such as item structure name, revision and version are automatically defaulted on the user interface.
9. Optionally, you can specify the work order description and work order subtype.

When the work order is saved, the following behaviors are applicable:

- If work definition is specified, the application uses the specified work definition of the item to explode the operation, material and resource requirements into the work order and perform scheduling to compute the rest of the dates

of the work order. Attachments are copied over from the work definition to the work order. All other information required for the creation of work order is automatically derived in the background.

- If work definition is not specified, the application saves only the work order header. You can update the work order to add operations, resources, and items manually. At least one operation must be added to release the work order.

✏️ **Note:** If a work definition is specified, the behavior of the nonstandard work order is similar to the standard work order.

Updating Work Orders: Explained

You can use the **Edit Work Order** page to update a work order in the user interface. Additionally, multiple work orders can be updated using mass actions. You can update work orders of type standard and nonstandard in the same manner. To view or update work orders you need the following privileges:

- **View Work Order:** Enables query and view of work order details.

- **Manage Work Order Headers:** Enables creation of work orders and update of work order header and general information, except status update for closing a work order.

During the lifecycle of the work order, it is updated by the user or the application to transition the statuses. You can update the attributes of a work order in any status with the exception of Closed or Canceled. Certain attributes such as Work Order Number, Product, Reservation Details, and so on cannot be updated once a work order is created. The following tabs are available in the **Edit Work Order** page:

- **General Information:** Work Order Header level information, such as Product, Work Definition, Work Order Status, Attachments and so on.

- **Operations:** Work Order Operation information, such as Operation Name, Work Center, Components and Resources requirements.

- **Serial Numbers:** Product Serial Numbers which are associated with the work order for serial tracked manufacturing.

- **Reservations:** Supplies from a work order that are reserved against one or more sources of demand.

- **History:** Work order execution history such as status, dates and quantities.

Work Order Header: Explained

The work order header stores some of key attributes of the work order business object. The work order header uniquely identifies the work order, describes the nature of work being carried out, and captures the details of the item being manufactured, the quantity required, the work definition to be used and the start, completion dates. The header attributes are displayed under the **General Information** tab of the work order.

The attributes of the work order header are summarized in the following table:

Name	Description
Work Order Number	The work order number identifies the work order and is unique within a plant. During creation of the work order, a unique number is automatically assigned from the numbering scheme defined as per the Plant parameters (Work Order Prefix, Work Order Starting Number). Users can also enter a manual work order number during creation. Once a work order is created, the work order number cannot be updated.
Status	This represents the status of the work order during its life cycle. The seeded statuses supported are Unreleased, Released, On Hold, Completed, Closed and Canceled.
Start Date	Planned start date and time of the work order.
Completion Date	Planned completion date and time of the work order.
Description	Description of the work order.
Work Order Priority	Represents the work order execution priority.
Item	Also referred as product or assembly. It represents the primary item that is to be manufactured. The item attributes Build in WIP and Transactable Flags must be enabled to create a work order. Once the work order is created, the item cannot be updated.
Quantity	Quantity of the work order that is planned for and started with.
UOM	Represents the unit of measure of the quantity being manufactured. It is always the primary unit of measure of the item.
Work Definition Name	Work definition name of the item being manufactured. It cannot be updated after the work order is released. The work definition is exploded to determine the operation, resource and material requirements in the work order.
Work Definition Date	Work definition date represents the as of date used to derive the work definition version.
Work Definition Version	Represents the version of the work definition. It is derived and displayed based on the work definition name and date specified.
Production Priority	Production priority identifies the primary and alternate work definitions of an item. A production priority of 1 indicates the primary work definition. The production priority is derived and displayed based on the work definition name specified.
Serial Tracked Production	This indicates if serial tracking is enforced for the work order. This is derived from the work definition and is a display only attribute.
Item Structure Name	Represents the item structure name that is referenced on the work definition selected on the work order.
Item Structure Revision	Represents the revision of the item whose item structure is referenced on the work definition selected on the work order.

Name	Description
Item Structure Version	Represents the version of the item whose item structure is referenced on the work definition selected on the work order.
Work Order Type	Indicates whether the type of work order selected during creation is Standard or Nonstandard.
Work order Subtype	Represents the specific nature of work being performed such as Standard Production, Prototyping, or Repair. Costing can derive work order accounts based on this attribute.
Firm	Indicator to allow or prevent Planning from suggesting rescheduling recommendations for the work order.
Back-to-Back	Indicates that this work order is created as a supply for a back to back sales order. It is a display only attribute.
Contract Manufacturing	Indicates a contract manufacturing work order. It is a display only attribute.
Supply Type	Represents the default supply types to be considered in the work order for operation items.
Overcompletion Tolerance Type	The tolerance type for over completion of the work order quantity.
Overcompletion Tolerance Value	The percent or quantity that is allowed to be completed over the work order quantity.
Completion Subinventory	Represents the default completion subinventory to be considered in the work order for product completion.
Completion Locator	Represents the default completion locator of the subinventory to be considered in the work order for product completion.

Status update

You can use status to manage the work order through its entire lifecycle. Work orders are generally created in the **Unreleased** status. The production supervisor updates the status to **Released** once the work order is ready for execution. On executing the work order when the operator completes the last operation, the work order is automatically updated to **Completed** status. Then the production supervisor updates the status of work order to **Closed**. You can also update the work order status to **On Hold** or **Canceled**.

The following are the valid status transitions allowed in a work order:

From Status	To Status Unreleased	To Status Released	To Status On Hold	To Status Completed	To Status Closed	To Status Canceled
From Status Unreleased	Not applicable	Allowed	Allowed	Not allowed	Allowed	Allowed
From Status Released	Conditionally allowed	Not applicable	Allowed	Allowed only by application	Conditionally allowed	Allowed

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From Status	To Status Unreleased	To Status Released	To Status On Hold	To Status Completed	To Status Closed	To Status Canceled
From Status On Hold	Conditionally allowed	Allowed	Not applicable	Not allowed	Conditionally allowed	Allowed
From Status Completed	Not allowed	Allowed only by application	Not allowed	Not applicable	Allowed	Not allowed
From Status Closed	Conditionally allowed	Conditionally allowed	Not allowed	Conditionally allowed	Not applicable	Conditionally allowed
From Status Canceled	Conditionally allowed	Allowed	Allowed	Not allowed	Conditionally allowed	Not applicable

Quantity update

If the work order quantity is updated, the required quantities of operation items and required usage of operation resources are recomputed. The user is prompted to make a selection to either forward schedule from the start date or backward schedule from the completion date, to schedule the work order based on the new quantity. The work order quantity can be reduced to the extent of the ready quantity available in the first count point operation. Work order quantity can be increased as required. However, for a work order in **Completed** status, the application automatically updates the work order to **Released** status.

Work definition update

The work definition name or work definition date can be updated only when the work order is in **Unreleased** status. When you update these two attributes, all the existing operations, operation items and operation resources of the work order are deleted, and a re-explosion of the updated work definition is triggered.

Work order date update

Updating the following attributes results in the rescheduling and calculation of new dates of the work order:

- Start Date
- Completion Date
- Quantity
- Work Definition Name
- Work Definition Date

✏ **Note:** Note: Please refer to the Scheduling of Work Orders section for more details.

Work Order Operations: Explained

The **Operations** tab provides a list view of all operations with its component and resource requirements. It provides the following capabilities to the user:

- Displays the summary of the operations, operation items and operation resources required on the work order with operation attachments
- Displays the details of execution progress for the operations, operation items and operation resource

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- Add, Edit, and Delete Operations

- Edit Operation Items

- Edit Operation Resources

- Reschedule an operation using midpoint scheduling

You can use the actions in the list view to add or edit or delete operations. The **Work Order Operations** consists of information about the list of operations that are performed in a work order. Work order operations are either inherited by explosion of work definition or are manually added by the user. The **Edit Operation** feature provides the following capabilities to the user:

- Add Operations

- Edit Operation Details

- Delete Operations

The attributes of work order operations are listed in the following table:

Name	Description
Operation Sequence Number	This is the sequence in which operations are performed in the work order. The starting sequence and increments in sequence are determined by the plant parameters Starting Operation Sequence and Operation Sequence Increment.
Operation Code	Represents the standard operation code that is used to define the operation. If an operation is created using a standard operation, the details of the operation and its resources are copied to the work order and are not referenced thereafter.
Operation Name	Represents the name of the operation and it is mandatory to be specified when defining a nonstandard operation.
Description	Description of the operation.
Work Center	Work center where the operation is executed.
Count Point	Indicates if the operation is always performed in the shop floor and must be reported manually in the application during execution.
Auto Transact	Indicates if the operation is always performed in the shop floor and reported automatically in the application during execution. This may be the case when the operation transaction is insignificant to manually record it. Count point and auto transact indicators are mutually exclusive. **Optional Operation:** An operation is designated as optional if both the count point and auto transact indicators are unchecked. You can manually report component and resource usages at an optional operation
Start Date	Represents the planned start date of the operation and also referred as scheduled start date. The operation start date is generally calculated by the scheduling engine. This is a mandatory attribute. The operation start date must be encompassed within the work order start and completion date.
Completion Date	Represents the planned completion date of the operation and also referred as scheduled completion date. The operation completion date is generally calculated by the scheduling engine. This is a mandatory attribute. The completion date must be encompassed within the work order start and completion date.

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Name	Description
Serialization indicator	Derived from the work definition and is a display only attribute in the work order. Indicates if the operation is enabled for Serialized production reporting.

A work order must have at least one count point operation in it. Additionally, the last operation of a work order has to be a count point operation.

When a work order is released, the work order quantity is placed in the ready state of the first count point operation of the work order. When the work order quantity is increased or decreased, the differential quantity is updated at the first count point operation. During execution, the following quantities are updated and displayed for the operation in the list view. The quantities are displayed in the primary unit of measure.

Quantity	Description
Ready quantity	Represents the quantity that is ready for execution for the operation.
Completed quantity	Represents the quantity completed for the operation.
Scrapped quantity	Represents the quantity scrapped, if any, for the operation.
Rejected quantity	Represents the quantity rejected, if any, for the operation.

Work Order Operation Items: Explained

The **Work Order Operation Items** are also referred as a materials or components. The **Work Order Operations Items** contain information about the operation item requirements for the **Work Order Operations**. The **Edit Operation Item** feature provides the following capabilities to the user:

- Add Operation Items
- Edit Operation Item Details
- Delete Operation Items

The attributes of the work order operation items are listed in the following table:

Name	Description
Material Sequence Number	Represents a unique sequence assigned to the operation item.
Operation Item	Identifies the item required to perform the operation.
Quantity Per Product	Represents the quantity required to manufacture per unit of the product.
UOM	Represents the unit of measure of the quantity. It is always the primary unit of measure of the item.

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Name	Description
Inverse	Represents the inverse of the Quantity Per Product. This is applicable when the material Quantity Per Product is fractional but its inverse is an integer.
Basis	Quantity consumption can be either Fixed or Variable, indicating constant or proportional usage of the material with respect to the work order product quantity.
Yield	Represents the factor to calculate the required quantity of the operation item to accommodate component wastage. The value of yield must be 0 < yield <= 1. However, yield value greater than 1 is allowed with a warning message. Based on the plant parameter Include component yield in material requirements, the yield is considered in the calculation of the required quantity.
Required Quantity	Represents the operation item quantity required to manufacture the work order quantity. This is calculated and defaulted from the Quantity Per product depending on the Basis type as follows: If Basis = Fixed, the Required Quantity = Quantity Per Product/ Yield If Basis = Variable, the Required Quantity = Quantity Per Product * Work Order Quantity / Yield
Required Date	Represents the date when the materials are required to perform the operation. The required date must not be outside the operation start and completion dates.
Supply Type	Represents the method of consumption of the operation item. The various supply types are Assembly pull, Operation pull, Push, Bulk, Supplier.
Supply Subinventory	The default subinventory where material is drawn during assembly or operation pull.
Supply Locator	The default locator where material is drawn during assembly or operation pull.
Include In Planning	Indicates whether this operation item requirement must be considered by planning run for planning its supply.
Issued Quantity	Represents the net issued quantity of the operation item.
Open Quantity	Represents the quantity that is yet to be issued.
On Hand Quantity	Represents the quantity available in Inventory as on hand balance at plant level.

Work Order Operations Resources: Explained

The **Work Order Operations Resources** contain information about the resource requirements for the **Work Order Operations**. The **Edit Operation Resources** feature provides the following capabilities to the user:

- Add Operation Resources
- Edit Operation Resource Details
- Delete Operation Resources

The attributes of the work order operation resources are listed in the following table:

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Name	Description
Resource Sequence Number	Resource Sequence Number is used to define the sequence in which resources work together in finishing the operation. When multiple resource lines have the same resource sequence number, it indicates that the resource is scheduled in parallel, such as simultaneous resource.
Resource Name	Represents the name of the resource.
Code	Represents the code of the resource.
Description	Represents the description of the resource.
Usage Rate	Represents the resource usage required to manufacture per unit of the product.
UOM	Represents the unit of measure of the resource usage.
Inverse	Represents the inverse of the Usage Rate. This is applicable when the resource sage rate is fractional but its inverse is an integer.
Required Usage	Represents the resource usage required to manufacture the work order quantity. This is calculated and defaulted from the Usage rate depending on the Basis type as follows: If Basis = Fixed, the Required Usage = Usage Rate If Basis = Variable, the Required Usage = Usage Rate * Work Order Quantity
Scheduled	Indicates if the resource is scheduled or not. The resource can be scheduled, if the unit of measure of the resource belongs to the time unit of measure class specified in the profile SCM Common: Default Service Duration Class.
Charge Type	Represents whether the resources are charged manually by the user or automatically when completing the operation.
Assigned Units	Represents the number of resource units assigned to perform the operation.
Start Date	Represents the planned start date of the resource and also referred as scheduled start date. The resource start date is generally calculated by the scheduling engine. This is a mandatory attribute. The resource start date must be encompassed within the operation start and completion date
Completion Date	Represents the planned completion date of the resource and also referred as scheduled completion date. The resource completion date is generally calculated by the scheduling engine. This is a mandatory attribute. The resource completion date must be encompassed within the operation start and completion date.
Activity	Represents the activity of the resource in the operation such as setup, run, and tear down.
Principal	Represents a primary resource among the group of simultaneous resources. One of the simultaneous resources must be a principal resource.
Actual Resource Usage	Represents the net actual usage of the assigned resource.

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Work Order Serials: Explained

If a work definition that is serial tracked is referred in the work order, the preassigned serial numbers can be associated. You can transact serial components during work order execution for specific work order product serials. The following actions can be performed:

- **Generate and associate serials:** For the quantity specified, the application generates serial numbers for the work order product in Inventory application, and associates them to the work order.

- **Manually associate serials:** You can search and select the serials that are already defined and associate them to the work order.

- **Delete serials:** You can select and delete a serial. This is applicable to serials that are in associated status.

The details of the serial numbers tab displayed are listed in the following table:

Name	Description
Associated Quantity	Represents the quantity of serial associated to the work order in the primary unit of measure.
Open Quantity	Represents the quantity of serial yet to be associated to the work order in the primary unit of measure.
Item Serial Number	Represents the serial number that is associated to the work order product.
Serial Status	Represents the internal work execution status of the serial number.
Operation Sequence	The operation sequence number where the serial was last transacted.
Operation	The name of the operation.
Work Center	The work center name of the operation.

The following are the serial statuses that are displayed when the work order is executed:

Serial Status	Description
Associated	Serial is assigned in the work order.
In Process	When the first transaction is performed for the serial at the operation.
Rejected	Serial is rejected at any operation.
Scrapped	Serial is scrapped at any operation.
Completed	Serial is completed at the last operation into Inventory.

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Work Order Reservations: Explained

The work order as a source of supply can be reserved against a sales order demand. The reservations are typically created by the application when a back-to-back sales order or a configured item sales order is reserved for the work order.

The following are the attributes that are displayed if the work order has any reservation details:

Name	Description
Work Order Quantity	Represents the quantity of the work order in its primary unit of measure.
Total Reserved Quantity	Represents the work order that is reserved against one or more demand documents.
Reserved Quantity	Represents the quantity of the work order that is reserved against each demand document.
UOM	Primary unit of measure of the quantity reserved.
Document Type	Represents the document type of the demand. Typically, this is Sales Order.
Customer Number	Number identifying the customer of the demand.
Customer	Name identifying the customer of the demand.
Document Number	Number identifying the document of the demand.
Document Line Number	Number identifying the document line of the demand.
Due Date	Represents the due date of the demand document.
Line Quantity	Represents the quantity of the document line of the demand.
UOM	Unit of measure the demand quantity.

When you reduce the work order quantity, the existing sales order reservations are reduced appropriately. Similarly, when you change the status of the work order to canceled or closed, the existing sales order reservations are removed.

> ✎ **Note:** Work orders can be manually reserved against sales orders in the Inventory application.

Work Order History: Explained

When you create and execute the work order, the quantity, date and status information is displayed as work order history. This information is available for a work order throughout its life cycle.

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The following attributes are displayed on the History tab:

Name	Description
Remaining Quantity	Quantity of work order yet to be completed in the last operation.
Completed Quantity	Quantity of work order completed in the last operation.
Scrapped Quantity	Sum of scrapped quantities across all operations.
Released Date	Date when the work order is released.
Completion Date	Date when the work order is completed.
Closed Date	Date when the work order is closed.
Canceled Date	Date when the work order is canceled.
Canceled Reason	User specified reason for cancellation of the work order.

The status history displays the following details:

Name	Description
Date	Date when the work order status is changed.
From Status	Work order status before the change
To Status	Work order status after the change.
Reason	User-specified reason when the work order is canceled.
User	User who updated the status.

In addition, you can use the **Transaction History** link to view to the production transaction history for the work order.

Work Order Mass Actions: Explained

The production supervisor can perform work order mass actions such as update status and change work order priorities. The update work order statuses include Release, Unrelease, Hold, Cancel, and Close actions. You can select more than one work order and perform these actions.

The following are a list of mass actions with their corresponding descriptions:

Mass Action	Description
Release	The selected work orders are set to Released status.
Unrelease	The selected work orders are set to Unreleased status.
Hold	The selected work orders are set to On Hold status.
Cancel	The selected work orders are set to Canceled status and the cancellation reason is to be provided.
Close	The selected work orders are set to Closed status.
Change Priority	The selected work orders are updated with the new priority that is to be provided.

When the mass action is performed, a confirmation message is displayed with the count of work orders that were successfully processed. If there is an error, the individual work orders and their corresponding error details are displayed. The user can choose to proceed with or cancel the mass action. If the user chooses to proceed with the mass action, the successfully validated work orders are processed, and the work orders with errors are discarded from the mass action.

Work Order for Contract Manufacturing: Explained

Contract Manufacturing refers to scenarios where an Original Equipment Manufacturer (OEM) outsource their manufacturing process to another organization commonly known as a Contract Manufacturer (CM).

A contract manufacturing flow can be initiated either to fulfill a sales order, or as a result of implementation of supply chain planning recommendations. In either case, Supply Orders are created in Supply Chain Orchestration, after which Supply Chain Orchestration initiates the creation of a work order in Oracle Manufacturing Cloud, to track the progress of manufacturing at the contract manufacturer's facility. Supply Chain Orchestration sends a request to Purchasing to create a purchase order on the contract manufacturer, for the contract manufacturing service item.

In a contract manufacturing plant:

- You can search for work orders based on purchase order header and line.
- You cannot create a standard work order.
- You cannot create a nonstandard order.
- You cannot update the work order. However, for serialized assemblies, you can edit the serial numbers.
- You cannot perform work order mass actions.

In a contract manufacturing plant, it is recommended to set the attribute **Auto-generate of Serials at Creation of Work Order at Plant Level** to **Yes** for serialized manufacturing. When Supply Chain Orchestration creates a work order in manufacturing, the serials are automatically generated, and the generated serials are automatically written to an .xml file. This .xml file is automatically attached to the work order with attachment type **To Supplier**. You can view the same attachment containing the serials in the Purchase Order line.

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Importing Work Orders: Explained

Work order import is a method of creating and updating work orders through the user interface. You can use the cloud import framework to import the work order using spreadsheets. You can also provide the descriptive flexfields information during the work order import. To import work orders using the cloud import framework, you can download and use the work order .xlsm template. The .xlsm template organizes the work order information in the following tabs:

- **Instructions and CSV Generation:** The procedure to import work orders using the .xlsm template.

- **Import Batch:** The batch identifies the group of work orders that are being imported.

- **Work Order Headers:** The work order header information is identified uniquely by a Header Number within a batch. You can import work orders across plants within a batch.

- **Work Order Operations:** You can optionally specify work order operation information against the Batch code and Header Number.

- **Work Order Operation Materials:** You can optionally specify work order operation item information against the Batch Code, Header Number, and Operation Sequence.

- **Work Order Operation Resources:** You can optionally specify work order operation resources information against the Batch Code, Header Number, and Operation Sequence.

- **Work Order Serial Numbers:** You can optionally specify product serial information against the Batch Code and Header Number for serial tracked work orders.

Work Orders can be imported in batches using create and update modes either by providing the basic work order header details or by providing the complete details of work order header, operation requirements, resource requirements, component requirements, and serial details. You can create or update work orders using the following modes of import:

User Preference	Header Action	Operations Action	Items and Resources Action	Serials Action	High Level Considerations
To create work order with header only (Standard work order or nonstandard work order with work definition)	CREATE	-	-	-	You must specify the following with other necessary details: Work Definition details Allow Explosion =Y Scheduling method = DEFAULT_ SCHEDULER
To create work order with header and details, and to allow the scheduling engine to determine the dates.	CREATE	CREATE	CREATE	ASSOCIATE_ SERIAL	You must specify the following with other necessary details: Work Definition details (for Standard work orders) Allow Explosion = N

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User Preference	Header Action	Operations Action	Items and Resources Action	Serials Action	High Level Considerations
					Scheduling method = DEFAULT_ SCHEDULER
To create work order with header and details with dates specified.	CREATE	CREATE	CREATE	ASSOCIATE_ SERIAL	You must specify the following with other necessary details: Work Definition details (for Standard work orders) Allow Explosion = N Scheduling method = NO_SCHEDULING
To update the work order.	UPDATE	CREATE, UPDATE	CREATE, UPDATE	ASSOCIATE_ SERIAL DE_ ASSOCIATE_ SERIAL	

The successfully imported work orders as well as the errors if any are displayed in the Schedule Process output.

> ✎ **Note:** Note: If the Plant parameter **Automatically associate serial numbers during work order import** is enabled during import, the serials are automatically generated and associated for serial tracked work orders.

> ✎ **Note:** For more information about file-based data imports to import or update legacy and other data into Supply Chain Management Cloud from external applications, refer to the File Based Data Import for Oracle Supply Chain Management Cloud Development Guide.

Closing Work Orders: Explained

You can periodically close work orders after they have been executed by using the **Close Work Orders** program. Through this program, you can select multiple work orders using parameters such as work order number, dates, status, and items. The successfully closed work orders as well as the errors if any, are displayed in the scheduled process output. You cannot make any further updates to closed work orders.

Configured Item Work Orders: Explained

Configure to Order (CTO) is the process of ordering and fulfilling configured products. Configured products are either procured or made to order, and can result in back-to-back purchase orders, drop ship purchase orders, back-to-back

internal material transfers, or back-to-back production orders. Typically, Supply Chain Orchestration creates the work order for the parent Assemble to Order (ATO) model configuration. Work orders for child ATO model configuration are created by Supply Chain Planning.

A work order is created based on the configured item work definition. A configured item work definition is created dynamically by taking the base Assemble to Order (ATO) model work definition, selected options, Transactional Item Attributes (TIA), and applicability rules as input. When the application automatically creates work orders for the configured items in the CTO flow, the application considers the primary ATO Model work definition. You can manually create work orders for a configured item, and you can choose any particular work definition of the related ATO model for work order creation.

Features of Work Execution and Manufacturing Execution, such as manually creating work orders in the user interface, are also available for configured items work order.

When configuring the order in Oracle Fusion Configurator, you can select and enable Transactional Item Attributes (TIA). The TIA based applicability rules defined in the ATO model work definition determine the operations to be included in the configured item work definition.

Configured item work orders and manufacturing execution user interfaces display the TIA information, if TIA application scope is enabled for Configuration Matching and Manufacturing Execution. The TIAs can be viewed for information purposes in:

- Work Order Header

- Work Order Operation

- Detail Complete-Product User Interface

When you create a work order either manually (through the user interface, web services or bulk load), or automatically (by the application in a CTO flow) for a configured item, the **Configuration Transactional Item Attributes** selected during order configuration are displayed.

Work Orders Created from Automatic Work Definitions: Explained

If the work definitions your enterprise uses are created automatically, your work orders will incorporate certain characteristics.

If there are changes to the item structure in the future, these changes will be synchronized automatically to the work definition. These changes will then be reflected on the standard work order.

When you create a standard work order from an automatic work definition, the work order has only one operation, which is the standard operation selected as the default for the automatic work definition. All of the item structure components are assigned to this default standard operation.

The work definition as of date on the Create Standard Work Order dialog determines which components are effective in the item structure on that date. These are the components that are included as work order operation items.

Related Topics

- Automatic Work Definitions: Explained

5 **Production Supervisor Mobile Application**

Production Supervisor Mobile Application: Overview

You can track and manage the work orders in your production plant through a mobile application. The production supervisor mobile application is available for installation on your device and is supported by Android and iOS.

This application enables you to control shop floor situations from a remote location. If you have the role of a production supervisor, this application, you can do the following:

- Take immediate action for critical shop floor situations.
- Search for a specific work order by specifying attributes like work order number, item number, serial number.
- Use the camera of your mobile device to scan the barcode of the work order and search for it.
- View sets of work orders classified on the basis of the following:
  - work orders starting today
  - work orders completing today
  - work orders on hold
  - work orders past due
  - work order operations past due

    ✏ **Note:** Today signifies the current date as reflected in the application.

- Email the work order details or operation details to critical stakeholders to collaborate and take further action.
- Release work orders, cancel them, or put them on hold.
- Drill down to details like the items or components or resources associated with any particular work order and analyze the information.

Customizing Settings in the Production Supervisor Mobile Application: Critical Choices

You can customize the settings in the mobile application in order to restrict the search to only work orders that are relevant to you or which require faster execution.

You can navigate to the Settings page from either the initial login page or the springboard on the global header of the Overview page. You must have the job role of a production supervisor to customize settings.

When you open the application for the first time, you need to provide the URL of the server where the Oracle Manufacturing Cloud application is installed. You must then sign in using your login credentials.

✏ **Note:** You must have the required production supervisor job role assigned to you by your enterprise to view the contents in the mobile application.

Selection of Organization

The first time you sign in the application using the initial login page, you are directed to the **Organization Selector** page in the Settings. However, every other time that you sign in the application, you can find Settings on the springboard of the Overview page global header.

You can select the manufacturing inventory organization for which you want to track and manage work orders. Your selection of organization determines which work centers and work areas the application enables you to choose from. You can only select an inventory organization which is designated as a manufacturing plant.

> ✏ **Note:** Contract manufacturing organizations are not included in this list of organizations.

You can view only the work order details pertaining to the organization you choose, at any given point of time.

Once you select the organization, the **Next** button takes you to the **Work Area Selector** page.

Selection of Work Areas

You can select the work area in your manufacturing plant for which you want to track work orders. The work order search and the count of work orders for each infotile in the dashboard includes all work orders which have at least one operation in the selected work area.

Selection of a work area is optional. If you do not select a work area, the work orders pertaining to all the work areas in your manufacturing organization are visible to you when you search for them in the application.

Once you select the work area, the **Next** button takes you to the **Work Center Selector** page. You can change the work area, by navigating to the Settings page from the Overview page, any time you use the application.

Selection of Work Centers

You can select the work center in your manufacturing plant for which you want to track work orders. The work order search and the count of work orders for each infotile in the dashboard includes all work orders which have at least one operation in the selected work center.

Selection of a work center is optional. If you do not select a work center, the work orders pertaining to all the work centers in your manufacturing organization are visible to you when you search for them in the application.

Once you select the work center, click **Done** to save your settings.

Once you click the **Done** button, you are redirected either to the Overview page if you had navigated to the settings from the initial login page, or to the Settings home page if you had navigated to the settings from the springboard on the Overview page. You can change the work center, by navigating to the Settings page from the Overview page, any time you use the application.

Selection of Work Order List Filter

The production supervisor mobile application further helps you to customize your search for work orders by applying the Work Order List Filter. The default value is 7 days but you can use the filter to specify any value between 0 and 30 days.

Suppose you choose a value of 15 days, this filter restricts the search capability of the application to only include the work orders which are 15 days past due from the current date. The filter also affects the count of work orders as reflected for the **Past Due** and **On Hold** infotiles.

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> ✏ **Note:** The work order list filter does not affect the count of work orders as reflected for the **Starting Today** and **Completing Today** infotiles.

Selection of Past Due Tolerance

You can also choose a value for the field **Past Due Tolerance** in Settings. The default value is 0 but you can specify any value between 0 and 9999 hours.

You can choose a limit by which a work order can exceed the past due mark. For example, if you specify a past due tolerance limit of 2 hours, work orders past due for 2 hours or less are not treated as past due.

This value affects the count of work orders as reflected for the **Operations Past Due** and **Past Due** infotiles. The **Past Due Tolerance** value also affects the work order statuses as reflected on the Work Order List page and Operations page.

Tracking and Managing Work Orders: Examples

If you perform the role of a production supervisor, you can use the mobile application to view, track, and manage your work orders. You can also collaborate with other stakeholders through email to act further on the work orders.

The following examples explain a few scenarios and what actions you can take in those scenarios.

The following examples are discussed :

1. Searching for work orders and sending them through email.
2. Releasing work orders using quick swipe action.
3. Reviewing operation, component, and resource details.
4. Reviewing customer information of work orders.

Searching for Work Orders and Sending Them Through Email

You are reviewing the production status of your manufacturing plant shop floor as a production supervisor. Your production manager wants a report on a work order status which is reserved against a particular customer. The final assembly of the work order is serialized. Follow these steps to complete the task using the mobile application:

1. Sign in to the Supervisor Mobile Application using your production supervisor credentials.
2. Use your mobile camera to scan the bar coded serial number of the final assembly of the work order you want to report on.
3. Click the barcode scanner icon beside the Search field on the global header to upload the barcode.

    The search is automatically executed once you upload the barcode. You are directed to the Work Order Details page.
4. Click the **Actions** menu at the top of the page header. and select the **Email** icon.
5. Select the work orders you want to send to the manager and click **Done**.
6. Select the email client of your choice and enter the recipient's email and click **Send**.

> ✏ **Note:** The Subject field is automatically populated with the work order details you are sending to the client.

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You have successfully completed the task.

Releasing Work Orders Using Quick Swipe Action

You are monitoring the production status on your shop floor. The production operator informs you that a particular resource was not functioning for the past one week and now is back into operation. Follow these steps to quickly release the work orders affected by this operation, which were put on hold.

1. Sign in to the Supervisor Mobile Application using your production supervisor credentials.
2. Select the infotile **On Hold** from the key metrics on the Overview page. You are directed to the Work Orders List page which shows all the work orders on hold.
3. Select a work order you want to release. You are directed to the Work Orders Details page where you can review the following information:

   o Work order status

   o Completion status

   o Assembly item

   o Item description

   o Customer information

4. Swipe left on the work order name. The **Release** action is displayed for the work order.
5. Tap or click the **Release** action and click OK.

   ✏ **Note:** You can navigate to the Work Orders List page and repeat this quick swipe action for multiple work orders.

You have successfully completed the task.

Reviewing Operation, Component, and Resource Details

As a production supervisor you can track the work orders of your manufacturing plant which are starting today and are reserved against a sales order. Follow these steps to review various aspects of a work order and drill down to details.

1. Sign in to the Supervisor Mobile Application using your production supervisor credentials.
2. Select the infotile **Starting Today** from the key metrics on the Overview page. You are directed to the Work Orders List page which shows all the work orders whose operations start today.
3. Select a work order that you would like to review. You are directed to the Work Orders Details page where you can review the following information:

   o Work order status

   o Completion status

   o Assembly item number

   o Item description

   o Customer information

   o Work order description

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- o Work order type
- o Serialized indicator
- o Current operation
- o Quantity
- o Start date
- o Completion date

4. Click the **Operations** tab at the bottom of the page. You are directed to the Work Order Operations Details page. Here you find the following information:

- o Operation sequence
- o Operation code
- o Operation name
- o Scheduled start date
- o Scheduled end date
- o Work center of the operation
- o Count point indicator
- o Serialized indicator
- o Operation type

You can drill drown further from the Operations Details page to serial numbers, components, and resources specific to the operation.

5. Select the **Components** tab at the bottom of the Work Orders Details page. Here you find the following information:

- o Component item number
- o Component item description
- o Component issue status
- o Operation sequence
- o Operation code
- o Operation name

6. Select the **Resources** tab at the bottom of the Work Orders Details page. Here you find the following information:

- o Resource name
- o Applied quantity
- o Total quantity
- o Operation sequence
- o Operation code
- o Operation name
- o Work center

You have successfully completed the task.

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Reviewing Customer Information of Work Orders

As a production supervisor you can review the customer reservation details for any work order in your manufacturing plant. Follow these steps to review the assembly details for a work order completing on the current date.

1. Sign in to the Supervisor Mobile Application using your production supervisor credentials.
2. Select the infotile **Completing Today** from the key metrics on the Overview page. You are directed to the Work Orders List page which shows all the work orders whose operations are completing on the current date.
3. Select a work order that you would like to review. You are directed to the Work Orders Details page with the Details tab selected by default.
4. Click the drill-down arrow beside the customer name displayed on the Work Order Details page. You are directed to the **Customer Reservation** page. Here you can view the following details:

   > ✏ **Note:** The **Customer** field is visible only for work orders which have one or more sales orders reserved against them.

   - ○ Customer name
   - ○ Quantity reserved
   - ○ Sales order number
   - ○ Due date

5. In the Work Order Details page, the **Item Structures** section provides you the following information:

   - ○ Work order item
   - ○ Version
   - ○ Subinventory
   - ○ Locator
   - ○ Tolerance

6. On the Reservations page, you can also find the following information, if the work order is serialized.

   - ○ Item serial number
   - ○ Operation sequence
   - ○ Operation code
   - ○ Operation name
   - ○ Dispatch status
   - ○ Work center

You have successfully completed the task.

6 **Execute Production**

Production Execution Tasks: Overview

Oracle Manufacturing Cloud offers several features that facilitate the work order based and orderless production executions. The production reporting is simplified by enabling you to report the production transactions in just two clicks. You can also use the scanning devices for easy reporting.

For work order based execution, you can use the dispatch list that provides all the information that a production operator requires to perform the tasks. You can use the dispatch list to report the material, operation, and resource transactions from one single location. You can review the work order details and attachments, and print the work order travelers and product labels.

You can report the material and resource usages automatically or manually. The material and resource transactions can be reported based on the work order requirements or actual usage. The serialization enabled manufacturing is supported by enabling you to report material and operation transactions by product serials that are associated to a work order. The lean manufacturing is supported by enabling you to report orderless production activities without creating any work orders. The orderless transactions are reported by referencing a work definition. You can review the work order based and orderless transactions that are reported by the shop floor personnel.

The import feature is supported by enabling you to import the material, resource, operation, and orderless transactions using the file based data import infrastructure. You can use the predefined macro enabled spreadsheet templates for performing an import. Additionally, the external systems can record the material and operation transactions in Oracle Manufacturing Cloud by using the publicly available web services.

A typical day in a life of a production operator starts by accessing the tasks in the Work Execution work area to review work and report production activities.

Review Dispatch List: Explained

The dispatch list displays the work order operations to be worked on for a selected work area and one or more work centers. The dispatch list shows the count point and optional operations of the released and completed work orders. It lists the quantities by the dispatch statuses in a tabular format with several visual cues highlighting the records that require attention.

The dispatch list serves as a single place for production operators to perform the following tasks:

- Report operation transactions by quantity or serial number associated to the work orders.
- Report material transactions by quantity or serial number.
- Report resource transactions.
- Review work order details.
- Print work order traveler and product labels.

You can access the Review Dispatch List page by clicking any of the following in the Overview page in Work Execution work area:

- Review Dispatch List link from the Tasks pane
- Ready or Complete graph in the Operations Performance pane

- Past Due, Scrap, or Reject count in the Operation Exceptions pane

Note: You can access the Review Dispatch List page only if the role assigned to you has the Review Dispatch List privilege. For more information on privileges, refer to the Oracle Supply Chain Management Cloud Security Reference for Manufacturing and Supply Chain Materials Management guide.

Using the search feature in the review dispatch list page, you can do the following:

- You can search for the work order operations by using the most commonly used search attributes such as work area, work center, status, work order, start date, completion date, item, and serial. In contract manufacturing plant, you can also search based on the purchase order and purchase order line.

- You can use the application default search that retrieves the work order operations assigned to all the work centers belonging to the first work area in alphabetical order (ascending) and have quantities in Ready status. By default the records are sorted by the earliest completion date.

- You can also create and use a personalized saved search.

- You can configure the search to run automatically every time a user logs into the application.

Note: To generate the dispatch list for a specific work center every time a user logs into the application, create a personalized saved search and set it as default to run automatically.

Note: When querying the dispatch list based on start date or completion date, shift times are interpreted by the system in the plant time zone. However, named dates such as Today, Yesterday, and so on are interpreted in the user time zone.

Using the Dispatch List:

The dispatch list displays work order operation records in a tabular format with the following columns:

Column	Description
Quantity	Refers to the quantity of the work order operation in a specific dispatch status.
UOM	Represents the unit of measure of the quantity being manufactured.
Status	Represents the current dispatch status of quantities at any specific operation, such as Ready (that is, to be worked upon), Completed, Scrapped, or Rejected. This also represents the optional operations.
Item	Refers to the item on the work order that needs to be manufactured.
Item Description	Refers to the description of the item that needs to be manufactured.
Work Order	Refers to the work order number suffixed with the operation sequence. The work order number is shown as a link that enables you to navigate to the work order page to review the work order details.
Operation Name	Refers to the name of the operation.
Start Date	Refers to the scheduled start date and time of the work order operation.

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Column	Description
	Note: The start date and time is displayed in red color and with a warning icon if it is past due and the corresponding quantity is in Ready dispatch status.
Completion Date	Refers to the scheduled completion date and time of the work order operation.
	Note: The completion date and time is displayed in red and with a warning icon if it is past due and the corresponding quantity is in Ready or Reject dispatch status.
Priority	Refers to the work order execution priority.
Work Center	Refers to the work center in which the operation is processed.
Customer	Refers to the customer name on the sales order to which the work order is reserved as a supply. If there are multiple customers, then the dispatch list displays Multiple instead of the individual customer names.
Materials	Provides link to navigate to the Report Material Transactions page to manually report the material used at an operation.
	Note: The links are enabled only if the role assigned to the user has the Report Resource Transactions privilege associated to it.
	Note: The link displayed as Materials with an asterisk represents that there are Push components associated to the count point operation with open quantities that need to be manually issued.
	Note: The link displayed as Materials with a check mark represents that there are Push components associated to the count point operation and the required quantities have been manually issued.
	Note: The link displayed as Materials represents that there are no Push components associated to the count point operation.
Resources	Provides link to navigate to the Report Resource Transactions page to manually report resources used at an operation.
	Note: The links are enabled only if the role assigned to the user has the Report Material Transactions privilege associated to it.
	Note: The link displayed as Resources with an asterisk represents that there are Manual resources associated to the count point operation with open quantities that need to be manually reported.

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Column	Description
	Note: The link displayed as Resources with a check mark represents that there are Manual resources associated to the count point operation and the required quantities have been manually reported.
	Note: The link displayed as Resources represents that there are no Manual resources associated to the count point operation.
Purchase Order Header	Refers to the purchase order header number associated with the contract manufacturing work order.
Purchase Order Line	Refers to the purchase order line number.

For any specific record displayed in the dispatch list, you can do the following:

- Print work order traveler and product labels by selecting the option from the Action menu.

- Review the related work order details by clicking the work order link.

- Report operation transactions by quantity or serial number at a count point operation by expanding the record and using the Quick Complete or Complete with Details action.

  Note: Operation transactions can be reported only if the role assigned to the user has the Report Operation transactions privilege associated to it. Operation transactions cannot be reported at an optional operation.

- Report material transactions by quantity or serial number by clicking the Materials link.

- Report resource transactions by clicking the Resources link.

Production Exceptions: Explained

One of the key execution capabilities that Oracle Fusion Manufacturing offers is that you can report and manage work order exceptions. As a production operator or the production manager, you can report the problems that occur on the shop floor. These might be problems that can affect the smooth progress of a work order and are thus reported as production exceptions

You can also associate other work orders to a particular exception. These might be work orders that are impacted by the problems. For example, if 3 work orders use a particular component which is in short supply, an exception can be generated and all 3 work orders can be associated to it.

All users having the production supervisor role and required access to the manufacturing plant will be notified about the production exception.

Once an exception has been reported, you can review the exceptions if you have the role of a production supervisor. You can also take specific actions to resolve the problems and then close the exception. You can collaborate with all interested stakeholders using the **Oracle Social Network** and resolve the exception accordingly.

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An exception can be reported when progress cannot be made on a particular work order due to problems like shortage of a particular component. The following are the types of production exceptions reported in a plant:

- Work Area
- Work Center
- Resources
- Components
- Miscellaneous

Reporting Work Order Exceptions: Procedure

You can create or report an exception if you are a production operator or a production manager in a manufacturing plant.

To create an exception, follow these steps:

1. Navigate to the Work Execution work area.
2. On the Overview page, click the **Tasks** side pane.
3. Select the **Review Dispatch List** link.
4. Select the work order operation against which you want to report an exception.
5. Click **Actions** and from the drop-down list, select the option **Report Production Exception**.

A separate window opens where you can select the **Exception Type** from a list. If you select Resource as the exception type, the application automatically populates the **Resource** field with only the resources associated with the particular work order. The application dynamically displays the attribute based on the exception type you choose.

> ✎ **Note:** As a production operator, you can report an exception with or without reference to a particular work order operation. Also, you can associate the same exception to other impacted work order operations.

Once you save this exception, the application generates a notification that is sent to all users with the role of production supervisor and who have access to the manufacturing plant.

Associating Work Orders to an Exception: Procedure

As a production supervisor you can review an existing exception that has been reported by the production manager. You can also choose to associate other work order operations to that exception which might be impacted by the problem. For this, you must be in the Work Execution work area.

To associate work order operations to an open exception, follow these steps:

1. On the Overview page, scroll over to the **Tasks** side pane and select **Manage Production Exceptions**.
2. Click the **Open Exceptions** infotile which gives you a list of all exceptions reported in your manufacturing plant.
3. Select an exception from the list to which you want to associate work order operations. This directs you to a separate **Exceptions** tab.

   This tab displays additional information regarding the exception such as its type, status, description and so on.
4. Move to the Impacted Work Order Operations area and click the **Add** icon. This opens a dialog box **Search for Work Order Operations**.
5. Search for the operation you want to associate with the exception. Click the **Add** button at the bottom of the box.

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6. Now the Impacted Work Order Operations area is automatically populated with details about the operation that you have added. Click the **Save and Close** button at the header of the page.

You can now choose to collaborate with all the stakeholders through the Oracle Social Network to resolve the exception. For this click the **Social** icon at the header of the page. You can add the work order operation on which you want to act as the social object and start a conversation.

> ✎ **Note:** For more information about how to use the Oracle Social Network (OSN) to collaborate and accomplish such tasks, look at Chapter 6: Social Network in the Oracle Applications Cloud Using Common Features guide.

Manage Production Exceptions: Explained

When you receive a notification about an exception, as a production supervisor you can navigate to the Manage Production Exceptions page and view the reported exceptions. You can also search for various work orders and review if they have any exceptions associated with them or not.

Analyzing Infotiles Related to Exceptions

There are a set of different infotiles which provide you various aspects of information about the unresolved exceptions.

They are as follows:

- **Open Exceptions**: This infotile shows you the total number of open exceptions you can act upon.
- **Exception Type**: This infotile groups the exceptions by the type such as component shortage, resource problems and so on. It is depicted in the form of a pie chart.
- **Reported On**: This infotile groups the exceptions by the various shifts during which they were reported.
- **Severity**: This infotile groups the exceptions by the level of criticality such as high or low.

You can click on any one of these infotiles to drill down further into the problem and get more information regarding the exception and associated work orders.

Identifying Exceptions for Work Order Operations

In the **Review Dispatch List** table, you can easily locate which of the work orders have exceptions associated with them. An icon is displayed beside the work order operation. When you hover over the icon, it shows the number of open exceptions. If you click on the icon, it takes you to the **Exceptions** tab of the work order.

As a production supervisor you can also navigate to the Manage Work Orders page to search for the work orders which have exceptions associated with them. You can search for a particular work order here and if the icon appears beside the work order in the Search Results area, you can follow the same steps to drill down further.

You can go to the Edit Work Orders page and select the **Operations** tab. If you open the **Edit Operation Items**, you find the same icon displayed beside the components that have associated with them. These are the components that have some shortage and are in turn affecting the progress of the work order operations they are a part of.

Closing Work Order Exceptions

As a production supervisor, once you have assessed all the open exceptions that were notified to you, you can now choose to close the exceptions that have been resolved. You can either close the entire exception or only one or a few work order operations associated with the exception.

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On the Overview page of the Work Execution work area, select the task **Manage Production Exceptions** from the side pane. If you drill down to the **Open Exceptions** infotile, you get a list of all unresolved exceptions. You can choose to select the **Close Exception** button here by selecting a particular exception from the list. This closes the exception for all the work order operations associated with it.

You can also close an exception in the **Exceptions** tab. If you select an exception you are directed to the **Exceptions** tab. You can set the **Exception Status** to **Closed** by selecting that option from the list. Before closing an exception, you can also set the status of the work order to On Hold. Once an exception is resolved, you can set the work order status to Released and then close the exception.

You can also close the exception only for particular work order operations and not on the whole. In the **Exceptions** tab, move to the Impacted Work Order Operations area. Select all the work order operations for which you have resolved the exception. Click the **Close Exception** button at the top of the table. **Save and Close** your changes.

> 🖉 **Note:** A work order consists of several operations. You associate an exception not to the whole work order but to certain operations which might be impacted. When an operation is deleted from a work order during the process of production, the application automatically disassociates the exceptions from that operation.

Report Operation Transactions: Explained

The report operation transactions feature allows you to report the progress at a work order operation level. You can report the progress of the work order using Quick Complete action in two clicks, if the transaction does not require additional inputs. You can report the progress of the work order using Complete with Details action by reviewing the details of transactions through multiple pages. If the transaction is an operation completion at the last operation, the product is completed to inventory.

There are two modes to manually report the operation transactions:

- Quick Complete: You can use the quick complete mode to create the operation transactions in two clicks. This mode can be used only if the work order has all the necessary data for the transaction setup and the transaction does not require any additional inputs. The quick complete mode can also create multiple operation transactions to perform the complete, scrap, and reject transactions in one transaction cycle.

- Complete with Details: You can use the complete with details mode when the transaction requires you to review and update the transaction data, such as materials consumed, resources charged, and so on. You can also use this mode when you need to provide the additional details for the transaction, such as lot and serial information for the components, supply subinventories for the components, and so on. This mode requires navigation through multiple pages but provides the flexibility to update the transaction data that is derived from the work order. If the transaction is an operation completion at the last operation, the product is completed to the inventory.

You can perform the following operation transactions:

- Complete a quantity at an operation.

- Complete at the last operation and inventory the product.

- Scrap a quantity at an operation. You must have the WIP_REPORT_SCRAP_TRANSACTIONS_PRIV privilege to perform the transaction. This is supported for the count point operation only.

- Reject a quantity at an operation for further review to decide on the disposition action. This is supported for the count point operations only.

- Complete a rejected quantity if the rejected quantity is decided as acceptable. This is supported for the count point operations only.

- Scrap a rejected quantity if the rejected quantity is decided as unacceptable. This is supported for the count point operations only.

- Complete to complete for overcompletions.

Additionally, you can also correct any errors by performing a reverse transaction. The reverse transaction reverses the quantity transacted earlier. The forward and reverse transactions are recorded as separate transactions. The reverse transactions can be performed from the complete, scrap, or reject dispatch states. You can perform the following reverse transactions:

- Reverse at an operation.

- Reverse the product at the last operation.

- Reverse from scrap to ready. You must have the WIP_REPORT_SCRAP_TRANSACTIONS_PRIV privilege to perform the transaction.

- Reverse from reject to ready.

The operation transactions need to be reported at the count point operations only. The operation for the automatically transact operations are automatically reported when an operation transaction for the next count point operation is reported. Similarly, for the reverse transactions, the quantity is automatically reversed at the automatically transact operation if the quantity is manually reversed at the previous count point operation.

> ✏ **Note:** The operation transactions are not supported for the optional operations.

Overcompletion:

The completing or scrapping of the quantity that is over the work order quantity at the first count point operation in the work order operations is called overcompletion. This is supported if the work order overcompletion tolerance is setup either at work order level or at the Default Overcompletion Tolerance Percentage plant parameter. At the work order level, the overcompletion can be set up as the percentage of the work order quantity or as the absolute quantity. However, the plant parameter is used to set up a default value for overcompletion in percentage. The overcompletion set up at the work order level always overrides the overcompletion set up in the plant parameter.

Reporting Operation Transactions in a Contract Manufacturing Plant

In a contract manufacturing plant, when you report the completion of the last operation, the application receives the contract manufacturing service item against the contract manufacturing plant into the inventory. The application then completes the last operation which backflushes the contract manufacturing service item and posts the assembly into inventory. For successful completion of the last operation in a contract manufacturing plant, you must do the following:

- Set up the default item transaction for the inventory.

- Set up the default supply subinventory and locator in the contract manufacturing plant. You must ensure that the subinventory and locator in the contract manufacturing plant is same as that in the default Item transaction.

- Set the receipt routing for the purchase order as Direct.

In a contract manufacturing plant, you cannot perform the following:

- Scrap a quantity at an operation

- Reject a quantity at an operation

- Reverse to Ready at the final operation

Quick Complete

The quick complete mode is available only if there is no lot or serial controlled operation pull component in the work order operation.

Irrespective of the availability of the Quick Complete button, a transaction is eligible for quick complete only if:

- There is no lot or serial numbers to be entered for the product. The quick complete is not supported if the product is serialized at receipt or the transaction is a completion transaction at the last operation, because you are required to enter the lot or serial number.

- There are no pull components to be backflushed. The backflush components can be assembly pull or operation pull. The scrap transactions that have lot or serial controlled assembly pull components are not eligible for quick complete.

- If in a set of multiple transactions, if one of the transactions is not eligible for quick complete, all the transactions will fail.

- The default supply subinventories for all the pull components must be specified in the work order or in the Default Supply Subinventory plant parameter if there are pull components to be backflushed.

- The default supply subinventories for product completion must be specified in the work order or in the Default Completion Subinventory plant parameter if the transaction is a product completion. The plant parameters Default Completion Sub inventory and Default Completion Locator are mandatory plant parameters.

Complete with Details

All count point operations in the dispatch list are eligible for the complete with details mode. Using the complete with details mode, you can create only one type of operation transaction at a time, that is, you can either complete or scrap or reject in one transaction. You cannot perform more than one transaction type in a transaction. The quantity entered should not exceed the quantity available for transaction. The quantity available for transaction is the quantity that is available in the current dispatch state. However, if the operation is the first count point operation and if any over completion quantity as setup in the work order, then the total transaction quantity can exceed the quantity in the current dispatch state to the extent allowed by over completion tolerance. Over completion is allowed only at the first count point operation in the work order operation from Ready state.

For transactions initiated from Reject dispatch state, you will have three attributes Complete, Scrap or Reverse to Ready to complete, scrap or revere the quantity to ready state. The user can complete or scrap or reverse a quantity to ready. The total quantity entered should not exceed the quantity in the current dispatch state.

For transactions initiated from Complete or Scrap dispatch state, you will have only one attribute Reverse to Ready to enter the quantity that is to be reversed to ready state. The total quantity entered should not exceed the quantity in the current dispatch state.

The flow for reporting an operation transaction consists of the following four train stops:

Product Train Stop:

In the Product train stop, you can review the transaction. The following are the attributes in the Product train stop:

Field	Description
Transaction Date	The date of transaction. The field is set to the current date and time. However, you can update it to a past date and time.
Attachments	The list of attachments from the work order.

Field	Description
Available to Transact	The quantity that can be transacted with the dispatch state.
Transaction Type	The transaction type for the current transaction.
Quantity	The current transaction quantity. You can update this field up to the quantity specified in Available to Transact field. This field is read only when you navigate back to the page from an upstream page.
Print Label	If selected, the labels will be printed as per the predefined template.
Transaction Note	The note for the transaction.
Operation Transaction summary	The region has the following three attributes that show the current status of transacted quantity in the work order operation: • Complete • Reject • Scrap

For serial tracked operations, the serial numbers previously generated and associated in the work orders are displayed in the expanded region of the dispatch list row. The transaction is initiated by selecting the check box under the dispatch state for a serial number and then clicking the Complete with Details action. Only one serial can be transacted at a time for this action.

Materials Train Stop:

The Materials train stop is displayed if the Allow Quantity Changes During Backflush plant parameter is set as Both or Material. The following are the attributes in the Materials train stop:

Field	Description
Status	Icon to show the status whether the mandatory attributes have been entered for the row.
Operation Sequence	Operation sequence in the work order from which the material was derived. This can be the current operation or a previous automatically transact operation.
Component	Item number of the component.
Basis	Basis type as defined in the work order operation materials for the component.
UOM	Unit of measure as defined in the work order materials or in organization item definition.
Required	Required quantity as defined in the work order for non-serial items. For serial items defined in the work order, the required quantity is 1 for each row and there can be as many rows as the quantity of item required for the transaction.
To Transact	Set to Required quantity for non-serial items with minimum as 1.
Component Lot Number	Lot number for the item.

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Field	Description
Component Serial Number	Serial number for the item.

Lots can be defaulted or manually entered by the user, based on the setting of the plant parameter, Lot Selection During Backflush.

- If the parameter is set to Manual, the lots are not defaulted and the user manually enters the lots.

- If the parameter is set to Lot FIFO, the lots are defaulted on the basis of first in first out, using the receipt date.

- If the parameter is set to Lot FEFO, the lots are defaulted on the basis of first expiration first out, using the expiration date.

Resources Train Stop:

The Resources train stop is displayed only if the Allow Quantity Changes During Backflush plant parameter is set up as Both or Resources. The following are the attributes in the Resources train stop:

Field	Description
Status	Icon to show the status whether the mandatory attributes have been entered for the row.
Operation Sequence	Operation sequence in the work order from which the material was derived. This can be the current operation or a previous automatically transact operation.
Sequence	This is the resource sequence as in the work order operation resources.
Resource	Name of the resource.
Resource Type	Resource type as defined in the work order resources or in resource definition.
Activity	Resource activity as defined in the work order resources or in resource definition.
Basis	Basis type as defined in the work order operation for the resource.
UOM	Unit of measure as defined in the work order resources or in organization item definition.
Required	Required quantity as defined in the work order resources.
To Charge	Set to Required quantity.

Inventory Train Stop:

The Inventory train stop is displayed only if the operation is a product completion or reverse at the last operation. The following are the attributes in the Inventory train stop

Field	Description
Status	Icon to show the status whether the mandatory attributes have been entered for the row.

Field	Description
To Transact	The transaction quantity by default but can be updated to generate multiple rows for the transaction quantity. The total quantity in the rows must match the transaction quantity.
Lot Number	Lot number of the product.
Serial Number	Serial number of the product.
Subinventory	Completion sub inventory as defined in the work order or in plant parameter Default Completion Sub inventory.
Locator	Completion sub inventory as defined in the work order or in plant parameter Default Completion Locator.

Report an Operation Transaction: Worked Example

The following example illustrates performing an operation transaction in a serialized enabled operation

Steps to Perform an Operation Transaction

The example discusses completing the required quantities to the inventory for a work order operation.

1. In the Navigator, click the Work Execution work area link.
2. Verify the manufacturing organization on the top right corner of the page. If it is not the correct organization, click the Change Organization and set it to the required organization.
3. On the Work Execution Overview page, in the Tasks pane, click the Review Dispatch List link.
4. On the Review Dispatch List page, use the Search region to search for the work order for which you want to perform the transaction. To search for a work order in a specific status, enter or select values from the following fields:

Field	Value
Work Area	Select the work area of the work order.
Work Center	Select the work center of the work order.
Status	Select the status of the work order. The valid values are: Complete, Optional, Ready, Reject, and Scrap.
Work Order	Enter the work order.

5. Click the Search button. The records that fulfill the search criteria are displayed. Note that, you can also use the following fields to perform a search as per your requirement: Item, Start Date, Completion Date, and Serial Number.

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6. Look for the row with the work order for which you want to perform the operation transaction. Click the expansion icon in the first column to expand the row.

7. Select the check box under the Complete column for the first serial number.

8. Click the Complete with Details button. Note that the Complete with Details option can be used only for Complete, Reject, or Scrap quantity, and not more than one quantity can be populated.

9. Leave the Transaction Date as system current date and time.

10. Enter any value in the Transaction Note field to indicate any information for the transaction.

11. Click the Next button. The Materials train stop is displayed.

12. In the Materials train stop, review the operation pull material requirements derived from the work order definition.

13. For the component that you want to perform the transaction, update the To Transact quantity. Note that the To Transact quantities are defaulted from the work order definition and can be updated to reflect actual usage quantities.

14. Click the Next button. The Resources train stop is displayed.

15. In the Resources train stop, for the resource that you want to perform the transaction, update the To Charge quantity. Note that the To Charge quantities are defaulted from the work order definition and can be updated to reflect actual usage quantities.

16. Click the Next button. The Inventory train stop is displayed.

17. In the Inventory train stop, leave the Subinventory as populated by the default value.

18. Click the Save and Close button. A confirmation message is shown to confirm that the required quantities have been completed to inventory for the work order operation.

Report Material Transactions: Explained

The report material transactions feature enables a production operator to report the work order operation for the materials that are consumed in the operation. You can issue materials from the inventory to the work order operation and return the issued materials back to the inventory.

You can report a material transaction on the Report Material Transactions page. You can access this page from either of the following pages:

- On the Review Dispatch List page, click the Material link for the work order operation. This link is enabled only if the role assigned to the user has the Report Material Transactions privilege associated to it.

- On the Work Execution Overview page, in Tasks pane, click the Report Material Transactions link. Select the work order and work order operation.

The material transactions can also be imported through the Material Transaction Web Service or through the predefined XLSM templates.

> **Note:** The auto transact operations are not shown in the dispatch list. Hence, the materials for the auto transact operations are reported by accessing the Report Material Transactions page from the Work Execution Overview page.

> **Note:** In a contract manufacturing plant, you must not report material transactions for the contract manufacturer owned components.

Issuing Materials to the Work Order Operation

On the Report Material Transactions page, the materials are issued to the work order by specifying the transaction type as Issue. You can control the issuing of the materials using the Show Components option. The Show Components option

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is defaulted based on the setting of the Default Transaction Mode plant parameter. However, you can edit the Show Components option as per your requirement.

- When the Show Components option is set to All: All the material requirements as defined on the work order for the operation with Push supply type are defaulted. This mode is ideally used when all the required materials are issued at once and there are minimal or no changes to the material requirements. Also, based on whether the Default Transaction Quantity plant parameter is set to material or both, the materials are defaulted with required quantity. The ad hoc materials, that is, the materials not defined as required in the work order operation can be manually entered using the Add action.

- When the Show Components option is set to Manually entered: The material requirements as defined on the work order for the operation are not defaulted. You can enter the required materials manually. This mode is ideally used when only few of the required materials are issued at once.

You can enter the transact quantity, serial number, and lot number for the material based on the material control setup. The subinventory and locator are defaulted based on setup at work order or plant level. However, you can edit the Subinventory and Locator fields. The material transactions can also be reported by using a scanner. The scanner can scan the component number. Based on the material control setup, the scanner can optionally scan the serial and lot numbers.

For the serial tracked manufacturing, in which the production is tracked using the serial numbers, the materials are issued with reference to the item serial number. For the serial controlled components, the issued quantities are tracked at the serial level. However, the lot controlled components and uncontrolled components are tracked at the work order level.

Returning Materials to the Inventory

On the Report Material Transactions page, the materials issued to the work order are returned to the inventory by specifying the transaction type as Return. You can control the returning of the materials using the Show components option. The Show components option is defaulted based on the setting of the Default Transaction Mode plant parameter. However, you can edit the Show components option as per your requirement.

- When the Show components option is set to All: All the materials issued to the work order for the operation with Push supply type are defaulted.

- When the Show components option is set to Manually entered: The material requirements as defined on the work order for the operation are not defaulted and you can enter the required materials manually.

For the serial tracked manufacturing, in which the production is tracked using the serial numbers, the materials are returned in reference to the item serial number.

Report a Material Transaction: Worked Example

The following example illustrates reporting a material transaction in a serialized enabled operation. The example discusses the process of issuing materials to a work order operation.

Steps to Report a Material Transaction

To issue materials to a work order operation, perform the following steps:

1. In the Navigator, click the Work Execution work area link.
2. Verify the manufacturing organization on the top right corner of the page. If it is not the correct organization, click the Change Organization and set it to the required organization.

3. On the Work Execution Overview page, in the Tasks pane, click the Review Dispatch List link.

4. On the Review Dispatch List page, use the Search region to search for the work order for which you want to perform the transaction. To search for a work order in a specific status, enter or select values from the following fields:

Field	Value
Work Area	Select the work area of the work order.
Work Center	Select the work center of the work order.
Status	Select the status of the work order. The valid values are: Complete, Optional, Ready, Reject, and Scrap.
Work Order	Enter the work order.

5. Click the Search button. The records that fulfill the search criteria are displayed. Note that, you can also use the following fields to perform a search as per your requirement: Item, Start Date, Completion Date, and Serial Number.

6. Look for the row with the work order for which you want to perform the transaction. Click the Materials link to report the material transaction.

7. Retain the Transaction Type option as Issue for issuing the materials to the work order operation. For returning the materials to the inventory, you must select Return as the Transaction Type option.

8. Retain the default system date as the Transaction Date. You can update the field to a past date if required.

9. Retain the default system date as the Transaction Date. You can update the field to a past date if required.

10. In the Show Components option, Select All to default all the material requirements defined on the work order for the operation with Push supply type. You can select Manually entered as the show components option so that the material requirements as defined on the work order for the operation are not defaulted and you can enter the required materials manually.

11. Now, the materials set up on the work order operation are shown in the page. You can manually enter a new material by adding a new row. In the new row, from the Component drop-down list, select the material. And from the Component Serial Number drop-down list, select the serial number for the material.

12. For each material that you want to issue, in the To Transact field, enter the material quantity to be issued to the work order operation. The To Transact quantity is derived from the work order and can be updated to reflect the actual usage quantity. A check mark is shown in the Status field when all the required data is entered for the component.

13. Click the expansion icon of each updated row to view more details. Verify the correct subinventory in the Subinventory drop-down list and update it if required.

14. Click the Save and Close button. A confirmation message is shown on the successful completion of the material transaction.

Report Resource Transactions: Explained

A resource transaction is an execution transaction that charges the work order operation for the resources that are consumed in the operation. The resource transactions are reported for performing the following two tasks:

- To manually charge a resource to the work order operation.

- To reverse the charges made earlier for a resource to a work order operation.

Both charging and reversal are recorded as two separate transactions.

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You can report a resource transaction on the Report Resource Transactions page. You can access this page from either of the following pages:

- On the Review Dispatch List page, click the Resources link for the work order operation.
- On the Work Execution Overview page, in Tasks pane, click the Report Resource Transactions link. Select the work order and work order operation.

The Report Resource Transactions page opens with the resources that are set up in the work order operation with the charge type as Manual. The Report Resource Transaction page has the following fields:

Field	Description
Item	The product that is being manufactured in the work order.
Work Order Quantity	The quantity of the item that is being manufactured in the work order.
Work Center	The work center for the work order operation.
Transaction Type	The type of the resource transaction. The two options are: • Charge: Select Charge for charging a work order operation with the resources consumed in the operation. • Reverse: Select Reverse for reversing the charges to correct any clerical error.
Transaction Date	The date of the transaction. This is defaulted to the system date. You can update the transaction date as a past date.
Show Resources	The resources to be shown for the work order operation. The two options are: • Manually Entered: When selected, only the manually entered resources are shown. The default resources from the work order are not shown. • All : When selected, all the resources including the resources that are defaulted from work order. The Show Resources option is derived based on the setting of the Default Transaction Mode plant parameter.
Status	Icon that shows whether or not the mandatory attributes have been entered for the row. Also, a plus icon is shown for the newly added adhoc resources.
Sequence	The resource sequence within the work order operation resources. For the adhoc resources that are not set up in the work order, a new sequence is generated when the resource is added.
Resource	The name of the resource.
Type	The resource type as defined in the work order resources or in the resource definition.
Activity	The resource activity as defined in the work order resources or in the resource definition.
Basis	The basis type as defined in the work order operation for the resource.

Field	Description
UOM	The unit of measure as defined in the work order resources or in the resource definition.
Required	The resource quantity to charge the work order operation. The To Charge field is defaulted to the quantity specified in the Required field if the plant parameter Default Transaction Quantity is set as either Both or Resource.
To Charge	The resource quantity to charge the work order operation. The To Charge field is defaulted to the quantity specified in the Required field if the plant parameter Default Transaction Quantity is set as either Both or Resource.

Charging Resources to the Work Order Operation

You can charge a work order operation for the labor and equipment resources that are consumed while performing the operation. The consumed resources can be the resources that are set up in the work order operation or any other additional ad hoc resources that are consumed during the operation. Select the Transaction Type as Charge for charging the resources. If the Basis is set up as Fixed, then the resource appears only during the first transaction of the work order operation. At first, the manual charging is checked. The net charged quantity must be zero for the resource in the work order operation with Basis attribute as Fixed. If it is not zero, then the resource is not shown.

Reversing Resource Charges to the Work Order Operation

If a resource is charged by mistake, it can be reversed with another transaction of type Resource Reverse. Select the Transaction Type as Reverse for reversing the charged resources. If the Basis is set up as Fixed, then the resource appears only during the last transaction of the work order operation. For the last manual reverse, the quantity for resource in the work order operation must be zero in all the dispatch states except for Ready. And there must be some previously charged quantity that must become zero for the resource after the transaction.

Report a Resource Transaction: Worked Example

The following example illustrates reporting a resource transaction in an operation. The example discusses the process of charging resources to a work order operation.

Steps to Report a Resource Transaction

To charge resources to a work order operation, perform the following steps:

1. In the Navigator, click the Work Execution work area link.
2. Verify the manufacturing organization on the top right corner of the page. If it is not the correct organization, click the Change Organization and set it to the required organization.
3. On the Work Execution Overview page, in the Tasks pane, click the Review Dispatch List link.
4. On the Review Dispatch List page, use the Search region to search for the work order for which you want to perform the transaction. To search for a work order in a specific status, enter or select values from the following fields:

Field	Value
Work Area	Select the work area of the work order.

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Field	Value
Work Center	Select the work center of the work order.
Status	Select the status of the work order. The valid values are: Complete, Optional, Ready, Reject, and Scrap.
Work Order	Enter the work order.

5. Click the Search button. The records that fulfill the search criteria are displayed. Note that, you can also use the following fields to perform a search as per your requirement: Item, Start Date, Completion Date, and Serial Number.
6. Look for the row with the work order for which you want to perform the transaction. Click the Resources link to report the resource transaction.
7. Retain the Transaction Type option as Charge for charging the resources to the work order operation.
   For reversing any charged resources, you must select Reverse as the Transaction Type option.
8. Retain the default system date as the Transaction Date. You can update the field to a past date if required.
9. In the Show Resources option, select All to view all the resources including the ones set up on the work order operation.
   You can also view only the manually entered resources by selecting Manually entered as the Show Resources option.
10. Now, the resources set up on the work order operation are shown in the page. If needed, you can manually enter a new resource by adding a new row. In the new row, from the Resource drop-down list, select the resource. Optionally, from the Activity drop-down list, select the resource activity.
11. For each resource that you want to charge, in the To Transact field, enter the resource quantity to be charged to the work order operation. The To Transact quantity is defaulted from the work order definition and can be updated to reflect the actual usage quantity.
   A check mark is shown in the Status field when all the required data is entered for the component.
12. Click the Save and Close button. A confirmation message is shown on the successful completion of the resource transaction.

Report Orderless Transactions: Explained

You can report the production transactions, such as reporting of completion or scrap of an item, without having to create a work order. These transactions can be reported with reference to a work definition that is used to determine the material and resource usages. The reported production transactions can be reversed by reporting either Orderless Return or Return From Scrap transactions. The referenced work definition is used to return the materials back to inventory. The resource charges are also reversed based on the work definition.

You can report the orderless completion and scrap using the Report Orderless Completion page that is accessible from the Work Execution Overview page. You can report the orderless return and return from scrap using the Report Orderless Return page that is accessible from the Work Execution Overview page. You can also import the orderless transactions through the Material Transaction Web Service or Import Material Transaction file based import process.

> 🖉 **Note:** You cannot perform orderless transactions in a contract manufacturing plant.

> 🖉 **Note:** You cannot report orderless transactions for configured items.

Specifying the Product Information

In the Product train stop, you must specify the following item information and the reference to the work definition.

- Transaction Type: In the Report Orderless Completion page, select the Transaction Type as Complete for reporting the production completions. Or select the Transaction Type as Scrap for reporting the productions scraps. In the Report Orderless Return page, select the Transaction Type as Return for reversing the production completions. Or select the Transaction Type as Return from Scrap for reversing the production scraps. The Scrap and Return from Scrap transaction types are enabled only if you have the WIP_REPORT_SCRAP_TRANSACTIONS_PRIV privilege.

- Transaction Subtype: The Transaction Subtype field represents the specific nature of the work that is being performed, such as standard production, prototyping, or repair. The Costing can derive the transaction accounts based on the Transaction Subtype field.

- Work Definition: After selecting the item, the work definition with the production priority as 1 is defaulted. However, you can select another work definition that determines the correct material and resource usage as per your requirement.

Reviewing the Backflush materials

In the Backflush Materials train stop, you can review the material requirements. If the **Include component yield in material requirements** plant parameter check box is selected, the yield is considered in the calculation of the required quantity. The material usages specified in the selected work definition with the supply types as push, operation pull, or assembly pull are displayed.

If the plant parameter Allow quantity changes during backflush is set as either Materials or Both, you can perform the following:

- Modify the transaction quantities for the materials.

- Delete the defaulted material transactions.

- Add new material transactions.

Lots can be defaulted or manually entered by the user, based on the setting of the plant parameter, Lot Selection During Backflush.

- If the parameter is set to Manual, the lots are not defaulted and the user manually enters the lots.

- If the parameter is set to Lot FIFO, the lots are defaulted on the basis of first in first out, using the receipt date.

- If the parameter is set to Lot FEFO, the lots are defaulted on the basis of first expiration first out, using the expiration date.

Reviewing the Autotransact Resources

In the Autotransact Resources train stop, you can review the resource requirements. The resource usages specified in the selected work definition are defaulted as resource transactions with the required quantity.

If the plant parameter Allow quantity changes during backflush is set as either Resources or Both, you can perform the following:

- Modify the transaction quantities for the resources.

- Delete the defaulted resource transactions.

- Add new resource transactions.

Specifying the Inventory Details

In the Inventory train stop, you can specify the inventory information. This is only applicable for complete and return transactions. The Inventory train stop is disabled for the scrap and return from scrap transactions.

You can complete or return the transaction quantity from more than one subinventory or locator. You can complete the quantities to an existing lot or you can specify a new lot number.

Report an Orderless Transaction: Worked Example

This example illustrates how to report production completion for an item as an orderless transaction.

Steps to Report an Orderless Transaction

Perform the following steps to report an orderless transaction:
1. In the Navigator, click the Work Execution work area link in Manufacturing.
2. On the Work Execution Overview page, in the Tasks pane, click the Report Orderless Completion link.
3. Enter the item for which you want to perform the transaction.
4. The Work Definition field gets automatically defaulted to the work definition with the production priority set as 1. Retain the value or select another work definition as per your requirement. The work definition determines the material and resource usages.
   Due to the application issue, when you enter the item first time, the work definition does not get automatically set to the default value. So, you must enter the item code again. The second time, the work definition is defaulted.
5. Retain the Transaction Type as Complete to report a production complete transaction. The Complete option is by default selected but you can select the Scrap option to report a production scrap.
6. Enter or select values from the following fields:

Field	Value
Transaction Subtype	Select the subtype for the transaction.
Quantity	Enter the quantity of item on which you want to perform the transaction.
Note	Enter a description for the transaction to be added as note.

7. Click the Next button.
8. On the Orderless Complete: Backflush Materials page, review the material transactions defaulted from the work definition.
9. You can update the Transact Quantity field as required to reflect the usage quantities of the components.
10. Click the Next button.
11. On the Orderless Complete: Autocharge Resources page, review the resource transactions defaulted from the work definition.
12. You can update the To Charge field as required to reflect the usage quantities of the resources.
13. Click the Next button.

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14. On the Orderless Complete: Inventory page, retain or update the value for the Subinventory field.
15. From the Save and Transact Another drop-down menu, select: click and Close.
16. The transaction is completed and a message is shown to confirm that the orderless completion is reported.

Reviewing Production Transaction History: Explained

Using the Production Transaction History page, you can view all the production transactions that have been reported on the shop floor. The view is sorted in reverse chronological order to allow recent transactions to be displayed first. You can filter the production transactions based on a transaction date range, item serial number, work order, or item.

The Production Transaction History page, accessible from the Work Execution Overview page, enables you to view the production transaction history of a work order and the orderless transaction history of an item. The Production Transaction History page for the work order can also be accessed using the transaction history link in the work order History tab.

Reviewing Production Transaction History of a Work Order

You can view the material, resource, and operation transactions for a work order execution. You can view the corresponding backflushed material and automatically charged resources for the operation transactions. Additionally, you can view the production completions into inventory for the operation transactions for the last operation sequence.

To review the production transaction history of a work order, perform the following steps:

1. On the Production Transaction History page, in the Search region, enter or select values as follows:

Field	Description
Search For	Retain the Work orders option.
Work Order	Enter the work order number for which you want to view the production transaction history.

2. Click the Search button. The production transactions reported for the work order are shown.
3. Review the production transaction history of the work order. This includes the operation transactions, automatically charged resource transactions, and backflushed material transactions reported for the work order.
4. Click the Done button.

Reviewing Orderless Transaction History of an Item

You can view the orderless completion, scrap, return or return from scrap transactions for an orderless execution. You can view the corresponding backflushed materials and automatically charged resources for the orderless transactions.

To review the orderless transactions for an item, perform the following steps:

1. On the Production Transaction History page, in the Search region, enter or select values as follows:

Field	Description
Search For	Select the Orderless option.
Item	Enter the item name for which you want to view the orderless transaction history.

2. Click the Search button. The orderless transactions reported for the item are shown.
3. Review the orderless transaction history of the item.
4. Click the Done button.

Transferring Transactions from Production to Costing: Explained

The Transfer Transactions from Production to Costing program is used to transfer the manufacturing execution transaction details and work order status updates to costing for accurate costing of the work orders. The program reads the records in the resource transaction table. If the Costing Interfaced attribute is set as No, the transaction record is transferred to the costing. On successful transfer, the Costing Interfaced attribute is set as yes for the transaction record. If the Costing attribute is not enabled in the resource definition, the transaction records are not considered for transferring to costing.

As part of this transfer, the following are interfaced from Oracle Manufacturing Cloud to costing:

- Resource transaction for costed resources
- All the operation transactions
- Work order status updates

The Transfer Transactions from Production to Costing page, accessible from the Work Execution Overview page, enables you to run the program on demand or schedule the program to run at a specific interval of time.

To run the program on demand, perform the following steps:

1. On the Transfer Transactions from Production to Costing page, in the Parameters region, select the values for the following parameters:

Field	Description
Plant	The name of the manufacturing plant.
Source System	The source system that has generated the record. The default value is All.

2. Click the Submit button. A message is shown confirming that the process is submitted.

To schedule the program, perform the following steps:

1. On the Transfer Transactions from Production to Costing page, click the Advanced button. The Transfer Transactions from Production to Costing page is reloaded with two new tabs: Schedule tab and Notification tab.
2. On the Schedule tab, enter or select the values as follows:

Field	Description
Run	Select the Using a schedule option.
Frequency	Select the interval at which you want to program to run. You can also select a saved schedule.
Start Date	Select the date from which you want to start running the program as per the schedule.

3. Click the Submit button.

Import Production Transactions: Explained

You can import the production transactions, such as material transactions, resource transactions, and operation transactions, by using the File-Based Data Import (FBDI) mechanism or by using the SOAP web services. For more details on the FBDI refer the File-Based Data Import for Oracle Supply Chain Management Cloud guide. For more details on the soap web services, refer the SOAP Web Services for Oracle Supply Chain Management Cloud guide.

Importing Work Order Material Transactions

You can import the component transactions for work order execution and the product transactions in orderless execution. For the component transactions in work order execution, the component issues to the work order and the component returns to the inventory can be imported. For the product transactions in orderless execution, the product completion, return, scrap, and return from scrap transactions can be imported with reference to a work definition that is used to backflush the components and charge the resources.

Importing Work Order Resource Transactions

You can import the resource transactions for work order execution. The resources charged to the work order and the resources reversed from the work order can be imported.

Importing Work Order Operation Transactions

You can import the operation transactions for work order execution. The operation or product completion or return, reject, return from reject, scrap and return from scrap transactions can be imported.

Related Topics

- External Data Integration Services for Oracle Cloud: Overview

Purge Records from the Interface: Explained

The Purge Records from Interface program is used to delete the records that fail to be successfully imported from any of the following interfaces and their corresponding child tables:

- Work Orders Interface

- Resource Transactions

- Material Transactions

- Operation Transactions

The Purge Records from Interface page, accessible from the Work Execution Overview page, enables you to run the program on demand or schedule the program to run at a specific interval of time.

To run the program on demand, perform the following steps:

1. On the Purge Records from Interface page, in the Parameters region, select the values for the following parameters:

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Field	Description
Interface Name	The interface from which the records need to be purged.
From Batch	The starting batch in a range of batches that is used as a basis to purge the records.
To Batch	The last batch in a range of batches that is used as a basis to purge the records.
From Last Updated Date	The start date and time of the range for purging the records based on the last update date.
To Last Updated Date	The end date and time of the range for purging the records based on the last update date.

2. Click the Submit button. A message is shown confirming that the process is submitted.

To schedule the program, perform the following steps:

1. On the Purge Records from Interface page, click the Advanced button. The Purge Records from Interface page is reloaded with two new tabs: Schedule tab and Notification tab.

2. On the Schedule tab, enter or select the values as follows:

Field	Description
Run	Select the Using a schedule option.
Frequency	Select the interval at which you want to program to run. You can also select a saved schedule.
Start Date	Select the date from which you want to start running the program as per the schedule.

3. Click the Submit button.

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7 Reports and Analytics

Work Definition Reports: Explained

You can access a work definition report from the Work Definition work area task panel. You can also access it from the **Manage Work Definitions** page through an action. Through the Actions drop-down you can print the work definition report in .pdf format instantly from the Manufacturing user interface in the following two ways:

- **Manage Work Definitions page:** Click the work definition version for which the report is to be generated.
- **Edit Work Definition page:** Generate a report for the edited version.

Additionally, from the work area task panel, the Scheduled Process Submission user interface for the report allows you to generate reports for various parameters. You can also access work definition report for multiple work definitions through a scheduled process.

A work definition report enables you to do the following:

- Provide the option for offline review, to ensure that the work definition has been set up correctly.
- Enable exchanging information offline, for example, with the contract manufacturer.

In a contract manufacturing organization, the work definition report has key milestone operations. The report is configured by default to print in a format most suitable for a Contract Manufacturer such as printing only milestone operations. This option is enabled by checking the **Count Point Only** indicator for the Operations. The report is attached to the Blanket Purchase Agreement (BPA) and is communicated to the contract manufacturer.

The submission of the scheduled process can be performed through the **Print Work Definition Report** task in the **Work Definition** work area task panel.

Work Order Reports: Explained

Pre-built reports are available in manufacturing and provide you with specific information for a given entity. The following are the work definition and work order reports available in manufacturing:

- Components List report
- Work Order Traveler report
- Product Label report

You can use the report to review the available details about work orders. You can also view, save, and print these reports.

You can access work orders from the **Manage Work Orders** page through the **Print to PDF** action. You can also access work order reports such as **Print Components List** and **Print Work Order Traveler** for multiple work orders through the separate scheduled processes available in the **Work Execution** work area. Another way to access the Print Work Order Traveler and Print Labels reports is from the **Review Dispatch List** page.

Printing Components List : Explained

The **Print Components List** feature provides you the ability to generate and print the components list for the work order. It provides you the flexibility to view, save and print the report. The production supervisor can print the components list during the production process when reviewing and managing the work orders.

As part of the components list report, details such as subinventory, locator, operation sequence, name, work center, required quantity, Unit of Measure (UOM), basis, supply type, required date are printed. In addition, details of the work order such as work order number, description, product, status, start and completion dates, quantity, and UOM are displayed.

The components list report is printed in the following ways:

- Select the required work order in the **Manage Work Orders** page and select the **Print Components List** action in the Print to PDF Table drop-down menu. Select Print Components List to generate the report in .pdf format. Select the **Plant Parameters Configurability** option to choose a custom template.

- This can be done through the **Print Components List** program by selecting multiple work orders using parameters like work order number, dates, product, work center, status, and component required dates. The list of components shown in the report can be grouped by work order and work center, sorted by subinventory and components. After the successful completion of the scheduled process, the report is generated in .pdf format.

The scheduled process is launched for the selected work orders. The parameters for the scheduled process are:

- **From Work Order
- **To Work Order
- **From Work Order Start Date
- **To Work Order Start Date
- **Work Order Product
- **Item Category
- Work Center
- Work Order Status: Default is blank, other status options are Unreleased, Released, On Hold, Canceled, Completed, and Closed
- From Component Required Date
- To Component Required Date
- Group By: Values are **Work Order** and **WorkOrder/Work Center**
- Sort By: Values are **Subinventory** and **Component**

At least one of the fields marked ** must be entered.

> 🖉 **Note:** You have an option to enter Submission Notes before you submit the components list for printing.

> 🖉 **Note:** The .pdf format is available for the user to print the document on a local printer.

Related Topics

- Manufacturing Plant: Overview

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- Manage Work Areas: Explained

Printing Work Order Traveler: Explained

The **Work Order Traveler** or shop packet is a set of documents associated with a work order that travels with the subassembly as it moves through the routing in the shop floor. It usually consists of the following information to assist you to complete the work order:

- Work order information

- Product serial information

- Configuration transactional item attributes

- Work definition details

- Work order operations-operations, materials and resources

- Reservation-against sales orders

- Attachments such as work instructions, design docs, and so on

The **Print Work Order Traveler** feature allows you to print the work order traveler during production execution. The work order traveler contains work order details such as work order information, work definition details, work order operations, materials and resources, and reservations and attachments. For serialization-enabled operations, the work order traveler also consists of product serial numbers.

In Manufacturing, you generate the work order traveler from the following pages:

- From the dispatch list by selecting the required work orders, and starting the action Print Work Order Traveler. The scheduled process is launched for the work order in the selected row.

  > ✏ **Note:** The user can select only one row at a time from the dispatch list. So the traveler can be printed only for a single work order at a time.

- From the **Overview** page by clicking the link **Print Work Order Traveler**.

  > ✏ **Note:** This will open up the user interface to submit the scheduled process. The user can print travelers for multiple work orders from here. Each work order traveler is in a separate .pdf.

- From the **Manage Work Orders** page by selecting the required work orders, and launching the action Print Work Order Traveler.

The scheduled process is launched for the selected work orders. The parameters for the scheduled process are:

- **From Work Order

- **To Work Order

- **From Work Order Start Date

- **To Work Order Start Date

- Work Order Type: Default is All. Options are Standard and Nonstandard

- **Work Order Product

- **Item Category

- Work Order Status: Default is Released status, other status options are Unreleased, Released, On Hold, Canceled, Completed, and Closed

- Include Attachments: Default is **Yes**. The possible attachment types are:

    ◦ Short text

    ◦ Long text

    ◦ Image File

    ◦ URL

    ◦ File attachments

At least one of the fields marked ** must be entered.

You can start the background process **Print Work Order Traveler** if you create the work order traveler from the mentioned pages.

The Work Order Traveler template can be configured to include additional attributes required by the user. The attributes from work order header, work definition, work order operations, work order product serial, work order reservations, work order Transactional Item Attributes (TIA) values and attachments can be added to the work order traveler. These sections exist in the default template. The user can remove any unwanted sections or add more attributes in some sections if these attributes are available in work order.

> ✎ **Note:** Only one work order template is applicable for one organization. All travelers are printed with the same template. Multiple templates for the same organization are not supported.

Printing Labels: Explained

The **Print Product Label** feature enables you to print product labels during production execution. Users can print product labels during the production process when reviewing work orders, reviewing the dispatch list, and reporting operation transactions.

As part of the seeded product label template, label content for the product such as item number, item description, work order number, and quantity are printed. For serialization-enabled operations, product serial numbers are also printed.

The label template can be customized to include additional attributes from item definition, work order, operation transaction, serial number, and lot number.

> ✎ **Note:** The operation transaction attributes are included in the label content only when the label is printed when reporting operation transactions.

The product label is printed in the following ways:

- Select the work order in the **Manage Work Orders** page, and click the **Print Label** action in the Print to PDF Table drop-down menu.

- Select the work order serials in the **Serial** tab of the **Work Order** page, and click the **Print Label** action in the table **Actions** menu.

- Select the work order operation in the **Review Dispatch List** page, and click the **Print Label** action in the table **Actions** menu.

- While reporting operation transactions, select the **Print Label** check box in the **Product Details** page.

When you select **Print Label**, the label content is generated in .pdf format based on the template layout specified in the **Default Label Layout Template** plant parameter. If a template is not specified at the plant level, the template specified in the report definition of the BI publisher configuration is used for all plants. The .pdf format is automatically downloaded to the browser, and you can print the document on a local printer.

Related Topics

- Manufacturing Plant: Overview

- Manage Work Areas: Explained

OTBI for Oracle Manufacturing Cloud: Explained

Oracle Transactional Business Intelligence (OTBI) is a dynamic reporting layer built against the Oracle Fusion transactional tables. OTBI is designed to enable you to build custom reports and perform dynamic analysis.

The key features of OTBI in the Oracle Manufacturing Cloud are:

- OTBI offers you real time, self-service reporting directly from Oracle Manufacturing Cloud data. There is no data movement from Fusion applications to Business Intelligence (BI) application. Every time an analysis is invoked, it directly fetches the latest data from Fusion applications.

- The subject areas support analysis of both in-house manufacturing and contract manufacturing related work orders, and their transactions.

- OTBI provides four Oracle Manufacturing Cloud subject areas, which you can use to build custom analysis. These subject areas are:

    o Manufacturing - Work Order Performance Real Time

    o Manufacturing - Material Usage Real Time

    o Manufacturing - Resource Usage Real Time

    o Manufacturing - Actual Production Real Time

- The dimensions and facts in these subject areas provide you visibility to work order management and work execution transactions.

- OTBI is built on Oracle Business Intelligence Enterprise Edition (OBIEE) technology. All standard functions provided by OBIEE are also available for the Oracle Manufacturing Cloud subject areas.

Glossary

ad hoc item

A material that is used in the production process of an end item, but is not considered as an item component, such as lubricating oil. It is not included in the item structure.

ADFdi

Abbreviation for Application Development Framework Fusion Desktop Integration. A tool that allows you to export data from spreadsheet application into Oracle Fusion applications.

blanket purchase agreement

A long term agreement for the purchase of goods and services from a supplier. It includes terms and conditions, details of the goods or services to be purchased from the supplier, and negotiated amounts. The blanket agreement does not contain delivery dates, individual delivery quantities, or amounts. Complete details necessary to supplier fulfillment are specified subsequently in purchase orders issued against the agreement.

descriptive flexfield

A field that you can use to store custom information.

fulfillment line

A request to fulfill an item. A fulfillment line contains information about this request, such as customer, sales order number, item, quantity, scheduled ship date, actual ship date, shipping method, and so on. You can schedule a fulfillment line, reserve product for it, substitute an item for it, change the warehouse, change the shipping method, change the demand class, and so on.

phantom

A product that is physically built but not stocked, before being used in the next stage of manufacturing.

sales order

A contractual document between a sales organization and their customer to deliver items. It might reference a customer purchase order.

work definition

The specifications about the manufacturing process for an item that consists of operations, materials, and resources. It corresponds to a single buildable level of the item structure.

work order

A document that conveys the authority for the production of a specific product and provides details, such as quantity to be produced.

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