TEAMCENTER

What's New in Teamcenter 2312

Teamcenter 2312

SIEMENS

About Siemens Digital Industries Software

Siemens Digital Industries Software is a global leader in the growing field of product lifecycle management (PLM), manufacturing operations management (MOM), and electronic design automation (EDA) software, hardware, and services. Siemens works with more than 100,000 customers, leading the digitalization of their planning and manufacturing processes. At Siemens Digital Industries Software, we blur the boundaries between industry domains by integrating the virtual and physical, hardware and software, design and manufacturing worlds. With the rapid pace of innovation, digitalization is no longer tomorrow’s idea. We take what the future promises tomorrow and make it real for our customers today. Where today meets tomorrow. Our culture encourages creativity, welcomes fresh thinking and focuses on growth, so our people, our business, and our customers can achieve their full potential.

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Model-based systems engineering

Product Configurator

Reporting

Resource management

Simulation process and data management

Structure and BOM management

Substance Compliance

Supplier Connect

Teamcenter quality

Visualization

1. Teamcenter documentation

Changes in Teamcenter documentation

New documentation home page

We have a new home page for the Teamcenter documentation set. The home page is a central hub with links to all documentation deliverables for the Teamcenter release, including for solutions such as EDA Integration, Supplier Collaboration, and Substance Compliance.

The new home page replaces the earlier *Browse Teamcenter help by product area* and *Browse Active Workspace help by product area* pages.

Consolidated listing of all Teamcenter documentation deliverables

Earlier, the Teamcenter documentation deliverables were spread across multiple locations such as Teamcenter, Active Workspace, Retail Footwear and Apparel, Substance Compliance, and Supplier Collaboration.

Now, Active Workspace and the above-mentioned solutions have been merged into a single Teamcenter software kit. Accordingly, the relevant Teamcenter documentation deliverables are also listed in a single location: Teamcenter.

Solutions such as EDA Integration, Easy Plan, and Service Lifecycle Management continue to maintain separate software kits. Therefore, the documentation deliverables for these solutions are listed in separate locations as before.

However, for ease of accessibility, the documentation home page serves as a single access point for all documentation deliverables associated with the Teamcenter release.

Renaming of deliverable titles

To make the deliverable titles consistent across the documentation set, many titles have been modified. Also, if a deliverable is specific to a particular client (Active Workspace or Rich Client), the title has been updated to indicate this.

To locate a deliverable with the old title you are familiar with, explore the categories on the documentation home page, or use Ctrl+F to find what you are looking for.

Videos

Over the last several releases, conceptual and procedural videos have been added to the documentation. These videos explain concepts as well as relatively complex Teamcenter procedures and processes.

Some of the videos included in the documentation are as follows:

- **Why organize structure data into different partitions**
- **Overview of the change management business process**
- **Basic concepts for using Product Configurator**

To see a list of videos across different product areas, see the *Teamcenter Video Gallery*.

> Note:
>
> Videos are available only in the HTML version of the documentation.

Process flows and graphics with hyperlinked hotspots

Some graphics in the documentation now have hotspots or hyperlinks that lead you to additional information. You can see such examples in the following topics:

- *Tasks to configure Visualization to work with Teamcenter Active Workspace*
- *Search Guidemap*
- *Indexer steps*
- *Upgrading Teamcenter with Active Workspace*

Such graphics provide an overview of a subject and then lead you to the topics you may want to delve further into.

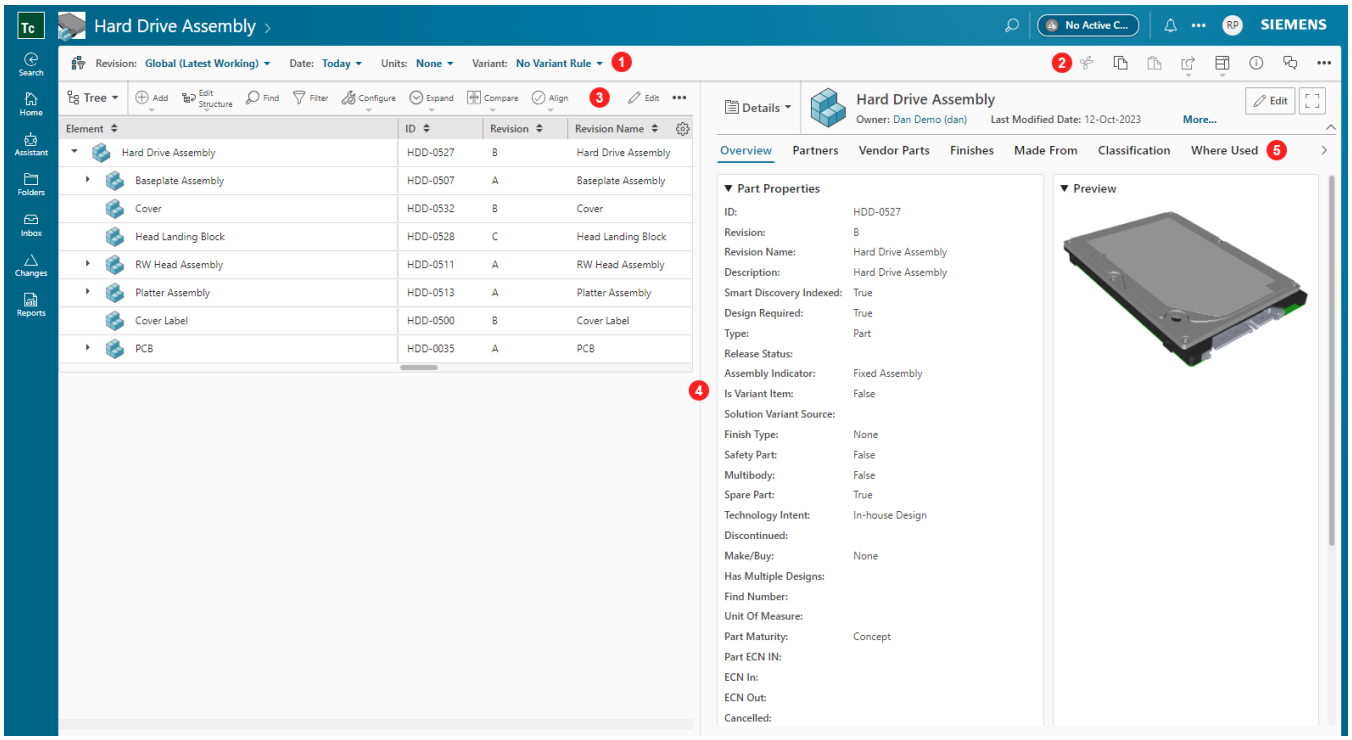
> Note:
>
> The hyperlinked hotspots in the graphics work only in the HTML version of the documentation.

2. Fundamentals

Revised content for orientation to the new user interface

For Teamcenter 2312, the Active Workspace user interface underwent several significant changes in terms of form and function. This includes changes in the Home page and global navigation, the primary toolbar, page headers and layouts, folders, and design and behavior changes for some UI elements. Accordingly, we have revised the documentation to include updated graphics and videos to orient you to the interface changes.

Here is one example - the new layout of the object page.



1 Object information and options

Enables viewing and selection of revision, revision date, group and variant rule.

2 Primary toolbar

Contains commands applicable in the context. The location of this toolbar has changed in Active Workspace 2312.

3 Work area toolbar

Contains commands applicable to the object.

4 Work area

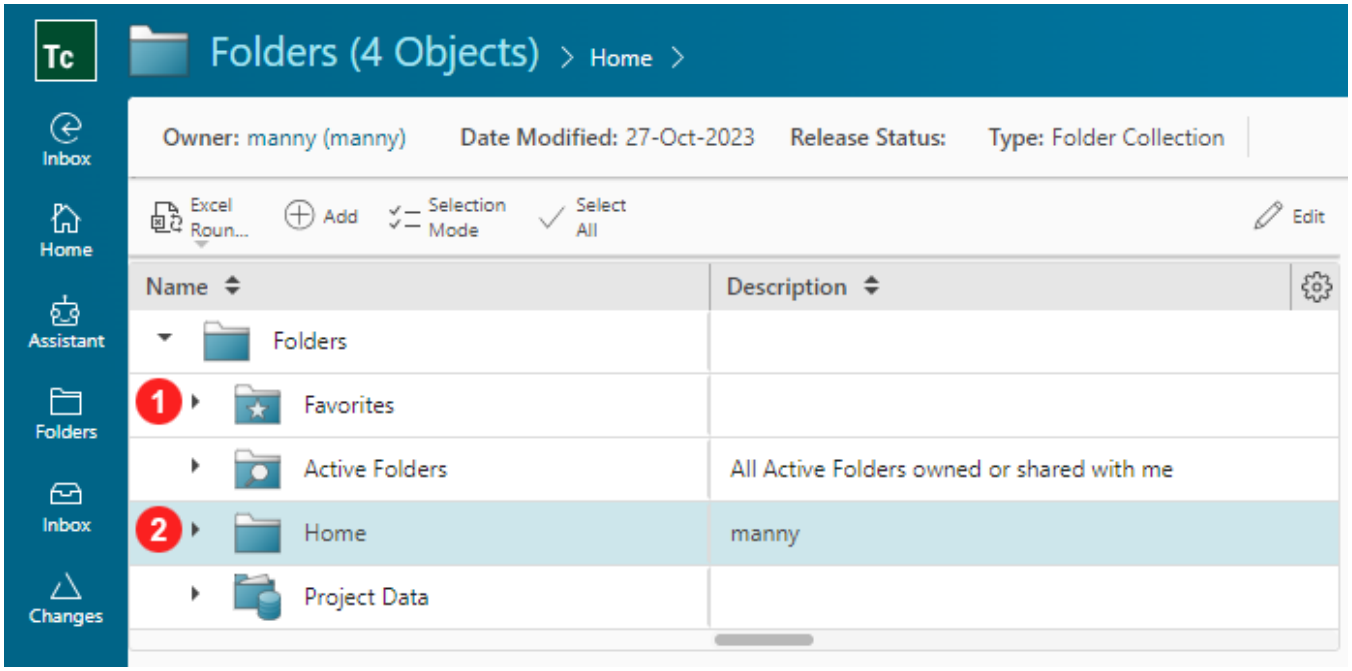
The area not occupied by Global navigation and the Global header. Some of the content can vary depending on the type of object you have opened.

5 Tabs

Provide access to different categories of information about the selected object.

Unified user interface for Folders

The 2312 release delivers a new unified interface for accessing your folders. The **Folders** tile on the **Home** page and the **Folders** icon in the global navigation now open a tree view that provides access to all your folders in one place.



1 **Favorites** is always in this position regardless of sorting applied to the tree. Sorting affects only the folders beneath it.

2 **Home** is selected by default when you open **Folders**.

Active Folders and **Home** no longer have dedicated tiles on the **Home** page.

Active Folders

You can now access **Active Folders** in the **Folders** location. You can still use them to organize your searches, but now they are in a consolidated location with your other folders.

Favorites

Any favorites that you saved while using a previous version are now displayed in the **Favorites** folder when your system is updated to Active Workspace 2312. The **Favorites** tiles is still present on the **Home** page but is scheduled to be removed in a future release.

Dropping, pasting, or adding an object to the **Favorites** folder adds the object to your favorites. This is the same result as using the **Add to Favorites** ☆ menu command on the primary toolbar. You can add any **Project Data** folder or **Active Folder** to the **Favorites** folder for quicker access.

> Tip:
>
> The **Favorites** folder is always the first child in the tree regardless of the sorting applied to the tree.

Home

You now access your home folder in the new **Folders** tree, via the **FOLDERS** tile on your Home page. Only the access point has changed. Otherwise, it is the same folder that existed in prior releases.

> Tip:
>
> This folder is selected by default when you open **Folders**.

Project Data

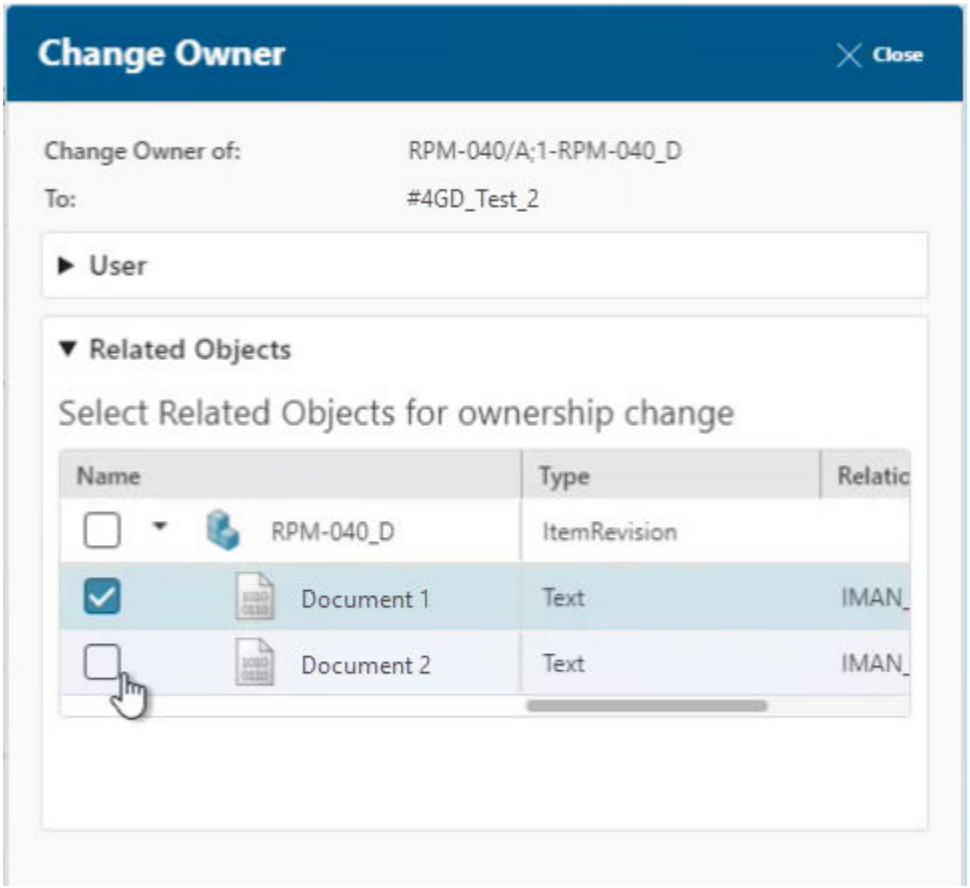
The new **Project Data** folder allows you read-only access for browsing through a tree of the projects of which you are a member and for viewing categorized listings of the data objects in each project. The **Projects** tile is still present on the **Home** page but is scheduled to be removed in a future release.

As an administrator, you can configure project data template folders to define the project information displayed in all project data folders for your users.

Change ownership of related objects

Previously, when you changed the owner of an object, only the ownership of that object changed. Now, you can change the ownership of related objects along with that of an object. You can also control which related objects, if any, change ownership simultaneously.

An administrator can define rules that govern which types of objects are selected for simultaneous ownership change. When transferring ownership of an object, you can either choose to let the ownership of related objects transfer according to the selection of the configured rules or you can explicitly choose which related objects should transfer ownership. There is a new section the **Change Owner** panel called **Related Objects** where you can make this choice.



Information for administrators

You can define or override ownership transfer rules based on the preference **TC_ChangeOwner_traversal_rules**. For example, a rule might specify that when an item revision changes ownership, related objects of type **IMAN_Specification** and **BOM_view_revision** transfer ownership at the same time. Default values are:

- `ItemRevision:REF:structure_revisions:PSBOMViewRevision`
- `ItemRevision:GRM:IMAN_specification:WorkspaceObject`
- `UGMASTER:GRMS2P:IMAN_specification:ItemRevision`

Enhanced Save As and Revise for data objects

You can now review and specify the disposition of all related objects when creating a new object or creating a new revision from an existing object. For example, if you want to create a new assembly from an existing assembly, or a new revision of an existing assembly, you can specify what happens with all the parts of the existing assembly, including its subassemblies and their parts.

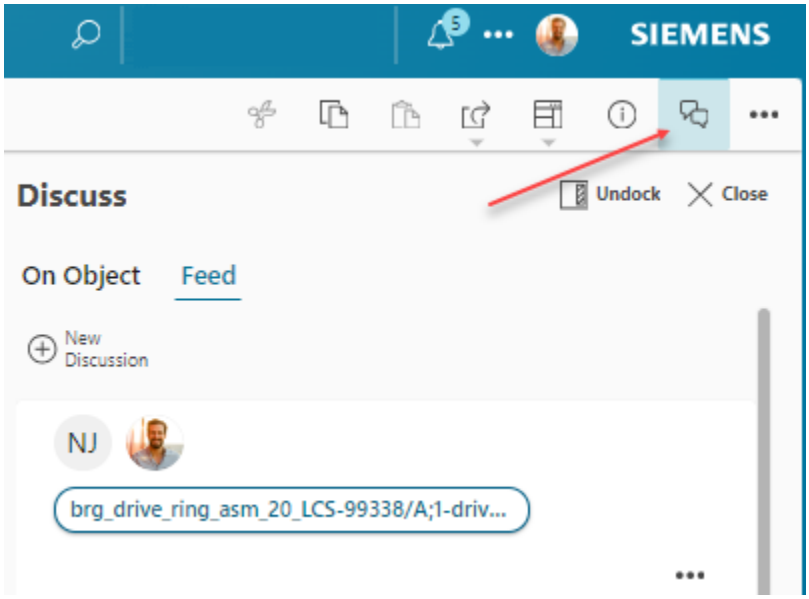
You can:

- Specify a name and description for the new object or revision.
- Include or exclude related objects such as parts or documents.
- Reference objects related to the original object or revision rather than copy them as new objects or revisions.
- Save related objects as new related objects, each with a new ID, name and description.

Collaborate with your team more easily using discussions

You can create and view your discussions more easily with the following updates:

- Previously, you could create new discussions only when you had an object selected. You can now start a discussion without an object selected. You can also create discussions from more places by clicking **Discuss** in the primary toolbar to display the **Discuss** panel. If you do not have an object selected when you open the **Discuss** panel, you can select one or more objects when creating the new discussion. **Discuss** is always available in the primary toolbar, even when you are in the Discuss location.



- Use the **Discuss** panel to access existing discussions more easily without leaving your current work to view the discussions.
  - Quickly access the discussions you are participating in or following by clicking the new **Feed** tab. The **Feed** tab lists all of your discussions, not just those for the currently selected object, allowing you to read and reply to any of the discussions without leaving your currently selected object.
  - Use the new **Set Source** feature on the **On Object** tab to view discussions for objects other than the one you have selected without leaving your current working view.

- Previously, you could create new discussions for only certain types of objects. You can now create discussions on a more diverse set of object types, including runtime objects.

For more information, see Using Discussions in the Active Workspace Fundamentals documentation.

Lists of values rendered as a table

Previously, dropdown lists of values (**LOVs**) showed only the **Value** attribute in Active Workspace.

Starting this release, as a business user some familiar drop-down lists now appear as a table rather than as a list of single values. In this case, you can search for values in these tables. For this, your administrator must configure a new option when updating your system. Once this is done, you can configure it at your level.

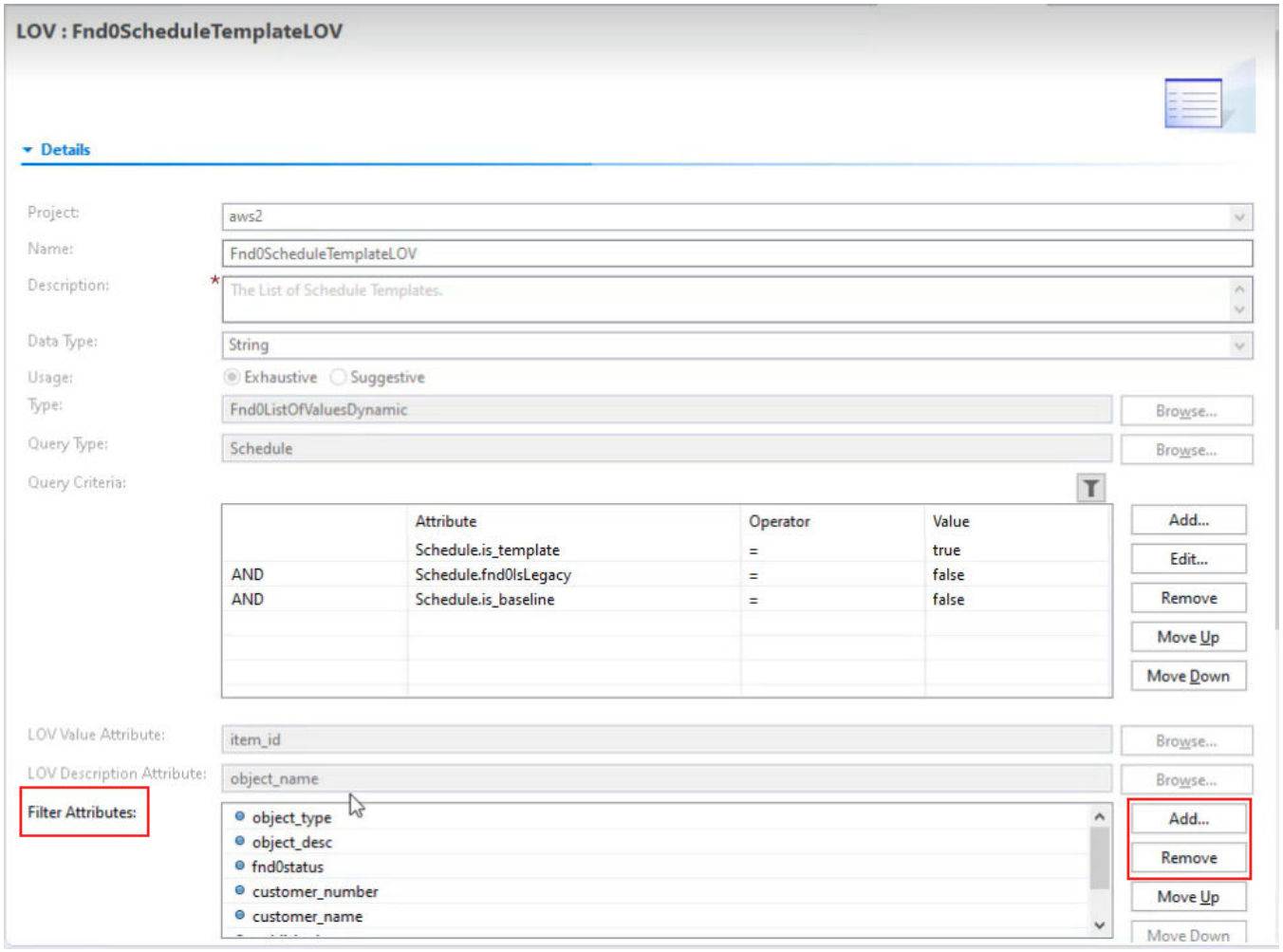
Information for administrators

This feature, earlier available only in the Rich Client is now available in Active Workspace. As an administrator, to configure this option, a new **renderingHint** named **lovTable** must be appended in the stylesheet to a property that has an LOV attached to it. Example:

```
<property name="aw2+LongString_LOV" renderingHint="lovTable"/>
```

You can configure the option at any level — site, group, or user — using the **XRT Editor** to edit the stylesheet. Users can configure it at the user level.

For a regular LOV the table renders only the **Value** and **Description** properties. For a dynamic LOV, it is possible to configure which properties appear in the table. You can add the desired properties to the **Filter Attributes** of a dynamic LOV in the Business Modeler IDE.



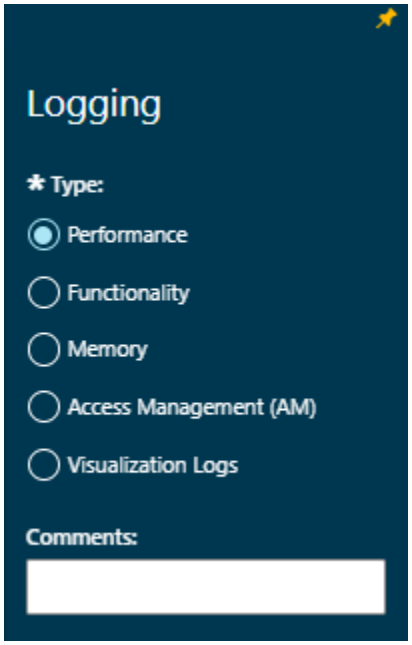
Option to show Release Status as icon, text, or both

As a business user, you can choose how to view the data in **Release Status** column of tables: whether they must be icon only, text only, or both icon and text. The default is icon and text. Previously, only an icon was shown to indicate the status.

Now you can personalize this by changing the preference named **AWC_TableIndicatorDisplay** to your preferred value. Valid values are listed in the preference definition for reference. To set the preference for yourself, you must add an **Override** of the default value.

Log more thorough data when resolving issues

Active Workspace users can now capture more thorough logging data for administrators when resolving performance and operational issues. Users can pick from a list of several types of logging data, such as performance, operational issues, and memory use when resolving issues.



See Create a log file to share with your administrator for details on data that is logged for each type and the steps users should follow when logging data.

> Note:
>
> Active Workspace client logging continues until logging is actively stopped. Encourage your users to stop logging in a timely manner when you are resolving issues with them.

Noteworthy enhancements

Upload and download of large files

Prior to the 2312 release, there was a file size limit of 150 MB for uploads and downloads. This limit has been removed. Files larger than 150 MB are broken into chunks, which get uploaded to the server in the background and are reassembled when the upload is complete. This applies only to file transfer and does not address inline video streaming.

Improved scrolling in tables

The scrolling behavior in tables has been improved. It now allows the loading of any page without needing to load pages sequentially. Data loads smoothly without pauses as you scroll. The scroll bar reflects the position of the data you are seeing within the total amount of data received from the server. This means that you can quickly scroll forward or backward to any point in the data.

Add columns to tables

Column arrangements control which properties appear as columns in tables and trees. When viewing a table or tree using a given column arrangement, you can now show more properties as table columns without having to switch to a different column arrangement or create a new one.

Visual cue shows the user environment

In an infrastructure that has multiple deployments or deployment types — testing and production, for example — you can now see which environment you are using in a new visual indicator in the global header.

Note:

The indicator only appears if an administrator enables it in the preference named `AWC_Display_Environment_Info`.

3. Search and indexing

Enhance the performance of advanced search execution and results

This release introduces a keyboard shortcut for business users to run an advanced search. They can hold **Alt** and press **Enter** to add a line to a search criteria field and then press **Enter** to run the advanced search.

Previously, in advanced search results, the only columns that could be sorted were those based on persistent attribute properties, such as **int**, **double**, and **string**, or **TypedReference** properties configured by the administrator in the **AW_Advanced_Search_Reference_Sort_property** preference. Now, as a business user, you can also sort columns based on compound properties with only one level reference to a persistent attribute property.

As an administrator, you can now reduce the retrieval time for advanced search results by limit. Configure the **QUERY_MAX_THRESHOLD** preference to define the maximum number of search results returned. If an advanced search query generates more results than the value set in the preference, the search is not run, and the user is prompted to provide more specific criteria.

Save time by installing Indexer as a service

You can now choose to install Indexer as a service. You can then run the Indexer synchronization and suggestion builder flows as a service on Windows or Linux.

During installation using Deployment Center or TEM for Windows or Linux, select **Install Indexer as a Service**. The name and interval fields for each service are populated with suggestions and may be edited. Select **Start Service** to automatically start the service.

If you need to perform a full index prior to running the synchronization or suggestion builder flows, you can manually start the Indexer services at the appropriate time.

Ensure successful indexing of large amounts of data

To ensure the successful indexing of large amounts of data with the synchronization flow, you can now limit the batch size. Configure the following two preferences to limit batch sizes and ensure that the synchronization flow has the appropriate amount of time to index all the data.

- Configure the **TC_Indexer_Enable_Sync_In_Batch** preference to allow a batch size limit.
- Configure the **TC_Indexer_Sync_Batch_Threshold** to a specific number of objects for the batch size limit.

Review indexing results with the Indexer and Search Administration Dashboard

Administrators can now view the results of object data and file content indexing in the Indexer and Search Administration Dashboard in the Active Admin workspace. You can quickly identify any objects that were not indexed for corrective action.

You can see an overview of all indexed objects that are in the passed, pending, and failed states in a chart and select any category for details.

You can also search for the indexing status of particular object data or properties.

Perform a required full index to accommodate a Solr upgrade

Teamcenter 2312 includes an upgrade to Solr version 9.3.0. This upgrade requires a full index of all object data and file contents.

An upgrade to Solr version 9.3.0 changes the schema and requires the remerging of the Solr and Teamcenter schemas and a full index.

4. Installation and deployment

Simplify the software planning and download experience for Teamcenter

Teamcenter 2312 introduces calendar-based release versions, simplified software packaging, and enhancements to improve navigation during installations and updates.

Simplified software versions and packaging

Teamcenter 2312 and future versions of Teamcenter are named by the last two digits of the year and month they are released.

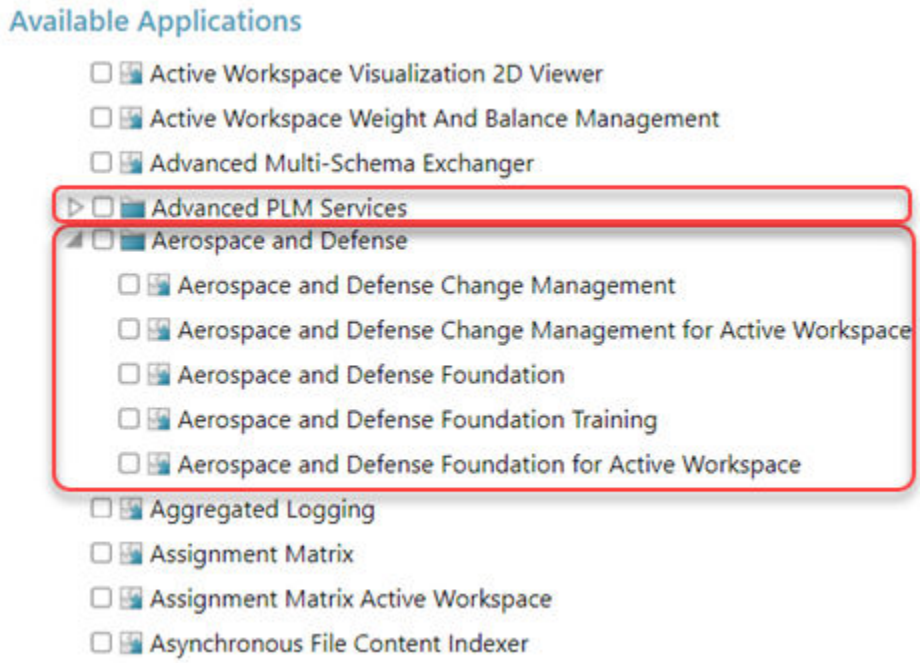
Teamcenter releases are now complete software kits, and no longer dependent on other software kits. When installing or upgrading Teamcenter, it is not necessary to download the corresponding major and minor software release kits.

Software for Teamcenter clients and solutions are combined into the Teamcenter software kit, further simplifying deployment planning. There is no longer a need to identify corresponding or compatible versions of these clients and solutions or to download multiple software kits. The Teamcenter 2312 software kit includes the following software:

- Teamcenter
- Active Workspace
- Microservice Framework
- Deployment Center
- Teamcenter Integration Framework
- Data Share Manager
- Retail Footwear and Apparel
- Supplier Collaboration
- Substance Compliance

Improved navigation of software selections in Deployment Center

Application lists in Deployment Center can now be expanded or collapsed by clicking the triangle icon next to the group label. This helps you quickly navigate to the applications you need.



New format for Business Modeler IDE update file

The Business Modeler IDE supports the new update model for calendar-based Teamcenter versions with a new update file. The former **upgrade.default** file is now named **update.default**.

The new XML format eliminates version-specific default files. Business Modeler IDE templates are automatically migrated to the new format as part of the template update.

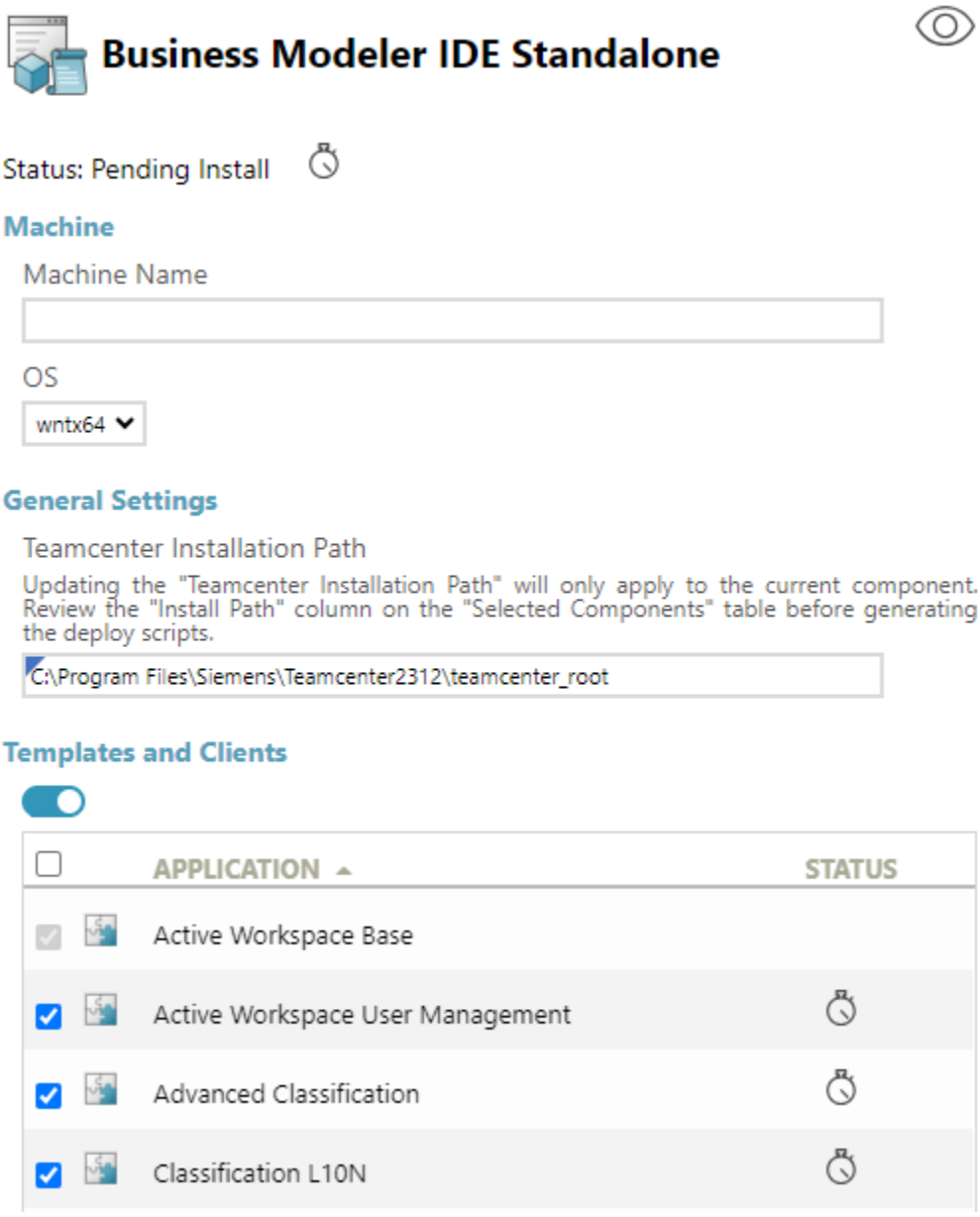
Flexible installation of a standalone BMIDE client

The Business Modeler IDE configures the data model and business rules and provides managed C++ extension points for your Teamcenter environment. It also supports the creation of software packages for your extensions that can be deployed by Deployment Center.

Starting this release, you can develop your data model extensions or update a Business Modeler IDE template offline, using the Business Modeler IDE as a standalone client, independent of your Teamcenter environment.

A **Business Modeler IDE Standalone** component does not connect to the Teamcenter database. It can, therefore, be used only for offline development of your extensions or to upgrade or update a BMIDE template as part of a Teamcenter upgrade.

To install the standalone Business Modeler IDE client, create a new environment in Deployment Center. Deselect all the applications selected by default. In the **Components** task, add the **Business Modeler IDE Standalone** component to the new environment. You can add specific templates to your standalone Business Modeler IDE client before you generate a deploy script.



Enhanced secrets management for Deployment Center

Deployment Center now uses Hashicorp Vault to securely store and retrieve deployment secrets. Deployment secrets previously stored in Deployment Center will now be stored in Hashicorp Vault.

Hashicorp Vault is installed automatically when you install or upgrade to Deployment Center 2312. In the installation configuration properties or upgrade configuration properties for Deployment Center, you specify:

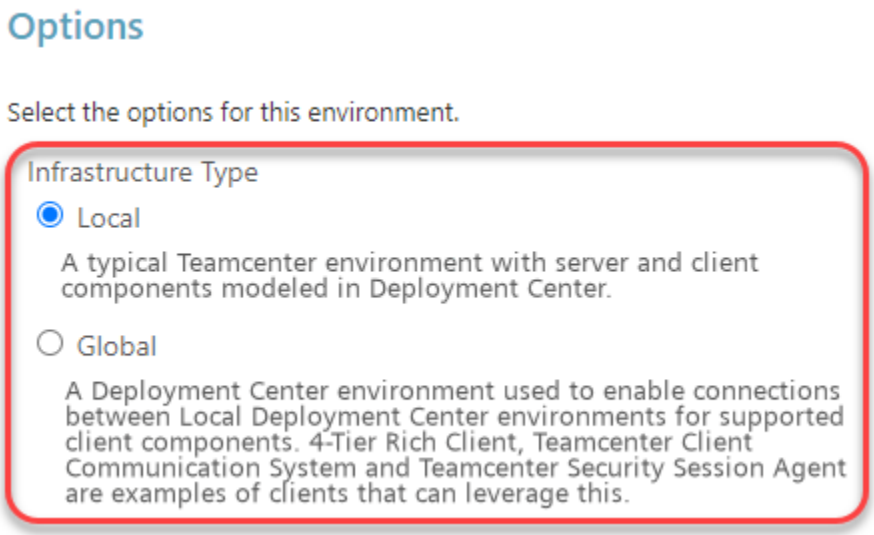
- Online or offline retrieval of deployment secrets from the vault
- Service name and port of Hashicorp Vault
- Whether to use the vault as the certificate authority

When you upgrade from a previous release of Deployment Center, deployment secrets stored in the Deployment Center server are automatically migrated to Hashicorp Vault.

Client improvements for four-tier rich client: connecting to multiple environments

Four-tier rich clients can connect to multiple environments

Client components such as the four-tier rich client can now be shared across multiple Teamcenter environments. Deployment Center provides this capability through the **Infrastructure Type** option when you create an environment.



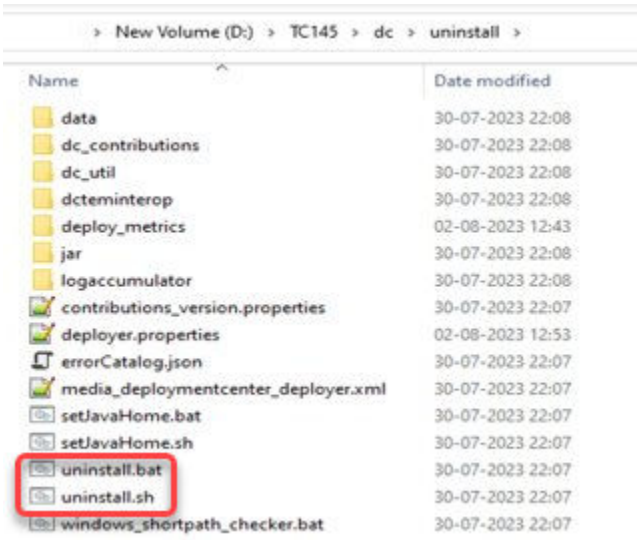
With this capability, you can create a new environment with the **Global** infrastructure type and add client components that are supported for sharing. Then, create an environment specifying the **Local** infrastructure type and import client settings from the Global environment you created. This capability is supported through the Deployment Center interface and through Quick Deploy.

The following client components can be shared across environments:

- **Rich client four-tier**
- **Teamcenter Client Communication System**
- **Teamcenter Security Service Session Agent**

Uninstall four-tier rich clients installed through mass client deploy

Previously, Deployment Center did not have the capability to uninstall a Teamcenter rich client. Now, Deployment Center generates an **uninstall** script for rich clients when you generate deployment scripts.



The rich client uninstall script is included in the deploy package for the client machine. When you want to uninstall a rich client, you can run this script using the following command:

uninstall.bat -uninstall

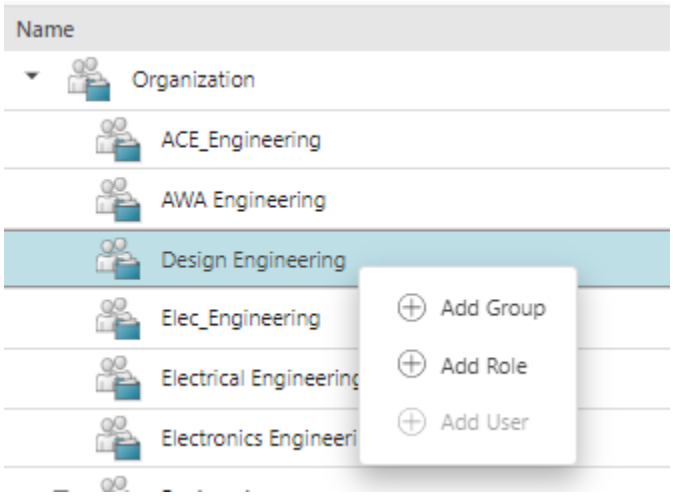
Optionally, you can perform a dry run of the uninstall as a preliminary test:

uninstall.bat -uninstall -dryRun

5. System administration

Efficiently manage users, roles, and groups

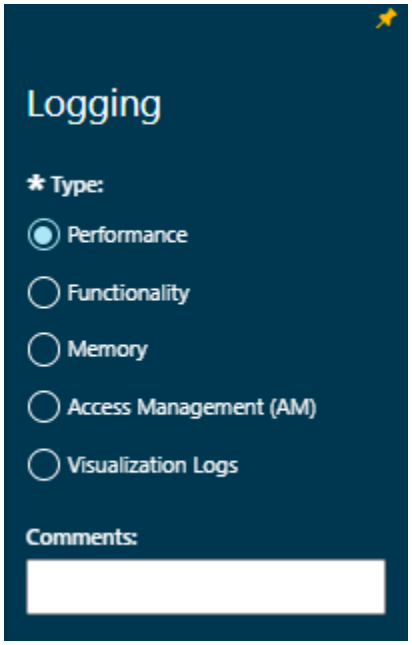
When using the **PEOPLE** tile to manage groups, roles, and users, you now have a hierarchical, contextual tree view of organization and quicker access to common actions from the new context menu. On the **Organization** tab, right-click on groups, roles, and users to access the context menu.



You can access the context menu when you have selected one or more users, roles, and groups. Available actions depend on the items selected.

Log more thorough data when resolving issues

Active Workspace users can now capture more thorough logging data for administrators when resolving performance and operational issues. Users can pick from a list of several types of logging data, such as performance, operational issues, and memory use when resolving issues.



See Create a log file to share with your administrator for details on data that is logged for each type and the steps users should follow when logging data.

> Note:
>
> Active Workspace client logging continues until logging is actively stopped. Encourage your users to stop logging in a timely manner when you are resolving issues with them.

Review FMS network performance

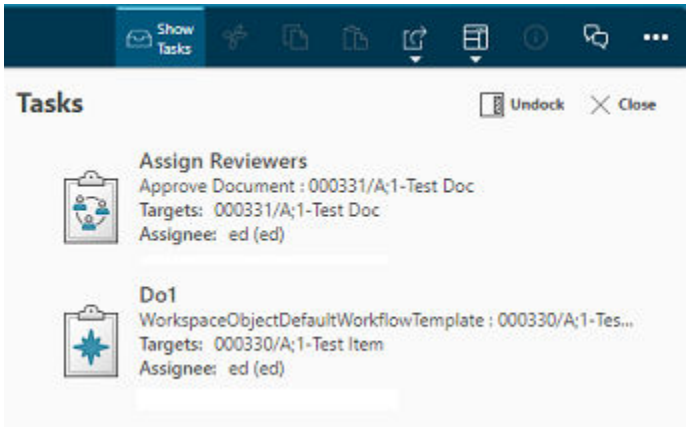
When you are diagnosing performance issues, you can now capture and review network communication performance measurements related to File Management System (FMS). Use the **fccstat** utility's **-performance** argument to display statistics on network parameters such as latency and bandwidth between your FMS server and your FMS client cache (FCC).

Capture and review network performance statistics for both disk and cloud (DSS) based volumes.

6. Customization

Active Architect workshop

An Active Architect workshop is now available. This is a series of activities demonstrating how to create a new information panel command, add components to the panel, and add functionality to the components.



Create server-side extensions dynamically

Use the new *Scripted Business Logic* C# API from Teamcenter to create server-side customizations on the fly.

Once installed on your corporate server, Scripted Business Logic monitors a NuGet repository for changes. Create your custom extensions using C# and post them to NuGet. Create new:

- Custom SOA services, including service operations.
- Metamodel runtime properties, including getters, setters, preconditions, preactions, and postactions.
- Metamodel operations, including preconditions, preactions, and postactions.
- Workflow handlers, including action handlers and rule handlers.
- POM queries

New default toolbar

When you create new commands using the command builder, buy default, they are now displayed on the **aw_userSessionbar** toolbar, instead of the **aw_rightWall** toolbar. The **aw_rightWall** toolbar is no longer displayed. This aligns with the new user interface changes for the Teamcenter 2312 release.

Siemens Web Framework enhancements

There have been several of enhancements to the Siemens Web Framework that you can use in your Active Workspace customizations. If you maintain declarative UI customizations, **review the list** of breaking changes, enhancements, and deprecations.

Rich client Java update

To maintain a modern and secure client, the rich client now uses the OpenJDK 17 runtime and compile environment. Active support for OpenJDK 11 is ending soon. If you have any Java customizations or if you use a custom *portal.bat* file, you must verify your changes with the new JDK.

For more information, refer to **Oracle's JDK migration guide**.

7. Capital asset lifecycle management

New deliverables for Capital Asset Lifecycle Management and Master Document Register and Transmittal

In the previous release, information about deploying and using Capital Asset Lifecycle Management (CALM) and Master Document Register and Transmittal (MDR&T) was available in a single deliverable, titled *Capital Asset Lifecycle Management*.

Now, based on the user roles and licenses, the information is segregated into separate deliverables.

Deliverable	Purpose
Capital Asset Lifecycle Management — Deployment	Guides administrators to deploy and administer CALM.
Capital Asset Lifecycle Management — Usage	Guides business users on how to manage capital lifecycle assets in Teamcenter.
Master Document Register and Transmittal — Deployment	Guides administrators to deploy and administer MDR&T.
Master Document Register and Transmittal — Usage	Guides business users on how to manage document registers and transmittals in Teamcenter.

8. Change management

Revert an assembly BOM to a previous state

Sometimes users can unintentionally make an incorrect modification to a BOM in a change object. Previously, reverting any items back to their original redline modification required multiple steps and was time consuming.

Now, users can select a line item, right-click, and revert a BOM redline modification back to its original impacted version. This reversion can be applied to actions such as adding, removing, replacing, and editing properties with and without effectivity dates. The Change Summary displays the line item with reverts incorporated.

Identify non-impacted items during the change impact analysis

If a problem item is used in multiple affected assemblies, not all of them might be impacted by a specific change. Previously, users could not view content in an assembly and identify what items were unaffected by a change.

Now, when reviewing the items associated with a change, a user can indicate that an object is not likely to be impacted by the change in the **Impacted Candidates** table. Narrowing down the items that need solutions this way lets users focus on specific problem areas.

How complete overlaps of release effectivity are displayed in the Change Summary

Effectivity ranges differ in appearance in the Change Summary when updates are made to a BOM item in the context of an ECN. Complete overlaps of effectivity are now represented in the Change Summary in a single line.

9. Classification

Create classification hierarchy definitions in Active Workspace

When business users classify an object (for example, an item revision, document, or model), searchable attributes are added to the object and similar object types are related. As an administrator, you set the classifiable object types.

The basic and advanced classification hierarchy consists of nodes, classes, properties, and key-LOV administrative objects. These objects are displayed in **Classification Manager**.

Now, as an administrator, you can use **Classification Manager** in Active Workspace to create the nodes, classes, properties, and Key LOVs that form the classification hierarchy for basic and advanced classification data. You can also define and format the attributes that, when associated with a class, determine the type of information that is stored.

Previously, you could only view the classification definitions for basic or advanced classification in Active Workspace or import classification definitions for basic classification in PLMXML file formats and advanced classification in JSON file format.

Changes to Classification install options in Deployment Center and upgrade to Teamcenter 2312

To ease Classification deployment, the installation options related to Classification in Deployment Center are reduced from nine to five applications as follows:

Foundation section

- **Presentation Layer - Next Generation Classification Foundation**

  This is now installed automatically with Teamcenter foundation.

- **Classification L10N** and **Classification Presentation Layer L10N**

  These two applications are now bundled into one.

- **Classification Standard Taxonomy** support is renamed as **Advanced Classification**.

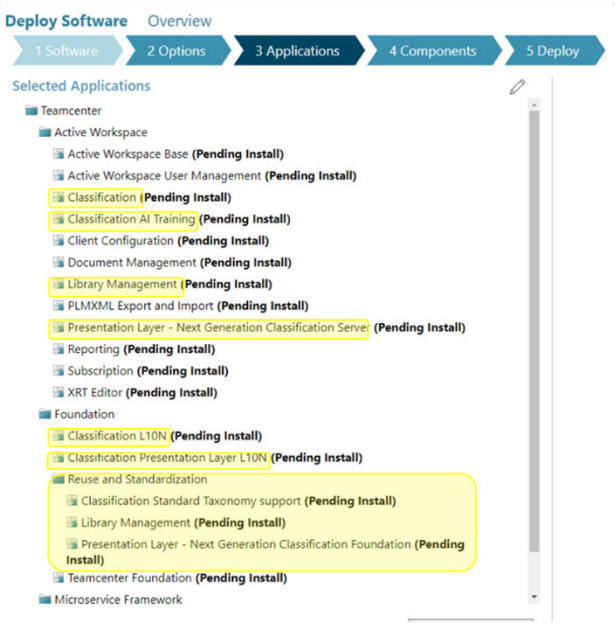
Active Workspace section

- The application that was named **Classification** earlier is renamed as **Classification Active Workspace**.

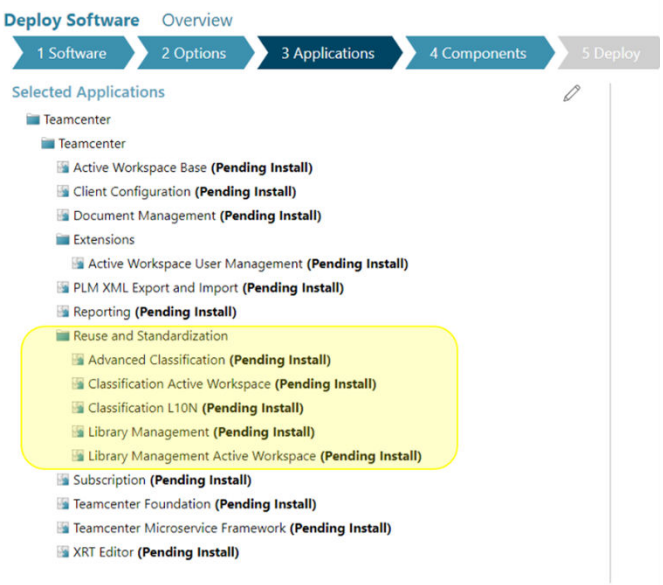
- The applications **Classification**, **Presentation Layer - Next Generation Classification Server**, and **Classification AI Training** are bundled into the **Classification Active Workspace** application. Therefore, if you select the **Classification Active Workspace** application, all the three features are installed.

- **Library Management** is renamed as **Library Management Active Workspace**.

Prior to Teamcenter 2312



Teamcenter 2312



Upgrading to the Teamcenter 2312 release

Scenario before upgrade	Teamcenter 2312 upgrade	Post-upgrade activity
Classification presentation layer is already installed	Classification applications are upgraded	• If any class is not extended to the presentation layer, they will be automatically extended. • Basic classification hierarchy is automatically extended to the presentation layer to make classification hierarchy available through Active Workspace.
Basic classification is installed but the presentation layer is not installed	Presentation layer applications are automatically installed as part of the upgrade	• Extend ICO to the presentation layer using **clsutility**. • Re index classification data. To avoid performing these tasks post upgrade, install the presentation layer on the existing Teamcenter environment prior to the upgrade.

Pre-packaged classification hierarchy for ECAD, MCAD, and routing data available

Pre-packaged classification hierarchy for ECAD, MCAD, and routing data are available. You can import this data into Teamcenter and start with a ready-to-use classification hierarchy.

These hierarchies are optional starting points and once imported, you can modify them to suit your needs.

The following ZIP files contain the pre-packaged classification hierarchy:

- *ECAD.zip*
- *MCAD.zip*
- *Routing_parts.zip*

10. Content management

Ability to validate schema before publishing

As an administrator, you can configure how the schema validation occurs when you publish a topic. The following schema validation options are available during the publish operations:

- Publish despite schema validation errors.

  The content is published even if there are schema validation errors. A log is provided with the errors to support correcting the content.

- Do not publish if there are schema validation errors.

  If validation errors exist, the content is not published. A log is provided with the errors to support correcting the content.

- Skip schema validation.

  The content is published without schema validation. The process is completed unless there are other errors that prevent compilation and publishing.

- Allow user to choose how to validate the schema.

  The user is provided a list of schema validation options.

To enable schema validation, you must update the **ctm0Schema_Validation** preference.

Paste graphics from Active Workspace to Oxygen Editor

You can now paste a graphic directly from Active Workspace to Oxygen Editor. Previously, you could only reference a graphic from Active Workspace to Oxygen Editor.

11. Consumer packaged goods

Specify a detailed process BOM for a consumable product

Users can now specify a detailed process BOM for a consumable product by using the new **Product Specification Management** column configuration. On using this column configuration, additional columns are made available for specifying the formulation in detail. You can specify as you can specify values up to 15 decimal places for the following fields:

- **Operation**
- **Actual Quantity**
- **Actual Min**
- **Actual Max**
- **Process Yield[%]**
- **Theoretical Quantity**
- **Theoretical Min**
- **Theoretical Max**
- **Quantity UoM**

Specify the components for the product package, product formula, item SKU, and raw material

> Note:
>
> To add parameters, installation of the IMM license in Teamcenter is required.

You can specify the components for a product package, the product formula, an item SKU, and the raw material.

You can specify the following component details:

- The mass of the components and the substances that it comprises.
- The alternate CAS number for substances that make up the components.
- The parameters for the component specifications.

To add parameters for the components, you must create a material catalog and specify the parameter descriptors in it.

12. Data sharing

Share Teamcenter data in PDX format

Collaborate with business partners who are not running Siemens Digital Industries Software products by sharing your Teamcenter product data and attachments in PDX format using Active Workspace. PDX (Product Data eXchange) data is a standardized file format that can be viewed by PDX viewer applications such as PDXplorer, and used by other systems that support the PDX data format.

Teamcenter data that you can export in PDX format includes assemblies, objects, and attachments. The exported data is packaged in a compressed file ready for delivery to business partners.

See Configure PDX data sharing for steps to perform when upgrading from earlier releases of Teamcenter, information on mapping Teamcenter objects and attributes to PDX, and configuration options you have for exporting your Teamcenter data to PDX.

Edit automatically created JT files delivered in Briefcase files

With the new Briefcase Browser JT plugin installed, Briefcase Browser automatically creates component and assembly JT files for the contents of Briefcase files when opening the files. Designers at the unmanaged site can then open and edit (or translate) these JT files, sync the modified JT files with the Briefcase file, and return the Briefcase file to you with the new or modified CAD data. If the original Briefcase file contains component JT files, new component JT files are not automatically created for those objects.

For example, export the following structure to a Briefcase file, granting ownership of the objects to the unmanaged site:

```
TopNode_A
    |__SubAssembly_A
        |__comp1_A
        |__comp2_A
    |__SubAssembly1_A
            |_comp3_A
```

Hand off the Briefcase file to your liaison at the unmanaged site:

When the liaison opens the Briefcase file at the unmanaged site using Briefcase Browser with the JT plugin installed, the *comp1_A.jt*, *comp2_A.jt*, and *comp3_A.jt* component JT objects are created in the working directory. The *TopNode_A.jt*, *SubAssembly_A.jt*, *SubAssembly1_A.jt* assembly JT objects are also created in the working directory.

In a typical scenario, the liaison hands off the JT files to their Design team. The Design team uses their existing translator utilities to convert the JT objects to the CAD software file formats they need and updates the files. The Design team then returns the updated JT files to the liaison who synchronizes the

changed files with the Briefcase file and returns the updated Briefcase file to you. The steps they use for this process are detailed in Modify JT data in a Briefcase file and in the documentation accompanying Briefcase Browser.

Monitor status when migrating Teamcenter data using Multi-Site Collaboration

As an administrator, monitor the status and issues encountered when using the Multi-Site **data_share** utility to migrate your Teamcenter data to a more recent version of Teamcenter. These new capabilities expand on the features first introduced in Teamcenter 14.3 that let you migrate data without needing to upgrade the source site to the same Teamcenter version as the target site. This is particularly beneficial when moving from an earlier on-premises Teamcenter release to a subsequent cloud-based release.

Before migrating your data, you can now define the scope of objects being migrated using the new **data_share** argument **-f=register_migration_data**. Doing so registers the objects for reporting purposes as they are being migrated.

After migrating the objects using the **data_share** utility, you can use the new **t2c_report_extract** utility to generate a migration status report. This report details the number and types of objects migrated, objects not yet migrated, any errors encountered during migration, and any objects that have been updated at the source site since the objects were first migrated. You can review the report, address any issues, note any updated objects, and re-run the migration as necessary.

This migration process requires Teamcenter 11.6 or later and that TC XML-based Multi-Site is installed at the source and target sites.

13. Document management

Support for Adobe Acrobat DC

You can open a PDF document from Teamcenter (both the rich client and Active Workspace) in Adobe Acrobat DC. Subsequently, you can perform several tasks, such as adding comments and digital signatures.

To view all the supported versions of Adobe Acrobat DC, refer to the Adobe worksheet in the *Teamcenter Integrations Availability Matrix* file. This file can be accessed from the *Hardware and Software Certifications* tile on Support Center.

14. Integrated program and lifecycle management

Initiative Lifecycle Management - Consumer Packaged Goods Reference Implementation

Enhancements to workflows

Teamcenter 2312 introduces the following updates to the workflows provided with IPLM CPG Reference:

Changes to the phase gate release workflows:

- Previously, phase gate release workflows could be initiated by users in only one role. For example, in a company, only the marketing manager could initiate the phase gate release workflow for an idea. Starting Teamcenter 2312, additionally, users in another role, for example, the senior marketing manager role can also do this. In addition, they can view and submit the idea to the workflow as well. This change is applicable across all the phase gate release workflows available.

- Previously, after the maturity of an object was updated, an email notification was sent to the specific user. Starting 2312, instead of an email notification, an alert is displayed in Active Workspace itself. The notification is sent in cases where the object owner and the user who submitted the object to the workflow are different.

Changes to the promote/demote workflows:

Previously, when a user updated the maturity of an object, no consistency check was performed. Now, consistency checks similar to those performed in the gate release workflows are performed to check if the maturity can be updated to the value selected by the user.

15. Linked data framework

Enhanced security configuration for the integration with Polarion version 2310 onwards

Modern browsers are continually getting stricter when it comes to security. To enhance the security for the integration with Polarion from version 2310 onwards, administrators must perform certain configurations for cases where Polarion is used as a Linked Data provider and for cases where Polarion is used as a Linked Data consumer.

16. Model-based systems engineering

Requirements management

View and trace parameters within the trace matrix

With Teamcenter 2312, you can view and edit traceability between parameters in the trace link matrix.

Using the trace link matrix, you can relate parameters in the same BOM, just as when you are describing the dependency of parameters in a parameter project. You can also relate parameters across BOMs, as you would normally for BOM children themselves. Starting this release, you can also expand the attributes below the BOM line item and see their assigned parameters within the trace link matrix. This allows you to, for instance, create a trace link between a requirement parameter for weight, and show the impact the weight parameter has on the system model's fuel economy, acceleration, and braking distance parameters.

Changes to the trace link matrix functionality are as follows:

- You can view parameters as children of their owned object. The parameter icon indicates the presence of related parameters. The icon also allows you to expand and collapse parameter rows. You can expand all rows from the top node.

- You can create new trace links between parameters. Before creating the trace link, you can swap the direction of a trace link. For example, if you have Item 1 related to Item 2, you can use the **Swap** option to switch the trace link direction from Item 2 to Item 1.

- Parameters are included by default when creating all matrix types. You can choose to omit parameters when generating the matrix. Once the matrix is created, you can show or hide parameters from the **Matrix Settings** panel. You can also hide or unhide columns and rows from the matrix.

Test and Parameter Management

Change and notification support for parameters

Starting this release, you can request notifications for parameters. You can specify what properties to be monitored for changes, as well as the time intervals at which you want to be notified of changes.

System Modeling

Teamcenter Digital Thread Navigation configurable views

Teamcenter 2312 offers user-configurable views in Digital Thread Navigation that you can use to specify object types and relationships displayed in the relationship browser.

- You can optimize the Digital Thread Navigation views to improve loading and readability. You can set the default visibility state for each object and relation type in a configuration file. You can specify that only object types with visibility enabled will be displayed during loading. You can turn on and turn off the visibility of hidden types by selecting check boxes on the **Legend** panel.

- You can improve impact analysis by expanding or collapsing the view for a selected item.

MBSE Integration Gateway

Support for classification between the modeling tool and Teamcenter using the integration definition file

Previously, classification between objects and attributes in the modeling tool and Teamcenter was performed using by setting certain preferences.

Now, as an integrator, you can do this using the integration definition file.

You must:

- Define the classification mapping in the integration definition file.

- Generate the JSON file.

- Use the export or import operation to classify the mapped objects.

An example of the classification mapping in the integration definition file is as follows:

```
<ClassificationMapping>
    <AtributeCollection  toolClassId="EDABOMComp">
        <ClassAttribute toolClassAttrId="PartNumber"
tcClassAttrId="-5485" direction="TcToTool"/>
        <ClassAttribute toolClassAttrId="Mass" tcClassAttrId="-5491"
direction="ToolToTc"/>
        <ClassAttribute toolClassAttrId="OperatingTemperature"
tcClassAttrId="-5517" direction="ToolToTc"/>
    </AtributeCollection>
    <Class toolClassId="EDABOMComp" tcClassId="RNC363"
classifyAnchor="false">
        <ClassAttribute toolClassAttrId="NumberOfFans"
tcClassAttrId="-5160"/>
        <ClassAttribute toolClassAttrId="FanDiameter"
tcClassAttrId="-5159"/>
        <ClassAttribute toolClassAttrId="UnitCapacity"
tcClassAttrId="-5158"/>
        <ClassAttribute toolClassAttrId="NumbMaximumSupplyPowererOfFans"
```

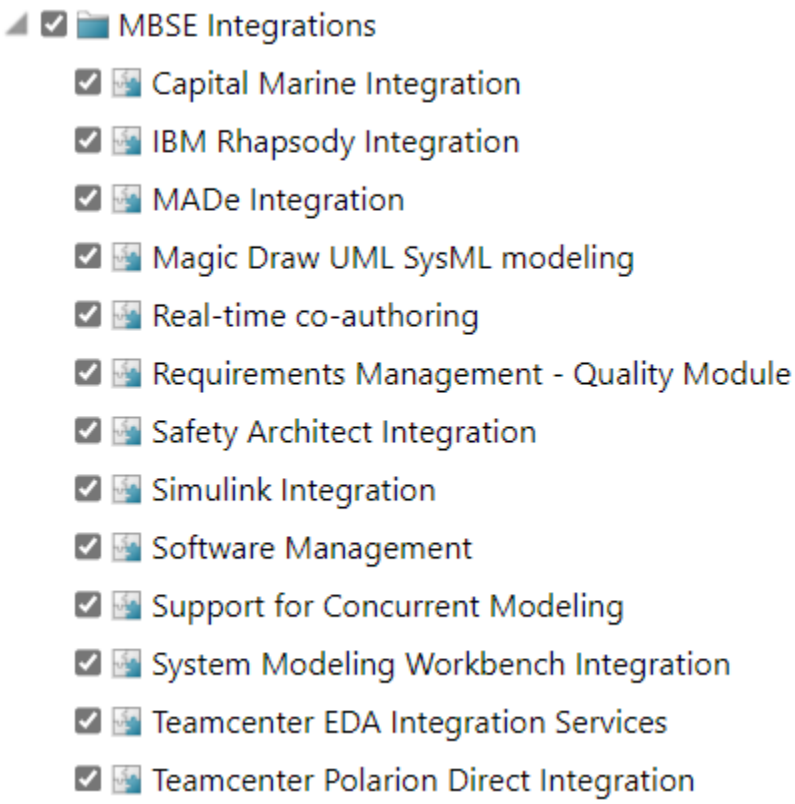
```
tcClassAttrId="-5157"/>
    </Class>
    <Class toolClassId="EDABOMComp" toolClassifybyAttribute="Partition"
toolClassifybyAttributeValue="top/HEATSINK" tcClassId="RNC364"
classifyAnchor="false">
        <ClassAttribute toolClassAttrId="ThermalResistance"
tcClassAttrId="-6700" direction="TcToTool"/>
        <ClassAttribute toolClassAttrId="Height" tcClassAttrId="-6643"
direction="ToolToTc"/>
        <ClassAttribute toolClassAttrId="Length" tcClassAttrId="-6641"
direction="ToolToTc"/>
        <ClassAttribute toolClassAttrId="FinThickness"
tcClassAttrId="-5182" direction="ToolToTc"/>
    </Class>
</ClassificationMapping>
```

Easier of installation of MBSE Integration Gateway

Previously, you had to install the MBSE Integration Gateway framework and other dependencies for installing support for integrations.

Now, the dependencies are automatically installed when you select an integration in Deployment Center.

In Deployment Center, all the integrations now appear under the group **MBSE Integrations**. Previously, it appeared under the group **MBSE**.



17. Product Configurator

Updated solve profiles and the corresponding solve behavior

The solve profiles and the solver behavior have changed in the 2312 release of Active Workspace. Prior to 2312, three modes were available by default: **Order (Apply Constraints)**, **Order**, and **Overlay**. Starting this release, only two modes are available, and they are **Order** and **Overlay**. **Order** continues to remain the default profile.

Additionally, **explicit configuration** is now available. This affects the behavior of how content such as BOM lines get configured in or out for incomplete configurations. This option, presented using a check box, is selected in the **Order** mode and is deselected in the **Overlay** mode by default.

The **Explicit Configuration** check box, if selected, returns only BOM lines where the features have been explicitly selected in **Order** mode. This leads to a configuration that is 100% or less. Conversely, if the **Overlay** mode is selected, the **Explicit Configuration** check box is not selected by default. This leads to a configuration that is more than 100%, for example, a 120% BOM.

Create matrix constraints

Starting this release, as a product owner or a product planner, you can create constraints using a matrix in the configurator context in Active Workspace.

You can use a matrix to simplify the authoring and maintenance of constraints. Using the regular grid-based constraints, you can continue to create feature availability, default, inclusion, and exclusion. However, the number of constraints is reduced significantly when you use a matrix. All the standard and optional features can be defined using a matrix.

The matrix is a convenient way to create constraints at the beginning of the product cycle. As the product evolves, the declarations can be fine-tuned. You can use the matrix to manage multiple feature declarations for a product variant using a single constraint. This can be managed using effectivity and revision control.

Create a modular configuration

Manufactured goods are often designed and assembled from configurator modules. For example, consider a company that produces a range of refrigerators and freezers in different sizes and colors. The door assemblies are developed in a department that designs a modular door suitable for use in any refrigerator or freezer. They design a generic door assembly that has all possible components for any use—a sheet steel outer door and two internal covers, one for a freezer and one for a refrigerator.

You can then configure the door assembly for a particular use in a refrigerator or freezer by setting various parameters or variant conditions that describe it, for example, **door width**, **door height**, **application** (refrigerator or freezer), and **color** (white or stainless steel). This intelligent door assembly is called a configurator module.

Starting this release, as a configurator administrator, you can create configurator modules in the product to minimize engineering and production costs. They are self-contained, plug-compatible units that can be reused.

Group features to create package families

Previously, package families could be created only in the rich client. Now, they can be created in Active Workspace.

As a configurator administrator, you can group features to create package families that the customers can order together in a bundle. Feature packages contain features within or across families. An example of this is a cold weather package that contains the engine block heater, snow tires, and heated side mirrors for cars.

Create dynamic families

Previously, dynamic families could be created only in the rich client. Now, they can be created in Active Workspace.

As a configurator administrator, you can create a dynamic family that combines a set of standalone features. The dynamic nature allows users to effectively adapt to changes in their business process. It provides a mechanism to manage the evolution of the offered features as it allows standalone features to shift from one dynamic family to another over time.

Create summary families

Previously, summary families could be created only in the rich client. Now, they can be created in Active Workspace.

As a configurator administrator, you can create summary families to summarize families and author common constraints. For example, you have an **Engine** group with the **Petrol Engine** family and **V4** and **V6** as features. To create common constraints or rules, you can create a summary family and a feature summary for the petrol engines. You can then drag and drop the **V4** and **V6** to the feature summary.

Set effectivity for workspace objects

Starting this release, as a configurator administrator, you can set effectivity for the following workspace objects in Active Workspace:

- Product models and summary models in a configurator context
- Features and their allocation
- Constraints and matrix rules

Submit workspace objects to a workflow

Starting this release, as a configurator administrator, you can submit the following workspace objects to a workflow in Active Workspace:

- Model families and their product models
- Summary model families and their summary models
- Groups, families, and features
- Constraints and matrix rules
- Variant rules and variant criteria

Revise objects submitted to the workflow

Starting this release, as a configurator administrator, you can revise the following objects submitted to a workflow in Active Workspace:

- Model families and their product models
- Summary model families and their summary models
- Families and features
- Constraints and matrix rules
- Variant criteria

Customize matrix constraints and their separators

The product owner or product planner creates matrix constraints in the configurator context. The matrix is a convenient way to create constraints at the beginning of the product cycle. By providing standard, optional, default, excluded, and mandatory options, the complexity of creating multiple constraints is reduced.

Starting this release, as an administrator, you can customize the options provided for matrix constraints in the **Matrix** tab in Active Workspace. On the user interface, standard, optional, default, excluded, and mandatory options are displayed as **S**, **O**, **D**, **E**, and **M**, respectively, by default. You can customize these options and their descriptions by using Business Modeler IDE. You can also customize the localization of these options.

After the BOM engineer creates the matrix and selects the appropriate matrix constraint options for the groups and features, they are represented in the **Subject** column as an expression, for example,

FuelType {Diesel:S, Petrol:E}; Engine{3LitreDiesel:S, 2LitrePetrol:E}; ExteriorColor {NeptuneBlue:S}. In this example, the families **FuelType**, **Engine**, and **ExteriorColor** are separated using semicolon **;** separators. Similarly, features are followed by a colon **:** and then the option. Starting this release, you can customize these separators by using BMIDE.

Create naming rules for configurator objects and variant criteria objects

Starting this release, as an administrator, you can create naming rules with a proper sequence to identify different configurator objects and variant criteria objects. By default, no naming rules are available.

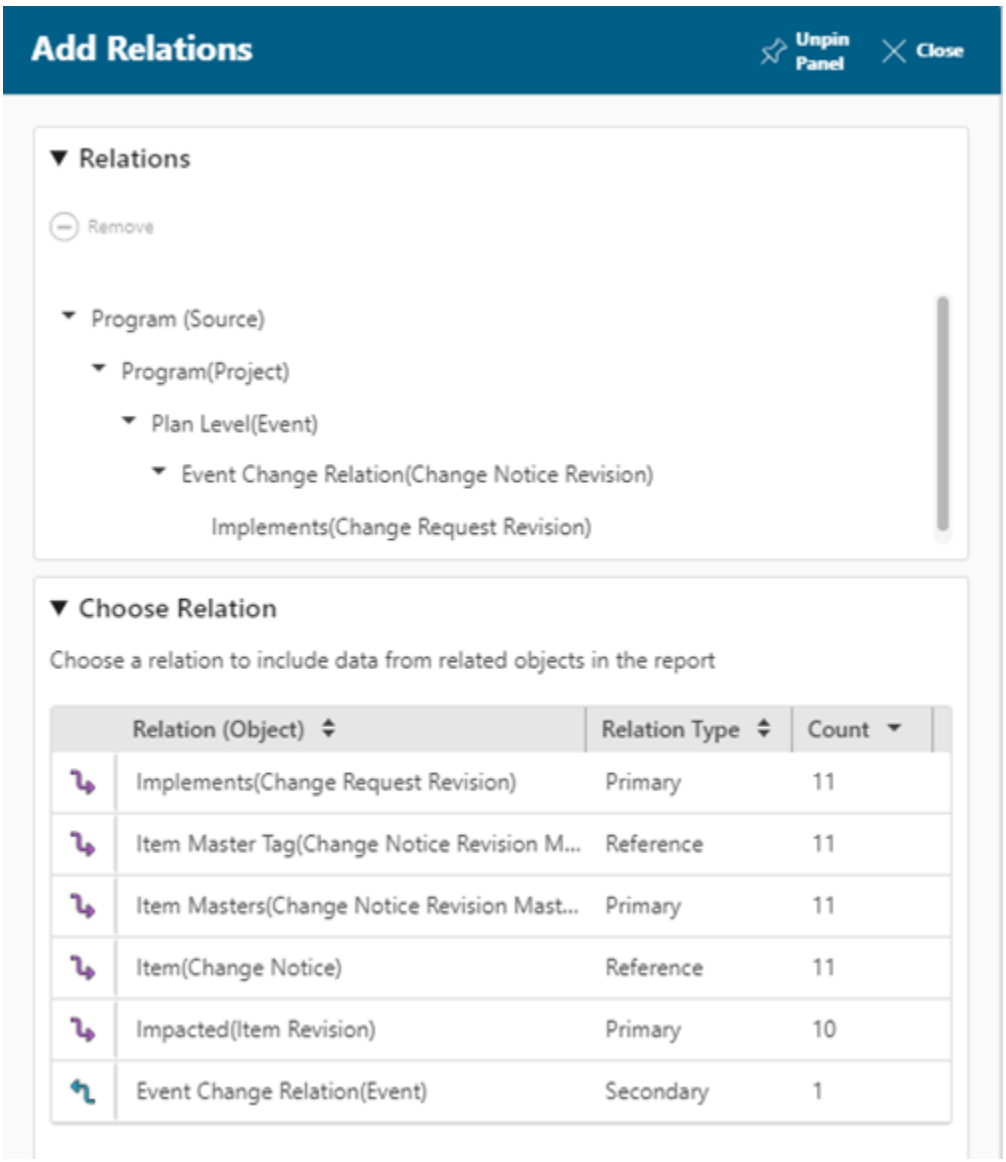
Examples of inclusion rules:

- A configurator object that starts with *INC0001*. This number counter can keep incrementing till *INC9999*.
- A variant criteria object that starts with *VC0001*. This number counter can keep incrementing till *VC9999*.

18. Reporting

Define relations to generate data for active item reports

Previously, traversal rules were used for defining the relation from the business object to other related objects or references in active item reports to generate the required data. Starting this release, all possible relations of the source object are displayed on the user interface in a tabular format to help users select the relation in the active item report and generate the required data.



For more information, see Create an active item report for a program, Create an active item report for scheduled tasks, and Create an active item report for change requests.

19. Resource management

Add or delete attachments in Part Manufacturing

You can now Add or delete an attachment in an operation or revision and Add or delete an attachment in a resource or activity in the **Attachment** tab in **Part Manufacturing**.

Documentation update: Create resources using Save As or Revise changes

For Active Workspace 2312, the **Create resources using Save As or Revise** procedure is now divided into separate Create resources using Save As and Create resources using Revise topics.

MRL vendor catalogs: DIN import backport

The functionality to import DIN vendor catalogs is now supported using the following versions of Teamcenter:

- Teamcenter 13.3.0.12
- Teamcenter 14.2
- Teamcenter 14.3 and later

The vendor catalog import can also be used with Active Workspace 6.3 or later.

DIN import support for customer identifiers

You can now import and map DIN package vendor products into the Manufacturing Resource Library (MRL) tool classification using customer-specific object identifiers that serve as item identifiers.

Edit an activity table cell in Part Manufacturing

You can now edit certain activity table cells in the Part Manufacturing tab, such as Description, Start Time (seconds), and Duration (seconds), by double-clicking the desired cell.

Documentation update: Gateway restart timeout setting change

For Active Workspace 2312, the default upload timeout setting in Working with a vendor catalog now includes what settings to update.

Documentation update: Import vendor hierarchy and import vendor products changes

In Active Workspace 2312, the **Import Vendor Hierarchy** and **Import Vendor Products** selections on the primary toolbar are now changed to **Import/Export** in the Import GTC vendor class hierarchy and the Import vendor product data.

Multitool support added in Active Workspace

Starting with the release of Active Workspace 2312, you can now assemble, modify, and delete a multitool in Manufacturing Resource Library (MRL). Refer to these topics for more information:

- Overview of multitool assemblies
- Create a multitool assembly
- Deleting multitool cutters

NX support devices from Active Workspace

When a device is dragged into NX, a **Retrieve as Device** dialog box is displayed. You can choose if the device should be added to the BOM structure as a component or retrieved as a device.

Recent and Discussion panels on the Manufacturing Workspace

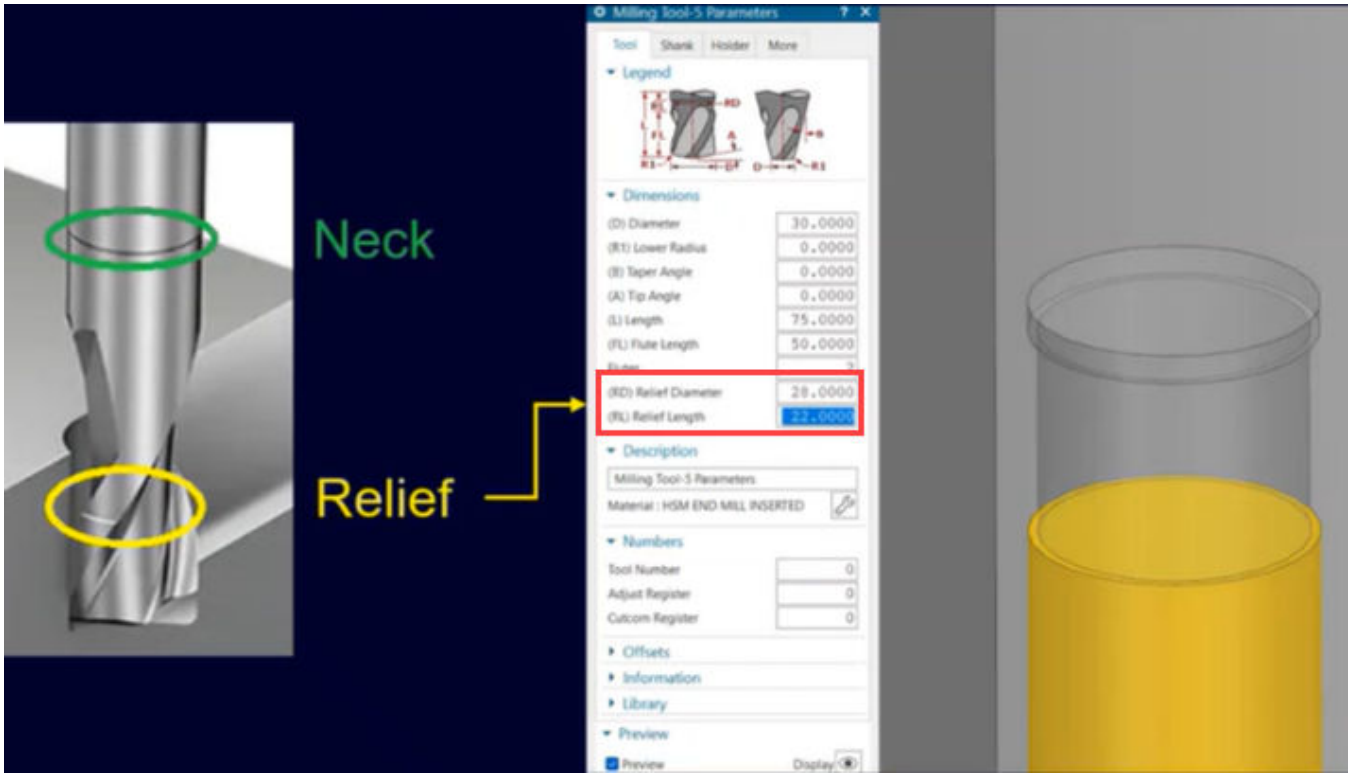
On the Manufacturing Resource Library dashboard, you can now use the **RECENT** panel to quickly find and open previously viewed resources. You can also use the **DISCUSSION** panel to communicate with other users.

Revise a component and include all parent assemblies

You can now use Revise resources and parent assemblies to revise a component and all parent assemblies.

Support for cutting tool relief

Use the new **Relief Diameter (RD)** and **Relief Length (RL)** settings for tool assemblies in the Manufacturing Resource Library (MRL) to add a cutting tool relief for 5-Parameter Mill and Ball Mill. A cutting tool relief decreases the diameter of an assembly or tool between the neck and the cutting area. You can use these settings to create, adjust, and save milling tools of these types and retrieve them for use in NX.



Teamcenter X Part Manufacturing launch

TEAMCENTER X Part Manufacturing, the cloud version of the classic Part Manufacturing solution, is now available.

The Siemens PLM cloud solution removes the burden of operating, managing, and securing your own IT infrastructure and PLM environment. TEAMCENTER X provides flexible scalability to grow with your requirements without the need to purchase new hardware.

Core functionalities of TEAMCENTER X Part Manufacturing include NX CAM, NX CMM and NX Additive Manufacturing integration, which extends Data Management from Engineering into the Part Manufacturing space.

20. Simulation process and data management

Integration with Simcenter STAR-CCM+ Design Manager

Simcenter STAR-CCM+ Design Manager provides an automated approach to running design exploration studies. The performance assessment study runs a product through a predefined set of conditions to understand the influence of key parameters on the performance of the product. The design optimization study algorithm determines the input conditions automatically to improve the product for specific goals.

Starting this release, the CAE task flows have been enhanced to provide support for integrating Simcenter STAR-CCM+ Design Manager in Active Workspace.

Integration with Simcenter Studio

Simcenter Studio is a web-based application for engineers and data scientists to create novel and topologically different system architectures. It generates and evaluates system architectures during the early concept phase. The software has a computational notebook that contains narrative text and mathematical equations, code, models, model block diagrams, simulation as code, and result visualization. All of these are combined in one document for easy usage. This integration is currently manual.

Starting this release, the CAE task flows have been enhanced to provide support for integrating Simcenter Studio in Active Workspace.

Launch and monitor simulation tools configured for HPC

Starting this release, as a simulation analyst, you can launch and monitor simulation tools configured for high-performance computing (HPC) in Active Workspace.

Mark boundary conditions as up-to-date for changes to attachments and related revisions

In a complex product development environment, different analysts perform different tasks in the overall analysis. For example, the CFD analysis is done by one group, and the heat flux load is sent to another group as a boundary condition. Similarly, another group does structural analysis, and this group receives a boundary condition object from the program requirements group. In such scenarios, it becomes critical to know when the analysis data, possibly with multiple dependencies, is out-of-date. As a simulation analyst, you can ensure that the analysis is built with the correct set of data to deliver accurate results.

To do this, starting this release, you can mark boundary conditions as up-to-date for changes to attachments and related revisions in Active Workspace.

21. Structure and BOM management

Structure management

Create solution variants for multiple variants of a product

A solution variant is a 100% valid structure that is derived from a 150% configurable structure.

Previously, as a business user, you could create solution variants for a single variant of a product at a time.

Now, you can create solution variants for more than one variant of a product at the same time. The product variants for which you want to create solution variants must be valid and complete configurations.

When a product structure is updated, you must also update the corresponding solution variants.

Earlier, you could update solution variants through a workflow. Now, you can update solution variants of a product from the **Solution Variants** tab.

Prevent the full expansion of a structure when it loads

When a structure loads, it is completely expanded by default. As an administrator, you can restrict the expansion of the complete structure by using the **BOM_closure_rule_name** preference.

Set specific preferences to manage reference designators better

As an administrator, you can now use various preferences to manage reference designators in a better way.

- **Specify how reference designators are displayed for packed lines**

  You can set how the reference designator values are displayed for the packed lines in a structure by using the **BOMRefDesignatorPackMode** preference. You can set the preference such that the reference designator values are either packed into ranges or are concatenated with a separator.

- **Specify the separator for concatenating reference designators**

  You can set the separator for concatenating the reference designator values in a structure by using the **BOMRefDesignatorPackSeparator** preference. You can specify any character as a value for this preference.

- **Pack reference designators when packing structure elements**

You can specify if the system packs reference designator values when it packs the structure elements by using the **BOM_Enable_Ref_Designator_Value_Packing** preference.

- **Allow the quantity to be automatically updated as per the number of reference designators**

  You can set the quantity to be automatically updated in a structure as per the number of reference designators specified by a business user. To do this, you can use the **BOM_Enable_Quantity_Validation_Against_Ref_Designator** preference.

Set the default quantity to 1 automatically when the unit of measure is each

For a newly added structure element, you, as an administrator, can set the default quantity to 1 when the unit of measure is each. Thus, when a business user adds a new element to a structure and when the unit of measure is each, by default, the quantity is automatically set as 1. You can do this by using the **BOM_occ_default_qty_prevent_from_blank** preference.

Export the data available across sections to Excel

As a business user, you can now export the data from the **Used in Structures** and **Top Level** sections in the **Where Used** tab to their respective Excel files.

In both cases, you can view the assemblies in which a structure element is used. In the **Used in Structures** section, you do so by expanding one level at a time. In the **Top Level** section, you view the use of the structure element in the top-level assemblies at the product level. Now, you can view all this data together by exporting it to Excel.

As an administrator, you can specify the maximum number of results that can be displayed in the **Used in Structures** section. To do this, you can use the **TC_WhereUsed_Display_Limit** preference.

Make mass updates to a structure with changes that contain multiple problem items

Earlier, you, as a business user, could make mass updates to a structure with a change that had a single problem item. The **Mass Update** tab was not visible when there were multiple problem items associated with a single change notice or when a problem item was associated with multiple active change notices.

Now, even if multiple problem items are associated with the same change notice or the same problem item is associated with multiple active change notices, you can propose mass update actions for the affected items across all problem items in the **Mass Update** tab. These actions are applied together now as part of a single workflow.

Simplify the user interface by hiding the configuration parameters that you do not need

In Active Workspace, certain configuration parameters are always displayed in the configuration header and configuration panel by default. To simplify the UI, as an administrator, you can choose to not display all these configuration parameters by using the **AWBEnabledStructureFeatures_Item** preference. You can set this preference as per the type of the structure. From the preference, you can remove the values for the configuration parameters that you do not need.

View snapshot folders created through the rich client in Active Workspace

In Active Workspace, you, as a business user, can now view the snapshots that were created in the rich client. You can also update a snapshot to use a different revision by replacing an item revision with a different revision.

As an administrator, you can specify if a business user can update a snapshot with a different item revision. To do this, you can use the **AWC_display_configured_revs_for_pwa** preference.

Specify date effectivity more accurately with an end item

As a business user, you can optionally specify an end item when specifying a date effectivity for an occurrence or a revision. You can specify more than one date range, each qualified with a different end item. You can also configure a structure based on an end item along with a date.

Expedite the structure import through Excel

As a business user, you can speed up importing a structure through an Excel file by reviewing a comprehensive list of errors in the Excel file simultaneously.

Even if an error occurs while importing a structure, the mapping that you created for the structure properties is saved. You need not select the mapped attributes again for the Excel headers. Irrespective of whether you choose to run the import process in the background, you are notified about the result of the import in the **Alerts** panel.

When the import is successful and when you import multiple elements or assemblies simultaneously, all the top-level elements and assemblies are added to the folder you specified previously. If there are any errors while importing the structure, in the **Teamcenter Information** section, you can see a list of all errors simultaneously. When you hover over an error, you can see more information about that error in a tooltip. A detailed error report is available in the **Alerts** panel.

Updated solve profiles and the corresponding solve behavior

The solve profiles and the solver behavior have changed in the 2312 release of Active Workspace. Prior to 2312, three modes were available by default: **Order (Apply Constraints)**, **Order**, and **Overlay**. Starting this release, only two modes are available, and they are **Order** and **Overlay**. **Order** continues to remain the default profile.

Additionally, **explicit configuration** is now available. This affects the behavior of how content such as BOM lines get configured in or out for incomplete configurations. This option, presented using a check box, is selected in the **Order** mode and is deselected in the **Overlay** mode by default.

The **Explicit Configuration** check box, if selected, returns only BOM lines where the features have been explicitly selected in **Order** mode. This leads to a configuration that is 100% or less. Conversely, if the **Overlay** mode is selected, the **Explicit Configuration** check box is not selected by default. This leads to a configuration that is more than 100%, for example, a 120% BOM.

Configure a structure using modular configuration

Manufactured goods are often designed and assembled from configurator modules. For example, consider a company that produces a range of refrigerators and freezers in different sizes and colors. The door assemblies are developed in a department that designs a modular door suitable for use in any refrigerator or freezer. They design a generic door assembly that has all possible components for any use—a sheet steel outer door and two internal covers, one for a freezer and one for a refrigerator.

The door assembly can be configured for a particular use in a refrigerator or freezer by setting various parameters or variant conditions that describe it, for example, **door width**, **door height**, **application** (refrigerator or freezer), and **color** (white or stainless steel). This intelligent door assembly is called a configurator module.

As a BOM engineer, you could previously configure a structure with variability data created using classic variants and Product Configurator. Now, you can also configure a structure using a modular configuration in Active Workspace.

Smart Discovery for structures

Use new filters to expand or contract a structure

As a business user, you filter a structure to derive a specific product definition you want to work with.

Previously, you could filter a structure by right-clicking a structure element and selecting the filters **Include in Filter Criteria**, **Include in Filter Criteria (without children)**, and **Exclude from Filter Criteria**. Before applying these filters, you had to apply at least one other filter.

Now, you need not apply an additional filter before including or excluding elements from a structure. Also, the filters that you used previously are now replaced with the following new filters:

- **Filter Selected Elements with children**
- **Filter Selected Elements**
- **Append Selected Elements with children**
- **Append Elements**

- **Exclude Selected Elements**

You do not see all four options to filter and append structure elements at the same time. Depending on whether the **Filter/Append Elements with Children** option is enabled or disabled, only two filters are displayed.

Find elements within a workset

As a business user, you can save the product definitions of structures that you are currently working on within a workset.

Previously, you could find elements only within each structure saved in a workset.

Now, you can find elements across the different structures saved in a workset. These structures, however, must be indexed using Smart Discovery Indexing.

Set the automatic creation of the Smart Discovery index for products

As an administrator, you index products by using Smart Discovery Indexing so that business users can get additional filtering and configuration capabilities while managing product structures.

Previously, you had to create the Smart Discovery index manually for each structure in the Teamcenter database.

Now, you can set up the system to automatically create the Smart Discovery index for multiple product structures by creating saved queries.

Use structure configuration commands on individual structures within a workset

As a business user, while controlling the display of configured structures, you can use the configuration commands on individual structures within a subset.

If you select a workset containing one or more structures, the **Show Excluded by Effectivity**, **Show Excluded by Variants**, **Show Excluded by Filtering**, and **Show Suppressed** commands are not available. These commands are available only when you select an individual structure within the workset or any elements within the same structure. These commands become unavailable when you select multiple structures within the workset or multiple elements across different structures within the workset.

Filter and find elements within a structure containing packed elements

As a business user, if your structure is indexed using Smart Discovery Indexing, you can filter and find elements within a structure that contains packed elements.

While doing so, the state of the **Tree** view remains the same, regardless of whether the structure elements are packed or unpacked by default or manually packed or unpacked. However, the search results in the **Find** panel are always shown as unpacked.

Partition management for structures

Search for partitions while filtering a structure

As a business user, while filtering a structure by partitions, you can now easily traverse the partition hierarchy.

You can see the partition schemes created for a structure in the **Partition Scheme** section on the **Filter** panel. When you click a partition scheme, the **Filter** panel is extended to show the partition hierarchy within the selected partition scheme. To select the required partition, you can either navigate the partition hierarchy by expanding the tree or by searching for a partition. You can expand a partition and choose a child partition. You can also search for a specific partition in the **Filter by Name** box and select a partition from the results list.

Set variability on partitions

As a business user, you can set variability on partitions so that you see only the partitions that are relevant to your configuration.

To view or hide partitions that are excluded by the variant configuration, you can click **Configure** > **Show Excluded by Variants**.

Design and engineering BOM alignment

Restore alignment on revising a design

After a design structure and an engineering BOM are aligned with each other, the design structure can be updated. In case the design structure is released, it is first revised and then updated.

Previously, when a design was revised, there was an alignment mismatch between the design revision and its aligned part revisions. In case the design was a structure, its design occurrences and their corresponding part occurrences were also misaligned.

Now, when a design is revised, the alignment mismatch between the design revision and its corresponding part revisions is indicated by the **Out of Sync** indicator. As a business user, you can restore the alignment by selecting the misaligned part revisions and clicking **Set Primary**.

Advanced indicators to show the alignment status

As a business user, you view the aligned design occurrences and part occurrences in order to validate the alignment.

Previously, on performing an alignment check to view the aligned occurrences, the status of the alignment was shown through certain indicators in the **Alignment Status** and **Advance Status** columns.

Now, on generating an alignment report, new indicators are displayed in the **Advance Status** column to show additional information related to the alignment status between the occurrences.

Track structure updates in the alignment view

As a business user, you view the aligned design occurrences and part occurrences in order to validate the alignment.

Now, while viewing the alignment status, you can add new designs and parts, remove or replace existing designs and parts, and update the design structure and engineering BOM. You can track the updates to the design structure and engineering BOM by enabling the **Show Redlines** option. After making the required changes, perform a guided or an automated update to modify the aligned design structure or engineering BOM.

Set the automatic generation and alignment of flexible parts

Multiple designs represent a flexible part. Previously, business users could generate a flexible part manually from its aligned designs.

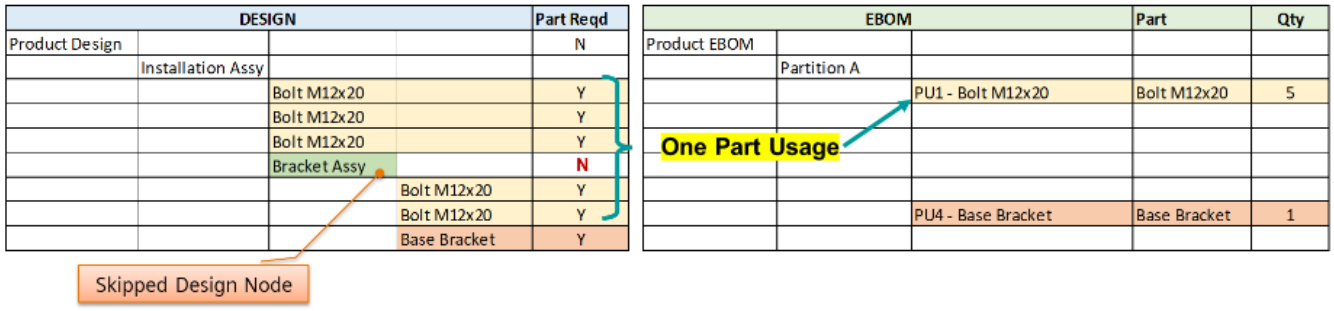
Now, as an administrator, you can set the automatic generation and alignment of a flexible part. When business users generate an engineering BOM from a design structure, a flexible part is created and aligned with its corresponding designs automatically.

Engineering BOM no longer summarized for skipped designs

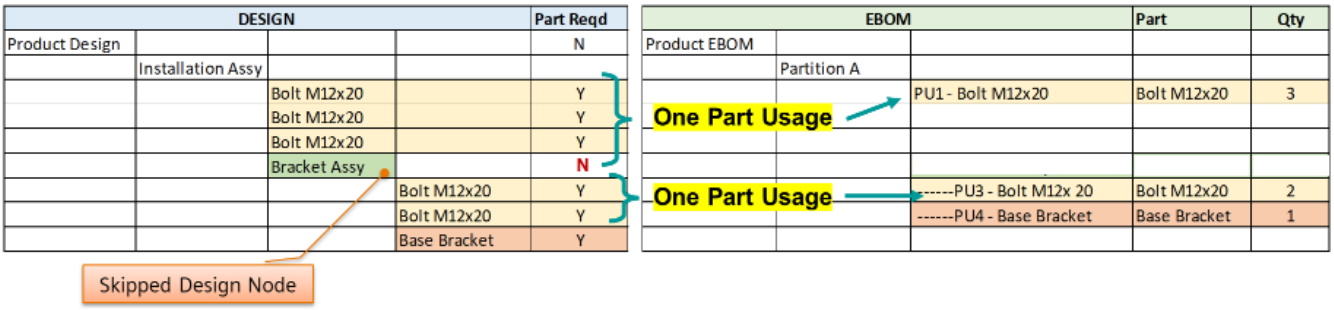
As an administrator, while generating an engineering BOM from a design structure, you can choose to skip certain design occurrences along with their children so that the corresponding parts and part usages are not created. To control the creation of parts and part usages this way, you set specific actions in the **Pma0_DBOM_skip_node_conditions** preference.

In some cases, a parent design may contain a child design that occurs multiple times in the parent design and in some other designs as well.

Previously, when you **SkipNode, TraverseStructure** as the action on such a parent design, in the generated engineering BOM, a single part usage was created for the skipped design node. The quantity of the part usage was set as the number of times the child design occurred in the design structure.



Now, the generated engineering BOM is no longer summarized for the skipped design node, and separate part usages are created for the child design.



Engineering BOM management

Validate the engineering BOM setup

As an administrator, after deploying engineering BOM, and making the required customization and administration changes, you can now validate if the engineering BOM is set up correctly.

You can perform this validation by running the **validate_ebom_configurations** utility. It generates a report that lists the issues if the setup fails.

Enhanced effectivity cutback for complete effectivity overlap with change notice

Collaborative product engineering BOM supports effectivity automation. Release effectivities are carried over to parts automatically as their occurrence effectivities, and they are *cut back* accordingly if released parts are modified, resulting in an effectivity overlap with the change notice.

Unlike in previous releases, now, this cutback happens only if the overlap is partial. In the case of a complete overlap, the part usage is first revised and then it is updated.

In addition, now, a validation can be enabled to ensure that a part usage cannot be released if another logically related usage, which was created as a result of an effectivity split, is released in a different change notice that has an overlapping release effectivity with the current change notice.

Configure part usages using occurrence effectivity and date

Previously, in a collaborative product engineering BOM, part usages were configured by revision rules first by release date and then by occurrence effectivity. Therefore, even if a released part usage was effective as per the active engineering change notice, as it was released, the usage was not configured in the BOM.

Now, part usages are configured first by effectivity and then by the release date.

Part usages that are released but are effective as per the active change notice can be configured in the BOM, irrespective of when the part usage is released. For example, consider a part usage that is released today and effectivity is requested earlier than today. To include this part usage in the BOM, you must configure the BOM with a revision rule that has the following clauses:

Has (Any Status, Configure by Effective Date)

Has (Any Status, Configure by Release Date)

Import a collaborative product engineering BOM with variants and attribute groups

Starting this release, you can import a collaborative product engineering BOM with variants and attribute groups directly from Microsoft Excel.

You can use the variants that already exist in the system, or you can import these from the Excel file as well.

22. Substance Compliance

Requesting and reviewing a material data sheet

You can now request a material data sheet (MDS) for a part or a material that was specified as an **IMDS object** during its creation. The material can be a *self material* or *supplier material*. When the vendor information is set on the **Material Supplier** property of the material revision, it is referred to as a supplier material.

Starting this release, multiple requests can be made for the same material-supplier combination even if there are pending open requests. You can see all the sent requests in the **Outgoing MDS** tab of the **Declaration Requests** tile on the Home page.

In addition, now, you can obtain information about a part or a standalone material, which is a simple material or a compound material containing multiple substances, from IMDS.

After this information is downloaded from IMDS and imported into Teamcenter, it is available for review in the declaration queue, where the review workflow is automatically initiated. Subsequently, you can accept or reject the declaration.

Uploading a material data sheet to IMDS

You now can upload the material data sheet (MDS) for a part revision or an item revision and their children to IMDS. These could be for a material, compound Material or semi component. You can upload the MDS by opening a single material or a component or upload it from an incoming MDS request itself.

While uploading, the **IMDS Measured Weight** is also considered for the component to calculate its deviation from the **Calculated Weight** to ensure that the deviation does not exceed the threshold.

Starting this release, you can also set the application codes before uploading the information to IMDS.

Viewing and managing incoming requests

Post your administrator download and import daily files from the IMDS site. You can view all the incoming and outgoing requests for a material data sheet (MDS) of a material, semi component, and component.

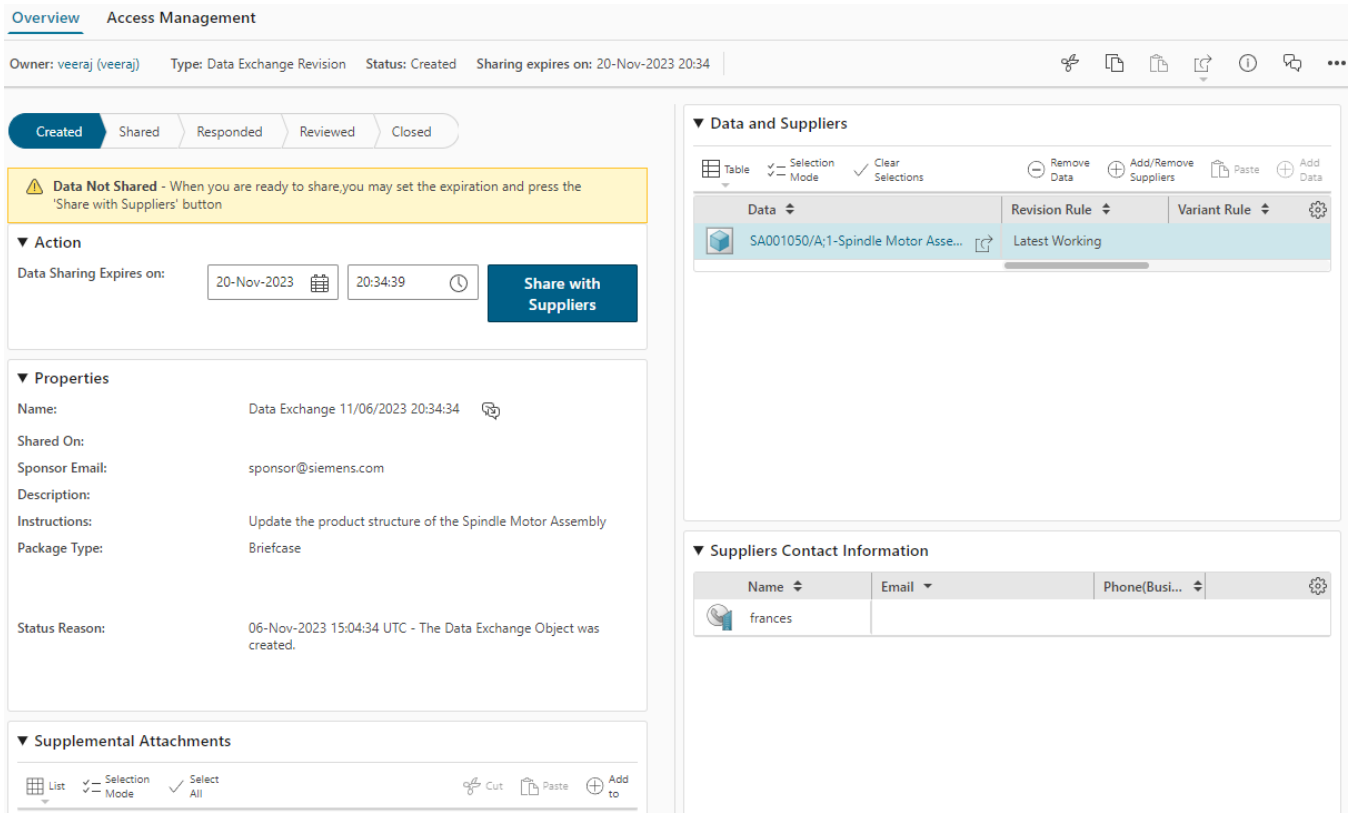
On the **Requests** page, you can see the tabs **Incoming MDS**, **Outgoing MDS**, and **Outgoing IPC**. Here, you can assign or unassign an MDS to incoming requests from the IMDS site, or you can reject the incoming request.

23. Supplier Connect

Share items or assemblies with suppliers as Live Data or in a Briefcase

Earlier, you, as a design engineer, could only share items or assemblies as **Live Data** with suppliers for design updates. You could specify the modification rights for the items or assembly components.

Now, you can share items or assemblies as **Live Data** or in a **Briefcase**. In addition to specifying the modification rights, you can transfer ownership to the assigned suppliers so that they can make the required design updates.

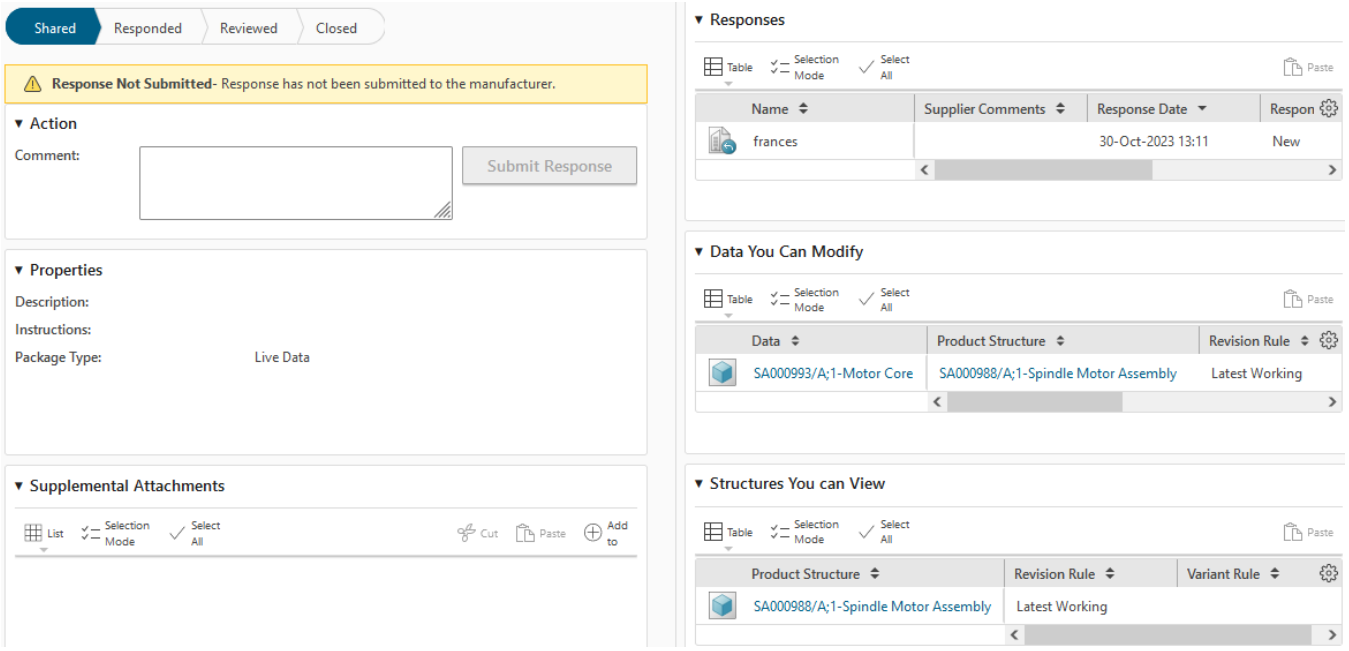


Work on a data exchange package from a single location

As a supplier, when you open a data exchange package, you can work on the following from a single location:

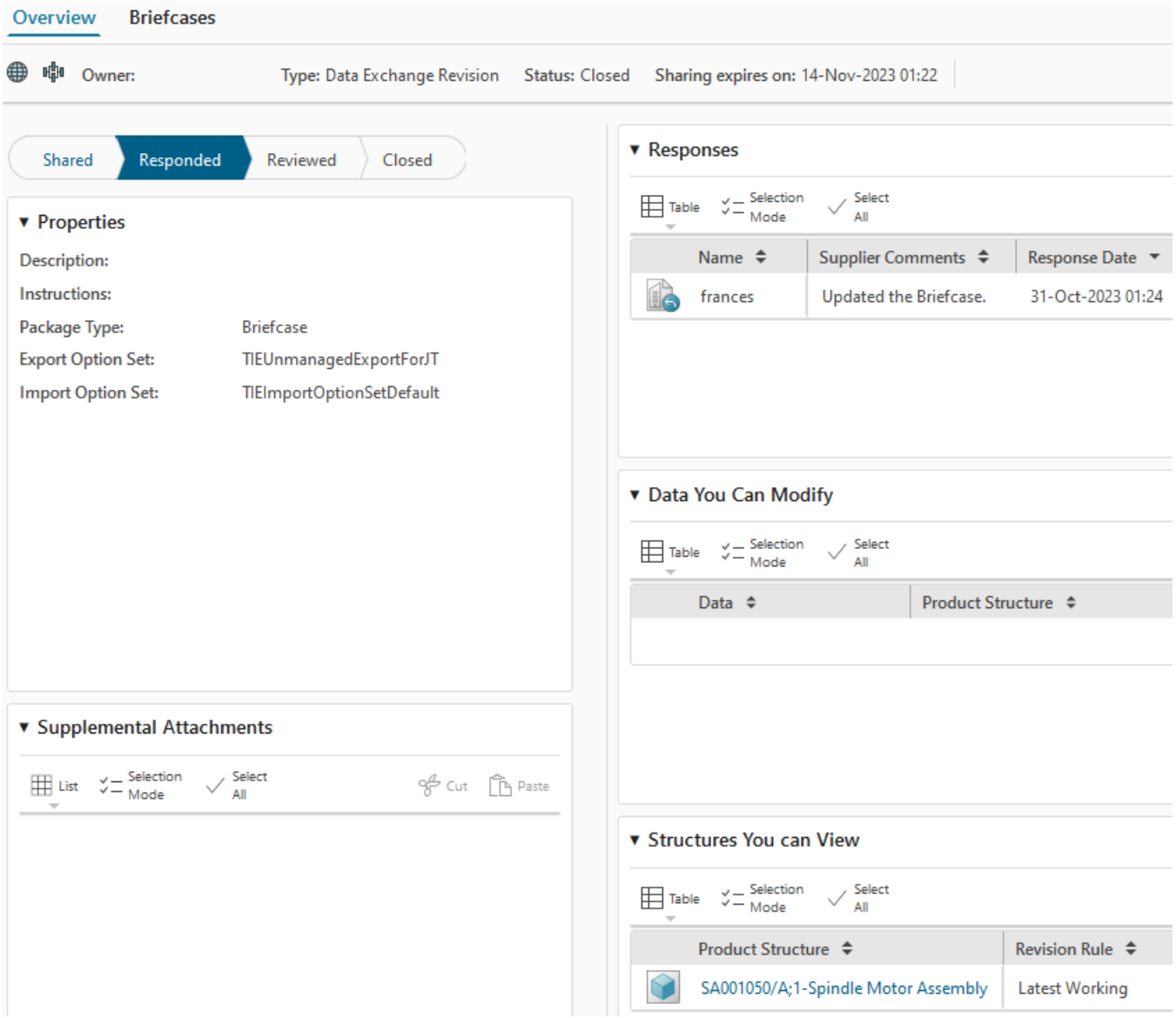
- Update the data exchange package properties, instructions, and package type in the **Properties** section.
- Review attachments from the sponsor in the **Supplemental Attachments** section.

- View the status of your responses is updated in the **Responses** section.
- View and open the components available for updates in the **Data You Can Modify** section.
- View and open the parent assembly in the **Structures You can View** section. You can view the components available for updates and their child and sibling components.



Add new parts to a Briefcase in a Briefcase package

In a **Briefcase** package, based on the instructions provided by the design engineers and the attached requirement specifications, you, as a supplier, can add new parts to the Briefcase sent by the sponsor. To update the Briefcase, download it, open it in Briefcase Browser, and add child items and subassemblies.



Recover ownership of a Briefcase

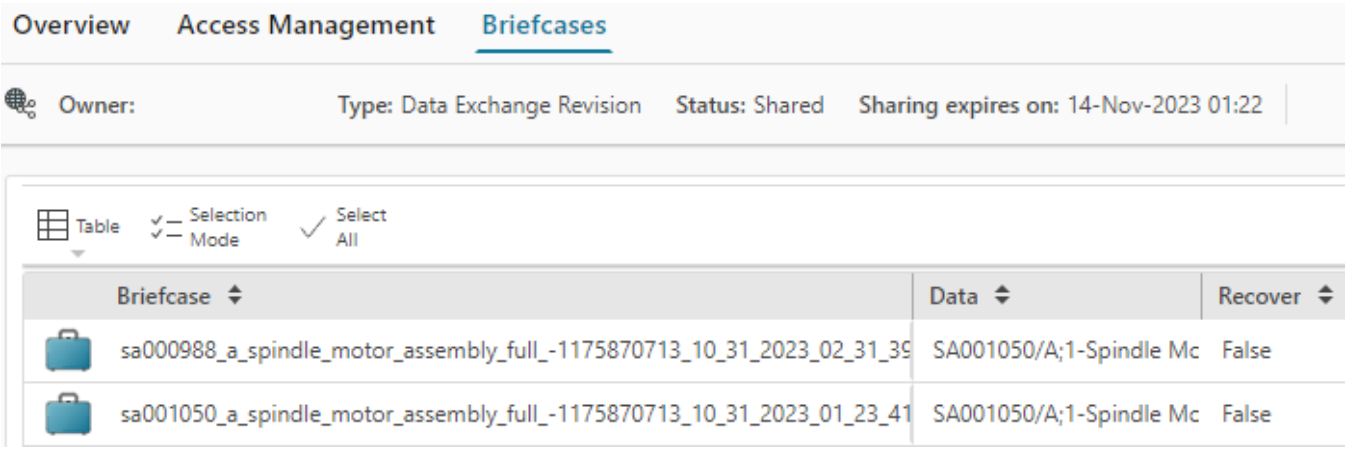
As a design engineer, when you transfer the ownership of a Briefcase to a supplier, you might need to recover its ownership in certain scenarios.

- You sent the Briefcase to the wrong supplier or are not receiving a response from a supplier.
- The assigned supplier cannot do the required work and you must now send the data exchange package to another supplier instead.
- You need to make updates to the assembly sent in the Briefcase and need to take the ownership back to make the updates.

- You transferred the ownership, but the supplier did not import the Briefcase into the OEM Supplier Site. If the supplier has imported the Briefcase, the supplier must first transfer the ownership back to you before you recover the ownership of the Briefcase.

- A failure occurred while sending the data exchange package to the assigned suppliers. In this case, the ownership is transferred to the supplier, and you must recover the ownership before resending the data exchange package.

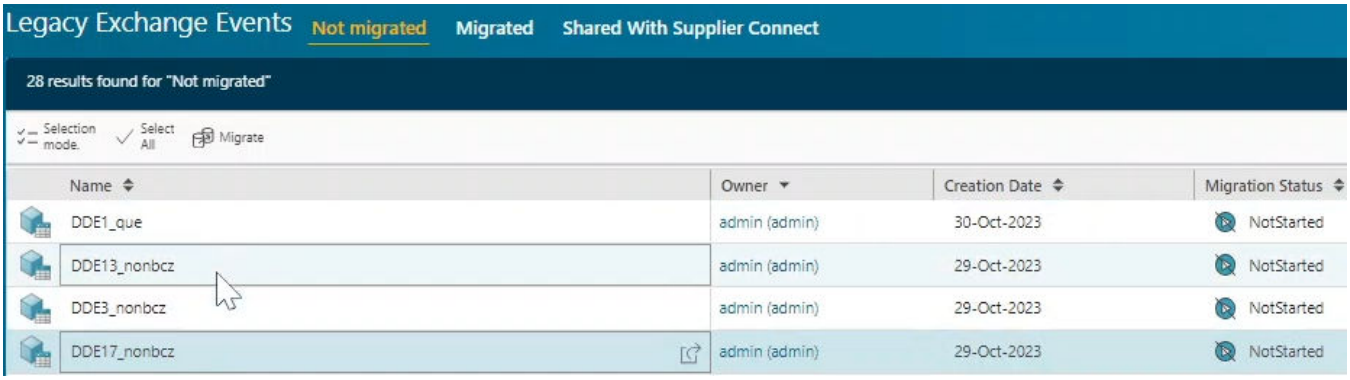
> Note:
>
> You can recover ownership only from closed data exchange packages.



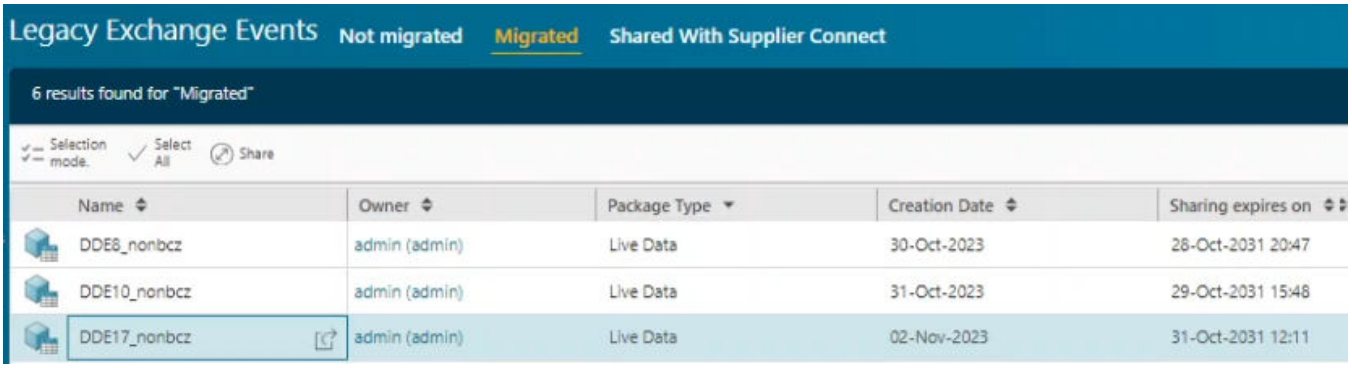
Migrate Supplier Collaboration Foundation data to Supplier Connect

Earlier, you had to use Supplier Connect utilities to migrate Supplier Collaboration Foundation data to Supplier Connect.

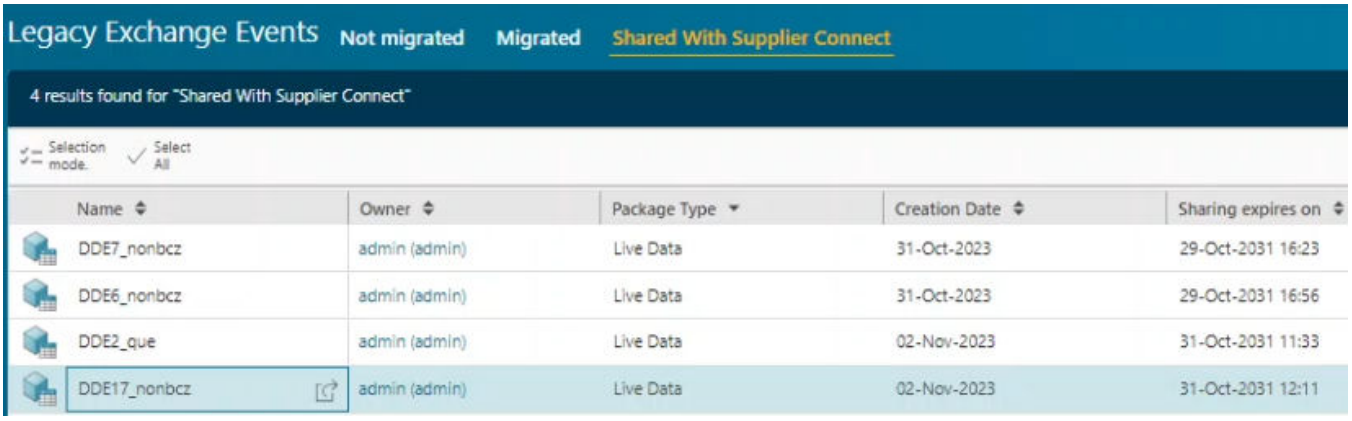
Now, you can use the **MIGRATE LEGACY EXCHANGE EVENTS** tile to perform the migration from the OEM Sponsor Site. In this tile, the **Not Migrated** tab displays the Design Data Exchange packages to be migrated to Supplier Connect.



When you click **Migrate**, the Design Data Exchange packages move from the **Not Migrated** tab to the **Migrated** tab. In this tab, you can view all packages that have been migrated to the Supplier Connect data model in the OEM Sponsor Site.



In the **Migrated** tab, you can share the Design Data Exchange packages with the OEM Supplier Site by clicking **Share**. The packages are shared with the OEM Supplier Site. The packages move from the **Migrated** tab to the **Shared with Supplier Connect** tab. In this tab, you can view all packages that have been shared with the OEM Supplier Site. The assigned supplier receives a notification email when their package is shared with the OEM Supplier Site.



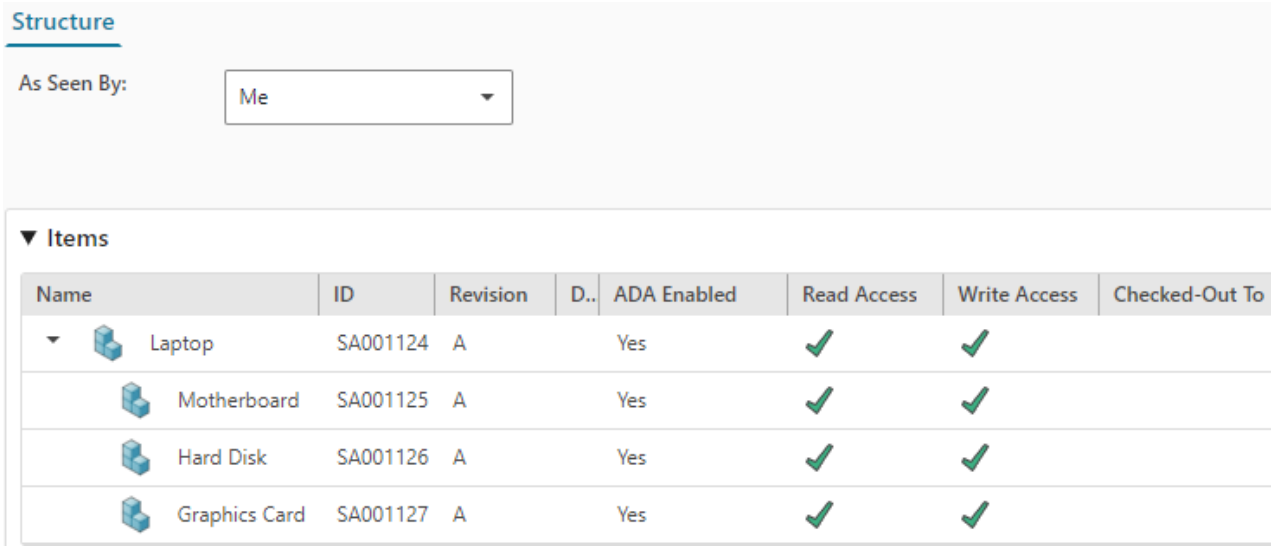
Configure Supplier Connect to implement the access controls defined by ADA licenses

ADA License is a Teamcenter security application for authorized data access (ADA) that complements other Teamcenter security features such as Access Manager rules and access control lists (ACLs). This application controls sensitive data by data classification, user clearance, and authorizing documents. When users or groups attempt to access classified data in Teamcenter, their clearance level is evaluated against the classification of the object based on Access Manager rules. If the user or group clearance level is equal to or greater than the classification on the object, access is granted.

When a design engineer creates a data exchange package for an item or assembly with an ADA license, the **ADA Enabled** column displays **Yes** for the item or assembly in the **Structure** tab of the data exchange package.

Example:

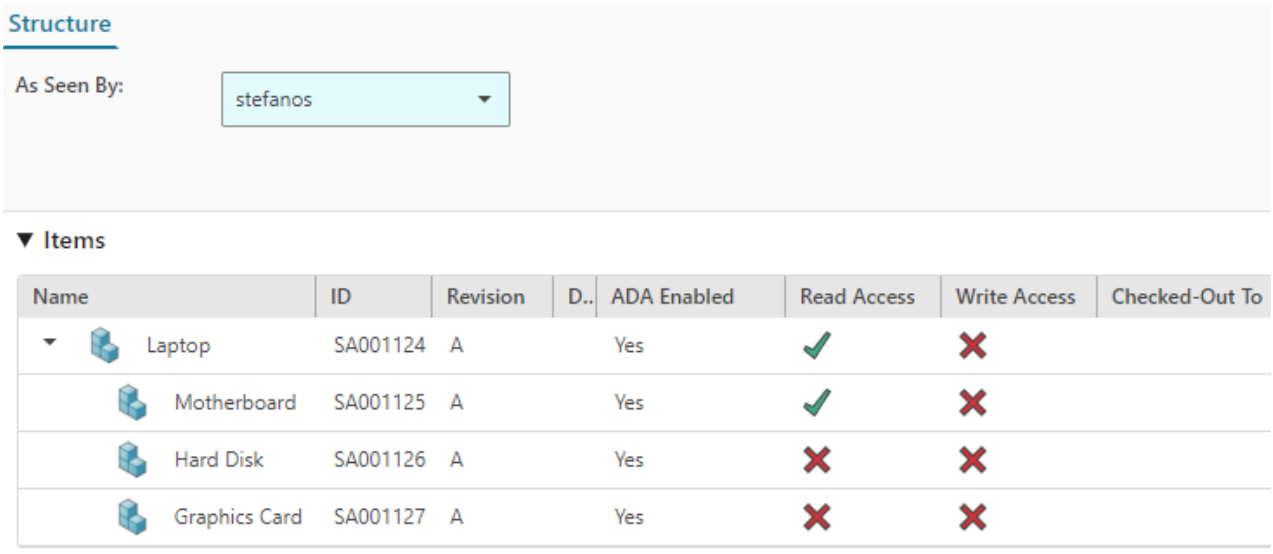
When a design engineer views the access level of the **Laptop** assembly, the assembly displays **Yes** ✓ in the **ADA Enabled** column.



When a design engineer wants to assign a supplier to this assembly, the design engineer can view the supplier's access to the assembly components in this column. The design engineer can then assign modification rights accordingly.

Example:

For the **Laptop** assembly, the supplier **stefanos** has access to only **Laptop** and **Motherboard**. Therefore, the assembly displays **Yes** ✓ in the **ADA Enabled** column for these components.



When the design engineer searches for a supplier, Supplier Connect evaluates the ADA licenses assigned to the assembly and the supplier. If a supplier matches the access level defined in the licenses, the supplier appears in the search results.

> Note:
>
> If the root of the assembly has a matching ADA license (**ADA Enabled** column displays **Yes**), then Supplier Connect displays only the suppliers with ADA licenses in the search results.

If a supplier does not have access to the selected item or assembly, ✖ appears next to the selected item or assembly. When a supplier views the data exchange package in their Teamcenter, the supplier can view only the accessible components of an assembly.

To implement the access controls defined by ADA licenses, you must create the ADA licenses in the ADA License Teamcenter security application, assign the required clearance level to design engineers and suppliers for the licenses, ensure that Supplier Connect allows access to only suppliers with the required access level to items or assemblies, and create the required access control lists (ACLs) in Teamcenter Access Manager.

24. Teamcenter quality

Quality Management workspace for business users

The **Quality Management** workspace is a common workspace dedicated to Teamcenter Quality users. This workspace is now enhanced to streamline the user experience. You can access the dashboards for Quality applications along with the Quality master data, reports, favorites, and notifications for your tasks, in a centralized location.

To enable users to access this workspace, you as an administrator, must make the **Quality Management** workspace available for your organization's groups and roles.

Search for Quality-specific objects using the Quality category

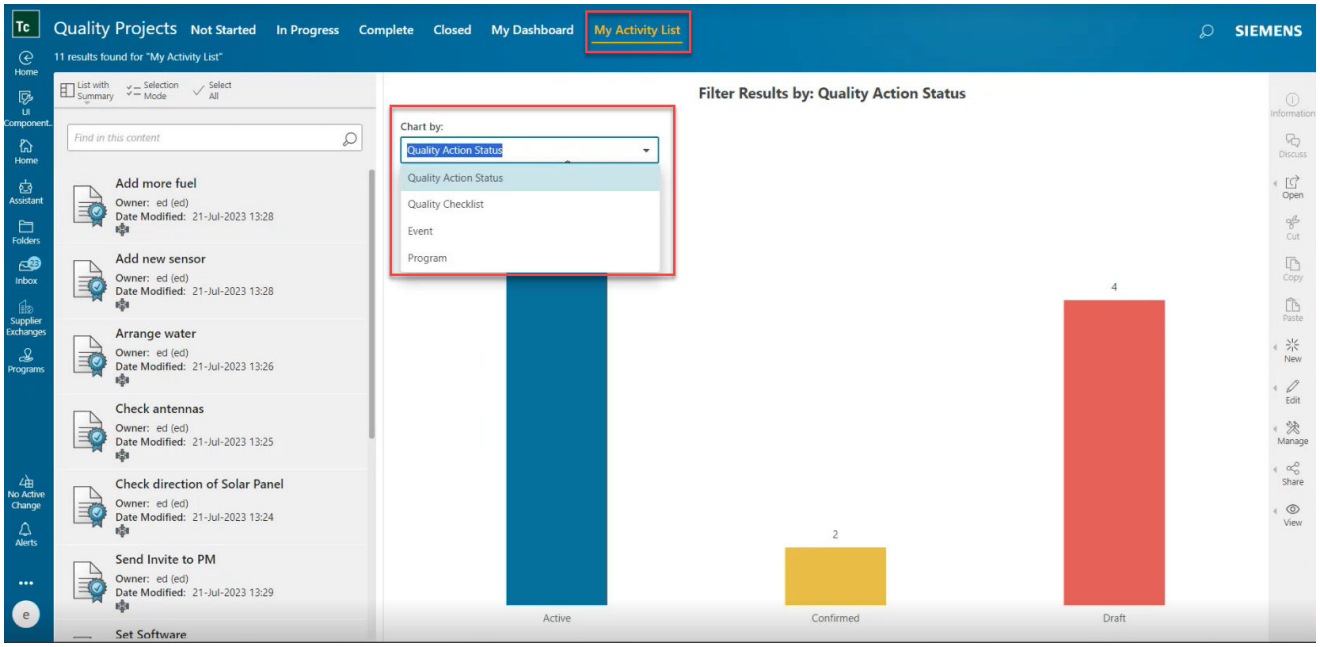
Now, while searching for Quality objects, you can use the new **Quality** search category to further refine the scope of your search.

Quality Project Management

Usability Enhancements in Quality Project Management

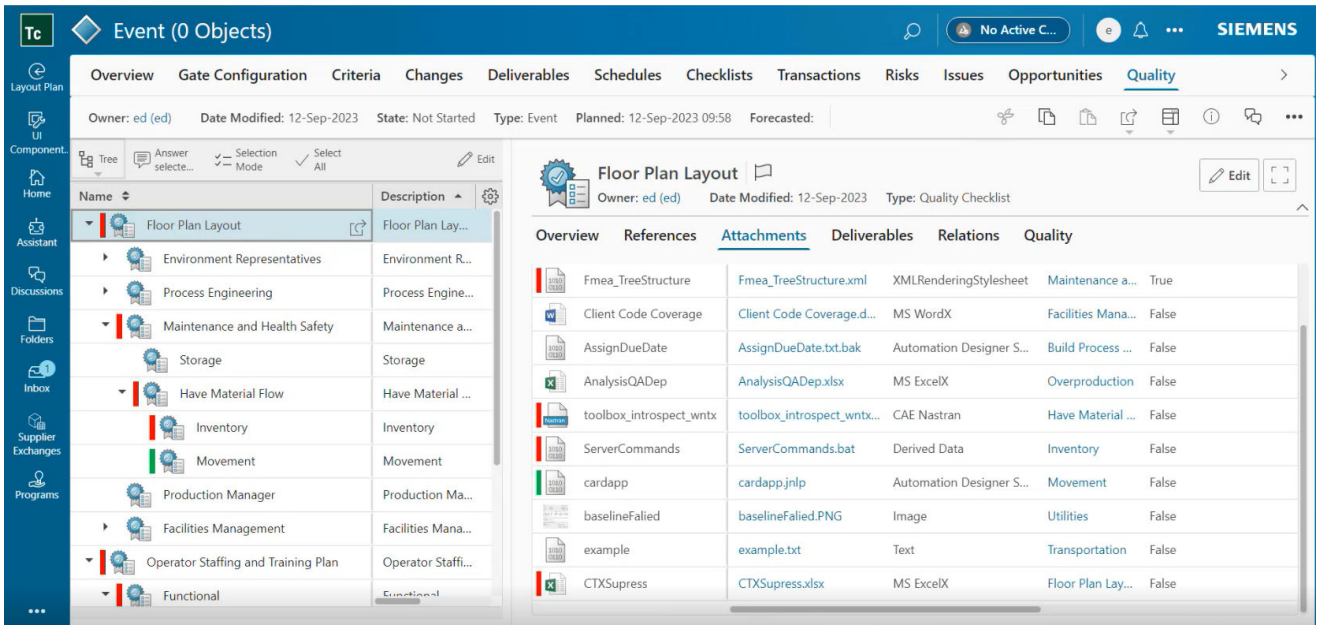
Teamcenter 2312 introduces the following updates in Quality Project Management:

- You can now access your project-related quality actions associated with Quality Project Management on the **My Activity List** page, within the **Quality Project** tile. It helps you view all the quality actions assigned to you in one location. You can also easily filter your project-related quality actions based on programs, events, and other categories by using the **Chart By** list.

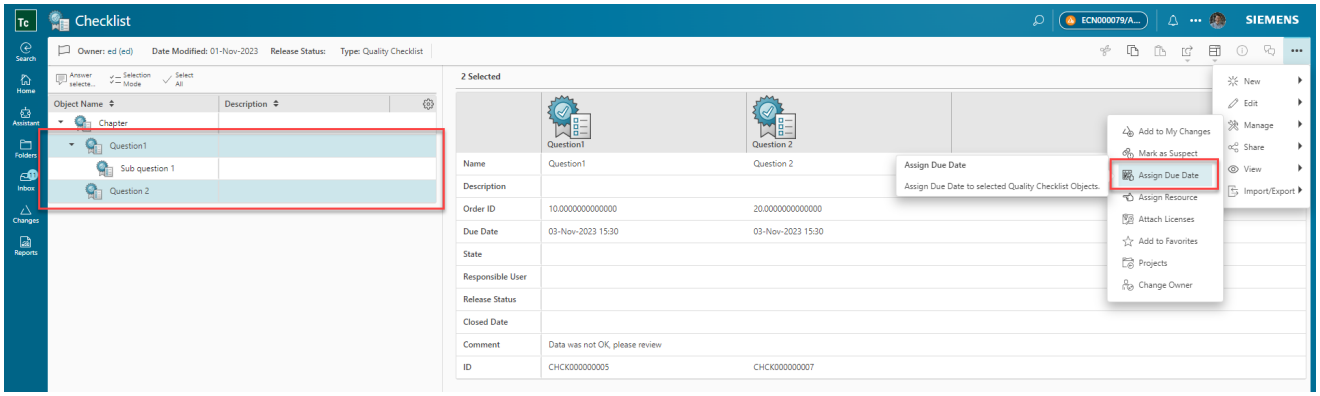


- The Supplier Hub is now integrated with Quality Project Management. You can now publish the Production Part Approval Process (PPAP) checklist for suppliers. Edit the properties of a checklist and field definitions for checklist properties.

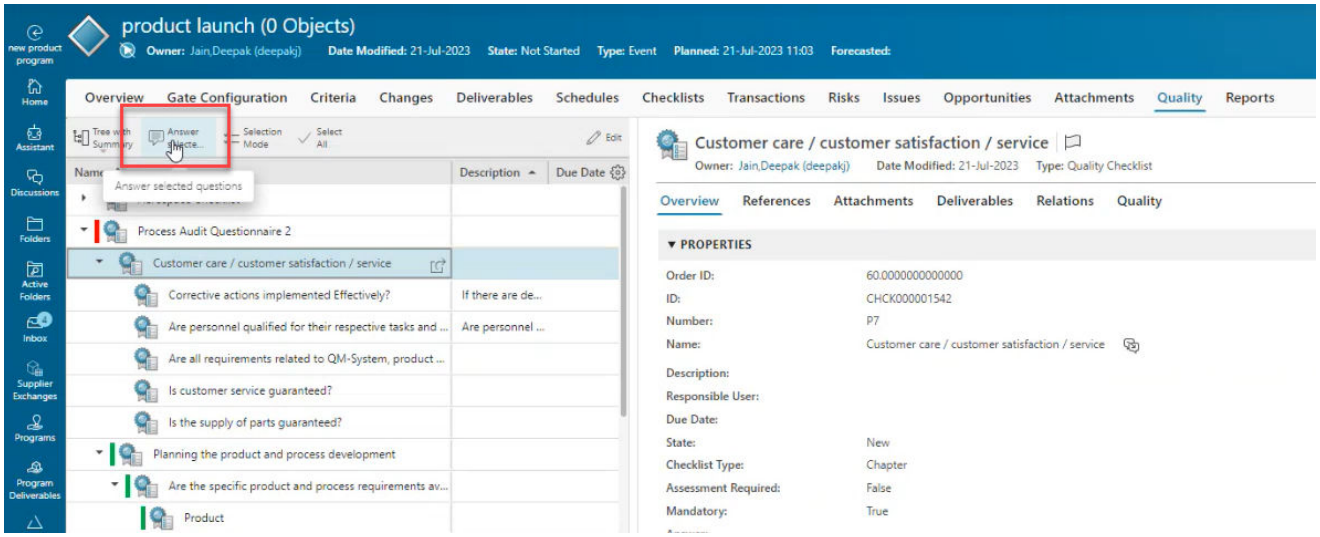
- You can now see a color indicator, depending on the RYG rating rule, for the checklist in an event.



- You can now assign a due date for multiple objects in a checklist.



- In the tree view of a checklist, you can now answer multiple questions simultaneously.



Control Plan

Usability enhancements in Control Plan

Starting this release, the following enhancements are available:

- The user interface is enhanced for:
  - Generating Inspection Definitions from the product and manufacturing information (PMI) of the 2D or 3D data of a part.
  - Comparing revisions and importing the updated PMI.
  - Creating Quality Characteristics of the types: **Variable**, **Attributive**, and **Visual** based on a naming convention.

- Create naming convention based on attributes of Quality Characteristics to organize the grouping of Quality Characteristics

  This helps organize the grouping of the Quality Characteristics.

- Create naming rule conditions based on the attributes of PMI defined in the **BCT Inspector** application

  When you install Control Plan 2312, you can use the default activated naming rule or create a new naming rule based on the default.

- Define the number of decimal places displayed on the user interface in the **Decimal Places** attribute

  Starting this release, you can define the number of decimal places displayed on the user interface in the **Decimal Places** attribute. This attribute defines the number of decimal places displayed in the **Nominal Value**, **Upper Tolerance**, and **Lower Tolerance** fields of the **Variable** Quality Characteristic. If the value in these fields exceeds the maximum number specified in **Decimal Places**, the value is truncated to the maximum number while creating the **Variable** Quality Characteristic. Depending on the selected value in **Decimal Places**, trailing zeros are added or trimmed to the fields.

- Duplicate a Control Plan

  Starting this release, you can duplicate a Control Plan from an existing one. You can choose to remove, replace, or clone the Control Plan and its components in the duplicate Control Plan.

- Add attachments and reference parts

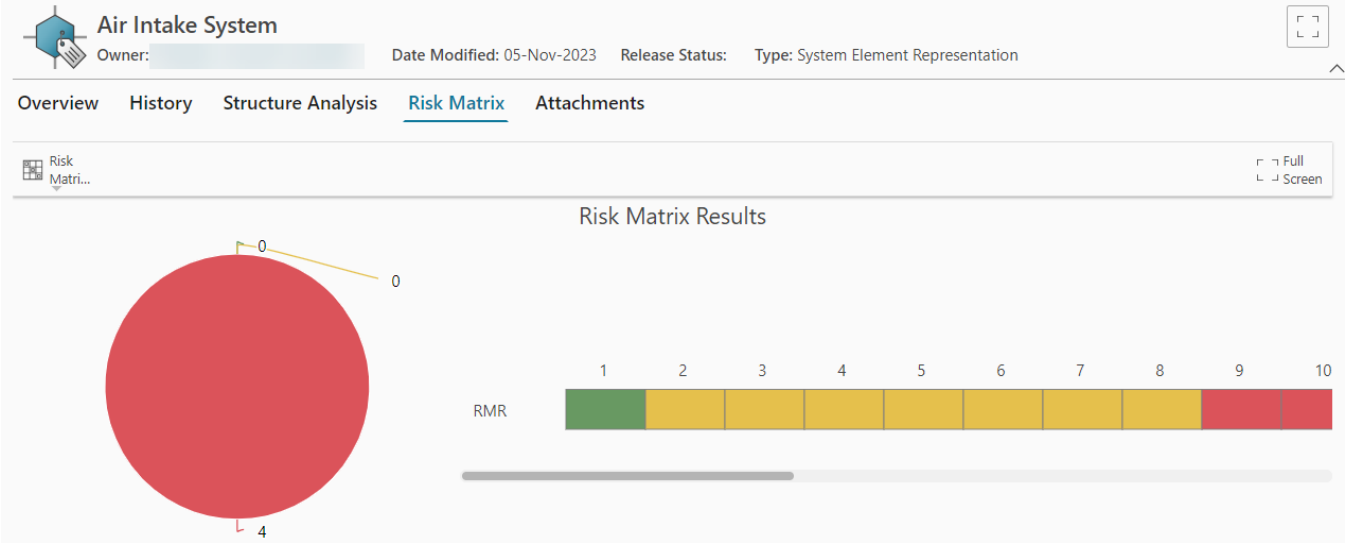
  Starting this release, you can add attachments to an operation and an Inspection Definition. In addition, you can add reference parts to a Control Plan and an Inspection Definition.

FMEA

View the combined risk matrix results for an FMEA

As a business user, you can prioritize risks based on the consolidated risk matrix results for a failure. You can view the results in the form of a prioritization indicator that is generated from the severity, occurrence, and detection values associated with the failure. These values are generated for specific combinations: **Severity** Vs **Occurrence**, **Severity** Vs **Detection**, and **Detection** Vs **Occurrence**.

As an administrator, you can override the default risk matrix results displayed (in **RMR**).



Classify failures in an FMEA

Earlier, you could not classify or categorize the failures according to their significance or potential impact.

Now, you can classify failures in an FMEA according to their causes, effects, or detectability. To do this, you specify the quality characteristic for the failure to categorize a particular failure as critical or minor, or you specify if the cause of the failure is a function, safety, or any other compliance issue. You can configure these characteristics for design and process FMEAs as per the industry standards.

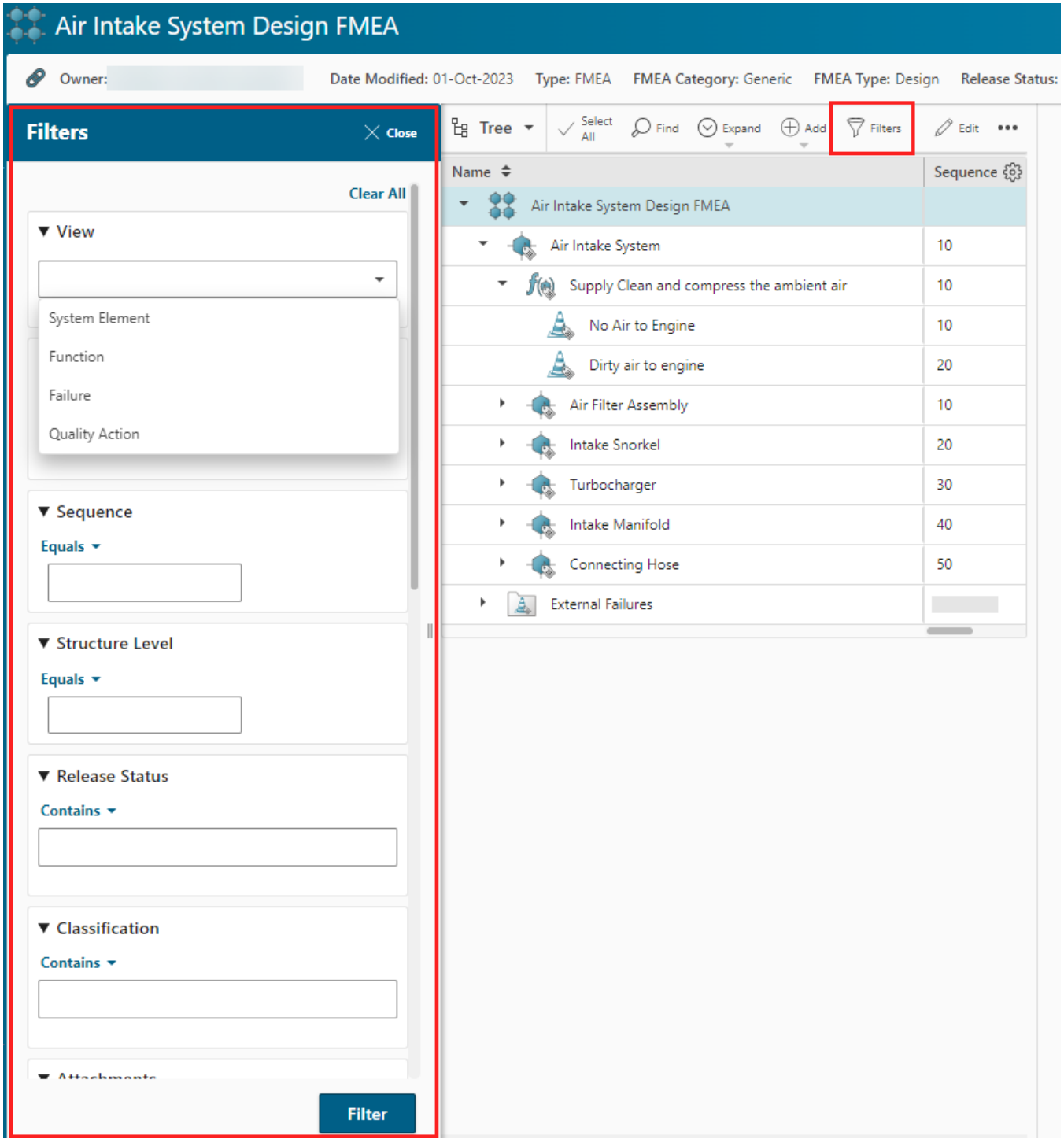
You can view the classification category of the failure along with its icon in the **Classification** column in the tree view, the **Special Characteristics** column in the formsheet view, and on the tile in the **Failure Analysis** tab.

Search for objects in the FMEA tree structure using filters

Earlier, you could not define the filters to update the FMEA tree structure as per the filter criteria.

Now, you can use filters to modify the FMEA tree structure by specifying the options in the **Filters** panel.

For example, in the **Filters** panel, if you specify the **View** as **Failure**, and **Severity** as **Equals 8**, the FMEA tree structure is rendered up to the function level that includes all the failures in the FMEA structure whose severity value is 8.



Print formsheet enhancements

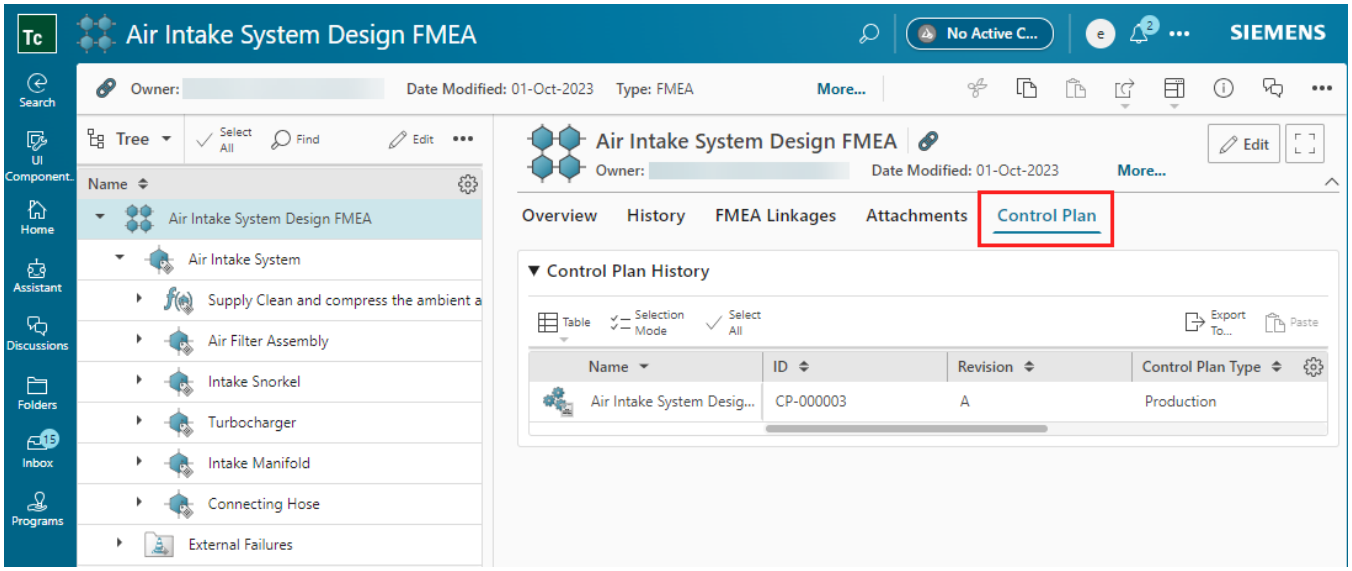
Earlier, you could share the formsheet data only in the HTML format.

Now, you can generate the formsheet data as a Microsoft Excel file. This Excel file includes any reference images or icons that you have added to the formsheet.

View control plans generated using an FMEA

Earlier, in FMEA, you could not view the control plans that were generated using an FMEA.

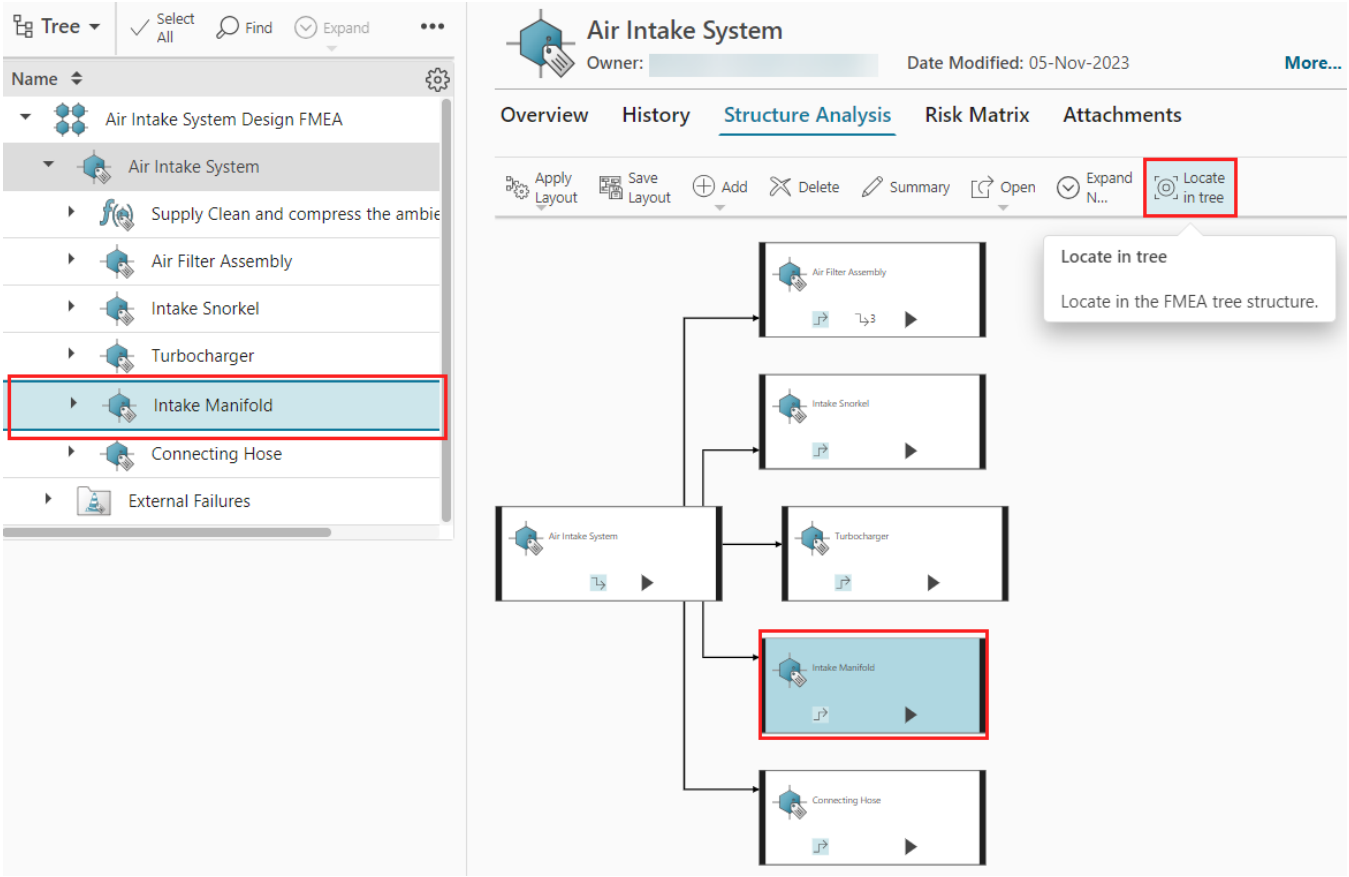
Now, as a user, when you generate a control plan using an FMEA, you can view the history of all control plans created using that FMEA as reference. This helps you monitor all the control plans derived from the selected system element or root node of an FMEA.



Locate objects in the FMEA tree structure

Earlier, you could not select objects in the net view and locate them in the FMEA tree.

Now, you can select a tile in the net view and click **Locate in tree** to view the same FMEA object in the FMEA tree structure.



Problem Solving

Usability enhancements in Problem Solving

Starting this release, the following enhancements are available:

- Add child causes and child 5Whys to a cause in the **Methodology** tab of an Ishikawa.
- View a blue bar in the parent cause to indicate that you have added child causes to it in an Ishikawa.
- View a purple bar in the parent or child cause to indicate that you have added a child 5Why to a cause.
- View associated part drawings of the Inspection Definitions added to a Problem Solving process as reference items.
- Choose to display or hide an attachment in a Problem Solving report.

Answer the questions in a checklist

A checklist consists of a list of questions that define the acceptance criteria for the various stages of a Problem Solving process. It is used to evaluate the completion of a Problem Solving process. Each Problem Solving process can have one or more checklists associated to it, and each checklist can have multiple chapters, questions, and subquestions. Multiple questions and subquestions ensure that none of the acceptance criteria is inadvertently overlooked. Further, the questions are designed in such a way that they can be answered with a simple *yes* or *no*.

You, as the Quality Management Representative (QMR), assign one or more checklists to the required Problem Solving process. Depending on the selected **Area** and **Sub-area** of the checklist, the chapter and associated questions and subquestions are populated at the relevant stage in the Problem Solving process. For example, if you have selected **Containment Actions** as the **Sub-area** of a chapter, the chapter and its associated questions and subquestions are populated in the **Containment Actions** tab of the Problem Solving process.

> Note:
>
> The Quality Manager must create and release the checklists in the **Quality Master Data** library for the checklists to be available for assignment in the Problem Solving process.

Analyze the Problem Solving performance

You can analyze the Problem Solving performance based on the default active summary reports available. These reports collate and summarize similar information, for example, information about the open and closed Problem Solving processes and identifying the Problem Solving processes that were closed after the due date and those that were closed on time. You can add these reports to your dashboard.

Quality Actions

Enhanced reminder and escalation functionality

Earlier, reminders and escalations were limited to Quality Actions.

Now, you can use reminders and escalations for all the Teamcenter objects. The users outside of Teamcenter can also now receive reminders through emails. Specifically, you can now:

- Create reminders as relevant.
- Personalize reminder profiles.

Quality Audit

Streamline your audit process by managing the audit templates

Efficient auditing is crucial for compliance and control, given the challenge of performing repetitive audits, which can lead to potential errors.

Starting this release, to address this issue, as a business user, you can easily create, modify, schedule audit templates You can also create new audit templates from existing ones. You can then conduct audit based on these templates.

Quality Issue Management

Analyze the Quality Issues performance

You can analyze the Quality Issues performance based on the default active summary reports available. These reports collate and summarize similar information, for example, information about the open and closed issues and identifying the issues that were closed after the due date and those that were closed on time. You can add these reports to your dashboard.

Usability enhancement in Quality Issues

Starting this release, you can view associated part drawings of the Inspection Definitions added to an issue as reference items.

Training and Qualification

Usability enhancements in Training and Qualification

Starting this release, the following enhancements are available:

- Enhancements to qualification units:
  - Assign an Effectiveness Review checklist to the qualification unit. Based on this, the checklist is created in the qualification record when you assign qualification units to a qualification profile.
  - View the list of assigned qualification profiles and qualification definitions in the **Where Used** tab of a qualification unit.
- Enhancements to qualification profiles:
  - View the history of all the trainings completed by the qualification profile in the **Historical Training Records** tab.

- View an associated quality action's **Due Date** that is calculated by adding the qualification unit's **Renewal Period** to the current date.
- View the manager-assigned trainings in the **Manager Assigned Qualifications** section of the **Qualifications** tab.
- Verify if the associated checklist is completed with the **Perform Self Assessment Checklist** task.

- Enhancements to qualification definitions:
  - Specify **Qualification Period** and **Qualification Definition Details** for a qualification definition. You can add detailed content such as text, tables, or graphics in the rich text editor of **Qualification Definition Details**.
  - View the list of assigned qualification profiles in the **Where Used** tab of the qualification definition.

- Enhancements to profile qualification definitions:
  - View when a trainee completes all active qualification records in the **Full Qualification Status** field.
  - View the assigned trainings in the **Active Qualifications** section of the **Qualifications** tab.
  - View the **Qualification Deadline** date that is calculated by adding the qualification definition's **Qualification Period** to the date of assignment. This informs the trainees about the deadline for completing all trainings for the qualification definition and become qualified for the job position.
  - Assign supervisors to a profile qualification definition.
  - Deactivate a trainee's profile qualification definition when they are promoted or transferred to another department or for any other change in status.
  - Reactivate an inactive profile qualification definition.

Answer the questions in a checklist

A checklist consists of a list of questions that define the acceptance criteria for a qualification unit. These checklists allow the manager to perform an effectiveness review of the training for all employees to ensure that the training was effective. Additionally, trainers can use the checklist to prepare an Effectiveness Review test. The trainees can go through the checklist at the end of the training to verify that they have understood the training content correctly.

Each qualification unit can have one or more checklists associated to it, and each checklist in turn can have multiple chapters, questions, and subquestions. Multiple questions and subquestions ensure that none of the acceptance criteria is inadvertently overlooked. Further, the questions are designed in such a way that they can be answered with a simple *yes* or *no*. The *Training Coordinator* must create and

release the checklists in the **Quality Master Data** library for the checklists to be available for assignment in a qualification unit.

Use the Qualification Matrix to track the completion status of qualification profiles

The Qualification Matrix provides an overview of the completion status of each *qualification profile* and their assigned *qualification definitions*. This matrix also displays which qualification definitions are not assigned to a qualification profile. This allows you to assign these qualification definitions, if required. You can also notify the qualification profiles if their completion status is not on track as per the schedule.

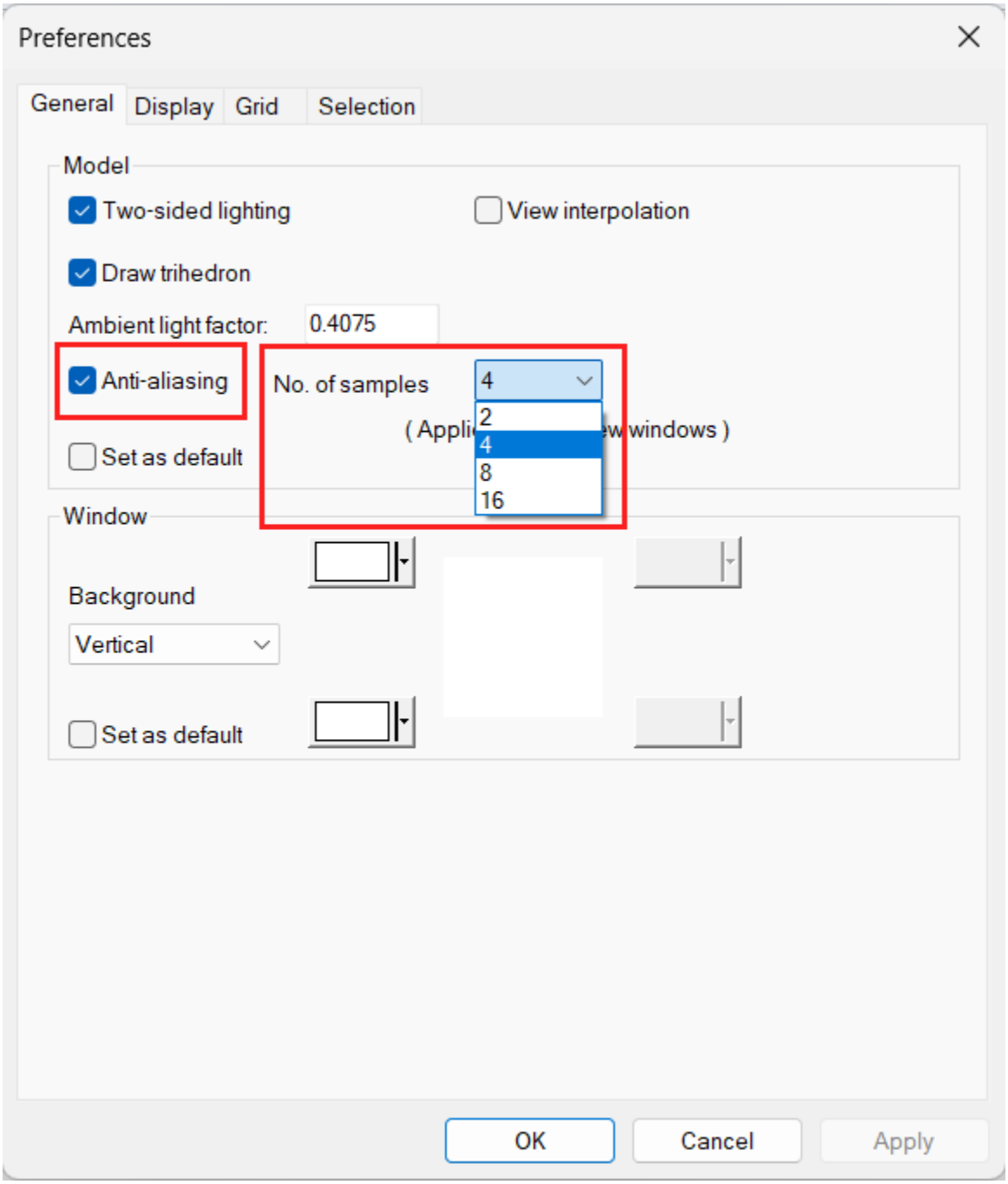
25. Visualization

New features for base

Anti-aliasing support changes

Teamcenter

In earlier releases of Teamcenter lifecycle visualization, end users could use either software or hardware for anti-aliasing. Because software-supported anti-aliasing was slower and was replaced by hardware anti-aliasing, beginning in this release anti-aliasing is supported only by the end user's hardware. If the end user was using a software anti-aliasing setting in a previous release and has that setting stored to the registry, Lifecycle Visualization now converts the software setting to a hardware setting and changes the number of samples to a value that is one step lower than the value in the registry.

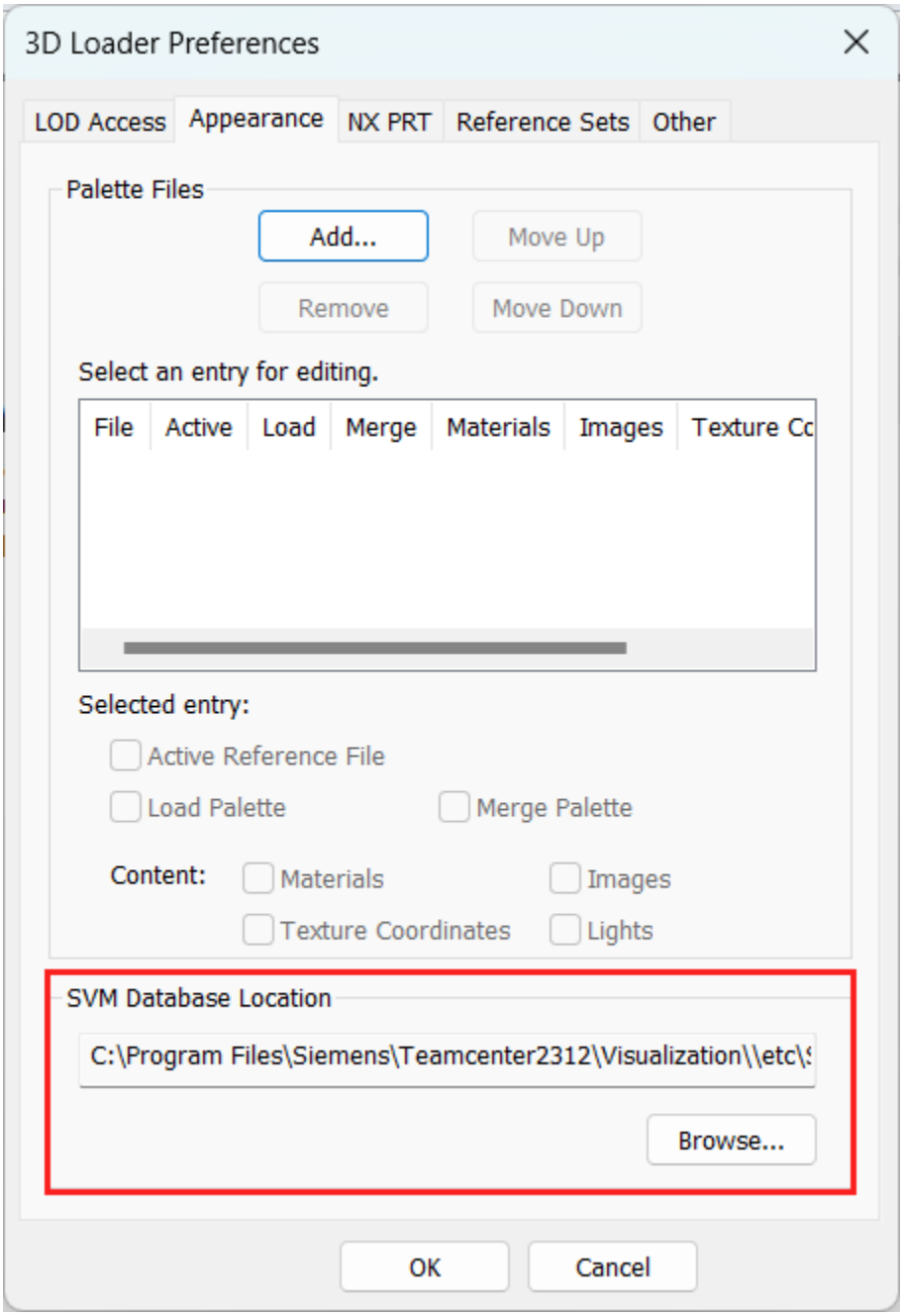


User-defined location for SVM files

Teamcenter

In earlier versions of Teamcenter lifecycle visualization, SVM (Siemens Visual Material) database files could only reside in the default installation SVM Materials directory, which is in the installation path. Beginning with this release, the end user can move the SVM files from the default installation location to an alternate location, and then they can identify that alternate location using the **SVM Database**

Location field on the 3D Loader Preferences dialog box. This new capability allows the user to continue to use SVM materials without needing to re-install the SVM database files during software upgrades.

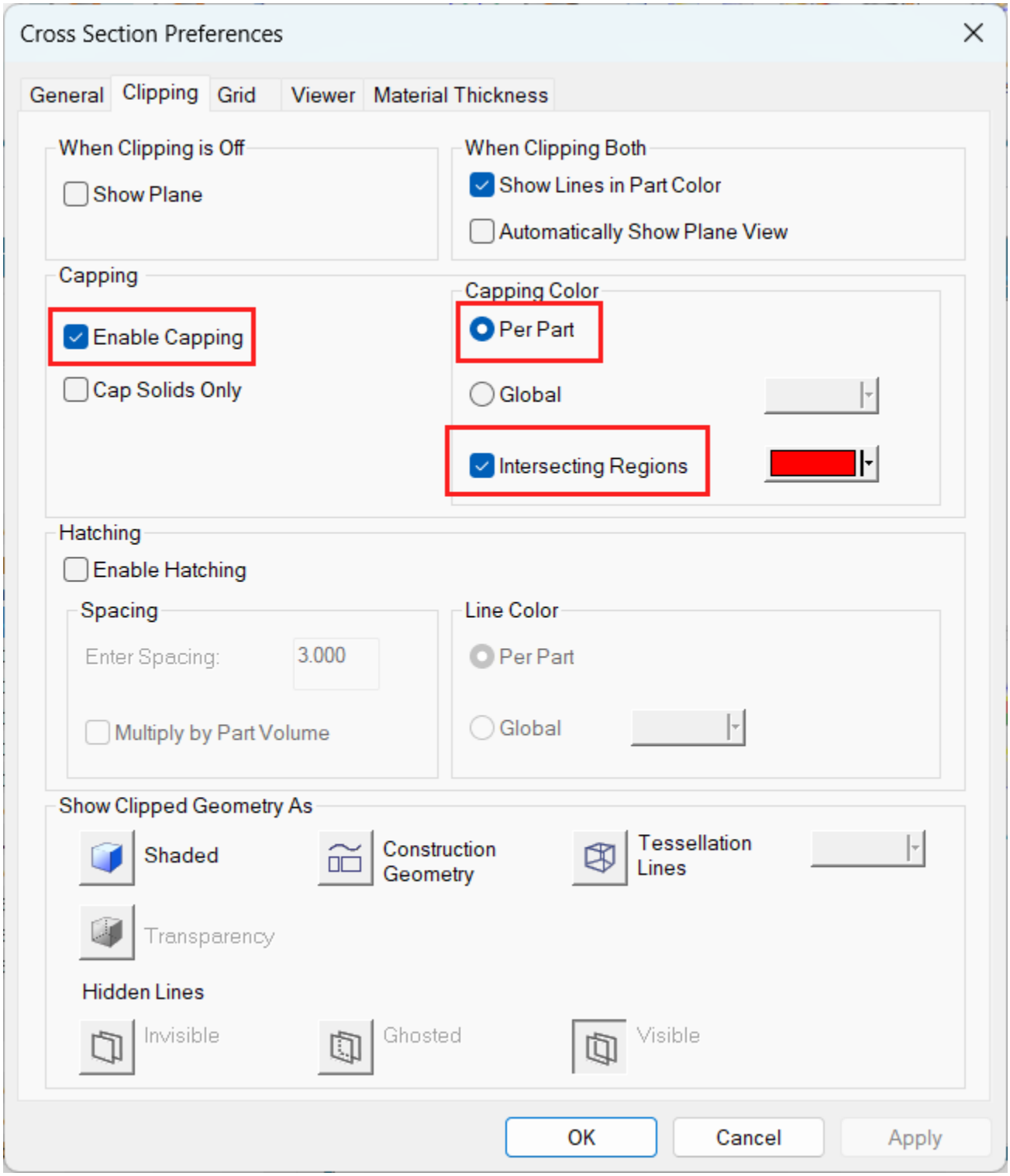


Cross section capping preference changes

Teamcenter

To provide a better user experience when viewing cross sections, the following default cross section preference values have changed. Professional and Mockup users can modify these preference values, if desired.

- **Enable Capping**, **Per Part**, and **Intersecting Regions** are enabled by default.



Usability enhancements

Active Workspace

Several usability and performance enhancements have been made in this release:

Navigation mode as seen in NX

You now have access to a navigation mode that is seen in NX and several NX style navigation features that make Visualization using Active Workspace more familiar to NX users.

Enhanced model rotation

You can now navigate by rotating your models around any point on a visible surface model without first moving that location to the center of the view.

Part rotation by 180° along the chosen axis when aligning parts

Starting this release, after aligning a part, you can choose to rotate the part by 180° along the chosen axis of the manipulator. You can do this by using the **Flip** command.

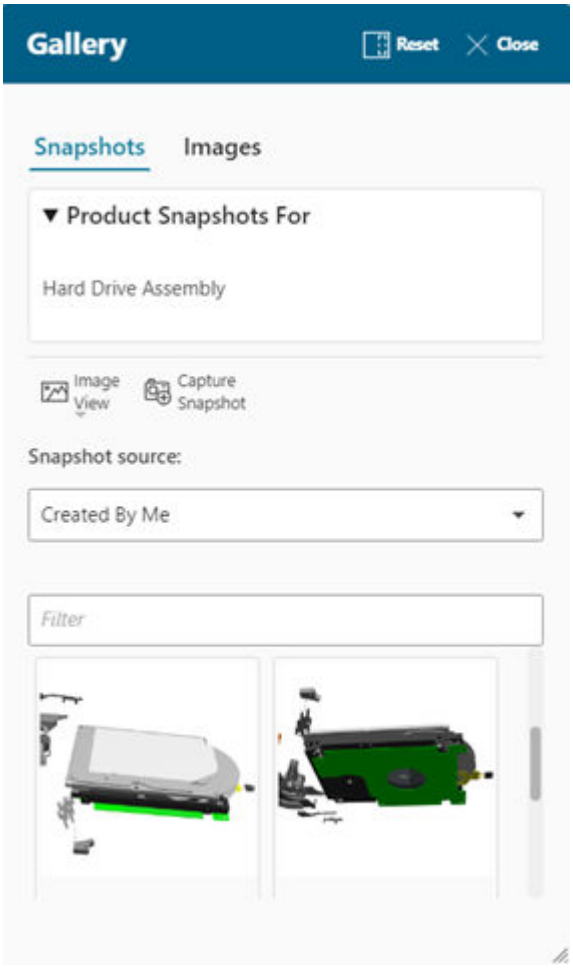
Movable and resizable panels

Earlier, you could move or resize only a few panels in the 3D viewer.

Now, you can undock and move all panels around the browser window to your desired location. They can also be resized to take up less space. This helps you get the best screen layout for your working style.

Snapshots of exploded views

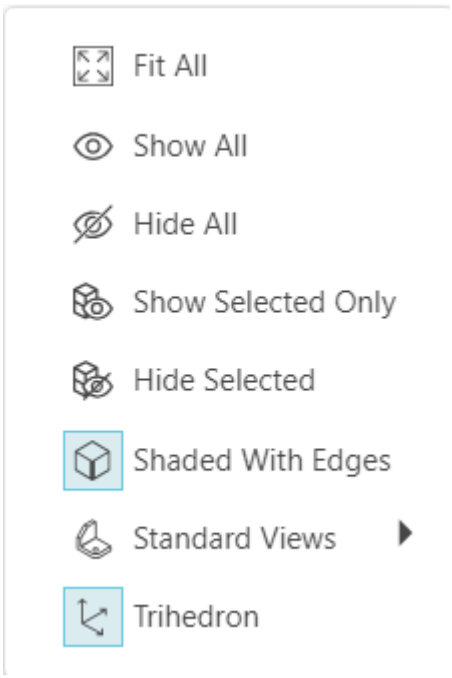
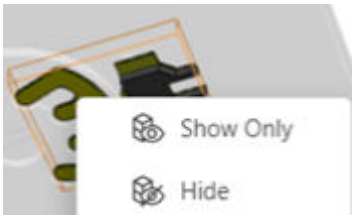
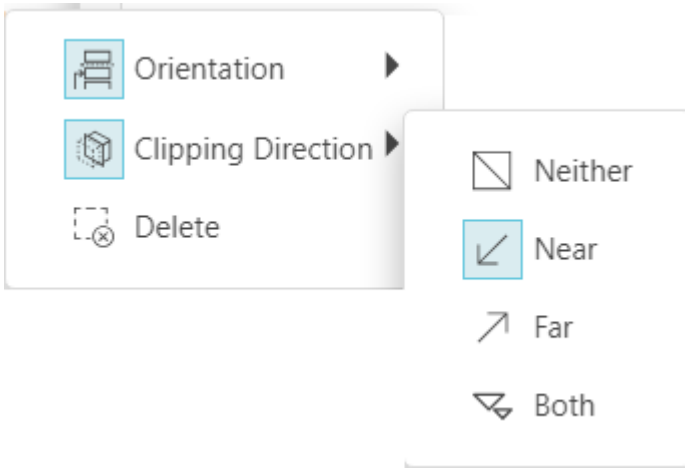
Starting this release, parts in the exploded view in the 3D viewer can be captured in context, with the 3D data, within snapshots.

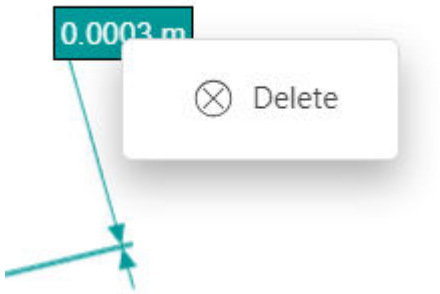


Commands available from context menus

Starting this release, you can access various commands in the context of the items that you are working with by right-clicking the items.

The following table lists the currently available context menus for various items.

The 3D viewer	
Part	
Section	

Measurement	
Markup	

Performance and deployment enhancements

Active Workspace

Several performance and deployment enhancements have been made in this release:

Smoother filtering

Starting this release, filtering and reconfiguring the data you are viewing is smoother and faster by efficiently updating the 3D view without reloading the model or flickering.

As processing shifts to the client, more of your existing server resources are available to support additional users.

Enhanced monitoring tools

You now have relatively clean and clear logging and error messaging and updated performance reporting information.

Active Workspace and Teamcenter

Enhanced planning tools and information

You can now find a new visualization - focused **Graphics Certification matrix** on Support Center. The matrix lists all environments or systems where Teamcenter Visualization has been tested and certified. Additionally, it lists all supported platforms and graphics cards.

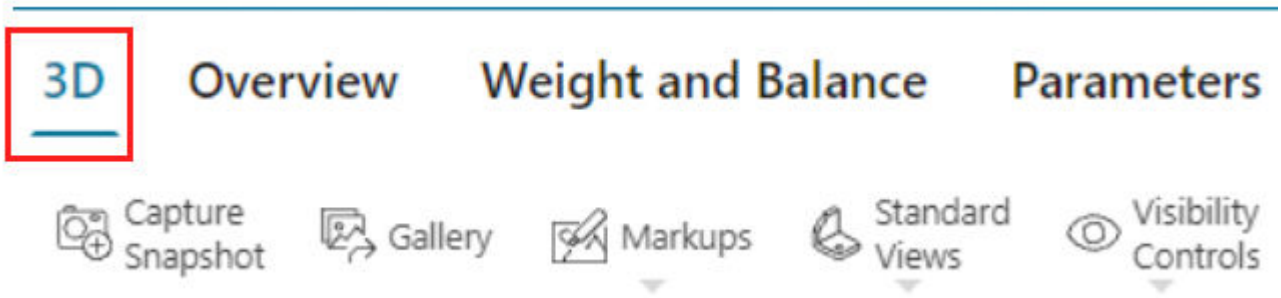
User interface enhancements

Active Workspace

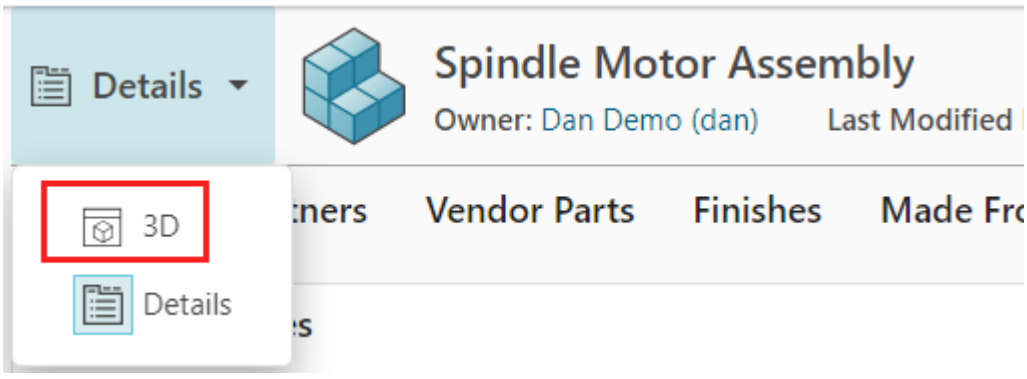
Several user interface enhancements have been made in this release:

New location for 3D to view your models

Earlier, to display a model in the viewer, you had to click the **3D** *tab*.



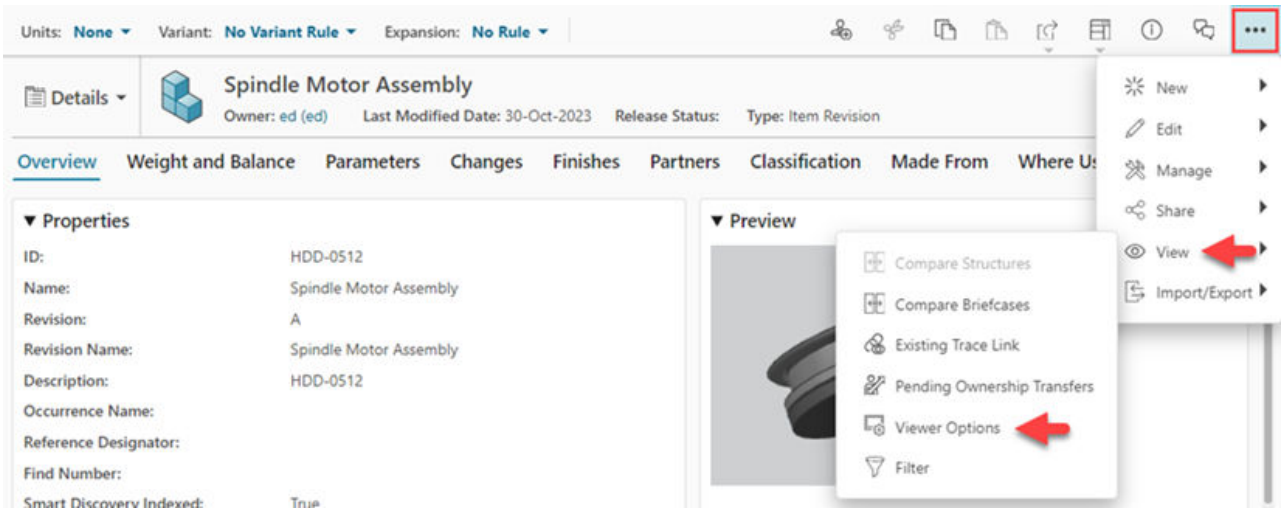
Starting this release, to display the model in the viewer, you must switch to **3D** from **Details** by clicking **3D** in the list of available views.



Availability of Viewer Options before opening the 3D viewer

Earlier, to open the **Viewer Options** panel, you first had to open your model in the 3D viewer and then open the panel.

Now, after opening an assembly, without opening the 3D viewer, you can access and alter available properties in **Viewer Options**. You can therefore change viewer settings before opening the 3D viewer, especially if the settings are likely to relaunch or reload the viewer.



New features for standard

New toolbar for authoring and updating markup information for communicating feedback

Active Workspace

Starting this release, you can use a new toolbar to create different types of markups for communicating feedback and ideas.

In addition, you can now anchor, hide and redisplay your markup, and change your markup properties. You can edit your markups later using context menus that give you in-view access to edit and delete individual elements. You can also use the new editing controls to edit markups created in earlier releases.

You can also capture your markups with snapshots. You can share these with other users or retrieve them later for your own reference while iterating on product design.

New features for professional

Center a point of a cross section

Teamcenter

Beginning in this release, users can use the middle mouse button or right-click a point on the section plane to center the section point in the Viewing window. This changes the view of the section in the Viewing window, and the selected point becomes the center of rotation.

New features for mockup

Batch clearance analysis changes

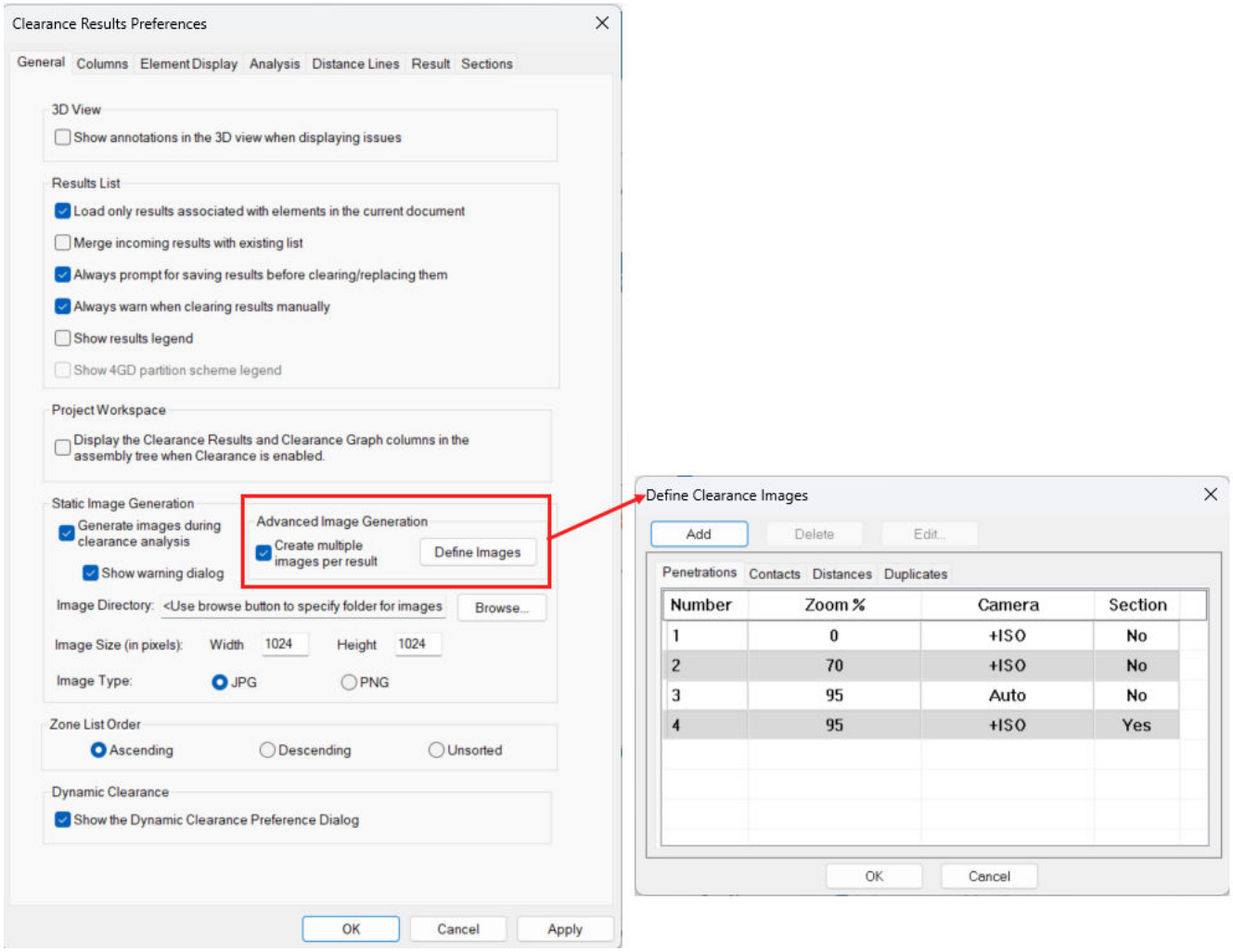
Teamcenter

Users can now create 2D images of clearance analysis results in batch by modifying existing clearance analysis scripts to include the new *create_images.pl* script. Add these images to your clearance products to view them in Teamcenter lifecycle visualization.

Create multiple 2D images for Mockup clearance results

Teamcenter

Previously in Mockup, users could generate one 2D image for each element pair involved in a clearance violation. Now, users can generate multiple 2D images for each violating element pair and define unique camera settings for each image. Camera settings include the zoom percentages, camera angle, and section creation.

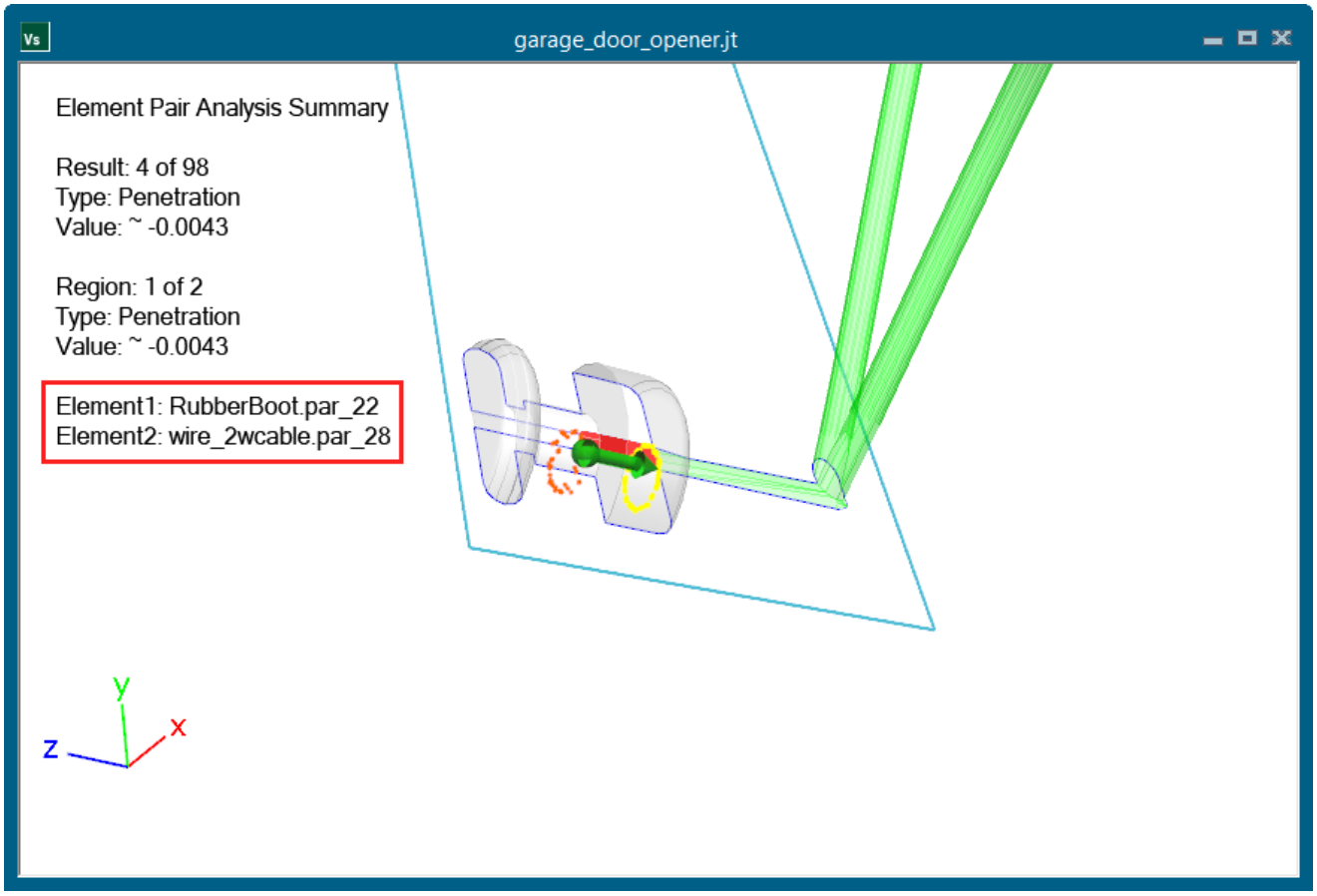


Clearance results preference changes

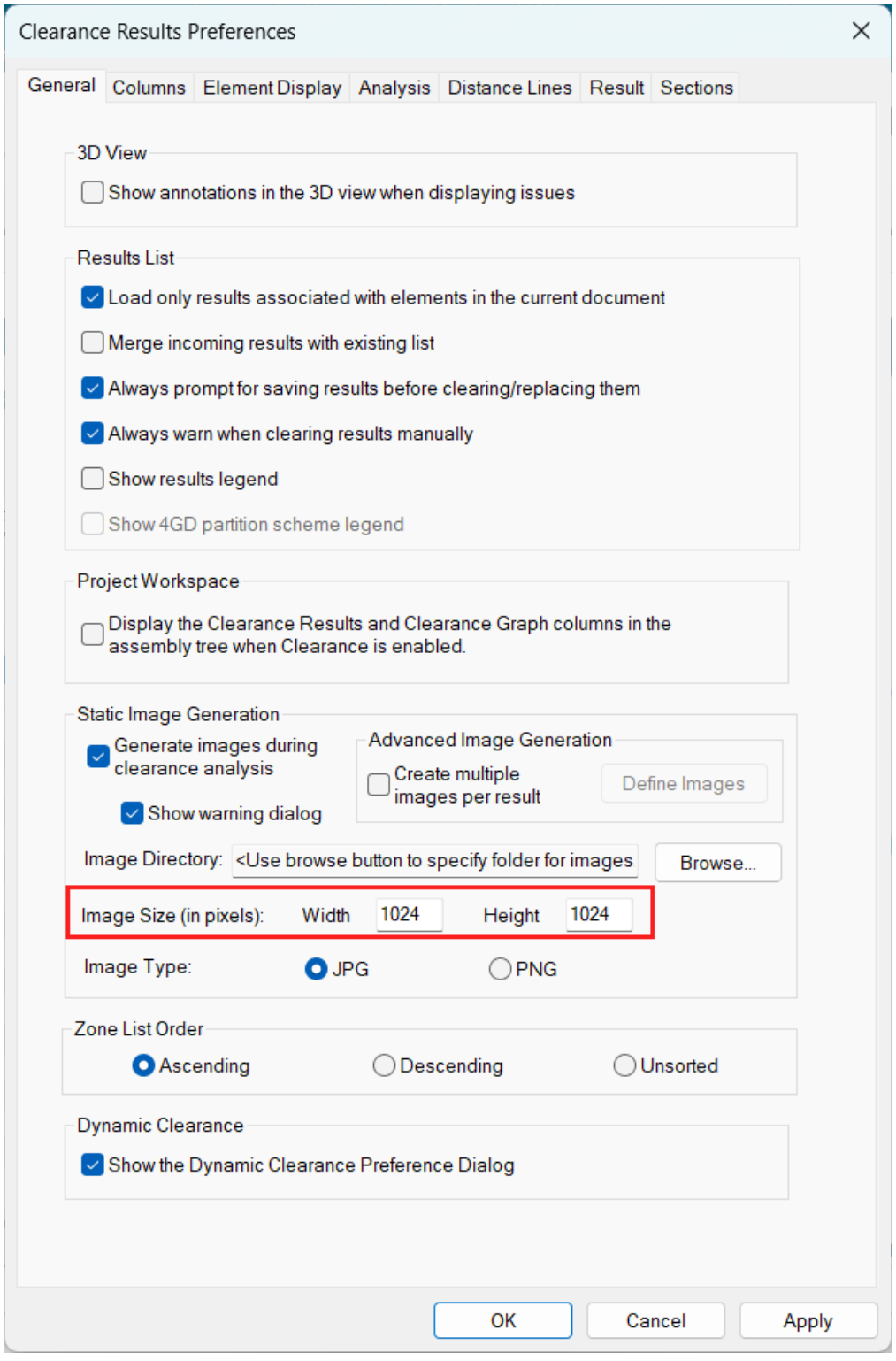
Teamcenter

To provide a better user experience when viewing clearance results, the following default preference values have changed.

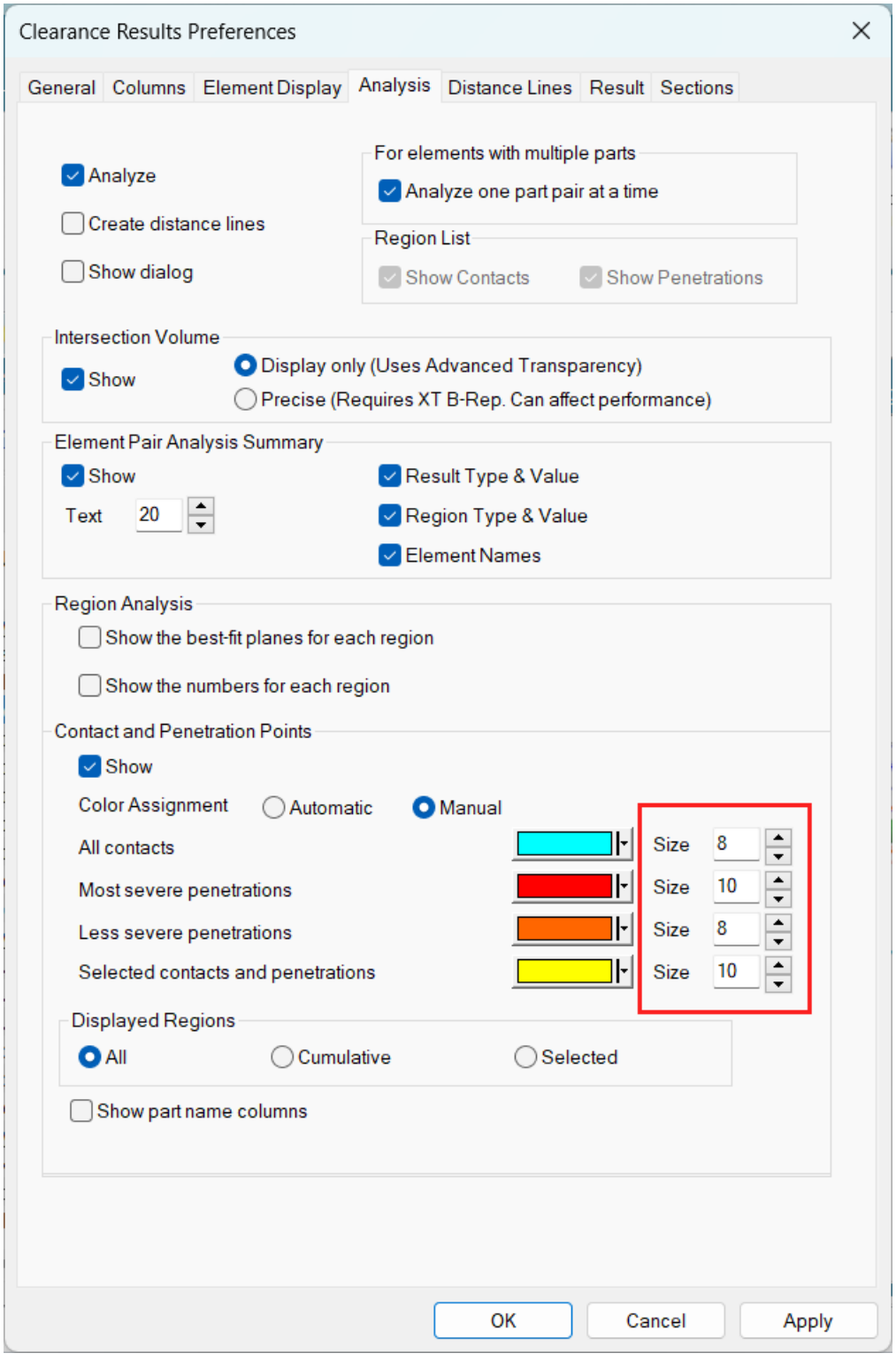
- The **Element1** and **Element2** values now appear in the Element Pair Analysis Summary report on the Viewing window.



- The default Image Size for static clearance images is now 1024 x 1024.



- The default point size for Contact and Penetration Points has been increased to 8 (**All contacts** and **Less severe penetrations**) and 10 (**Most severe penetrations** and **Selected contacts and penetrations**). In addition, the maximum point size for contact and penetration points has been raised to 16 pixels.



Improvements to searching and filtering by volume

Active Workspace

When performing spatial volume searches, you can now choose whether the filter:

- Displays only the parts that satisfy the volume conditions and hides all parts that do not pass the filter.
- Selects only the parts that are visible as the result of the search and deselects parts that do not pass the filter.