



TEAMCENTER

Service Manager

Service Lifecycle Management 2412

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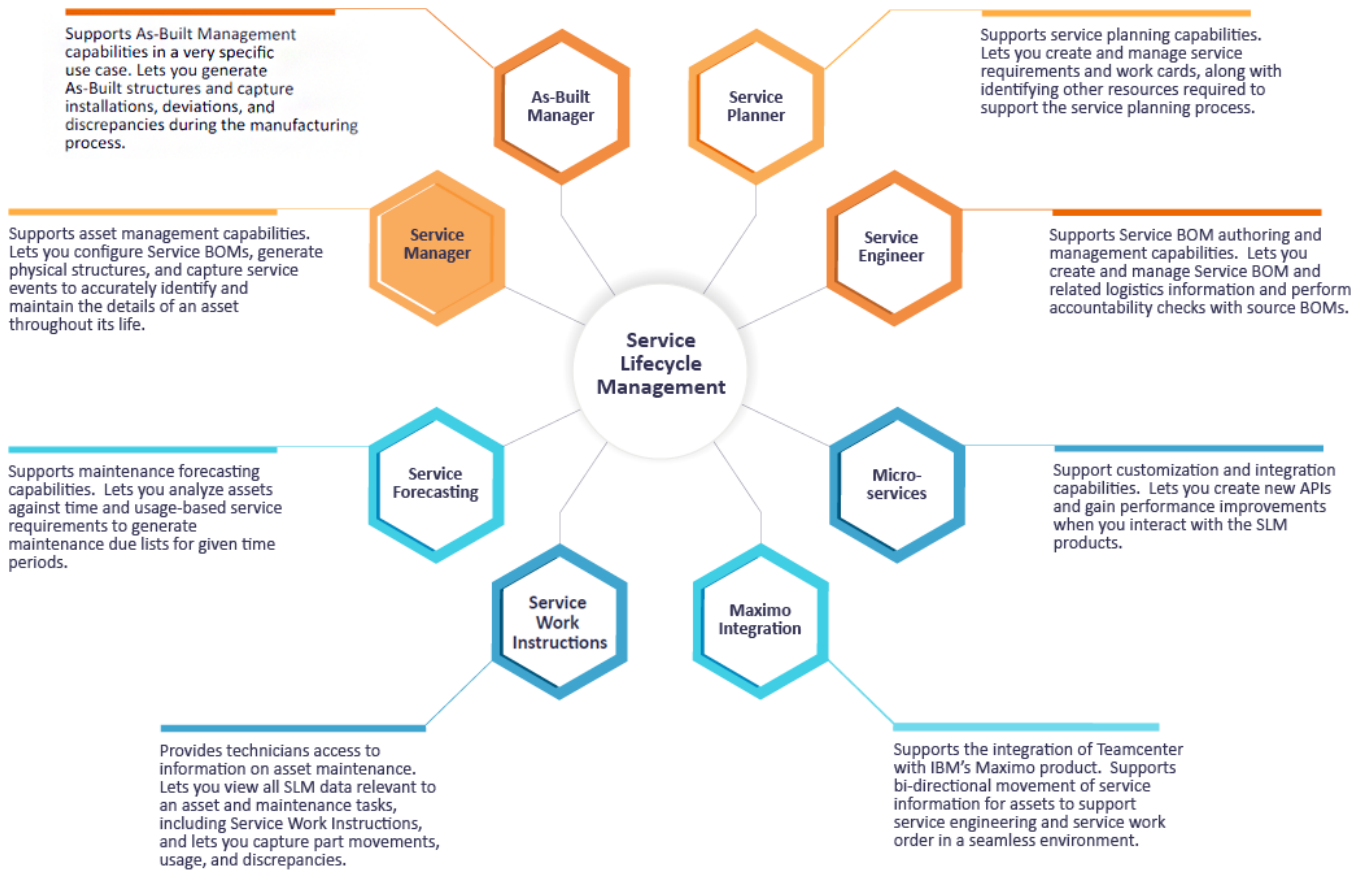
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1. Service Lifecycle Management

Service Manager

Capitalize on the re-use of product knowledge from engineering and manufacturing to improve service planning and execution. Provide feedback to engineering to improve product designs for serviceability and reliability. Communicate and coordinate operational activities for greater compliance, faster service, and lower costs.



Service Lifecycle Management products

Select a link below to access the help documentation for each product.

[Service Lifecycle Management on web client](#)

[Service Engineering](#)

[Service Work Instruction](#)

[As-Built Manager](#)

Service Planner

Maximo Integration

Microservices for Service Lifecycle Management Integration

2. What's new in Teamcenter Service Manager

What's new in Service Manager 2412

The disposition history displays the latest record of disposition. Additionally, if you are a production planner, you can use the **Dynamic Equivalence** preference to compare one structure to another.

- The disposition history shows the latest record of disposition with **Start Time** as the selected time. For more details, refer to [What is disposition data?](#)
- As a production planner, you can use the **Dynamic Equivalence** option to compare the structures according to the list of properties specified under the preferences. For more details, see the following:
 - [Comparing structures with Dynamic Equivalence](#)
 - [Matching Equivalence criteria](#)
 - [Equivalence and partial match criteria preferences](#)
 - [Compare neutral structure with physical structure](#)

What's new in Service Manager 14.3

- If you rebase a physical structure, **certain child parts are not identified as missing**. The child parts that are not serialized and whose lot property is set to false are not considered to be missing.
- In some implementations, you may need to use occurrence-specific properties to identify **part status after you rebase the physical structure**.
- If you **rebase the physical structure to a different neutral structure**, Service Lifecycle Management updates any occurrence specific properties that exist in both the initial neutral structure and the new neutral structure.

What's new in Service Manager 14.1

- Beginning with Teamcenter 14.1, when you create an as-maintained structure from a neutral structure, you can **control the display of parts** that have a quantity greater than one, in the new structure. This becomes especially important when you work on very large structures and on structures imported into Teamcenter from a CAD system.

For example, a wheel assembly includes multiple nuts. When the structure is imported, each nut is represented by a single line in the neutral structure. The existence of multiple lines for one part clutters the structure, making it difficult to find specific parts throughout the structure.

- Create part logistics form with `plf_attach` utility.

What's new in Service Manager 13.2

- Teamcenter Environment Manager (TEM) is deprecated and will be obsolete in a future version of Teamcenter.
- You now can create as-maintained structures from **configured neutral structures** in Service Manager.
- New in Teamcenter 13.2, you can *rebase a physical part*. Rebasing relates a released as-maintained structure to a different configuration of a neutral structure. The new rebased structure uses the new configuration for its structure context.

What's new in Service Manager 13.1

- The Service Manager user interface is enhanced in Teamcenter 13.1 so that you can easily **record a utilization** against the new logical and textual observation characteristics.

3. Getting started with Service Manager

Getting started with Service Manager

The Service Manager application supports as-maintained structure management and service event management capabilities within Teamcenter. As-maintained management is the base functionality of Service Manager and allows you to manage the as-maintained configuration of an asset over its lifetime. As-maintained structures are generated from, and validated against, product definition structures, such as design or planning structures. You can use the Service Manager as-maintained management to:


- Create the as-maintained physical product instantiation for any configured product definition structure.
- Store and manage additional information about the as-maintained physical part structure that is not tracked on the product definition structure, such as serial numbers and lot numbers.
- Reconcile the as-maintained structure with a configured product definition structure to identify parts that are missing, alternates, substitutes, or deviations.
- Track part utilization, part usage, and disposition history.
- Manage physical locations and the assets in those locations.
- Manually update the as-maintained structure with changes that occur over the lifetime of the physical asset.
- Compare the as-maintained structure to the product definition structure or to another as-maintained structure.
- View the as-designed product structure and the as-maintained physical structure configuration side-by-side or by using the embedded viewer available in the rich client.
- Import an as-maintained structure from an external manufacturing execution system (MES) or an enterprise resource planning (ERP) system in PLM XML.
- Manage as-maintained structures in a Multi-Site Collaboration environment.

Service Event Management is a separately licensed extension of the Service Manager application that allows you to manage service events that affect the as-maintained configuration. You can use Service Manager with the Service Event Management extension to:

- Define service group structures to efficiently identify maintenance events that have occurred on an asset.
- Record service events, such as an inspection, overhaul, repair, or other type of service.

- Maintain service history by recording service event data such as work scope, approval, resource information, maintenance times, and cost.
- Record and track part discrepancies and failures and the associated corrective action service events.
- Record part movement transactions such as install, uninstall, and replace for both tracked and nontracked parts.
- Record utilization information (life, date, and observation characteristic values) on service events and apply these values to the as-maintained structure upon approval of these service events.
- Apply configuration updates to the as-maintained structure driven by approved service events.

Before you begin

Prerequisites	The Service Manager application and the Service Event Management extension require separate licenses in addition to the standard Teamcenter product license. You must obtain and install the appropriate licenses required to run the Service Manager application (as-maintained management) and the Service Event Management extension.
Enable Service Manager	<p>Service Manager does not need to be enabled before you use it, but you must select the appropriate components during installation.</p> <p>If you have trouble accessing Service Manager, see your system administrator; it may be a licensing issue. The Service Manager application (as-maintained management) and the Service Event Management extension each require separate licenses in addition to the standard Teamcenter product license.</p>
Configure Service Manager	There are additional steps you must perform to configure Service Manager before you can use it.
Start Service Manager	Click Service Manager  in the navigation pane.

Install local HTML documentation

Siemens Digital Industries Software gives you the ability to install HTML documentation locally. By installing the **Siemens Documentation Server**, you can host HTML documentation for multiple languages on your local host or intranet.

There are four basic steps in the process:

- Access the local HTML help installation instructions on the Siemens Support Center.

Warning:

You must follow those instructions to perform these next three steps.

- Download the **Siemens Documentation Server** from the Siemens Support Center and install it.

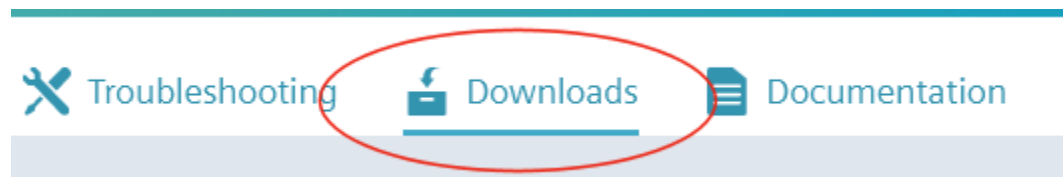
Note:

Installing the Siemens Documentation Server does not automatically give you access to the product documentation. You must download and install the product documentation after installing the documentation server.

- Download the documentation zip file you need from the Siemens Support Center.

There is one zip file that contains the documentation for Service Lifecycle Management on Teamcenter (*docs-service-lifecycle-management-teamcenter-2412-en-US.zip*) and one zip file that contains the documentation for Service Lifecycle Management on Active Workspace (*docs-service-lifecycle-management-active-workspace-2412-en-US.zip*).

The zip files are in the **Downloads** area of their respective products. Be sure to download the appropriate zip file for your needs.



Caution:

You must download and install the English documentation package before installing the documentation package of any other language.

- Install the HTML documentation using the installer in the zip file.

Access the local help installation instructions

The instructions for installing the documentation server and the documentation are contained in a single document stored on the Siemens Support Center. It can be viewed in HTML format from the Siemens Support Center or downloaded in PDF format.

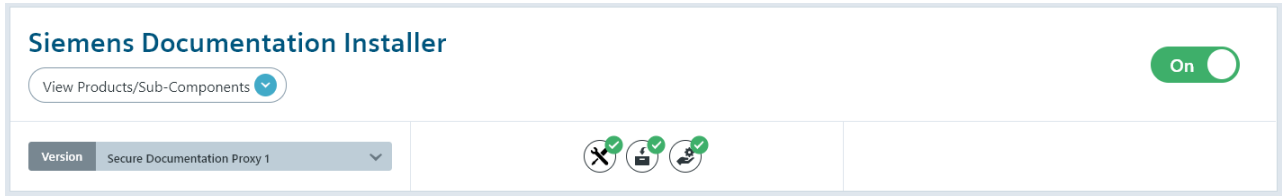
1. Log on to the **Siemens Support Center**.

If you do not have an account, click **Register Now** and fill out the information.

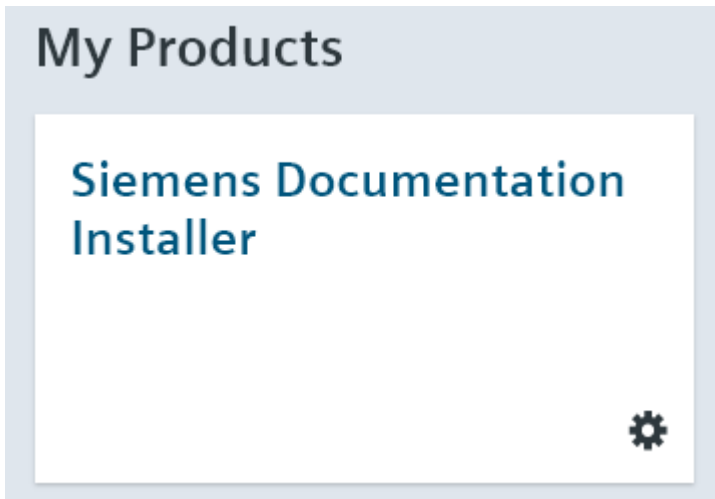
2. Once on Siemens Support Center, click **Manage Products**.



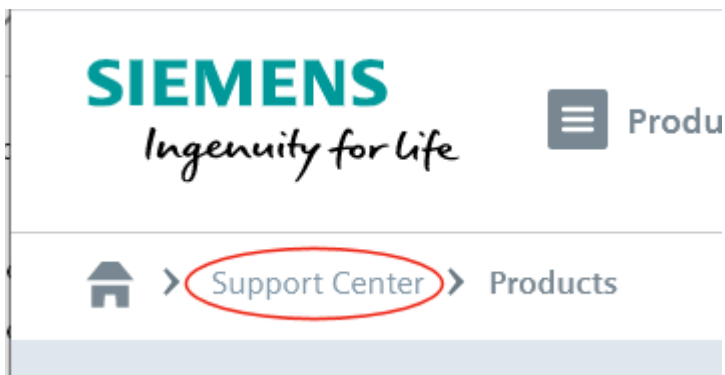
3. Scroll down and toggle **On** the **Siemens Documentation Installer** product.



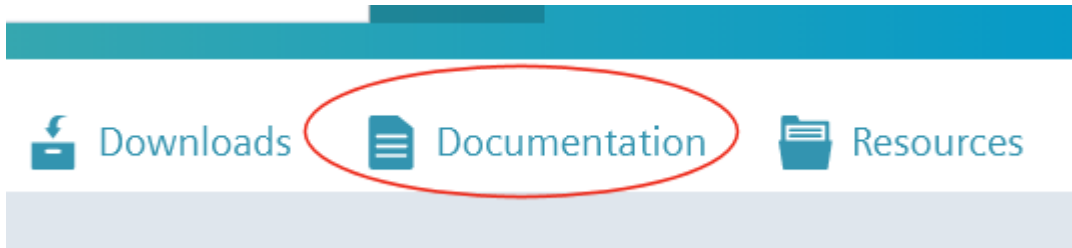
The installer is added to your list of products.



4. Scroll back to the top and click **Support Center** in the bread crumb, to go back to see the products you are tracking.

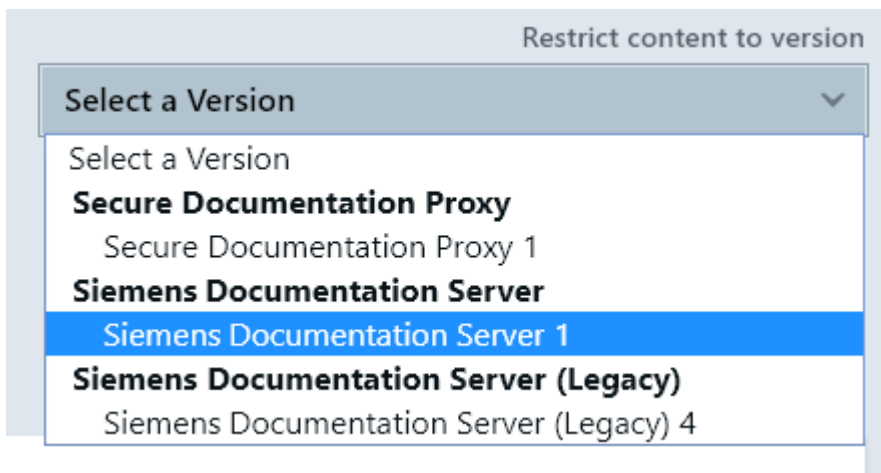


5. Click the **Siemens Documentation Installer** box.
6. Click **Documentation**.

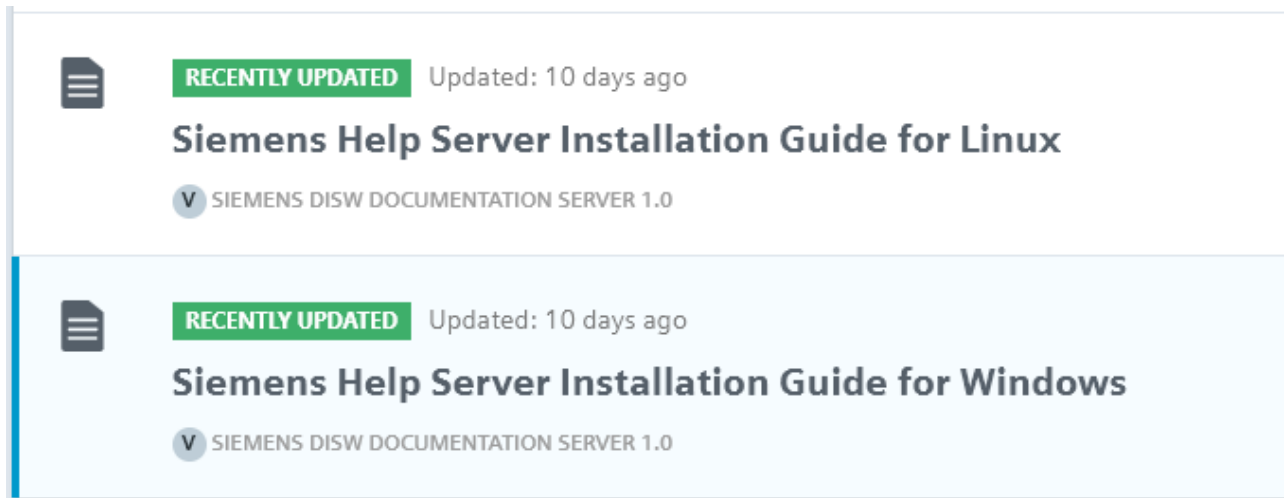


If you see a message about selecting a product version, click the **X** in the upper right to close the message window.

7. In the drop-down list on the right, select the most recent **Siemens Documentation Server** listed.



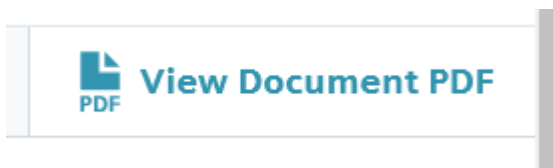
8. Click the installation guide for your operating system.



The HTML version is displayed.

The screenshot shows a web interface for documentation. At the top, there are two radio buttons: 'This Document' (selected) and 'All Documents'. To the right is a search bar with the text 'Search This Document' and a 'Search' button. Below the search bar is a sidebar with the following links: 'Conventions and requirements' (highlighted), 'Hardware and Software requirements', 'Web-served documentation', 'Setting up the Siemens Help Server', and 'Installing product'. The main content area has a heading 'Conventions and requirements' and a sub-heading 'Conventions'. The text under 'Conventions' reads: 'All references to "Windows" in this manual refer to 64-bit versions of Windows. Windows menu items and commands appear in **bold letters** or courier font. An arrow (→) is used to represent submenus on Windows machines, for example

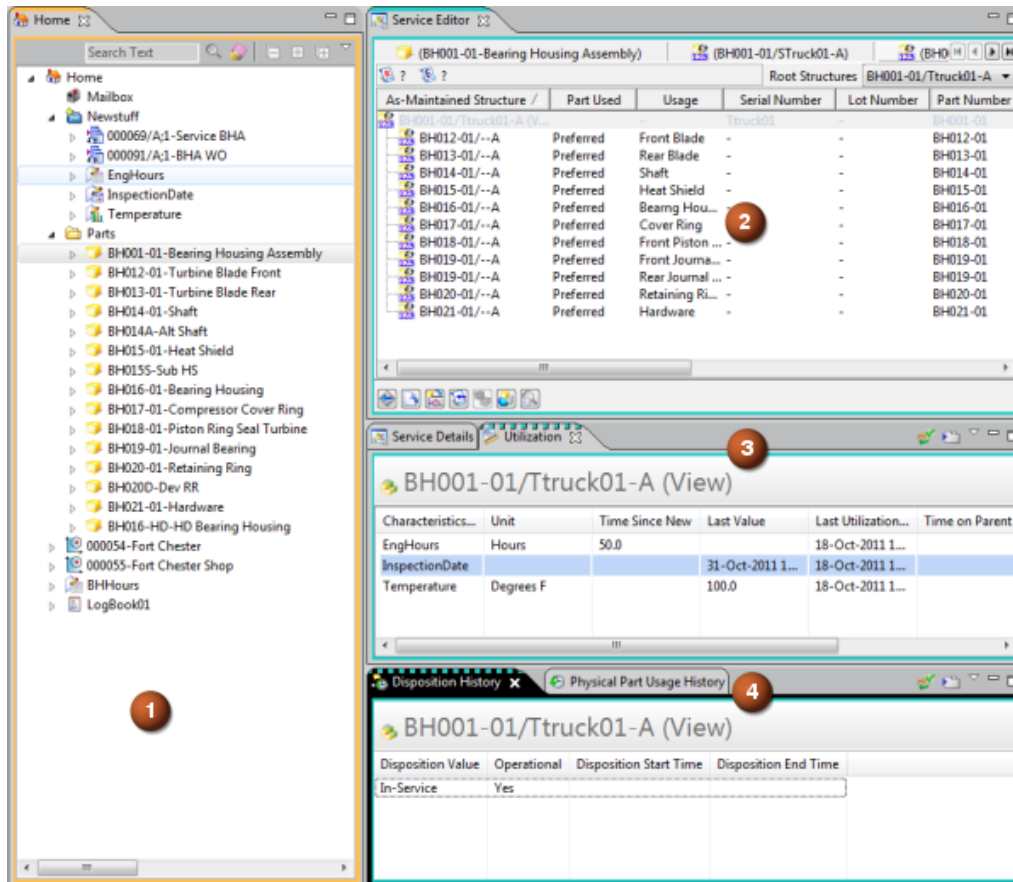
- To view or download the PDF version, in the upper right, click **View Document PDF**.



- Now, using either the HTML or PDF version, follow the instructions to download and install the documentation server and documentation.

Service Manager interface

Service Manager perspective



- | | | |
|---|--|---|
| 1 | Teamcenter component pane | Shows the Teamcenter folders and components. |
| 2 | Service Editor pane | Allows you to view data about the selected line. To display a different data pane, click its tab. |
| 3 | Service details and utilization pane | Allows you to view the service details and utilization for the selected line. |
| 4 | Physical part and disposition history pane | Allows you to view the physical part and disposition history for the selected line. |

Service Manager uses the Teamcenter rich client interface and provides the **Service Editor** view. The interface items for Service Manager are described in the Service Manager menus, buttons, and symbols topics.

Not all of the following menu commands and buttons may be available on your system, as the administrator can hide or reveal only those commands and buttons that are appropriate for your site.

Service Manager menus

File menu

Command	Description
New → Item	Creates a new item.
New → Folder	Creates a new folder.
New → Dataset	Creates a new dataset.
New → Workflow Process (Ctrl+P)	Creates a new workflow process.
New → Log Book	Creates a new log book.
New → Life Characteristic	Creates a new life characteristic for a neutral part.
New → Date Characteristic	Creates a new date characteristic for a neutral part.
New → Observation Characteristic	Creates a new observation characteristic for a neutral part.
New → Physical Location	Creates a new physical location.
New → Asset Group	Creates a new asset group.
New → Disposition Type	Creates a new disposition type.
New → Fault Code	Creates a new fault code.
	<div style="border: 1px solid black; padding: 10px;"> <p>Note:</p> <p>This menu command is available only if the Service Event Management extension for Service Manager is installed and licensed.</p> </div>
New → Service Discrepancy	Creates a new service discrepancy.
	<div style="border: 1px solid black; padding: 10px;"> <p>Note:</p> <p>This menu command is available only if the Service Event Management extension for Service Manager is installed and licensed.</p> </div>
New → Activity Entry Value	Creates a new activity entry value.

Command	Description
	<p>Note:</p> <p>This menu command is available only if the Service Event Management extension for Service Manager is installed and licensed.</p>
New → Service Event	Creates a new service event.
	<p>Note:</p> <p>This menu command is available only if the Service Event Management extension for Service Manager is installed and licensed.</p>
New → Service Group	Creates a new service group.
	<p>Note:</p> <p>This menu command is available only if the Service Event Management extension for Service Manager is installed and licensed.</p>
New → Part Movement	Creates a new part movement.
	<p>Note:</p> <p>This menu command is available only if the Service Event Management extension for Service Manager is installed and licensed.</p>
Duplicate As-Maintained Structure	Creates a duplicate of the as-maintained physical structure.
Close	Closes the Service Manager application.
Open (Ctrl+O)	Opens the selected structure.
Exit	Ends the rich client session.

Edit menu

Command	Description
Cut (Ctrl+X)	Marks the selected lines for removal and copies the content to the clipboard. Cut lines are only removed once pasted elsewhere in the structure.
Copy (Ctrl+C)	Copies the selected lines to the clipboard.
Paste (Ctrl+V)	Inserts the Clipboard contents below the selected item.
Paste Special	Allows you to specify a relation type rather than using the default paste relation when pasting an object reference into an item or item revision.
Delete	Deletes the selected object from the database.
User Setting	Displays the User Settings dialog box, where you can change your group, role, or volume assignments, and your application logging and journaling options.
Options	Changes your user interface settings that affect all applications, not only Service Manager.
Toggle In-Context Mode	Enables or disables editing in context mode, allowing creation of absolute occurrences for the selected assembly.

View menu

Command	Description
Properties (Alt+Enter)	Shows the properties for the selected object.
Refresh (F5)	Updates the information displayed for a selected line and all of its children.
Refresh Window	Synchronizes the currently displayed Service Manager structure with the database. The displayed structure refreshes with changes that have been made in other sessions and saved since you loaded the currently displayed Service Manager structure.
Show Data Panel	Shows or hides the data pane containing, for example, properties data or the embedded viewer.
Show/Hide Second Structure Panel	Shows or hides a second structure pane below the first. You can set the size of each structure pane by moving the horizontal split bar between the panes. If the second structure pane is displayed, this command hides the lower pane.

Command	Description
Show/Hide Collaboration Panel	Shows or hides the collaboration panel.
Expand	Expands the substructure immediately below the selected lines.
Expand Below	Expands the complete substructure below the selected lines.
Expand Below...	Expands the substructure below the selected lines to a user-selected level. You can also collapse an expanded substructure when you choose this option (hide certain child lines).
Collapse Below	Collapses the complete substructure below the selected lines (hide all child lines).
Pack (Ctrl+Shift+M)	Packs the selected lines so that all lines with the same item revision and find number are displayed as a single line. The actual quantity of lines appended to the node.
Unpack (Ctrl+Shift+N)	Unpacks the selected packed lines so that they are displayed as separate lines, one for each occurrence.
Pack All	Packs all packable lines in the displayed structure.
Unpack All	Unpacks all packable lines in the displayed structure.
Show Unconfigured Variants	Shows or hides unconfigured variant components.
Show Unconfigured Assigned Occurrences	Shows assigned objects that were configured out by the variant rules of the structures from which the objects were assigned. You can only use this command with composition structures.
<p>Note:</p> <p>This command does not automatically refresh. Any changes to the assigned objects are not reflected in the structure until you run this command again.</p>	
Show Unconfigured Changes	Shows unconfigured changes. If you hide unconfigured changes, only those changes configured by the current revision rule are visible.
Show Unconfigured By Occurrence Effectivity	Shows or hides components that are not configured when using occurrence effectivity.
Show Untraced Parts	Shows or hides the neutral parts that are not traceable in the physical structure.

Tools menu

Command	Description
Check-In/Out → Check-Out	Checks a selected component out of the database.
Check-In/Out → Check-In	Checks a selected component into the database.
Check-In/Out → Cancel Check-out	Cancels a request checkout action.
Check-In/Out → Transfer Check-out	Transfers a selected, checked-out component to another user.
Check-In/Out → Notification List	Allows you to view or edit the list of users who are informed if the selected component is checked in or checked out.
Check-In/Out → Check-Out History	Allows you to view the history of checkout actions for the selected component.
Id Display Rule → View/Set Current	Allows you to view the ID display rule currently applied to the selected structure or set a different ID display rule.
Id Display Rule → Modify Current	Modifies the ID display rule currently applied to the selected structure.
Id Display Rule → Create/Edit	Creates a new ID display rule or modify an existing ID rule.
Revision Rule → View/Set Current	Allows you to view or set the revision rule for the currently displayed structure.
Revision Rule → Set Date/Unit/End Item	Sets the date, unit number, or end item to configure the structure, if the current rule allows.
Revision Rule → Set Override folder	Sets an override folder to override item revisions that would otherwise be selected by other criteria.
Revision Rule → Modify Current	Modifies the current revision rule and apply the modified rule to the current structure. You can save the change if you have write access to the original rule.
Revision Rule → Create/Edit	Creates or edits a revision rule.
Variants → Configure Variants	Allows you to configure or edit a variant structure for the selected top-level module.
Variants → Only Configure Root	Allows you to set to on to only display options for the top-level module, regardless of the line selected. Set to off to configure the structure for a lower level module.
Variants → Search	Searches for an existing variant item.
Variants → Count Modules	Counts the modules defined for the selected variant structure.

Command	Description
Arrangements → View/Set Current	Allows you to view or set the current NX arrangements.
Export → Objects	Exports selected objects in Teamcenter format, STEP format or a new or available application interface. When you export an object in Teamcenter or STEP format, you move all internal data associated with that object.
Export → To PLMXML	Exports the selected structure and its attachments in the PLM XML format to a selected export directory. You must choose the appropriate transfer mode for the destination system. If you export a structure in which substitute components are defined, the substitutes are also exported.
Export → Objects to Excel	Exports the selected structure lines to an Excel spreadsheet.
Import → Templates	Imports a specification, object, or Excel template.
Import → Objects	Imports objects in a Teamcenter format or STEP format to your Teamcenter database.
Import → From PLMXML	Imports objects in the PLMXML format to your Teamcenter database.
Import → Remote	Imports objects from a remote site using Multi-Site Collaboration.
Rebase Physical Part	Updates the physical part to the latest design of the neutral structure.
Compare	Compares two as-maintained structures or compares the as-maintained structure to the neutral product structure in separate windows.
Clear	Clears the results of comparing two structures.
Find in Other Structure	Finds the selected object in another structure pane. The search follows the closest match rule if it does not find an exact match.
Rename Physical Part	Allows you to change the part number and serial number of a physical part.
Assign Lot	Assigns a lot number to the selected physical part.
Install Physical Part	Adds or installs a copied physical part into the current as-maintained structure.
Uninstall Physical Part	Uninstalls and removes the selected lines from the as-maintained structure completely and does <i>not</i> place them on the clipboard.

Command	Description
Replace Physical Part	Replaces a selected physical part in the current as-maintained structure with a copied part.
Setup Deviation	Opens the Setup Deviation wizard. Use the Setup Deviation wizard to search for a deviation document to associate to the physical part.
Generate As-Maintained Structure	Creates a physical as-maintained structure from the selected neutral structure.
Show Top Physical Part	Displays the top-most physical part parent for the selected physical part.
Change Disposition	Changes the state of a physical part. These states are classified as operational or nonoperational.
Record Utilization	Allows you to add characteristic values to a physical part to capture part utilization.
Move From	Cuts the selected physical part from the current physical location and places it on the clipboard.
Move To	Moves the physical part from the current physical location into the selected physical location.
Show Physical Part Usage History	Displays the physical part usage history for the selected physical part.
Show Disposition History	Displays the history of disposition states for the selected physical part.
Show Utilization	Displays the utilization information for the selected physical part.
Show Log Entries	Displays the log entries for the selected physical part.
Generate As-Built Structure	Generates an as-built structure from the selected as-maintained structure.
Name Occurrence	Assigns a name to the occurrence for the selected neutral part using the predefined naming rules.
Set Preferred Location	Sets the selected physical location as the preferred location.
Unset Preferred Location	Changes the selected physical location so that it is no longer the preferred location.
Show Contains View	Displays the physical parts contained in the selected physical location or the selected asset group.

Service Manager buttons and symbols

Note:











You can add buttons that are not displayed on the main toolbar by right-clicking the toolbar, choosing **Customize**, and selecting the buttons you want to add. Once you add buttons to the toolbars, they are displayed in future sessions. Consider adding buttons that:














- You use frequently.
- Provide a shortcut to menu commands that are not primary selections, for example, **Tools → Revision Rule → Set Date/Unit/End Item**.




Button

Purpose








These standard buttons are located on the main toolbar at the top of the Service Manager structure pane.

	Soft abort	If enabled, allows you to terminate the current operation without closing Service Manager or losing data.
	Cut	Cuts the selected lines from the structure and places them on the clipboard.
	Copy	Copies the selected lines in the structure and places them on the clipboard.
	Paste	Pastes the components from the clipboard as children of the currently selected (assembly) line in the structure.
	Delete	Deletes the selected object from the database.
	Open	Opens the selected structure line in a new window.
	Show/Hide data pane	Shows or hides the data pane containing, for example, properties data or the embedded viewer.
	Show/Hide the lower structure pane	Displays a second structure pane below the first. You can set the size of each structure pane by moving the horizontal split bar between the panes. If the second structure pane is displayed, this button hides the lower pane.
	Show/Hide the collaboration pane	Displays or hides the collaboration pane, which provides advanced features for configuring structures. These features relate primarily to Multi-Structure Manager.
	Show untraced parts	Shows or hides the neutral parts that are not traceable in the physical structure.









Button		Purpose
	Create lot	Allows you to create lot information when you select a part defined as a lot part. Lot information includes lot number, manufacturer ID, and lot size.
	Create serial number generator	Allows you to create numbering scheme information for a serial number on a neutral part that is defined as a serialized part. The numbering scheme information is used for serial number generation on physical parts generated from that neutral part. For example, you can define a prefix, suffix, or maximum number for the serial numbers generated.
	Generate as-maintained structure	Creates a physical as-maintained structure from the selected neutral structure.
	Name occurrence	Assigns a name to the occurrence for the selected line using the predefined naming rules.
	View/set current	Allows you to view or set the revision rule on the current line.
	Configure variants	Allows you to view and configure the variant option values for the selected line.
	Refresh	Updates the information displayed for a selected line and all of its children.
	Find selected in other panel	When you select a component in the BOM in one structure pane and click this button, you can search for the component in the BOM in the other structure pane. The search follows the closest match rule if it does not find an exact match.
	Pack selected line	Packs the selected lines so that all lines with the same item revision and find number are displayed as a single line. The actual quantity of lines appended to the node.
	Unpack selected line	Unpacks the selected packed lines so that they are displayed as separate lines, one for each occurrence.
	Setup deviation	Opens the Setup Deviation wizard. Use the Setup Deviation wizard to search for a deviation document to associate to the physical part.
	Install physical part	Adds or installs a copied physical part into the current as-maintained structure.
	Replace physical part	Replaces a selected physical part in the current as-maintained structure with a copied part.

Button		Purpose
	Uninstall physical part	Uninstalls and removes the selected lines from the as-maintained structure completely and does <i>not</i> place them on the clipboard.
	Navigation Pane	Displays or hides the navigation pane.
	Advanced Search	Allows you to select a search form that includes multiple search criteria relevant to the type of information or object being sought.

The following buttons are located at the bottom left corner of the Service Manager structure navigation tree pane.

	Most recently used (MRU) list	Shows a list of your most recently accessed structures. If you select an entry from the list, Service Manager loads the structure into the structure pane. You can configure the number of entries shown in the MRU list by right-clicking the button and moving the slider to the desired number.
	Open by name	Browses for and opens a specific structure by name.
	Open structure context by name	Browses for and opens a specific structure context by name.
	Most recently used (MRU) revision rules list	Selects a revision rule to apply to the current product structure from a list of the rules you have used recently. You can configure the number of entries shown in the MRU by right-clicking the button and moving the slider to the desired number.
	List substitute components	Adds or removes substitute components or set the preferred substitute. This button is enabled if the selected line may have substitutes; otherwise, it is disabled.
	Manage global alternates	Shows a list of the global alternates available for the selected line. You can add alternates and select a preferred alternate. The preferred global alternate is indicated by an asterisk.
	Find in display	Searches for matching lines (components) in the displayed product structure by entering an expression. You can search with any combination of the available properties.

The following symbols are displayed at the bottom right corner of the product structure pane and show the current status of the selected line.

Button	Purpose
	Shows if you have write access permissions for the selected line.
	Shows if you have delete access permissions for the selected line.
	Shows if you have access permissions to change the selected line.
	Shows if the item revision represented by the line is currently in a workflow process.
	Shows if the item revision represented by the line is currently checked in or checked out.
	Shows if the item revision represented by the line is currently released.
	Shows if the item represented by the line is currently published.
	Shows if the item or revision represented by the line is currently classified.

What are perspectives and views?

Within the rich client user interface, application functionality is provided in *perspectives* and *views*.

View The basic display component that displays related information in a UI window.

Perspective A collection of one or more views and their layout.

Some applications use a perspective with multiple views to arrange how functionality is presented. Other applications use a perspective with a single view.

You can use the **HiddenPerspectives** preference to prevent the display of some Teamcenter perspectives in the rich client.

If your site has online help installed, you can access application and view help from the rich client **Help** menu or by pressing F1.

Basic concepts for using Service Manager

Product structure use in Service Manager

Before creating or modifying the product structure, read **Getting Started with Product Structure**, which describes the basic concepts behind product structure and includes advanced information on how to use and administer it.

To take full advantage of Service Manager, you should be familiar with the Teamcenter elements that are used to define and present product structure and how to manage multiple product views. Product structures are not created or modified in Service Manager, but these structures are used as the definition for the as-maintained structure.

Service Manager as-maintained management elements

Element	Description
As-maintained structure	The representation of a physical configuration of a manufactured product evolving through its serviceable lifetime. A single neutral structure can result in many as-maintained structures, one for each physical asset. The as-maintained structure contains additional asset-specific information and records authorized differences from the product definition and captures characteristics and the history of the structural changes as it evolves over time.
Characteristics definition	Information related to a neutral part that is important for service organizations maintaining assets. You can create characteristic definitions that contain information to be measured against the physical part, such as how long a product has been in use. You can also create characteristic definitions that contain data to be measured against a physical part, such as temperature or oil pressure.
Deviation document	A document that authorizes the installation of a physical part which is a deviation from the design structure.
Deviated physical part	A physical part installed in a physical structure which is not the preferred part or designated as a valid alternate or substitute to the preferred part.
Deviation workflow	The process flow, reviewer's list, and business validations required to route a deviation document for review and approval.
Disposition	Defines whether the physical part is in an operational or a nonoperational state. For example, the part disposition can be an operational disposition such as In-Service or a nonoperational disposition such as In-Repair .
Log book	A collection of log entries recorded against a specific physical asset. A physical asset may have more than one associated log book.

Element	Description
Log entry	A record of data collected about a physical asset and recorded by a certain person at a certain time. The log entry is associated to a single asset but may record characteristic values for several components within that asset.
Lot	Group of physical parts controlled by the same number. A lot number is similar to a serial number. The difference between the two is that the same lot number can identify multiple physical parts, but no more than the total number of physical parts specified by the lot size.
Lot part	Physical part or assembly identified by a lot number.
Neutral part	An item defined in the neutral structure representing a part definition. It can be a part object or any other item type configured as a valid neutral item type in the Business Modeler IDE.
Neutral structure	A hierarchy of neutral parts representing the asset independent product definition structure, such as the manufacturing or design structure.
Part logistics data	Information added to the neutral part that will support the realization of physical parts in Service Manager or as-maintained representations of the product. For example, part logistics data determines whether the part is traceable, serialized, or lot. Part logistics data is added to each neutral part using the Part Logistics Form.
Physical location	An area where physical parts are stored. A location can be a site, region, inventory, customer, contractor, or shop.
Physical part	The representation of a built or manufactured physical asset realized from the neutral part. The physical part captures the asset information such as its serial number, manufacturer, lot number. It also inherits the part number from the neutral part from which it is realized.
Physical structure	A structure composed of physical parts.
Physical realization	The relation between a physical part and the neutral part revision that it was realized from.
Serial number generator	A number generator that can be configured on a neutral part to create serial numbers for every instance of a physical part. You can set characteristics for the serial numbers, such as a prefix, suffix, the number increment, and the maximum number of characters in the serial number. During the instantiation of the physical structure from the neutral structure, you can choose to automatically assign the serial numbers to the newly created physical parts.

Element	Description
Serialized part	Approved product structure that includes part information.
Usage	Defines the position that the physical part occupies within the as-maintained structure.

Service Manager service event management elements

Service event management is available only if you have installed and obtained the proper license for the Service Event Management extension for Service Manager.


Element	Description
Activity entry value	A characteristic definition value logged to a service event to capture life, date, or observation characteristics for the associated physical part. Characteristic definitions are defined on the neutral structure.
Fault code	An identifier that indicates an itemized fault or problem that a manufacturer has identified with a part. Physical parts can also report fault codes as a result of internal diagnostics.
Part movement	A record of each physical part that is installed or uninstalled as a result of a service event. Each installation or uninstallation of a physical part must have a unique part movement record.
Service discrepancy	An irregularity or observation discovered with regard to maintenance of a physical part. Discrepancies can also identify if there was a failure with the physical part.
Service event	Informational data that is captured as a result of service activity that is performed by an external source.
Service group	Collection of service events and service discrepancies used to organize the service records of one or more physical parts.

Search for Service Manager objects


You can search for the following Service Manager objects using advanced search:

- MRO Asset Group
- MRO Date Characteristics
- MRO Deviation Document
- MRO Disposition Types
- MRO Fault Code
- MRO Item
- MRO Life Characteristics
- MRO Log Book

- MRO Lot
- MRO Observation Characteristics
- MRO Physical Location
- MRO Physical Part
- MRO Serial Number Generator
- MRO Service Discrepancy
- MRO Service Event
- MRO Service Group
- MRO Service Group and Event

1. Choose **Advanced** from the quick **Search** menu at the top of the navigation pane.
2. On the **Search** pane toolbar, click  to select a search type.
3. Click **More** to display the system defined searches.
4. Under **System Defined Searches**, select the object you want to search for.
5. Click **OK**.

The dialog box that contains the object properties appears.

6. Type the values for the object properties that you want to search for.
7. Click the  button to search.

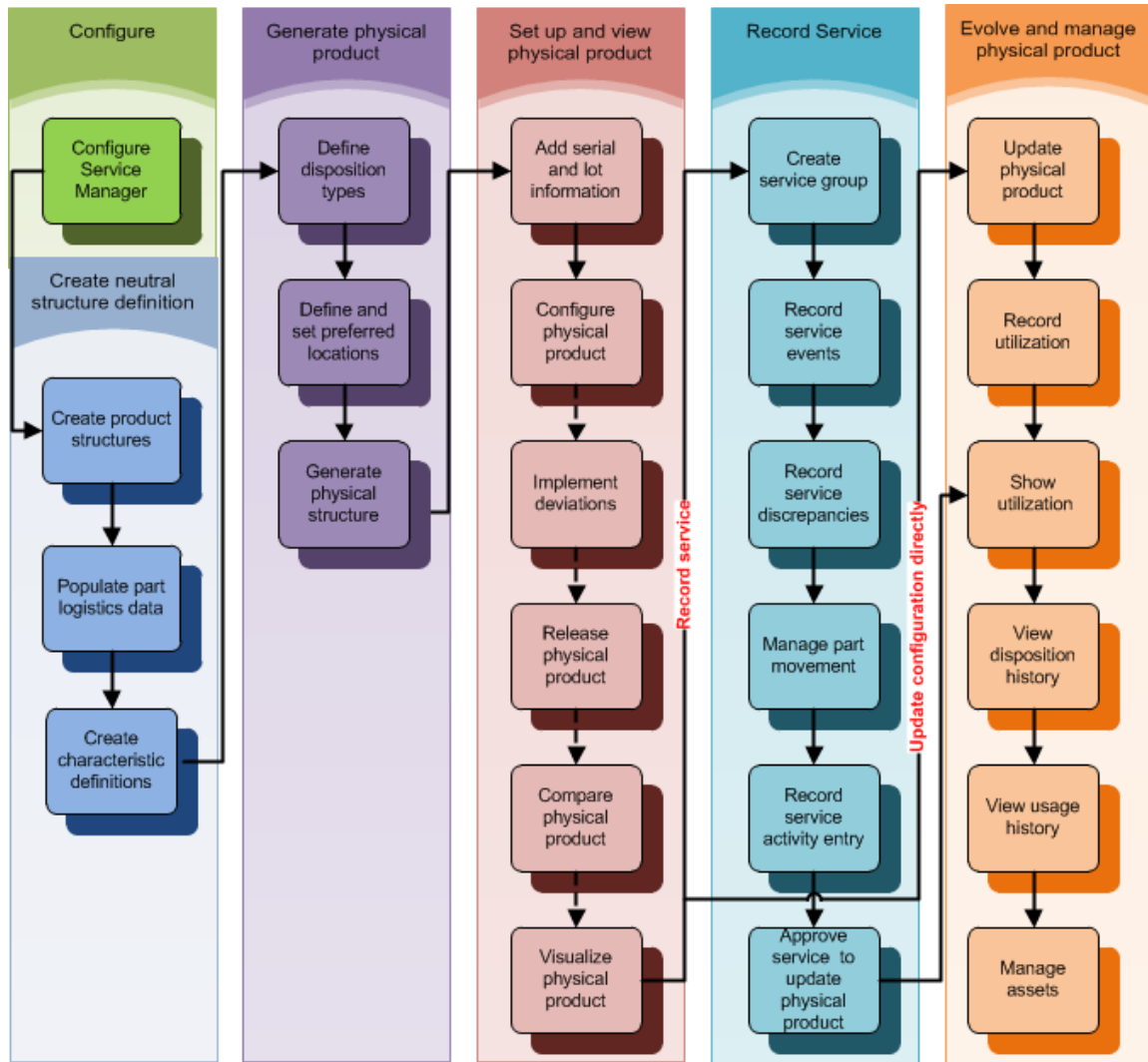
Basic tasks for using Service Manager

The basic tasks for using Service Manager are:

1. Configuring Service Manager by setting global and business object constants, LOVs, and preferences.
2. Creating the neutral structure definition.
3. Generating the physical structure from the neutral structure.
4. Setting up and configuring the physical structure.
5. Recording service done on the physical structure.
6. Evolving and managing the physical structure.

Service Manager process task flow

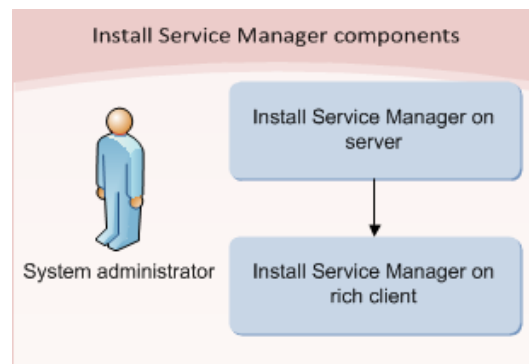
The following graphic shows the Service Manager process task flow. The functionality for recording service is available only if you have purchased and have a license for Service Event Management.



4. Installing and configuring Service Manager

Install Service Manager

As a system administrator, you must install and configure Service Manager using Teamcenter Environment Manager (TEM). As the following figure shows, you install Service Manager on the server and on the rich clients that use the application.



1. Start Teamcenter Environment Manager (TEM).
2. Select appropriate options until you reach the **Features** panel.

Note:

The configuration installed is dependent on the options that you choose in the **Solutions** panel of the TEM installation windows, such as **Corporate Server**, **Rich Client 2-Tier** or **Rich Client 4-Tier**, and **Business Modeler IDE**. You can also add any of the options available in the **Solutions** panel from the **Features** panel.

3. In the **Features** panel, under **Extensions**, expand **Service Lifecycle Management** and select from the following features.

Feature	Description	Prerequisite features
As-Maintained Management	Installs the As-Maintained Management functionality.	Teamcenter Foundation
As-Built and As-Maintained Alignment	Installs the operability functionality between the As-Built Management and As-Maintained Management applications. This functionality	As-Maintained Management As-Built Management

Feature	Description	Prerequisite features
	is available only if you have purchased and have a license for As-Built Management and As-Maintained Management.	
Service Event Management	Installs the Service Event Management functionality. This functionality is available only if you have purchased and have a license for Service Event Management.	As-Maintained Management

4. If you want to configure your system using the Business Modeler IDE:
 - a. Click **Next**. Select appropriate options until you reach the **Business Modeler IDE Templates** panel.
 - b. In the **Business Modeler IDE Templates** panel, select the following templates.

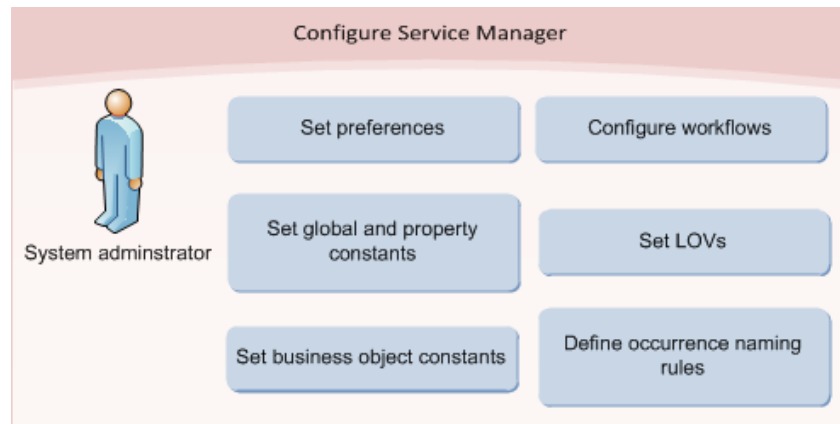
Template	Description
Teamcenter Foundation	Installs the Teamcenter Foundation template.
As-Maintained Management	Installs the As-Maintained templates.
Service Event Management	Installs the Service Event Management templates. This template is available only if you have purchased and have a license for Service Event Management.
As-Built and As-Maintained Alignment	Installs the template for the operability functionality between the As-Built Management and As-Maintained Management applications. This template is available only if you have purchased and have a license for As-Built Management and As-Maintained Management.

5. Click **Next**.

Select appropriate options until you complete the installation.

Configuring Service Manager

The Teamcenter administrator configures Service Manager according to company needs and organization requirements as shown in the following figure.



You can configure:

- Service Manager preferences.
- Global and property constants that control part logistics information, define part usage properties, and set a default disposition.
- Business object constants that identify neutral item types and physical part types.
- Naming rules for occurrences.
- Lists of values (LOVs) that define physical location types, deviation authority documents, and status lists. The Service Event Management extension for Service Manager also provides LOVs to define service information, such as type of service, severity of a service discrepancy, and the new neutral part class to use when creating a part movement.
- Workflows.

Note:

As a best practice, use command suppression to limit the use of the **rebase** command to Service Lifecycle Management super users.

You use the Business Modeler IDE to configure global and property constants, business object constants, naming rules, and LOVs. An administrator creates and configures a custom template based on the As-Maintained Management, Service Event Management, or another template. You must deploy the custom template after making the changes.

Setting Service Manager preferences

As an administrator or Teamcenter user, you can set the Service Manager preferences according to your needs. Preferences are special environment variables stored in the Teamcenter database and are read during Teamcenter application usage.

Setting Service Manager global and property constants

Setting Service Manager global and property constants

Global constants provide consistent definitions that can be used throughout the system. These constants have only one value, either the Default value or the value you set. You use the Business Modeler IDE to configure the global constants in a custom template that you define. You must deploy the custom template after making the changes.

You can configure the following Service Manager global constants:

- **AutoCreatePartLogisticsForm**

Set this value to automatically create part logistics forms and relate them to a neutral item.

- **PartLogisticsFormNamePrefix**

Set this value to automatically create a prefix in part logistics form names.

- **PhysicalPartDefaultDisposition**

Set this value to the default disposition for physical parts.

- **UsageAttributeName**

Set this value to the property of **PSOccurrence** that is to contain the value for the generated physical part's usage.

- **ReuseAuthorizedDeviation**

Set this value to reuse an authorized deviation information when duplicating physical structures.

You can configure the following Service Manager property constant:

- **InitialValue**

Set this value to set the defaults for the properties of the part logistics form.

Set up automated creation of part logistics forms

As an administrator, you can set the **AutoCreatePartLogisticsForm** global constant to **true** to configure part logistics forms to be automatically created and related to a neutral item during creation. The part logistics form is related to the neutral item with a **References** relation.

Example:

Because a part object by default is classified as a neutral item, a part logistics form is automatically created and related to a newly created part.

Global constant	Default value
AutoCreatePartLogisticsForm	True

Define default values for part logistics form

As an administrator, you can set the defaults for values contained in the part logistics form by setting the property constant **InitialValue** for any of the properties of the **PartLogisticsForm** business object.

Example:

You may want to set the **InitialValue** for the **IsSerialized** property to **True**, to require all physical parts to have a serial number on one system, but not on another system.

Define part logistics form name prefix

As an administrator, you can set the **PartLogisticsFormNamePrefix** global constant to a prefix that is used for part logistics form names.

Example:

Because a part object by default is classified as a neutral item, a part logistics form is automatically created and related to a newly created part.

Global constant	Default value
PartLogisticsFormNamePrefix	NULL

Define default disposition

As an administrator, you can set the **PhysicalPartDefaultDisposition** global constant to a default disposition for the physical parts when generating an as-maintained structure. You must set a value for this global constant before using Service Manager.

Example:

You may want to set the **PhysicalPartDefaultDisposition** global constant to **In-Repair**.

Global constant	Default value
PhysicalPartDefaultDisposition	In-Service

Define usage property

As an administrator, you can set the **UsageAttributeName** global constant to the property of **PSOccurrence** that populates the value of the physical part's **usage** when the as-maintained physical structure is generated.

Example:

You may want to set the **UsageAttributeName** global constant to **ref_designator**. When you set the value of **ref_designator** to **RD1234**, the value of **usage** is populated with that same value **RD1234** for the generated physical part.

The allowed properties are:

- **occurrence_name**
- **ref_designator**
- **seq_no**

Note:

The **seq_no** property corresponds to the value for the **Find No.** property in the Service Manager interface.

Global constant	Default value
UsageAttributeName	occurrence_name

Reuse an authorized deviation

As an administrator, you can set the **ReuseAuthorizedDeviation** global constant to **True** to reuse an authorized deviation when duplicating a physical structure. If the value is set to **True**, the deviated and extra to design parts from the original structure are copied to the duplicated structure.

Global constant	Default value
ReuseAuthorizedDeviation	True

Setting Service Manager business object constants

Setting Service Manager business object constants

Business object constants provide default values to business objects that define the behavior for a specific business object. Because these constants are attached to business objects, they are inherited, just like properties. These constants have only one value, either the default value or the value you set. You use the Business Modeler IDE to configure the business object constants in a custom template that you define. You must deploy the custom template after making the changes.

You can configure the following as-maintained business object constants:

- **IsMRONeutralType**

Set this value to automatically configure which items are defined as neutral items.

- **PhysicalPartTypeForCreate**

Set this value to the physical part type created from a neutral item.

Identify neutral item types

As an administrator, you can set the **IsMRONeutralType** business object constant to **true** to configure which items are defined as neutral items. Physical parts are only generated from neutral items.

Example:

Because **IsMRONeutralType** is **false** for the **document** business object, physical parts cannot be generated from documents.

Business object constant	Default value
IsMRONeutralType	false for business object item
IsMRONeutralType	true for business object part

Define physical part types

As an administrator, you can set the **PhysicalPartTypeForCreate** business object constant to represent the physical part type that is generated from a neutral item.

Example:

You may want to create a new neutral item called **Aircraft** to represent an aircraft assembly and a new physical part subtype called **PhysicalAircraft** to represent a physical aircraft assembly. If you set the **PhysicalPartTypeForCreate** business object constant to **PhysicalAircraft** for the neutral item **Aircraft**, the physical part is set to the type **PhysicalAircraft** when the as-maintained structure is generated.

Business object constant	Default value
PhysicalPartTypeForCreate	Physical Part for business object item

Setting up Service Manager naming rules

As an administrator, you can create naming rules that define the data entry format for a business object property. A naming rule consists of rule patterns and a counter. Before creating a naming rule, you should be familiar with the pattern and counter formats. After you create a naming rule, you must attach it to the business object property. You use the Business Modeler IDE to create the naming rules in a custom template that you define. You must deploy the custom template after making the changes.

You can configure the following Service Manager naming rules:

- Automatically name occurrences

You can optionally create a naming rule and attach it to the business object property **occurrence_name** for the **PSOccurrence** business object. This rule automatically names occurrences when a Teamcenter user chooses the **Name Occurrence** command. The naming rule can also be based on conditions.

Setting Service Manager lists of values

Setting Service Manager lists of values (LOVs)

As an administrator, you can set LOVs located in the LOV folder in the **Extensions** view in the Business Modeler IDE. LOVs are commonly accessed by Teamcenter users from a menu at the end of a data entry box. After you create a list of values, you must attach it to a property on a business object. You use the Business Modeler IDE to set the LOVs in a custom template that you define. You must deploy the custom template after making the changes.

You can configure the following Service Manager global LOVs:

- **MRO Valid Deviation Status List**

Set this list of values to configure the approved status list for deviations.

- **MRO Deviation Authority List**

Set this list of values to configure items used to authorize a deviation.

- **Physical Location Type**

Set this list of values to define physical location types that are used when creating a physical location.

Additional LOVs are also available in the **Service Event Management** template available with the Service Event Management extension for Service Manager. The Service Event Management extension for Service Manager is a separately-licensed option.

If you have installed the Service Event Management extension for Service Manager and have obtained the appropriate license, you can configure the following Service Event Management LOVs:

- **MRO Transaction Types**

This list of values defines the type of service performed on a physical part. This LOV is not editable, but contains values for the following LOVs. The values for the **Service Lifecycle Management Transaction Types** LOV correspond to the **Category** attribute available when you create a service event.

- **sem_inspection_types**

Set this list of values to define the type of inspection performed on a physical part.

- **sem_overhaul_types**

Set this list of values to define the type of overhaul performed on a physical part.

- **sem_repair_types**

Set this list of values to define the type of repair performed on a physical part.

- **sem_other_types**

Set this list of values to define the type of work performed on a physical part that is not an inspection, overhaul, or repair.

- **MRO Severity**

Set this list of values to define service discrepancy severity levels.

- **MRO New Part Class**

Set this list of values to define the type of neutral part to use when creating a new part movement.

Define valid deviation status list

As an administrator, you can set the **MRO Valid Deviation Status List** LOV to the list of status values needed on the deviation authority to validate the authorized installation of a deviated part. The deviated authority item must be at the approved status before a deviated physical part can be installed.

Example:

You may want to include an additional status value such as **Complete** to validate a deviation.

LOV	Description	Default value
MRO Valid Deviation Status List	Specifies the list of status values needed on the deviation authority to validate the authorized installation of a deviated part.	TCM Released

Define deviation authority list

As an administrator, you can set the **MRO Deviation Authority List** LOV to the list of item classes used to authorize a deviation.

Example:

You may want to use a manufacturing document in addition to a deviation document to authorize deviations. If you have installed Service Event Management, **ServiceEvent** is a valid deviation authority.

LOV	Default values	Description
MRO Deviation Authority List	DeviationDoc	Deviation document
	Cm0DevRqst	Deviation request
	ADc0DevRqst	ADS deviation request
	Service Event	Service event

Define physical location types

As an administrator, you can set the **Physical Location Type** LOV to a list of valid physical location types that are used when creating a physical location.

Example:

You may want to add a physical location type called **Warehouse** to represent physical parts stored in a warehouse.

LOV	Description	Default values
Physical Location Type	Specifies the type of physical location.	Contractor Customer In-Service Inventory Region Shop Site

Define types of service

The **MRO Transaction Type** LOV is an uneditable list of valid types of service performed on a physical part. The service types, **Inspection**, **Overhaul**, **Other**, and **Repair**, are available as default values for this LOV. You can define more specific types within these categories using the **sem_inspection_type**, **sem_other_type**, **sem_overhaul_type**, and **sem_repair_type** LOVs. The values for the **MRO Transaction Type** LOV are available as **Action Type** when creating a service event.

Note:

The following LOVs are not available unless you have installed the Service Event Management extension for Service Manager and have the appropriate license.

- Inspection type

As an administrator, you can set the **sem_inspection_type** LOV to define specific types of inspections performed on a physical part.

LOV	Description	Default value
sem_inspection_types	Specifies the type of inspection performed on a physical part.	Inspection

- Other type

As an administrator, you can set the **sem_other_type** LOV to specify user-defined types of service, other than inspection, overhaul, or repair, performed on a physical part. The **sem_other_type** LOV is a subset of the **MRO Transaction Type** LOV.

LOV	Description	Default value
sem_other_types	Specifies the user-defined type of service performed on a physical part.	Other

- Overhaul type

As an administrator, you can set the **sem_overhaul_type** LOV to define specific types of overhaul service performed on a physical part. The **sem_overhaul_type** LOV is a subset of the **MRO Transaction Type** LOV.

LOV	Description	Default value
sem_overhaul_types	Specifies the type of overhaul service performed on a physical part.	Overhaul

- Repair type

As an administrator, you can set the **sem_repair_type** LOV to define specific types of repair service performed on a physical part. The **sem_repair_type** LOV is a subset of the **MRO Transaction Type** LOV.

LOV	Description	Default value
sem_repair_types	Specifies the type of repair service performed on a physical part.	Repair

Define service discrepancy severity

As an administrator, you can set the **MRO Severity** LOV to a list of valid severity levels for a service discrepancy.

Note:

The following LOV is not available unless you have installed the Service Event Management extension for Service Manager and have the appropriate license.

LOV	Description	Default values
MRO Severity	Specifies the severity level of a service discrepancy.	Critical Major Minor

Define neutral part class for a part movement

As an administrator, you can set the **MRO New Part Class** LOV to a list of valid types of neutral part classes to use when creating a part movement.

Note:

The following LOV is not available unless you have installed the Service Event Management extension for Service Manager and have the appropriate license.

LOV	Description	Default value
MRO New Part Class	Specifies the type of neutral part class to use when creating a new part for tracking part movement. The value used for this LOV must be a valid Service Lifecycle Management neutral part, so IsMRONeutralType business object constant must be set to true .	Part

Configuring Service Manager workflows

As an administrator, you can configure the following workflows to support your Service Manager installation:

- Deviation workflow

The **TCM Release Process** workflow is provided with the **Teamcenter Foundation** feature. You can configure this workflow or create your own to set up the process flow, reviewers, and business validations required to route a deviation document for review and approval.

- Release workflow

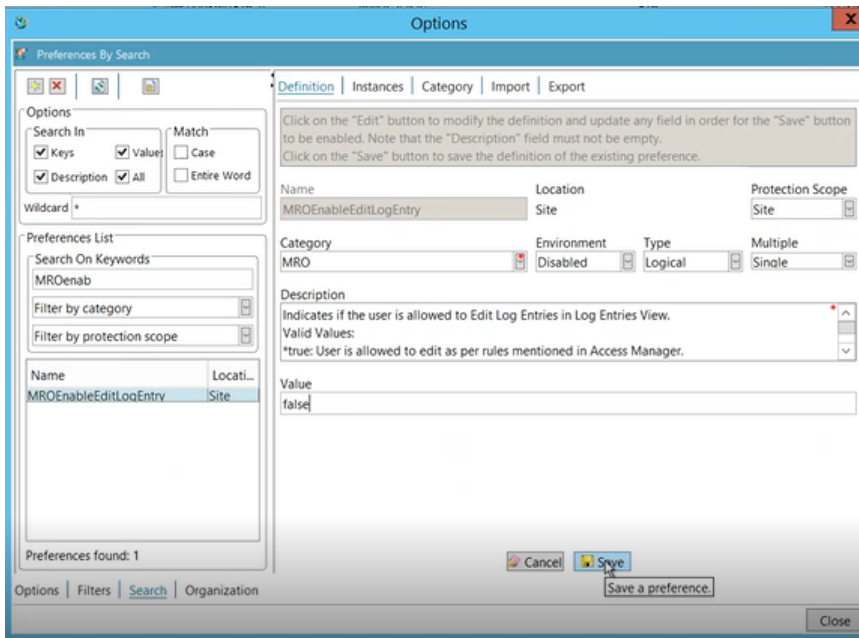
The **Release As-Maintained Structure** workflow is provided with Service Manager. You can configure this workflow or create your own to set up the process flow, reviewers, and business validations required to release an as-maintained structure.

Allow editing of log entries

Set preference to enable editing of log entries

Before the user can edit log entries, the administrator must set the site preference **MROEnableEditLogEntry** to **True**. The default setting is **False**.

1. Set this preference by choosing **Edit → Options**, and use the keyword search to find **MROEnableEditLogEntry**.



2. Enter **True** in the **Value** field for the preference **MROEnableEditLogEntry** and press Enter.
3. Click **Save**.





Grant access to edit log entries

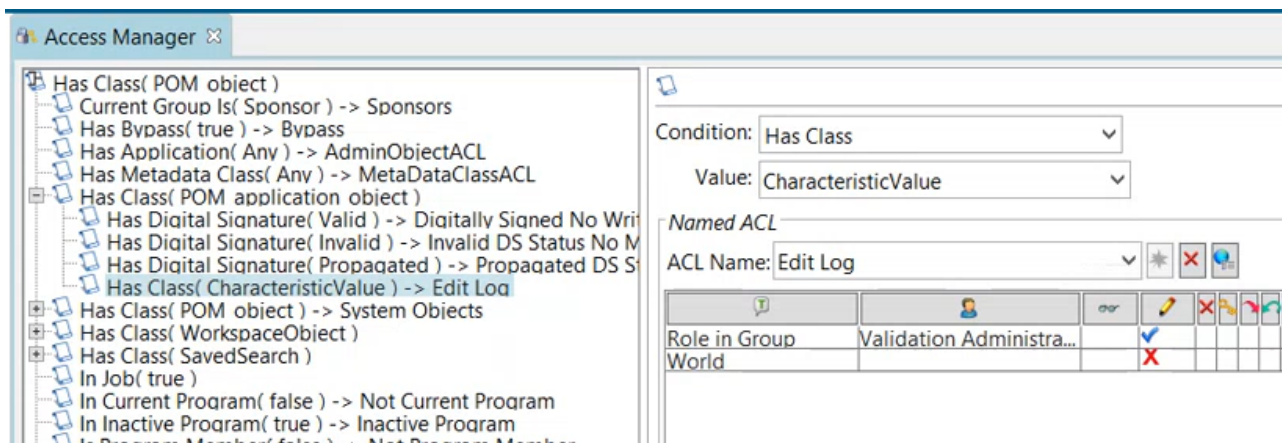
The option to edit log entries can be granted to everyone or only to certain roles within your organization. You set the access from the **Access Manager**.

1. From the navigation pane, click **Access Manager**.
2. Expand **Has Class(POM application object)**.
3. Select **Has Class(CharacteristicValue) → Edit Log**.
4. Enter **Edit Log** in the **ACL Name:** field.

Note:

Add as many rows as needed to define the specific roles and unique access scenarios for your organization's needs.

5. In the first cell in the first row, select **Role in Group**.
6. In the first row in the second cell, select **Validation Administrator in Validation Administration**.
7. In the first row under the Edit icon  , select the option to allow edit .
8. In the first cell in the second row, select **World**.
9. In the second row under the Edit icon  , select the option to revoke edit .



10. Click **Save** .

Add user to Validation Administrator role

If necessary, add user or users to the Validation Administrator role.

1. Open the **Organization** application.
2. Expand **Validation Administration**.
3. Select **Validation Administrator**.
4. Click the **Add User** button.
5. Click **Add existing user to the group/role** or **Add new user to the group/role**.

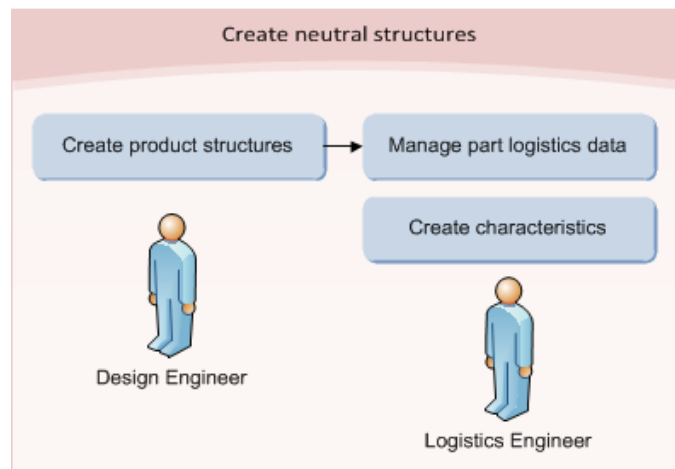
6. Click the **Next** button.
7. Select the user to add, and select the add icon ►.
8. Click the **Finish** button.

5. Creating neutral structures

Creating neutral structures

The *neutral structure* is the item or part structure representing the asset-independent product definition structure. It provides the basis for the physical structure that is generated from the neutral structure. The neutral structure can be created with Structure Manager, Multi-Structure Manager, or imported from your CAD system.

You can populate the neutral structure in a way that is useful for servicing your physical assets. After populating the neutral structure, you can attach other items or datasets to these neutral structure elements. For example, you can attach documents such as design documents, specifications, and service bulletins.



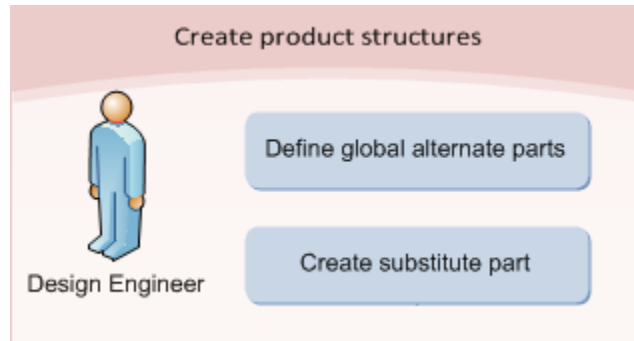
As shown in the figure, the neutral structure tasks include:

- Creating the product structure with valid global alternate and substitute parts by a user such as a design engineer.
- Creating and managing the part logistic data by a user such as a logistics engineer. Part logistics data includes information such as serial and lot definitions and part usages.
- Creating the characteristic definitions by a user such as a logistics engineer.

Creating product structures

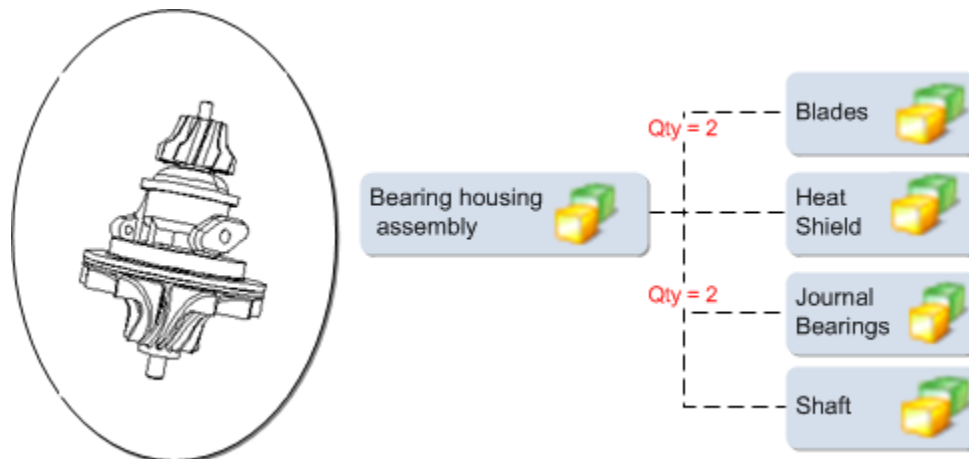
Creating product structures

A user such as a design engineer creates the neutral product structure as well as any substitute or global alternate parts. The following figure shows the product structure tasks.



A neutral structure is the product structure that you create with Structure Manager, Multi-Structure Manager, or import from your CAD system. The product structure, is sometimes referred as the bill of materials (BOM).

The following figure shows an example of a neutral structure for a bearing housing assembly.



Teamcenter allows you to view an indented listing of the assemblies and piece parts that comprise the product structure; the indenting allows you to interpret the relationship between the assemblies and piece parts. The physical structure is generated from the neutral structure.

You can specify *global alternates* of a component, one of which is designated as the preferred global alternate. Global alternates may be used in any product and are not defined in the context of a particular assembly. Global alternates do not require an authorized deviation when installed as a alternate physical part in the as-maintained physical structure.

You can also specify *substitute components*, which are components that can be used interchangeably within an occurrence, typically for manufacturing purposes. The preferred substitute is displayed in the structure. In contrast with global alternates, substitutes may only be used in the context of a particular assembly. Substitute parts do not require an authorized deviation when installed as a substitute physical part in the as-maintained physical structure.












Creating neutral structures

You must create the neutral structure before you can generate the as-maintained physical structure. After you create the structure, you modify it as necessary to reflect any changes to the product design.

Note:

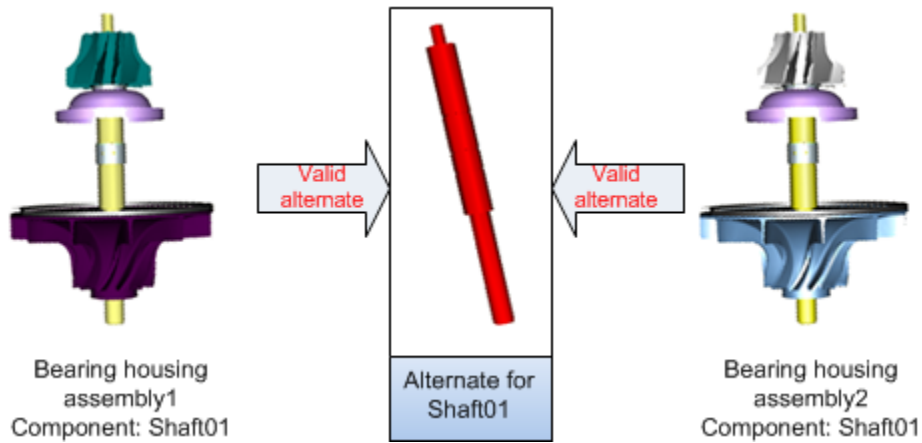
Do not add physical parts to neutral structures in Structure Manager, Multi-Structure Manager, or other BVR applications. Active Workspace cannot handle these types of structures and will produce an error when trying to view them.

The following bill of material is an example of a neutral structure.

-  **BH001/A;1–BH Assembly (view)**
-  **BH012/A;1–Blade Front**
-  **BH013/A;1–Blade Rear**
-   **BH014/A;1–Shaft**
-  **BH015/A;1–Heat Shield**
-  **BH016/A;1–B Housing**
-  **BH017 /A;1–Cover Ring**
-  **BH018 /A;1–Piston**
-  **BH019/A;1–Journal Bearing X 2**
-  **BH020A;1–Retaining Ring**

Defining global alternates

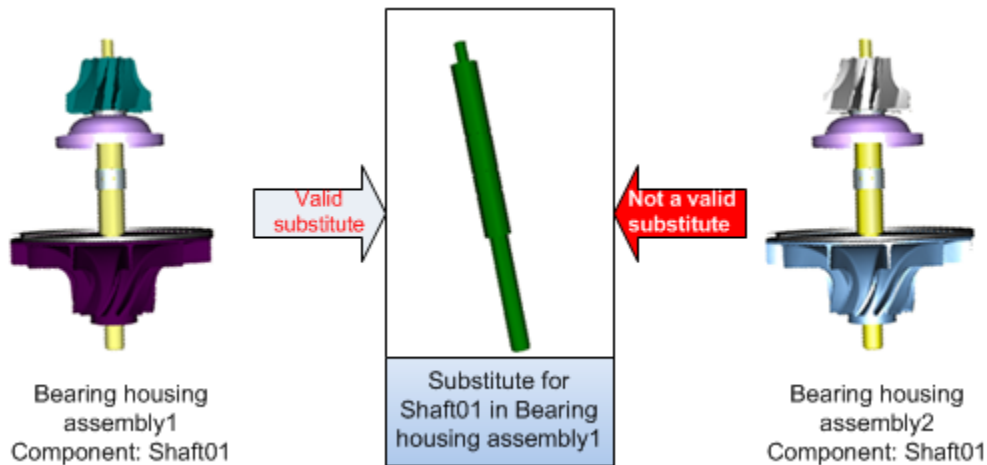
A *global alternate part* is interchangeable with another part in all circumstances, regardless of where the other part is used in the product structure. A global alternate applies to any revision of the part and is independent of any views.

**Note:**

A global alternate part does not require an authorized deviation when installed as an alternate physical part in the as-maintained physical structure.

Defining substitute parts

A *substitute part* is a part that is interchangeable with a particular component in an assembly. Substitutes are often defined for manufacturing purposes, allowing use of the substitute if the preferred part is unavailable, for example, due to a stock shortage.

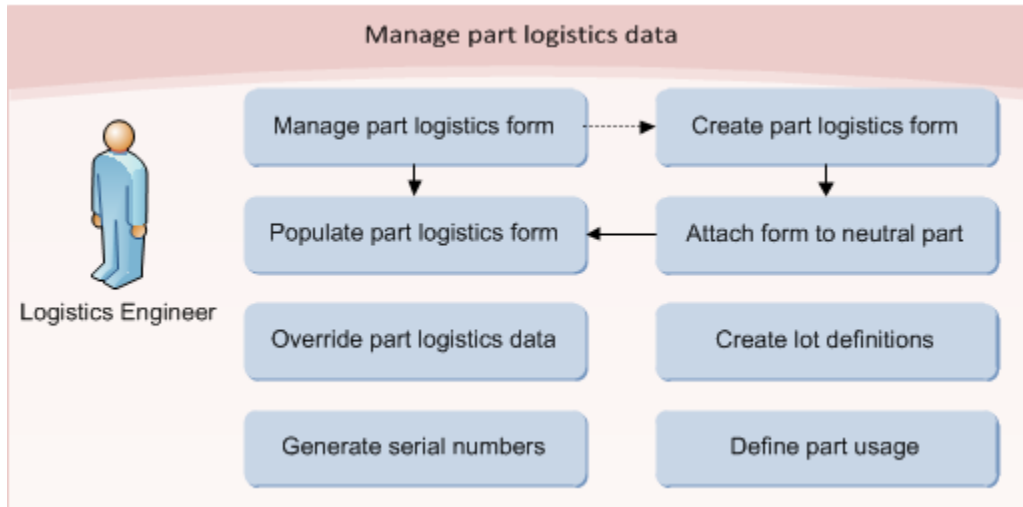
**Note:**

A substitute part does not require an authorized deviation when installed as a substitute physical part in the as-maintained physical structure.

Creating and managing part logistics data

Creating and managing part logistics data

Part logistics data is the logistical information defined for a neutral structure that is used by the generated physical structure. Part logistics data includes information such as serial and lot definitions and part usages. A user such as a logistics engineer populates the part logistic data before the as-maintained physical structure is generated. The following figure shows the part logistic data tasks.



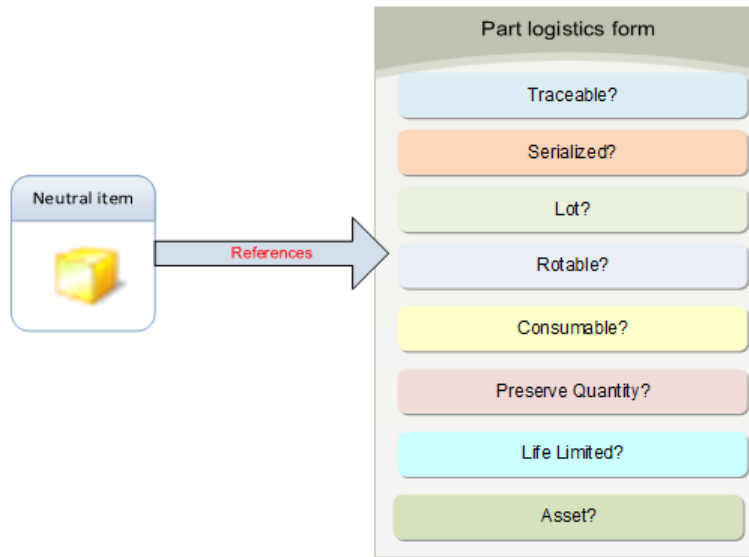
You can create and manage part logistics data by:

- Creating and managing part logistics forms attached to the neutral part.
- Overriding part logistics data in the context of a structure.
- Creating lot definitions for the neutral part used for the generated physical part.
- Creating serial number definitions for the neutral part used for the generated physical part.
- Defining occurrence information for the neutral part that is the part usage for the generated physical part.

Managing part logistics forms

Part logistics form

The *part logistics form* contains some of the logistical information required for the neutral part. It must be attached to the neutral part item using a **References** relation to generate a physical part.

**Note:**

The part logistics form is automatically created and attached to a valid neutral item during neutral item creation, if the `AutoCreatePartLogisticsForm` global constant is **true**. If this constant is **false**, you must manually create and attach part logistics forms to the neutral parts that generate physical parts.

Property	Definition	Default
Traceable	Defines if a physical part will be generated from the neutral part.	true
Serialized	Defines if a physical part requires a serial number.	false
Lot	Defines if a physical part requires a lot number.	false
Rotable	Defines if a physical part can be easily repaired.	false
Consumable	Defines if a physical part can be used and discarded.	false
Preserve Quantity	Defines if one physical part with the quantity defined can represent a multi-quantity neutral part.	false
Life Limited	Defines if a physical part has a finite life.	false
Asset	Defines if a physical part can be tagged as an asset in Maximo and other asset management systems.	false

Note:

This property is specific to an implementation that includes an integration with IBM Maximo or another asset management system.

Manually create a part logistics form

Note:

The part logistics form is automatically created and attached to a valid neutral item during neutral item creation if the **AutoCreatePartLogisticsForm** global constant is **true**. If this constant is **false**, you must manually create and attach part logistics forms to the neutral parts that generate physical parts.

1. From the navigation pane, click **My Teamcenter**.
2. Locate the neutral part you want to create a part logistics form for.
3. Select the neutral part and choose **File → New → Form**.
4. Select **Part Logistics Form** from the list of forms.
5. Enter the following information for the new form.

Field name	Definition	Valid values
Name	Name for the part logistics form.	Alphanumeric (1–128 characters)
Description	Description of the new form (optional).	Alphanumeric (1–240 characters)

6. Click **OK** or **Apply** to create the new form. Click **Cancel** to exit without creating a new form.

The part logistics form is related to the neutral part with a **References** relation.

Note:

If you created the part logistics form without selecting the neutral part, you must relate the form to the neutral part.

Create part logistics form with the `plf_attach` utility

Sometimes items are created without a part logistic form (PLF). The **plf_attach** utility adds the PLF to one or more items at once, which in the case of large structures saves significant time and effort.

In BMIDE, the constant **IsMRONeutralType** must be set to true for the item to be an **MRO Neutral Type**, which is necessary to attach a PLF.

1. Create a text file.

Note:

The name of the file is not important but it does need to be included in the command line.

Either place the text file in the same location as the utility, or include the complete path for the file.

2. Add all of the **item_IDs** of the parts to which you are adding PLFs.

Note:

- If you include a parent in the list of items, Service Lifecycle Management also adds the PLF to the children.
- If any item in the list already has a PLF attached, it is not affected when the utility is executed.
- You can include other multifold key (MFK) attributes.

3. Save the text file.
4. Open a Teamcenter command prompt window.
5. Enter the command to execute the **plf_attach** utility.

Sample command:

```
plf_attach -u=<username> -p=<password> -g=<group> -StructureAttributesDetailsFile=<item-id-filename>.
```

A list of the PLFs created for the parts is displayed, confirming the command executed correctly.

Note:

To see the syntax for the **plf_attach**, see plf_attach utility documentation.

Controlling part definition in Maximo

The following **Part Logistics Form** property settings define how a physical part is identified in Maximo.

Part Logistic Form property settings	Part Status in Maximo
If isTraceable = 1, and if isSerialized = 1, or if isTraceable = 1, and isAsset = 1	Asset
If isTraceable = 1, and if isSerialized = 0, and if isAsset = 0	Spare Part
If isTraceable = 0	Part ignored in Maximo

Display part logistics form properties

To view the part logistics form properties using the **Properties** dialog box:

1. From the tree pane or **Details** table, select the part logistics form that you want to display.
2. Double-click the part logistics form associated to the neutral part.

The properties are displayed.

To view the part logistics form properties using the **Viewer** pane:

1. Select the part logistics form.
2. Click the **Viewer** tab.

The system displays the properties of the part logistics form in the **Viewer** pane.

Edit part logistics form properties


1. From the tree pane or **Details** table, select the part logistics form that you want to display.
2. Double-click the form to display the properties.
3. Click **Checkout and Edit**.
4. Modify the form property values, as required.
5. Click **Save and Check-In** or **Save**.

Edit part logistics data

You edit part logistics data in Service Manager by selecting the BOM line for the neutral part and changing the cell data containing the part logistic value. You can also change part logistics data by **editing the part logistic form properties**.

Using Service Manager, you can change the following part logistic values:

- **Traceable**
- **Serialized**
- **Lot**
- **Rotable**
- **Consumable**
- **Preserve Quantity**
- **Life Limited**
- **Asset**

1. Open the neutral structure in the **Service Editor** view by one of the following methods:
 - From the navigation pane, click **Service Manager**, then from the **Service Editor** view, click **Open by Name** .
 - If you are viewing the structure in the **Structure Manager** view, right-click the structure parent and choose **Send to → Service Manager**.
2. From the **Service Editor** view, select the BOM line containing the neutral part.
 - a. Double-click the cell containing the part logistics value.
 - b. Double-click the cell containing the part logistics value and type the new value.

Override part logistics data in context

You can override part logistics data in the context of the top-level or lower level neutral structures. For example, you may override part logistic data to prevent the generation of a physical part in the context of a specific neutral structure. To override the data, you set the neutral structure in context and override the **Traceable** value from **Y**, which is true, to **N**, which is false for that neutral part in the structure.

The following part logistic values can be changed in the context of a neutral structure:

- **Serialized**
- **Traceable**

- **Consumable**
- **Rotable**
- **Preserve Quantity**
- **Life Limited**
- **Asset**

Note:

The part logistic value **Lot** cannot be changed in the context of a neutral structure.

1. Open the neutral structure in the **Service Editor** view.
2. From the **Service Editor** view, select the bill of materials (BOM) line containing the top-level or lower level parent.
3. Right-click and choose **Toggle in-Context Mode** to set the structure in context.
4. From the **Service Editor** view, select the BOM line containing the neutral part.
 - To override the **Traceable** value, double-click the **Traceable** cell. Type the new value.
 - To override the **Serialized** value, double-click the **Serialized** cell. Type the new value.

Note:

A serial number generator may never be assigned to a non-serial part even though it may be marked serialized in context.

- To override the **Consumable** value, double-click the **Consumable** cell. Type the new value.
- To override the **Rotable** value, double-click the **Rotable** cell. Type the new value.
- To override the **Preserve Quantity** value, double-click the **Preserve Quantity** cell. Type the new value.
- To override the **Life Limited** value, double-click the **Life Limited** cell. Type the new value.
- To override the **Asset** value, double-click the **Asset** cell. Type the new value.

Defining parts for tracking

To track physical parts, you must set the **Traceable** value to **true** to generate physical parts from neutral parts. The value can be changed in the part logistics form.

Note:

Physical parts are not generated for traceable neutral parts that are children of nontraceable parts.

Create a lot definition

Create a lot to group physical parts that are associated in some way, for example, from a particular manufacturer.

A *lot* contains a group of physical parts controlled by the same lot number. You can define the maximum number of parts that a lot can contain. Based on this information, you can assign lot numbers to the physical parts that make up the physical structure.

The lot usage value increments for every physical part assigned to that lot. When the lot usage is more than the maximum number of parts available, the lot cannot be used further. You can also define an expiration date for the lot.

Note:


Lots can be assigned only if the part logistics **lot** property is **true** for the neutral part.

1. Open the neutral structure in the **Service Editor** view.
2. From the **Service Editor** view, select the BOM line containing the neutral part.
3. Right-click and choose **New** → **Lot**.

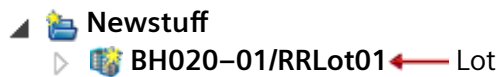
The **New Lot** dialog box appears.

4. Enter the following information for the new lot.

Field name	Definition	Valid values
Lot Number	Unique lot ID number	Alphanumeric (1–32 characters)
Manufacturer's ID	Lot manufacturer ID	Alphanumeric (1–128 characters)
Lot Size	Number of items in the lot	Integer

Field name	Definition	Valid values
	<div style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>If you set the lot size value to 0 (zero) or leave it blank, the lot size is set to infinite.</p> </div>	
Expiration Date	Lot expiration date	Click the Set Date  button and select a date from the calendar.

- Click **OK** to create the lot under the **New Stuff** folder. Alternatively, click **Cancel** to exit.



Create a serial number generator

Serialized physical parts have a unique *serial number* for a given **Manufacturer's ID**. For example, you may have two engines with the same serial number but are manufactured by different companies.

You can type the serial number for the physical part or you can optionally create a serial number generator. The serial number generator is defined for the neutral parts and automatically assigns the serial numbers to the newly created physical parts in the as-maintained physical structure.

Note:

Serial numbers can be assigned only if the part logistics **serialized** property is **true** for the neutral part.

- Open the neutral structure in the **Service Editor** view.
- From the **Service Editor** view, select the BOM line containing the neutral part.
- Right-click and choose **New** → **Serial Number Generator**.

The **New Serial Number Generator** dialog box appears.

- Enter the following information.


Field name	Definition	Valid values
Series Prefix	Prefix for the generated serial number.	Alphanumeric (1–32 characters)
Series Suffix	Suffix for the generated serial number.	Alphanumeric (1–32 characters)
Series Current	Starting numeric value for the generated serial number.	Integer
Series Maximum	Maximum numeric value for the generated serial number.	Integer
Increment	Increment between the generated serial numbers.	Integer
Series Characters	Number of characters for the generated serial number. Numeric values are preceded by zeros to meet the character limit.	Integer

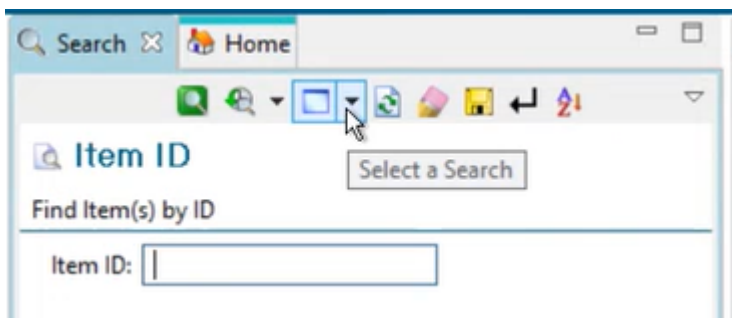
- Click **OK** to create the serial number generator under the **New Stuff** folder. Alternatively, click **Cancel** to exit.



Set or unset generic serial number generator

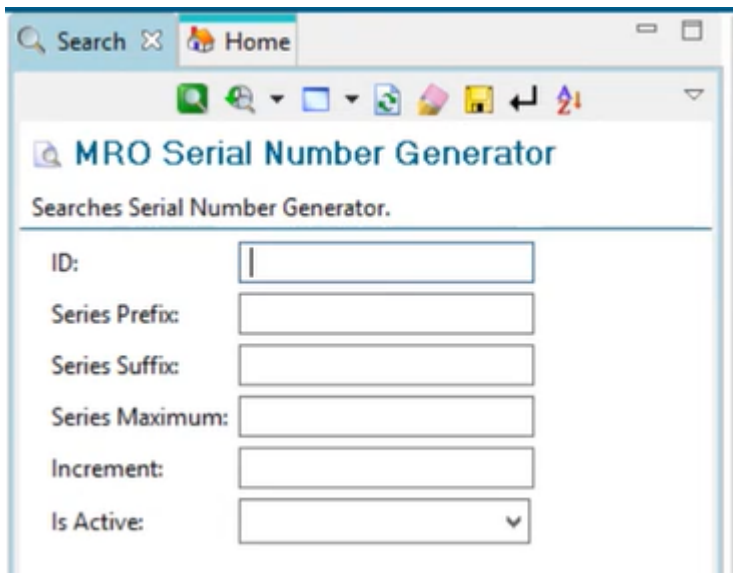
Set a generic serial number generator


- Search for an existing serial number generator using the global search.
- Click **Select a Search** .

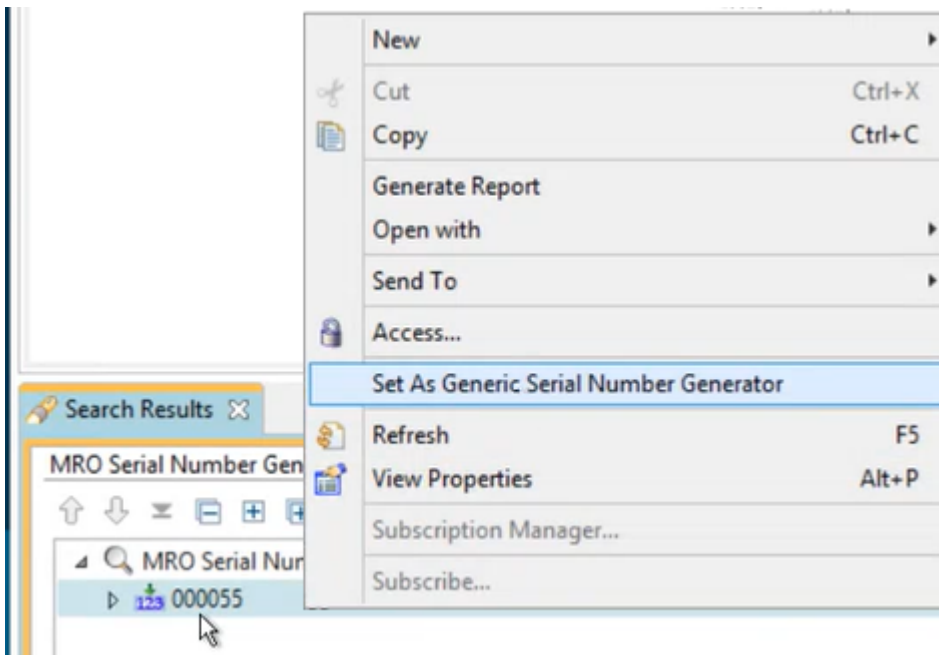


- Select the **MRO Serial Number Generator** search from the list and click **OK**.

4. Add search criteria in the **MRO Serial Number Generator** dialog box.



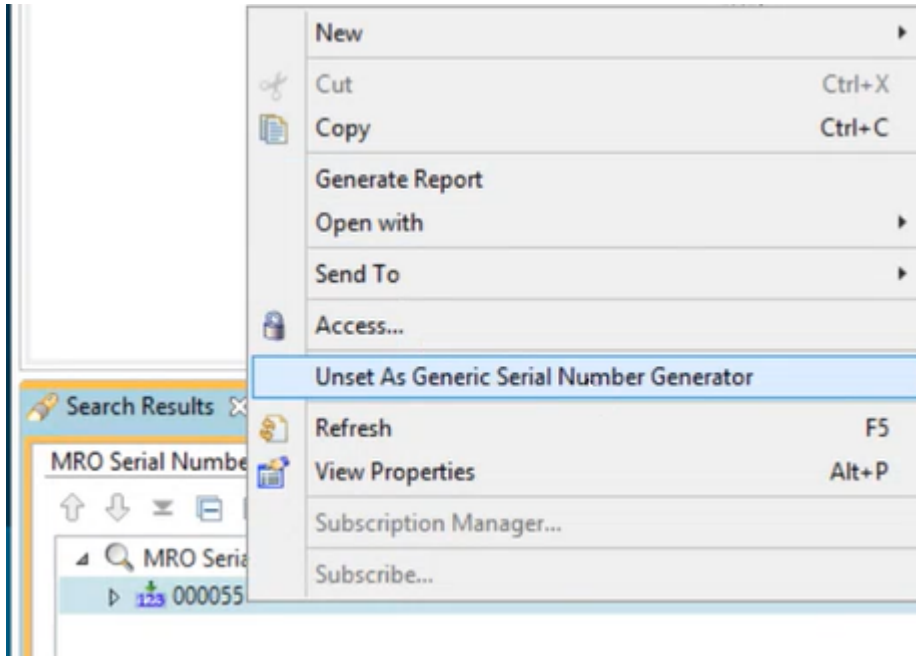
5. Click **Execute Search** .
6. Right-click the desired serial number generator and select **Set As Generic Serial Number Generator**.



If a generic serial number generator is already set, it is now replaced.

Unset a generic serial number generator

1. Search for an existing serial number generator.
2. Right-click any serial number generator and select **Unset Generic Serial Number Generator**.



Note:

Selecting a generic serial number generator that is already set makes the **Unset As Generic Serial Number Generator** option available.

Define part usage

The *usage* of a physical part in an as-maintained structure defines the position that the physical part occupies within the structure. You define the usage of a physical part by:

- Entering a value for the neutral structure occurrence property used to define the physical part **usage**. This can be defined by the **UsageAttributeName** global constant. The default property is set to **occurrence_name**.
 - Defining a naming rule to auto name the occurrences. The **occurrence_name** property can only be used if a naming rule for occurrences has been created.
1. Open the neutral structure in the **Service Editor** view.
 2. From the **Service Editor** view, select the BOM line containing the neutral part.

3.
 - If you use an occurrence naming rule:

Right-click and choose **Name Occurrence**.

- If you do not use an occurrence naming rule:

Double-click the **Occurrence Name** cell and type the usage value.

Note:

The **occurrence_name** property is the default property used to set the usage for the physical part. The **ref_designator** or **seq_no** properties can be used only if the **UsageAttributeName** global constant is set to one of those values.

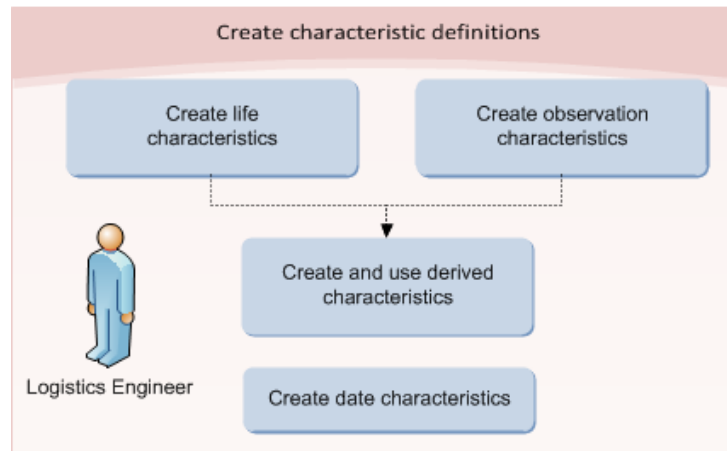
Creating characteristic definitions

Characteristic definition

A *characteristic definition* is information related to a neutral part that is important for service organizations maintaining mission critical assets. You can create characteristic definitions that contain information such as how many hours a part has been used, the date the asset was put into commission, or the operating temperature of the part.

As the following figure shows, you can create characteristic definitions that define life, date, and observation characteristics for a physical part. You can also create derived characteristics which are characteristics values that are calculated by the system based on formulas or expressions. Only life and observation characteristics can be defined as derived characteristics by specifying the evaluation expression.

The characteristic definitions must be assigned to the neutral part. The generated physical part inherits the characteristic definitions that are used for recording utilizations.



Creating characteristic definitions

- Life characteristic definition

A life characteristic defines the individual characteristics that measure the life of a physical part and are cumulated each time they are updated during the life of the physical part. Life characteristics can be propagated throughout an entire physical structure providing the child physical parts share the same life characteristic definitions.

- Date characteristic definition

A date characteristic defines a date when a specific action occurred on a physical part.

- Observation characteristic definition

An observation characteristic defines the operational characteristics observed about a physical part.

- Derived characteristic definition

A derived characteristic value is calculated by the system, and is based on formulas or expressions. You can use existing life or observation characteristics when you define the formula for the derived characteristic.

Create a life characteristic

A *life characteristic* is used to record characteristics that measure the life of a physical part and are cumulated each time they are updated during the life of the physical part.

Note:

Life characteristics are propagated to child parts and assemblies that have the characteristic. If an assembly has a life characteristic, and one of its subassemblies does not have that characteristic

but a child of that subassembly does, then the child part will not record a value because the parent, the subassembly, breaks the propagation chain.

Example:

You may want to track the number of landings for an aircraft using a life characteristic. When the number of landings reaches a specific value, scheduled maintenance on the aircraft is performed.

1. From the navigation pane, click **Service Manager**.
2. Choose one of the following methods:
 - Select a folder where you want to create the new life characteristic.
 - Select one or more neutral parts from your home folder or from the Service Editor view where you want to assign the life characteristic.

3. Choose **File** → **New** → **Life Characteristic**.

The **New Life Characteristic** dialog box appears.

4. Enter the following information for the life characteristic.

Field name	Definition	Valid values
Characteristic Name	Name of the life characteristic	Alphanumeric (1–128 characters)
Unit	Unit of measure for the recorded value	Alphanumeric (1–128 characters)
Precision	The number of decimal places	Integer

5. Click **OK** to create the life characteristic. Alternatively, click **Cancel** to exit.

Create a date characteristic

A *date characteristic* is used to record certain operational characteristics that a technician observes about a physical part. The value of this operational characteristic is a date.

Note:

Date characteristics do not propagate to child parts or subassemblies.

Example:

You may want to capture the commission date or warranty date of a physical part.

1. From the navigation pane, click **Service Manager**.
2. Choose one of the following methods:
 - Select a folder where you want to create the new date characteristic.
 - Select one or more neutral parts from your home folder or from the Service Editor view where you want to assign the date characteristic.
3. Choose **File** → **New** → **Date Characteristic**.

The **New Date Characteristic** dialog box appears.

4. Enter the following information for the date characteristic.

Field name	Definition	Valid values
Name	Name of the date characteristic	Alphanumeric (1–128 characters)

5. Click **OK** to create the date characteristic. Alternatively, click **Cancel** to exit.

Create a numeric observation characteristic

A *numeric observation characteristic* is used to record certain operational characteristics that a technician observes about a physical part. The value of this operational characteristic is numerical.

Note:

Numeric characteristics do not propagate to child parts or subassemblies.

Example:

You may need to record any cracks or record the operating temperature for a specific physical part. When the gap distance or operating temperature exceed certain values, maintenance must be performed.

1. From the navigation pane, click **Service Manager**.
2. Choose one of the following methods:

- Select a folder where you want to create the new observation characteristic.
 - Select one or more neutral parts from your home folder or from the Service Editor view where you want to assign the observation characteristic.
3. Choose **File** → **New** → **Observation Characteristic**.

The **New Observation Characteristic** dialog box appears.

4. Enter the following information for the numeric observation characteristic.

Field name	Definition	Valid values
Characteristic Name	Name of the observation characteristic	Alphanumeric (1–128 characters)
Type of Value	Numeric , Logical, or Textual	
Unit	Unit of measure for the recorded value	Alphanumeric (1–128 characters)
Precision	The number of decimal places	Integer

5. In the **Numeric Expression** box, type the expression or formula for the derived characteristic or click the ► button to use the wizard.
6. Click **OK** to create the observation characteristic. Alternatively, click **Cancel** to exit.

Create a logical observation characteristic

A *logical observation characteristic* is used to record certain operational characteristics that a technician observes about a physical part. The value of this operational characteristic is either a true or false condition. For example, the value of this characteristic for a pump can be on or off.

Note:

Logical characteristics do not propagate to child parts or sub-assemblies.

1. From the navigation pane, click **Service Manager**.
2. Choose one of the following methods:
 - Select a folder where you want to create the new observation characteristic.
 - Select one or more neutral parts from your home folder or from the Service Editor view where you want to assign the observation characteristic.

- Choose **File** → **New** → **Observation Characteristic**.

The **New Observation Characteristic** dialog box appears.

- Enter the following information for the logical observation characteristic.

Field name	Definition	Valid values
Characteristic Name	Name of the observation characteristic	Alphanumeric (1–128 characters)
Type of Value	Numeric, Logical , or Textual	
Value	True or False	Alphanumeric (1–128 characters) The default values, if no other values are entered, are True and False .

- Click **OK** to create the logical observation characteristic. Alternatively, click **Cancel** to exit.

Create a textual observation characteristic

A *textual observation characteristic* is used to record certain operational characteristics that a technician observes about a physical part. Predefined text strings are used to define the value of this operational characteristic.

Note:

Textual characteristics do not propagate to child parts or subassemblies.

Example:

A service engineer needs to record conditions that define a pump failure. Use the textual observation to define a list of values (LOV) such as:

- No power
- Intake blockage
- Impeller frozen
- Motor failed

1. From the navigation pane, click **Service Manager**.
2. Choose one of the following methods:
 - Select a folder where you want to create the new observation characteristic.
 - Select one or more neutral parts from your home folder or from the Service Editor view where you want to assign the observation characteristic.

3. Choose **File** → **New** → **Observation Characteristic**.

The **New Observation Characteristic** dialog box appears.

4. Enter the following information for the logical observation characteristic.

Field name	Definition	Valid values
Characteristic Name	Name of the observation characteristic	Alphanumeric (1–128 characters)
Type of Value	Numeric, Logical, or Textual	
Values	Alphanumeric strings	Alphanumeric (1–128 characters)

5. Click **OK** to create the textual observation characteristic. Alternatively, click **Cancel** to exit.

Create a derived characteristic

Derived characteristic values are calculated by the system, and are based on formulas or expressions. You use existing life or observation characteristics when you define the formula for the derived characteristic. If the expression contains one of the life characteristics, then the characteristic type is life. Otherwise, the type is observation.

Note:

Only derived characteristics that are of the type life are propagated. Also, life characteristics that are included in the derived characteristics are propagated.

Example:

An aircraft engine can have different life characteristics, such as in-flight usage and number of landings, while in use. The actual life of the engine is a combination of these values based on some predefined formulas. You can define a formula to calculate the derived life characteristic value based on the two base life characteristic values that you provide. The derived life characteristic value can then be used for calculating maintenance schedules.

1. From the navigation pane, click **Service Manager**.
2. Create a new life or observation characteristic and fill in the required fields.

Note:

If you want to use a life or observation characteristic in the formula for the derived characteristic, you must create those characteristics before defining the derived characteristic.

3. In the **Derived Expression** box, choose the following methods:
 - a. Type in the expression or formula for the derived characteristic.
 - b. Click the ► button.

The **Expression** dialog box appears.

- A. Enter the following information.

Field name	Definition	Action
Characteristics	Names of existing life or observation characteristics you wish to use in the formula for the derived expression.	Click the ▼ button and select the life or observation characteristic you want to use in the expression. Click Append to append the characteristic definition in the Derived Expression box.
Operations	The Boolean operation you want to use in the expression.	Click the ▼ button and select one of the following operations to use in the expression:

Field name	Definition	Action
		<ul style="list-style-type: none"> • Select + for addition • Select - for subtraction. • Select * for multiplication. • Select / for division. • Select (or) to group expressions. <p>Click Append to append the operation in the Derived Expression box.</p>
Derived Expression	The derived expression is used for the derived characteristic.	Click Append next to the Characteristics and Operations boxes to create your expression or type those values and any other values needed to complete the expression.

B. Click **OK** to create the derived characteristic.

4. Click **OK** to create the life or observation characteristic using the derived characteristic.








Assign characteristics to a neutral part

1. From the navigation pane, click **My Teamcenter** or **Service Manager**.
2. Select the characteristic definition in your home folder.
3. Right-click and choose **Copy**.
4. Select one or more neutral parts from your home folder or from the Service Editor view where you want to assign the characteristic definition.
5. Right-click and choose **Paste**.

Note:

If you are in the Service Editor view, you can also choose **Paste Characteristics** to assign the characteristics.


The characteristic definitions are related to the selected neutral parts, as shown below:

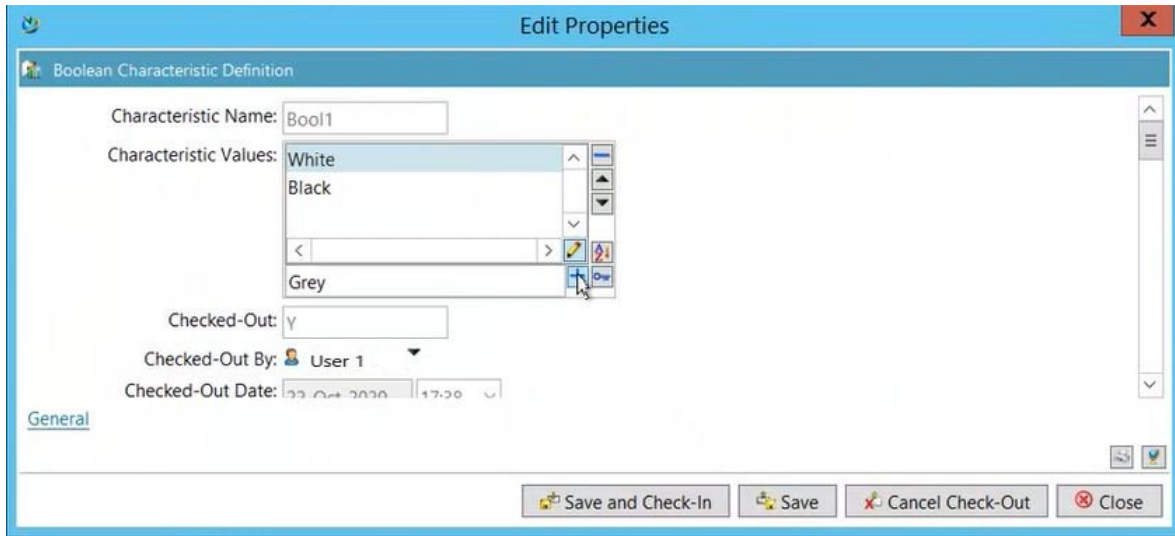
-  **BH001–01–Bearing Housing Assembly**
-   **BH001–01/A;1–Bearing Housing Assembly**
-  **BH001**
-  **EngineHours**
-  **OperatingTemperature**
-  **LastInspectionDate**


Update characteristic definition properties

1. From the navigation pane, click **My Teamcenter** or **Service Manager**.
2. Select the characteristic definition.
3. Right-click and choose **View Properties**.
4. In the **Properties** dialog box, select **Check-Out and Edit** to access the **Edit Properties** dialog box.
5. In the **Edit Properties** dialog box, change the available properties as needed.
6. Click **Save and Check-In**.

Update observation characteristic definition properties

1. From the navigation pane, click **My Teamcenter** or **Service Manager**.
2. Select the observation characteristic definition.
3. Right-click and choose **View Properties**.
4. In the **Properties** dialog box, select **Check-Out and Edit** to access the **Edit Properties** dialog box.
5. In the **Edit Properties** dialog box, select the value to change, and click the **Edit**  icon.



6. Enter a new value and click the **Replace Selected Objects**  icon.
7. Click **Save and Check-In** to change the observation characteristic definition properties.

Delete a characteristic definition

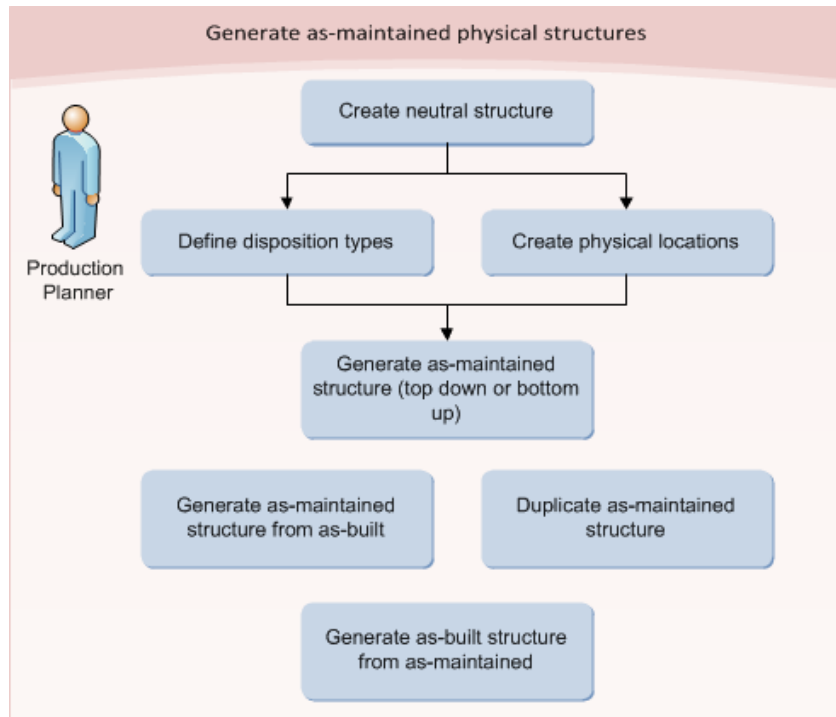
You can delete a characteristic definition if it is not attached to a neutral part.

1. From the navigation pane, click **My Teamcenter** or **Service Manager**.
2. Select the characteristic definition.
3. Choose **Edit** → **Delete**.

6. Generating as-maintained physical structures

Generating as-maintained physical structures

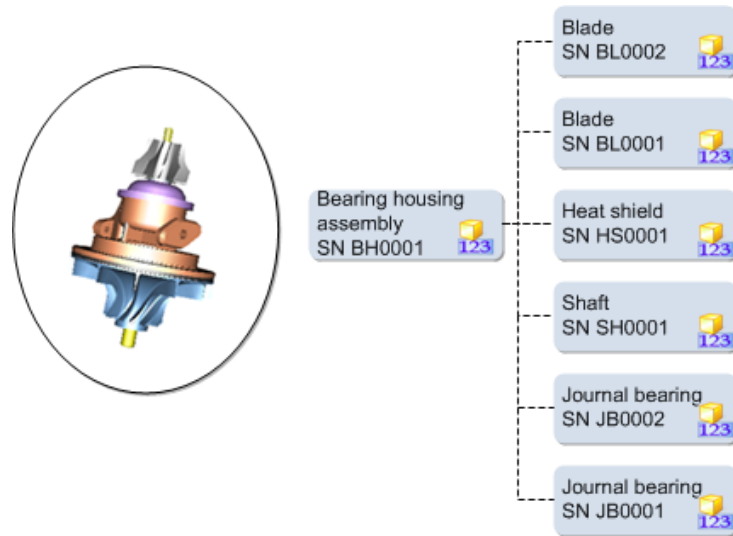
A user, such as a production planner, generates the as-built physical structures.



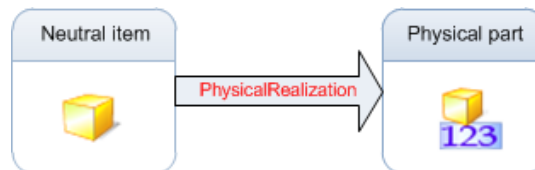
Generating as-maintained physical structures tasks

A *physical structure* refers to an asset's product structure information. Each asset that your organization manufactures or owns can be represented by one physical structure. An as-maintained physical structure evolves as the asset changes over time. This physical structure contains other traceable physical parts that represent the subassemblies and components that make up the asset. Each physical part within the structure links back to the neutral part that provides its engineering and logistics definition. Part logistics information includes if a part is traceable and should be included in the physical structure as well as if the part should have a recorded serial number, lot number, or both.

The following figure shows an example of a physical structure for a bearing housing assembly. In this example, all the physical parts are serialized.



An imprecise structural relationship exists between the as-maintained assembly and the components. The physical parts are related back to the neutral parts with a **PhysicalRealization** relation.



Note:

Physical parts with a green background in the as-maintained structure belong to a precise neutral structure.

The following tasks are required steps before generating an as-maintained physical structure:

- Creating the neutral structure and populating the part logistics information assigned to the neutral parts.
- Defining disposition types by a user such as a logistics engineer.
- Managing the location structures by a user such as an operator.

A user, such as a production planner, can:

- Generate an as-maintained physical structure top down from the top-level neutral structure.
- Generate an as-maintained physical structure bottom up by installing physical parts at various levels in the structure.
- Duplicate an as-maintained physical structure.
- Generate an as-maintained physical structure from an as-built physical structure if you have purchased and have a license for both the As-Built Manager and the Service Manager (as-maintained) applications.
- Generate an as-built physical structure from an as-maintained physical structure if you have purchased and have a license for both the As-Built Manager and the Service Manager (as-maintained) applications.

Note:

The sequence of the parts in the original structure is maintained in the new structure.

Structure alignment maintained from old structure to new structure

There are a number of ways that you generate or duplicate a structure. The order of the parts in the new structure is aligned with the order of the parts in the old structure. The **Find No.** is the value that controls the order.

BOM Line	Quantity	Find No.	Item Description	EOC -
CAR0117/A:1-car_assy			car_assy	True
CAR0135/A:1-chassis_pan		10	chassis_pan	True
CAR0116/A:1-rear_wheel x 2	2	20	rear_wheel	True
CAR0131/A:1-left_pinion		30	left_pinion	True
CAR0120/A:1-rack		40	rack	True
CAR0122/A:1-front_spoiler		50	front_spoiler	True
CAR0115/A:1-body		60	body	True
CAR0124/A:1-right_pinion		70	right_pinion	True
CAR0119/A:1-front_spring x 2	2	80	front_spring	True
CAR0121/A:1-front_wheel x 2	2	90	front_wheel	True
CAR0118/A:1-power_pack_assy		100	power_pack_assy	True
CAR0128/A:1-power_pack		10	power_pack	True
CAR0129/A:1-rack_spur_gear		20	rack_spur_gear	True
CAR0127/A:1-gear_set_3		30	gear_set_3	True
CAR0126/A:1-gear_set_2		40	gear_set_2	True
CAR0125/A:1-gear_set_1		50	gear_set_1	True
CAR0134/A:1-rear_axle_assy		110	rear_axle_assy	True
CAR0132/A:1-rear_axle		10	rear_axle	True
CAR0123/A:1-rear_diff		20	rear_diff	True
CAR0133/A:1-rear_drive_gear		30	rear_drive_gear	True

Methods to generate or duplicate a structure:

- Generate an as-built structure from a neutral structure

- Generate an as-maintained structure from a neutral structure
- Generate an as-built structure from an as-maintained structure
- Generate an as-maintained structure from an as-built structure
- Duplicate an as-built structure
- Duplicate an as-maintained structure

The example shows an as-built structure and its duplicate. The order of the physical parts is maintained.

As-Built Structure	Item Type	Part Used
CAR0117/A500-A	Physical Part	-
CAR0135/--A	Physical Part	Preferred
CAR0116/--A	Physical Part	Preferred
CAR0116/--A	Physical Part	Preferred
CAR0131/--A	Physical Part	Preferred
CAR0120/--A	Physical Part	Preferred
CAR0122/--A	Physical Part	Preferred
CAR0115/--A	Physical Part	Preferred
CAR0124/--A	Physical Part	Preferred
CAR0119/--A	Physical Part	Preferred
CAR0119/--A	Physical Part	Preferred
CAR0121/--A	Physical Part	Preferred
CAR0121/--A	Physical Part	Preferred
CAR0118/--A	Physical Part	Preferred
CAR0134/--A	Physical Part	Preferred

As-Built Structure	Item Type	Part Used
CAR0117/A300-A	Physical Part	-
CAR0135/--A	Physical Part	Preferred
CAR0116/--A	Physical Part	Preferred
CAR0116/--A	Physical Part	Preferred
CAR0131/--A	Physical Part	Preferred
CAR0120/--A	Physical Part	Preferred
CAR0122/--A	Physical Part	Preferred
CAR0115/--A	Physical Part	Preferred
CAR0124/--A	Physical Part	Preferred
CAR0119/--A	Physical Part	Preferred
CAR0119/--A	Physical Part	Preferred
CAR0121/--A	Physical Part	Preferred
CAR0121/--A	Physical Part	Preferred
CAR0118/--A	Physical Part	Preferred

Quantity preserved from neutral structure to new structure

When you create an as-maintained structure from a neutral structure, you can control the display of parts that have a quantity greater than one, in the new structure. This becomes especially important when you work on very large structures and on structures imported into Teamcenter from a CAD system.

For example, a wheel assembly includes multiple nuts. When the structure is imported, each nut is represented by a single line in the neutral structure. The existence of multiple lines for one part clutters the structure, making it difficult to find specific parts throughout the structure.

Using the property **Preserve Quantity**, you control the way these occurrences are displayed when you create a physical structure.

- If **Preserve Quantity** is set to **True** (1), the parts are displayed in the physical structure as one packed node (2).

Note:

If **Preserve Quantity** is set to **True** on a parent node, all children nodes with multiple occurrences are also packed because they inherit the value from the parent.

An as-maintained structure generated from a neutral structure with **Preserve Quantity** set to **True** on the **029889/--A-Nut** part:

As-Maintained Structure	Item Type	Part Used	Usage	Net Usage	Serial Number	Lot Number	Part Number
029885/--A-Car	Physical Part	-	-	1	-	-	029885
029886/--A-Engine	Physical Part	Preferred	-	1	-	-	029886 24
029887/--A-Transmission	Physical Part	Preferred	-	1	-	-	029887 24
029888/--A-Wheel	Physical Part	Preferred	-	1	-	-	029888 24
029889/--A-Nut	Physical Part	Missing	-	4	-	-	029889 24
029888/--A-Wheel	Physical Part	Preferred	-	1	-	-	029888 24
029888/--A-Wheel	Physical Part	Preferred	-	1	-	-	029888 24
029888/--A-Wheel	Physical Part	Preferred	-	1	-	-	029888 24

Neutral Structure	Item Type	Preserve Quantity	Lot	Occurrence Name	Net Usage
029885/A;1-Car	Part	False	False		
029886/A;1-Engine	Part	False	False		
029890/A;1-Crankshaft x 2	Part	True	False		2
029887/A;1-Transmission	Part	False	False		
029888/A;1-Wheel	Part	False	False		
029889/A;1-Nut	Part	True	True		
029889/A;1-Nut	Part	True	True		
029889/A;1-Nut	Part	True	True		
029889/A;1-Nut	Part	True	True		

- If **Preserve Quantity** is set to **False**, the parts are displayed with multiple nodes, one node for each part occurrence.

Defining disposition types

Create a disposition type

Disposition types are classified as operational or nonoperational depending on the state of the physical part. As an administrator, you define the disposition types for physical parts. For example, you may want

to create a operational disposition type called **Issueable** and a nonoperational disposition type called **In-Repair**.

A default operational disposition called **In-Service** is already predefined in the system.

1. From the navigation pane, click **Service Manager**.
2. Select a folder where you want to create the new disposition.
3. Choose **File** → **New** → **Disposition Type**.

The **New Disposition Type** dialog box appears.

4. Enter the following information for the new disposition type.

Field name	Definition	Valid values
Disposition Value	Name of the disposition type.	Alphanumeric (1–128 characters)

5. Select the **Operational** check box to specify the physical part is serviceable in the new disposition state.
6. Select the **Is Active** check box to specify the disposition is an active disposition type and can be used as a valid disposition type when generating an as-maintained structure.
7. Click **OK** to create the new disposition type. Alternatively, click **Cancel** to exit.

Update disposition type properties

1. From the navigation pane, click **My Teamcenter** or **Service Manager**.
2. Select the disposition type.
3. Right-click and choose **View Properties**.
4. In the **Properties** dialog box, change the available properties.
5. Click **OK** or **Apply** to change the disposition type properties. Alternatively, click **Cancel** to exit.

Delete a disposition type

You can delete a disposition if it is not referenced by a physical part.

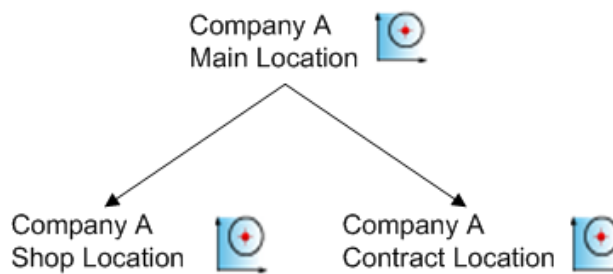
1. From the navigation pane, click **My Teamcenter** or **Service Manager**.
2. Select the disposition type.
3. Choose **Edit** → **Delete**.

Managing physical location structures

Managing physical location structures

A *physical location* is an area where physical parts are stored. A location can be a site, region, inventory, customer, contractor, or shop. Locations can be of various types and as an administrator, you define location types based on your requirements. You can relate locations to one another because of their structured nature. The locations are assigned to the physical parts when you create the as-maintained structure. You must set preferred locations before generating the as-maintained physical structure.

The following figure shows an example of a location structure.



The following location types are provided with the As-Maintained Management application:

- **Contractor**
- **Customer**
- **In-Service**
- **Inventory**
- **Region**
- **Shop**
- **Site**

You can define additional physical location types by configuring the **Physical Location Type** LOV.

Creating physical locations and location structures

Creating physical locations

You create physical locations and physical location structures according to your requirements and assign the physical parts to the locations when creating the as-maintained structure. A location structure is comprised of sublocations created in the context of a parent location.

You can optionally link a physical location to a defined company location. The physical location will display the properties of the company location such as **Street**, **City**, and **State**.

Create a physical location

1. From the navigation pane, click **Service Manager**.
2. Select the folder where you want to create the location.
3. Choose **File** → **New** → **Physical Location**.


The **New Business Object** dialog box appears.

4. Select **Physical Location** from the list and click **Next**.
5. Enter the following information for the physical location.

Field name	Definition	Valid values
ID	Unique ID for the physical location (required). If blank, the ID is automatically assigned.	Alphanumeric (1–128 characters)
Revision	Revision for the physical location (required). If blank, the revision is automatically assigned.	Alphanumeric (1–32 characters)
Location Name	Name for the physical location (required).	Alphanumeric (1–128 characters)
Location Type	The type of physical location (required).	Types are defined by the Physical Location Type LOV.
Description	Description of the physical location.	Alphanumeric (1–240 characters)

- Click **Finish** to create the physical location.

Create a physical location structure

- From the navigation pane, click **Service Manager**.
- Choose **Window** → **Show View** → **Service Editor**.
- From the **Service Editor** view, click **Open by Name**  to open the physical location where you want to create the sublocation.
- Select the physical location where you want to add the sublocation.
- Choose **File** → **New** → **Physical Location**.


The **New Business Object** dialog box appears.

- Select **Physical Location** and click **Next**.
- Enter the following information for the physical location.

Field name	Definition	Valid values
ID	Unique ID for the physical location (required). If blank, the ID is automatically assigned.	Alphanumeric (1–128 characters)
Revision	Revision for the physical location (required). If blank, the revision is automatically assigned.	Alphanumeric (1–32 characters)
Location Name	Name for the physical location (required).	Alphanumeric (1–128 characters)
Location Type	The type of physical location (required).	Types are defined by the Physical Location Type LOV.
Description	Description of the physical location.	Alphanumeric (1–240 characters)

- Click **Finish** to create the physical sublocation.

The sublocation is created under the parent location.

 **Fort Chesternn**

 **Fort Chester Shopnn** ← sublocation


Link a company location to physical location

1. From the navigation pane, click **My Teamcenter** or **Service Manager**.
2. Select the company location you want to link to the physical location.
3. Right-click and choose **Copy**.
4. Select the physical location.
5. Right-click and choose **Paste**.

Physical Location Structure	Street	City
 Fort Chesternn	200 Fort Chester Lane	New York


Set a preferred physical location

You must set a preferred location before generating the as-maintained physical structure. You can set more than one preferred location.

1. Select the physical location by one of the following methods:
 - From the navigation pane, click **My Teamcenter**.
 - Select the physical location.
 - Click **Service Manager**.
 - a. Choose **Window** → **Show View** → **Service Editor**.
 - b. From the **Service Editor** view, click **Open by Name**  to open the physical location.
 - c. Select the physical location.
2. Right-click and choose **Set Preferred Physical Location**.

Unset a preferred physical location

1. Select the physical location by one of the following methods:

- From the navigation pane, click **My Teamcenter**.
 - Select the physical location.
- Click **Service Manager**.
 - a. Choose **Window** → **Show View** → **Service Editor**.
 - b. From the **Service Editor** view, click **Open by Name**  to open the physical location.
 - c. Select the physical location.
- 2. Right-click and choose **Unset Preferred Physical Location**.

Delete a location

You can delete a location if it has no sublocations or related physical parts.

1. From the navigation pane, click **My Teamcenter** or **Service Manager**.
2. Select the physical location.
3. Choose **Edit** → **Delete**.

Remove a location

You can remove a sublocation from a location structure.

1. From the navigation pane, click **Service Manager**
2. Choose **Window** → **Show View** → **Service Editor**.
3. Select the physical location structure where you want to remove a sublocation.
4. Right-click and choose **Show in Service Editor**.
5. From the **Service Editor** view, select the physical sublocation line in the containing the parent physical location.
6. Right-click and choose **Remove**.

Generate a partial or entire as-maintained structure (top down)



1. Open the neutral structure in the **Service Editor** view.

2. Configure the neutral structure by setting revision rules and/or variant rules.
3. From the **Service Editor** view, select the top-level part from the neutral structure.
4. Right-click and choose **Generate As-Maintained Structure**.

Teamcenter displays the **Generate As-Maintained Structure** dialog box.

5. Enter the following information.

Field name	Definition	Valid values
Serial Number	<p>Serial number for the generated physical part.</p> <p>This field is optional or unavailable in the following situations:</p> <ul style="list-style-type: none"> • Optional if a serial number generator or a generic serial number generate is defined for the neutral part. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Note:</p> <p>See Serial number generator and generic serial number generator for more information on the behavior of these number generators.</p> </div> <ul style="list-style-type: none"> • Unavailable if the Serialized property is set to false in the part logistics form that is attached to the neutral part. <p>Select Use Serial Number Generator to generate the serial number according to the parameters of a serial number generator.</p>	Alphanumeric (1–128 characters)
Lot Number	<p>Lot number for the generated physical part.</p> <p>You must first create the lot for the neutral part.</p>	Alphanumeric (1–128 characters)


Field name	Definition	Valid values
	The Lot list is unavailable if the Lot property is set to false in the part logistics form that is attached to the neutral part.	
Manufacturer's ID	Manufacturer of the physical part. The Manufacturer's ID box is automatically populated if you entered a lot number.	Alphanumeric (1–128 characters)
Structure Context Name	The name of the structure context used to store the neutral product configuration information. The structure context name is automatically named with the part number of the neutral part. If the part is serialized and you type the serial number in the Serial Number box, the structure context name is automatically named using part number/serial number. You can use these values or type in a new value.	Alphanumeric (1–128 characters)
Manufacturing Date	Manufacturing date for physical structure. The manufacturing date must be <i>before</i> the installation date.	Click the Set Date  button and select a date from the calendar.
Installation Time	Installation date for physical structure. The installation date must be <i>after</i> the manufacturing date.	Click the Set Date  button and select a date from the calendar.
Location Name	The location of the physical part.	Alphanumeric (1–128 characters)
Disposition Value	Disposition of the physical part.	Alphanumeric (1–128 characters)
	<p>Note:</p> <p>If the Disposition_Propagate_To_Child preference is set to true, the disposition is also applied to the children parts of the structure.</p>	

Field name	Definition	Valid values
Number of Levels	Number of levels to be generated for the physical structure. If you want to generate physical parts for the <i>entire</i> structure, type All in the Number of Levels box.	Integer or All
Quantity	<p>Number of physical parts to generate for the top-level part.</p> <p>If it is a lot part, the quantity, if a whole number, is deducted from the lot. If the quantity is not a whole number, it is not deducted from the lot.</p> <p>To set the quantity, the Preserve Quantity property for the neutral part must be set to true.</p>	Number

- If you have defined a serial number generator for the neutral part, select the **Use Serial Number Generators** check box to enable it. The **serial number generator** automatically creates serial numbers for all the parts within the as-maintained physical structure that have defined serial number generators. If you have defined a generic serial number generator, the serial number will be created for the serialized parts for which the serial number generator is not defined, and you will be informed that generic serial number generator is being used.


Generate As-Maintained Structure

** Leave Installation date field blank to set to current Date **

Part :  002081-LegPart ▼*

Serial Number :

Use Serial Number Generators

 002081-LegPart ▼* will be used to generate serial numbers for serialized parts which do not have attached SNG

Lot :

Manufacturer's ID : *

Structure Context Name: 002081*

Manufacturing Date : dd-mmm-yyyy

Installation Time : dd-mmm-yyyy

Location Name : *

Disposition Value : In-Service ▼*

Number of Levels: All*












Preserve Quantity Parts Only

Quantity:

OK Cancel

- Click **OK** to generate the as-maintained physical structure or click **Cancel** to exit.

The physical structure is generated from the neutral structure.

-  BH001-nn/MTrucknn-A
 -  BH012-nn/A
 -  BH013-nn/A
 -  BH014-nn/SHnn-001-A
 -  BH015-nn/A
 -  BH016-nn/A
 -  BH017-nn/A
 -  BH018-nn/A
 -  BH019-nn/JBnn-001-A
 -  BH019-nn/JBnn-002-A
 -  BH020-nn/A

Serial number generator and generic serial number generator

A serial number generator applies unique serial numbers for a given manufacturer, for parts designated as serialized. You can use either of the two types of number generators, the *serial number generator* or the *generic serial number generator*. The two types of serial number generators are different in the way that serial numbers are applied to newly created physical parts from neutral structures.

Serial number generator behavior

A serial number generator (SNG) is applied to an individual part in a neutral structure. If that part has the serialized parameters set to true, the SNG is applied when you generate a physical structure.

Neutral Structure	Item Type	Occurrence Na...	Quantity	Unit Of Mea...	Traceable	Serialized
000055/A;1-A_Car1	Part				True	True
000132/A;1-Body	Part			each	True	True
000134/A;1-Door	Part			each	True	True
000135/A;1-Dashboard	Part			each	True	True
000133/A;1-Engine	Part			each	True	True
000136/A;1-Controller Unit	Part			each	True	True

(1) Part to which an SNG is applied.

As-Maintained Structure	Item Type	Part Used	Usage	Serial Number
000055/SP2310SS2-A	Physical Part		-	SP2310SS2
000132-A	Physical Part	Missing		
000134-A	Physical Part	Missing		
000135-A	Physical Part	Missing		
000133-A	Physical Part	Missing		
000136/p01s-A	Physical Part	Preferred		p01s

(2) Physical part created with SNG applied.

(3) Serial number assigned via SNG.

Generic serial number generator behavior

A generic SNG, once set, is applied globally to all parts generated from the neutral structure.

Note:

If an individual part has an SNG applied and a generic SNG is subsequently set, the individual part SNG takes precedent. Therefore it is important to apply SNGs for individual parts before you apply a generic SNG.

Neutral Structure	Item Type	Occurrence Na...	Quantity	Unit Of Mea...	Traceable	Serialized
000055/A;1-A_Car1	Part				True	True
000132/A;1-Body	Part			each	True	True
000134/A;1-Door	Part	4		each	True	True
000135/A;1-Dashboard	Part			each	True	True
000133/A;1-Engine	Part			each	True	True
000136/A;1-Controller Unit	Part			each	True	True

(4) Neutral structure and a generic SNG has been set.

As-Maintained Structure	Item Type	Part Used	Usage	Serial Number
000055/SP2311SS2-A	Physical Part		-	SP2311SS2 7
000132/p02s-A	Physical Part	Preferred		p02s
000134/p03s-A	Physical Part	Preferred	5	p03s
000135/p04s-A	Physical Part	Preferred		p04s 6
000133/p05s-A	Physical Part	Preferred		p05s
000136/p06s-A	Physical Part	Preferred		p06s

(5) Physical structure generated with a generic SNG set.

(6) Serial numbers assigned via generic SNG.

(7) Physical part created with generic SNG set; however, an SNG had previously been applied to the part in the neutral structure.

Build an as-maintained physical structure (bottom up)

You can build an as-maintained physical structure by **installing existing physical parts** in the structure.

Create configured as-maintained structure using variants

Configure neutral structures

Service Lifecycle Management supports the creation of physical structures based on specific optional product features. You use the Teamcenter Product Configurator to define various options.

Note:

To learn more about the Siemens Digital Industries Software Product Configurator, refer to the documentation for the **Product Configurator**.

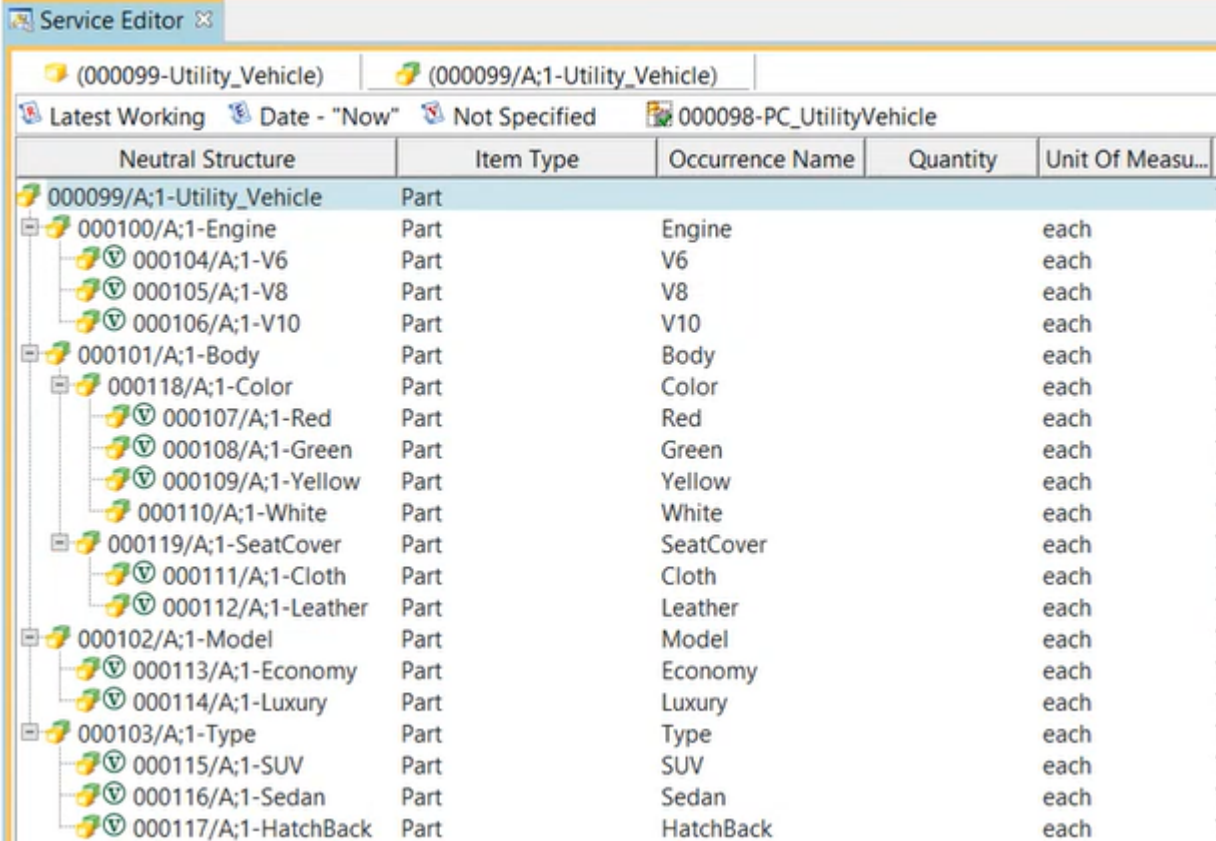
You create a configured neutral structure, or service bill of materials (sBOM), by applying variants before you create as-built and as-maintained physical structures and service plans.

Once the physical structure is created, there is no association to the configured sBOM. This means that any subsequent changes to the sBOM configuration are not reflected in the physical structure.

Create configured as-maintained structure

You create a configured as-maintained structure by first configuring variants on the neutral structure, or service bill of materials (sBOM).

1. Open a neutral structure that contains variants in Service Manager.

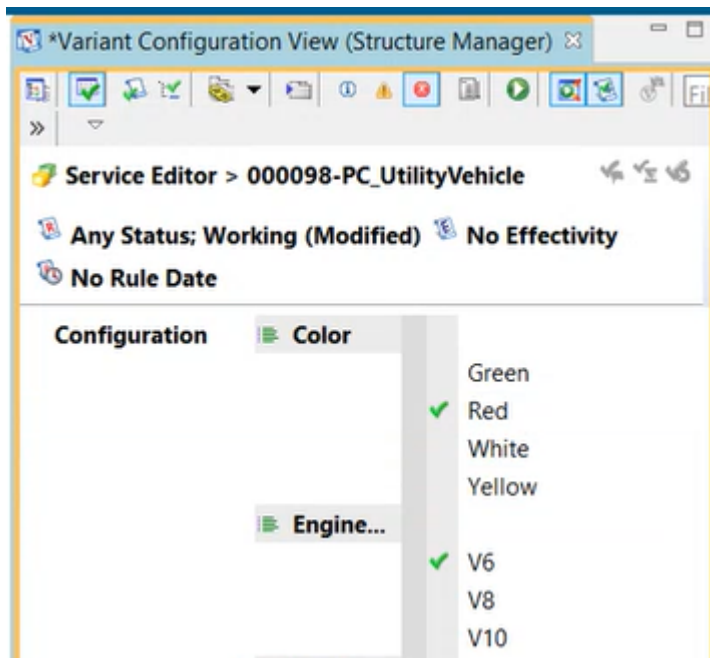



Neutral Structure	Item Type	Occurrence Name	Quantity	Unit Of Measu...
000099/A;1-Utility_Vehicle	Part			
000100/A;1-Engine	Part	Engine		each
000104/A;1-V6	Part	V6		each
000105/A;1-V8	Part	V8		each
000106/A;1-V10	Part	V10		each
000101/A;1-Body	Part	Body		each
000118/A;1-Color	Part	Color		each
000107/A;1-Red	Part	Red		each
000108/A;1-Green	Part	Green		each
000109/A;1-Yellow	Part	Yellow		each
000110/A;1-White	Part	White		each
000119/A;1-SeatCover	Part	SeatCover		each
000111/A;1-Cloth	Part	Cloth		each
000112/A;1-Leather	Part	Leather		each
000102/A;1-Model	Part	Model		each
000113/A;1-Economy	Part	Economy		each
000114/A;1-Luxury	Part	Luxury		each
000103/A;1-Type	Part	Type		each
000115/A;1-SUV	Part	SUV		each
000116/A;1-Sedan	Part	Sedan		each
000117/A;1-HatchBack	Part	HatchBack		each

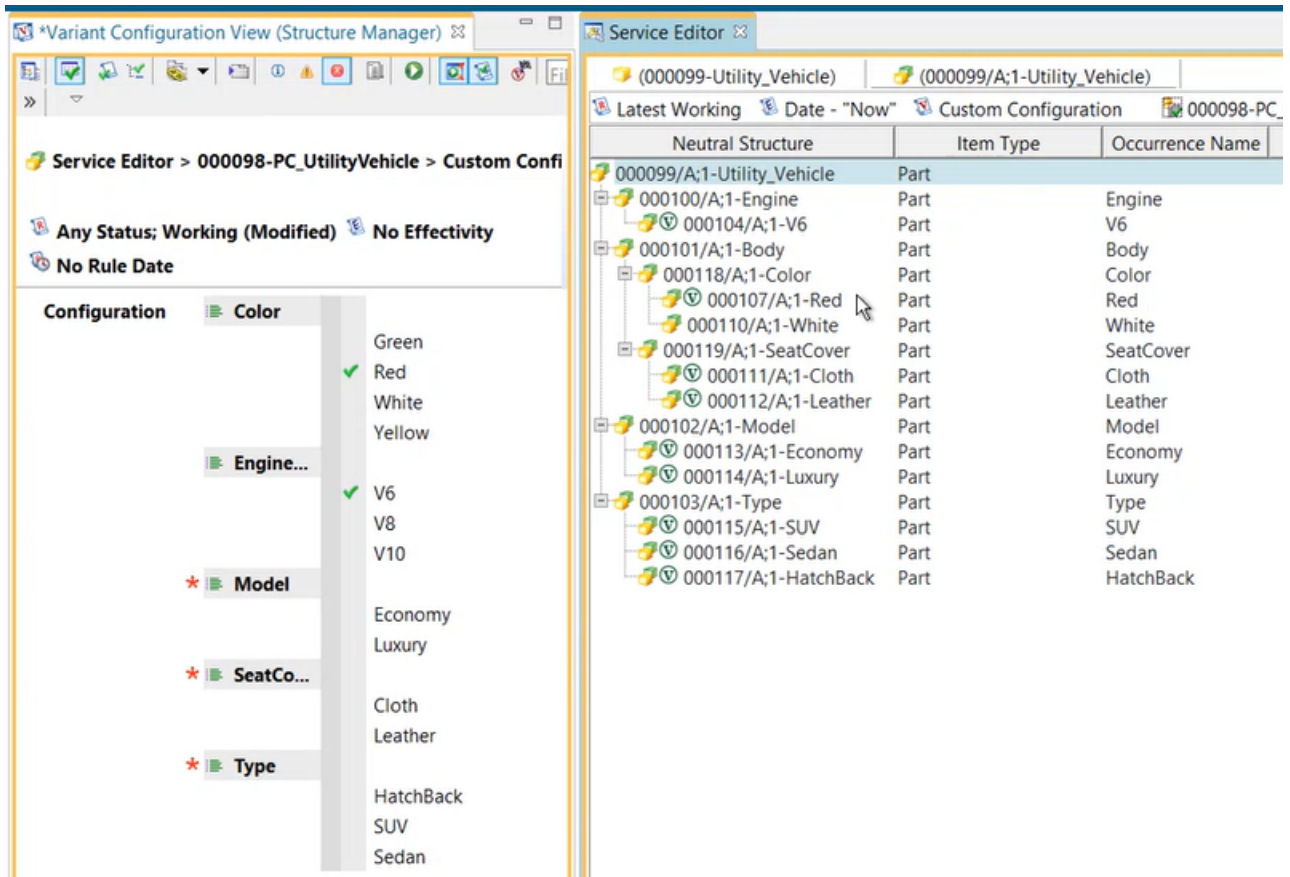
2. Apply variants by choosing **Tools** → **Variants** → **Configure Variants**.

The **Variant Configuration View (Structure Manager)** page is displayed. It contains the variants that are included in the sBOM.

3. Select the variants you want to apply, such as engine size, color, or model.



4. Click the arrow  to apply the current configuration to the associated structure.
5. To update the sBOM to reflect the chosen variants, choose **View** and click **Show Unconfigured Variants** to deselect it.



- To create the configured as-maintained structure, right click the root node of the sBOM, and choose **Generate As-Maintained Structure**.
- Enter the required information in the **Generate As-Maintained Structure** dialog box and click **OK**.
- (Optional) Right-click the root node and choose **Expand Below** to see all of the parts in the configured as-maintained structure.

Note:

The as-maintained structure configuration matches the configuration of the configured sBOM.

Apply saved variant rules to the sBOM

You can also create a configured sBOM by applying saved variant rules.

- Highlight the root node of the sBOM and choose **Tools** → **Variants** → **Apply Saved Variant Rules**.

The **Search and Load Variant Rule(s)** dialog box is displayed.

2. Enter search criteria and click **Search**.
3. Choose a saved variant rule and click **OK**.

The sBOM is configured according to the saved variant rule.


4. To create the configured as-maintained structure, highlight the root node of the sBOM and right-click, and choose **Generate As-Maintained Structure**.
5. Enter the required information in the **Generate As-Maintained Structure** dialog box and click **OK**.
6. (Optional) Right-click the root node and choose **Expand Below** to see all of the parts in the configured as-maintained structure.

Note:

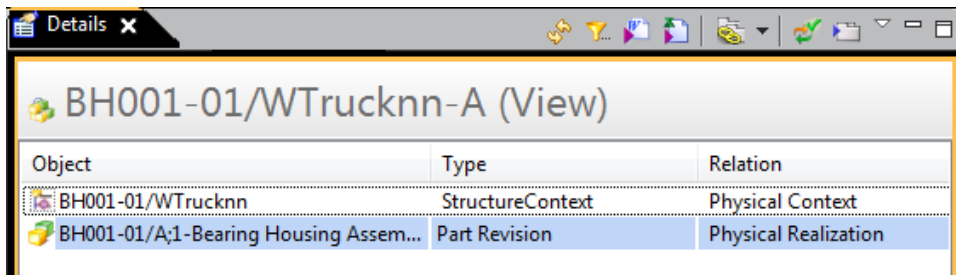
The as-maintained structure configuration matches the configuration of the configured sBOM.

View the neutral structure details

You can view the neutral structure and the structure context information from which the physical structure is realized.

1. From the navigation pane, click **Service Manager**.
2. Click **Open by Name**  to open the physical structure or part.
3. Select the physical structure parent part.
4. Right-click the physical part and choose **Open with** → **Details**.

The **Details** pane appears at the bottom and displays the neutral structure and context information used to generate the physical structure.



Object	Type	Relation
BH001-01/WTrucknn	StructureContext	Physical Context
BH001-01/A;1-Bearing Housing Assem...	Part Revision	Physical Realization

5. In the **Details** pane, select the neutral structure.

6. Right-click and choose **View Properties**.

The properties of the neutral structure from which the physical structure is realized, are displayed.

7. Click **Cancel** to close the properties window.
8. In the **Details** pane, select the structure context.
9. Right-click and choose **Send to → Multi-Structure Manager**.

The neutral structure is displayed in Multi-Structure Manager. Multi-Structure Manager displays the configured variants and options that were used when generating the physical structure.

Duplicate an as-maintained structure


You can duplicate an as-maintained physical structure to create a copy of an existing physical structure. The copied physical structure contains the installed alternate, substitute, deviated, and extra to design parts from the original structure.



When you duplicate an as-maintained physical structure, the following occurs:

Note:

The sequence of the parts in the original structure is maintained in the new duplicated structure.

- The duplicate physical structure uses the same structure context as the original structure.
- The duplicate physical structure is validated for a unique serial number and manufacturing ID, if those values are entered.
- The child parts of the duplicate physical structure inherit the manufacturing ID from the parent.
- The **Part Used** column for all the child parts of the duplicate physical structure is set to **Missing** except in the following cases where the **Part Used** is set to **Preferred**:
 - Parts that do not require a serial or lot number.
 - Serialized parts that have a serial number generator.
- The deviated parts in the original structure are:
 - Copied to the duplicate physical structure, if the **ReUseAuthorizedDeviation** global constant is set to **True**, to reuse the same deviation.
 - Ignored and the preferred parts are used in the duplicate physical structure, if the **ReUseAuthorizedDeviation** global constant is set to **False**.

1. From the navigation pane, click **Service Manager**.
2. Click **Open by Name**  to open the as-maintained physical structure or physical part that you want to copy.
3. Select the top-level part from the physical structure if you want to duplicate the entire structure or select the physical part if you want to copy only the physical part.
4. Choose **File** → **Duplicate As-Maintained Structure** or right-click the physical part and choose **Duplicate As-Maintained Structure**.
5. In the **Duplicate As-Maintained Structure** dialog box, enter the following information.

Field name	Definition	Valid values
Serial Number	Serial number for the copied physical structure or part. This field is unavailable if the original physical structure or part did not require a serial number.	Alphanumeric (1–128 characters)
Lot	Lot number for the copied physical structure or part. This field is unavailable if the original physical structure or part did not require a lot number.	Alphanumeric (1–128 characters)
Manufacturer's ID	Manufacturer of the physical part. The Manufacturer's ID box is automatically populated if you entered a lot number.	Alphanumeric (1–128 characters)
Manufacturing Date	Manufacturing date for physical structure. The manufacturing date must be <i>before</i> the installation date.	Click the Set Date  button and select a date from the calendar.
Installation Time	Installation date for physical structure. The installation date must be <i>after</i> the manufacturing date.	Click the Set Date  button and select a date from the calendar.
Location Name	The location of the physical part.	Alphanumeric (1–128 characters)
Disposition Value	Disposition of the physical part.	Alphanumeric (1–128 characters)

Note:
If the **Disposition_Propagate_To_Chi**

Field name	Definition	Valid values
	<div style="border: 1px solid black; padding: 5px;"> <p>Id preference is set to true, the disposition is also applied to the children parts of the structure.</p> </div>	
Number of Levels	Number of levels to be generated for the physical structure. If you want to generate physical parts for the <i>entire</i> structure, type All in the Number of Levels box.	Integer or All

- If you have defined a serial number generator for the neutral part, select the **Use Serial Number Generators** check box to enable it.

The serial number generator **automatically creates serial numbers** for all the parts within the as-built or as-maintained physical structure that have defined serial number generators. If you have defined a generic serial number generator, then the serial number is created for the serialized parts for which the serial number generator is not defined, and you are informed that generic serial number generator is being used.


- Click **OK** to duplicate the physical structure or part.

Generate an as-maintained structure from an as-built structure


If you have purchased and have a license for the As-Built Manager application, you can generate an as-maintained structure from an as-built structure. The as-built structure must be at a **Released** state.

Note:

The sequence of the parts in the as-built structure is maintained in the new as-maintained structure.

- From the navigation pane, click **As-Built Manager**.
- Click **Open by Name**  to open the released as-built physical structure.
- Select the top-level part from the as-built physical structure.
- Right-click and choose **Generate As-Maintained Structure**.

Teamcenter displays the **Generate As-Maintained Structure** dialog box.

5. Click **Set Date**  and select a date from the calendar when the as-maintained structure was created.
6. Choose the location where the physical parts are stored.
7. Choose the disposition of the physical part.

Note:

If the **Disposition_Propagate_To_Child** preference is set to true, the disposition is also applied to the children parts of the structure.


8. Type the number of levels you want to generate for the physical structure in the **Number of Levels** box. If you want to generate physical parts for the *entire* structure, type **All**.
9. Click **OK** to generate the as-maintained physical structure or click **Cancel** to exit.

Generate an as-built structure from an as-maintained structure


If you have purchased and have a license for the As-Built Manager application, you can generate an as-built structure from an as-maintained structure. The as-maintained structure must be at a **Released** state.

Note:

The sequence of the parts in the as-maintained structure is maintained in the new as-built structure.

1. From the navigation pane, click **Service Manager**.
2. Click **Open by Name**  to open the released as-maintained physical structure.
3. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
4. From the **Service Editor** view, select the top-level part from the as-maintained physical structure.
5. Right-click and choose **Generate As-Built Structure**.

Teamcenter displays the **Generate As-Built Structure** dialog box.

6. Click **Set Date**  to set the rebuild date.
7. Type the number of levels you want to generate for the physical structure in the **Number of Levels** box. If you want to generate physical parts for the *entire* structure, type **All**.

- Click **OK** to generate the as-built physical structure or click **Cancel** to exit.

Generate multiple physical parts in as-maintained structure

Before you can generate multiple physical parts to an as-maintained structure, you or your administrator must set the preference **MROAllowMultipleStructureGeneration** to **True**. Once the preference is set to **True**, the option **Structures to be Generated** and the **Open Generated Structure(s)** check box are included on the **Generate As-Maintained Structure** dialog box.



The screenshot shows the 'Generate As-Maintained Structure' dialog box with the following fields and values:

- Part: 000089-Bolt
- Serial Number: (empty)
- Use Serial Number Generators:
- Lot: (empty)
- Manufacturer's ID: (empty)
- Structure Context Name: 000089
- Manufacturing Date: dd-mmm-yyyy
- Installation Time: dd-mmm-yyyy
- Location Name: (empty)
- Disposition Value: In-Service
- Number of Levels: All
- Structures to be Generated: 1
- Open Generated Structure(s):
- Preserve Quantity Parts Only: (checked)
- Quantity: 1

- Select a line in the neutral structure.
- Right-click and choose **Generate As-Maintained Structure**.

Teamcenter displays the **Generate As-Maintained Structure** dialog box.

- In the **Generate As-Maintained Structure** dialog box, enter the following information.

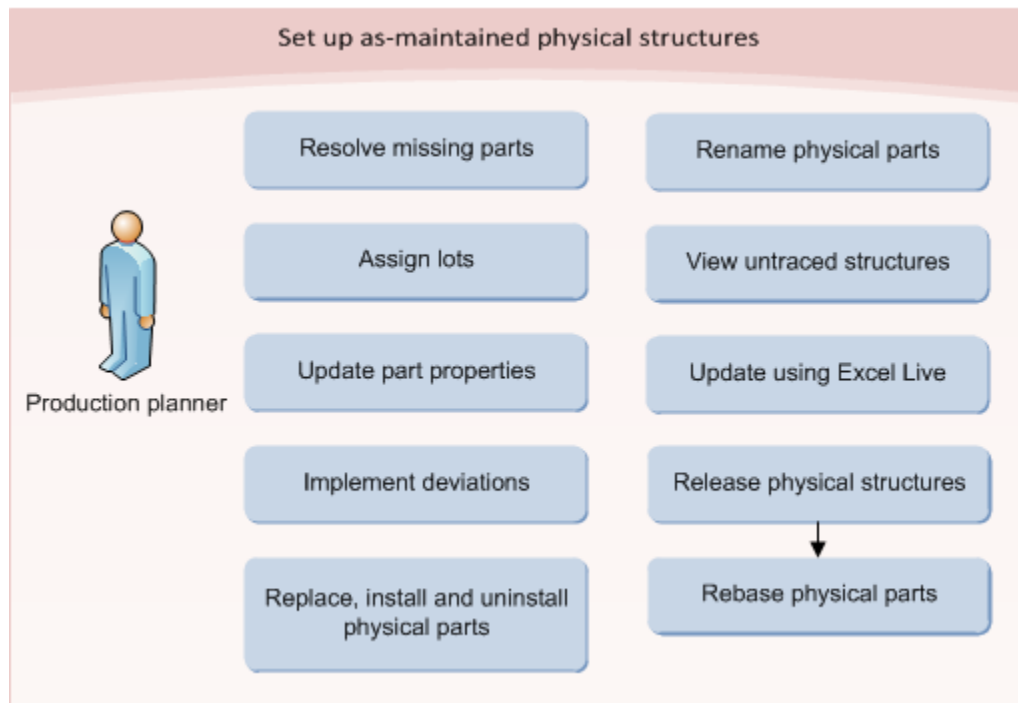
Field name	Definition	Valid values
Serial Number	<p>Serial number for the physical structure or part.</p> <p>This field is unavailable if the original physical structure or part did not require a serial number.</p>	Alphanumeric (1–128 characters)
Lot	<p>Lot number for the physical structure or part.</p> <p>This field is unavailable if the original physical structure or part did not require a lot number.</p>	Alphanumeric (1–128 characters)
Manufacturer's ID	<p>Manufacturer of the physical part.</p> <p>The Manufacturer's ID box is automatically populated if you entered a lot number.</p>	Alphanumeric (1–128 characters)
Manufacturing Date	<p>Manufacturing date for physical structure. The manufacturing date must be <i>earlier</i> than the installation date.</p>	Click the Set Date  button and select a date from the calendar.
Installation Time	<p>Installation date for physical structure. The installation date must be <i>later</i> than the manufacturing date.</p>	Click the Set Date  button and select a date from the calendar.
Location Name	The location of the physical part.	Alphanumeric (1–128 characters)
Disposition Value	<p>Disposition of the physical part.</p> <p>If the Disposition_Propagate_To_Child preference is set to true, the disposition is also applied to any children parts of the structure.</p>	Alphanumeric (1–128 characters)
Number of Levels	<p>Number of levels to be generated for the physical structure. If you want to generate physical parts for the <i>entire</i> structure, type All in the Number of Levels box.</p>	Integer or All
Structures to be Generated	The number of physical structures you want to generate.	Integer
Open Generated Structure(s)	When you select this, each new structure opens in a separate tab.	Select or clear the check box.

4. Click **OK** to generate the as-maintained physical structures or click **Cancel** to exit.

7. Setting up as-maintained physical structures

Setting up as-maintained physical structures

A user such as production planner manages the as-maintained physical structure according to organization needs and requirements as shown in the following figure.



You can set up and manipulate physical structures by:

- Updating physical part properties.
- Resolving missing parts by adding serial number, lot, or manufacturing information to the physical part.
- Assigning lot numbers to physical parts.
- Renaming as-maintained physical parts.
- Installing and uninstalling physical parts from an as-maintained structure.
- Replacing physical parts in an as-maintained structure.

- Rebasing physical parts in an as-maintained structure.
- Deleting physical parts from an as-maintained structure.
- Implementing deviations.
- Releasing the as-maintained physical structure.
- Updating the released as-maintained physical structure.
- Updating as-built physical structures using Excel Live.
- Viewing untraced structures.

Resolving missing parts

After you generate the as-maintained structure, a **Missing** status for the **Parts Used** column occurs if there is missing information for the child physical parts. Missing information may include a missing serial number, lot number or manufacturer id for the physical part. When you enter the missing information, the **Parts Used** column is automatically changed to **Preferred**.

A physical part has the **Parts Used** column set to **Missing** for the following conditions:

- The lot number is missing for a lot physical part.
- The serial number is missing for a serialized physical part.
- The manufacturer ID is missing for a nonserialized, nonlot part.
- The lot number or serial number is missing for a serialized lot part.
- The child physical part has been uninstalled from the physical structure.

Managing physical part properties

Update physical part properties


You can update a physical part using either Service Manager or My Teamcenter. The physical part properties that can be updated are shown in the following table.

Editable property	Property description	Editable in Service Manager	Editable in My Teamcenter
Serial number	Serial number of the physical part.	Yes	Yes
Manufacturer's ID	Manufacturer ID of the physical part.	Yes	Yes
Lot number	Lot number of the physical part.	Yes	Yes
Manufacturing date	The date the physical part was manufactured.	Yes	Yes
Installation date	The date the physical part was installed.	Yes	Yes
Physical Part UID	Unique UID for the physical part. Once the UID is assigned, it cannot be edited again.	Yes	No


From My Teamcenter:

1. Search for the physical part.
2. Right-click the physical part in the results list and choose **Edit Properties**.
3. From the **Checkout** dialog box, click **Yes** to check out the physical part.
4. From the **Edit Properties** dialog box, modify the properties.
5. To save and check in the modified properties, click **Save** and **Check-In**.

From Service Manager:


1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open By Name**  to open the physical structure or part.
4. Select the BOM line containing the physical part.
5. Double-click the attribute column and type the new value.

Assign a serial number

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the physical structure or part.
4. Select the BOM line containing the physical part.
5. To add a serial number, double-click in the **Serial Number** column and type the serial number.

The serial property for the serialized physical part is assigned and the **Part Used** column is set to **Preferred**.

Assign a manufacturer ID

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the physical structure or part. Select the physical part.
4. To add a manufacturer ID, double-click the **Manufacturer's ID** column and type the manufacturer ID.

The manufacturer ID property is set for the physical part and the **Part Used** column is set to **Preferred**.

Assign a lot number


In Service Manager, you can assign a lot number to a physical part or change a physical part lot number.

When you assign a lot number to a physical part, the physical part's manufacturer changes to the lot manufacturer.

After you assign a lot number to a physical part, the lot usage property of the specified lot is also updated. Lot usage is a property that tracks the number of physical parts associated to a specified lot.

Note:

You must **create a lot definition** for the neutral part before you can assign a lot number to a physical part.

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the physical structure or part.
4. Select the BOM line containing the physical part. Right-click and choose **Assign Lot**.
5. In the **Assign Lot** dialog box, select a lot number from the **Lot Number** list.
6. In the **Quantity** box, type the number of physical parts to assign to the lot.

If the part is a **Preserve Quantity** part, the quantity is checked against the expected quantity (the quantity from the neutral structure and the nonmissing parts from the occurrence).

- If the quantity is the same as the expected quantity, Teamcenter assigns the lot and marks the physical part as **Preferred**.

If the quantity is a whole number, it is deducted from the lot. If the quantity is not a whole number, it is not deducted from the lot.

- If the quantity is less than expected, a missing part is generated with the remaining quantity.
- If the quantity is greater than expected, Teamcenter displays an error.
- If the identified (nonmissing) parts are installed under the selected missing part and the quantity is not the expected quantity, Teamcenter displays an error.
- If you are assigning a new lot to the selected physical part that already has a lot assigned, the quantity is not changed, only the lot information.

7. Click **OK**.

The lot property for the physical part contains the assigned lot and the **Part Used** column is set to **Preferred**.



Install a physical part

You can install an existing physical part in a physical location at a specified usage into an as-maintained physical structure. If the installed physical part is not a valid preferred, alternate, or substitute, you must set up a deviation to install the deviated part.


Note:

You cannot install a physical part under a released physical part.

To install a physical part, you simply copy the physical part you want to install, navigate to the as-maintained structure where you want to install the physical part, and install the copied physical part into the as-maintained structure.

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the physical structure or part you want to install.
4. Choose one of the following methods to identify the physical part you want to install:
 - a. Copy the physical part you want to install.
 - A. Right-click the physical part and choose **Copy**.
 - B. Select the physical structure where you want to install the physical part.
 - C. Right-click the parent and choose **Install Physical Part** or click the **Install Physical Part** button  on the main toolbar at the top of the **Service Manager** pane.

The **Install Physical Part** dialog box appears.


The **To Be Installed Physical Part** field is set to the copied physical part.
 - D. Select the usage name to set the usage for the installed physical part. If the physical part is an addition to the physical structure, select **Extra to Design** as the usage.
 - b. Search for the physical part you want to install.
 - A. Select the physical structure where you want to install the physical part.
 - B. Right-click the parent and choose **Install Physical Part** or click **Install Physical Part**  on the main toolbar at the top of the **Service Manager** pane.


The **Install Physical Part** dialog box appears.

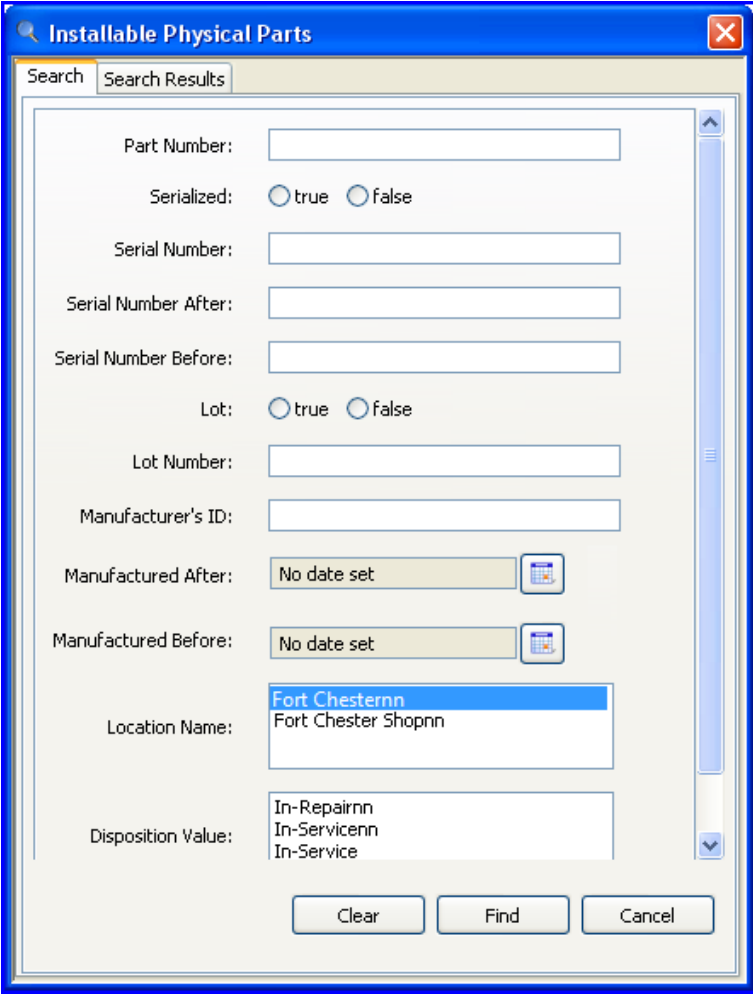
- C. Select the usage name to set the usage for the installed physical part. If the physical part is an addition to the physical structure, select **Extra to Design** as the usage.
- D. Perform the following steps to search for the physical part to be installed:
 - i. Click ▼ and select **Add**.

The **Installable Physical Parts** dialog box appears.

- ii. Click the **Search** tab and enter the following information you want to use as filters for searching.

Field name	Definition	Valid values
Part Number	Part number of the physical part.	Alphanumeric (1–128 characters)
Serialized	Value of the serialized property. Click true to search for serialized parts.	Boolean
Serial Number After	Value of the serial number to filter physical parts with serial numbers greater than the value entered.	Alphanumeric (1–128 characters)
Serial Number Before	Value of the serial number to filter physical parts with serial numbers less than the value entered.	Alphanumeric (1–128 characters)
Lot	Value of the lot property. Click true to search for lot parts.	Boolean
Lot number	Lot number of the physical part.	Alphanumeric (1–32 characters)
Manufacturer's ID	Manufacturer of the physical part.	Alphanumeric (1–128 characters)
Manufactured After	Manufacturing date used to filter physical parts with	Click Set Date  and select a date from the calendar.

Field name	Definition	Valid values
	manufacturing dates greater than the date entered.	
Manufactured Before	Manufacturing date used to filter physical parts with manufacturing dates before the date entered.	Click Set Date  and select a date from the calendar.
Location Name	Location name of the physical part.	Select one or more location names.
Disposition Value	Disposition values for the physical part.	Select one or more disposition values.



Installable Physical Parts

Search Search Results

Part Number:

Serialized: true false

Serial Number:


Serial Number After:


Serial Number Before:

Lot: true false

Lot Number:

Manufacturer's ID:

Manufactured After: No date set 

Manufactured Before: No date set 

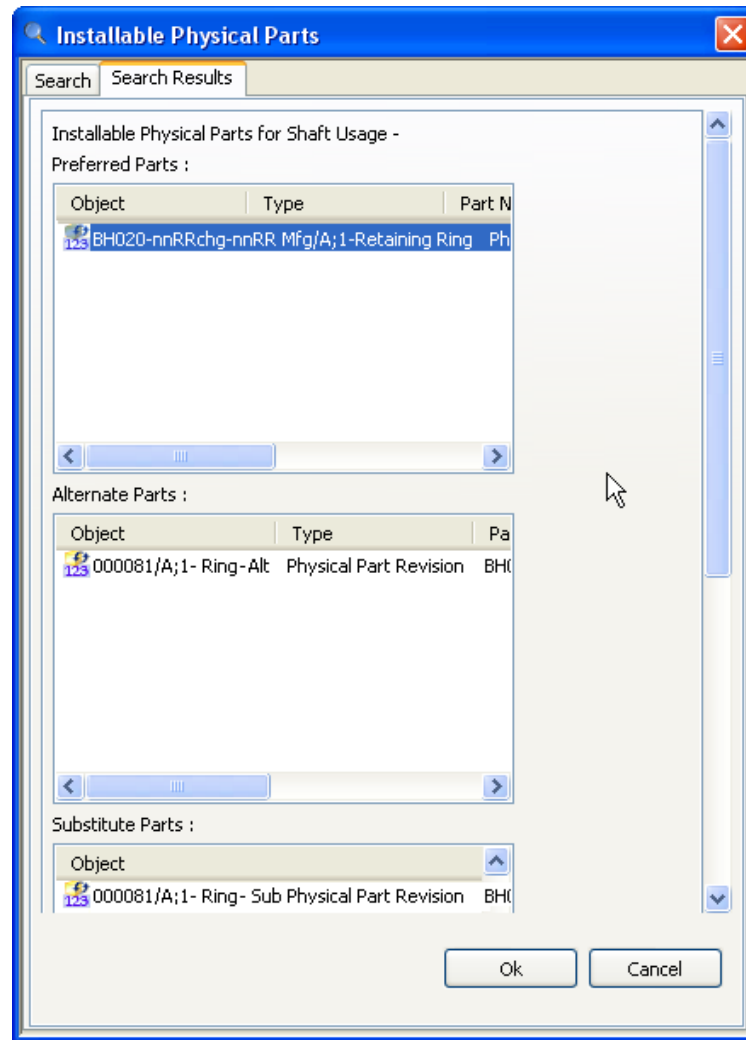
Location Name:
Fort Chester Shopnn

Disposition Value:
In-Servicenn
In-Service

Clear Find Cancel


iii. Click **Find**.

The results display the valid preferred, alternate, substitute and deviated physical parts that can be installed.



- iv. Select the physical part from the results and click **OK**.

The **Install Physical Part** dialog box reappears with the **To be Installed Physical Part** field set to the selected physical part.

5. Click **Set Date**  to set the installation date when the installation occurred.
6. If the **Usage Name** is set to **Extra to Design**, in the **Extra to Design Usage Name** box, type the usage name for the installed physical part.
1. Click **OK** to install the physical part.

If the installed **Preferred** part is a **Preserve Quantity** part, the quantity is checked against the neutral structure.

- If the quantities match, the physical part is installed in the structure.
- If the quantity is greater than allowed, the installation is prevented.
- If the quantity is less than allowed, the installation is completed, and a missing part is generated with the remaining quantity.

The **Part Used** column for the physical part is set to one of the following values after installing a physical part:

- **Preferred**

If the newly installed physical part is a valid preferred physical part for the selected usage, the **Part Used** column is set to **Preferred**.

- **Substitute**

If the newly installed physical part is a valid substitute, the **Part Used** column is set to **Substitute**.

- **Alternate**

If the newly installed physical part is a valid alternate, the **Part Used** column is set to **Alternate**.

- **Deviated**


If the newly installed physical part is an approved deviation from the design and is not a valid substitute or alternate for selected usage, the **Part Used** column is set to **Deviated**.

- **Extra to Design**


If the newly installed physical part is an approved deviation and does not exist in the design structure, the **Part Used** column is set to **Extra to Design**.

Uninstall a physical part

You can uninstall a child physical part from a parent physical part in the as-maintained structure.

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the physical structure where you want to uninstall the physical part.
4. Select the child physical part. Right-click and choose **Uninstall Physical Part**.

The **Uninstall Physical Part** dialog box appears.

5. Click **Set Date**  to set the uninstallation date when the uninstallation occurred.
6. Select the disposition value to set the disposition type for the uninstalled physical part.
7. Select the location name to set the physical location for the uninstalled physical part.
8. Click **OK** to uninstall the physical part.

The physical part is uninstalled from the structure and the **Part Used** column is set to **Missing**.






If there is more than one missing part, then a single missing part is created with the total allowed remaining quantity, and the other missing parts are deleted.

If the uninstalled **Preferred** part is a **Preserve Quantity** part, the quantity is checked against the neutral structure.

- If the quantities match, the physical part is uninstalled from the structure.
- If the quantity is greater than allowed, the uninstallation is prevented.
- If the quantity is less than allowed, the uninstallation is completed, and a missing part is generated with the remaining quantity.

Note:

If the physical part to uninstall is set as **Extra to Design**, the uninstall action uninstalls the selected physical part and removes the selected lines from the as-maintained structure completely. Otherwise, the physical part is uninstalled and the **Part Used** is set to **Missing**.

As-Maintained Structure	Part Used
 BH001-nn/MTrucknn-A	Preferred
 BH012-nn/A	Preferred
 BH013-nn/A	Preferred
 BH014-nn/SHnn-001-A	Preferred
 BH020-nn/A	Missing




Replace a physical part

You can replace an existing or missing physical part with a different physical part in an as-maintained structure. When you replace a physical part, the following occurs:

- The original physical part is removed from the structure and replaced with the new physical part.
- The installation time on the replacement physical part is updated with the date the physical part was replaced.
- The uninstall time on the original physical part is updated with the date the physical part was replaced.

Note:



If the replacement part is not a valid preferred, substitute, or alternate part, you must set up an **authorized deviation**.

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the physical structure where you want to replace the physical part.
4. Choose one of the following methods to identify the physical part you want to use as the replacement.
 - a. Copy the physical part you want to use as the replacement.
 - A. Click **Open by Name**  to open the replacement physical part.
 - B. Right-click the replacement physical part and choose **Copy**.
 - C. Right-click the physical part you want to replace and choose **Replace Physical Part** or click **Replace Physical Part**  on the main toolbar at the top of the **Service Manager** pane.

The **Replace Physical Part** dialog box appears.


The **To Be Installed Physical Part** field is set to the copied physical part.


- b. Search for the physical part you want to use as the replacement.

- A. Right-click the physical part you want to replace and choose **Replace Physical Part** or click **Replace Physical Part**  on the main toolbar at the top of the **Service Manager** pane.
- B. Perform the following steps to search for the physical part that will be used as the replacement.
 - i. Click  and select **Add**.

The **Installable Physical Parts** dialog box appears.

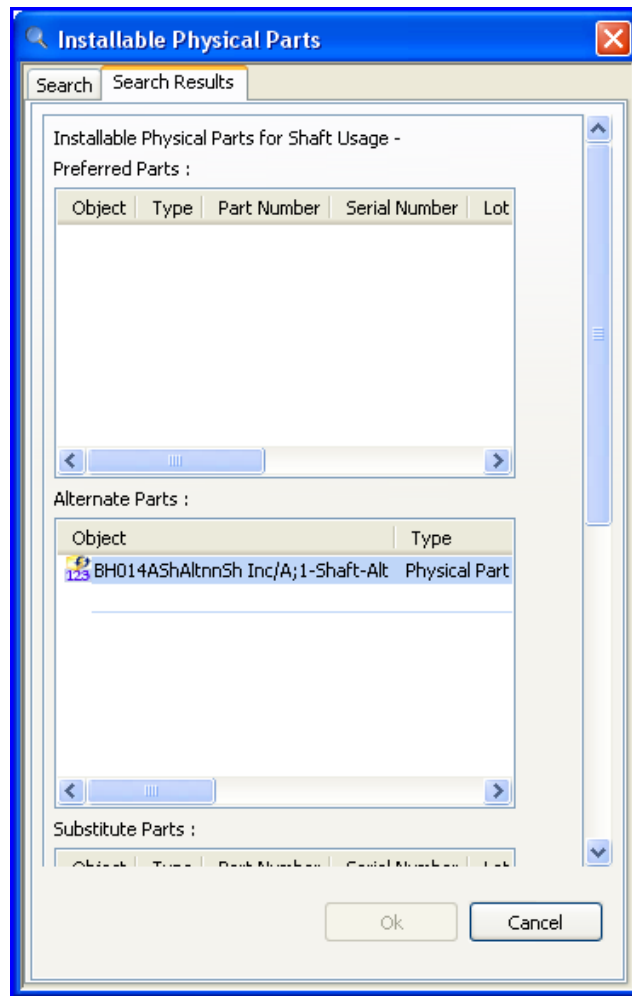
- ii. Click the **Search** tab and enter the following information you want to use as filters for searching.

Field name	Definition	Valid values
Part Number	Part number of the physical part.	Alphanumeric (1–128 characters)
Serialized	Value of the serialized property. Click true to search for serialized parts.	Boolean
Serial Number After	Value of the serial number to filter physical parts with serial numbers greater than the value entered.	Alphanumeric (1–128 characters)
Serial Number Before	Value of the serial number to filter physical parts with serial numbers less than the value entered.	Alphanumeric (1–128 characters)
Lot	Value of the lot property. Click true to search for lot parts.	Boolean
Lot number	Lot number of the physical part.	Alphanumeric (1–32 characters)
Manufacturer's ID	Manufacturer of the physical part.	Alphanumeric (1–128 characters)
Manufactured After	Manufacturing date used to filter physical parts with	Click Set Date  and select a date from the calendar.

Field name	Definition	Valid values
	manufacturing dates greater than the date entered.	
Manufactured Before	Manufacturing date used to filter physical parts with manufacturing dates before the date entered.	Click Set Date  and select a date from the calendar.
Location Name	Location name of the physical part.	Select one or more location names.
Disposition	Disposition values for the physical part.	Select one or more disposition values.


iii. Click **Find**.

The results display the valid preferred, alternate, substitute, and deviated physical parts that can be used to replace the physical part.



- iv. Select the physical part from the results and click **OK**.

The **Replace Physical Part** dialog box reappears with the **To be Installed Physical Part** field set to the selected physical part.

5. Click **Set Date**  to set the replacement date when the replacement occurred.
6. Select the disposition value to set the disposition type for the replaced physical part.
7. Select the location name to set the physical location for the replaced physical part.
8. Click **OK** to replace the physical part,

If the installed **Preferred** part is a **Preserve Quantity** part, the quantity is checked against the neutral structure.

- If the quantities match, the original physical part is replaced.

- If the quantity is greater than allowed, the replacement is prevented.
- If the quantity is less than allowed, the replacement is completed, any existing missing parts are deleted, and a missing part is generated with the remaining quantity.

Rebasing physical parts

Rebasing a physical part relates the as-maintained structure to a different configuration of a neutral structure. The new rebased structure uses the new configuration for its structure context.

Note:

The physical part must have a **Released** status before you can rebase it.

The following applies to usages in the rebased physical configuration:

- If the component exists in the rebased neutral structure, the rebased physical part is assigned the same usage as specified in the neutral structure.
- If the corresponding usage of a component is not present in the rebased neutral structure, the usage of the rebased physical part is set to extra to design and requires no deviation authorization.
- If the component and usage is new in the rebased neutral structure, the usage of the physical part is set to missing.

A rebase can be performed on any level within the physical and corresponding neutral structure. However, the following two rebase scenarios cause a warning message to be displayed, although you can proceed with the rebase action once you acknowledge the warning:

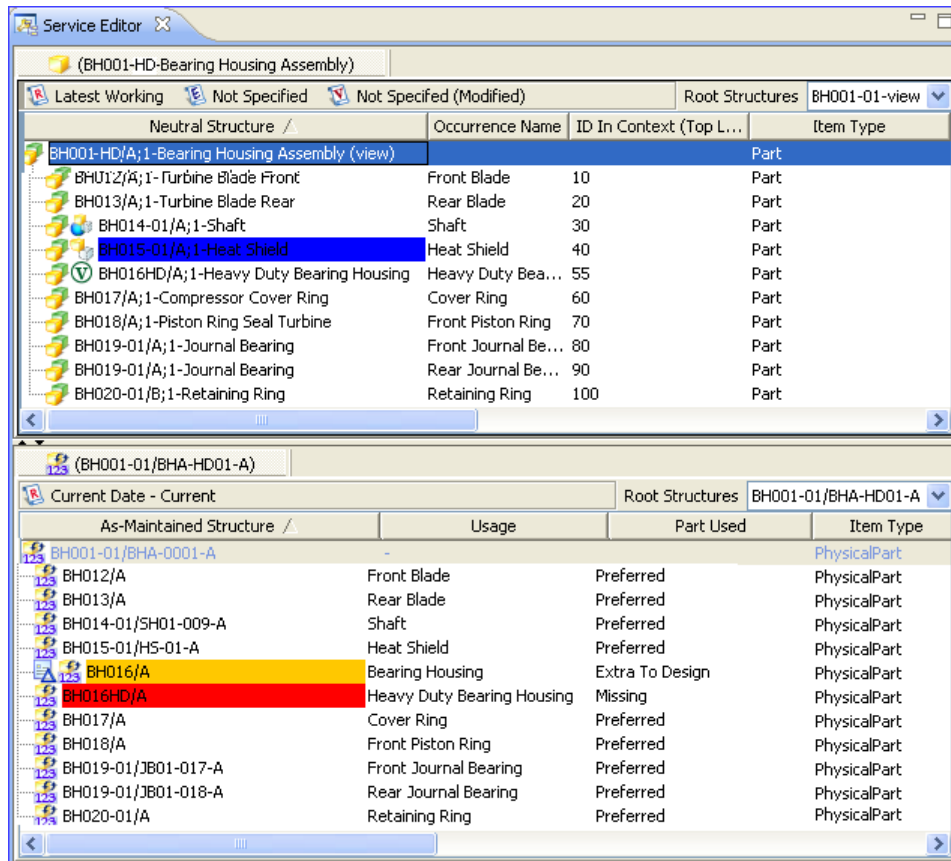
- If the selected neutral part is different from the selected physical part. For example, if you try to rebase the old air conditioner to the new, redesigned air conditioner, which has a different part number.
- If the occurrences between the selected neutral and physical part are different. For example, if you try to rebase the left wheel occurrence to the right wheel occurrence.

Example:

You may want to rebase a physical structure to the same neutral structure, but with a different variant.

The original physical structure was generated from the bearing housing assembly neutral structure that contained the regular bearing housing. It was rebased to the bearing housing assembly neutral structure with the heavy duty bearing housing. As the following figure shows, because the rebased neutral structure contains the heavy duty bearing housing, the physical structure now

contains a missing part for the heavy duty bearing housing and the regular bearing housing is installed as extra to design.



When you rebase the top-level parent in a physical structure, the rebase action works on multiple levels of the structure. For that reason, the physical structure modifications occur not only at the top level, but also to any subassemblies and child parts.

Example:

The image below shows a neutral structure that was used to generate the physical structure in the top pane, shown edited after the original physical structure was generated, and a rebased physical structure in the bottom pane.

The screenshot shows the Service Editor interface with two views of a structure. The top view is the 'Neutral Structure' for root structure '029883/B;1-TOP_1'. The bottom view is the 'As-Maintained Structure' for root structure '029883/--A-TOP_1'. The 'As-Maintained Structure' view includes columns for 'Part Used', 'Usage', 'Serial Number', 'Lot Number', 'Part Number', and 'Installation Time'. Four items are highlighted with numbered circles (1-4) corresponding to the list items below.

Neutral Structure	Item Type	Occurrence Name	Net Usage	Unit Of Meas...	Traceable	Serialized	Lot
029883/B;1-TOP_1	Part				True	False	False
029885/A;1-Child_2	Part	Ch_2		each	True	False	False
029908/A;1-Child_3	Part	Ch_3		each	True	False	False
029909/A;1-Child_4	Part	Ch_4		each	True	False	False
029910/A;1-Sub_assembly_1	Part	sub_1		each	True	False	False
029912/A;1-Leaf_101	Part	Leaf_101		each	True	False	False
029913/A;1-Leaf_102	Part	leaf_102		each	True	False	False
029911/A;1-Sub_assembly_2	Part	Sub_2		each	True	False	False

As-Maintained Structure	Item Type	Part Used	Usage	Serial Number	Lot Number	Part Number	Installation Time	Ma
029883/--B-TOP_1	Physical Part	-	-	-	-	029883		01-Feb
029884/--A-Child_1	Physical Part	Extra To Design	Ch_1	-	-	029884	01-Feb-2022 00:00	01-Feb
029885/--A-Child_2	Physical Part	Preferred	Ch_2	-	-	029885	01-Feb-2022 00:00	01-Feb
029908/--A-Child_3	Physical Part	Missing	Ch_3	-	-	029908	10-Feb-2022 00:00	10-Feb
029909/--A-Child_4	Physical Part	Missing	Ch_4	-	-	029909	10-Feb-2022 00:00	10-Feb
029910/--A-Sub_assembl	Physical Part	Missing	sub_1	-	-	029910	10-Feb-2022 00:00	10-Feb
029912/--A-Leaf_101	Physical Part	Missing	Leaf_101	-	-	029912	10-Feb-2022 00:00	10-Feb
029913/--A-Leaf_102	Physical Part	Missing	leaf_102	-	-	029913	10-Feb-2022 00:00	10-Feb
029911/--A-Sub_assembl	Physical Part	Missing	Sub_2	-	-	029911	10-Feb-2022 00:00	10-Feb

- (1) The child part **029884/--A-Child_1** was part of the original neutral structure when the physical structure was generated. After the physical structure was originally created, the child part **029884/--A-Child_1** was removed from the neutral structure.
- (2) Once the physical structure is rebased, the child part **029884/--A-Child_1** is marked as **Extra To Design**.
- (3) The sub-assembly **029909/--A-Child_4** was not part of the original neutral structure when the physical structure was generated. After the physical structure was originally created, the sub-assembly **029909/--A-Child_4** was added to the neutral structure. Once the physical structure is rebased, the sub-assembly **029909/--A-Child_4** is identified as a new part in the rebased assembly.
- (4) The two parts, **029885--A-Child_2** and **029808--A-Child_3**, have not changed in the neutral part and therefore are not changed in the physical part.

Maintaining usage and common parts when rebasing with another parent structure

When you create a new physical structure by replacing or copying some of the parts of an existing structure, it is important to maintain the part numbers and usage for the parts that are not changed in the new structure.

The example below shows the before and after rebasing condition of two structures that contain both common and unique parts.

Before the rebase action:

As-Maintained Structure	Part Number	Item Type	Part Used	Usage	Serial Number	Lot Number	Installation Time	M...
029902/A;1-Mobile_Sam	029902	Part		-				
029903/A;1-Display	029903	Part	Preferred	Display				
029904/A;1-Body	029904	Part	Preferred	Body				
029905/A;1-Logo_Sam	029905	Part	Preferred	Logo_sam				

As-Maintained Structure	Part Number	Item Type	Part Used	Usage	Serial Number	Lot Number	Installation Time	M...
029906/A;1-Mobile_delta	029906	Part		-				
029903/A;1-Display	029903	Part	Preferred	Display_1				
029904/A;1-Body	029904	Part	Preferred	Body_1				
029907/A;1-Delta_logo	029907	Part	Preferred	Logo_delta				

Note:

When you select the top nodes of both structures and select rebase, the following warning message is presented. Choose **Yes** to continue the rebase action.

The selected Physical Part does not match the selected Neutral Part. Do you still want to proceed with the Rebased action?

After the rebase action:

As-Maintained Structure	Part Number	Usage	Item Type	Part Used	Serial Number	Lot Number	Installation Time	M...
029906/--B-Mobile_delta	029906	-	Physical Part		-	-		01-F
029903/--A-Display	029903	Display_1	Physical Part	Preferred	-	-	01-Feb-2022 00:00	01-F
029904/--A-Body	029904	Body_1	Physical Part	Preferred	-	-	01-Feb-2022 00:00	01-F
029905/--A-Logo_Sam	029905	Logo_sam	Physical Part	Extra To Design	-	-	01-Feb-2022 00:00	01-F
029907/--A-Delta_logo	029907	Logo_delta	Physical Part	Missing	-	-	10-Feb-2022 00:00	10-F

As-Maintained Structure	Part Number	Usage	Item Type	Part Used	Serial Number	Lot Number	Installation Time	M...
029906/A;1-Mobile_delta	029906	-	Part					
029903/A;1-Display	029903	Display_1	Part	Preferred				
029904/A;1-Body	029904	Body_1	Part	Preferred				
029907/A;1-Delta_logo	029907	Logo_delta	Part	Preferred				

- (1) The part **029905/--A-Logo Sam**, which was a part of the original neutral structure but was replaced with (2) **029907/A;1-Delta_logo** is identified as **Extra to Design**.
- (3) The main node part name, number, and usage are updated to reflect the new assembly.

- (4) The part **029907/A;1-Delta_logo**, since it has been replaced is now identified as missing in the neutral structure.
- (5) The parts **029901/--A-Display** and **029904/--A-Body** remain as is in the new structure and their part numbers, revisions, and usage, remain the same as before the rebase action.

Rebased non-serialized parts with lot set to false

If you rebase a physical structure, certain child parts are not identified as missing. The child parts that are not serialized and whose lot property is set to false are not considered to be missing.

Example:

In this example, a car is released and then a new engine is added to the neutral structure. Only parts that are either serialized or are assigned a lot property are considered **missing** from the original physical structure.

The car assembly **001636/A;1** includes the engine **001640/A;1**. It is released and a physical structure was created from it.

Neutral Structure	Item Name	Item Type	Item Description	Serialized	Lot	Occurrence Name	Quantity
001636/A;1-Car (View)	Car	Part		False	False		
001637/A;1-Chasis	Chasis	Part		False	False		
001638/A;1-Transmission	Transmission	Part		False	False		
001639/A;1-Suspension	Suspension	Part		False	False		
001640/A;1-Engine (View)	Engine	Part		False	False		
001641/A;1-CrankShaft	CrankShaft	Part		False	False		
001642/A;1-Piston	Piston	Part		False	False		
001643/A;1-Cylinder	Cylinder	Part		False	False		

As-Maintained Structure	Item Name	Item Type	Part Number	Part Used	Serial Number	Lot Number
001636/--A (View)	Car	Physical Part	001636	-	-	-
001637/--A	Chasis	Physical Part	001637	Preferred	-	-
001638/--A	Transmission	Physical Part	001638	Preferred	-	-
001639/--A	Suspension	Physical Part	001639	Preferred	-	-
001640/--A (View)	Engine	Physical Part	001640	Preferred	-	-
001641/--A	CrankShaft	Physical Part	001641	Preferred	-	-
001642/--A	Piston	Physical Part	001642	Preferred	-	-
001643/--A	Cylinder	Physical Part	001643	Preferred	-	-

A new engine assembly, **001652/A;1**, is added to the neutral structure. Notice the assembly itself is serialized and has the lot property set to true. However, some of the child parts are either serialized or have the lot property set to true, and one child is non-serialized and has the lot property set to false.

Neutral Structure	Item Name	Item Type	Item Description	Serialized	Lot	Occurrence Name
001636/B:1-Car (View)	Car	Part		False	False	
001637/A:1-Chasis	Chasis	Part		False	False	
001638/A:1-Transmission	Transmission	Part		False	False	
001639/A:1-Suspension	Suspension	Part		False	False	
001640/A:1-Engine (View)	Engine	Part		False	False	
001652/A:1-New_Engine (View)	New_Engine	Part		True	True	
001653/A:1-CrankShaft	CrankShaft	Part		True	False	
001654/A:1-Piston	Piston	Part		False	True	
001655/A:1-Cylinder	Cylinder	Part		False	False	

As-Maintained Structure	Item Name	Item Type	Part Number	Part Used	Serial Number	Lot Number
001636/--A (View)	Car	Physical Part	001636		-	-
001637/--A	Chasis	Physical Part	001637	Preferred	-	-
001638/--A	Transmission	Physical Part	001638	Preferred	-	-
001639/--A	Suspension	Physical Part	001639	Preferred	-	-
001640/--A (View)	Engine	Physical Part	001640	Preferred	-	-




When the physical structure is rebased to the revised neutral structure, only the child parts that are both non-serialized parts and have the lot property set to false are identified as **preferred**. All others are identified as **missing**.

Neutral Structure	Item Name	Item Type	Item Descripti...	Serialized	Lot	Occurrence Name	Quantity
001636/B:1-Car (View)	Car	Part		False	False		
001637/A:1-Chasis	Chasis	Part		False	False		
001638/A:1-Transmission	Transmission	Part		False	False		
001639/A:1-Suspension	Suspension	Part		False	False		
001640/A:1-Engine (View)	Engine	Part		False	False		
001652/A:1-New_Engine (View)	New_Engine	Part		True	True		
001653/A:1-CrankShaft	CrankShaft	Part		True	False		
001654/A:1-Piston	Piston	Part		False	True		
001655/A:1-Cylinder	Cylinder	Part		False	False		


As-Maintained Structure /	Item Name	Item Type	Part Number	Part Used	Serial Num...	Lot Number	Item Description
001636/--B (View)	Car	Physical Part	001636		-	-	
001637/--B	Chasis	Physical Part	001637	Preferred	-	-	
001638/--B	Transmission	Physical Part	001638	Preferred	-	-	
001639/--B	Suspension	Physical Part	001639	Preferred	-	-	
001640/--B (View)	Engine	Physical Part	001640	Preferred	-	-	
001652-A	New_Engine	Physical Part	001652	Missing	-	-	
001653-A	CrankShaft	Physical Part	001653	Missing	-	-	
001654/--A	Piston	Physical Part	001654	Missing	-	-	
001655/--A	Cylinder	Physical Part	001655	Preferred	-	-	

Rebase a physical part

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.

3. From the **Service Editor** view, click **Open by Name**  to open the neutral part to be used to rebase the physical part.
4. Click **Open by Name**  to open the released physical part to be rebased.
5. Click **Show/Hide lower Structure Panel**  located at the top of the application to display the neutral part and physical part using split structure panes.
6. Select the neutral part.
7. Select the released physical part.
8. Choose **Tools** → **Rebase Physical Part**.

The **Rebase Physical Part** dialog box appears.

9. Click **Set Date**  to set the rebase date when the rebase occurred.
10. (Optional) Type the name of the structure context used to store the neutral product configuration information in the **Structure Context Name** box or use the name that is automatically generated.

The structure context name is automatically created using the part number of the rebased neutral part. If the physical part has a serial number, the structure context name is automatically named as part number/serial number.

11. Click **OK** to rebase the physical part.

Teamcenter checks the quantities of the parts installed in the rebased structure.

- If the quantity is over the allowed limit, the part is changed to a **Extra to Design** part.
- If the quantity is under the allowed limit, the part is shown as installed in the correct position, but a new missing part is generated with the remaining quantity.

Rebasing to a new parent with unique attributes

When you rebase a physical structure to a different parent, the default property used to determine if a part is **Preferred**, **Missing**, or **Extra To Design**, is the part number.

However, in some implementations, you may need to use properties other than the part number to identify the part status after you rebase the physical structure to a new parent.

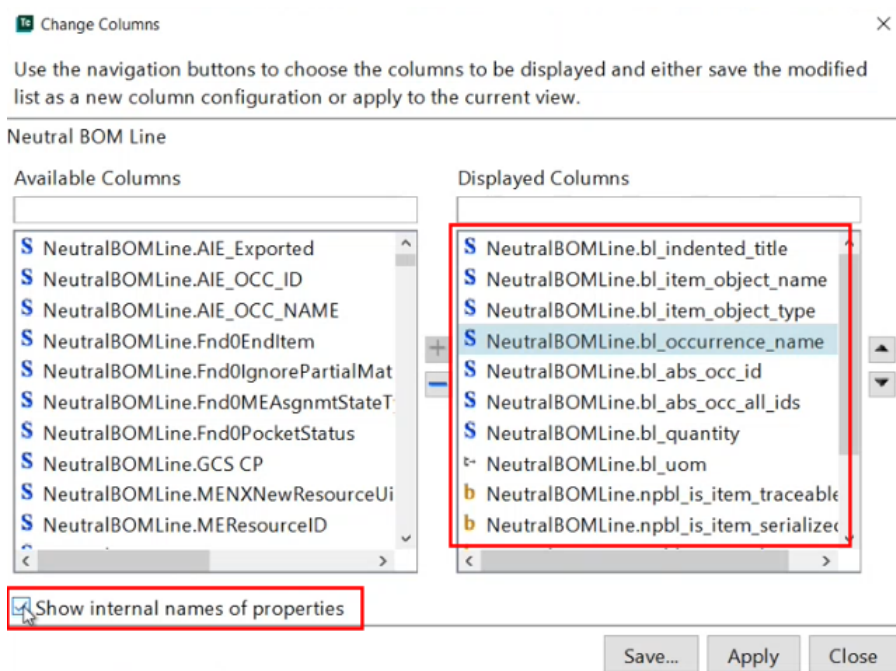
You can set the preference **SLMRebaseToNewParentOccProperties** to the internal name of numerous properties. Once configured, Service Lifecycle Management uses the properties specified instead

of the part number. For example, to use the **Occurrence Name** to determine part status, enter **bl_occurrence_name** for the preference value.

Note:

Occurrence Name is applied to the neutral structure and **Usage** is applied to the physical structure. Both are based on the internal name **bl_occurrence_name**.

To see the available property values in Service Lifecycle Management, you right-click any column header in the **Service Editor** panel and select **Insert Column(s)**. Then you select the **Show internal names of properties** option on the **Change Columns** dialog box to change from displayed names to internal names, which allows you to see the preference values available to use for this preference.



Updating occurrence-specific property during rebase

When you create a physical structure from a neutral structure, any occurrence-specific properties in the neutral structure are included in the physical structure.

If you rebase the physical structure to a different neutral structure, Service Lifecycle Management updates any occurrence-specific properties that exist in both the initial neutral structure and the new neutral structure.

For example, the physical structure **016895/--A** was created from the neutral structure **016895/A;1-Car_A**.

The screenshot shows two views in the Service Editor. The top view, labeled (1), shows a neutral structure for '016895/A;1-Car_A'. The bottom view, labeled (2), shows an as-maintained physical structure for '016895/--A'. Red boxes and numbered callouts (1-4) highlight key elements: (1) the neutral structure name, (2) the as-maintained structure name, (3) occurrence-specific IDs in the neutral structure, and (4) the same IDs in the physical structure.

Neutral Structure	Item Name	Item Type	Occurrence Name /	ID In Context (Top Lev...
016895/A;1-Car_A (View)	Car_A	Part		
016899/A;1-Chasis	Chasis	Part	occ_chasis	idic_chasis_a
016896/A;1-Engine	Engine	Part	occ_engine	idic_eng_a
016898/A;1-GearBox	GearBox	Part	occ_gearbox	idic_gb_a
016897/A;1-Suspension	Suspension	Part	occ_suspension	idic_sus_a

As-Maintained Structure	Item Name	Item Type	Usage	ID In Context (All Leve...	Pa
016895/--A (View)	Car_A	Physical Part	-		
016896/--A	Engine	Physical Part	occ_engine	idic_eng_a	Preferred
016897/--A	Suspension	Physical Part	occ_suspension	idic_sus_a	Preferred
016898/--A	GearBox	Physical Part	occ_gearbox	idic_gb_a	Preferred
016899/--A	Chasis	Physical Part	occ_chasis	idic_chasis_a	Preferred

- (1) Neutral structure **016895/A;1-Car_A** that is used to initially create the physical structure (2) **016895/--A**.
- (3) Occurrence-specific properties in the neutral structure that are included in the (4) physical structure.

The physical structure **016895/--A** is rebased to a different neutral structure.

The screenshot displays two views of a physical structure in Service Editor:

- View 1 (Top):** Neutral Structure (016900/A;1-Car_B). It lists items: Car_B (Part), Engine (Part), Suspension (Part), Chasis (Part), and GearBox (Part). Occurrence names are occ_engine, occ_suspension, occ_chasis, and occ_gearbox_b. The 'ID In Context (Top Level)' column shows idic_eng_b, idic_sus_b, idic_chasis_b, and idic_gb_b.
- View 2 (Bottom):** As-Maintained Structure (016895/--A). It lists items: Car_A (Physical Part), GearBox (Physical Part), Engine (Physical Part), Suspension (Physical Part), Chasis (Physical Part), and GearBox (Physical Part). Usage is '-'. The 'ID In Context (All Levels)' column shows idic_eng_b, idic_sus_b, idic_chasis_b, and idic_gb_b.

Red boxes and numbered callouts (1-4) indicate the rebasing process and the update of occurrence-specific properties.

- The physical structure (2) **016895/--A** is rebased to a different (1) neutral structure, **016900/A;1-Car_B**.
- (4) Occurrence-specific properties in the physical structure are updated to reflect the properties in the new (3) neutral structure.

Note:

If a physical part is included in an open service event and if the same physical part is rebased to a new neutral part, then the rebase fails and results in the error **Physical part cannot be rebased because it has open service events**.

You must approve all the service events that include the physical part before rebasing that physical part to a new neutral part.

Delete a physical part

You can delete a physical part if it has no child physical parts. To delete a physical part with child physical parts, you must delete the last child physical part first and work your way up to the parent physical part.

Note:

You can delete a physical part only from My Teamcenter.

1. In My Teamcenter, select the physical part to delete.
2. Choose **Edit** → **Delete**.

Implementing deviations

Implementing deviations

Deviations occur when you install a physical part that is not a preferred, alternate, or substitute physical part into an as-maintained structure. An authorized deviation can be used only once. If you uninstall and reinstall a deviated physical part, a new authorization must be created.

The workflow to add a deviated physical part to your as-maintained structure is as follows:

1. Create the deviation authority item class for the physical part.

A deviation authority item class authorizes the installation of a physical part that is a deviation from the design structure. The **MRO Deviation Authority List** LOV determines the list of item classes that can be used to authorize a deviation.

By default, the item classes that can be used as a deviation authority item are:



- Deviation document
 - Deviation request
 - Service event
 - Aerospace and Defense deviation request
2. Set up the deviation to specify the authorized deviation item class used for the deviated physical part. The authorized deviation item must *not* be released to set up a deviation.
 3. Route the authorized deviation item through the appropriate workflow.
 4. Install the deviated physical part into your as-maintained structure.

Create a deviation authority item


1. Click **My Teamcenter**.
2. Choose **File** → **New** → **Item**.
3. From the **New Item** dialog box, select **Deviation Document** and click **Next**.
4. Enter information into all the required fields.
5. Click **Finish**.

6. Click **Close** to close the screen or repeat steps 1–5 to create an additional deviation document.

Set up a deviation

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the deviated part.
4. Right-click the deviated part and choose **Copy**.
5. From the **Service Editor** view, click **Open by Name**  to open the physical structure where you want to install the deviated part.
6. Right-click the parent physical part and choose **Setup Deviation**.

The **Setup Deviation** dialog box appears.

7. Click  to set the value of **Document Id** and select **Add**.

Note:

The deviation authority item must *not* be released to set up a deviation.

8. Search for the deviation authority item ID using the search dialog box. You can use wildcards for searching.
9. Click **OK** to set up the deviation. Alternatively, click **Cancel** to exit.

Send the deviation authority item through the required workflow



1. Select the deviation authority item.
2. Choose **File** → **New** → **Workflow Process**.
3. In the **New Process Dialog** window, type the process name in the **Process Name** box.
4. From the **Process Template** list, select **TCM Release Process**.

Note:


The **TCM Release Process** workflow is provided with the **Teamcenter Foundation** feature. You can configure this workflow or create your own to set up the process flow, reviewers, and business validations required to route a deviation document for review and approval.

5. Click **OK**. Alternatively, click **Cancel** to exit.

Install a deviated part

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the deviated part.
4. Choose one of the following methods to identify the deviated physical part you want to install:
 - a. Copy the deviated physical part you want to install.
 - A. Right-click the physical part and choose **Copy**.
 - B. Select the physical structure where you want to install the deviated physical part.
 - C. Right-click the parent and choose **Install Physical Part** or click the **Install Physical Part** button  on the main toolbar at the top of the **Service Manager** pane.

The **Install Physical Part** dialog box appears.

The **To Be Installed Physical Part** field is set to the copied physical part.
 - D. Select the usage name to set the usage for the installed deviated physical part. If the physical part is an addition to the physical structure, select **Extra to Design** as the usage.
 - b. Search for the physical part you want to install.
 - A. Select the physical structure where you want to install the deviated physical part.
 - B. Right-click the parent and choose **Install Physical Part** or click the **Install Physical Part** button  on the main toolbar at the top of the **Service Manager** pane.


The **Install Physical Part** dialog box appears.
 - C. Select the usage name to set the usage for the installed deviated physical part. If the physical part is an addition to the physical structure, select **Extra to Design** as the usage.


D. Perform the following steps to search for the physical part to be installed:

- i. Click ▼ and select **Add**.

The **Installable Physical Parts** dialog box appears.

- ii. Click the **Search** tab and enter the following information you want to use as filters for searching.

Field name	Definition	Valid values
Part Number	Part number of the physical part.	Alphanumeric (1–128 characters)
Serialized	Value of the serialized property. Click true to search for serialized parts.	Boolean
Serial Number After	Value of the serial number to filter physical parts with serial numbers greater than the value entered.	Alphanumeric (1–128 characters)
Serial Number Before	Value of the serial number to filter physical parts with serial numbers less than the value entered.	Alphanumeric (1–128 characters)
Lot	Value of the lot property. Click true to search for lot parts.	Boolean
Lot number	Lot number of the physical part.	Alphanumeric (1–32 characters)
Manufacturer's ID	Manufacturer of the physical part.	Alphanumeric (1–128 characters)
Manufactured After	Manufacturing date used to filter physical parts with manufacturing dates greater than the date entered.	Click the Set Date  button and select a date from the calendar.

Field name	Definition	Valid values
Manufactured Before	Manufacturing date used to filter physical parts with manufacturing dates before the date entered.	Click the Set Date  button and select a date from the calendar.
Location Name	Location name of the physical part.	Select one or more location names.
Disposition Value	Disposition values for the physical part.	Select one or more disposition values.

iii. Click **Find**.

The results display the valid deviated physical parts that can be installed.

iv. Select the physical part from the results and click **OK**.

The **Install Physical Part** dialog box reappears with the **To be Installed Physical Part** field set to the selected physical part.

E. Click the **Set Date**  button to set the installation date when the installation occurred.

F. If the **Usage Name** is set to **Extra to Design**, in the **Extra to Design Usage Name** box, type the usage name for the installed physical part.

G. Click **OK** to install the deviated physical part.

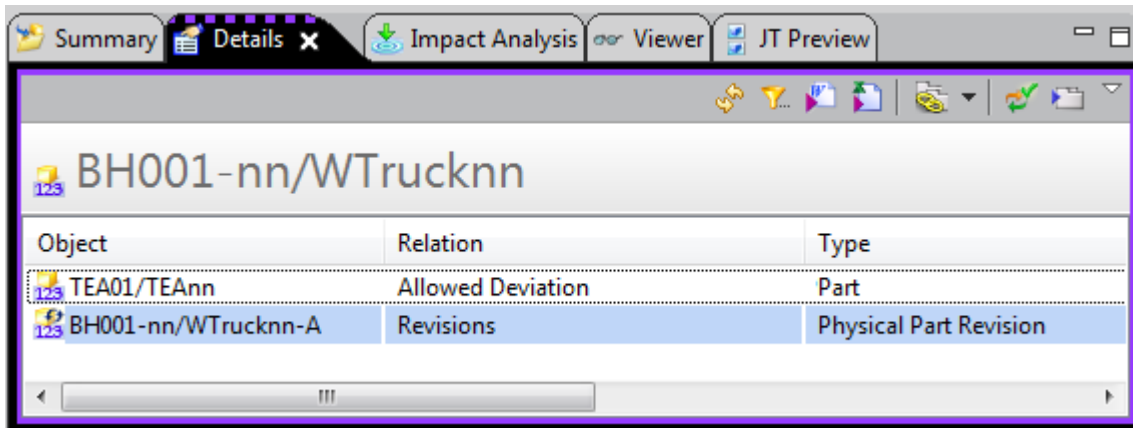
The deviated physical part is installed in the structure.

View the deviation authorization information

You can view the authorizing deviation item for a deviated part.

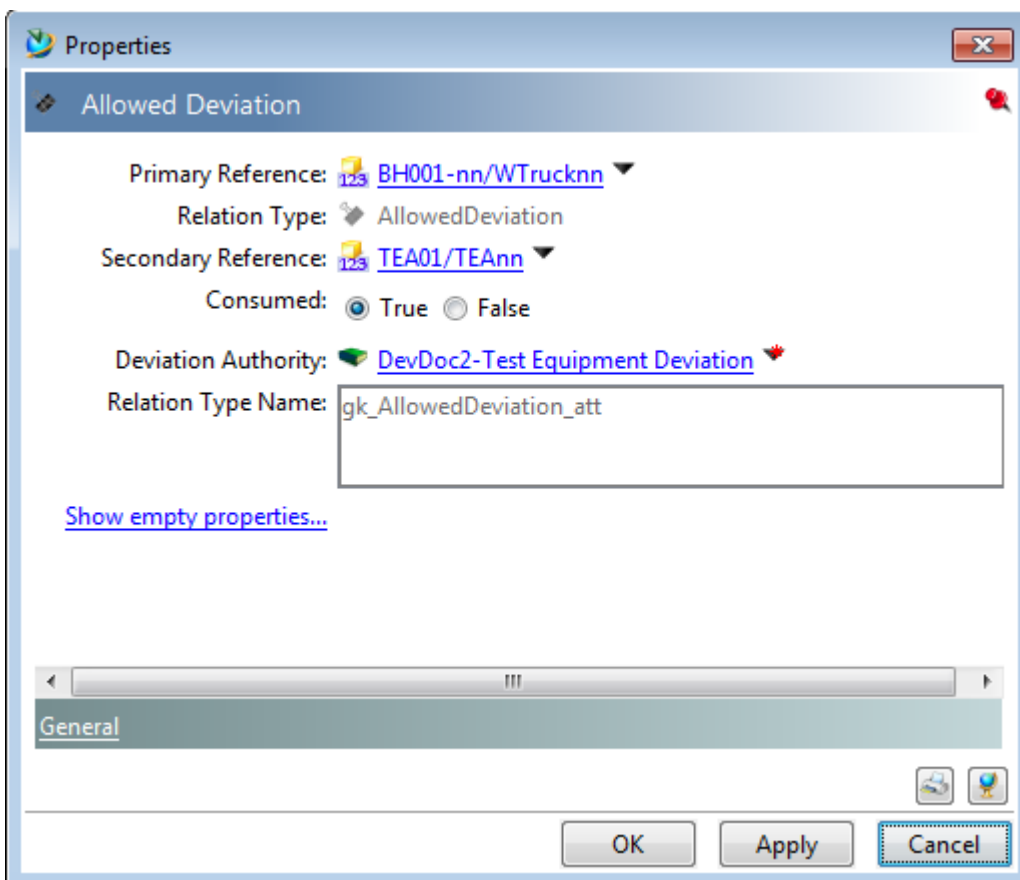
1. From the navigation pane, click **Service Manager**.
2. Select the physical structure containing the deviated part and choose **Send to → My Teamcenter**.
3. Click the **Details** tab.

The **Allowed Deviation** relation is displayed.



4. Select the deviated part.
5. Right-click and choose **Properties on Relation....**

The properties of the **Allowed Deviation** relation are displayed.



The **Deviation Authority** field shows the deviation authority item used to authorize the deviation.

Release an as-maintained physical structure

You can release the as-maintained structure after you finish building it.

1. From My Teamcenter or Service Manager, select the as-maintained structure you want to release.
2. Choose **File** → **New** → **Workflow Process**.
3. In the **New Process Dialog** box, choose **Release As-Maintained Structure** from the **Process Template** list.

Note:

The **Release As-Maintained Structure** option is the standard workflow provided with the As-Maintained Management application. This workflow also validates for any missing physical parts.

You can configure this workflow or create your own to set up the process flow, reviewers, and business validations required to release an as-maintained structure.


4. Click **OK**. Alternatively, click **Cancel** to exit.

Support customer-defined release

To support customer-defined releases, you can add custom release value in the BMIDE business object constant **maturityStatuses**.

Update a released as-maintained physical structure

You can update the as-maintained structure by changing the structure after releasing it. A new revision is created when changes such as uninstalling, installing, replacing, or rebasing physical parts are made within the structure. A new build record is created for the revised structure.

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the released physical structure.
4. Change the physical structure by uninstalling, installing, replacing, or rebasing the physical parts within the structure.

Rename a physical part

You can rename an existing physical part to change the following properties:


- **Part number**
- **Serial number**

When you rename a physical part, the following occurs:

- The new serial number is checked for uniqueness.
- If a physical part is renamed using a different part number, the system does not check the existence of a neutral item with the new part number.
- The physical realization relation remains intact between the original physical part (before renaming) and the original neutral part.

Note:

If you want to relate the physical part or structure to a different neutral configuration, you need to **rebase the physical part**.

1. From the navigation pane, click **Service Manager**.
2. Click **Open by Name**  to open the physical part you want to rename.
3. Choose **Tools** → **Rename Physical Part**.

The **Rename Physical Part** dialog box appears.

4. Enter the following information.

Field name	Definition	Valid values
New Part Number	New part number for the renamed physical part.	Alphanumeric (1–128 characters)
New Serial Number	New serial number for the renamed physical part. This field is unavailable if the part did not require a serial number.	Alphanumeric (1–128 characters)

5. Click **OK** to rename the physical part.



View untraced structures

You can display the parts in the neutral structure that are not traceable in the related physical structure. Parts that are not traceable have the part logistics property **Traceable** set to **False** in context of the parent physical structure and a physical part is not generated for that neutral part.

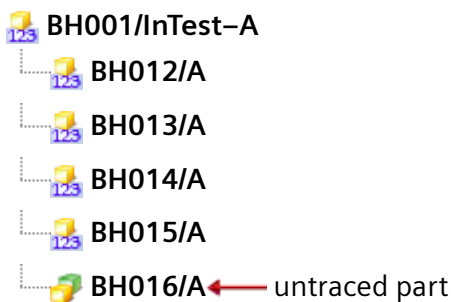
The following occurs when you display an untraced structure in Service Manager:

- The untraced parts are displayed as neutral parts in the physical structure.
- Any action that can be run on neutral parts is available on the displayed untraced parts.

When viewing an as-maintained structure using visualization, you can also display the untraced parts.

1. From the navigation pane, click **Service Manager**.
2. Click **Open by Name**  to open the physical structure that you want to display the untraced parts for.
3. Select the parent part of the physical structure.
4. Choose **View** → **Show Untraced Parts** or click the **Show Untraced Parts** button  on the main toolbar at the top of the **Service Manager** pane.

The untraced parts are displayed.



Updating structures using Excel Live

You can update physical structures using Excel Live. Teamcenter Extensions for Microsoft Office provides synchronous access to Teamcenter workspace objects through Microsoft Office Excel. With the *live* Excel, Extensions for Office gives Excel direct connectivity to the Teamcenter server and allows you to edit physical structures using Excel.

To generate a file in live Excel, you choose the related option when exporting data for selected objects in the Teamcenter rich client. The following occurs after export:

- The data exported to the output file consists of property values for the objects.
- The exported property values are synchronized with the corresponding values in Teamcenter.
- Values that you edit in the output file are changed interactively in Teamcenter.

8. Viewing as-maintained physical structures

Viewing as-maintained physical structures

You can view as-maintained physical structures by:

- Creating revision rules.

You can create and apply a revision rule to select and view the appropriate status and operational state of the physical parts in an as-maintained physical structure. A revision rule sets the criteria for selecting the revision such as whether to load working revisions or released revisions or whether the physical structure is operational. By specifying a time in history, you see the physical structure effective at that time. For example, you may want to view only the released physical parts in the structure on a specified date.

If no revision rule is specified, the current revision and configuration of the physical structure is displayed.

- Viewing the top physical part.

You can view the top physical part for a selected physical part. The system displays the topmost physical part parent for the selected physical part and all its intermediate parents in a tree structure.

Managing revision rules


When you create a revision rule for an as-maintained structure, you can set up rules for each or a combination of the following conditions:

- Display the as-maintained structure at a specified date.
- Display the physical parts that are operational or nonoperational. When you set up a revision rule to see only the operational structure, the system does not display the structure if the top-level physical part is in a nonoperational state.
- Display the physical parts at a specified status.

After you create the revision rule, you must set the revision rule to apply the rule to your structure.

Create or edit a revision rule

1. From the navigation pane, click **Service Manager**.

2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the structure that you want to apply the revision rule to.
4. Select any BOM line in the physical structure.
5. Choose **Tools** → **Revision Rules** → **Create/Edit**.


The **View/Set Current Revision Rule** dialog box appears.

6. Choose **Create**.

The **New Revision Rule** dialog box appears.

7. Enter the following information for the new revision rule.

Field name	Definition	Valid values
Name	Name for the revision rule.	Alphanumeric (1–128 characters)
Description	Description of the revision rule. (optional).	Alphanumeric (1–240 characters)

8. Click the **Set Date**  button to set the effective date for the configuration. Select the **Current** check box to set the current date.
9. Select the **Show only Operational Configuration** check box to display only operational structures.
10. Select the status for the state of the configuration you want to display. Select the **Any** check box to display all the states.
11. Click **OK** to create the revision rule. Alternatively, click **Cancel** to exit.

The **View/Set Current Revision Rule** dialog box appears.

12. (Optional) Click **Apply Rule** if you want to set the revision rule.
13. To edit revision rules:
 - a. From the **Rules** pane in the **View/Set Current Revision Rule** dialog box, select the revision rule you want to edit. Click **Modify**.


The **Modify Revision Rule** dialog box appears.

b. Change the fields as required. Click **OK** to save the changes. Alternatively, click **Cancel** to exit.

14. To delete revision rules:

- From the **Rules** pane in the **View/Set Current Revision Rule** dialog box, select the revision rule you want to delete. Click **Delete**.


Set the revision rule

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the structure that you want to apply the revision rule to.
4. Select any BOM line in the physical structure.
5. Choose **Tools** → **Revision Rules** → **View/Set Current**.


The **View/Set Current Revision Rule** dialog box appears.

6. From the **Rules** pane in the **View/Set Current Revision Rule** dialog box, select the revision rule you want to set.
7. Click **OK** or **Apply** to set the revision rule.

Set the revision rule date


1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the structure that you want to apply the revision rule to.
4. Select any BOM line in the physical structure.
5. Choose **Tools** → **Revision Rules** → **Set Date**.

The **Set Date** dialog box appears.

6. Click the **Set Date**  button to set the effective date for the configuration or select the **Current** check box to set the current date.

7. Select the **Show only Operational Configuration** check box to display only operational structures.
8. Click **OK** to set the date. Alternatively, click **Cancel** to exit.


Modify the current revision rule

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the structure that you want to apply the revision rule to.
4. Select any BOM line in the physical structure.
5. Choose **Tools** → **Revision Rules** → **Modify Current**.

The **Modify Current Revision Rule** dialog box appears.

6. Change the fields as required. Click **OK** to save the changes. Alternatively, click **Cancel** to exit.

Show the top physical part

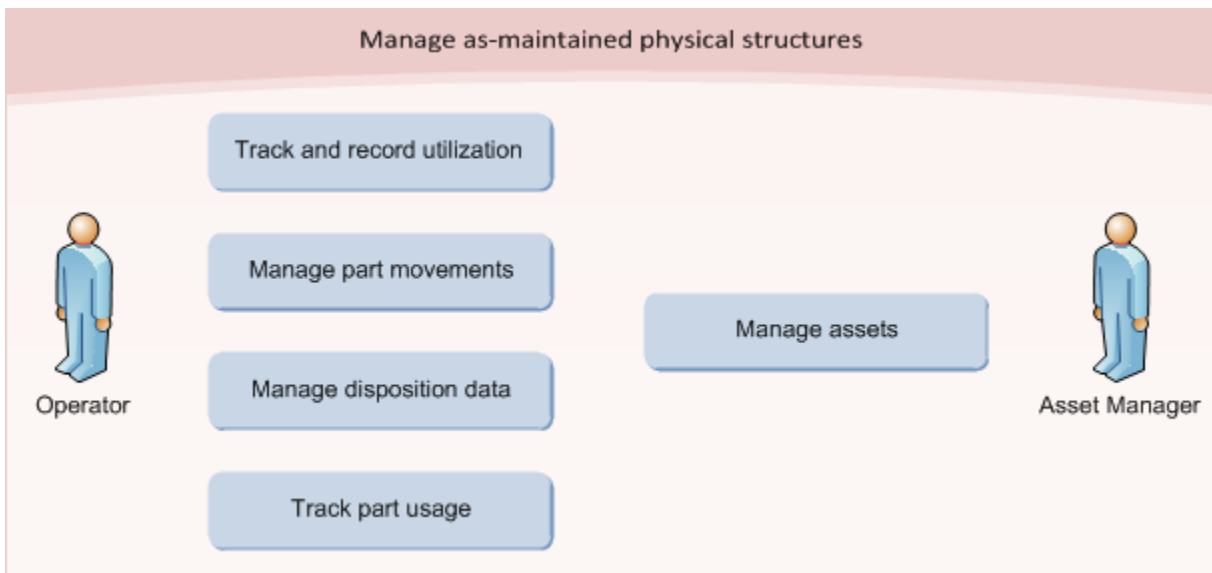
1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the physical structure or physical part.
4. Select the BOM line of the physical part.
5. Right-click and choose **Show Top Physical Part**.

The top-level parent and intermediate parents are displayed.

9. Managing as-maintained physical structures

Managing as-maintained physical structures

Users such as operators and asset managers maintain the as-maintained physical structure according to organization needs and requirements as shown in the following figure.



You can manage as-maintained structures by:


- Managing physical part location movement by moving physical parts from one physical location to another.
- Managing part disposition data by changing part dispositions and viewing disposition history to track when a physical part changed dispositions.
- Tracking and recording part utilization.
- Tracking physical part usage.
- Managing assets by a user such as a asset manager that includes the following tasks:
 - Creating asset group hierarchies and asset groups.
 - Adding physical parts to asset groups.

Move a part to another physical location

You can move a physical part from one physical location to another. The utilization information records the physical location movements by capturing the time when the physical part is placed in a location and when it is removed.


Note:

If the physical part is installed in a physical structure and is not the top-level parent, you cannot move the physical part to a different location.

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From your home folder or from the **Service Editor** view, select all the physical parts you want to change the location for.
4. Right-click and choose **Move From**.
5. Select the physical location.
6. Right-click and choose **Move to**.
7. Click the **Set Date**  button to set the move date when the physical part was moved to the new location.
8. Click **OK**. Alternatively, click **Cancel** to exit.

Display physical location members

You can display the physical parts that are contained in the physical location. The locations are assigned to the physical parts when you generate the as-maintained physical structure or when you move physical parts from one location to another location.

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open By Name**  to open the physical location.
4. Select the physical location.
5. Right-click and choose **Show Contains View**.

The **Contains** pane appears.

6. Click ▼ next to the column and select a value to filter the results. You can filter the results by one or more of the following properties:
 - **Object Name**
 - **Type**
 - **Part Number**
 - **Serial Number**
 - **Lot**
 - **Manufacturer's ID**

Managing physical part disposition data

What is disposition data?

Disposition data captures different states of a physical part. These states are classified as *operational* or *non-operational*.

You can manage part disposition data by:

- Changing the disposition for a physical part. For example, you may want to change the disposition from a operational disposition such as **In-Service** to a non-operational disposition such as **In-Repair**.
- Viewing the disposition history that is tracked for the physical part.

The following information is displayed in the disposition history view for the physical part.

Disposition history column name	Description
Disposition Type	Specifies the disposition of the physical part.
Operational	Specifies whether the physical part at that disposition was operational.
Disposition Start Time	Specifies the date when the disposition type was assigned.
Disposition End Time	Specifies the date when the disposition type was removed or changed.

- The Disposition history shows the latest record of disposition with **Start Time** as selected time. When you change the manufacturing date for the part, the first disposition **Start Time** is also updated with the changed manufacturing date.

The second disposition onwards, the disposition start and end time for all other actions is intact even of you change the manufacturing time.

Change part disposition


To change the disposition of a part, navigate to the **Service Manager** and make necessary changes in the **Service Editor** view.

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From your home folder or from the **Service Editor** view, select all the physical parts you want to change the disposition for.

If you select a parent part and the **Disposition_Propagate_To_Child** preference is set to true, the disposition change is also applied to the child parts.


4. Right-click and choose **Change Disposition**.

The **Change Disposition** dialog box appears.

5. Select the new disposition value.
6. Click the **Set Date**  button to set the disposition date when the disposition changed.
7. Click **OK** to change the disposition. Alternatively, click **Cancel** to exit.

View disposition history

Navigate to the **Service Editor** view using the **Service Manager** to view the disposition history.

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the physical structure or physical part.
4. Select the physical part.

- Right-click the physical part BOM line and choose **Show Disposition History**.

The **Disposition History** pane appears.

Tracking part utilization

Tracking part utilization

A user such as an operator can record and track part utilization information based on life, observation and date **characteristic definitions** defined for the neutral part. You can record values for the physical part for all the characteristics related to the related neutral part. If you have purchased and have a license for Service Event Management, utilization values are automatically recorded by creating service events and activity entries; otherwise, you manually enter the values by using the **Record Utilization** menu command.

Life characteristics are cumulated for the physical part and can be propagated throughout the entire physical structure if any of the child physical parts share the same life characteristics. Date and observation characteristics are not cumulated or propagated.

You must create a logbook before recording utilization information. The recorded information is stored in the logbook log entries.

Create a logbook


- From the navigation pane, click **Service Manager**.
- Select a folder where you want to create the new logbook.
- Choose **File** → **New** → **Log Book**.
- In the **New Log Book** dialog box, enter the following information for the new logbook.

Field name	Definition	Valid values
Log Book Name	The name of the logbook.	Alphanumeric (1–128 characters)
Description	The description of the logbook.	Alphanumeric (1–240 characters)

- Click **OK** to create the logbook. Alternatively, click **Cancel** to exit.

Record a utilization



- From the navigation pane, click **Service Manager**.

2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the physical structure or physical part.
4. Select the BOM line of the physical part you want to record the utilization for.
5. Right-click and choose **Record Utilization**.

The **Record Utilization** dialog box appears.


6. Select the log book to record the utilization entries.
7. Enter the following information for the utilization.

Field name	Definition	Valid values
Log Book	Available log book values	Available log book values
Description	Description of the utilization	Alphanumeric (1–240 characters)
Captured by	User who captured the utilization information	Alphanumeric (1–128 characters)

8. Click the **Set Date**  button and select a date from the calendar.
9. Select the **Propagate** check box to propagate the same data to any child physical part that shares the same life characteristic definitions.
10. Supply the characteristic values to record the utilization.
 - For a life characteristic, type the value.
 - For an observation characteristic, select the value.
 - For a date characteristic, click the **Set Date**  button and select a date from the calendar.

11. Click **OK** to record the utilization. Alternatively, click **Cancel** to exit.

View the part utilization data

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the physical structure or physical part.
4. Select the BOM line of the physical part you want to view the utilization for.
5. Right-click and choose **Show Utilization**.

The **Show Utilization** pane appears and shows the utilization data.

Column name	Description
Characteristics Name	Specifies the name of the characteristic definition.
Unit	Specifies the unit used for the characteristic definition.
Time Since New	Specifies the sum of all recorded values for a life characteristic definition. If a revision rule is being used, the value is the sum of all recorded values since the revision rule date.


Column name	Description
Last Value	Specifies the latest recorded value for an observation characteristic definition or the latest date for a date characteristic definition.
Last Utilization Date	Specifies the latest date the utilization values were recorded.
Time on Parent	Specifies the accumulated life characteristic values for a physical part since it was installed on the parent.
Time Since Repair	Specifies the accumulated life characteristic values for a physical part since the last repair event.
Time Since Overhaul	Specifies the accumulated life characteristic values for a physical part since the last overhaul event.

View log entries

When you view the log entries for a physical part, the following information is displayed:

Column name	Description
Log Entry	Name of the log entry.
Recording Time	Date and time that the utilization was recorded.
Captured By	User who captured the utilization information.
Log Book	Name of the log book.
Characteristic Name	Name of the recorded life, observation, and date characteristic.
Derived	Is characteristic of derived type?
Value	Value of the recorded life, observation, and date characteristic.
Unit	Unit of measure used for the recorded life and observation characteristic.
Value Captured By	User who captured the utilization formation.
Last modifying User	User who entered or invalidated the data.
Creation date	Date and time when value was first entered.

1. From the navigation pane, click **Service Manager**.


2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open By Name**  to open the physical structure or physical part.
4. Select the BOM line of the physical part you want to view the log entries for.
5. Right-click and choose **Show Log Entries**.

The **Log Entries** pane appears.

6. Expand the log entry to view all the characteristic definitions and their values.

Edit log entries

Before you can edit log entries, your administrator must **set the site preference MROEnableEditLogEntry to True**. The default setting is **False**.

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor**.
3. From the **Service Editor** view, click **Open by Name**  to open the physical structure or physical part.
4. Right-click the BOM line of the physical part for which you want to view the log entries, and choose **Show Log Entries**.

The **Log Entries** pane appears.

5. Expand the log entry to view all the characteristic definitions and their values.
6. Click in the row for the **Log Entry** for which you need to edit a value.

Log Entries tab information overview:

Log Entry	Recording ...	Log Book	Characterist...	Derived	Value	Unit	Value Captured By	Owner	Creation Da
▶ E1	29-Sep-202...	ServiceLogB...							
▶ E2	29-Sep-202...	ServiceLogB...							
4 E3	29-Sep-202...	ServiceLogB...							
			> TotalLife	Y	25	km	John	Swapnil (ss)	29-Sep-2021
			> T2	Y	15	km	John	Swapnil (ss)	29-Sep-2021
			> Obs10		25	deg	John	Swapnil (ss)	29-Sep-2021
			> L2		20	Km	John	Swapnil (ss)	29-Sep-2021
			▼ L1		5	Km	John	Swapnil (ss)	29-Sep-2021
					10	Km	USER	Swapnil (ss)	29-Sep-2021
			▼ Date10		02-Sep-2020 00:00		John	Swapnil (ss)	29-Sep-2021
					10-Sep-2020 00:00		USER	Swapnil (ss)	29-Sep-2021
					15-Sep-2020 00:00		USER	Swapnil (ss)	29-Sep-2021

- 1. **Value** Editable
- 2. **Value Captured By** Editable
- 3. **Derived** Not Editable
- 4. **History** Not Editable

7. Edit the **Utilization Characteristics** as needed.

Update Utilization

Leave field(s) blank to invalidate

Log Book: ServiceLogBook
 Log Entry: E3
 Captured By: John
 Propagate

Date Characteristic	Date
Date10	09/10/20 00:00 AM

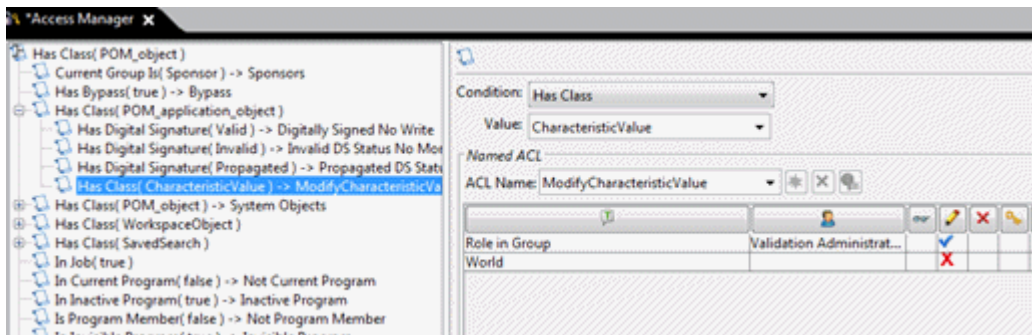
September 2020

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

Allow a user to invalidate a log entry


The administrator can do the following to allow any user to update a log entry.

1. Add an ACL rule for the **CharacteristicValue** business object from Access Manager.
2. Give write privilege to desired users or roles, and restrict privileges for the world.



3. Update the value of the site preference **MROEnableEditLogEntry** to **true**.

Update a log entry

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor**.
3. From the **Service Editor** view, click **Open by Name**  to open the physical structure or physical part.
4. Right-click the BOM line of the physical part for which you want to view the log entries, and choose **Show Log Entries**.

The **Log Entries** pane appears.

5. Expand the log entry to view all the characteristic definitions and their values.
6. Double-click the characteristic value to be invalidated.

The **Update Utilization** dialog box appears.

7. To update the utilization, enter the following:

Captured by = user who captured utilization, up to 128 Alphanumeric characters

8. Select the **Propagate** check box to propagate the same data to any child physical part that shares the same life characteristic definitions.
9. Update the characteristic values to invalidate the old value and record the new utilization.

- For a life characteristic or an observation characteristic, type the value.
- For a date characteristic, click **Set Date**  and select a date from the calendar.

10. Click **OK** to record the utilization.


View physical part usage history

You can the display part usage information for a physical part. Usage information includes when a physical part was installed, uninstalled, or replaced or when the location of a physical part was changed.

The following part usage information is displayed when you show the usage for a physical part.

Column name	Description
Parent/Location	Specifies the parent physical part in a physical structure for physical part installation history. Specifies the name of the physical part location for physical part location history.
Type	Specifies the usage type. If Type is set to PhysicalPartRevision , you see the physical part installation usage history. If Type is set to PhysicalLocation , you see the physical part location history.
Usage	Specifies the physical part usage. The Usage is only valid for physical part installation history.
In Time	Specifies the installation time for physical part installation history. Specifies the time when the physical part was placed in the location for physical part location history.
Out Time	Specifies the uninstallation time for physical part installation history. Specifies the time when the physical part was removed from the location for physical part location history.

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.

- From the **Service Editor** view, click **Open by Name**  to open the physical structure or physical part.
- Select the BOM line of the physical part you want to view the part usage for.
- Right-click and choose **Show Physical Part Usage History**.

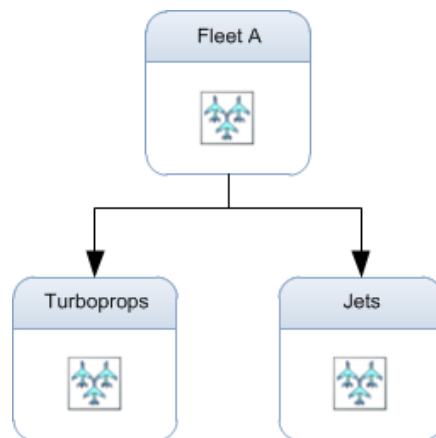
The **Physical Part Usage History** pane appears.

Managing assets

What are asset groups and asset hierarchies?

Asset groups are collections of physical assets that define a logical grouping of physical parts. For example, you may want to create an asset group defining a fleet of aircraft or ships.

Asset hierarchies are used to build a nested hierarchy of asset groups within asset groups. The following figure shows an example of an asset hierarchy.



Create an asset group

- From the navigation pane, click **Service Manager**.
- Select a folder where you want to create the new asset group.
- Choose **File** → **New** → **New Asset Group**.

The **New Asset Group** dialog box appears.

- Enter the following information for the new asset group.

Field name	Definition	Valid values
Asset Group Name	Name of the asset group	Alphanumeric (1–128 characters)
Description	Description of the asset group	Alphanumeric (1–240 characters)

- Click **OK** to create the asset group. Alternatively, click **Cancel** to exit.

Create an asset group hierarchy

- From **My Teamcenter**, select the parent asset group where you want the nested asset group.
- Choose **Send to** → **Service Manager**.
- Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
- Select the line containing the parent asset group.
- Choose **File** → **New** → **Asset Group**.

The **New Asset Group** dialog box appears.

- Enter the following information for the new asset group.

Field name	Definition	Valid values
Asset Group Name	Name of the asset group	Alphanumeric (1–128 characters)
Description	Description of the asset group	Alphanumeric (1–240 characters)

- Click **OK** to create the asset group. Alternatively, click **Cancel** to exit.

Add a part to an asset group


- From the navigation pane, click **My Teamcenter** or **Service Manager**.
- Select the physical part that you want to add as a member of the asset group.

Note:

You must select the physical part, *not* the physical part revision.

3. Right-click and choose **Copy**.
4. Select the asset group you want the physical part to be a member of.
5. Right-click and choose **Paste**.

Display asset group members

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
3. From the **Service Editor** view, click **Open by Name**  to open the asset group.
4. Select the asset group.
5. Right-click and choose **Show Contains View**.

The **Contains** pane appears.

6. To filter the results, click the ▼ button next to the column in the **Contains** pane.

Display asset group properties

1. From the navigation pane, click **My Teamcenter**.
2. Select the asset group.
3. Right-click and choose **Properties**.

Delete an asset group

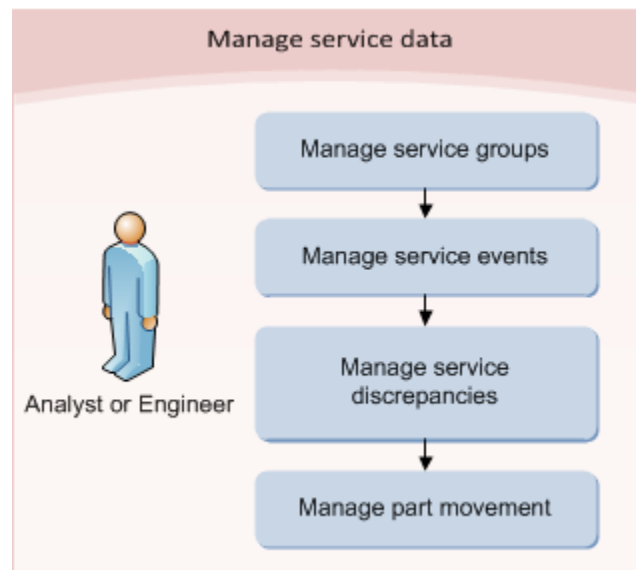
You can delete an asset group if it is not the parent of a nested asset group and does not contain any physical parts.

1. From the navigation pane, click **My Teamcenter**.
2. Select the asset group you want to delete.
3. Choose **Edit** → **Delete**.

10. Managing service data

Managing service data

Service Event Management is a separately installed and licensed add-on to Service Manager that allows you to capture information about external service for your physical assets.



You can use the Service Event Management extension for Service Manager to:

- Create service groups and service group structures to organize the service performed on the physical parts in your organization.
- Create and manage service events to track service history.
- Capture irregularities or discrepancies for physical parts and create associated corrective action service events for those discrepancies.
- Record utilization information (activity entry values) on service events.
- Track physical parts installed and uninstalled in the physical structure as a result of service performed.
- Approve service events to apply any associated changes to the as-maintained structure.

You must install the appropriate components and licenses for Service Manager (as-maintained management) and Service Event Management and perform any configuration tasks prior to using this functionality. You must also perform any tasks needed to create your neutral structure and as-maintained structure prior to recording any service data.

Managing service groups

What is a service group?

A *service group* is a collection of service events and service discrepancies that you can create to organize service data for one or more physical parts. You can create a single service group or a hierarchy of service groups called a *service group structure* by creating one or more service groups within a service group. You can create a service group without a relation to a physical part, or you can create a service group and relate it to one or more physical parts.

Create a service group

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor**.
3. From the **Service Editor** view, create a service group in one of the following ways:
 - Select the folder where you want to create the new service group or select the physical part to relate to the service group and choose **File** → **New** → **Service Group**.
 - Right-click the physical part to relate to the service group and choose **New Service Group**.

Note:

You can also select an existing service group to create this new service group in to create a service structure hierarchy.

4. Complete the following information for the service group.

Field name	Definition	Valid values
Contained In	Parent service group to associate to this service group.	Click ▼ and select one of the following values: <ul style="list-style-type: none"> • Add allows you to search for an existing service group to associate with this service group. • Clear clears any service group that is contained in this field.
Name	Name of the service group (required).	Alphanumeric string (1–128 characters).

Field name	Definition	Valid values
ID	Identification number of the service group (required).	Alphanumeric string (1–20 characters).
Description	Description of the service group.	Alphanumeric string (1–240 characters).
Purpose	Purpose of the service group.	Alphanumeric string (long string).
In Progress Physical Parts	Physical part or physical parts associated with this service group.	<p>Click ▼ and select one of the following values:</p> <ul style="list-style-type: none"> • Add allows you to search for a physical part to associate with this service group. You can associate one or more physical parts to a service group. • Clear clears any service group that is contained in this field.

5. Click **Finish** to create the service group. Alternatively, click **Cancel** to exit.

Edit a service group

1. From the **Service Editor** view, select the service group to edit.
2. Edit the service group in one of the following ways:
 - Choose **View** → **Update Properties**.
 - Right-click the service group and choose **Update Properties**.
3. Edit the information for the service group.
4. Click **Finish** to apply the changes. Alternatively, click **Cancel** to exit.


Managing service events

Service event




A *service event* is informational data that is captured as a result of service activity that an external source performs on a physical part. A service event captures information such as the service type, work scope, resource information, maintenance time, and cost.

When you create a service event, you can associate it to a service group or create it without a parent service group, but you must associate it to a single physical part. After a service event is approved, you can edit it, but you cannot delete it or add service data to it.

Create a service event

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor**.
3. From the **Service Editor** view, click **Open By Name**  to open the physical structure or physical part.
4. From the **Service Editor** view, create a service event in one of the following ways:
 - Select the folder where you want to create the new service event or select the physical part or service group to relate to the service event and choose **File** → **New** → **Service Event**.
 - Right-click the physical part or service group to relate to the service event and choose **New Service Event**.
5. Complete the information for the service event.

Field name	Definition	Valid values
Contained In	Parent service group to associate to this service event.	Click ▼ and select one of the following values: <ul style="list-style-type: none"> • Add allows you to search for an existing service group to associate with this service event. • Clear clears any service group that is contained in this field.
Name	Name of the service event (required).	Alphanumeric string (1–128 characters).
ID	Identification number of the service event.	Alphanumeric string (1–32 characters).
Activity Number	Activity number of the service event.	Alphanumeric string (1–32 characters).
Description	Description of the service event.	Alphanumeric string (1–240 characters).

Field name	Definition	Valid values
Purpose	Purpose of the service event.	Alphanumeric string (long string).
Category	Category of the service event.	Noneditable property.
Action Type	Type of service completed for this service event.	Select one of the following values: <ul style="list-style-type: none"> • Overhaul • Inspection • Repair • Other
Authorized By	Name of the person that authorized the service.	Alphanumeric string (1–40 characters).
Work Start Date	Date that the work starts.	Click the Set Date  button and select a date from the calendar.
Needed By Date	Date that the work needs to be complete.	Click the Set Date  button and select a date from the calendar.
Zones	Zone where the service event occurred.	Alphanumeric string (1–256 characters).
Job Cards	Job cards associated to the service event.	Alphanumeric string (long string).
Work Location	Location that the work occurred.	Alphanumeric string (long string).
Signed Off By	Name of the person that signed approval for the service.	Alphanumeric string (1–40 characters).
Actual Labor Cost	Actual cost of the labor.	Numeric (float).
Actual Labor Hours	Actual hours of labor.	Numeric (float).
Actual Material Cost	Actual cost of the material.	Numeric (float).
In Progress Physical Part	Physical part associated with this service event (required).	Click  and select one of the following values: <ul style="list-style-type: none"> • Add allows you to search for a physical part to associate with this service event.

Field name	Definition	Valid values
		<ul style="list-style-type: none"> • Clear clears any physical part that is contained in this field.

Note:

The fields on the **Create Service Event** dialog box can be modified using **Business Modeler IDE** functionality.

6. Click **Finish** to create the service event. Alternatively, click **Cancel** to exit.


Edit a service event

1. From the **Service Editor** view, select the service event to edit.
2. Edit the service event in one of the following ways:
 - Choose **View** → **Update Properties**.
 - Right-click and choose **Update Properties**.
3. Edit the information for the service event.
4. Click **Finish** to apply the changes. Alternatively, click **Cancel** to exit.

Create an activity entry value


You can capture life, date, or observation characteristic type data on a service event for an associated physical part. You must create characteristics definitions on the neutral structure before you can capture this information on a service event. These characteristics are referred to as *activity entry values* on a service event and record utilization information for the associated physical part. The utilization information for the physical part is not updated until the service event is approved. An activity entry value can only be contained within a service event.

1. From the **Service Editor** view, select the service event to add the activity entry values to.
2. Create the activity entry values in one of the following ways:
 - Choose **File** → **New** → **Activity Entry Value**.
 - Right-click and choose **New Activity Entry Value**.
3. Add the following information for the activity entry value.

Field name	Definition	Valid values
Service Event	Parent service event associated to this activity entry value (required).	Click ▼ and select one of the following values: <ul style="list-style-type: none"> • Add allows you to search for an existing service event to associate with this activity entry value. • Clear clears any service event that is contained in this field.
Name	Name of the activity entry value (required).	Click ▼ and select the activity entry name.
Description	Description of the activity entry value (required).	Alphanumeric string (1–240 characters).
Characteristic Value	Name of the characteristic value associated to this activity entry value.	Alphanumeric string (1–40 characters).
Characteristic Date	Date that the characteristic was observed during maintenance.	Click the Set Date  button and select a date from the calendar.
Propagate	Determines whether to propagate the collected values down the physical part structure.	true (default value) or false .

4. Click **Finish** to apply the changes. Alternatively, click **Cancel** to exit.

Display utilization values using Show Utilization

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor**.
3. From the **Service Editor** view, click **Open by Name**  to open the physical structure or physical part.
4. Select the BOM line of the physical part you want to view the utilization for.
5. Right-click and choose **Show Utilization**.

The **Show Utilization** view appears.

The screenshot displays a software interface with three main sections:

- As-Maintained Structure:** A table listing parts with columns: As-Maintained Structure, Item Type, Part Used, Usage, Serial Number, Lot Number, Part Number, Installation Time, Manufacturing Date, and M. The row for 000396/--A is highlighted in red.
- Utilization:** A table for part 000399/--A with columns: Characterist..., Unit, Time Since New, Last Date Value, Last Observation, Last Utilizat..., Time on Par..., Time Since ..., and Time Since ... The 'Last Observation' column is circled in red and labeled with a '1'.
- Log Entries:** A table for part 000399/--A with columns: Log Entry, Recording ..., Log Book, Characterist..., Derived, Value, Unit, Value Capt..., Owner, and Creation Da... The row for E4 is highlighted in blue and labeled with a '2'.

Note:

The **Last Observation** column includes numeric, logical, and textual observations when present. In the **Utilization** tab, the **Last Observation** column (1) shows the latest observation values for the most recent log entry (2) for the selected part.

Tracking actual time and cost for service events

You can capture actual time and cost information for a service event. Use Access Manager to allow only authorized users to view or update the actual time and cost information for a service event.


Managing service discrepancies

Service discrepancies and fault codes






Discrepancies are irregularities or observations about the maintenance of assets or physical parts. Discrepancies can also identify if there was a failure with the physical part. You must create an associated corrective action service event to address each service discrepancy. You can associate one or more fault codes to a discrepancy. When you create a service discrepancy, you must relate it to a physical part, parent service group, or a service event.

A service discrepancy can also contain fault information about the part. This fault information, or *fault code*, identifies an itemized fault or problem that a manufacturer has identified with a part. Physical parts can also report fault codes as a result of internal diagnostics.

Create a service discrepancy

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor**.
3. From the **Service Editor** view, click **Open by Name**  to open the physical structure or physical part.
4. From the **Service Editor** view, create a service discrepancy in one of the following ways:
 - Select the folder where you want to create the new service discrepancy or select the physical part, service group, or service event to relate to the service discrepancy and choose **File** → **New** → **Service Discrepancy**.
 - Right-click the physical part, service group, or service event to relate to the service discrepancy and choose **New Service Discrepancy**.
5. Complete the following information for the service discrepancy. Some values may already be supplied.

Field name	Definition	Valid values
Contained In	Parent service group or service event to associate to this service discrepancy.	Click ▼ and select one of the following values: <ul style="list-style-type: none"> • Add allows you to search for an existing service group or service event to associate with this service discrepancy. • Clear clears any service group or service event that is contained in this field.
Name	Name of the service discrepancy (required).	Alphanumeric string (1–128 characters).
ID	Identification number of the service discrepancy (required).	Alphanumeric string (1–32 characters).
Activity Number	Activity number of the service discrepancy (required).	Alphanumeric string (1–32 characters).
Description	Description of the service discrepancy.	Alphanumeric string (1–240 characters).

Field name	Definition	Valid values
Initiation Date	Date that the discrepancy is first recorded.	Click the Set Date  button and select a date from the calendar.
Severity	Severity level of the discrepancy.	Select one of the following values: <ul style="list-style-type: none"> • Critical • Major • Minor
Is Failure	Determines whether this discrepancy is a part failure.	true or false (default value).
Discovered By	Name of the person that discovered the discrepancy.	Alphanumeric string (1–40 characters).
Discovery Date	Date that the discrepancy was discovered.	Click the Set Date  button and select a date from the calendar.
Due Date	Date that the corrective action work needs to be complete.	Click the Set Date  button and select a date from the calendar.
Physical Part In Progress	Physical part associated with this service discrepancy (required).	Click  and select one of the following values: <ul style="list-style-type: none"> • Add allows you to search for a physical part to associate with this service discrepancy. • Clear clears any physical part that is contained in this field.
Fault Code	Associated fault codes for this service discrepancy.	Click  and select one of the following values: <ul style="list-style-type: none"> • Add allows you to search for a fault code to associate with this service discrepancy. <p>The Fault Codes tab displays all fault codes that are attached to the neutral part from which the physical part is realized. Click the Search tab to look for other fault codes, which are displayed on the Search Results tab.</p>

Field name	Definition	Valid values
		<ul style="list-style-type: none"> • Clear clears any fault code that is contained in this field.

6. Click **Finish** to create the service discrepancy. Alternatively, click **Cancel** to exit.

Edit a service discrepancy

1. From the **Service Editor** view, select the service discrepancy to edit.
2. Edit the service discrepancy in one of the following ways:
 - Choose **View** → **Update Properties**.
 - Right-click and choose **Update Properties**.
3. Edit the information for the service discrepancy.
4. Click **Finish** to apply your changes. Alternatively, click **Cancel** to exit.

Create a corrective action service event

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor**.
3. From the **Service Editor** view, select the service discrepancy to associate with the new corrective action service event.
4. Create a corrective action service event in one of the following ways:
 - Choose **File** → **New** → **Service Event**.
 - Right-click and choose **Corrective Action Service Event**.
5. Complete the information for the corrective action service event.
6. Click **Finish** to create the corrective action service event. Alternatively, click **Cancel** to exit.

Create a fault code

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor**.

3. From the **Service Editor** view, create a fault code in one of the following ways:
 - Select the folder where you want to create the new fault code or select the physical part or service discrepancy to relate to the fault code and choose **File** → **New** → **Fault Code**.
 - Right-click the physical part or service discrepancy to relate to the fault code and choose **New Fault Code**.
4. Complete the following information for the fault code.

Field name	Definition	Valid values
Service Discrepancy	Parent service discrepancy associated to this fault code (required).	Click ▼ and select one of the following values: <ul style="list-style-type: none"> • Add allows you to search for an existing service discrepancy to associate with this fault code. • Clear clears any service discrepancy that is contained in this field.
Name	Name of the activity entry value (required).	Alphanumeric string (1–128 characters).
Description	Description of the activity entry value.	Alphanumeric string (1–240 characters).

5. Click **Finish** to create the fault code. Alternatively, click **Cancel** to exit.

Managing part movement

What is part movement?

Part movement is a record of each physical part that is installed, replaced, or uninstalled as a result of a service event.

You can create the following types of part movements.

Type of Part Movement	Description
Uninstall	An <i>uninstall</i> part movement uninstalls a physical part from the physical structure.
Install	An <i>install</i> part movement installs an existing or new physical part into the physical structure.
Replace	A <i>replace</i> part movement uninstalls a part from a physical structure and installs an existing or new replacement physical part into the physical structure.

Part movements can be categorized as traceable or untraceable. Traceable part movements are necessary for parts that affect the physical structure. The changes to the physical structure from a traceable part movement are not applied until the parent service event is approved. Untraceable part movements capture only the part number and serial number of the physical part and are used for parts that do not affect the physical structure, such as a filter change.

Part movements must be **approved** to execute the changes to the physical structure. If the approval fails, all changes are rolled back and the process is terminated.


The install and replace part movement records contains a **Is New** option.

- If the **Is New** option is set to a value of **true**, you need to specify an existing neutral part to be used as the basis for the new physical part. After approval, the new physical part is created and used for the installation or replacement.
- If the **Is New** option is set to a value of **false**, you need to specify an existing physical part. After approval, the specified physical part is used for the installation or replacement.

Create part movement – uninstall

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor**.
3. From the **Service Editor** view, select the service event or physical part to associate with the new part movement.
4. Create a part movement in one of the following ways:
 - Choose **File** → **New** → **Part Movement**.
 - Right-click and choose **New Part Movement**.

5. In the **Create Part Movement** dialog box, complete the following information for the part movement.

Field name	Definition	Valid values
Parent	Parent service event associated with this part movement (required).	Click ▼ and select one of the following values: <ul style="list-style-type: none"> • Add allows you to search for an existing service event to associate with this part movement. • Clear clears any service event that is contained in this field.
Name	The name of the part movement (required).	Alphanumeric string (1–128 characters).
Description	The description of the part movement.	Alphanumeric string (1–240 characters).
Part Movement Type	The type of part movement (required).	Select Uninstall to create an uninstall part movement.
Is Traceable	Determines whether this part movement is for a part that affects the physical structure. If set to false, the system only captures the part number and serial number of the physical part being uninstalled.	true (default value) or false .
Action Date	The date of the part movement.	Click the Set Date  button and select a date from the calendar.
	<p>Note:</p> <p>If you do not enter a value for the action date, the date is set from the current date/time on the server where the part movement is created.</p>	

Create Part Movement

Parent: [Shaft Replacementnn](#) ▼ *

Name: *

Description:

Part Movement Type: ▼ *

Is Traceable: true false

Is Approved Deviation: true false

Is Extra to Design: true false

Action Date:

Parent Physical Element: [No Value](#) *

Usage Name:

Enter Physical Part to move:

Is New: true false

Neutral Part: [No Value](#) ▼

Physical Part: [No Value](#) ▼

Part Number: *

Serial Number:

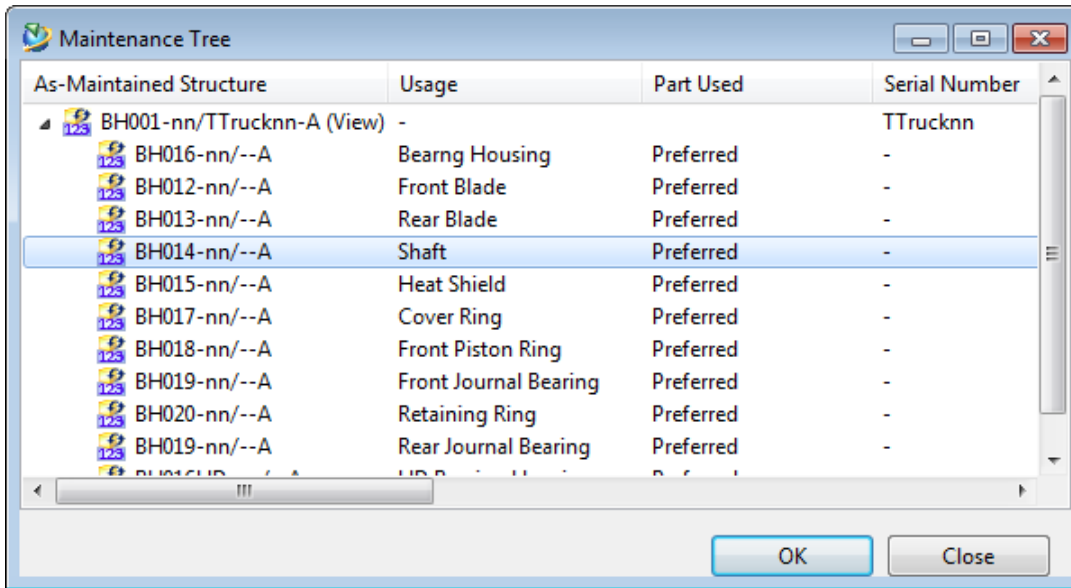
Manufacture Id: *

Lot Number:

Uninstall Location: [No Value](#) ▼ *

- Click **Show As-Maintained Structure** to open the **Maintenance tree** pane and load the as-maintained physical structure related to the service event.

7. From the **Maintenance tree** pane, select the physical part you want to uninstall.



Note:

If a part in the physical structure is missing and has no generated physical part, the part is highlighted in red and is represented by a neutral part. You cannot select that part for the uninstallation.

8. Click **OK**. Alternatively, click **Close** to exit.

The following occurs:

- The **Parent Physical Element** field now contains the physical structure parent part.
 - The **Usage Name** field now contains usage of the selected physical part.
9. Complete the following information for the uninstall part movement.

Field name	Definition	Valid values
Part Number	The part number of the new physical part. The part number is valid only if the field Is Traceable is set to false indicating the part you are uninstalling does not exist as a neutral part in the database.	Alphanumeric string (1–128 characters).
Serial Number	The serial number of the new physical part. The part number is valid only if the field Is Traceable is set to false indicating the	Alphanumeric string (1–128 characters).

Field name	Definition	Valid values
	part you are uninstalling does not exist as a neutral part in the database.	
Manufacture ID	The manufacturer ID of the new physical part. The part number is valid only if the field Is Traceable is set to false indicating the part you are uninstalling does not exist as a neutral part in the database.	Alphanumeric string (1–128 characters).
Lot Number	The lot number of the new physical part. The part number is valid only if the field Is Traceable is set to false indicating the part you are uninstalling does not exist as a neutral part in the database.	Alphanumeric string (1–128 characters).
Uninstall Location	The physical location of the uninstalled part.	Click ▼ and select one of the following values: <ul style="list-style-type: none"> • Add to select the physical location from the displayed list of preferred physical locations. • Clear to clear the physical location that is contained in this field.

Create Part Movement

Parent: [Shaft Replacementnn](#) *

Name: Uninstall Shaftnn *

Description:

Part Movement Type: Uninstall *

Is Traceable: true false

Is Approved Deviation: true false

Is Extra to Design: true false

Action Date: 10/19/11 04:05:34 PM

Show As-Maintained Structure...

Parent Physical Element: [BH001-nn/TTtrucknn](#) *

Usage Name: Shaft

Enter Physical Part to move:

Is New: true false

Neutral Part: [BH014-nn/A;1-Shaft](#)

Physical Part: [BH014-nn/SHnn-004](#)

Part Number: BH014-nn *

Serial Number: -

Manufacture Id: Leeding Engines *

Lot Number:

Uninstall Location: [Fort Chester Shopnn](#) *

Finish Cancel Apply


10. Click **Finish** to create the uninstall part movement. Alternately, click **Cancel** to exit.

The applicable part movement changes are not applied to the physical structure until the parent service event is approved. After **approval**, the physical part is uninstalled from the structure.

Create part movement – install or replace

1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor**.
3. From the **Service Editor** view, select the service event or physical part to associate with the new part movement.
4. Create a part movement in one of the following ways:
 - Choose **File** → **New** → **Part Movement**.
 - Right-click and choose **New Part Movement**.
5. In the **Create Part Movement** dialog box, complete the following information for the part movement.

Field name	Definition	Valid values
Parent	The parent service event associated to this part movement (required).	Click ▼ and select one of the following values: <ul style="list-style-type: none"> • Add allows you to search for an existing service event to associate with this part movement. • Clear clears any service event that is contained in this field.
Name	The name of the part movement (required).	Alphanumeric string (1–128 characters).
Description	The description of the part movement.	Alphanumeric string (1–240 characters).
Part Movement Type	The type of part movement (required).	Select Install to create an install part movement. Select Replace to create a replacement part movement.
Is Traceable	Determines whether this part movement is for a part that affects the physical	true (default value) or false .

Field name	Definition	Valid values
	structure. If set to false, the system only captures the part number and serial number of the physical part being installed.	
Is Approved Deviation	Determines whether this part movement is an approved deviation.	true or false (default value).
Is Extra to Design	Determines whether this part movement is extra to design.	true or false (default value).
Action Date	The date of the part installation. <div data-bbox="480 648 1000 888" style="border: 1px solid black; padding: 5px;"><p>Note: If you do not enter a value for the action date, the date is set from the current date/time on the server where the part movement is created.</p></div>	Click the Set Date  button and select a date from the calendar.

Create Part Movement

Parent: Shaft Replacementnn *

Name: Install Shaftnn *

Description:

Part Movement Type: Install * ← Can be set to Install or Replace

Is Traceable: true false

Is Approved Deviation: true false

Is Extra to Design: true false

Action Date: No date set

Show As-Maintain Structure...

Parent Physical Element: [No Value](#) *

Usage Name:

Enter Physical Part to move:

Is New: true false

Neutral Part: [No Value](#) ▼

Physical Part: [No Value](#) ▼

Part Number: *

Serial Number:

Manufacture Id: *

Lot Number:

Uninstall Location: [No Value](#) ▼

Finish Cancel Apply

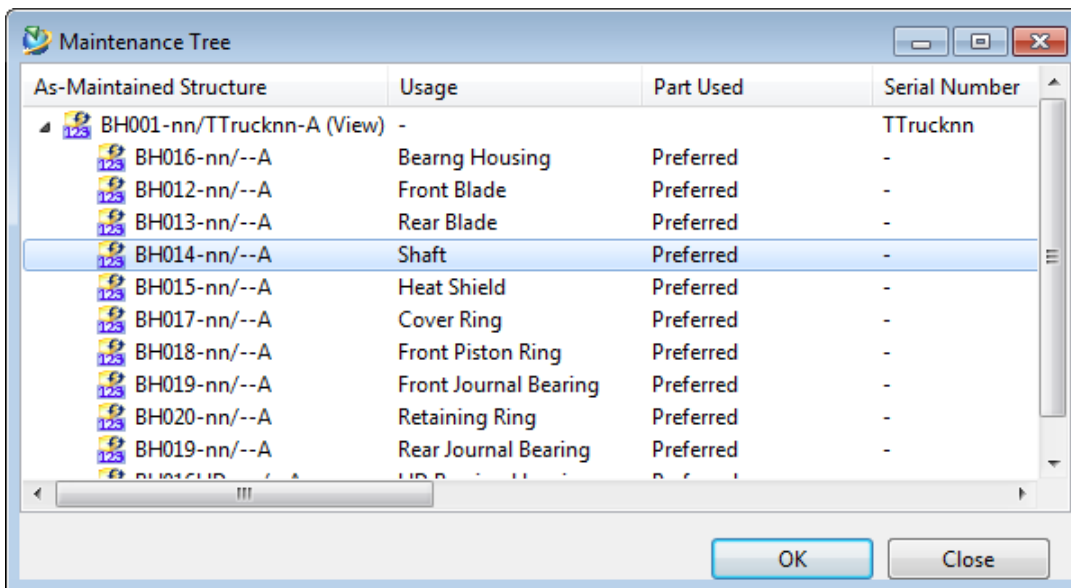
- Click **Show As-Maintained Structure** to open the **Maintenance tree** pane and load the as-maintained physical structure related to the service event.

7. From the **Maintenance tree** pane:

- If the **Part Movement Type** field is set to **Install**, select the physical part to identify the usage of the part you want to install.
- If the **Part Movement Type** field is set to **Replace**, select the physical part to identify the usage of the part you want to uninstall and replace.

Note:

If the **Part Movement Type** field is set to **Replace**, you cannot select a part for replacement that is uninstalled or missing.



Note:

- If **Is Extra to Design** is set to **true**, select the physical part parent of the structure where you want to install the extra to design part.
- If a part in the physical structure is missing and has no generated physical part, the part is highlighted in red and is represented by a neutral part. You cannot select that part for replacement.

8. Click **OK**. Alternatively, click **Close** to exit.

The following occurs:

- The **Parent Physical Element** field now contains the physical structure parent part.
- The **Usage Name** field now contains usage of the selected physical part.

9. From **Create Part Movement** pane, complete the following information for the part movement.

Field name	Definition	Valid values
Is New	Determines whether this part exists as a neutral part in the database and does not have a realized physical part.	true or false (default value)
Neutral Part	The neutral part that is used to create the new physical part to be installed. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Note:</p> <p>This field is only valid if Is New is set to true indicating the neutral part does <i>not</i> have a realized physical part.</p> </div>	Click ▼ and select one of the following values: <ul style="list-style-type: none"> • Add allows you to search for an existing neutral part. • Clear clears any neutral part that is contained in this field.
Physical Part	The physical part to install. <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Note:</p> <p>This field is only valid for the following conditions:</p> <ul style="list-style-type: none"> • The field Is New is set to false indicating the physical part selected for the install already exists. • The field Is Traceable is set to true indicating it is traceable part movement. </div>	Click ▼ and select one of the following values: <ul style="list-style-type: none"> • Add allows you to search for an existing physical part to install. <p>The search results display the valid preferred, alternate, substitute, and deviated physical parts that can be installed.</p> <ul style="list-style-type: none"> • Clear clears any physical part that is contained in this field.
Part Number	The part number of the new physical part. The part number is valid only if the field Is Traceable is set to false indicating the part you are installing does not exist as a neutral part in the database.	Alphanumeric string (1–128 characters).
Serial Number	The serial number of the new physical part. The part number is valid only if the field Is Traceable is set to false indicating the part you are installing does not exist as a neutral part in the database.	Alphanumeric string (1–128 characters).
Manufacture ID	The manufacturer ID of the new physical part. The part number is valid only if the	Alphanumeric string (1–128 characters).

Field name	Definition	Valid values
	field Is Traceable is set to false indicating the part you are installing does not exist as a neutral part in the database.	
Lot Number	The lot number of the new physical part. The part number is valid only if the field Is Traceable is set to false indicating the part you are installing does not exist as a neutral part in the database.	Alphanumeric string (1–128 characters).
Uninstall Location	The physical location of the uninstalled part. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>This field is only available if the Part Movement Type field is set to Uninstall or Replace.</p> </div>	Click ▼ and select one of the following values: <ul style="list-style-type: none"> • Add to select the physical location from the displayed list of preferred physical locations. • Clear to clear the physical location that is contained in this field.

Create Part Movement

Parent: [Shaft Replacementnn](#) *

Name: *

Description:

Part Movement Type: *

Is Traceable: true false

Is Approved Deviation: true false

Is Extra to Design: true false

Action Date:

[Show As-Maintain Structure...](#)

Parent Physical Element: [BH001-nn/TTrucknn](#) *

Usage Name:

Enter Physical Part to move:

Is New: true false

Neutral Part: [BH014-nn /A:1-Shaft](#) *

Physical Part: [BH014-nn/NewShaftnn](#) *

Part Number: *

Serial Number:

Manufacture Id: *

Lot Number:

Uninstall Location: [No Value](#) *

Only available if Part Movement Type is set to Uninstall or Replace

10. Click **Finish** to create the install part movement. Alternately, click **Cancel** to exit.

The applicable part movement changes are not applied to the physical structure until the parent service event is approved. After **approval**, the physical part is uninstalled from the structure.

Approve service data

Service data must pass an approval process to perform operations to the physical structure such as part movements or activity entry value updates. You can approve service data manually, or you can submit the service data through an approval workflow process. If any errors are encountered during the approval, all changes made during the approval process are rolled back and the process is terminated.

The following service data must be approved:

- **Service groups**

When you approve a service group, the approval process is applied to all of the service groups, service events, and service discrepancies contained within that parent service group.

- **Service events**

If a service event is part of a service group, it can be approved as part of the approval process for the parent service group.

- **Service discrepancies**

If a service discrepancy is related to a service group or service event, it can only be approved by approving the parent service group or service event. A service discrepancy that does *not* have an associated corrective action service event *cannot* be approved.

Note:

Service groups, service events, and service discrepancies can only be approved by a user that shares the same role as the creating user. Users outside the role of the creating user cannot approve the object.

If the service data objects are part of a service group structure, you can only approve the top level of the structure. Approval of leaf nodes is not permitted. You can approve the above service data objects individually if they are *not* part of a service group structure. When service data objects are approved, they are locked, and you cannot add additional information.

To approve service data, do one of the following:

- Right-click the service group, service event, or service discrepancy that you want to approve and choose **Approve**.
- Route the service group, service event, or service discrepancy that you want to approve to a workflow created in Workflow Designer that uses the **SERVICEPROCESSING-approve-service-structure** workflow handler for approval.

After the above service data is approved, the following occurs:

- All related operations such as part movements are performed.
- The approval attribute for the approved service data is set to **Approved**.
- The **In-Process** relationship between each transaction element and the related physical part master is removed and a **Completed** relationship is added to the physical part revision.
- The related physical structure is released.
- If the category of a service event is set to **Overhaul**, the date and time of the last overhaul is set to the completion date and time of the service event.
- If the category of a service event is set to **Repair**, the date and time of the last repair is set to the completion date and time of the service event.
- The service data objects are locked, and you cannot add additional information.

View service details

You can display service details to view the following information:

- **Property details**

Details that display the properties of the service event management object.

- **Service event information and status**


Properties of the service event and whether the service event is in progress or completed.

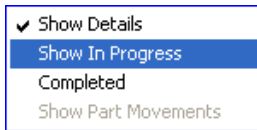
- **Part movement information**

Part movement information for service events.


1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor**.
3. From the **Service Editor** view, select the service event object that you want to display the service details for.
4. Choose **Window** → **Show View** → **Service Details**.

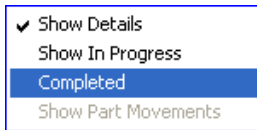
The **Details** tab appears at the bottom of the window.

- To display service events that are in progress for a physical structure or part, click ▼ next to the  button in the **Service Details** window and select **Show In-Progress**.




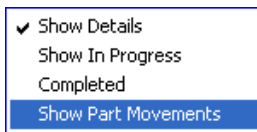
All service events that are in progress are displayed.

- To display service events that are completed for a physical structure or part, click ▼ next to the  button in the **Service Details** window and select **Completed**.



All service events that are completed are displayed.

- To display part movement information for a service event, click ▼ next to the  button in the **Service Details** window and select **Show Part Movements**.



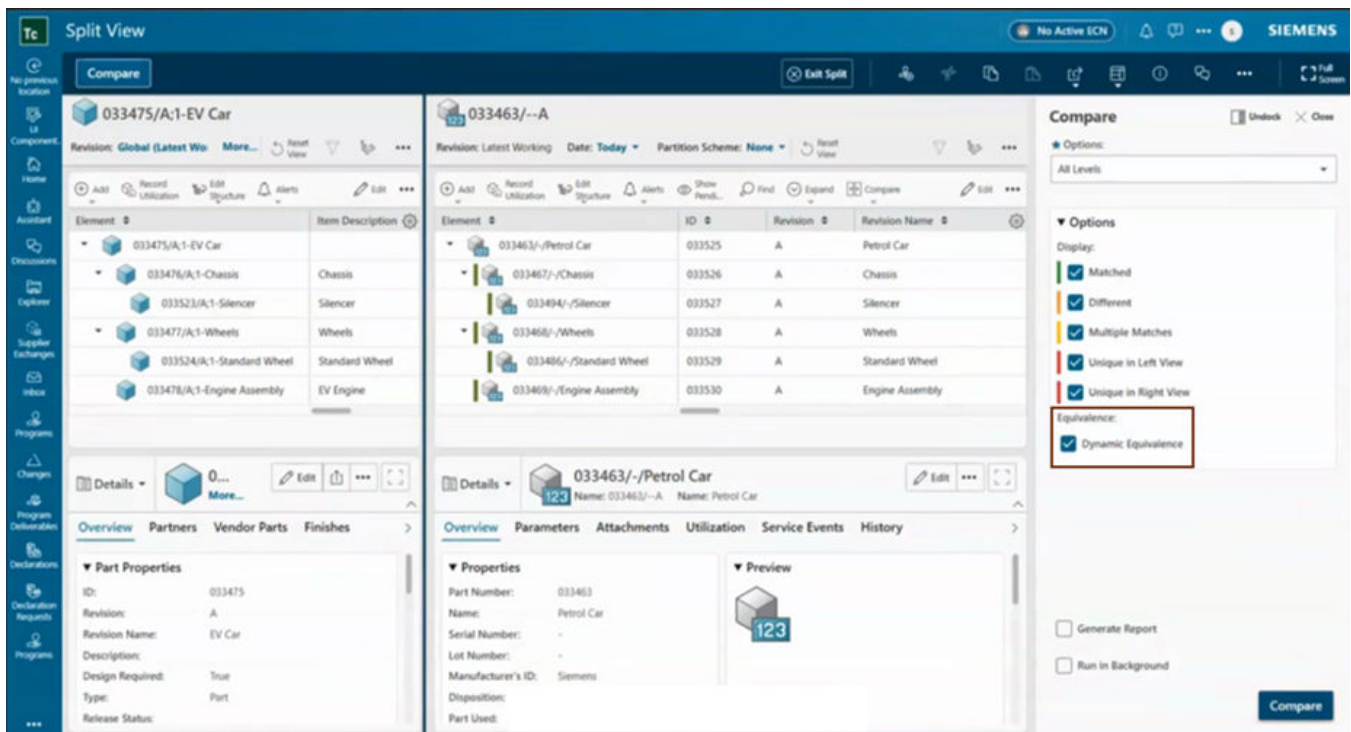
The information about the part movements is displayed.

11. Comparing structures

Comparing structures with Dynamic Equivalence

Comparing structures with Dynamic Equivalence

As a production planner, you can use the **Dynamic Equivalence** option to compare the structures according to the list of properties specified under the preferences. You must select the **Dynamic Equivalence** check box.



For example, if you have the BOMLine properties that you want to use to compare the SLM neutral or physical structures, use the **Dynamic Equivalence** preference.

Using this preference, you can specify the list of properties you want to compare for the source and target structures. The differences are displayed using colors that indicate partial matches or no matches between the structures.

Matching Equivalence criteria

As a production planner, you can use the equivalence criteria on the structures to compare them.

Full match criteria

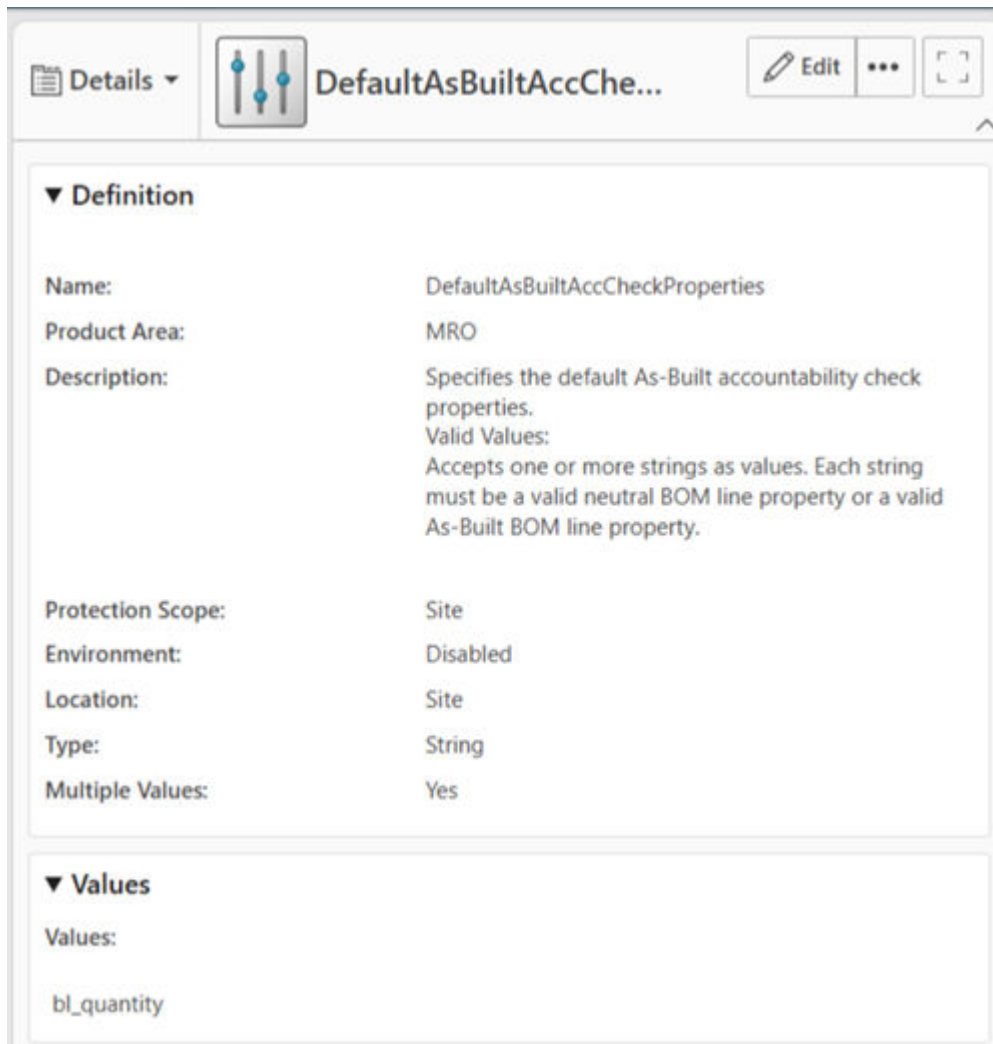
You can specify the equivalence criteria to evaluate *Full Match*. You must define the properties with the preference *MEAccountabilityCheckDynamicDICForSLM* when you compare the neutral structures with the physical structures or the physical structures with the physical structures.

If all the property values specified under this preference are the same across the source and target parts, then the match is a full match. If a property value specified under the above preference is different, then the match is a no-match and the lines are displayed in red, which indicates that either the source or the target is missing.

Partial match criteria

You can use the equivalence criteria to evaluate *Partial Match*. If the full match criteria is satisfied, then the partial match criteria is evaluated for both source and target BOM lines.

When you compare an as-built structure with a neutral structure, the partial match criteria is evaluated according to the property values specified under the preference *DefaultAsBuiltAccCheckProperties*. See the following image.



Equivalence and Partial Match criteria preferences

As a production planner, you can use the equivalence criteria to compare the structures.

When evaluating the equivalence and partial match criteria, the compare engine uses preferences that are based upon the source and target structure type that you select. You must set the preferences correctly, according to the source and target type. The physical structure is either an As-Built structure or an As-Maintained structure. The neutral structure is a manufacturing bill of materials (MBOM) or another part or item structure.

	Source	Target	Preference Name
Equivalence criteria	Physical	Physical	MEAccountabilityCheckDynamicIDICForSLM
	Physical	Neutral	MEAccountabilityCheckDynamicIDICForSLM
	Neutral	Physical	MEAccountabilityCheckDynamicIDICForSLM
	Neutral	Neutral	MEAccountabilityCheckDynamicIDICProperties

Similarly, you can set preferences to evaluate the partial match.

	Source	Target	Preference Name
Partial Match criteria	As-Built	As-Built	DefaultAsBuiltAccCheckProperties
	Neutral	As-Built	DefaultAsBuiltAccCheckProperties
	As-Built	Neutral	DefaultAsBuiltAccCheckProperties
	As-Maintained	As-Maintained	DefaultAsMaintainedAccCheckProperties
	As-Maintained	Neutral	DefaultAsMaintainedAccCheckProperties
	Neutral	As-Maintained	DefaultAsMaintainedAccCheckProperties
	Neutral	Neutral	AWBPropertiesToCompare.BVR

Note:

- When you compare the neutral structure with any other physical or neutral structure, the properties specified under the preferences above must be defined on a **BOMLine** runtime business object for a neutral structure. Similarly, the same properties must be defined on a **PhysicalBOMLine**, or **AsBuiltBOMLine/AsMaintainedBOMLine**, business object for a physical structure.
- A property that you specify is evaluated for both the target and the source BOMLine. For example, if you specify **bl_quantity**, the same property must be available for the source and the target. If the property is not defined or property values are empty or null, then the property is treated as *No Match*.

- When you attempt to compare one property on a neutral BOMLine with another property on a physical BOMLine, the comparison is not supported. For example, you cannot compare the **Item_id** property on a neutral line with the **phbl_part_number** on a physical BOMLine. But you can define a custom property and can use that custom property to compare.

Compare neutral structure with physical structure

You can compare neutral and physical structures in the **Service Editor** view using two separate panes.

- Set the list of properties you want to compare under the preference *MEAccountabilityCheckDynamicIDICForSLM*. In the below example, a custom property *smr1bgPartNumber* is used.
- Set the *DefaultAsBuiltAccCheckProperties* preference value to *bl_quantity*.
- Create a neutral structure.

The screenshot shows the As-Built Manager interface with three tabs: (033451/A;1-SmartPhone), (033451/B;1-SmartPhone), and (033451/--A-SmartPhone). The 'Latest Working' tab is active. The table below shows the neutral structure comparison.

Neutral Structure	Item Type	Item ID	bg Part Number	Quantity
033451/A;1-SmartPhone	Part	033451	033451	
033452/A;1-CircuitBoard x 1	Part	033452	033452	1
033453/A;1-Display x 1	Part	033453	033453	1
033454/A;1-Camera x 1	Part	033454	033454	1
033455/A;1-Battery x 1	Part	033455	033455	1

- Generate an As-Built structure from the neutral structure.

The screenshot shows the As-Built Manager interface with the same three tabs. The 'Latest Working' tab is active. The table below shows the As-Built structure comparison.

As-Built Structure	Item Type	Part Number	bg Part Number	Quantity
033451/--A-SmartPhone	Physical Part	033451	033451	1
033452/--A-CircuitBoard	Physical Part	033452	033452	1
033453/--A-Display	Physical Part	033453	033453	1
033454/--A-Camera	Physical Part	033454	033454	1
033455/--A-Battery	Physical Part	033455	033455	1

- To revise the neutral structure, delete the component **Battery**, add a new component called **New_Battery**, and change the camera quantity to 2.

The revised structure is revision B.

Neutral Structure	Item Type	Item ID	bg Part Number	Quantity
033451/B;1-SmartPhone	Part	033451	033451	
033452/A;1-CircuitBoard x 1	Part	033452	033452	1
033453/A;1-Display x 1	Part	033453	033453	1
033454/A;1-Camera x 2	Part	033454	033454	2
033461/A;1-New_Battery x 1	Part	033461	033461	1

- Open the neutral structure, which is revision B, and the physical structure in Active Workspace client.

The screenshot shows the 'Compare' interface in Active Workspace. It compares two structures side-by-side:

- Left Panel (Neutral Structure):** Revision B, SmartPhone. Elements include: SmartPhone (1), CircuitBoard x1 (1), Display x1 (1), Camera x2 (2), and New_Battery x1 (1).
- Right Panel (Physical Structure):** Revision A, 033451/-. Elements include: 033451/- (1), 033452/- (1), 033453/- (1), 033454/- (1), and 033455/- (1).

Below the comparison, there are two panels for 'PART PROPERTIES' and 'PREVIEW' for the selected SmartPhone part (ID: 033451, Revision: B).

- Click **Compare** and select all match criteria as shown.

The screenshot displays the 'Compare' tool interface. On the left, the 'SmartPhone' structure is shown with revision B. The table below lists its components:

Element	Revision	Revision Name	Quantity
SmartPhone	B	SmartPhone	
CircuitBoard x1	A	CircuitBoard	1
Display x1	A	Display	1
Camera x2	A	Camera	2
New_Battery x1	A	New_Battery	1

Below the table are sections for 'PART PROPERTIES' and 'PREVIEW'.

On the right, the '033451/-' structure is shown with revision A. The table below lists its components:

Element	Revision	Revision Name	Quantity
033451/-	A	SmartPhone	1
033452/-	A	CircuitBoard	1
033453/-	A	Display	1
033454/-	A	Camera	1
033455/-	A	Battery	1

Below the table are sections for 'PROPERTIES' and 'PREVIEW'.

On the far right, the 'Compare' panel shows the following options:

- Options: Current Level
- Options: Matched (checked), Different (checked), Unique in Left View (checked), Unique in Right View (checked)

8. Review the comparison.

The screenshot displays the 'Compare' tool interface with the results of the comparison. The 'Compare' panel on the right shows the following results:

Options: Current Level

Options: Matched (checked), Different (checked), Unique in Left View (checked), Unique in Right View (checked)

Results:

- SMARTPHONE
 - CircuitBoard x1 (033452)
 - Display x1 (033453)
 - Camera x2 (033454)
 - New_Battery x1 (033461)
- 033451/-

These are the results:

- The equivalence criteria is satisfied for **CircuitBoard** and **Display**, because the *bg Part Number* is the same for both. The partial match criteria is also satisfied, because the *bl_quantity* is the same for

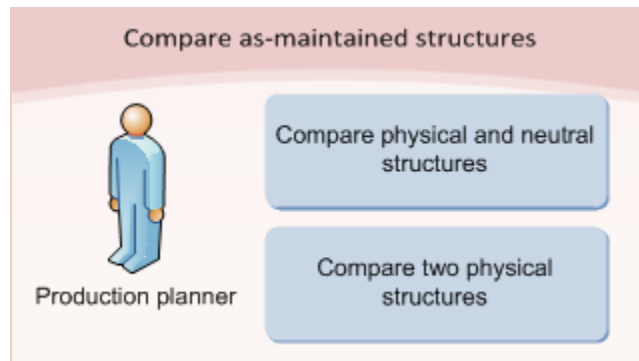
CircuitBoard and **Display** part in both the neutral and the As-Built structure. Hence, these two parts are displayed as a full match.

- The equivalence criteria is satisfied for **Camera**, because the *bg Part Number* is the same across both the structures. The partial match criteria is not satisfied for **Camera** because the *bl_quantity* is different across both the structures. Hence, it is a partial match, with an orange line beside **Camera** under **Compare**.
- The equivalence criteria is not satisfied for **New Battery** and **Battery** because the *bg Part Number* is different across the structures. Hence, it is not a match, and includes a red line beside **New Battery** under **Compare**.

12. Comparing as-maintained structures

Comparing as-maintained structures

As shown in the following figure, a user such as a production planner can compare two physical structures or a physical structure with a neutral structure to identify changes or differences between two product structures.



Comparing as-maintained structures

For example, you can compare the neutral structure and the physical structure to highlight the missing and nontraceable parts or compare two different installations of the same physical structure to show differences. The differences are displayed using colors that represent full, partial, or no matches between the structures. You can also optionally generate a report summarizing the differences.

Comparing structures with or without context

Comparing with context

As-maintained structures can be compared *with* or *without* context.

If you select the **Compare (with context)** option, you are comparing the parts in position in the physical or neutral structures. For example, you can use compare with context to determine if the left and right engines were swapped. A compare without context would not detect those differences.

For this comparison to work properly, you must set a value in the **ID in Context** column in the **Service Editor** window for the parts in the neutral structure. This comparison is similar to an accountability check between structures using *Multi-Structure Manager*. You can select additional properties for comparison and set the context ID to match any source and target line that have the same absolute occurrence identifier.




Set compare with context preferences

To specify the default and additional properties used for comparing as-maintained structures *with* context, an administrator sets the **DefaultAsMaintainedAccCheckProperties** and **AdditionalAsMaintainedAccCheckProperties** preferences.

Preference	Default values
DefaultAsMaintainedAccCheckProperties	phbl_part_number phbl_part_used_is phbl_design_rev_id
AdditionalAsMaintainedAccCheckProperties	phbl_part_usage_name

Perform compare with context



You compare two as-maintained structures in the **Service Editor** view using two separate panes.

- From the navigation pane, click **Service Manager** to open the source structure in the bottom pane and the target structure in the top pane.
 - From the navigation pane, click **Service Manager**.
 - From the navigation pane, click **Service Manager**.
 - From the **Service Editor** view, click **Open by Name**  to open the source structure.
 - From the **Service Editor** view, click **Open by Name**  to open the source structure.
 - Click **Open by Name**  to open the second structure in the top pane.
- After you open the as-maintained structures in the appropriate panes, configure them by setting the revision rule and/or variant rule in each pane.
- Expand and collapse assemblies to define the scope of the comparison.
- Choose **Tools** → **Compare**.
The **Compare** dialog box appears.
- Do one of the following:
 - If you want to reverse source and target as-maintained structures, select **Flip source and target**.

- To compare as-maintained structures *with* context, select **Compare (with context)**.
6. Select **Display Options** to change comparison color scheme. When you compare two structures, the results are displayed in a variety of colors that you can change using the display options. To help users who cannot differentiate colors, a tool tip shows the name of the color. If the name is not available, the tool tip displays the RGB (red, green, blue) value.
- Check the display options you require.

Display option	Description
Full match	If all properties of a source object are identical to the properties of a target object, both objects are set to the same background color. The default color is green.
Partial match	If some of the properties of a source object is identical to the properties of a target object, both objects are set to the same background color. The default color is yellow.
Multiple match	If the properties of a source object are identical to the properties of target objects, all objects are set to the same background color. The default color is orange.
Multiple partial match	If some of the properties of a source object is identical to the properties of target objects, all objects are set to the same background color. The default color is pink.
Missing target	If the properties of a source object are not found by target objects, the source object is set to this color. The default color is red.
Missing source	If the properties of a target object do not meet properties of any source objects, the target object is set to this color. The default color is white.

- Change the default color by clicking next to the color. Set the colors by selecting a color swatch, and setting HSB (hue, saturation, brilliance) or RGB (red, green, blue) values.
7. Select **Compare Options** to change properties.
- To compare any source line and target line that have the same absolute occurrence identifier, select the **Treat same ID in context as same** check box. If not selected, the compare does not match lines with different absolute occurrences, even if they share the same absolute occurrence identifier.
 - To match lines in the source and target that have the same properties as those you choose in the **Selected Properties** list, select the **Compare Additional Properties** check box. If not selected, the compare includes only those default options defined by your administrator.

- Use the  button to select the properties from the **Available Properties** list and move them to the **Selected Properties** list. Use the  button to remove the properties from the **Selected Properties** list and move them back to the **Available Properties** list.

8. Click **Check** to begin the comparison. Alternatively, click **Cancel** to exit.

Comparing without context

As-maintained structures can be compared *with* or *without* context.

If you choose the **Compare (without context)** option, you can compare structures at the assembly or subassembly levels and set the level or mode of comparison. This comparison is similar to comparing two structures in the **Structure Manager** view using *Structure Manager*. When Teamcenter compares the displayed product structures (BOMs); it compares each level that is visible. Consequently, you can compare different views or configurations by expanding the structure to the desired level. Also, if you collapse assemblies in the product structure, the comparison excludes the content of those assemblies. You can use this feature to limit the scope of a comparison.

Set compare without context preferences

- **Property preferences**

To specify the default and additional properties used for comparing as-maintained structures *without* context, an administrator sets the **DefaultAsMaintainedCompareProperties** and **AdditionalAsMaintainedCompareProperties** preferences.

Global constant	Default values
DefaultAsMaintainedCompareProperties	phbl_part_number phbl_part_usage_name
AdditionalAsMaintainedCompareProperties	phbl_part_used_is phbl_design_rev_id




- **Display preferences**

Because the display options are unavailable when comparing *without* context, an administrator can change the colors displayed for added and changed occurrences by setting the **PSEAdditionColorPref** and **PSEChangedColorPref** preferences. No colors are displayed for full matches.

Preference	Default value
PSEAdditionColorPref	red
PSEChangedColorPref	orange

Perform compare without context

You compare two as-maintained structures in the **Service Editor** view using two separate panes.

1. From the navigation pane, click **Service Manager** to open the source structure in the bottom pane and the target structure in the top pane.
 - From the navigation pane, click **Service Manager**.
 - Choose **Window** → **Show View** → **Service Editor** to open the **Service Editor** view.
 - From the **Service Editor** view, click **Open by Name**  to open the source structure.
 - Click **Show/Hide lower structure panel**  located at the top of the application window to create a new empty (target) pane. The source structure appears in the bottom pane.
 - Click **Open by Name**  to open the second structure in the top pane.
2. After you open the as-maintained structures in the appropriate panes, configure them by setting the revision rule and/or variant rule in each pane.
3. Expand and collapse assemblies to define the scope of the comparison.

Note:

You compare only the visible structures displayed in the panes.

4. Choose **Tools** → **Compare**.



The **Compare** dialog box appears.

5. Do one of the following:
 - If you want to reverse source and target as-maintained structures, select **Flip source and target**.
 - To compare as-maintained structures *without* context, select **Compare (without context)**.
6. Select **Compare Options** to change compare modes.
 - Select the compare mode to set the level of comparison.

Mode	Description
Single Level	Compares only the first levels of the product structures.
Multi Level	Performs a single-level comparison at the top level, and then starts further single-level comparisons on any subassemblies that match between the two product structures. This process is repeated successively down the product structure.
Lowest Level	Compares only the lowest level items of the product structures, ignoring all intermediate assemblies. This is useful for verifying that piece parts are consistent.

7. If you want to display a report window summarizing the differences between the structures, select the **Report** check box.

The **Print** window appears after the compare is complete.

8. To print the report, choose **Print the file** . To save the report to a local text file, from the report window, choose **Saves to a user specified file** . To close the window, choose **Close**.
- In single-level mode and lowest level mode, the reports are flat lists of differences.
 - In multilevel mode, the report is an indented output is produced, showing the parent assemblies of any changed items.
9. Click **Check** to begin the comparison. Alternatively, click **Cancel** to exit.

Note:

Because the display options are unavailable when comparing *without* context, an administrator can change the colors displayed for added and changed occurrences by setting the **PSEAdditionColorPref** and **PSEChangedColorPref** preferences. No colors are displayed for full matches.

Clear comparison

- To clear the highlighting colors, choose **Tools** → **Clear**.

Note:

If you start a new comparison before clearing the results of the previous comparison, the existing results are automatically cleared.

Comparing a neutral structure to a physical structure

Comparing as-maintained physical structure to neutral structure

You can compare an as-maintained neutral structure with an as-maintained physical structure. For example, you may want to highlight the following as differences:

- Nontraceable parts
- Missing physical parts
- Substitute parts
- Deviated parts
- Global alternate parts

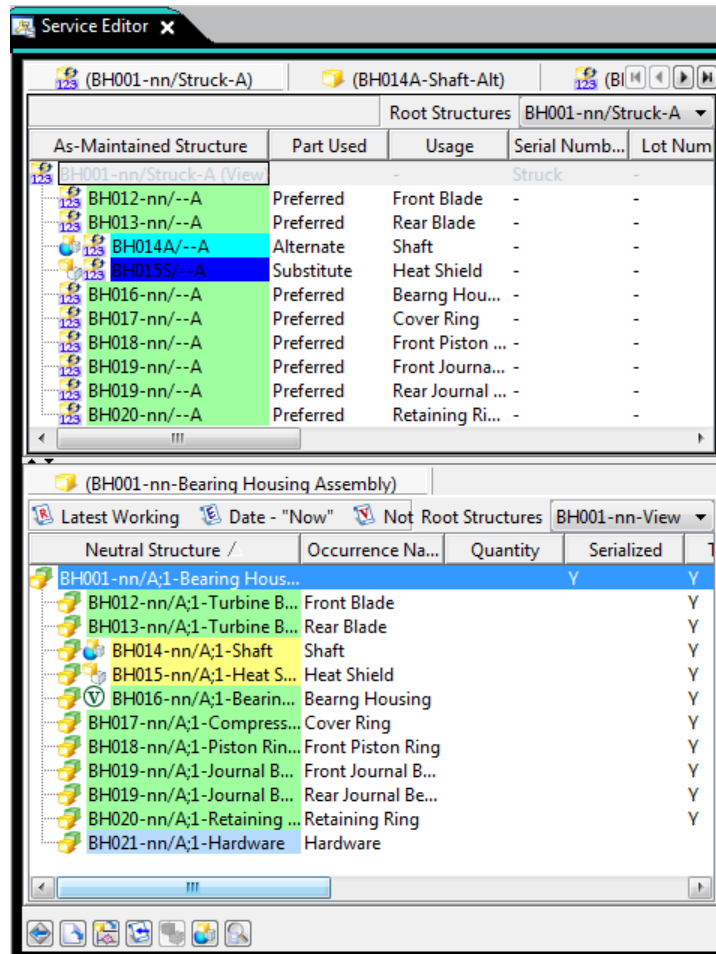
To compare a neutral structure with a physical structure *with* context, set up the comparison as described in [Perform compare with context](#).

To compare a neutral structure with a physical structure *without* context, set up the comparison as described in [Perform compare without context](#).

Compare with context example between a neutral structure and a physical structure

The following compare information and figure show the result of a compare with context between the neutral structure and the physical structure for the bearing housing assembly.

- Source structure: physical structure in the *top* pane for the bearing housing assembly.
- Target structure: neutral structure in the *bottom* pane for the bearing housing assembly.
- All the display options are selected.



Comparing as-maintained physical and neutral structures with context

The color green indicates a full match. The following parts show differences.

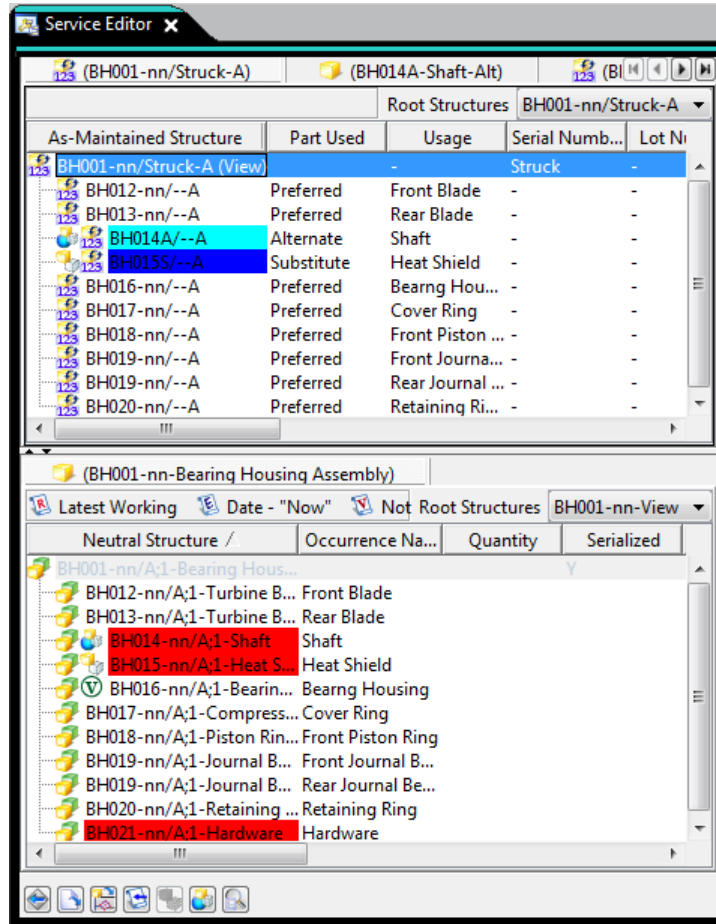
Part ID	Structure	Color	Why?
BH014	Neutral	Yellow indicating a partial match	Some properties are identical because the alternate part for the shaft was installed in the physical structure.
BH014A	Physical	Light blue indicating the physical part is an alternate	The alternate part for the shaft was installed in the physical structure.
BH015	Neutral	Yellow indicating a partial match	Some properties are identical because the substitute part for the shaft was installed in the physical structure.

Part ID	Structure	Color	Why?
BH015S	Physical	Royal blue indicating the physical part is a substitute	The substitute part for the shaft was installed in the physical structure.
BH021	Neutral	Light blue indicating a missing source.	The physical part for the hardware is missing from the source physical structure.

Compare without context example between a neutral structure and a physical structure

The following compare information and figure show the result of a compare without context between the neutral structure and the physical structure for the bearing housing assembly.

- Source structure: neutral structure in the top pane for the bearing housing assembly.
- Target structure: physical structure in the bottom pane for the bearing housing assembly.
- Display options:
 - Set to **Multi Level**.



Comparing as-maintained physical and neutral structures without context

No color indicates a full match. Because compare without context compares the parts that are visible and does not compare properties, the following parts show differences.

Part ID	Structure	Color	Why?
BH014	Neutral	Red indicating no match	The alternate part for the shaft was installed in the physical structure.
BH014A	Physical	Cyan indicating the physical part is an alternate	The alternate part for the shaft was installed in the physical structure.
BH015	Neutral	Red indicating no match	The substitute part for the shaft was installed in the physical structure.

Part ID	Structure	Color	Why?
BH015S	Physical	Royal blue indicating the physical part is a substitute	The substitute part for the shaft was installed in the physical structure.
BH021	Neutral	Red indicating no match	The hardware does not exist in the physical structure.

Comparing two physical structures

Comparing two as-maintained physical structures

You can compare two as-maintained physical structures. For example, you may want to highlight the differences between two installations of the same physical structure.

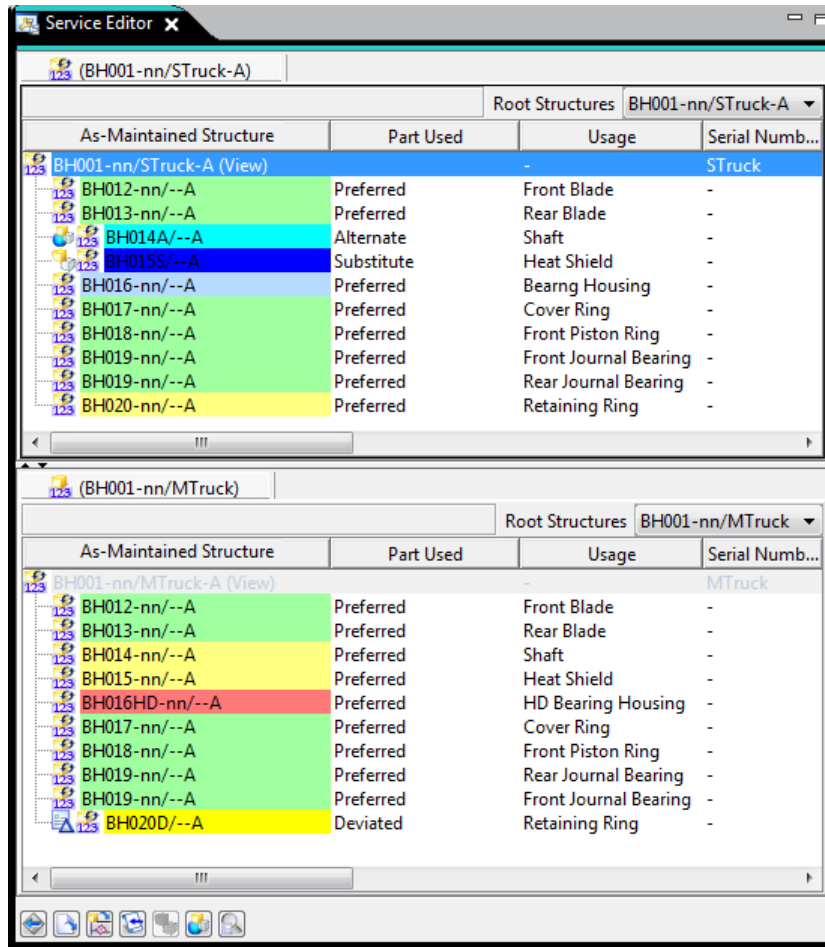
To compare two physical structures *with* context, set up the comparison as described in [Perform compare with context](#).

To compare two physical structures *without* context, set up the comparison as described in [Perform compare without context](#).

Compare with context example between two physical structures

The following figure shows the result of a compare with context between two physical structures for the bearing housing assembly.

- Source structure: The bearing housing assembly in the *bottom* pane used in the missile truck. The serial number is set to **MTruck**.
- Target structure: The bearing housing assembly in the *top* pane used in the supply truck. The serial number is set to **STruck**.
- All display options are selected.



Comparing two as-maintained physical structures with context

The color green indicates a full match. The following parts show differences.

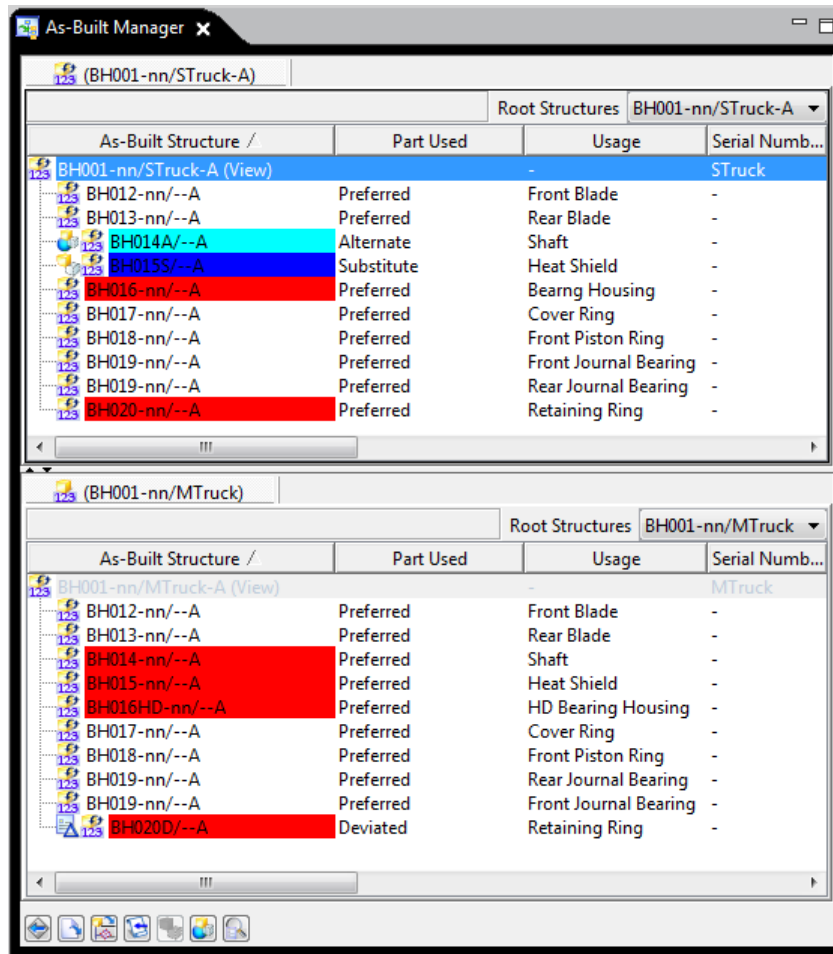
Part ID	Structure	Color	Why?
BH014	MTruck	Yellow indicating a partial match	Some properties are identical because the alternate part for the shaft was installed in the physical structure used in the supply truck.
BH014A	STruck	Cyan indicating the physical part is an alternate	The alternate part for the shaft was installed in the physical structure used in the supply truck.
BH015	MTruck	Yellow indicating a partial match	Some properties are identical because the substitute part for the shaft was installed in

Part ID	Structure	Color	Why?
			the physical structure used in the supply truck.
BH015S	STruck	Royal blue indicating the physical part is a substitute	The substitute part for the shaft was installed in the physical structure used in the supply truck.
BH016	STruck	Light blue indicating a missing source.	The regular bearing housing does not exist in the source physical structure used in the missile truck.
BH016HD	MTruck	Red indicating a missing target.	The heavy duty bearing housing does not exist in the target physical structure used in the supply truck.
BH020D	MTruck	Yellow indicating the physical part is a deviation	The deviated redesigned part for the retaining ring was installed in the physical structure used in the missile truck.
BH020	STruck	Yellow indicating a partial match	Some properties are identical because the deviated redesigned part for the retaining ring was installed in the physical structure used in the missile truck.

Compare without context example between two physical structures

The following figure shows the result of a compare without context between two physical structures for the bearing housing assembly.

- Source structure: The bearing housing assembly in the *bottom* pane used in the missile truck. The serial number is set to **MTruck**.
- Target structure: The bearing housing assembly in the *top* pane used in the supply truck. The serial number is set to **STruck**.
- Display options:
 - Set to **Multi Level**.



Comparing two as-maintained physical structures without context

No color indicates a full match. Because compare without context compares the parts that are visible and does not compare properties, the following parts show differences.

Part ID	Structure	Color	Why?
BH014A	STruck	Cyan indicating the physical part is an alternate	The alternate part for the shaft was installed in the physical structure used in the supply truck.
BH014	MTruck	Red indicating no match	The alternate part for the shaft was installed in the physical structure used in the supply truck.
BH015S	STruck	Royal blue indicating the physical part is a substitute	The substitute part for the shaft was installed in the

Part ID	Structure	Color	Why?
			physical structure used in the supply truck.
BH015	MTruck	Red indicating no match	The substitute part for the shaft was installed in the physical structure used in the supply truck.
BH016	STruck	Red indicating no match	The heavy duty bearing housing is installed in the physical structure used in the missile truck.
BH016HD	MTruck	Red indicating no match	The regular bearing housing is installed in the physical structure used in the supply truck.
BH020	STruck	Red indicating no match	The deviated redesigned part for the retaining ring was installed in the physical structure used in the missile truck.
BH020D	MTruck	Red indicating no match	The deviated redesigned part for the retaining ring was installed in the physical structure used in the missile truck.

13. Visualizing as-maintained physical structures

Visualizing as-maintained physical structures

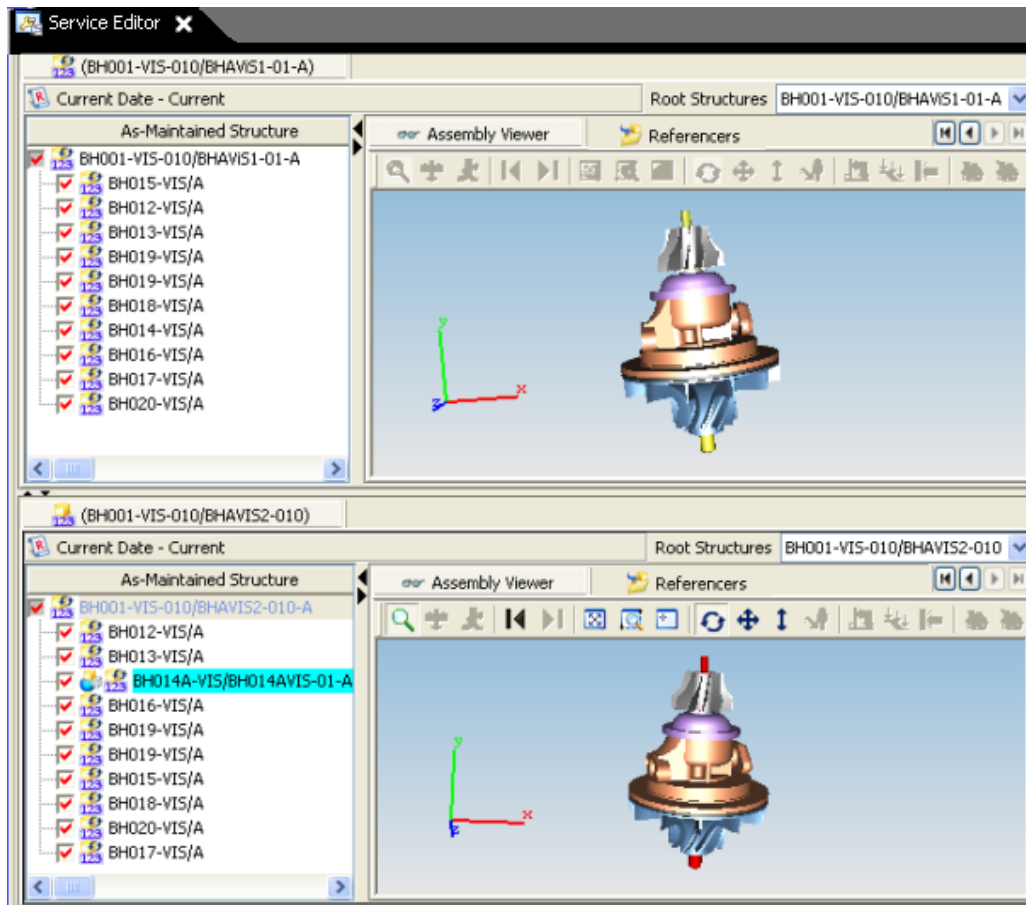
You can visualize the neutral and as-maintained physical structures from the **Service Editor** view with the embedded viewer. You can also view any untraced parts for the as-maintained physical structure. When you visualize the as-maintained physical structure, you are looking at the data associated with its linked neutral structure. The visualization data is only associated to the design parts of the neutral structure and not to the related as-maintained physical structure.

You use the embedded viewer in the **Service Editor** view in the same way as the embedded viewer in the **Structure Manager** view. If you want to use the enhanced capabilities of Lifecycle Visualization or the embedded viewer, you must purchase and install the necessary additional licenses.

Note:

Physical parts with **Part Used** status set to **Missing** do not display any visualization.

The following figure shows an example where you can visualize both the neutral and physical structures in the **Service Editor** view with a split window. You may want to use a split window to see what the missing physical parts look like by viewing the visualization of their related neutral part item revisions.





Visualizing as-maintained neutral and physical structures


Associating image file datasets

To visualize the neutral or as-built physical structure, you must create **DirectModel** datasets containing the image (JT) files. You attach the datasets with the **Rendering** relationship to the neutral part item revisions that compose the neutral structure. When you visualize the physical structure, you are accessing the same datasets attached to its linked neutral structure. A **DirectModel** dataset can contain several JT files with different names, so you should set rules that determine the file to display.

Visualize the as-maintained structure model

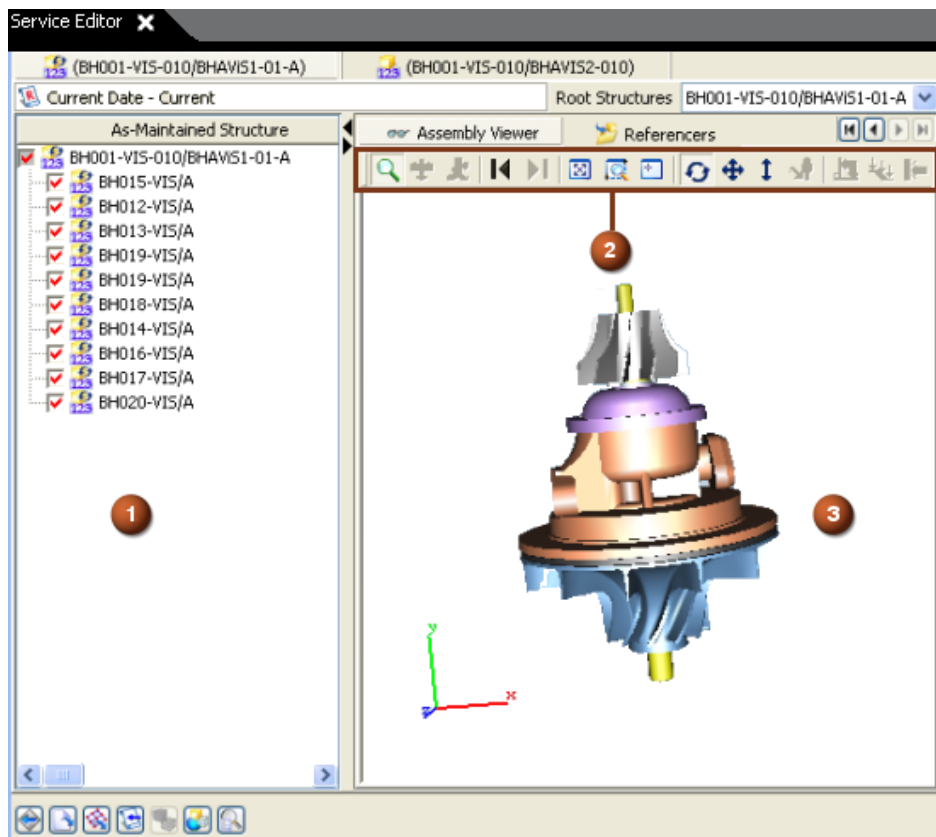
1. From the navigation pane, click **Service Manager**.
2. Choose **Window** → **Show View** → **Service Editor**.
3. From the **Service Editor** view, click **Open By Name**  to open the as-maintained physical structure or neutral structure.

To display split structure panes for two structures, click **Show/Hide lower Structure Panel**  located at the top of the application.

4. Choose **View** → **Show Data Panel**, or click the **Show/Hide Data Panel** button  on the toolbar.
5. Click the **Assembly Viewer** tab to visualize the 3D models for the structure.

Visualization window layout

The lines in the project workspace are shown with a check box to the left of the part. You select the check boxes next to the part and assembly names in the assembly tree to choose which parts and assemblies to load and make visible. By default, they are all clear.



Visualization screen layout

- | | | |
|---|--------------------------|--|
| 1 | Project workspace | Displays the product structure. |
| 2 | Navigation toolbar | Toolbar used to navigate the 3D model. |
| 3 | Graphical viewing window | Displays the 3D model associated with the product structure. |

Change visibility

- To display or hide entire models, assemblies, or individual parts, you can do any of the following:

To	Do this
View the entire structure	Select the check box for the top-level line in the structure to load the graphics for every line in the structure.
View a selected part of the structure	Select the check boxes only for those lines for which you want to load the graphics.
View only the part	Select the check box for the line for a part.
View an assembly	Select the check box for a line representing the assembly.
Hide the entire structure	Clear the check boxes.

Using the graphics menu

The **Graphics** menu appears when you click the **Assembly Viewer** tab.

Command	Description
Selection → Select All	Selects all the objects displayed in the viewer.
Selection → Select None	Clears any objects currently selected in the viewer.
Selection → Reverse Selection	Selects all objects not selected in the viewer, while simultaneously unselecting any objects currently selected in the viewer.
Visibility → View Selected	Blanks and unblanks objects loaded in the viewer.
<div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"> <p>Note:</p> <p>The term <i>loaded</i> refers to an object whose JT file has been loaded in the viewer. A loaded object may or may not be visible, depending on whether it has been blanked or unblanked.</p> </div>	
Visibility → Blank Selected	Makes any objects selected in the viewer invisible.
Visibility → Blank All	Makes all objects in the viewer invisible.
Visibility → Unblank All	Makes all objects loaded in the viewer visible.









Command	Description
Visibility → Reverse Blank All	Makes any currently visible objects invisible, while simultaneously making visible any loaded objects which are currently invisible.
Visibility → Unload Selected	Unloads any objects selected in the viewer.
Edit Color/Translucency	Modifies the color, transparency, and shine of selected objects in the viewer. These settings only apply to the currently loaded objects. The next time the edited object is loaded, the settings revert to the default color and translucency.
Insert	Allows you to insert JT, stereolithography (.stl), and VRML (.wrl) files as reference graphics.
Insert → Insert from File	Inserts a reference graphic from the operating system, using the Open by Name dialog box.
Insert → Insert from Clipboard	Inserts a reference graphics object from the clipboard.
	<p>Note:</p> <p>Only item revisions (not items) can be displayed as reference graphics.</p>
Views → Views Control	Creates, edits, and displays standard views, using the Rotate and Standard Views dialog boxes.
Draw Children	Displays the components of a subassembly. You can also access this command if you right-click in the BOM.
Show Subcomponents	Breaks down solids in the corresponding monolithic JT files and make the subcomponents independently controllable. This function is available only for only leaf and unpacked BOM line nodes.
Hide Subcomponents	Removes all merged subcomponents and the one-level tree from the tree. You can load or unload the monolithic JT file related to this BOM line node in the normal way.
Export 3D File	Exports the current visible objects to a STEP or VRML file.
Replace JT File	Replaces the JT file that represents an item revision. You can choose a replacement file from one of the JT files associated with the current BOM line item.
Transformation → Temporary Transformation	Generates an exploded view for use in technical illustrations.
Transformation → Persistent Transformation	Modifies the physical location of a part (or set of parts) in an owning assembly.











Command	Description
Clearance → Preferences → Calculator Settings	Specifies the precision and nature of the clearance check.
Clearance → Preferences → Clearance Requirements	Defines the clearance conditions based on the metadata of the structure or elements.
Clearance → Preferences → Clearance Results	Adjusts the clearance results preferences to change the appearance and behavior of clearance results.
Clearance → Preferences → Toggle Results Window	Displays the clearance results window.
Performance	Sets rendering, culling and general performance preferences.
Preferences	Sets clearance analysis and general viewer preferences.

Navigating the 3D model

When you visualize the 3D model associated to the physical or neutral structure, the 3D navigator toolbar appears at the top of the **Assembly Viewer** window. It is used to manipulate the 3D view.



	Option name	Mode	Use this button to
	Examine	Fly Explore	Enable Examine mode.
	Fly	Examine Explore	Enable Fly mode.
	Explore	Examine Fly	Enable Explore mode.
	Previous View	Examine Fly Explore	Return to the last static view.
	Next View	Examine Fly Explore	Move to the next static view
	Fit All	Examine Fly Explore	Fit all visible parts of the model into the viewing window.
	Zoom Area	Examine Fly Explore	Zoom to a specific area of the model.
	seek	Examine Fly Explore	Center a point of the model. This point becomes the center of rotation.

	Rotate	Examine	Rotate your model in the viewing window.
	Pan	Examine Fly Explore	Pan the model in the plane of the viewing window.
	Zoom	Examine	Move closer to or farther from the model.
	Position	Explore	Choose your position in the model.
	Level	Fly Explore	Align the view to the up vector.
	Terrain Following	Fly Explore	Remain a specified distance above the floor upon which you are moving.
	Collision Detection	Fly Explore	Stop moving through your model when you come into contact with a part.
	Go Home	Explore	Return to the location and position you were at when you last selected Set Home .
	Set Home	Explore	Set the current location and position as the home location.
	Preferences	Examine Fly Explore	Set mode preferences.

14. Sharing Service Manager data

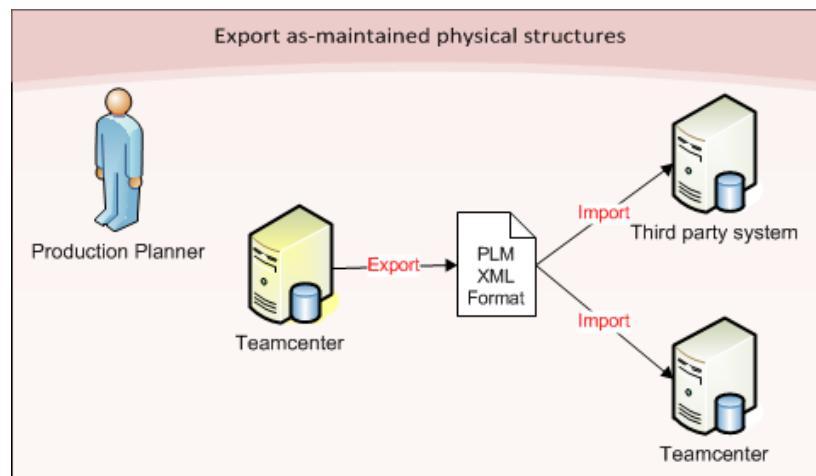
Sharing Service Manager data

You can share Service Manager data by:

- Importing as-maintained physical structures and service event management data from third-party systems or other Teamcenter sites into Teamcenter using the PLM XML format.
- Exporting as-maintained physical structures and service event management data from Teamcenter to other Teamcenter sites or third party systems using the PLM XML format.
- Using Multi-Site Collaboration to share Service Manager data between multiple Teamcenter sites.

Exporting Service Manager data

A user such as a production planner can export Service Manager data from Teamcenter to other Teamcenter sites or third party systems.



You can export as-maintained physical structures in the PLM XML format. Exported data includes:

- Physical parts with revisions.
- Physical realization information.
- As-maintained structures including installation dates.
- Physical alignment relations.

- Lot information if assigned to a physical part.
- Deviation information.
- Physical disposition information including disposition types.
- Utilization information which includes:
 - Characteristics
 - Characteristic values
 - Log book
 - Log entries

You can export the following service event management objects in the PLM XML format:

- Service group
- Service event
- Service discrepancy
- Fault codes
- Part movements

Export Service Manager data

You can export Service Manager data from Teamcenter to PLM XML by performing the following steps:

1. Select the object to be exported.
2. Choose **Tools** → **Export** → **To PLMXML**.

The system displays the **PLM XML Export** dialog box.

3. In the **Export Directory** box, select the directory in which to place the PLM XML file. Click **Browse** to locate the directory.
4. Specify the name of the export file in the **Export Filename** box.
5. Select the transfer mode to be used to configure the export operation.
 - a. Select **AsMaintainedDataExport** to export an as-maintained structure.
 - b. Select **SEM_PLMXMLDataExport** to export service event management data.
6. (Optional) Click **Select Languages** to display the **Language Selection** dialog box for the languages configured at your site.
 - a. **Main Language** is the site master language. This cannot be changed.

- b. The **Available Languages** box lists the languages you can select as additional languages for export.
- c. The **Select Additional Languages** box lists the preconfigured languages for the selected transfer mode.
- d. To select additional languages for export, follow these steps:
 - A. Select a language in the **Available Languages** box.
 - B. Click the **Add** button **+**.
 - i. The selected language is added to the **Selected Additional Languages** box.
 - ii. To reorder the languages in the **Selected Additional Languages** box, select a language and use the move **▲ ▼** buttons as required.
 - C. Click **OK** or **Apply**.

The languages selected for export are displayed in the **Languages** box.

Note:

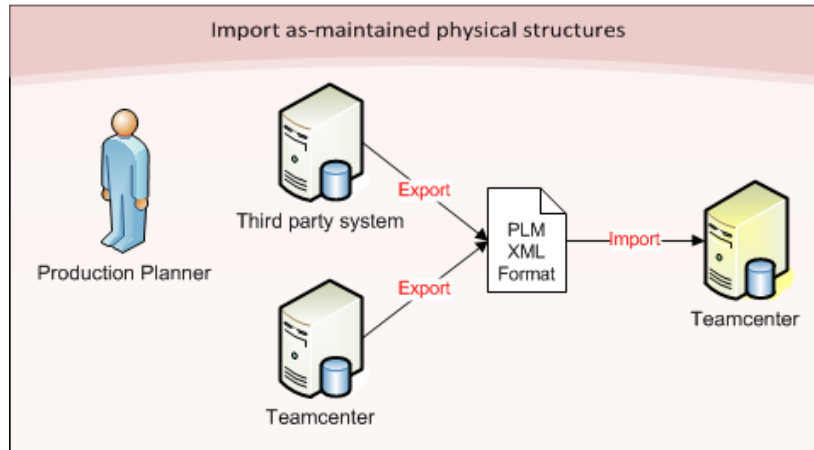
If you change the transfer mode, the **Languages** entries remains unchanged. You can use the **Language Selection** dialog box again to add or remove more languages.

7. (Optional) Select a revision rule to configure the assembly to be exported.
8. If you do not apply a revision rule, only the parent item revision is exported.
9. (Optional) Select **Open PLM XML File** to view the file when the export operation is complete.
10. (Optional) Select the **View Log File** check box to view the log file when the data translation is complete.
11. (Optional) Select the **Perform Export In Background** check box to perform an asynchronous export.
12. Click **OK** to export the objects in the **Object List** and close the dialog box.

Importing Service Manager data

Importing Service Manager data

A user such as a production planner can import Service Manager data from Teamcenter to other Teamcenter sites or third party systems.



You can import as-maintained and service event management data into Teamcenter from any third-party system if it conforms to the PLM XML schema.

When you import as-maintained structures, the following information is also imported:

- Disposition information.
- Log book and log entry information.
- Utilization information such as characteristics definitions and values.

Refer to the following table for PLM XML elements and the associated Teamcenter as-maintained classes.

PLM XML element	Teamcenter class
RealizedProduct	Physical Part
RealizedProductRevision	PhysicalPartRevision
RealizedFromRelation	Physical Realization (relation)
AllowedDeviationRelation	Allowed Deviation (relation)
Lot, LotRevision	Lot
Deviation	DeviationDocument

PLM XML element	Teamcenter class
DeviationRevision	DeviationDocumentRevision
CharacteristicDefinition, CharacteristicDefinitionRevision	CharacteristicDefinition
CharacteristicValue	CharacteristicValue
CharacteristicValueForRealised ProductRelation	PhysicalCharacteristics (relation)
Fleet	Asset Group
Service Lifecycle ManagementLocation	PhysicalLocation
Service Lifecycle ManagementLocationRevision	PhysicalLocationRevision
Service Lifecycle ManagementLocationRelation	PhysicalLocationUsage (relation)

Because the physical structure does not have one-to-one mapping in PLM XML, the following combined PLM XML elements provide the information for the entire physical structure:

- **InstanceGraph**
- **ProductRevisionView**
- **RealisedProductInstance**

In addition, note the following when importing an as-maintained physical structure:

- Before you import an as-maintained structure, the neutral structure and the part logistics information must exist on the importing site.
- If the occurrence information is provided along with the occurrence name, the alignment relation is created. If the occurrence name is not provided or the occurrence name does not match the neutral part occurrence name, PLM XML processes the structure relationship without the alignment relation.
- If the lot information is provided and the lot is not defined in Teamcenter, PLM XML creates and assigns the physical part to the new lot. If the lot exists, the physical part is assigned to the existing lot.
- When importing a part movement using PLM XML, the **Uninstall Location** field is blank and the following values are used:
 - The value of the **PartMovementDefaultRemoveLocation** preference, if this preference is set.

- The first value of the **Service Lifecycle ManagementDefaultLocations** preference, if the **PartMovementDefaultRemoveLocation** preference is *not* set.

Refer to the following table for PLM XML elements and the associated Teamcenter service event management classes.

PLM XML element	Teamcenter class
ServiceGroupType	ServiceGroup
ServiceDiscrepancyType	ServiceDiscrepancy
TCSERVICEEVENTTYPE	ServiceEvent
PartMovementType	PartMovement
FaultCodeType	FaultCode
ActivityCostType	ActivityCost
ActivityEntryValueType	ActivityEntryValue

Import Service Manager data

Note:

Before you import an as-maintained structure, the neutral structure and the part logistics information must exist on the importing site.

You can import Service Manager data (as-maintained or service event management) into Teamcenter from a third-party system using PLM XML by performing the following steps:

1. Choose **Tools** → **Import** → **From PLMXML**.

The system displays the **PLM XML Import** dialog box.

2. Click **Browse**  to the right of the **Importing Object** box.

The **Select Object** dialog box appears.

3. Select **PLM XML File (.xml)** from the **Files of type** list.
4. Navigate to the directory containing the file and select the file.

The system displays the file name in the **Directory** name box.

5. Click **Select**.

The system displays the path to the selected file in the **Importing Object** box of the dialog box.

6. Select the transfer mode to be used to configure the import operation.
 - Select **AsMaintainedDataImport** to import an as-maintained structure.
 - Select **ConfiguredDataImportDefault** to import service event management data.
7. (Optional) Select the **View Log File** check box to view the log file when the data transfer is complete.
8. Click **Apply** to start the import operation and retain the dialog box, or click **OK** to start the import operation and exit the dialog box.

The system imports the data as follows:

- By default, the imported object has no container reference. You can use relevant search criteria to find the imported object and so you can copy it to a folder.
- To have Teamcenter import objects into your **Newstuff** folder, create the **PLMXML_put_objects_in_newstuff_on_import** preference and set the value to **TRUE**. Imported objects are placed in a folder with the same name as the imported XML file.

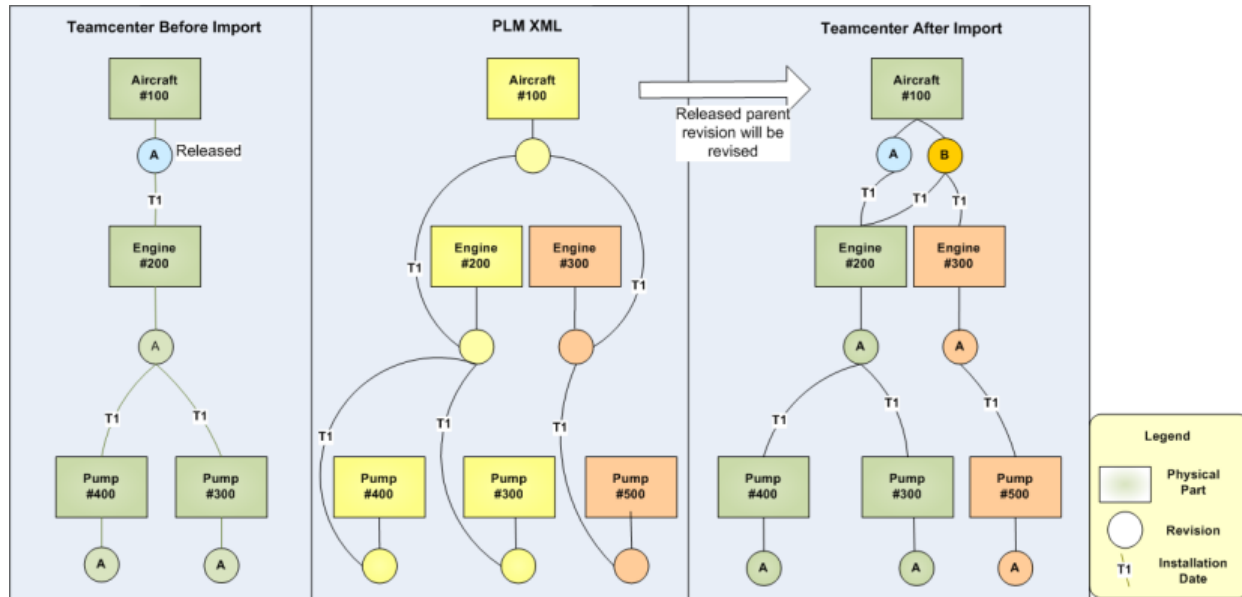
Note:

If object names or IDs are encountered that exceed the character limit for those fields in Teamcenter, the name and/or ID is truncated when imported in to Teamcenter. Teamcenter provides 128 bytes for item IDs and names.

Import as-maintained structure behavior

When you import an as-maintained structure into Teamcenter from a third-party system and the physical part parent is at a status of **released** in Teamcenter, the revision of the parent is revised only if there are structural additions to the existing structure.

As the following figure shows, because the parent physical part **Aircraft #100** has a status of **released** before the import, it is revised after the import because **Engine #300** was added to the structure in a different position.



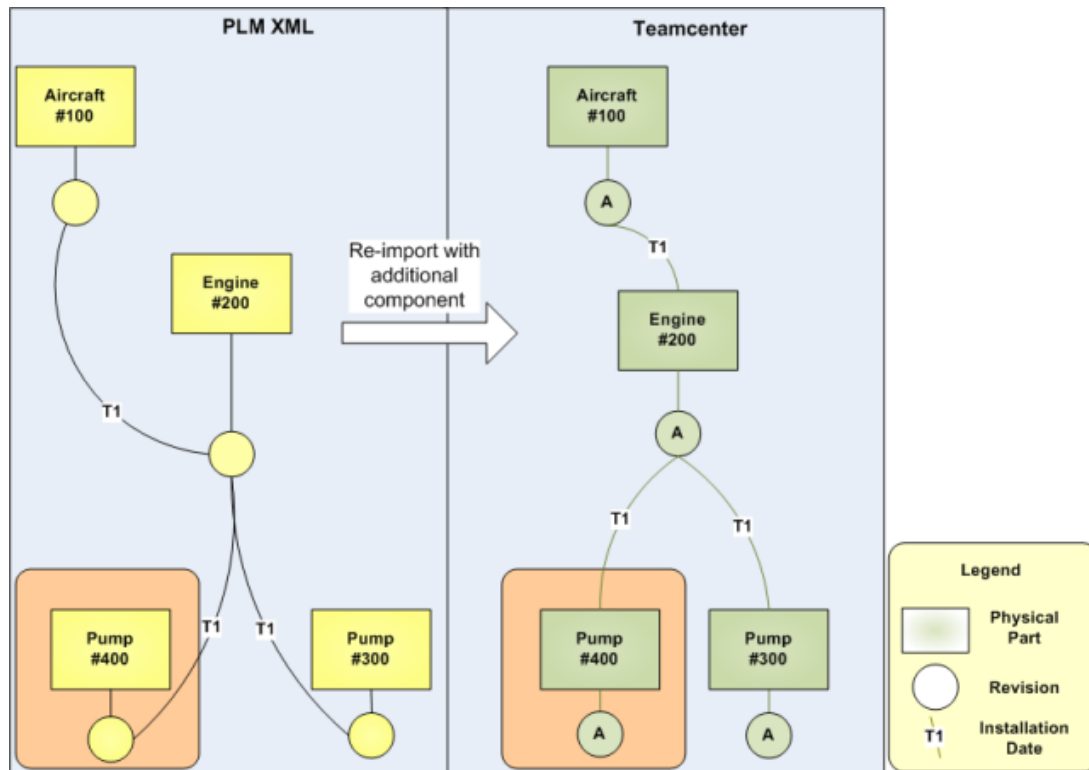
Released parent physical part revision is revised in Teamcenter after structural addition

Re-import as-maintained structure behavior

When you re-import an as-maintained structure into Teamcenter from a third-party system, be aware of the following behaviors:

- Re-import after the physical part is added to the as-maintained structure on third-party systems.

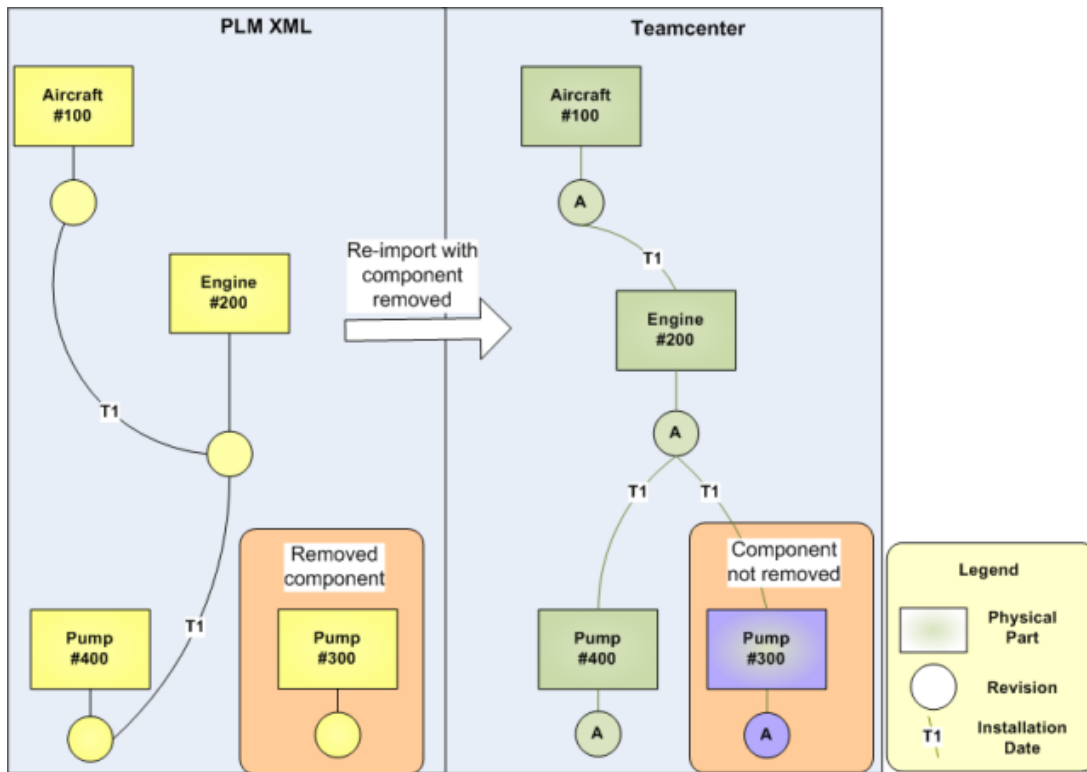
As the following figure shows, when the third-party as-maintained structure is re-imported with the newly added physical part **Pump #300**, the additional part is imported into Teamcenter.



Re-import into Teamcenter with additional physical part

- Re-import after the physical part is deleted from the as-maintained structure on third-party systems.

As the following figure shows, when the third-party as-maintained structure **Aircraft #100** is re-imported to Teamcenter with the physical part **Pump #300** removed, the physical part is not removed in Teamcenter.



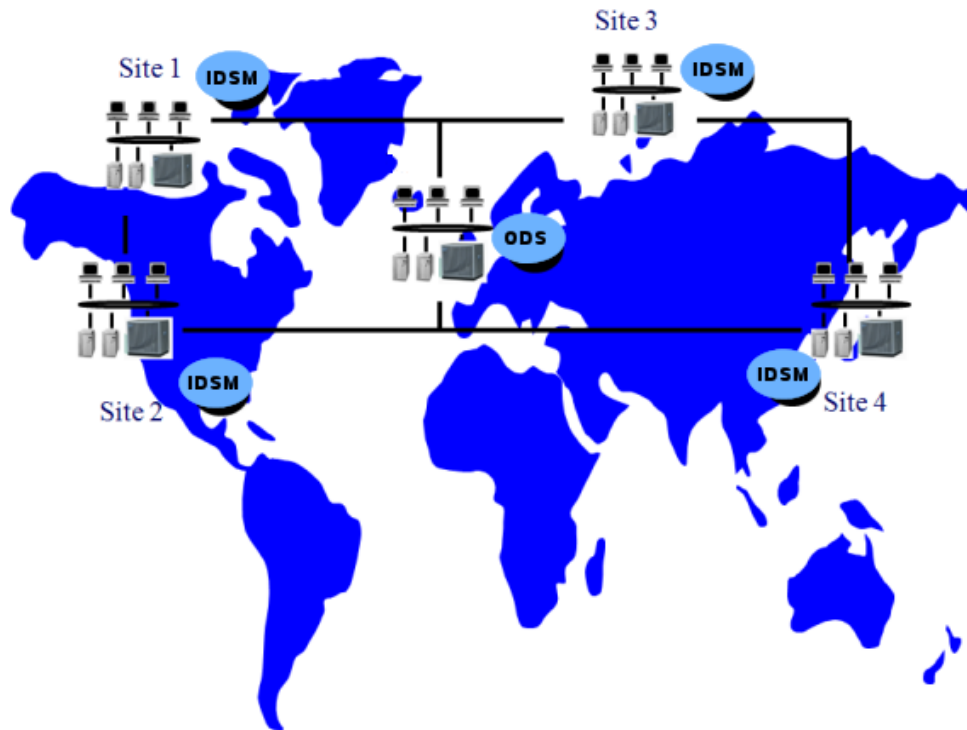
Re-import into Teamcenter with physical part removed

Sharing Service Manager data using Multi-Site Collaboration

Managing Service Manager data for Multi-Site Collaboration

Using Multi-Site Collaboration, you can share Service Manager data between multiple Teamcenter sites. Each Teamcenter site has its own independent database with its own set of users and groups, data models, business rules, and business processes.

Data sharing is done through object replication where an exact copy of an object is made at a remote site using remote export and import functions. The replicas are synchronized when the master copy is modified.



The *Object Directory Services* server (ODS) site maintains a record of each object in the entire Multi-Site Collaboration network.

The *Integrated Distributed Services Manager* (IDSM) provides the mechanism used to export an object from the owner's site, transmit it over the network, and import it into the destination site.

Multi-Site Collaboration support for as-maintained structures

When you export as-maintained structures and related Service Manager data using Multi-Site Collaboration, Data Exchange also exports the relations and the related objects. The table summarizes which relations and corresponding related objects are exported for each Service Manager object and whether the related object is optional or required.

Exported Service Manager object	Exported relation	Exported related object	Optional or required
Item	IMAN references	Part logistics form	Optional
	Has characteristics	Characteristic definitions	Optional
Physical part	Physical characteristics	Characteristic values	Required

Exported Service Manager object	Exported relation	Exported related object	Optional or required
		Physical part revision (by creation date)	Optional
	Allowed deviation	Physical part (child)	Required
	Contains	Asset group	Required
	Physical part in location	Physical location	Required
	Disposition applicability	Disposition	Required
Characteristic value	Tag	Characteristic definition	Required
Log entry	Tag	Log book	Required
Log book	Tag	Physical part	Required
Allowed deviation	Tag	Deviation document	Required
Physical part revision	Tag	Physical part	Required
	Physical realization	Item revision	Optional
	Physical context	Structure context	Required
	Tag	Lot	Required
	As-maintained structure	Physical part	Optional
Physical structure	Physical structure alignment	Occurrence	Optional
Lot	Tag	Item	Required
Asset group	Contains	Asset group	Optional
	Contains	Physical part	Optional
Physical location	None	Physical location revision by creation date	Optional

Exported Service Manager object	Exported relation	Exported related object	Optional or required
Physical location revision	Tag	Physical location	Required
	As-maintained structure	Physical location	Optional

Service Manager actions on stub and replica objects

Data sharing in Multi-Site Collaboration is done by replicating objects to remote databases through export and import functions. In addition, during Multi-Site Collaboration import, Teamcenter uses the persistent object model (POM) to create stubs for all referenced instances on the object. The following table shows the Service Manager actions that can be performed on object replicas and stubs.

Actions	Stub	Replica	Exceptions
Name occurrence	No	No	
Create lot	No	Yes	
Create serial number generator	No	No	
Generate as-maintained structure	No	Yes	If any stubs are found in the neutral structure during generation, the action exits and does not process any partial structures.
Install physical part	No	No	
Uninstall physical part	No	No	
Setup deviation	No	No	
Assign lot	No	No	
Compare	No	Yes	The compared structures should not have any stubs.
Visualization	No	Yes	Visualization is not supported for stubs within the neutral or physical structures.
Display as-maintained structure	Yes	Yes	Stubs are displayed as remote lines. Structures below stubs are not displayed.
Display location structure	Yes	Yes	Stubs are displayed as remote lines. Structures below stubs are not displayed.
Display asset group structure	No	Yes	

Actions	Stub	Replica	Exceptions
Set default location	No	Yes	The compared structures should not have any stubs.
Display utilization	No	Yes	Characteristic values that are stubs are not displayed.
Record utilization	No	Yes	Structure must be transferred with ownership. If the structure has a replica or a stub, values should not be propagated.
Release physical structure	No	Yes	Structure must be transferred with ownership.
Where installed	No	Yes	
View disposition history	No	Yes	
Display usage history	No	Yes	

Multi-Site Collaboration support for Service Event Management data

When you import service event management objects using Multi-Site Collaboration, you must set the **Include Reference** option to import the following related objects. The option is set by clicking the **Advanced** tab in the **Import Remote Options** dialog box. The table summarizes which relations and corresponding related objects are imported for each service event management object and whether the related object is optional or required.

Imported Service Event Management object	Imported relation	Imported related object	Optional or required
Service object	Completed	Physical part	Optional
	CorrectiveAction	Service event that completes a service discrepancy	Optional
	HWSOStructure	Children of the selected service object	Optional
Service event	MovedPart	Physical part for an approved part movement	Optional

Service Event Management is a separately licensed extension of the Service Manager application. You must obtain and install the appropriate licenses required to run the Service Event Management extension.



A. Service Manager preferences

As-Maintained preferences

AdditionalAsMaintainedAccCheckProperties

DESCRIPTION

Specifies the additional as-maintained accountability check properties.

VALID VALUES

Accepts one or more strings as values. Each string must be a valid BOM line property and a valid as-maintained BOM line property.

DEFAULT VALUES

`phbl_part_usage_name`

DEFAULT PROTECTION SCOPE

Site preference.

AdditionalAsMaintainedCompareProperties

DESCRIPTION

Specifies the default as-maintained compare properties.

VALID VALUES

Accepts one or more strings as values. Each string must be a valid BOM line property and a valid as-maintained BOM line property.

DEFAULT VALUES

phbl_part_used_is

DEFAULT PROTECTION SCOPE

Site preference.

DefaultAsMaintainedAccCheckProperties

DESCRIPTION

Specifies the default as-maintained accountability check properties.

VALID VALUES

Accepts one or more strings as values. Each string must be a valid neutral BOM line property and a valid as-maintained BOM line property.

DEFAULT VALUES

phbl_part_number
phbl_part_used_is

DEFAULT PROTECTION SCOPE

Site preference.

DefaultAsMaintainedCompareProperties

DESCRIPTION

Specifies the default as-maintained compare properties.

VALID VALUES

Accepts one or more strings as values. Each string must be a valid neutral BOM line property and a valid as-maintained BOM line property.

DEFAULT VALUES

phbl_part_number
phbl_part_usage_name

DEFAULT PROTECTION SCOPE

Site preference.

Disposition_Propagate_To_Child

DESCRIPTION

Determines if the disposition defined during the generation or duplication of the as-maintained structure is propagated to all of the children parts generated.

VALID VALUES

One of any logical pairs (**true** or **false**, **on** or **off**, **0** or **1**).

true Propagates the disposition to all child parts of the structure.

false Applies the disposition only to the top part of the structure.

DEFAULT VALUES

false

DEFAULT PROTECTION SCOPE

Site preference.

Service Lifecycle ManagementConfigRuleName

DESCRIPTION

Specifies the default configuration rule to use when opening as-maintained physical part revisions. If this rule does not exist, the system defaults to **Today Serviceable**.

VALID VALUES

Accepts a string as a value. Each string must be a valid as-maintained revision rule name.

DEFAULT VALUES

Today Serviceable

DEFAULT PROTECTION SCOPE

Site preference.

Service Lifecycle Management Default Locations

DESCRIPTION

Specifies the default locations to use for the **Generate As-Maintained Structure** and **Un-Install Physical Part** actions.

VALID VALUES

Accepts one or more strings as values. Each string must be a valid location name from the physical location object.

DEFAULT VALUES

None.

DEFAULT PROTECTION SCOPE

Site preference.

PhysicalLocation_CompanyLocation_default_relation

DESCRIPTION

Defines the default relationship between a company location and a physical location.

VALID VALUES

Accepts one or more strings as a value. Each string must be a valid Teamcenter object.

DEFAULT VALUES

PhysicalLocationDetails

DEFAULT PROTECTION SCOPE

Site preference.

PhysicalLocationContainsColumnsShownPref

DESCRIPTION

Specifies the columns displayed in the **Contains** view when the selected component is a physical location.

VALID VALUES

Accepts one or more strings as values.

DEFAULT VALUES

partNumber
serialNumber
lotNumber
manufacturerOrgId
manufacturingDate

DEFAULT PROTECTION SCOPE

Site preference.

PhysicalLocation_DefaultChildProperties

DESCRIPTION

Defines the default child properties for a physical location.

VALID VALUES

Accepts one or more strings as values. Each string must be a valid Teamcenter property name.

DEFAULT VALUES

IMAN_master_form
bom_view_tags
revision_list
IMAN_requirement
IMAN_manifestation
IMAN_reference
IMAN_MEView
IMAN_vi_sos
IMAN_external_object_link
PhysicalElementOwner
PhysicalLocationDetails

DEFAULT PROTECTION SCOPE

Site preference.

ServiceManagerAssetGroupColumnsShownPref

DESCRIPTION

Specifies the list of columns displayed for an asset group in Service Manager in left to right order.

VALID VALUES

Accepts one or more strings as values. Each string must be a valid asset group property.

DEFAULT VALUES

`object_name`

`object_desc`

DEFAULT PROTECTION SCOPE

Site preference.

ServiceManagerAssetGroupColumnWidthsPref

DESCRIPTION

Specifies the column widths displayed for an asset group in Service Manager in left to right order.

VALID VALUES

One or more integers as values; each integer defines the column width in characters. The first value set in this preference defines the column width of the first value set in the **ServiceManagerAssetGroupColumnsShownPref** user preference and so forth.

DEFAULT VALUES

20

20

DEFAULT PROTECTION SCOPE

Site preference.

ServiceManagerColumnsShownPref

DESCRIPTION

Specifies the columns displayed for physical parts opened in Service Manager in left to right order.

VALID VALUES

Accepts one or more strings as values. Each string must be a valid as-maintained BOM line property.

DEFAULT VALUES

bl_indented_title
bl_item_object_type
phbl_part_used_is
phbl_part_usage_name
phnl_serial_number
phbl_lot_number
phbl_part_number
phbl_installation_time
phbl_mfg_date
phbl_mfgr_org_id
phbl_physical_quantity
phbl_physical_uid
bl_item_item_id

DEFAULT PROTECTION SCOPE

Site preference.

ServiceManagerShownColumnWidthsPref

DESCRIPTION

Specifies the column widths displayed for physical parts in Service Manager in left to right order.

VALID VALUES

One or more integers as values; each integer defines the column width in characters. The first value set in this preference defines the column width of the first value set in the **ServiceManagerShownColumnWidthsPref** user preference and so forth.

DEFAULT VALUES

20
10
10
10
10
10
10
15
15
10
10
15
10

DEFAULT PROTECTION SCOPE

Site preference.

ServiceManagerPhysicalLocationColumnsShownPref

DESCRIPTION

Specifies the columns displayed for a physical location.

VALID VALUES

Accepts one or more strings as values. Each string must be a valid as-maintained BOM line property.

DEFAULT VALUES

plbl_location_name
plbl_location_description
plbl_location_type

DEFAULT PROTECTION SCOPE

Site preference.

ServiceManagerPhysicalLocationColumnWidthsPref

DESCRIPTION

Specifies the column widths displayed for the physical location in left to right order.

VALID VALUES

One or more integers as values; each integer defines the column width in characters. The first value set in this preference defines the column width of the first value set in the **ServiceManagerPhysicalLocationColumnWidthsPref** user preference and so forth.

DEFAULT VALUES

20
20
20

DEFAULT PROTECTION SCOPE

Site preference.

Service event management preferences

ActivityCost.RENDERING

DESCRIPTION

Determines the registration of the viewer style sheet for activity cost objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ActivityCost

DEFAULT PROTECTION SCOPE

Site preference.

ActivityCost.SUMMARYRENDERING

DESCRIPTION

Determines the registration of the summary style sheet for activity cost objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ActivityCostSummary

DEFAULT PROTECTION SCOPE

Site preference.

ActivityEntryValue.Service Lifecycle ManagementCREATERENDERING

DESCRIPTION

Determines the registration of the create style sheet for activity entry value objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ActivityEntryValueCreate

DEFAULT PROTECTION SCOPE

Site preference.

ActivityEntryValue.RENDERING

DESCRIPTION

Determines the registration of the viewer style sheet for activity entry value objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ActivityEntryValue

DEFAULT PROTECTION SCOPE

Site preference.

ActivityEntryValue.SUMMARYRENDERING

DESCRIPTION

Determines the registration of the summary style sheet for activity entry value objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ActivityEntryValueSummary

DEFAULT PROTECTION SCOPE

Site preference.

FaultCode.Service Lifecycle ManagementCREATERENDERING

DESCRIPTION

Determines the registration of the create style sheet for fault code objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

FaultCodeCreate

DEFAULT PROTECTION SCOPE

Site preference.

FaultCode.RENDERING

DESCRIPTION

Determines the registration of the viewer style sheet for fault code objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

FaultCode

DEFAULT PROTECTION SCOPE

Site preference.

FaultCode.SUMMARYRENDERING

DESCRIPTION

Determines the registration of the summary style sheet for fault code objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

FaultCodeSummary

DEFAULT PROTECTION SCOPE

Site preference.

Service Lifecycle ManagementDefaultLogBook

DESCRIPTION

Determines the registration of the create style sheet for service discrepancy objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ServiceLogBook

DEFAULT PROTECTION SCOPE

Site preference.

PartMovement_DefaultChildProperties

DESCRIPTION

Defines the default child properties for part movement objects.

VALID VALUES

Accepts multiple strings as values.

DEFAULT VALUES

MovedPart

DEFAULT PROTECTION SCOPE

Site preference.

PartMovementDefaultRemoveLocation

DESCRIPTION

Determines the default physical location to use when you create a service event that is related to a part movement.

VALID VALUES

A valid physical location.

DEFAULT VALUES

None.

DEFAULT PROTECTION SCOPE

Site preference.

PartMovement.ENABLE_PROPERTIES_EDIT

DESCRIPTION

Allows edits to the part movement properties. To allow edits, set the value to **false**.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

false

DEFAULT PROTECTION SCOPE

Site preference.

PartMovement.Service Lifecycle ManagementCREATERENDERING

DESCRIPTION

Determines the registration of the summary style sheet for part movement objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

PartMovementCreate

DEFAULT PROTECTION SCOPE

Site preference.

PartMovement.RENDERING

DESCRIPTION

Determines the registration of the viewer style sheet for part movement objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

PartMovement

DEFAULT PROTECTION SCOPE

Site preference.

PartMovement.SUMMARYRENDERING

DESCRIPTION

Determines the registration of the summary style sheet for part movement objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

PartMovementSummary

DEFAULT PROTECTION SCOPE

Site preference.

ServiceAction.RENDERING

DESCRIPTION

Determines the registration of the viewer style sheet for service action objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ServiceAction

DEFAULT PROTECTION SCOPE

Site preference.

ServiceAction.SUMMARYRENDERING

DESCRIPTION

Determines the registration of the summary style sheet for service action objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ServiceActionSummary

DEFAULT PROTECTION SCOPE

Site preference.

ServiceDiscrepancy_DefaultChildProperties

DESCRIPTION

Defines the default child properties for service discrepancy objects.

VALID VALUES

Accepts multiple strings as values.

DEFAULT VALUES

CorrectiveAction
InProgress
fault_code

DEFAULT PROTECTION SCOPE

Site preference.

ServiceDiscrepancy.ENABLE_PROPERTIES_EDIT

DESCRIPTION

Allows edits to the service discrepancy properties. To allow edits, set the value to **true**.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

false

DEFAULT PROTECTION SCOPE

Site preference.

ServiceDiscrepancy_FaultCode_default_relation

DESCRIPTION

Defines the relationship between a service discrepancy and a fault code.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

fault_code

DEFAULT PROTECTION SCOPE

Site preference.

ServiceDiscrepancy.Service Lifecycle ManagementCREATERENDERING

DESCRIPTION

Determines the registration of the create style sheet for service discrepancy objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ServiceDiscrepancyCreate

DEFAULT PROTECTION SCOPE

Site preference.

ServiceDiscrepancy.RENDERING

DESCRIPTION

Determines the registration of the viewer style sheet for service discrepancy objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ServiceDiscrepancy

DEFAULT PROTECTION SCOPE

Site preference.

ServiceDiscrepancy_ServiceEvent_default_relation

DESCRIPTION

Defines the relationship between a service discrepancy and a service event.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

CorrectiveAction

DEFAULT PROTECTION SCOPE

Site preference.

ServiceDiscrepancy_ServiceGroup_default_relation

DESCRIPTION

Defines the relationship between a service discrepancy and a service group.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

InvalidRelation

DEFAULT PROTECTION SCOPE

Site preference.

ServiceDiscrepancy.SUMMARYRENDERING

DESCRIPTION

Determines the registration of the summary style sheet for service discrepancy objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ServiceDiscrepancySummary

DEFAULT PROTECTION SCOPE

Site preference.

ServiceEvent_DefaultChildProperties

DESCRIPTION

Defines the default child properties for service event objects.

VALID VALUES

Accepts multiple strings as values.

DEFAULT VALUES

Completed
InProgress
CorrectiveAction
HMSOStructure
activity_entry_value

DEFAULT PROTECTION SCOPE

Site preference.

ServiceEvent.ENABLE_PROPERTIES_EDIT

DESCRIPTION

Allows edits to the service event properties. To allow edits, set the value to **true**.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

false

DEFAULT PROTECTION SCOPE

Site preference.

ServiceEvent.Service Lifecycle ManagementCREATERENDERING

DESCRIPTION

Determines the registration of the create style sheet for service event objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ServiceEventCreate

DEFAULT PROTECTION SCOPE

Site preference.

ServiceEvent.RENDERING

DESCRIPTION

Determines the registration of the viewer style sheet for service event objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ServiceEvent

DEFAULT PROTECTION SCOPE

Site preference.

ServiceEvent.SUMMARYRENDERING

DESCRIPTION

Determines the registration of the summary style sheet for service event objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

`ServiceEventSummary`

DEFAULT PROTECTION SCOPE

Site preference.

ServiceGroup.ENABLE_PROPERTIES_EDIT

DESCRIPTION

Allows edits to the service group properties. To allow edits, set the value to **true**.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

false

DEFAULT PROTECTION SCOPE

Site preference.

ServiceGroup.Service Lifecycle ManagementCREATERENDERING

DESCRIPTION

Determines the registration of the create style sheet for service group objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ServiceGroupCreate

DEFAULT PROTECTION SCOPE

Site preference.

ServiceGroup.RENDERING

DESCRIPTION

Determines the registration of the viewer style sheet for service group objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ServiceGroup

DEFAULT PROTECTION SCOPE

Site preference.

ServiceGroup.SUMMARYRENDERING

DESCRIPTION

Determines the registration of the summary style sheet for service group objects.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

ServiceGroupSummary

DEFAULT PROTECTION SCOPE

Site preference.

TransactionElement.COLUMNS_SHOW

DESCRIPTION

Determines which columns are displayed in the transaction element structure in left to right order.

VALID VALUES

Accepts multiple strings as values.

DEFAULT VALUES

object_name
transaction_id

DEFAULT PROTECTION SCOPE

Site preference.

TransactionElement.COLUMNS_WIDTH

DESCRIPTION

Determines the widths for the columns displayed in the transaction element structure in left to right order.

VALID VALUES

Accepts multiple strings as values.

DEFAULT VALUES

20

20

DEFAULT PROTECTION SCOPE

Site preference.

TransactionElement_DefaultChildProperties

DESCRIPTION

Defines the default child properties for transaction element objects.

VALID VALUES

Accepts multiple strings as values.

DEFAULT VALUES

InProgress

HWSOStructure

DEFAULT PROTECTION SCOPE

Site preference.

TransactionElement_Document_default_relation

DESCRIPTION

Defines the relationship between a transaction element and a document.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

IMAN_reference

DEFAULT PROTECTION SCOPE

Site preference.

TransactionElement_DocumentRevision_default_relation

DESCRIPTION

Defines the relationship between a transaction element and a document revision.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

IMAN_reference

DEFAULT PROTECTION SCOPE

Site preference.

TransactionElement_PhysicalElement_default_relation

DESCRIPTION

Defines the relationship between a transaction element and a physical element.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

InProgress

DEFAULT PROTECTION SCOPE

Site preference.

TransactionElement_PhysicalElementRevision_default_relation

DESCRIPTION

Defines the relationship between a transaction element and a physical element revision.

VALID VALUES

Accepts a single string as a value.

DEFAULT VALUES

InvalidRelation

DEFAULT PROTECTION SCOPE

Site preference.