TEAMCENTER

Basic Classification on Rich Client — Usage

Teamcenter 2412

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1. Getting started with Classification

Classification introduction

Classification of your company's product data—standard parts, technology data, and manufacturing equipment— saves time by making component data easier to find and retrieve and reduces costs by allowing you to reuse existing parts and consolidate or eliminate duplicate or outdated parts. Classification is used to create and maintain a hierarchical classification structure based on the attribute values of your workspace objects.

You can use Classification to:

- Add classification objects (ICOs) to the classification hierarchy.
- Classify workspace objects.
- Find classification objects.
- Modify the attribute values of Classification objects.
- Delete classification objects from the classification hierarchy.

You can classify objects using the rich client or Active Workspace. The procedures explained in this help refer to the rich client interface.

Before you begin

Your classification administrator must have already created a classification hierarchy in the Classification Admin application before you can use Classification.

To start Classification, click **Classification**  in the navigation pane.

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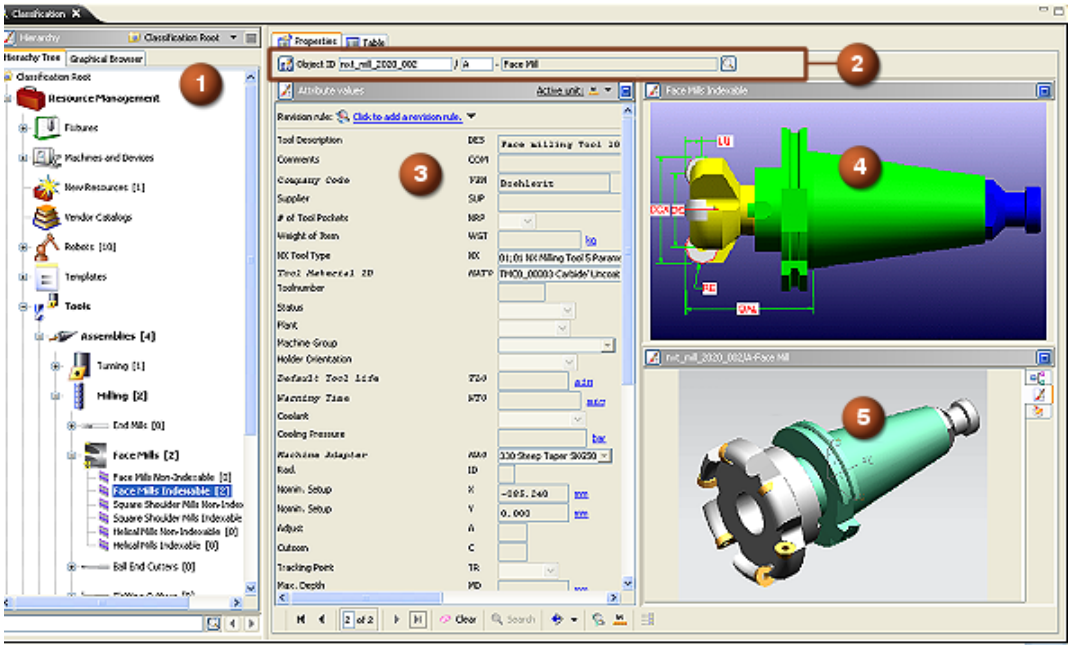
Classification interface

Classification interface overview



1	Classification hierarchy	Categorizes your company's data using groups and classes.
2	**Object ID** search box	Searches the entire classification hierarchy for the specified object ID or part of the object ID.
3	Properties form	Displays the values of attributes associated with a specific classification ICO.
4	Class viewer	Shows an image associated with a class.
5	Instance viewer	Shows documents or images associated with the classified workspace object (for example, item or item revision) of the ICO. This includes a multitude of data types, such as GIF or JPEG images, JT image files, HTML files, Microsoft Office documents, or NX part files.

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Classification buttons

Button	Function	Description
	**Soft Abort**	If enabled, allows you to terminate the current operation without closing Classification or losing data.
	**Navigation Pane**	Opens and closes the navigation pane.
	**Copy**	Replicates a workspace object reference in another Teamcenter application.
	**Copy Append**	Appends an object to the clipboard, retaining its current contents.
	**Paste**	Moves a workspace object reference from the clipboard to the selected location in the hierarchy tree thereby classifying it.
	**Create a new Instance**	Adds a new ICO to a class.
	**Edit current Instance**	Changes the mode of your Classification session allowing you to edit attribute values and add images.
	**Save**	Saves the information entered for a selected ICO.
	**Cancel**	Clears the **Properties** pane and terminate the Classification editing session.
	**Delete**	Deletes the selected ICO from the classification hierarchy.
	**Export Objects**	Exports objects to your file system using PLM XML or XML.
	**Create Part Family Member**	Creates part family members from an ICO.
	**Import Catalog 3D Model**	Imports 3D data from a vendor catalog for the currently selected component.
	**Import Vendor Product Data**	Imports vendor product data for the selected class and child classes.
	**Map ICO**	Maps an ICO to a different class.
	**Refresh Privileges**	Refreshes access privileges to an ICO.
	**Add Image**	Displays the **File Selection** dialog box to select images to associate with ICOs.
	**Delete Image**	Deletes image associated with ICO.
	**Favorites**	Opens the **Favorites** pane where you can manage saved queries.

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Button	Function	Description
	**Library Information**	Provides information about the project associated with a class, the name of the parent class, and the library in which the class is found. This information is useful when working with a data dictionary.
	**Classified object type**	Filters the search results according to the objects that the ICOs classify: • **Classifying** The ICO classifies a workspace object. • **Nonclassifying** The ICO does not classify a workspace object. • **Item** • **Item revision** • **Process** • **Process revision** This button changes to the **Send to** button  when a classifying ICO is displayed in the **Properties** pane.
	**Send to**	Displays the **Send To** shortcut menu used to send the item or item revision associated with the ICO to another Teamcenter application. This button shares position with the **Classified Object Type** button  .
	**Maximize**	Expands the current pane to fill the entire window. Alternatively, it reduces the expanded pane back to its original size.
	**Active unit**	Sets the active unit of measurement. If you are paging through search results, this button indicates if the currently displayed ICO is saved in a different unit than is active. Click this button to convert the ICO attribute values between systems of measurement. This button has several states: • 

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Button	Function	Description
		The attributes are displayed and stored in a metric system of measurement. •  The attributes are displayed in a metric system of measurement but are stored in a nonmetric system and are converted for display. •  The attributes are displayed and stored in a nonmetric system of measurement. •  The attributes are displayed in a nonmetric system of measurement but are stored in a metric system and are converted for display.
	Navigation buttons	Display search results in the **Properties** pane.
		Displays the first ICO in the list of search results.
		Displays the previous ICO in the list of search results.
		Displays the next ICO in the list of search results.
		Displays the last ICO in the list of search results.
	Search results	Displays the number of ICOs found in a search. The relative position of the ICO currently displayed in the **Properties** pane is displayed on the button. You can also type the relative position of an ICO and press Enter to display the ICO.
	**Clear**	Removes all values from the **Properties** pane.
	**Search**	Searches the selected class for ICOs.
	**MRU Query**	Displays a list of the most recently used searches.
	**Search Scope**	Determines the scope of the search, either hierarchy or class: • Choose **Hierarchy** to search within the selected class and all related child classes.

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Button	Function	Description
		• Choose **Class** to search only within the selected class.
	Search in	Specifies in which unit of measure you search. You can search in one of the following: • Classes containing only the currently active system of measure. • Classes containing both metric and nonmetric values.
	View Mode	Sets the display of ICOs in the hierarchy tree when viewing search results to correspond either to the class in which the ICO is stored or the class that was selected for the search.
	Localization	Displays the **Language Translations** dialog box that lists existing translation values. This button appears only if special localization configurations are made.

Classification panes

Pane	Description
Properties	Displays the **Properties** pane used to view, define, and edit the values of attributes associated with a specific Classification ICO. The class and instance viewers are also located in this pane. To enlarge the image, click the maximize button . By default, images are shown. To prevent this, click the **Panel Menu** button and clear **Show Image**. In the instance image window, JT assemblies are shown by default, if one exists in the classified object. To deactivate this, click the **Panel Menu** button and clear **Show Assemblies**. The active measurement unit is displayed in the title bar of the attribute search criteria pane.
Table	Displays the properties of ICOs in tabular format.
Multiple Instance (ICO) 2	Displays Classification data associated with one of multiple ICOs of a single workspace object.

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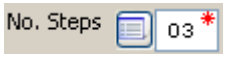
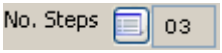
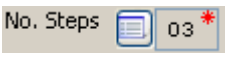
Classification symbols

> Note:
>
> Group and class symbols can be customized; therefore, the default symbols displayed in the following table may not represent those used at your site.

Symbol	Description
	Displays the root or anchor of the Classification system. There is one root per database.
	Displays a group that is a collection of related classes.
	Displays an abstract class that is used to combine common attributes for use in storage classes. Classification ICOs cannot be stored in abstract classes.
	Displays a storage class in which Classification instances can be saved. Storage classes can be positioned anywhere in the hierarchy, including the leaf node position.
	Displays an SML class that is used in the legacy SML hierarchy structure to store subclasses and other classes. ICOs cannot be stored in SML classes. Note: If possible, do not use SML classes. Use abstract and storage classes.
	Displays an SML subclass that contains the subset of attributes corresponding to an SML class.
	Displays an attribute value that is mandatory; it requires an entry to save the classification object.
	Displays an attribute value that a Classification user cannot change. It is protected by the Classification administrator.
	Displays an attribute value that requires an entry to save the classification object, but the Classification user cannot provide the entry. It is set by the Classification administrator using a default value.
	Displays an attribute value that is automatically computed based on custom logic assigned in the Business Modeler IDE application.
	Requires an attribute value that is within a specific range.

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Symbol	Description
	Displays an attribute value that falls outside of an allowable range.
	Displays a key-LOV value that is deprecated and should not be used to set an attribute value when classifying an object. However, you can use deprecated key-LOV values when searching to find objects that were previously classified with this attribute value.

Basic concepts about classification

Viewing the class hierarchy

The classification hierarchy utilizes **groups and classes** to categorize your company's product data.

The hierarchy and its components, classes and groups, are defined and maintained using the Classification Admin application. Once defined, you can export the hierarchy for use with different databases or as a basis for creating a new hierarchy.

The classification hierarchy tree provides a graphical display of the classification hierarchy structure. The display of the hierarchy tree is controlled using the **ICS_hierarchy_sort_option** preference.

Creating an attribute dictionary

Attributes are inherent characteristics that describe and identify an object within a group of objects. For example, you can use the **nut height** and **thread diameter** attributes to distinguish particular nuts within a group of nuts.

The attributes that you see in classes are derived from an attribute dictionary that is predefined by your Classification administrator. These attribute definitions remain the same, regardless of the class or view in which they appear. Therefore, the **thread diameter** attribute has the same format, name, description, and legal values each time it is used, thereby providing consistency throughout the hierarchy.

You create classification instances of workspace objects by associating the objects with a specific class and assigning values to the attributes corresponding to the class.

Inheriting attributes

Attribute inheritance causes a new class to automatically inherit all of the attributes defined for all of its parent classes. Attribute inheritance simplifies the setup of a group of related classes that share common attributes.

You implement attribute inheritance by assigning a parent class to a new class during the class creation process. After the new class is saved, it can be used as a parent class. This process can continue until a class reaches the limit of 200 attributes (inherited and local).

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Creating groups, classes, views, and classification objects (ICOs)

Classification uses groups, classes, views, and ICOs to structure the classification hierarchy and classify Teamcenter objects.

- Groups categorize a particular arrangement of related classes.
- Classes are a compilation and arrangement of attributes related to a group of objects. Storage classes permit a form-dependent distinction of items within a group of items or within groups of items.
- Views display and provide access to class attributes on a user or group basis.
- ICOs are the representations of Teamcenter objects within the classification system that extend the object with classification data.

For example, your company uses different types of fasteners, such as adhesives, nuts, bolts, and screws in the production process. Each type of fastener has numerous possible variations in form. To categorize the fasteners, you use groups and classes.

Groups

Groups are the highest level in the classification hierarchy. A group labeled **fasteners** could be established to organize all the fasteners used by your company. Groups can also be nested to include other groups. For example, if the fasteners are standard parts, you could create a group called **standard parts** and associate the **fasteners** group as a subgroup of **standard parts**. There is no limit to the level to which groups can be nested.

Classes

Classes represent the next level in the classification hierarchy. A class defines, and is defined by, the composite attributes of all storage classes associated with the class. A class can have multiple *alias* names, allowing you to search for it by one of these names in addition to its primary name. These names are indicated in the class tool tip in the classification hierarchy.

Abstract classes

Abstract classes are typically used to store objects that share a major set of characteristics (attributes). The attributes assigned to the abstract class are then inherited by any and all child classes. Abstract classes can have other abstract classes as well as storage classes as children.

Storage classes

Storage classes are defined by a combination of the inherited attributes of the parent classes along with attributes that are specific to the storage class. Storage classes can hold parent, child, and leaf node positions in the hierarchy.

Views

Views enable and disable access to storage classes and their attributes on a user and group basis. View objects are defined by your Classification administrator.

ICOs

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ICOs are the representations of Teamcenter objects within the classification system that extend the object with classification data. ICOs specify the values of attributes defined by a particular storage class within the classification hierarchy.

> Note:
>
> Siemens Digital Industries Software recommends that you only classify item and item revisions rather than dataset objects, such as **UGMASTER** and **UGPART** datasets.

The system automatically generates an object ID to identify a new classification ICO. The object ID corresponds to the Teamcenter item ID and cannot be modified.

Basic tasks using Classification

Use Classification to do the following basic tasks:

- *Classify workspace objects* such as items or item revisions.
- Find a classified instance (ICO). *Search the classification hierarchy* based on different criteria to find the ICO you need.
- *Copy table data to the system clipboard* and manipulate classification table data.
- *View data* associated with your workspace object. View many types of data, including GIF, TIFF, PNG, HTML, and text documents in the classification viewers.
- *Export classified data* using PLM XML.

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2. Working with the classification hierarchy

Displaying the classification hierarchy

The classification hierarchy shows a tree structure of nested classes. It provides an overview of all classification classes contained in the database. These classes contain a compilation of attributes related to a group of objects.

When you first open Classification, the hierarchy on the left is still closed. You can only see the root node.

1. Click **Search by Classification Dialog or ID** to open a resource that already exists in the database.

   -or-

   Click **Add component to the resource** to add a component to an existing resource assembly.

2. Double-click the root node of the hierarchy.

3. Move down the hierarchy by clicking the plus sign (+) in front of the name of the class you want to open. You can right-click any class and choose **Expand All** to open all child classes.

Change the display of the hierarchy

When you first expand the classification hierarchy, the class names include a number in brackets beside them. This number represents the number of instances contained within that class and all its subclasses.

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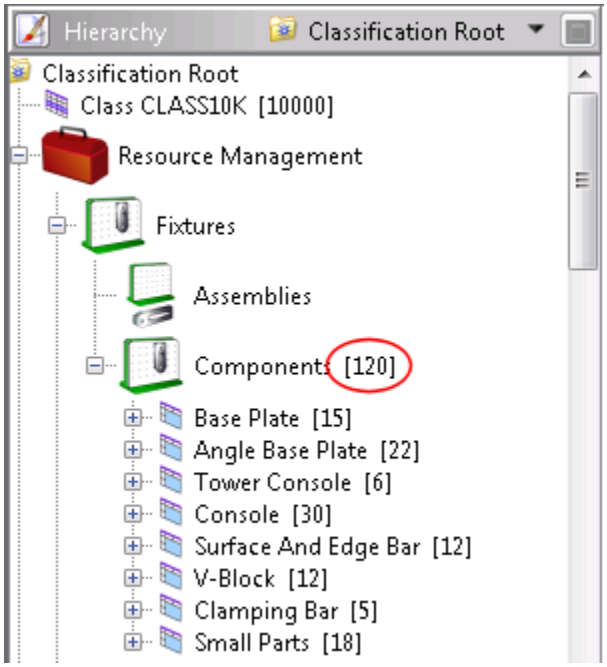

The number of instances displayed represents all instances in the database, including both metric and nonmetric ICOs, as well as ICOs to which you do not have read access.

- If you search for only metric or only nonmetric instances, the number of matches is smaller if your database contains instances in both systems of measurement.

- Teamcenter does not check for read access to ICOs until you perform a search. For this reason, a class can display 100 instances in the hierarchy, but when you search the class, you find only 80 matches. This is because you do not have read access to the other 20 ICOs.

  You can specify when the ICOs are filtered for read access in the **ICS_search_filter_by_read_access** preference.

You can additionally or alternatively display the groups and classes.

- Right-click the root node of the classification hierarchy and choose **Show Node IDs**.

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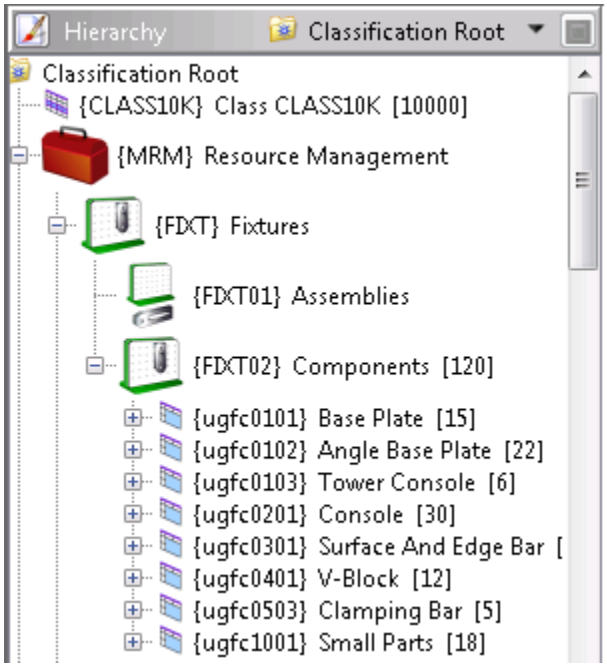

To turn off the display of the instance count, right-click the root node of the classification hierarchy and choose **Show Instance Count**.

Display information in the Properties pane

You only see information in the **Properties** pane once you select a class in the hierarchy.

- Double-click a storage class in the hierarchy.
- Right-click a class from the hierarchy and choose **Select**.

Display information in the Table pane

The **Table** tab is not available until you select a class in the hierarchy and search for ICOs in the **Properties** pane.

1. Double-click a storage class in the hierarchy.
2. Right-click a class from the hierarchy and choose **Select**.
3. Search for the desired ICOs.
4. Click the **Table** tab.

   Teamcenter lists the first five matches in the **Table** pane.

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Working with measurement units

Measurement units overview

Classification classes can contain only metric ICOs, only nonmetric ICOs, or both. If your Classification administrator specifies that a class can contain both, you can search for an object using either of the unit systems you define, and the search mechanism finds a match, regardless of the unit in which the object is stored. For example, if you search for a bolt with a width of 5/8th inches, the classification search mechanism finds a bolt that is stored with a width of 1.6 centimeters.

Teamcenter displays the unit of an attribute value as a hyperlink beside the value. You can change this unit for viewing or searching purposes. If a unit is not hyperlinked, Teamcenter cannot find the unit in the **Unit Definition** class. If the attribute is not yet used in any classes, the classification administrator can change the unit in the attribute dictionary or add the new unit definition to the **Unit Definition** class.

The unit in which you save an ICO is referred to as the *storage unit*. Teamcenter displays the storage unit in bold type in the list of available units.

When working with legacy data, Classification searches for the object ID of the unit or, if it does not find that, the display name. If it finds a match, then it displays the hyperlinked unit label. If Teamcenter does not find a match, it displays the legacy unit label that you cannot change.

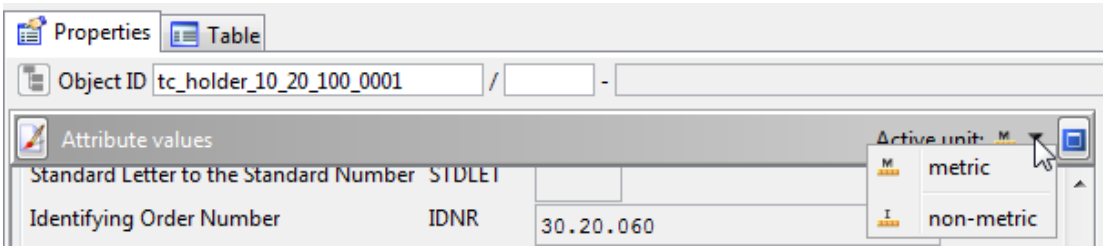
> Tip:
>
> Type the unit in the attribute value box along with the value. Teamcenter changes the unit for you automatically.

If your administrator enables optimization for attribute values, these are displayed using the most readable unit with the least number of leading or trailing zeros.

Change the active measurement system

When displaying ICOs in the **Properties** pane (view mode), you can change the measurement system that is displayed.

- Click the **Active unit** button and select the measurement system.



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Note:

You can do this only if your administrator has specified that the class can contain both metric and nonmetric values.

Change the displayed units of measure

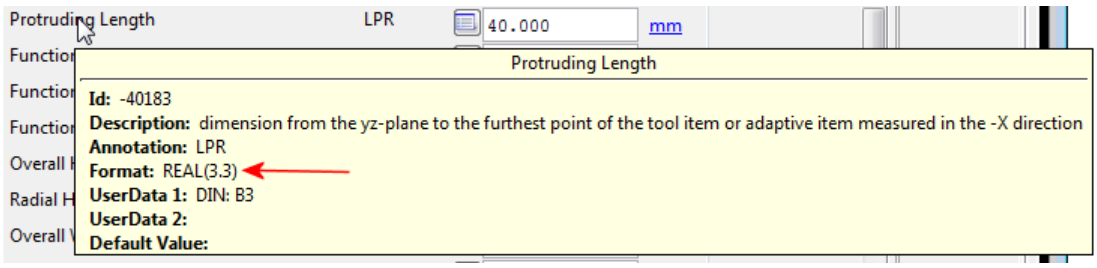
You can change the displayed unit of measure; Teamcenter converts these values for you. Teamcenter distinguishes internally between **show mode and edit mode** during this activity. You can only change the displayed units of measure in show mode. If you are in edit mode, Teamcenter changes the value you enter.

- Click the hyperlinked measurement unit and select a new unit.

- If you are in show mode, Teamcenter immediately converts the unit for display purposes.

- If you are in edit mode, Teamcenter assumes you want to change the attribute value. It first internally converts the value you enter to the storage unit, and then converts to the desired unit.

  If the storage unit is formatted in such a way that this conversion cannot take place (for example, not enough decimal places), Teamcenter cannot continue with this conversion and an error message occurs. If, for example, you are editing the following value, and want to enter the value in **m**, not **mm**, you cannot simply change the unit from **mm** to **m** as in show mode.



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If you attempt to do this, Teamcenter tries to convert 40 meters to the storage unit, which is millimeters. This results in a very large value of 40,000 millimeters. Because the **mm** storage unit specifies that this unit can only have three decimal places before and after the zero, Teamcenter cannot complete the conversion and displays the following error message:

```
The entered value 40 m (40000 mm) cannot be formatted with the REAL(3,3) format
because there are too many digits before the decimal point.
The attribute can have a value of 0 or a range between 0.001 and 999.999 mm.
Note:
The attribute's storage unit is mm. During conversion, values are first converted
to mm.
```

Instead, enter the value with the correct unit. In this case, that is **0.04m**.

> Caution:
>
> Teamcenter always converts between the metric and nonmetric formats that you specify in the attribute dictionary. If, during conversion, the converted value's number of digits is larger than the specified target format allows, Teamcenter truncates the excess digits and displays an erroneous value. For example, an attribute has a nonmetric format with **REAL(3.5)** and a metric format of **REAL(4.3)**. If you try to convert 622 inches to a metric value, the correct converted value is 15,800 millimeters. Teamcenter, however, truncates the converted value to 1580 to fit the defined format (**REAL(4.3)**).

If a class is set to **both** (metric and nonmetric), and if any of the attributes do not have a unit definition for both metric and nonmetric, Teamcenter uses the available unit for both unit systems. This behavior supports use cases where certain attributes may not have different metric and nonmetric units, such as time.

Viewing the Unit Definition class

The **Unit Definition** class contains all the units available for attribute definition in the Classification Admin application. Only an administrator should change this class.

Searching in multi-unit classes

If the active unit of measurement is metric, you can search for a nonmetric ICO using metric attribute values, and vice versa. Teamcenter converts the value to the other unit system and performs the search. When you do this, however, you must be aware of the following information.

For the search to find an ICO with a particular attribute value, the value must be an exact match. Because Teamcenter converts the value to the other unit system, be sure to enter enough digits after the decimal point to avoid rounding errors.

Make the panes larger or smaller

- Click **Maximize/Restore panel** on the right side of the pane's title bar.

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View the tree graphically

You can use a graphical browser to navigate through the classification hierarchy. This browser shows a hierarchy of the tree structure symbols and allows you to enlarge them easily with a slider. You can switch back and forth between the tree structure and the graphical browser. The class that is currently highlighted in the graphical browser is then highlighted in the tree and vice versa. If you select a class in the hierarchy tree, it is also selected in the graphical browser when you open it.

1. Turn on the graphical browser using the **ICS_enable_graphical_browser** preference.

2. In the hierarchy pane, click the **Graphical Browser** tab.

3. Navigate through the classes.

   The graphical browser shows two sets of graphics. The top set, a horizontal list of graphics, is the hierarchy list. This represents the path you have taken down the classification tree from parent to child node. The second set of graphics represents all the members of the current class, that is, the last class shown in the hierarchy list. Leaf classes are displayed with a blue border around the graphic.

   - To move one level down in the tree, click the graphic.
   - To move one level up the tree, click the second-to-the-last graphic in the list of graphics at the top.
   - To select a class, click the link below the graphic of the class you want to open. If the class you are selecting is a leaf node, clicking the link also selects it.
   - To move to any class in the hierarchy list, click the class.
   - To select a leaf class (a graphic with a blue border), click the class or click the link below the graphic.

4. Modify the graphic size by moving the slider at the right of the browser pane to the right to enlarge the graphics and moving it to the left to make them smaller.

Viewing attribute values

Attributes are placeholders for values that distinguish one instance of a class from another. For example, within the **Sheet Metal Screws** class, the **length**, **diameter**, and **thread** attributes are used to distinguish one sheet metal screw from another. Attributes and their values are displayed in the **Properties** pane.

In addition to the list of attributes that is displayed when you select a class, your administrator may have added custom attributes that are listed in a tool tip in the **Properties** pane.

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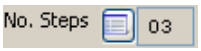
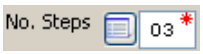
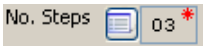
There may be restrictions set by your administrator on what attribute values you can modify or what values you can enter. For example, an attribute value may not be modifiable because your administrator has set a default value, or you can only enter attributes between a certain range. In addition, the display of the values can be changed. For example, by modifying the **ICS_display_unformatted_numbers** preference, you can add or remove the leading zeros.

Teamcenter provides you visual aid to see the restrictions set on an attribute. If you are in edit mode, you may see the following indicators.

Symbol	Restriction
	Attribute property is set to **Protected** or a default value is set to **Fixed**.
	Attribute property is set to **Mandatory**. Whether you can save an ICO without setting mandatory attribute values is controlled by the **ICS_force_mandatory_attribute_check** preference.
	Attribute property is set to **Mandatory** and **Protected**.
	Attribute value is set to **Auto Computed**. Note the gray frame. This value is calculated automatically based on external logic.
	Attribute value is displayed in centimeters. To display the value in a different unit, click the unit and select the desired display unit. This does not change the storage unit in the database. If the unit is not hyperlinked, it means that Teamcenter cannot find the given unit in the **Unit Definition** class. Notice that the **cm** entry is in bold type. This indicates that the storage unit for this attribute is centimeters.

> Tip:
>
> Type the unit in the attribute value box along with the value. Teamcenter changes the unit for you automatically.

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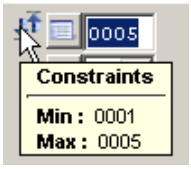
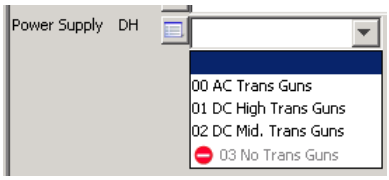
Symbol	Restriction
	Attribute value is restricted to a specific range.
	Attribute value falls outside of allowable range.
	Key-LOV value **03 No Trans Guns** is deprecated and should no longer be used.
	Attribute value is localized. Click to enter or view values in other supported languages.

Preview available attribute values

You can activate a filter that allows you to preview those attribute values available in the currently selected class. This is especially useful when you are searching as you can select an existing value and search for it.

> Note:
>
> The autofilter is not displayed for reference attributes.

1. Select a class in the classification hierarchy.

   Teamcenter displays the attributes in the **Properties** pane.

2. Click the **Autofilter** button.

   Teamcenter displays the **List of Values** dialog box containing a list of attribute values stored for this attribute. When you search, all attribute values stored for this attribute are displayed, provided you have not yet set any other attribute values. As you constrain your search criteria by setting other attribute values, the **List of Values** dialog box only shows the attribute values that are valid given the current search criteria (helping you efficiently narrow your search and choose valid values that will find classified objects).

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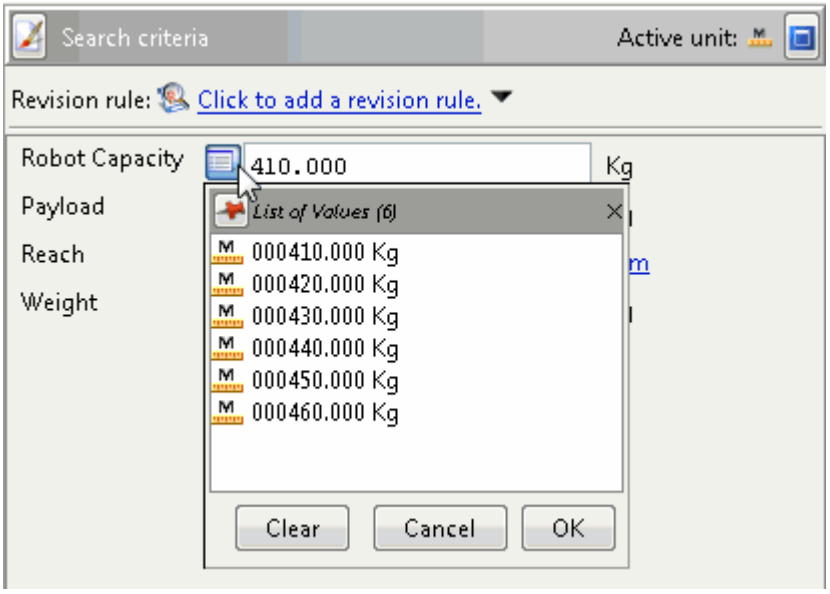

The attribute preview indicates whether the value is stored as a metric or nonmetric unit.

3. Do one of the following:

   a. Select a value and click **ok**.

      Teamcenter closes the **List of Values** dialog box and populates the attribute value box with the selected value.

      > Note:
      >
      > If you are in search mode and use the autofilter on string attributes, Teamcenter places the value in quotation marks. This way, you can use dashes inside the attribute values, and they are not interpreted as a range.

   b. Click **clear**.

      Teamcenter closes the **List of Values** dialog box and removes any value that was in the attribute value box.

   c. Click **cancel**.

      Teamcenter closes the **List of Values** dialog box without making any changes to the attribute value box.

View attributes applicable to a specific application

In some cases, you may want to highlight a specific set of attributes that are relevant to a particular application. If a class contains a long list of attributes, it is often not easy to spot these attributes in

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the **Classification Properties** view or the **Search** pane of the Classification Search Dialog. You can view which attributes are relevant to a particular application if this feature is enabled in the Classification Admin application. You can choose to mark all relevant attributes or, additionally, you can hide attributes that are not relevant. Alternately to highlighting attributes, you can filter the display of the attributes so that only the applicable attributes are visible.

Your administrator enables applicable attributes in the Classification Admin application.

1. In the **Classification Properties** view or the **Search** or **Properties** pane, click the button representing the application for which you want to see the relevant attributes.

   Teamcenter displays the application symbol beside each of the relevant attributes and highlights the attributes in bold.

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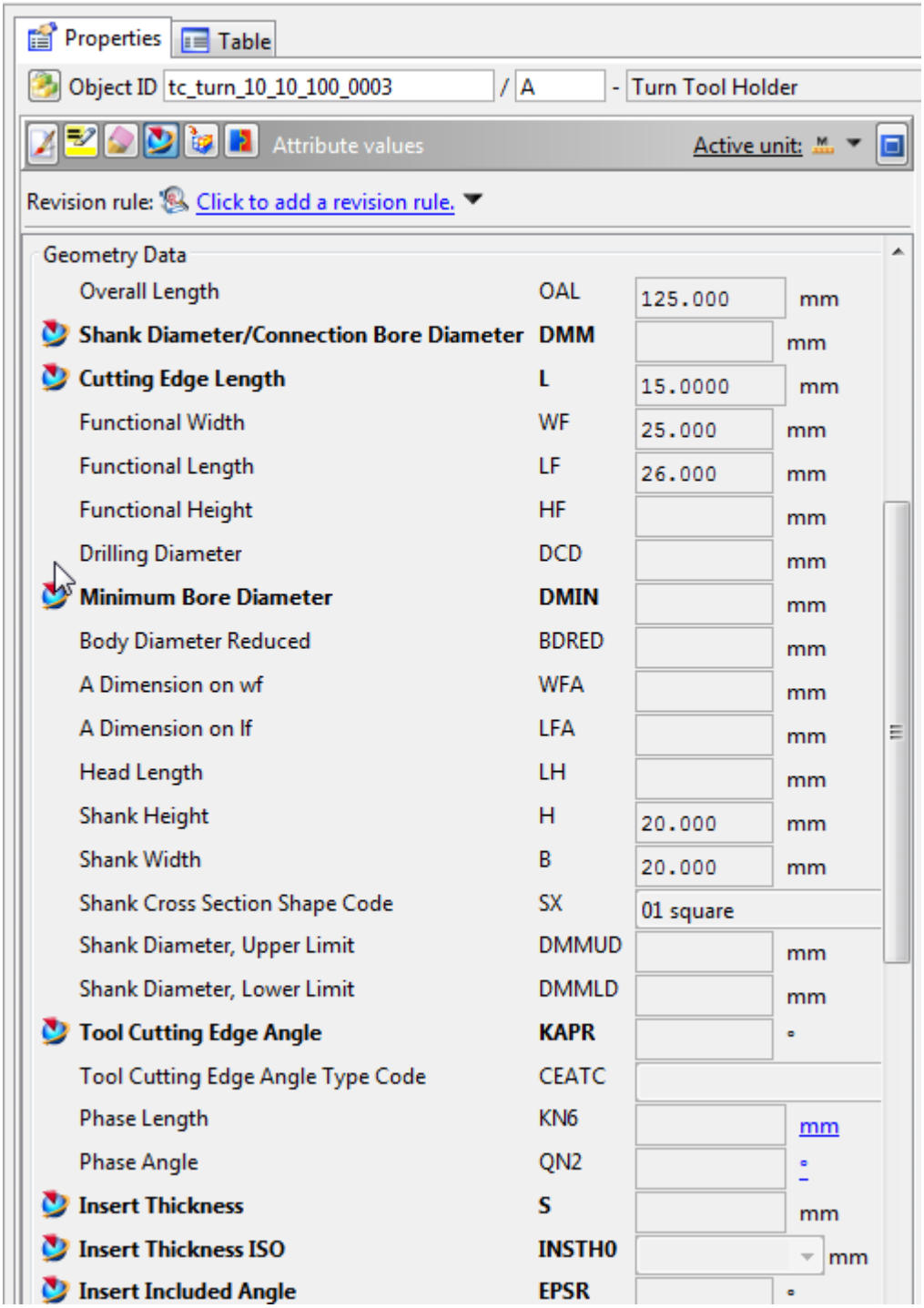

You can click more than one application button.

2. Switch between highlighted and filtered attributes.

   - 

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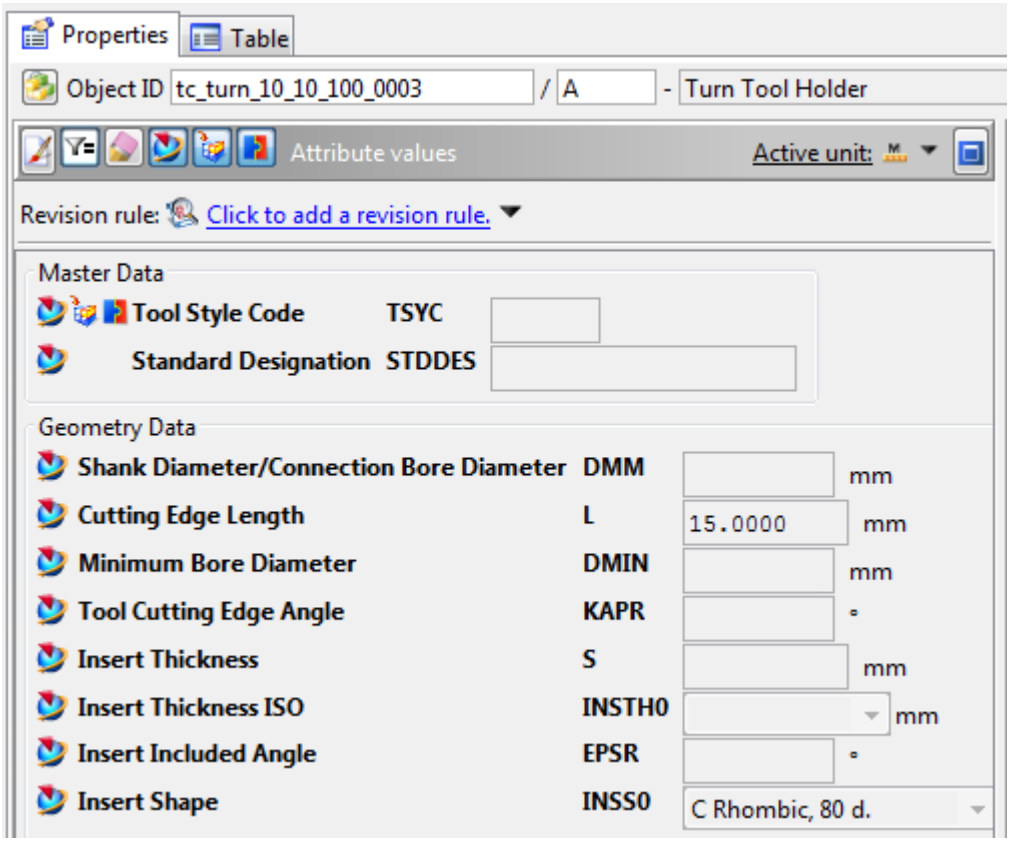
The attributes that are pertinent to the selected applications are highlighted in bold and the application symbol is shown beside them.

-

  The attributes are filtered so that only the attributes relevant to the selected applications are visible.



Displaying a subset of the hierarchy

Set a node as root

In a complex classification hierarchy, you can select any point in the hierarchy and set that node as the root node, blending out all the node's ancestor classes and groups. You can store any number of classes in the options list to change the hierarchy root node at your convenience.

1. In the title bar of the hierarchy pane, click ▼ to display the root node selection. By default, this list contains only **Classification Root**. You can configure the entries in this list in the **ICS_default_root_selector_entries** preference.

2. Select the node that you designate as the new root node in your classification tree.

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Teamcenter displays the name and symbol of the new root class in the title bar.

3. (Optional) Display the full tree again by selecting **Classification Root** from the options list.

Store nodes for subsequent selection as root

1. Select the class in the hierarchy that you want as the new hierarchy root node.
2. In the title bar of the hierarchy pane, click ▼ to display the root node selection list.
3. Choose **Add Current Class**.

- or -

1. Modify the entries in the **ICS_default_root_selector_entries** preference.

These entries are then available the next time you open the root node selection list.

Delete stored nodes from the list

1. In the title bar of the hierarchy pane, click ▼.

   The root node selection list appears.

2. Right-click the class that you want to remove from the list and choose **Remove**.

Display a node as temporary root

1. Right-click the class in the hierarchy that you want as the temporary hierarchy root node and choose **Set Root Node**.

   Teamcenter displays this class as the root node but does not add the class name to the root node selection list.

2. (Optional) Return to viewing the complete tree by selecting **Classification Root** from the root node selection list.

Refresh the hierarchy tree

The classification hierarchy does not always update automatically. In certain situations, such as the following, you must update the tree manually:

- A class is moved to a new group or to see a change to the hierarchy.

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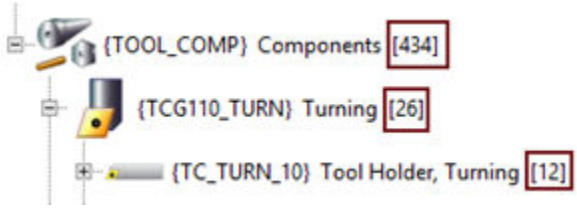
- Objects are classified. The ICO count does not update automatically.



To manually refresh the classification hierarchy:

- Right-click the root node or affected branch, and choose **Refresh**.

  Teamcenter refreshes all branches beneath the selection, as well as the selection itself.

If you add attributes in Classification Admin to a class that you are currently viewing in Classification, you must refresh the class in Classification using the **Refresh** button or by selecting another class and returning to the viewed class to see the newly added attributes.

> Note:
>
> The **Refresh** menu command is not available if you are in edit mode.

View library information

1. Select a classification class.
2. Click the **Library Information** button .

   Teamcenter opens the **Library Information** dialog box displaying:

   - The projects in which this library participates. A library can be associated with multiple projects.
   - The parent classes of the selected node.
   - The library type.

View object properties

1. In the **Table** pane, select an ICO that classifies a workspace object.
2. Click the **Properties** button .

   Teamcenter opens the **Properties** form displaying the properties of the selected workspace object.

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3. (Optional) Check the form out of the database to modify it.

Understanding show versus edit modes

Classification distinguishes between show mode and edit mode when working in Classification.

Show mode You cannot edit the object. The **Save** button is unavailable.

Edit mode You can make changes to the object's attributes. The **Save** button is available to save these changes.

Teamcenter sometimes behaves differently, depending on whether you are in save mode or edit mode. For example, when working with measurement units, you can change the displayed unit in show mode, but if you make the same changes in edit mode, you change the attribute value.

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3. Working with classification objects

Classifying workspace objects

By classifying Teamcenter objects, you can categorize your products, parts, and components according to their common characteristics. This classification allows you to search for parts independent of the location in the product structure, encouraging reuse of existing parts and reducing the costs associated with redundant design work.

> Note:
>
> Siemens Digital Industries Software recommends that you classify only item and item revision objects. Classification of datasets, forms, and folders is not recommended.

Internal Classification objects (ICOs) are created based on the attributes assigned to the storage class. Therefore, you must first determine the appropriate class for the object being classified, in accordance with your company's established classification standards.

Create a classification object (ICO)

1. Select the class in which you want to create the new classification object.
2. Click the **Add or create a new Instance** button .

   The **Create Classification Object** dialog box is displayed.
3. Select **Create a new stand-alone classification object** and type an ICO ID into the box.
4. (Optional) If you previously searched the class and the **Properties** pane currently displays attribute values for an ICO, you can select **Copy Values** to copy the values from the displayed ICO to the new classification object.
5. Click **OK**.
6. Type new attribute values or modify copied values in the **Properties** pane.
7. Click **Save** .

Create an ICO by classifying a workspace object

1. Use one of the following methods to choose the object to be classified (item or item revision):

   - Select the item or item revision in the tree structure or properties table of another application, such as My Teamcenter, and drop it on the **Classification** button in the navigation pane.

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Teamcenter opens the Classification application and asks if you want to create classification information.

This method only works with a single object.

- Select the item or item revision in the tree structure or properties table of another application, such as My Teamcenter, and copy it to the clipboard. Open Classification, click the **Clipboard** button, and select the object in the **Contents** menu, and click the **Open Selected Object** button.

  A message asks if you want to create the classification information for this object.

  This method works for multiple objects provided you classify each object on the clipboard individually with the steps described.

- Right-click the item or item revision in the tree structure or properties table of another application, such as My Teamcenter, and choose **Send To**. Choose **Classification** from the list of applications displayed on the **Send To** menu.

  The Classification application displays a message asking if you want to classify the object.

  This method only works with a single object.

2. Click **Yes** in the **Classify Object** dialog box.

   The dialog box closes and the object ID is displayed in the **Properties** pane.

3. Browse the hierarchy tree to locate the storage class that best matches the characteristics of the object being classified.

4. Right-click the storage class and choose **Select**. You can also double-click the storage class to display the attributes.

   The attributes associated with the selected subclass are displayed in the **Properties** pane.

5. Type values for the attributes. If the class can accept both metric and nonmetric units of measurement, you can switch between these using the **Active Unit** list. Classification converts the values where required.

6. Click the **Save** button on the toolbar to create the ICO and save it to the database.

7. (Optional) If you want to create an additional instance of the new workspace object, click the **Add or create a new Instance** button again.

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Working with unique ICOs

In Classification Admin, you can specify that the values of a certain attribute or group of attributes are unique within a class. In this case, when you save a newly created ICO, Teamcenter checks that no other ICO in the class contains the same attribute values. If it does, the **Save Instance** dialog box is displayed. This dialog box displays:

- The ICO being saved.
- The unique attribute or set of unique attributes.
- A list of ICOs within the class that contain the same values for the unique attributes as the ICO you are trying to save.

If there is only one ICO in a class that is marked as unique, no two ICOs with the same value for that unique attribute can be saved. If there are multiple ICOs in a class marked as unique, you are prevented from saving a second ICO only when all of the attribute values for all of the unique attributes are the same. For example, a class has the following unique attributes:

Attribute	ICO_1	ICO_2
Attribute A	10	10
Attribute B	20	
Attribute C	30	30
Attribute D	40	40

ICO_1 and **ICO_2** can both be saved as the set of attributes is not identical. Both default values and empty attribute values are also evaluated for uniqueness in a set of attribute values.

You may have to **solve conflicting attribute values**.

Solve conflicting attribute values

1. Modify the ICO values so they no longer conflict with other ICOs in the class.

2. Verify that the new set of values is now unique by clicking the **Verify** button.

3. Optionally, if you prefer to change the attribute values in one of the conflicting ICOs listed, copy the conflicting ICO to the clipboard where it is available for modification at a later point.

Classifying an object multiple times

By default, a single workspace object can be classified multiple times in different classes and the attribute values are then synchronized between the ICOs. For example, if **Part 1** is classified in **Class 1**,

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Class 2, and **Class 3**, and all of these classes contain the attribute **vendor**, if the value for vendor is changed in the ICO stored in **Class 1**, the value is also updated in the ICOs stored in **Class 2**, and **Class 3**.

Your Teamcenter administrator can modify this behavior to allow a single workspace object to be classified multiple times within the same class. If this option is enabled, it is possible that the attribute synchronization for at least one attribute in the class is disabled preventing you from inadvertently overwriting values and creating identical ICOs.

When multiple ICOs exist for an object, tabs corresponding to each of the ICOs are displayed at the bottom of the **Properties** pane.

Create multiple classification instances of an object

1. Display the classification object that you want to classify in the **Properties** pane of the Classification dialog box.

2. Click the **Add or create a new Instance** button .

3. In the **Create Classification Object** dialog box, select **Add an additional classification to the current classified object**.

4. Click **OK**.

5. Browse the hierarchy tree to locate the storage class that best matches the characteristics of the object being classified. You can create additional classifications of the same object in the same class or in different classes.

6. Right-click the storage class and choose **Select**. You can also double-click the storage class to display the attributes.

   The attributes associated with the selected subclass are displayed in the **Properties** pane.

7. Click **Save** on the toolbar to create the ICO and save it to the database.

Modifying attribute values

You may find it necessary to modify the attribute values of an ICO. For example, when an object is classified early in the design process and additional attribute information becomes available, you can add this information to the ICO at that time.

Revisions to an existing item due to a change in form, fit, or function necessitates the creation of a new item revision, and therefore a new ICO should be created corresponding to the new item revision.

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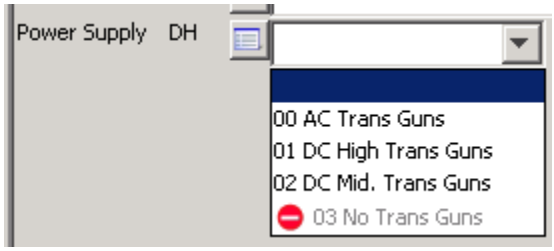
> Note:
>
> ICOs maintain the protection settings of the workspace object from which they are created. Therefore, you must have *write* access to the object to modify a Classification ICO.

Using the Classification edit function, you can modify the attribute values of a specific ICO.

Note the following when modifying attribute values:

- If the **ICS_allow_deprecated_lovs_on_update** preference is set to true, you see all deprecated Key-LOV values.



- If the **ICS_enforce_min_max_constraints_on_update** preference is set to **true**, you cannot change to a value that is outside of any minimum or maximum constraints.
- If the **ICS_allow_deprecated_lovs_on_copy** preference is set to **false**, you cannot revise or perform a **Save As** action for classified items having deprecated key-LOV values.
- If the **ICS_enforce_min_max_constraints_on_copy** preference is set to **true**, you cannot revise or perform a **Save As** action for classified items having a value outside of any minimum or maximum constraints.

Modify attribute values of a specific ICO

1. In the **Properties** pane, display the ICO to be modified.
2. Click **Edit** on the toolbar to activate the **Properties** pane.
3. Add, delete, or modify the attribute values of the ICO.

   If an attribute value is not available for modification, your administrator may have set a fixed default value; or, if you use key-LOVs, a value may be deprecated.

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> Note:
>
> If you do not want to save your changes, click **Cancel**. This clears any changes you have made to the ICO in the current editing session. Previously saved data is restored.

4. Do one of the following:

   - Click **Save** on the toolbar to save the modifications to the ICO.
   - Change classes and click **Save** to reclassify the ICO in a new class.

When the attribute values of an ICO that is associated with a part family member are modified, you must update the part family member data to reflect the changes to the attribute values.

- Click the **Create or Update Part Family Member From ICO** button to update the values.

Move ICOs

1. Search for the ICOs that you want to move.
2. Click the **Table** tab.
3. Select one or more ICOs to move.
4. Drag-and-drop these ICOs onto the new storage class.

   The **Move ICOs to** *new_class* dialog box is displayed. This dialog box lists the ICOs you select, along with the name of the storage class to which you are moving these ICOs.

   If the attributes of the new class differ from the attributes of the original class, a link with a warning is displayed: **The following ICO attribute values will be lost**. Click this link to see a list of these attribute values.

5. Click **OK**.

   The ICOs are moved and the status of the move is displayed as follows:

   - Successfully moved ICOs display a .
   - ICOs that could not be moved display a .

     Values of attributes that are the same in both classes are carried over to the new class; old values are deleted.

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Reclassify ICOs

1. Search for the ICOs that you want to reclassify.
2. Click **Edit**.
3. Select a new class.
4. Click **Save**.

   Teamcenter moves the ICO to the new class, therefore, reclassifying it. Values of attributes that are the same in both classes are carried over to the new class; old values are deleted when you save. Clicking **Cancel Edit** before you save restores the old values in the old class.

Delete an ICO from the database

Classification instances are associated with their respective workspace objects (items and item revisions). If the item or item revision is deleted from the database, the ICO is also deleted. However, if you create an instance of a dataset, form, or folder, you must manually delete the ICO from the database *before* deleting the workspace object.

> Note:
>
> ICOs maintain the protection settings of the workspace object from which they are created. Therefore, you must have *delete* access to the object in order to delete an ICO.

1. Display the ICO in the **Properties** pane.
2. Click the **Delete** button ✕ to permanently remove the ICO from the database.

Map ICOs from one class to another

If you want to create a new classification object based on an existing one, you can copy the attribute values to the target class using the map feature. For example, if your classification structure contains both a vendor and a customer hierarchy, you may want to map ICOs from a vendor class to a customer class.

Your classification administrator must set up mapping definitions in the Classification Admin application before you can perform mapping procedures.

> Caution:
>
> You cannot map a metric ICO to a nonmetric ICO and vice versa.

1. Select the source class in the hierarchy that you want to map to another (target) class.

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2. Select the appropriate ICO from the source class.

3. Click  .

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

4. Type a unique identifier for the new item in the **Item ID** box or let Teamcenter automatically create a name for you by clicking **Assign**.

5. Type a name in the **Name** box.

6. Select the item type of the new resource.

   The following four types are generally used to create a new resource:

   - **Resource** – for resources
   - **NC Tool** – for tools
   - **NC Machine** – for machines (do not confuse with **NC Machining Operation**)
   - **Equipment** – for use with Tecnomatix applications

   Teamcenter selects the default value of this entry based on the definition in the **MRMItemTypes** preference.

7. Select the **Copy datasets from source item** option to copy attachments such as 3D models from the source item, for example, a vendor tool class, to the target item such as a customer class.

8. Select the **Import Model to Target Item** option if you are mapping from a vendor catalog to a customer class and want to import the 3D models directly from the vendor catalog.

9. Click **OK**.

   If there are multiple possible target classes specified in the mapping definition, the **Target Class Selection** dialog box is displayed:

   a. Choose the desired target class from the list.

   b. Click **OK**.

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

   c. Enter the required information and click **OK**.

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Teamcenter creates a new ICO and item in the target class and maps attributes from the source class to attributes in the target class as specified by the mapping definition in Classification Admin. The new ICO is displayed in the target class, and its attributes are shown in the **Classification Properties** view.

Map multiple ICOs

You can only map multiple ICOs when all the selected ICOs in the search results belong to the same class.

1. Search for the desired ICOs.
2. Display the search results in the classification table.
3. Select all desired ICOs and click  .

   If there are multiple possible target classes specified in the mapping definition, the **Target Class Selection** dialog box is displayed:

   a. Choose the desired target class from the list.

   b. Click **OK**.

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

   c. Enter the required information and click **OK**.

   Teamcenter creates new ICOs and items in the target class and maps attributes from the source class to attributes in the target class as specified by the mapping definition in Classification Admin. It assigns IDs automatically.

Generating graphics for classification objects

Graphics generation overview

There are three ways in which Teamcenter can automatically create part files and JT graphics for an ICO:

- Based on part family templates

  Part family templates are used in NX to define a set or *family* of parts that share similar form, fit, and function but differ based on parameter values (for example, length, width, or diameter) that typically control the physical characteristics of the part (or tool). The part families are created with the help of a Microsoft Excel file that holds a list of all *part family members*.

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- Based on template parts

  Any NX part can be used as a template part.

- Using Tcl scripts

  You can generate ICOs based on Tcl macro files. This is generally used with legacy Genius4000 data.

> Note:
>
> When you create graphics for a tool component for instance, either with part family template or a template part, the geometry and CSYS are generated in NX. The graphics and CSYS are also displayed in Teamcenter. If the CSYS does not display, unload and then reload the component.

Both part family templates and template parts contain expressions that describe a part parametrically. For example, **L1** represents the length of a drill. If you change the value of **L1**, you can quickly create many drills (*part family members* or *member parts*) of different lengths. Although the behavior in Teamcenter when using part family templates or template parts is very similar, the mechanics of how graphics are created for the members in the background varies.

> Note:
>
> Revisioning is supported with the template part method only.

An administrator must perform the following steps to configure graphics building for ICOs:

1. Associate the part family template or template part with a specific class.

2. Map the template expressions to class attributes.

A Classification user creates a new ICO by entering attribute values. When the user starts the process to create graphics, Teamcenter starts the graphics builder executable that communicates with NX in the background and generates a new part family member or member part using the new attribute values. The graphics builder executable also creates a 3D model and, optionally, a JT file. These are stored in the database, and the JT file is displayed in Classification.

Understanding part family templates

You can create part family templates that define geometry and certain properties of the geometry as variable properties, for example, lengths and angles, in NX. When you assign values to the properties in the part family template, you create part family members. You can create members in NX or in Teamcenter Classification by creating an ICO and propagating its values to the part family template.

For more information about how to create part family templates, see the *NX Help Library*.

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Caution:

For graphic generation to work correctly, you must choose **Importable Part Family Template** in the **Part Families** dialog box in NX. This ensures that the two columns, **DB_PART_NO**, and **OS_PART_NAME** appear in the part family spreadsheet.

An administrator attaches part family templates to class definitions in Classification Admin and maps the attributes of the class to the variable properties of the part family template. When you assign values to an instance of a class to which a part family template is attached in the Classification application, you can create a part family member by clicking the **Create/Update graphic from ICO** button after saving the ICO.

Note:

Multiple templates can be attached to a single class. In this situation, when you create a part family member for an ICO, you must decide which template to apply. When you create the part family member, a relationship is established between the ICO and the template. Once this relationship is established, you cannot create a part family member for this ICO using a different template.

Understanding template parts

Template parts are parametric NX parts whose expressions are mapped with class attributes. Graphics creation based on template parts is very similar to that based on part family templates with the following advantages:

- The template and the instances have their own status and revisions. This allows you to revise template and members individually.
- You can reclassify a component (move it from one class to another) and re-create the graphics based on the template part in the new class.
- You can manually modify the part file of a specific instance.
- No write access to the template is required.
- You can easily update or replace an existing template part file (for example, to fix incorrect geometry in the template).

To use template parts, you must perform all the setup and configuration steps required for using part family templates.

When working with template parts, there are two scenarios possible when you update a member part. You can refresh member parts by updating with new classification attribute values, or you can re-create the geometry from the template part.

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Create part family members and graphics for a classification instance

When an object is classified under a storage class that is associated with an NX part family template or template part, you can create a part family member and related graphics corresponding to the ICO.

Perform the following steps to create a new part family member and/or graphic for an ICO:

1. After assigning attribute values and saving the ICO, click the **Create/Update graphic from ICO** button  .

   Teamcenter displays the **Create/Update Graphic** dialog box.

2. Click the **Part family template** or **Template part** tab, depending on the type of template you are using.

3. Select the template from the **Template** list.

   > Caution:
   >
   > Teamcenter lists any mapped attributes that have not been assigned a value. You must assign values to the listed attributes to create graphics from them.

4. Select **Create part file** to create a PRT file.

5. Select **Create JT file** to create a JT file.

   > Note:
   >
   > If you do not choose to create the part or JT files at this time, Teamcenter creates a new part family member and adds it to the template. You can create the files in a subsequent session using Teamcenter Integration for NX.

6. Click **Create/Update**.

   The system creates a new item and an item revision that contains the part files. The name of this new item is the same as the object ID of the newly created ICO. The newly created ICO classifies the item revision.

   If you create graphics based on part family templates and you revise the item that contains the part file, you must revise all part family members so that the members all have the same revision as the top item.

   There are several considerations when you are **updating template parts**.

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Update a graphic based on a template part

1. Open the ICO that you want to update, make any necessary changes to the attribute values, and save the ICO.

2. Click the **Create/Update graphic from ICO** button .

   The **Create/Update Graphic** dialog box is displayed.

3. Select one of the following:

   - **Refresh member part**

     Updates the geometry of an existing member part with the modified attribute values from the ICO.

     Refreshing a member part retains changes made manually to the member part in NX.

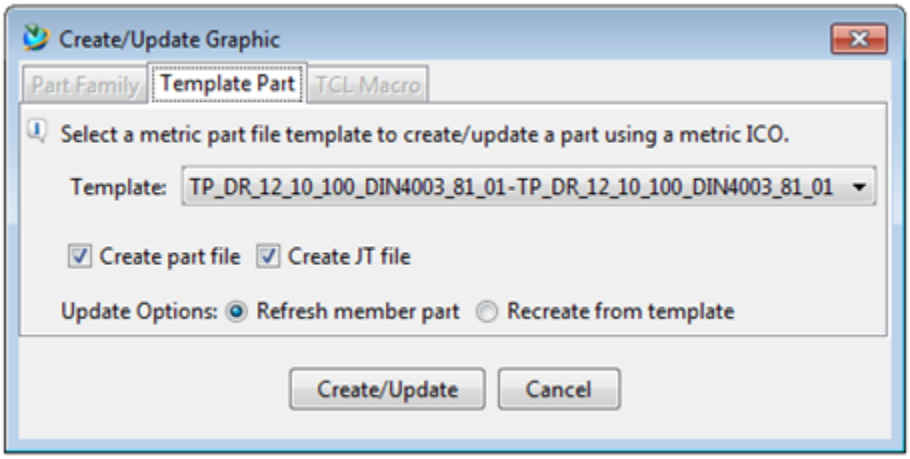
   - **Recreate from template**

     Discards the member part geometry and uses the geometry from the template part to re-create the member part geometry.

     Any manual changes made to the member part are lost.

Refreshing versus re-creating a template part

When you update graphics using the **Create/update graphic from ICO** command, it is important to understand the difference between the **Refresh member part** and the **Recreate from template** options to allow you to make the correct decision when creating graphics.



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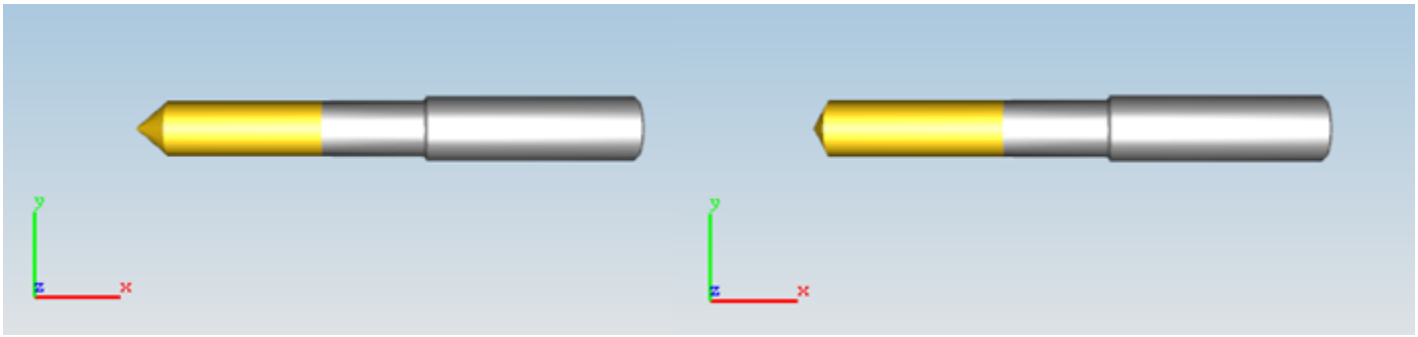
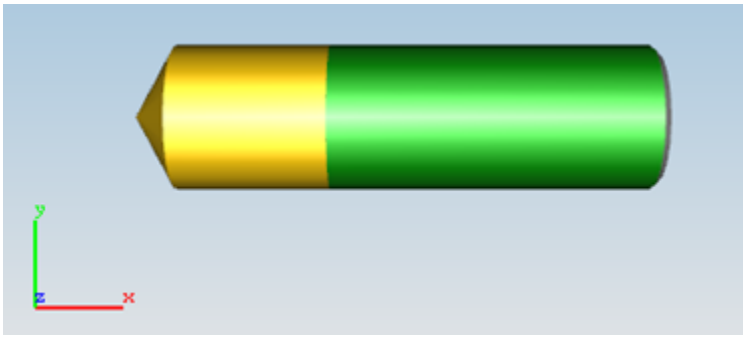
In this example, a part for a flute drill is used as a template part. In Teamcenter, the tip angle is modified and a member part is generated.



These two steps represent the most common workflow. At this point, if you modify any parameters in Teamcenter, it makes no difference whether you select **Refresh member part** or **Recreate from template**. The result is the same.

If, however, you modify the member part in NX, there is a difference between the two options. For example, if the member part is modified in NX so that the tool holder is green and the tool width is changed in Teamcenter, when the **Refresh member part** option is chosen, the graphics are created taking both the changes to the member part in NX and the modified attribute values in Teamcenter into consideration.



Selecting **Recreate from template**, however, discards any changes you made to the member part in NX and creates the graphics based on the template part and the values in Teamcenter. Because the template part in this example still has a gray holder, when you select **Recreate from template**, the drill holder is now gray again.

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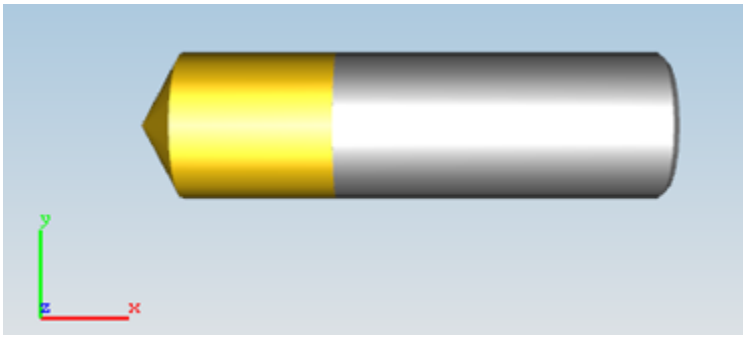

Create graphics for multiple classification instances

1. With search results displayed in the **Table** view, select all instances in the table for which you want to create graphics.

2. Click at the bottom of the **Table** view.

   Teamcenter displays the **Create Graphics for Selected ICOs** dialog box. If no part family template (PFT) is defined for one of the instances listed, that line is highlighted in red.

   If there are multiple PFTs assigned to a class, the background color is yellow. The default PFT is selected. If you want to use a different PFT for the selected ICOs listed in the dialog box, click the down arrow beside the name of the PFT and select a different PFT.

   > Note:
   >
   > This PFT is used to generate graphics for all instances listed in the **Create Graphics for Selected ICOs** dialog box. If you want to use different PFTs to generate graphics for ICOs in the same class, you must select the ICOs accordingly in the **Table** view.

3. (Optional) Select **Create part file** and **Create JT file**.

Check box states	Action
☑ Create Part File ☐ Create JT File	Teamcenter adds the ICO values to the PFT spreadsheet and creates a part file.
☐ Create Part File ☐ Create JT File	Teamcenter adds the ICO values to the PFT spreadsheet and no graphics are created. In this case, the **JT** check box is unavailable.
☑ Create Part File ☑ Create JT File	Teamcenter adds the ICO values to the PFT spreadsheet and creates a part file and a JT file. You can create JTs only if the **Create part file** check box is enabled (default state).

4. Click **Create/Update**.

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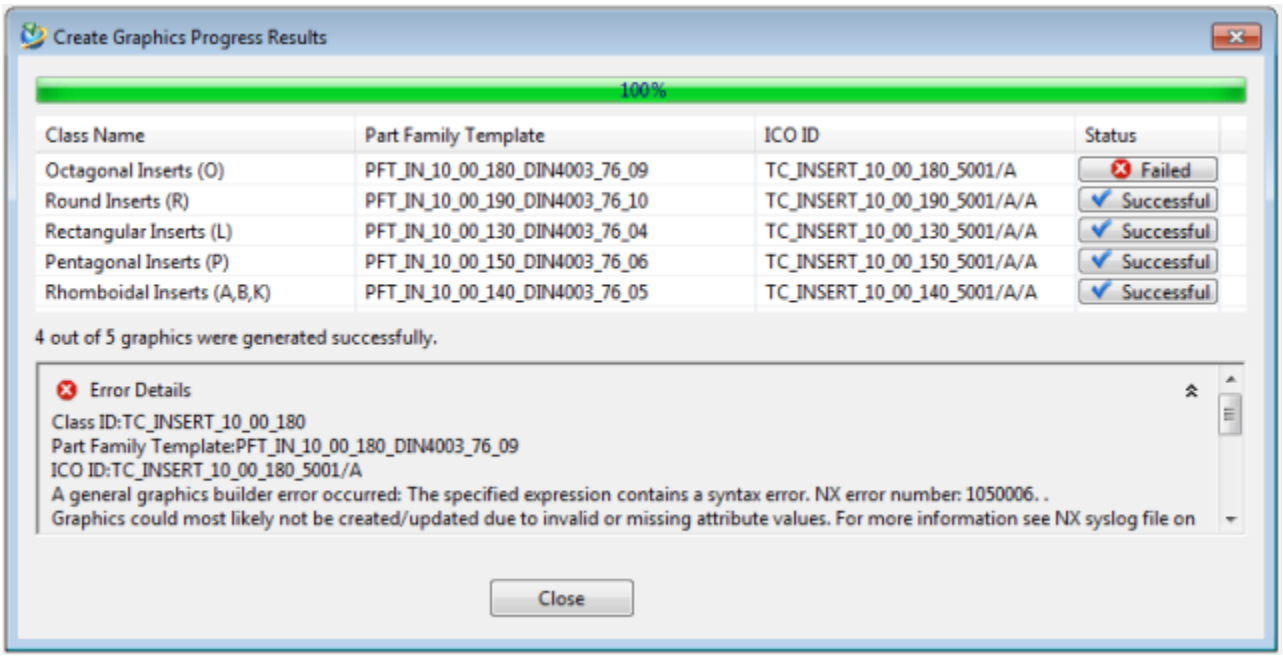
Teamcenter opens the **Create Graphics Progress Results** dialog box listing each ICO and the status of the graphics creation. At the bottom of the dialog box, Teamcenter provides an explanation for each failed generation attempt.



Update classification instances after modifying template in NX

If you modify part family member templates in NX, the classification instances are not automatically updated in Teamcenter. You must perform this task manually.

1. Click the **Create/Update graphic from ICO** button .

   Teamcenter displays a message explaining that errors occurred. The **Details** tab lists which ICOs did not update properly.

2. Click **Connect existing ICOS**.

   Teamcenter internally adds the ICOs as members and maps the values correctly.

Search for all member parts belonging to a specific template part

When Teamcenter creates a member part from a template part, it stores the information about which template part is used in the creation with the member part. You can search in My Teamcenter for all member parts belonging to a particular template part.

1. Open the advanced search in My Teamcenter.

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2. Select the **Classification - Members of Template Part** search and enter the name of the template part used to create the members.

Create graphics using a Tcl macro

1. After assigning attribute values and saving the ICO, click the **Create/Update graphic from ICO** button .

   Teamcenter displays the **Create/Update Graphic** dialog box.

2. Click the **TCL Macro** tab.

   Teamcenter displays a blank tab. If there is both a part family template and a Tcl macro defined for the class, you must click the **TCL Macro** tab to create the Tcl-based graphic.

   Note:

   You cannot select the type of file to create when creating or updating graphics using Tcl macros. Teamcenter uses the settings from NX. By default, only a part file is created. If you want to create or update the JT file as well, you must change the settings in NX.

   a. Choose **File→Utilities→Customer Defaults**.

   b. In the **Gateway** tree, select **JT Files**.

   c. In the **Export** tab, select **Save JT Data**.

   d. Restart Teamcenter to capture the changes.

Working with Resource Manager libraries

Using the Manufacturing Resource Library

To assist you in filling the classification hierarchy with data, you can use the Manufacturing Resource Library. When you install this library, the data is organized in a detailed classification structure of manufacturing data such as tools, machines, fixtures, assemblies, and components, including tool graphics.

The tooling classification tree contains two hierarchies:

- An initially empty catalog hierarchy (**Vendor Catalogs**) that can contain tool components found in major tool vendor catalogs
- A customer hierarchy (**Tools**) that contains the components and assemblies used at your site

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You can copy relevant components from the catalog into the customer hierarchy using the mapping definitions that are delivered with the vendor catalog tooling library. After installing the Manufacturing Resource Library, you can install vendor catalogs from various tool vendors to fill the catalog hierarchy.

> Note:
>
> Vendor catalogs are provided separately and are not part of the Manufacturing Resource Library installation kit. Contact your Siemens Digital Industries Software representative for more details.

> Warning:
>
> Do not modify the catalog data as these changes are lost when the vendor catalogs are updated. Save all your customer-specific components and assemblies in the customer hierarchy.

Part family templates that you can use to quickly create graphics are included in some component classes. To find the classes to which part family templates are assigned, search the class hierarchy for the **DIN4003** alias name using the quick search feature.

The Manufacturing Resource Library is provided with the Teamcenter installation image. It is updated regularly.

Using a tool vendor catalog

You can import tool vendor catalogs directly into Teamcenter. These catalogs use the Generic Tool Catalog (GTC) format based on ISO 13399 tooling standards. When tool vendors deliver their tool catalogs in this format, you can import them into a vendor tooling hierarchy in the Manufacturing Resource Library. You can then select tool components in the vendor catalogs and map them to a customer branch of the hierarchy. The tool components you choose are automatically mapped to existing Manufacturing Resource Library tool classes. If there are any attachments (for example, 3D models) with the vendor components, you can import these as well. You can build a tool assembly based on these components, create graphics for it, send it to NX, and use it to machine parts in NX. A variety of tooling vendors provide data in the generic tool catalog format that can be used with Resource Manager. Contact your Siemens Digital Industries Software representative for more information.

Perform the following tasks to begin using a vendor catalog.

Role	Task	Application
Tooling/classification administrator	Imports the vendor catalog hierarchy into the database.	Classification Admin
Tooling/classification administrator/ Resource author/Tooling engineer	Imports vendor product data (part of or complete vendor catalog).	Classification Admin, Classification, Resource Manager, or using the **import_step_part21_files** utility.
Resource author/Tooling engineer	Imports vendor 3D models.	Classification or Resource Manager
Resource author/Tooling engineer	Creates tool assemblies using the components in the customer hierarchy.	Resource Manager

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Role	Task	Application
Part planner	Assigns resources to the manufacturing process.	Part Planner
NC programmer	Uses resources in the CAM area.	NX

Import tool vendor product data

Vendor product data consists of tool components such as drills, holders, inserts, and adapters. You can import vendor product data using two methods:

- Import the data from the rich client using the Classification, Classification Admin, or Resource Manager applications.
- Import the data using the **import_step_part21_files** utility.

To import using the rich client:

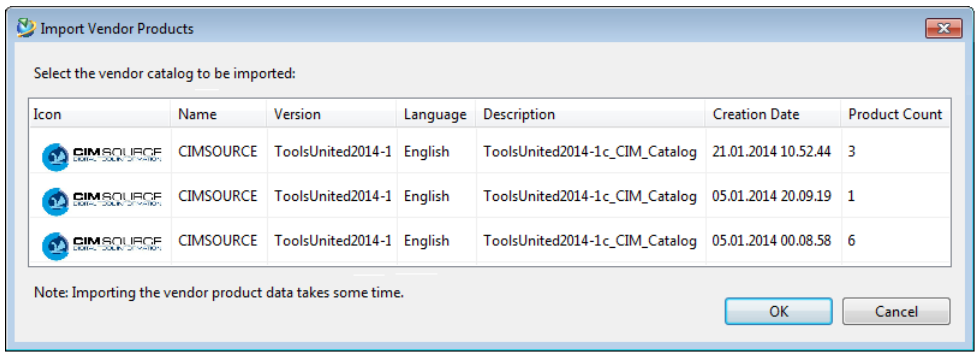
1. In the classification vendor hierarchy, select a class at any level.

   The class you select determines what packages are imported. Teamcenter imports all product data from the selected class downwards.

2. Do one of the following:

   - Choose **Import Vendor Product Data** from the shortcut menu.
   - Click **Import Vendor Product Data** in the toolbar.

3. In the **Import Vendor Products** dialog box, select the package that you want to import from the list of available Generic Tool Catalog packages.



   Teamcenter imports the product data to the selected classes.

4. Click **Import**.

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5. (Optional) Open the resulting log file to view the import state of individual components.

> Caution:
>
> Depending on the size of the package you select, this action can take several hours to complete.

Import vendor 3D models

Tool vendors deliver 3D models with their product data in the STEP file format. You can import this data in Classification and Resource Manager when performing any of these tasks:

- Importing to the vendor catalog product.
- Importing while mapping from the catalog to the customer class. If a 3D model was already imported into the vendor catalog product, you can simply copy the existing 3D model.
- Importing to a previously mapped component in a customer class.

When you import 3D models, the STEP files are converted to PRT and JT files internally. Therefore, NX and the graphics builder must be installed on the Teamcenter server to proceed with this activity.

You import a 3D model by performing one of the following steps:

- Open a tool component in a vendor or customer class and click in the toolbar.
- Select one or more lines in the classification table and click at the bottom of the table.
- Click at the bottom of the **Properties** or **Table** tab in the **Classification Search** dialog box.
- Right-click a resource in the Resource Manager resource view and choose **Import catalog 3D model for current resource**.

Teamcenter imports the 3D models. If the tool component to which the 3D model belongs is a standalone ICO, Teamcenter creates an item for the ICO and attaches the datasets to the item. If you are importing for a single resource or ICO, the JT file is displayed in the viewer.

STEP format excludes indexable cutting tools

The STEP file format supports the definition of various individual tooling components. The components consist of the assembly construction, NOCUT component, and Cut component. Resource Manager manages tool assemblies and assembly construction by combining specific NOCUT and CUT geometry.

The vendor catalog assembly contains a master insert that is not likely to be what you need. For that reason, the STEP import does not include the master insert, the CUT geometry. You can add the specific insert you need to the assembly. This is also true for multitool assemblies, when a master insert is provided with the vendor assembly.

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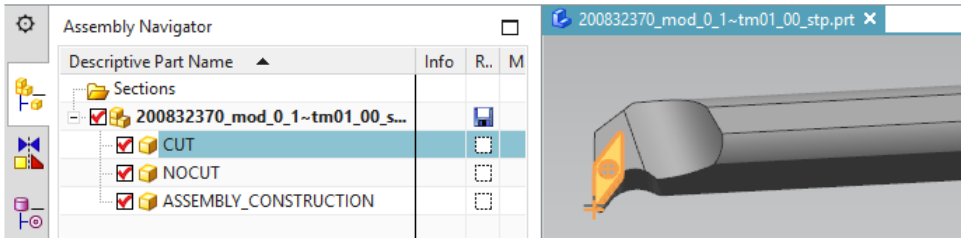
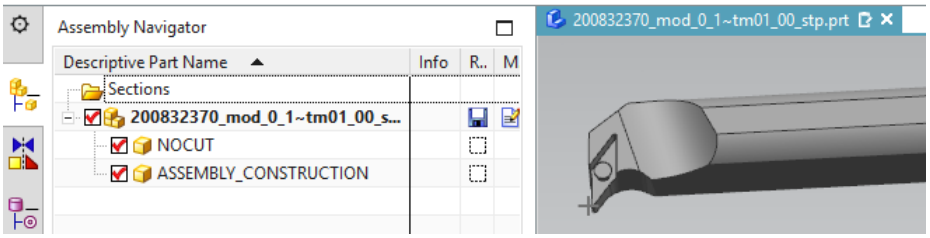
This is a vendor assembly example:

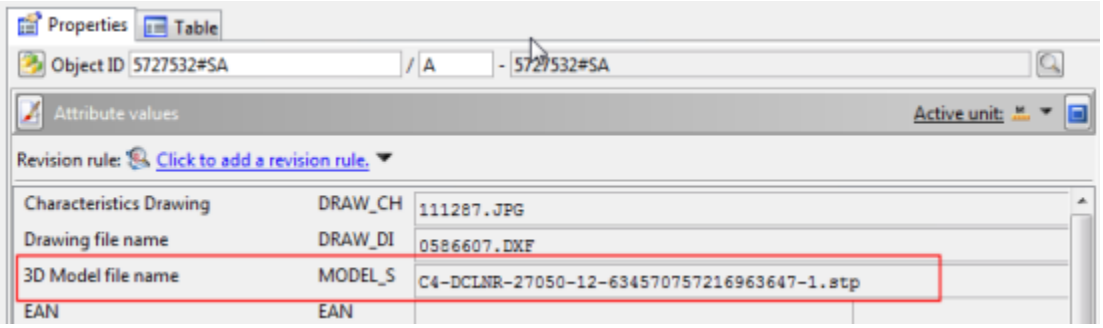


This is the same assembly with the master insert removed:



Understanding the linking mechanism for vendor data

When you import vendor catalog data, each component has an attribute, **3D Model file name** (attribute ID **-159003**), that stores a reference to the STEP file containing the 3D data.



In turn, when you map a catalog component to a customer component, the customer component contains attributes that refer back to the vendor component.

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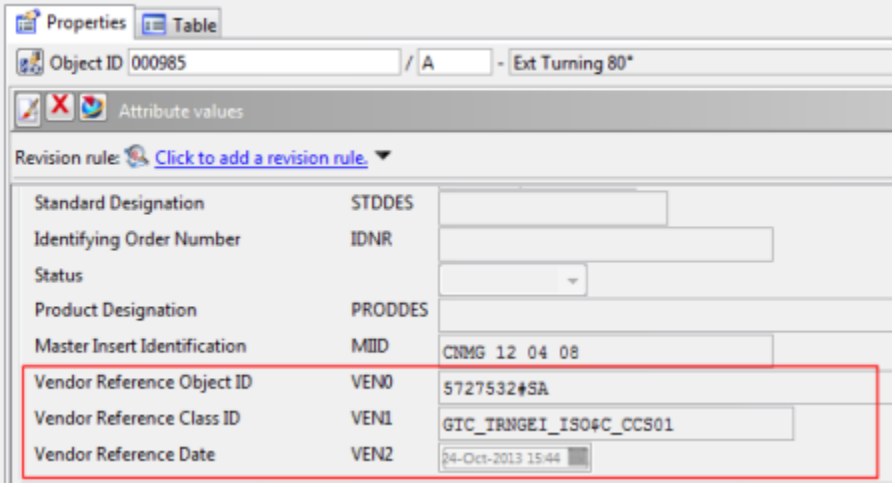

When you open a mapped customer component and initiate the 3D model import, Teamcenter uses this reference to locate the original catalog component. Teamcenter stores the ICO modification date from the vendor tool component in the **Vendor Reference Date** attribute during the mapping.

Working with generic and need objects

Create a need object

A need object is a placeholder for your search. It contains details about your generic object that you already know. For example, you know you want a pump (your generic object), and you know that the pump should be suitable for gas and has a certain flow rate. These details are captured in the need object. When you perform a search based on the need object properties, the found object that matches all the details is the fulfillment object.

> Note:
>
> You must remove the object type **Need** from the **ICS_hidden_ico_types** preference to create, update, and search need objects. Also, you must set **ICS_support_generic_and_need** to true and run the **smlutility -update_hidden_ico_types** utility to update the existing Classification objects.

1. In Classification, select the class for the need object.
2. Click **Add or create new Instance**.
3. In the **Create Classification Object** dialog box, type a value for the ID in the **ICO id** box.
4. Click **OK**.
5. In the **Properties** view, select **Need** from the **Type** list.
6. Click **Save current Instance**.

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Associate an item to a class as a generic object

Generic objects are used primarily by piping and instrumentation diagram (P&ID) to represent a required component before all object specifications are determined. You can use a generic object like any other item—in a product structure, for example. An object is defined as generic by associating it to a class.

> Note:
>
> You must set the **ICS_support_generic_and_need** preference to true to create, update, and search generic objects. You must also run the **smlutility -update_hidden_ico_types** utility to update the existing Classification objects.

Use one of the following methods to associate an item to a class as a generic type.

Paste button method

1. Right-click the item and select **Copy**.
2. In Classification Admin, select the class object to attach the item.
3. Click **Edit**.
4. Scroll to the bottom of the **Class Details** tab.
5. In the **Generic Objects** section, click **Paste** .
6. Click **Save** .

Attach button method

1. In Classification Admin, select the class object to attach the item.
2. Click **Edit**.
3. Scroll to the bottom of the **Class Details** tab.
4. In the **Generic Objects** section, click **Select generic object** .
5. Choose the item or revision and click **Attach**.
6. Click **OK**.
7. Click **Save**.

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ICS_hidden_ico_types

DESCRIPTION

Specifies which Classification object types are hidden.

VALID VALUES

In the context of generic and need objects, the following values are valid:

Generic

Generic objects are used primarily by piping and instrumentation diagram (P&ID) to represent a required component before all object specifications are determined. You can use a generic object like any other item—in a product structure, for example. An object is defined as generic by associating it to a class.

Need

A need object is a placeholder for your search. It contains details about your generic object that you already know. For example, you know you want a pump (your generic object), and you know that the pump should be suitable for gas and has a certain flow rate. These details are captured in the need object. When you perform a search based on the need object properties, the found object that matches all the details is the fulfillment object.

DEFAULT VALUES

Need

DEFAULT PROTECTION SCOPE

Site preference.

> Note:
>
> After modifying **ICS_hidden_ico_types**, you must run the **smlutility** utility with the **-update_hidden_ico_types** argument to update existing Classification objects.

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ICS_support_generic_and_need

DESCRIPTION

Controls support of generic and need objects in the Classification application for the rich client.

VALID VALUES

true	You can create, update, and search generic and need objects.
false	You cannot create, update, and search generic or need objects.

DEFAULT VALUES

false

DEFAULT PROTECTION SCOPE

Site preference.

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4. Searching the classification hierarchy

Searching the database for classified objects

The Classification search features allow you to locate a class or group by enabling you to focus your search using familiar criteria, such as name or ID.

- You know all or part of the object ID. In this case, you can use the object ID search feature. You can narrow this search using the search by type function. This allows you to search, for example, only for ICOs that classify something, or only for ICOs that do not classify anything.
- You want to search within a specific group or class. For this, you must know how to select a class. From within this class, you can either search all ICOs in the class or search for objects matching specific criteria.
- You know that the ICO should possess specific attribute values. Use the attribute value search to perform this search. You can narrow this search by first selecting a class or specifying all or part of an object ID.

> Note:
>
> There are two search buttons in the **Properties** pane:
>
> - The **Search** button  to the right of the **Object ID** box searches the entire classification hierarchy.
> - The **Search** button  at the bottom of the **Search** pane searches within a selected class.
>
> This type of search can include any search refining features, such as object ID, attribute value, or search by type.
>
> In addition, there is another search button below the hierarchy tree. This is the quick search button.

- When searching the hierarchy, you can:
  - Search for a specific ID or part of an ID.
  - Search for groups or classes.
  - Search for objects possessing specific criteria.
- Navigate through the search results.

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- Select the ICO you want.

Search by object ID

If you know at least a portion of the object ID of an ICO, you can use the object ID search feature. An object ID search encompasses the entire classification hierarchy and cannot be limited to the contents of a particular class or subclass.

1. Click the **Properties** pane located to the right of the hierarchy tree.

2. Type the exact object ID or partial object ID in the **Object ID** box, located at the top of the **Properties** pane.

3. (Optional) Click the revision rule hyperlink on the title bar to apply a revision rule for the search. If you enter a specific revision in the **Object ID** box, the search ignores the revision rule. If a revision rule is already set, it is displayed in the revision rule link.

4. Press Enter or click the **Search** button to the right of the **Object ID** box.

   The object ID search returns the ICOs found in alphabetical/numeric order by object ID. The first ICO found is displayed in the **Properties** pane. When navigating through the ICOs, the class and subclass to which the ICO belongs are highlighted in the classification tree. The total number of ICOs found is displayed in the **Search Results** box.

5. Navigate through the search results.

6. Select your desired ICO.

7. (Optional) Perform subsequent searches by clicking Clear to remove the values from the **Properties** pane and proceeding from step 1.

Search by type

You can search the classification hierarchy for ICOs classifying specific workspace object types.

1. In the classification tree, expand the desired class and select it by either:

   - Double-clicking if it is a leaf node.

   - Right-clicking and choosing **Select** if it is not a leaf node.

   The class names are highlighted in the tree.

2. Type an ID, a class ID, or attribute values.

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3. Click the **Classified Object Type** button . A list of workspace object types follows.

Click	To
	Search among all classification instances. This is the default search method.
	Search among all classification instances that classify a workspace object.
	Search among all classification instances that do not classify a workspace object.
Generic and Needs →	Search among all classification instances that are classified as generic.
Generic and Needs →	Search among all classification instances that are classified as need.
Generic and Needs →	Search among all classification instances that are classified as generic and need.
	Search among all classification instances that classify an item.
	Search among all classification instances that classify an item revision.
	Search among all classification instances that classify a process.
	Search among all classification instances that classify a process revision.
	Search among all classification instances that classify a resource.
	Search among all classification instances that classify a resource revision.
	Search among all classification instances that classify a NC Tool.
	Search among all classification instances that classify a NC Tool Revision.
	Search among all classification instances that classify a NC Machine.
	Search among all classification instances that classify a NC Machine Revision.

Note:

The types available in this list are configurable.

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4. Click the **Resource Type** button and select a type of workspace object to narrow your search. Only resources classifying this type of workspace object are found in the search.

5. Select a type of workspace object to narrow your search. Only ICOs classifying this type of workspace object are found in the search.

6. (Optional) Click the revision rule hyperlink on the title bar to apply a revision rule to the search. If you search by a type that excludes revisions (for example, item or process), the search ignores the revision rule. If a revision rule is already set, it is displayed in the revision rule link.

7. Click **Search** at the bottom of the **Search** pane to list all matching instances within the class.

   The total number of instances that match the search criteria is displayed at the bottom of the **Search** pane.

   > Note:
   >
   > The **Search** pane displays no values upon completion of the search. You must switch to the **Properties** or **Table** pane to navigate through the results and display the values for a specific instance.

8. View the search results using one of the following methods:

   - In the **Table** pane, double-click the instance to be viewed.

     Its attributes are displayed in the **Properties** pane. The classification tree is updated to show the class of the selected object.

   - In the **Properties** pane, use the navigation arrows at the bottom of the pane to browse forward and back through the list of items that matched your search criteria. As different objects are selected, the classification hierarchy is updated to show the class of the selected object.

     Two modes are used for updating the classification hierarchy when displaying the search results:

     a. Click the **View in class stored** button to display the class in which the item is stored.

     b. Click the **View in class searched** button to display the class that you selected as a basis for the search.

     By default, **View in class stored** is active.

Selecting a class

The first step in searching the classification hierarchy is to find a class in which to search. There are three methods to select a group or class:

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- Navigate through the classification hierarchy manually, clicking the groups and classes until you find your desired class.
- Use the quick search feature.
- Use the **Search Class** dialog box.

You can search for a class using any of the alias names shown in the class tool tip.

Use the quick search feature to select a class

1. In the search box located beneath the hierarchy tree, type text corresponding to the name of the group or class that you want to locate. You can also search by ID by typing **id=***xxx* in the box, where *xxx* is the class ID.

   The search text can be the exact name or ID of the group or class you are looking for, a class alias name, or you can use character strings combined with **wildcard characters**.

2. Press Enter to start the search.

   The hierarchy tree expands to display the first object in the hierarchy that matches the search criteria. The path of the group, class, or subclass is indicated in bold text. If multiple objects are found, the arrow buttons at the bottom of the hierarchy tree are enabled.

3. Click the left-arrow and right-arrow buttons  to display the matching objects, one at a time. This highlights the classes found in the hierarchy tree. The right-arrow button moves down the hierarchy tree, and the left-arrow key moves up the tree.

   > Note:
   >
   > If you prefer to view a list of the results, you can display the **Search Class** dialog box by clicking the magnifying glass button located beneath the hierarchy tree.

4. Right-click the class in the hierarchy tree within which you want to search.

5. Choose **Select**.

   The **Properties** pane displays the attributes associated with the selected class, and the images appear in the class image window.

   > Note:
   >
   > If the class or subclass you select is a leaf node (lowest level node) in the hierarchy, you can double-click the node to display it in the **Properties** pane, rather than use the right mouse button.

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Use the Search Class dialog box to select a class

1. Click the **Find Class** button located beneath the hierarchy tree.

   The **Search Class** dialog box is displayed at the bottom of your window. To move the dialog box, double-click the title bar and drag it to another location on your desktop.

2. Define the search criteria by performing the following steps:

   a. Select a property from the list at the upper-left corner of the dialog box. The available properties are **Class ID**, **Name**, **Alias Names**, **Attribute ID**, **Attribute Name**, **User data 1**, and **User data 2**.

   > Note:
   >
   > You can use the **Name** and **Class ID** properties to search for groups and classes. When searching by attribute, the results include the class in which the attribute is defined and any subclasses in which the attribute is used. Classes that inherit the attribute are not included in the results.

   b. Type search text corresponding to the selected property.

   The search text can be the exact name or ID you are looking for, or you can use character strings combined with wildcard characters. Using a wildcard is restricted to string attribute fields only.

   > Note:
   >
   > The search box is case sensitive.

3. (Optional) If localization is enabled, select the language in which you want to search.

4. To start the search, either click the magnifying glass button located in the upper-right corner of the dialog box or press Enter.

   Teamcenter displays the results of the search in the message area of the dialog box, sorted in the same order as the hierarchy tree display.

5. To display an object in the tree, double-click the entry in the results list.

   The hierarchy tree expands to display the selected group, class, or subclass. The path to the object is indicated in bold text.

6. Click the left and right arrow keys beneath the class hierarchy tree  to move through the search results to locate the desired class or group.

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7. Right-click the class in the hierarchy tree within which you want to search.

8. Choose **Select**.

   The **Properties** pane displays the attributes associated with the selected class, and the images appear in the graphics window.

   > Note:
   >
   > If the class or subclass you select is a leaf node (lowest level node) in the hierarchy, you can double-click the node to display it in the **Properties** pane, rather than use the right mouse button.

Search all ICOs in a selected class

1. Select the class in the hierarchy tree within which you want to search for ICOs.

2. (Optional) Click the revision rule hyperlink on the title bar to apply a revision rule to the search. If you search by a type that excludes revisions (for example, item or process), the search ignores the revision rule. If a revision rule is already set, it is displayed in the revision rule link.

3. Determine the scope of the search by clicking the **Search Scope** button. By default, the scope is set to **Hierarchy**.

   a. Choose **Hierarchy** to search within the selected class and all related child classes.

   b. Choose **Class** to search only within the selected class.

4. If you work in a multilanguage environment, select the language in which to search.

   > Caution:
   >
   > Changing the language also changes the value of the **TC_language_search** preference interactively, which affects all Teamcenter localization.

5. Click one of the following at the bottom of the pane to narrow the search.

Click	To
M	Search only for metric ICOs.
I	Search only for nonmetric ICOs.
M/I	Search for both metric and nonmetric ICOs.

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> Caution:
>
> If you are searching in a different unit of measurement than the one that you use to enter the attribute value, be sure to enter enough digits after the decimal point to avoid rounding errors.

6. Click **Search**  to list all search matches within the class.

   The total number of ICOs that match the search criteria is displayed at the bottom of the **Properties** pane.

7. Navigate through the search results.

8. Select the desired resource and transfer it to your application.

9. Select your desired ICO.

10. (Optional) Perform subsequent searches within the same class or subclass by clicking **Clear** to remove the values from the **Properties** pane and repeating the process.

Search for classification ICOs by attribute value

1. Select the class in the hierarchy tree within which you want to search for ICOs.

2. Type values, including relational operators and **wildcard characters** where applicable, in the boxes corresponding to the attributes by which you want to search.

   You can:

   - Narrow your search by specifying search criteria for multiple attributes.
   - Change the displayed unit of the value by clicking it or typing the unit in the dialog box along with the value.

     Teamcenter changes the unit for you automatically.

     > Note:
     >
     > If the attribute or attribute value by which you want to search is not available for searching, one of the following reasons may apply:
     >
     > - It is a reference attribute.

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- It may already have a default value assigned in Classification Admin.
- It may be encrypted in the database.
- One or more of the key-LOV's values may be deprecated.

3. (Optional) Click the revision rule hyperlink on the title bar to apply a revision rule to the search. If you search by a type that excludes revisions (for example, item or process), the search ignores the revision rule. If a revision rule is already set, it is displayed in the revision rule link.

4. Determine the scope of the search by clicking the **Search Scope** button. By default, the scope is set to **Hierarchy**.

   a. Click **Hierarchy** to search within the selected class and all related child classes.

   b. Click **Class** to search only within the selected class.

5. If you work in a multilanguage environment, select the language in which to search.

   Caution:

   Changing the language also changes the value of the **TC_language_search** preference interactively, which affects all Teamcenter localization.

6. Click one of the following to narrow the search.

Click	To
M	Search only in metric classes.
I	Search only in nonmetric classes.
M/I	Search in both metric or nonmetric classes.

   Caution:

   If you are searching in a different unit of measurement than the one that you use to enter the attribute value, be sure to enter enough digits after the decimal point to avoid rounding errors.

7. Click **Search** Search to list all search matches within the class.

   The total number of ICOs that match the search criteria is displayed at the bottom of the **Properties** pane.

8. Navigate through the search results.

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9. Select the desired resource and transfer it to your application.

10. Select your desired ICO.

11. (Optional) Perform subsequent searches within the same class or subclass by clicking **Clear** to remove the values from the **Properties** pane and repeating the process.

Find an ICO in the source class

If you map classes from one branch of the hierarchy to another, and use the source classes to populate the target classes, you can search for a corresponding ICO in the source structure if you are currently in the target structure. If you then want to create a new classification object based on an existing one, **map the object from the source structure to the target structure**.

If you do not find an appropriate component in the target hierarchy:

1. Click the **Map ICO** button .

   Teamcenter opens the corresponding source hierarchy to those classes that match your current search criteria.

2. Select the appropriate ICO.

Apply a revision rule

You can apply revision rules to searches. This narrows down the number of search results so that Teamcenter returns only the revisions you require. You can control the default behavior of the revision rules with the following preferences:

- **ICS_search_default_revision_rule_***<application_name>*

  Sets the default revision rule for the specified application.

- **ICS_search_use_revision_rule**

  Enables or filters out revision rules for classification searches.

1. In the **Properties** pane, click the **Revision Rule** hyperlink. This link shows the name of a revision rule, if one is set, or simply states **Click to add a revision rule**.

   The **View/Set Current Revision Rule** dialog box is displayed containing all existing revision rules.

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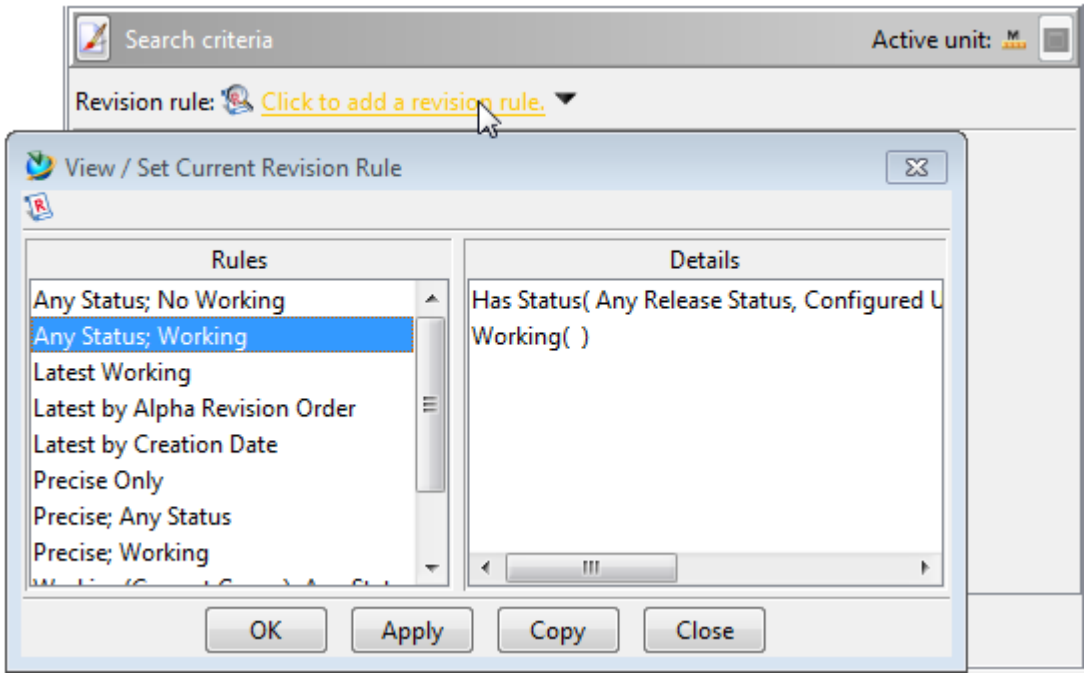

2. Select the appropriate revision rule and click **OK**.

3. Click ▼ beside the revision rule hyperlink.

   A list with configuration options appears.

4. Select one of the following:

Configuration options	Description
Use revision rule	Enables or filters out the currently selected revision rule for the search.
Save as default	Saves the currently selected revision rule as the default rule for this application. Teamcenter saves it in the **ICS_search_default_revision_rule_<Classification>** preference. The default revision rule is directly selected and enabled for the search the next time you launch the application.
Restore default	Selects and enables the saved default revision rule. The **Use Revision Rule** menu command is also automatically selected.

Saving queries using the Favorites command

Using the **Favorites** command, you can store the class and the parameters that you enter for a search to enable you to repeat the same search. These favorites are organized in the **Favorites** pane in a

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hierarchy, where you can manipulate them. Using the shortcut menu, you can organize the favorites in the favorites tree.

This feature also enables you to bookmark the classes that you need frequently. By saving the class only (without search criteria), you simply click it again in the **Favorites** pane to quickly re-select it.

To add favorites:

1. In the classification hierarchy, select the class in which you want to search.
2. In the **Properties** pane, enter the search parameters.
3. Click the **show/hide Favorites** button in the menu bar.

   The **Favorites** pane opens under the classification hierarchy.
4. Click the **Add** button in the **Favorites** pane.

   The **Add Favorites** dialog box is displayed.
5. (Optional) Create a new folder to hold your favorite by clicking **New Folder**.
6. Select the folder in which you want the favorite saved.
7. Click the **Create in** button to save the query in the selected folder.

   The **Create In** dialog box is displayed.
8. Select **Execute Immediately** if you want the query to be carried out as soon as you double-click it in the favorites tree. If you do not select this option, double-clicking the favorite simply opens the favorite tree to the selected class.
9. Accept the default name for your favorite, or type a new name.
10. Click **OK**. Your new favorite appears in the favorites tree.

To restore a query:

- Double-click the favorite in the favorites tree.

Finding the most recently used search

Classification automatically stores the searches that you perform in the MRU list so you can reuse them.

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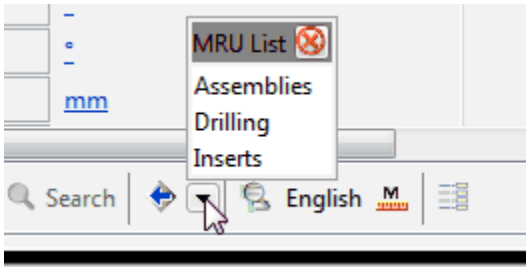

Selecting any of the entries in this list restores that query immediately. The number of queries stored is determined by the following property:

`g4mMRUButton.MAXIMUMLISTENTRIES =`*number_of_MRU_entires*

found in:

`com/teamcenter/rac/classification/common/common_user.properties`

By default, Classification stores five queries. Once this number is reached, the oldest search is deleted. If you close Classification, the list is deleted. To retain a search from session to session, store it as a favorite.

Using relational operators

Use the following relational operators to perform Classification attribute searches:

Relational operator	Definition	For example, if you type
=	Equal to	**= 3.0** in the **Corner Radius** attribute box of the **Taper Shank End Cutter** subclass, all ICOs within the subclass with a corner radius equal to 3.0 are found. You can achieve the same behavior by typing a number. If no value is given after the equal sign, the system searches for all instances where no value is set for the attribute. Note: If you want to find an entry that contains the character that Teamcenter uses as the wildcard character (for example, *), enter **=** and the string containing the character for which you are searching, such as **= shaft*01**. This search finds shaft*01, not shafts01, or shaft101, or shaft201.
>	Greater than	**> 3.0** in the **Corner Radius** attribute box of the **Taper Shank End Cutter** subclass, all ICOs within the subclass with a corner radius greater than 3.0 are found.

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Relational operator	Definition	For example, if you type
<	Less than	**< 3.0** in the **Corner Radius** attribute box of the **Taper Shank End Cutter** subclass, all ICOs within the subclass with a corner radius less than 3.0 are found.
>=	Greater than or equal to	**>= 3.0** in the **Corner Radius** attribute box of the **Taper Shank End Cutter** subclass, all ICOs within the subclass with a corner radius greater than or equal to 3.0 are found.
<=	Less than or equal to	**<= 3.0** in the **Corner Radius** attribute box of the **Taper Shank End Cutter** subclass, all ICOs within the subclass with a corner radius less than or equal to 3.0 are found.
!=	Not equal to	**!= 15.00** in the **Diameter** attribute box, all ICOs with a diameter not equal to 15.00 are found. If no value is given after the equal sign, the system searches for all instances where any value is set for the attribute.
~	Like	**~ Walt*** in the **Vendor** attribute box of a class, all ICOs within that class beginning with **Walt**, such as Walter, Waltmann, or Walthouse are found.
!~	Not like	**!~ Walt*** in the **Vendor** attribute box of a class, all ICOs within that class except for those beginning with **Walt** are found.
–	Range	**10.00 – 20.00** in the **Diameter** attribute box, all ICOs with a diameter within the range of 10.00 to 20.00 (including the values 10.00 and 20.00) are found. A blank space must precede and follow the hyphen.
|	OR	**Walter | Kennametal** in the **Vendor** attribute box of the **Taper Shank End Cutter** class, all ICOs within the class with a vendor of Walter or Kennametal are found. You can use the wildcard character (*****) in this type of statement.
“”	Exact string	**“blue or green”**, Teamcenter searches for the string **blue or green**. If you type **“4 – 10”**, Teamcenter searches for the string **4 – 10**, not the range 4–10. Note: You cannot use exact string relational operators in combination with other relational operators.
&	AND	**blue & green**, Teamcenter searches for strings that contain at least one instance of both the string **blue** and the string **green**.

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Note:

- You cannot use relational operators when searching for attributes with multiple values. You can only use the equal and wildcard operators.
- Wildcard characters are permissible for string attributes only.

Using wildcard characters

Classification employs the standard wildcard characters defined for your site. You can use these for any string attribute. Wildcard characters are not permissible for integer or real attributes.

By default, you can use the * character.

Navigating the matches

Viewing search results in the Properties pane

When you view an ICO in the **Properties** pane, the class it belongs to is highlighted in the hierarchy. Two modes are used for updating the classification hierarchy when displaying the search results:

- Click the **View in class stored** button to display the class in which the item is stored.
- Click the **View in class searched** button to display the class that you selected as a basis for the search.

Additionally, if multiple ICOs exist for an object, tabs corresponding to each ICO are displayed at the bottom of the pane. The red exclamation mark indicates the master ICO that was found to match the search criteria. The related ICOs may or may not be stored in the class or subclass in which your search originated.

Tabs representing multiple ICOs of an object

Note:

The View Mode feature does not apply to viewing multiple ICOs of a single object.

You can see the active unit of measurement in the attribute values title bar in the **Properties** pane using the following symbols.

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Symbol	Description
	The ICO is currently displayed and stored in a metric system of measurement.
	The ICO is currently displayed and stored in a nonmetric system of measurement.
	The ICO is currently displayed in metric, but was originally stored in a nonmetric measurement system.
	The ICO is currently displayed in a nonmetric measurement system, but was originally stored in a metric system.

Use the Search Results box to display a specific ICO

1. Type the relative position of the ICO in the **Search Results** box 

.

2. Press Enter.

   If the number you enter is larger than the total number of ICOs found, the number is shown in red.

View search results in the Table pane

You can view the data of the ICOs found in the search collectively using the **Table** pane. If the measurement unit symbol at the beginning of each row contains an exclamation mark, the ICO is displayed in a unit system other than the one in which it was stored. For example, if the symbol is displayed, the ICO was stored in a nonmetric unit system but is currently displayed in a metric unit.

1. Perform one of the following actions:

   a. Click ▼ to load the next page of found ICOs into the table.

      The ICOs are appended to those currently displayed.

      > Note:
      >
      > By default, the number of ICOs displayed on a page is set to 5. Your administrator can change the default display by modifying the **ICS_table_pagesize** preference.

   b. Click to load all matches into the table.

2. (Optional) Sort the table data; double-click the column header corresponding to the property to switch between ascending, descending, and natural sort order.

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Teamcenter can display different units of measurement in the same column. The displayed unit depends on the optimized unit for each of the attribute values. Teamcenter sorts these columns based on the attribute values in the storage unit. The table header always shows the unit (if available), but for optimized values, the header shows the unit in italic and the cell contains the unit as well (as the unit can change). For nonoptimized values, the unit is not attached to the value and shown only in the header (nonitalic).

3. (Optional) Select one or multiple lines in the **Table** pane and click to copy the contents of the selected line to the clipboard. You can paste these contents in an external application.

4. (Optional) Select one or multiple lines in the **Table** pane and click .

   Teamcenter opens the **Print** dialog box where you can choose to open the data in a Web browser, print it, or save it.

5. (Optional) Select a line in the **Table** pane and click to view the properties of the associated workspace object.

6. (Optional) Select one or multiple lines in the **Table** pane and click to map from one class to another.

7. Double-click an ICO in the table to view it.

   The system opens the ICO in the **Properties** pane and highlights its class in the tree.

Select the desired ICO

After you navigate through the search matches, you can select an ICO.

1. Click the **Properties** or **Table** tab.

2. Navigate to the desired ICO.

   - In the **Properties** pane, use the navigation arrows. The system shows all attributes and values for each ICO.
   - In the **Table** pane, do one of the following:

     a. Select the ICO by clicking it.

     b. Double-click the ICO.

     c. Select multiple ICOs.

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Teamcenter switches to the **Properties** pane and shows all attributes and values for the selected ICO.

3. In the **Properties** pane, click the **Send To** button (next to the **Object ID** box at the top of the pane) to send the workspace object associated with the selected ICO to the desired Teamcenter application for re-use in the process or task being performed.

   Re-using objects this way (and avoiding the inefficient creation and costly management of duplicate objects) is the fundamental reason for deploying classification in production environments.

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5. Copying, printing, and saving data in the table

Copy table data to the system clipboard

You can copy data from the Classification **Table** pane to the system clipboard from which you can paste it into other applications, such as Microsoft Excel and Microsoft Word.

> Note:
>
> Copying subsequent data overwrites the contents of the clipboard.

1. Select the rows on the **Table** pane that you want to copy.

   > Note:
   >
   > If you do not select a row, all rows in the table are copied to the clipboard.

2. Click the **Copy** button  , located at the bottom-left corner of the **Table** pane.

   The system copies the selected ICOs and their attribute information to the clipboard.

3. Optionally, paste the table data into another application using standard paste commands. The default column headings are **Attribute Name** and **keyLOV Name**; however, these can be changed.

Table and copy display properties

The following two properties are used to modify the display of the Classification table and the display of the table data when it is copied to the system clipboard:

- **showHeaderAs**

  Defines the format of the column headings.

- **showKeyLovAs**

  Defines how the system displays data associated with **Key-LOV** attributes within the cells of the table.

You can modify these properties in the following file:

com/teamcenter/rac/classification/common/common_user.properties

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Table property	Value	Result
g4mTable.showHeaderAs	**HEADER_UNCT**	Displays the column headings as attribute IDs.
	HEADER_NAME	Displays the column headings as attribute names. This is the default value for the **g4mTable.showHeaderAs** property.
	HEADER_SHORTNAME	Displays the column headings as attribute short names.
g4mTable.showKeyLovAs	**KEYLOV_KEY**	Displays the key associated with the **Key-LOV** attribute in the cells of the table.
	KEYLOV_TEXT	Displays the attribute text associated with the **Key-LOV** attribute in the cells of the table.
	KEYLOV_BOTH	Displays both the key and text associated with the **Key-LOV** attributes in the cells of the table. This is the default value for the **g4mTable.showKeyLovAs** property.
Copy	**HEADER_UNCT**	Displays the column headings as attribute IDs when table data is copied to the system clipboard. This is the default value for the **g4mSysCopy.showHeaderAs** property.
	HEADER_NAME	Displays the column headings as attribute names when table data is copied to the system clipboard.
	HEADER_SHORTNAME	Displays the column headings as attribute short names when table data is copied to the system clipboard.

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Table property	Value	Result
g4mSysCopy.showKeyLovAs	**KEYLOV_KEY**	Displays the key associated with the **Key-LOV** attribute in the table when it is copied to the system clipboard.
	KEYLOV_TEXT	Displays the text associated with the **Key-LOV** attribute in the table cells when they are copied to the clipboard.
	KEYLOV_BOTH	Displays both the key and text associated with the **Key-LOV** attributes in the table cells when they are copied to the clipboard. This is the default value for the **g4mSysCopy.showKeyLovAs** property.

Printing table data

Printing display properties

You can use the following two properties to modify the display of the Classification table when it is printed or saved to a file:

- **showHeaderAs**

  Defines the format of the column headings

- **showKeyLovAs**

  Defines how data associated with **Key-LOV** attributes is displayed within the cells of the table.

These properties can be modified in the following file:

com/teamcenter/rac/classification/common/common_user.properties

Table property	Value	Result
g4mPrint.showHeaderAs	**HEADER_UNCT**	Displays the column headings as attribute IDs when the table is printed or saved to a file. This

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Table property	Value	Result
		is the default value for the **g4mPrint.showHeaderAs** property.
	HEADER_NAME	Displays the column headings as attribute names when the table is printed or saved to a file.
	HEADER_SHORTNAME	Displays the column headings as attribute short names when the table is printed or saved to a file.
g4mPrint.showKeyLovAs	**KEYLOV_KEY**	Displays the key associated with the **Key-LOV** attribute in the cells of the table when it is printed or saved to a file. This is the default value for the **g4mPrint.showKeyLovAs** property.
	KEYLOV_TEXT	Displays the text associated with the **Key-LOV** attribute in the cells of the table when it is printed or saved to a file.
	KEYLOV_BOTH	Displays both the key and text associated with the **Key-LOV** attributes in the cells of the table when it is printed or saved to a file.

Print formats

The Classification print feature supports HTML and text formats.

Format	Description
HTML	HTML is the set of symbols or codes in a file that tells the World Wide Web markup browser page how to display the words and images in the file. Files saved in HTML format can be viewed in any Web browser. HTML format is used to save and/or print classification table data in tabular format.
Text	Text is a readable sequence of characters and the words they form that can be encoded into computer-readable formats such as ASCII. Text format is used to save and/or print classification table data. The data can be aligned in columns or formatted as delimited text strings, using a user-specified delimiter.

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Print format settings

The Classification print feature supports HTML and text file print formats. The following table describes the options available in the **Print Format** dialog box. To view the **Print Format** dialog box, click the **Set Result Format** button located in the upper-right corner of the **Print** dialog box. The availability of these options depends on the selected format: HTML or text.

Option	Description
Title	Adds the title that you type to the table.
Delimiter	Changes the character that identifies the beginning or the end of a character string in the text output.
Date	Adds current date to top of table.
Object Count	Prints the number of objects found in the table at the top.
Column Alignment	Toggles column alignment on and off in the text format.
Select Printing Columns	Opens a list of possible columns you can add to the table. Use the check boxes to add or remove columns from the table.

Print table data

1. Select the row or rows on the Classification **Table** pane that you want to include in the report.

   > Note:
   >
   > If you do not make a selection before clicking the **Print Selected Data** button, all rows are selected automatically.

2. Click the **Print Selected Data** button, located in the lower-left corner of the Classification **Table** pane.

   The **Print** dialog box displays the ICOs and their attributes in HTML format.

3. If desired, change the print format to **Text**.

4. (Optional) Format the report by performing the following steps:

   a. Click **Set Result Format** located in the upper-right corner of the **Print** dialog box.

      The **Print Format** dialog box displays the available formatting options.

   b. Complete the desired changes to the format.

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c. Click **Update** to apply your changes.

d. Close the **Print Format** dialog box.

The **Print** dialog box is again available.

5. To view or send the data to a printer, complete the process in the sections that follow.

Open HTML files in a Web browser

1. Click the **Open in Web Browser** button .

   The HTML file is displayed in your default Web browser.

2. Execute your browser's print command.

3. Return to the Teamcenter window and click the **Close** button to dismiss the dialog box.

Print an HTML or text file

1. Click the **Print** button (located in the lower-right corner of the **Print** dialog box).

   The system **Print** dialog box appears.

2. Define the printer to which the file will be sent. You can accept the default printer that is displayed in the **Name** box or select a different printer from the list.

3. Click **OK** to print the file and dismiss the dialog box.

4. Click **Close** to dismiss the **Print** dialog box.

Save output to an HTML or text file

1. Click **Save** (located in the lower-right corner of the **Print** dialog box).

   The **Save** dialog box displays.

2. Navigate to the directory location where you want to save the file.

3. Type the name of the file, including the **.htm**, **.html**, or **.txt** extension, in the **File name** box.

4. Click **Save** to save the file and dismiss the dialog box.

5. Click **Close** to close the **Print** dialog box.

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Save table data to a file

1. Select the row or rows on the Classification **Table** pane that you want to include in the report.

   > Note:
   >
   > If you do not make a selection before clicking the **Print Selected Data** button, all rows are selected automatically.

2. Click the **Print Selected Data** button, located in the lower-left corner of the Classification **Table** pane.

   The **Print** dialog box displays the ICOs and their attributes in HTML format.

3. If desired, change the file format to **Text**.

4. (Optional) Format the report by performing the following steps:

   a. Click **Set Result Format** located in the upper-right corner of the **Print** dialog box.

      The **Print Format** dialog box displays the available formatting options.

   b. Complete the desired changes to the format.

   c. Click the **Update** button to apply your changes.

   d. Close the **Print Format** dialog box.

   The **Print** dialog box is again available.

5. To save the data to a file, complete the following steps.

   a. Click **Save** (located in the lower-right corner of the **Print** dialog box).

      The **Save** dialog box appears.

   b. Navigate to the directory location where you want to save the file.

   c. Type the name of the file, including the **.htm**, **.html**, or **.txt** extension, in the **File name** box.

   d. Click **Save** to save the file and dismiss the dialog box.

   e. Click **Close** to close the **Print** dialog box.

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6. Displaying associated data in the viewers

Displaying associated data in the viewers

There are two types of viewers that allow you to see images and other types of file-based data associated with a specific class or ICO. These are:

- Class viewer

  Shows an image associated with a class.

- Instance viewer

  Shows documents or images associated with the classified workspace object (for example, item or item revision) of the ICO. This includes a multitude of data types, such as GIF or JPEG images, JT image files, HTML files, Microsoft Office documents, or NX part files.

These viewers assist you in better identifying the ICOs with which you are working.

Viewing class images

Class images show an overview of the currently selected class. These are shown in the class viewer that appears in the upper right corner of the **Properties** pane. You associate these images with the class from within the Classification Admin application.

The **g4mClassViewer.VIEWERCONFIGTOLOAD** preference specifies which type of viewer is used to display different types of attachments. By default, this preference points to the **g4mViewerConfig.VIEWERCONFIG** preference that contains a list of viewers and attachment types.

Viewing documents associated with an ICO

The instance viewer, located at the bottom right of the **Properties** pane, allows you to see documents attached to the classified workspace object of the selected ICO, such as BOM assemblies, monolithic JT files, Word documents, or GIF images. These documents are attached to the workspace object as a named reference in a dataset.

The documents available for viewing display as tabs at the side of the viewer. Only those documents that the viewer is able to display appear as tabs.

The following table lists some of the tabs the viewer displays.

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Tab	Description
	Opens a GIF image.
	Opens an NX part file.
	Opens a JT file.
	Opens a Microsoft Word document.
	Opens an assembly.

Move the cursor over the tab; the tool tip tells you what document is available.

> Note:
>
> The instance viewer is functional only if you have installed Teamcenter Visualization for Rich Client.

You can alter the behavior of the instance viewer using the following preferences:

- **ICS_presented_instance_documents** contains a list of those named references you want to have available for the viewer to display. The system searches through all datasets of the workspace object for these named references and presents a tab for each one.

- **ICS_default_instance_document** controls which of the available documents is displayed by default when you view an ICO. Using this preference, you can, for example, specify that assembly JT files are not shown by default but must be expressly selected to appear. This can save time when paging through ICOs of large assemblies. If none of the document types listed in this preference are associated with the ICO, the viewer displays no attachment. It can still, however, contain tabs for other available documents.

- **ICS_max_number_of_components** controls the number of assembly components to be shown without warning.

- **g4mInstanceViewer.VIEWERCONFIGTOLOAD** specifies which type of viewer is used to display different types of attachments. By default, this preference points to the **g4mViewerConfig.VIEWERCONFIG** preference that contains a list of viewers and attachment types.

  To view NX parts in the instance viewer, add the following values to the **g4mViewerConfig.VIEWERCONFIG** preference:

  UGMASTER.DirectModelViewer=UGPART

  UGPART.DirectModelViewer=UGPART

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Tip:

To ensure that the instance viewer displays the same attachments as the Teamcenter viewer, you can set the value of the **g4mInstanceViewer.VIEWERCONFIGTOLOAD** preference to **defaultViewerConfig.VIEWERCONFIG**. If, however, you have added any special attachment types to the instance viewer **g4mViewerConfig.VIEWERCONFIG** preference, you must also add these types to the **defaultViewerConfig.VIEWERCONFIG** preference.

Note:

The symbols used for these tabs are found in **com\teamcenter\rac\classification\common\images**. You can customize the symbols in the **com\teamcenter\rac\classification\common\common.properties** file.

Attaching documents and images

If documents or image datasets are attached to a workspace object with a rendering relation, and that object is classified, you can view the documents or images in the viewer. Teamcenter searches only for datasets attached to a revision object or, in the case of classified items, to the latest revision.

To see which documents are added as named references, right-click the dataset in the **Attachment** pane and choose **Named References**. The **Named References** dialog box displays the list of named references for the dataset.

Use revision rules with assemblies

If you are viewing a BOM assembly, you can apply revision rules to specify which components in the assembly display in the viewer. The system applies the revision rules in the same manner as in other Teamcenter modules.

To set revision rules for the instance viewer:

1. Open the instance viewer menu by clicking the button in the upper left corner of the instance viewer.
2. Choose **Revision Rule** from the menu.
3. Work with the revision rules as you would in other modules.

Suppress images in viewers

- Clear the **Show Image** option to suppress the display of images.

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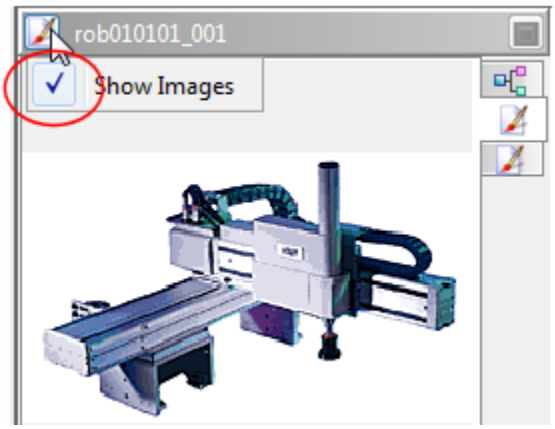

This option is on by default. However, suppressing the display of images, particularly in the instance viewer, can improve performance when viewing search results.

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7. Exporting classification data

Exporting classification data

In Classification, you can export data to an external file using industry standard PLM XML. This function provides you with a set of rules, called transfer modes, designed to assist you with most of your export needs. The Classification application uses the ICO as the starting point of all export activities.

Classification differentiates between user classes and **admin** classes:

- A user class exports all objects pertaining to a class (such as parent class, dictionary object, Key-LOV, view) as a single PLM XML element. A user class resembles the class as a user sees it, with no differentiation between inherited and class attributes. A user class cannot be imported by a Teamcenter database. Third party applications can use user classes to access ICOs.

- An **admin** class exports each object pertaining to a class as a separate PLM XML element. You must export **admin** classes if you want to import the data back into your own or into another Teamcenter database.

The following describes the steps to export classification data to an external file using PLM XML.

Export classification data to an external file

1. In the class hierarchy, select the ICO or ICOs which you want to use as the starting point for your export. These must be loaded in either the **Properties** pane or the **Table** pane.

2. Click the **Export** button .

   The **Export** dialog box is displayed.

3. Click the **PLM XML** tab.

4. In the **Target Application** box, select the transfer mode that you want to use for exporting your data.

5. Type a file name for your export file in the **Output File** box. Alternatively, you can browse to an existing file by clicking the button.

6. Click **OK**.

   Classification exports all the data that you specified via the transfer mode to the specified file. You can view this file in a Web browser or in any XML editor.

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Specifying a transfer mode

Classification allows you to export data using the ICO as the starting point. Using transfer modes, you can specify what, if any, additional information pertaining to the ICO should be exported. The following table lists the transfer modes that you can use with Classification and the information they export.

Select the following transfer mode	To export
ICSExportICOs	An ICO.
ICSExportICOs_User	An ICO with the user class to which it belongs.
ICSExportICOs_Admin	An ICO with its **admin** class, views, parents, attributes, and key-LOVs.
ConfiguredDataExportDefault	An ICO with the user class to which it belongs, in addition to the item it classifies (product data).

To export an ICO with its **admin** class, views, parents, dictionary attributes, and key-LOVs, as well as the object it classifies (product data), your administrator must modify the **ConfiguredDataExportDefault** transfer mode.

Exporting translations

The **Export translated object** dialog box in Classification provides a subset of options to assist you in exporting string values for translation.

> Caution:
>
> When exporting objects for translation, make sure you click the correct **Export translated object** button . Do not confuse this with the PLM XML export button .

Caution using legacy XML

You can use legacy XML format to import and export classification data; however, Siemens Digital Industries Software recommends using the industry standard PLM XML import and export features. Any features added to the software later than Teamcenter 2007 cannot be imported or exported using the legacy XML mechanism.

If you want to export ICOs using XML, use the Classification Admin application.

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