



TEAMCENTER

Visualization on Rich Client — Getting Started

Teamcenter 2412

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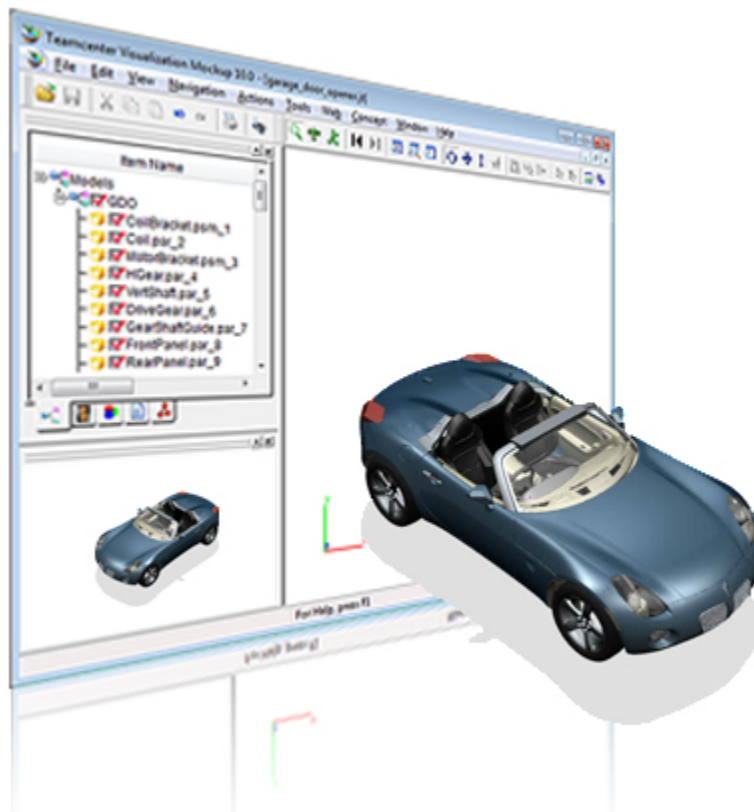
1. Product Visualization

Product Visualization overview

Powered by the industry-standard JT™ file format, Teamcenter lifecycle visualization provides your entire organization with the ability to view design data typically stored in CAD-data formats. It lets you explore and validate product innovations and issues in a collaborative environment. When deployed in a Teamcenter environment, the data is always current and up-to-date. Support for PLM XML also provides a lightweight, extensible mechanism for sharing product data with other Siemens Digital Industries Software products and supported third-party applications.

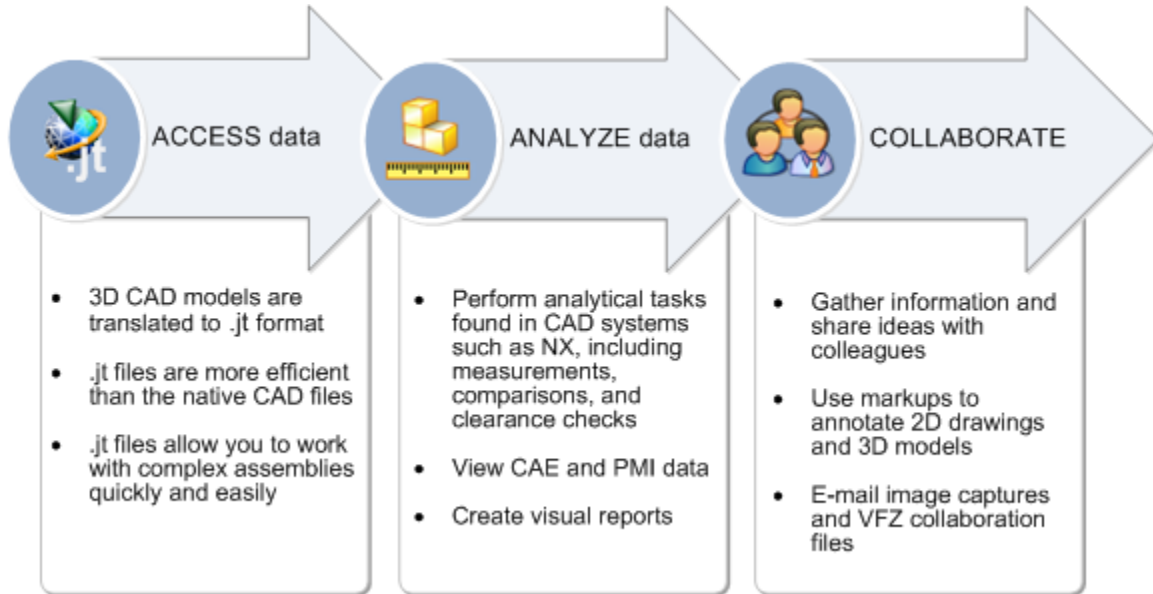
Teamcenter lifecycle visualization is available in multiple product configurations, giving you power and flexibility to tailor your purchase to meet your organization's unique requirements.

For information on the supported versions of other Siemens Digital Industries Software file formats, download the [Teamcenter Interoperability Matrix](#) spreadsheet found on the Support White Papers Certifications page on Support Center.



Visualization workflow

You can simplify the lifecycle process of your product design by quickly and easily accessing data, analyzing it, and collaborating on your findings.



Access the data	The 3D CAD models are translated from their native CAD-specific formats to the .jt format either automatically using a translator in the CAD system or using an external translator. The .jt files are much more efficient than the original. This means that you can work with even the most complex assemblies quickly and easily.
Analyze the data	You can perform many of the same analytical tasks that are found in expensive, complicated CAD products. For example, with Teamcenter lifecycle visualization base, you can measure and compare 2D drawings and measure 3D parts and create cross sections.
Collaborate	Whether you're gathering information for a prospective client, leading a design team, or manufacturing parts for a large customer, you can share your ideas with colleagues.

Lifecycle Visualization viewers

The Lifecycle Visualization integration with Teamcenter supports the Teamcenter lifecycle visualization standalone viewer and the Lifecycle Viewer within the rich client. In addition, many rich client perspectives include embedded visualization components.

Standalone viewer

The standalone viewer, which runs outside of Teamcenter and is a separate installation, expands upon Teamcenter's embedded visualization components with support for optional software modules such

as Concept, Visualization Illustration, Quality Producer, and Variation Analysis. Standalone Lifecycle Visualization is integrated with Teamcenter, so you can send data from Teamcenter applications into the standalone viewer, perform analysis, and then save your work back to the database.

Standalone Lifecycle Visualization is available in the following product configurations:

- **Base**

The Base product configuration enables you to view and mark up 2D images and perform basic 3D analysis operations such as measurements and cross sections.

- **Standard**

The Standard product configuration provides many additional features, such as advanced navigation capabilities, markup tools, and support for precise 3D measurements.

- **Professional**

The Professional product configuration adds analysis functionality such as 3D comparisons, as well as the ability to manipulate and transform 3D models, create outline captures, and play motion files that illustrate assembly sequences. You can optionally use add-on modules such as Animation, Concept, and Visualization Illustration.

- **Mockup**

The Mockup product configuration provides all of the functionality from the other product configurations and also includes advanced features such as 3D Clearance analysis, geometry simplification, part groups, 3D filters, and movie captures. You can optionally use all of the available add-on modules, including Quality Producer, Variation Analysis, Jack, and Path Planning.

Lifecycle Viewer

The Lifecycle Viewer is a full-fledged visualization client within Teamcenter. It provides nearly all of the visualization tools offered by the standalone viewer, many of which are not available in the embedded viewers within Teamcenter applications such as My Teamcenter.

The Lifecycle Viewer is available in the same product configurations as the standalone viewer, Base, Standard, Professional, and Mockup. Features available vary depending upon the licensing level. The Base configuration is automatically installed with the rich client.

Using the Lifecycle Viewer, you can:

- Work within a comprehensive user interface that provides access to many of the options previously available only with the standalone products, including menus and views (the equivalent of Project Workspace windows such as the Assembly).
- Insert or merge files within active Viewing windows.

- Work with multiple open datasets.
- Preserve the state of your work with session files.
- Save data as PLM XML.
- Export 2D images and 3D models as supported datasets.
- Author visualization data such as motion files, swept volumes, and .vfz collaboration files.

Working with visualization data in the My Teamcenter viewer

The **Viewer** view in My Teamcenter displays content dependent on the type of object selected in the current component view or in the **Details** view. Support for visualization data includes:

- If an item or item revision is selected, the viewer displays the associated image, printed circuit board, schematic, or JT data.
- If an image, ECAD PCB, ECAD Schematic, or JT dataset is selected, the viewer displays the image, printed circuit board, schematic, or model.

Visualization use cases

- View and markup of parts, printed circuit boards, schematics, drawings and images, without having to launch the standalone viewer or the Lifecycle Viewer.

Visualization tools available

- **2D Markup**

Create 2D markups.

- **2D Multipage**

Navigate among pages in multiple-page 2D images or documents.

- **2D Viewing**

Pan, zoom, rotate, and flip 2D images.

- **3D Markup**

Create 3D markups.

- **3D Measurement**

Perform 3D measurements.

- **3D Navigation**

Pan, rotate, and zoom 3D models.

- **3D PMI**

View and manipulate PMI in your model.

- **3D Section**

Create 3D cross sections.

- **3D Selection**

Select parts and pick part features.

- **3D Standard Views**

Examine your model from preset viewing angles.

- **ECAD Base**

Manipulate the view of ECAD document layers, control layer color and visibility, search, and create reports.

- **ECAD Markup**

Create ECAD markups.

- **ECAD Multipage**

Navigate among pages in multiple-page schematic documents.

- **ECAD Viewing**

Pan, zoom, rotate, and flip image.

- **Print**

Print documents.

Structure Manager viewer

The viewer embedded in Structure Manager is available within the **Viewer** tab of the data pane. The viewer allows you to view JT files attached to assemblies and components in the structure tree when you are viewing and editing a product structure.

Visualization use cases

- View 3D assemblies or structures.
- View subcomponents in an assembly.
- Compare product structures.
- Create and save product views.

Visualization tools available

- **3D Alignment**

Align parts with other parts in the viewing window.

- **3D Appearance**

Change the appearance of 3D models.

- **3D Clearance**

Check the clearance of parts in 3D models.

- **3D Comparison**

Compare the geometry of two sets of parts.

- **3D Coordinate System**

Create and align parts to local coordinate systems.

- **3D GDT Markup**

Create 3D GD&T markups.

- **3D Manipulators**

Transform 3D models.

- **3D Markup**

Create 3D markups.

- **3D Measurement**

Perform 3D measurements.

- **3D Movie Capture**

Capture your actions in the 3D viewing window as movie files.

- **3D Navigation**

Pan, rotate, and zoom 3D models.

- **3D PMI**

View and manipulate PMI in your model.

- **3D Section**

Create 3D cross sections.

- **3D Selection**

Select parts and pick part features.

- **3D Standard Views**

Examine your model from preset viewing angles.

- **3D Thrustline Editor**

Create and manipulate thrustlines.

- **3D Visibility**

Hide obscuring parts and clip areas of your model.

Multi-Structure Manager viewer

The viewer embedded in Multi-Structure Manager is available within the **Object View** tab of the data panel. The viewer allows you to view associated 2D images and 3D models when you are viewing and editing a product or process structure.

Visualization use cases

- View product or process structures.
- View images associated with objects selected on the structure tab.
- View and create markups.
- Create and save product views.

Visualization tools available

- **2D Markup**

Create 2D markups.

- **2D Multipage**

Navigate among pages in multiple-page 2D images or documents.

- **2D Viewing**

Pan, zoom, rotate, and flip 2D images.

- **3D Markup**

Create 3D markups.

- **3D Measurement**

Perform 3D measurements.

- **3D Navigation**

Pan, rotate, and zoom 3D models.

- **3D PMI**

View and manipulate PMI in your model.

- **3D Section**

Create 3D cross sections.

- **3D Selection**

Select parts and pick part features.

- **3D Standard Views**

Examine your model from preset viewing angles.

Manufacturing Process Planner viewer

The viewer embedded in Manufacturing Process Planner is available within the **Object View** tab of the data panel. The viewer allows you to view associated 2D images and 3D models when you are viewing and editing a process structure.

Visualization use cases

- View product or process structures.
- View images associated with objects selected on the structure tab.
- View and create markups.
- Create and save product views.

Visualization tools available

- **2D Markup**

Create 2D markups.

- **2D Multipage**

Navigate among pages in multiple-page 2D images or documents.

- **2D Viewing**

Pan, zoom, rotate, and flip 2D images.

- **3D Markup**

Create 3D markups.

- **3D Measurement**

Perform 3D measurements.

- **3D Navigation**

Pan, rotate, and zoom 3D models.

- **3D PMI**

View and manipulate PMI in your model.

- **3D Section**

Create 3D cross sections.

- **3D Selection**

Select parts and pick part features.

- **3D Standard Views**

Examine your model from preset viewing angles.

JT Preview view

The **JT Preview** view enables you to examine .jt parts associated with items, item revisions, and datasets. When you select a compatible object, the .jt part is displayed in the view.

Visualization use cases

- Preview .jt parts.

Visualization tools available

- **3D Navigation**

Pan, rotate, and zoom 3D models.

Image Preview view

The **Image Preview** view enables you to examine 2D raster images associated with items, item revisions, and datasets. When you select a compatible object, the image is displayed in the view.

Visualization use cases

- Preview 2D raster images.

Visualization tools available

- None


Ways to access Lifecycle Visualization

You can access Lifecycle Visualization by:

- Starting the standalone viewer, where you access the files from a local or network drive.
- Accessing files from Teamcenter, and viewing them in one of the embedded viewers or sending them to standalone Lifecycle Visualization.


Understanding Startup Accelerator

Teamcenter Visualization Startup Accelerator is a small Windows application that speeds up the initial start of Teamcenter viewers by pre-loading key visualization dynamic link libraries (DLLs) when you start your computer.

- The application is available only for Windows.
- Installing Startup Accelerator is an option when you install Teamcenter.
- When you install the application, a Startup Accelerator icon  appears in the Windows taskbar notification area.

Startup Accelerator consumes a small amount of your system memory when it loads visualization DLLs. If your computer is low on memory, you can stop Startup Accelerator to release the memory. You lose the benefits of Startup Accelerator, but increase available memory.

Stop Startup Accelerator

In the Windows taskbar notification area, right-click the Startup Accelerator icon  and do any of the following:

To	Choose
Stop Startup Accelerator and unload the DLLs from memory	Stop
Restart the Startup Accelerator application after stopping	Start
To unload the DLLs and close the Startup Accelerator application	Exit The icon disappears from the Windows taskbar.

To	Choose
	<div style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>To restart the Startup Accelerator application after exiting, you must restart your computer.</p> </div>

Note:

If your computer has adequate memory, you do not need to stop Startup Accelerator.

Graphics hardware requirements

For full confidence that all of the advanced features of Teamcenter lifecycle visualization are displayed, including effects such as high-quality transparency, shadows, mirrors, CAE analysis results, intersection volumes, and other features requiring advanced graphics capabilities, use a certified system. Siemens Digital Industries Software and our OEM partners rigorously test specific graphics adapters and drivers on a select set of workstations. Graphic adapters and drivers that pass are certified for use with a particular version of Teamcenter lifecycle visualization.

For information about certified systems, download the *Teamcenter Visualization Graphics Certifications* spreadsheet found on the [Hardware and Software Certifications](#) knowledge base article on [Support Center](#) (scroll down to the *Teamcenter Visualization Software Certifications* heading).

Note:

Starting with Lifecycle Visualization version 2412, systems are required to have a GPU that supports OpenGL 3.3 (required minimum) or OpenGL 4.6 (recommended minimum) or later. If Lifecycle Visualization detects no GPU, or is unable to create a GL context that supports OpenGL 3.3, a warning dialog will display when opening a 3D document. OpenGL 4.6 is required for access to *all* Lifecycle Visualization graphics features. If you work with large models, we recommend graphics cards with 2GB or 4GB of GPU memory, or more. While exact memory requirements are highly situation specific, a rough guideline for required graphics card memory is 1 GB of graphics memory for every 2 GB of loaded geometry data.

Consumer line and 2D graphics adapters

We do not recommend consumer lines of graphics adapters. These adapters and drivers are designed for playing games and emphasize frame rate over correctness. Drivers for consumer graphics are serviced by driver development and ISV partner teams separate from those for professional 3D adapters.

However, even these video adapters, if you have the most current graphics driver, usually work at a reduced effects level with Lifecycle Visualization. It may be necessary to reduce the performance settings.

Note:

When the OpenGL level of a graphics adapter is not capable of rendering an advanced visualization effect, the visual effect is silently omitted.

Resolving graphics adapter issues

You are encouraged to report graphics display problems found on recommended and certified hardware to Siemens Support Center. We attempt to reproduce the problem. If a reproducible problem is determined to lie within Lifecycle Visualization software, we fix it directly; if a problem is found with the graphics driver, we work with the graphics vendor to isolate the issue and assist them as necessary to produce a driver patch.

We do not attempt to resolve problems that cannot be reproduced on recommended or certified hardware; we advise you to take such issues directly to the graphics adapter manufacturer.

2. How do I?

How do I?

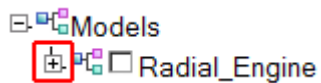
The following is a set of best practices for commonly asked questions gathered into one place for easy access.

- **Display 3D models**
- **Examine 3D models**
- **View 3D models from preset viewing angles**
- **Smooth the edges of 3D models**
- **Capture an image of a 3D model**
- **Create line drawings from 3D models**
- **View part properties**
- **Add text markups to the 3D scene**
- **Add callouts to parts**
- **Measure angles on 3D models**
- **Save 3D measurements**
- **Display Product Manufacturing Information (PMI)**
- **Change the color of a part**
- **Create 3D snapshots**
- **Create Visual Reports**
- **Email your work session**
- **View 2D images**
- **Compare 2D images**
- **Change 3D display modes**

- Create shortcuts to file locations
- Change the background color

Display 3D models

1. Open a 3D model.
2. In the assembly tree, click the + icon next to the name of the top-level assembly node.

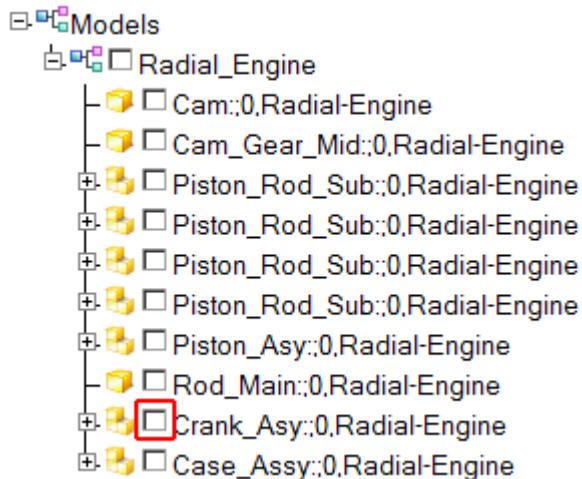


The assembly expands to show additional levels of structure.

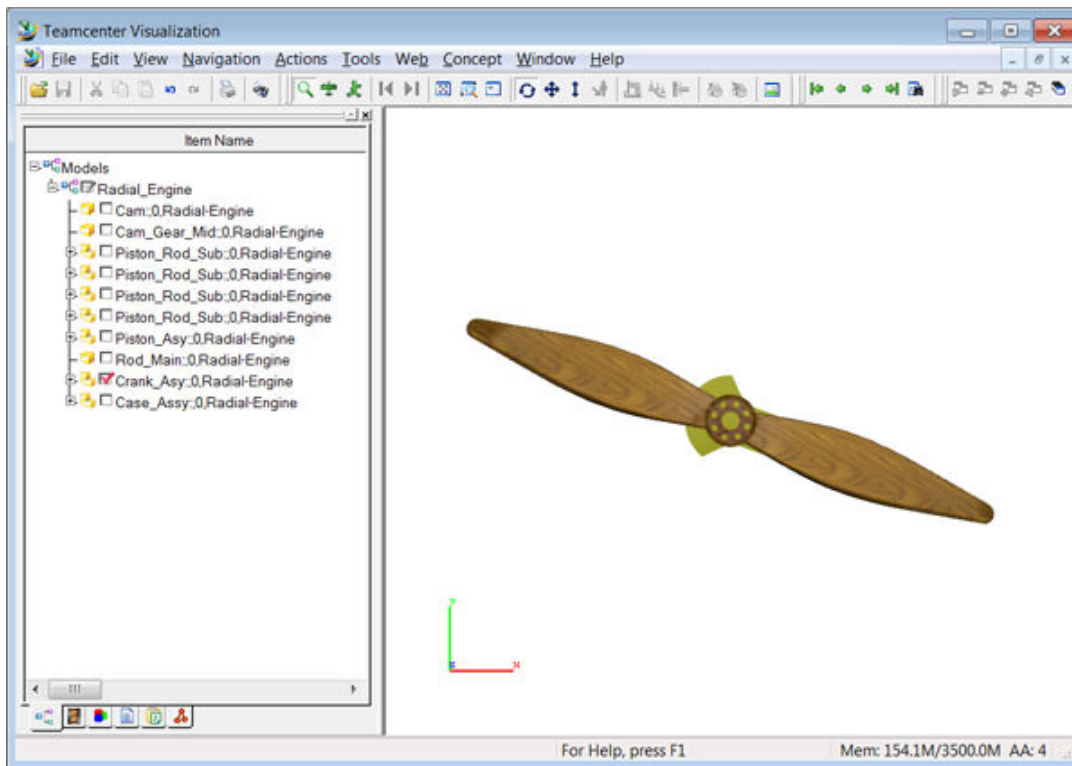
Tip:

When you first open a 3D model that consists of more than one part, only the assembly tree is visible. You can use the tree to turn on the entire model or only the parts that you want to view.

3. Select the check box next to the name of a subassembly or part.



The geometry is displayed in the Viewing window.




Examine 3D models

1. Open and display a 3D model.
2. Right-click the toolbar area of the application, and select **3D Navigation**.

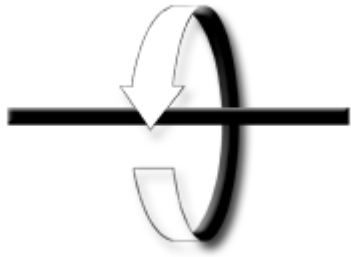
The **3D Navigation** toolbar is displayed.



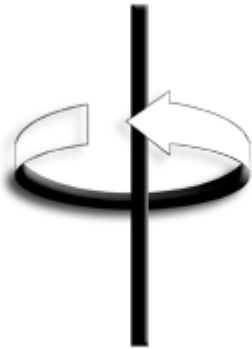
3. Rotate around the model.
 - a. On the **3D Navigation** toolbar, click **Examine** .
 - b. To rotate freely around the model, in the center of the Viewing window, click and drag the cursor.

The model appears to rotate across axes according to your mouse movements.
 - c. To constrain the model rotation, click and drag along the top, bottom, left, or right edge of the Viewing window.

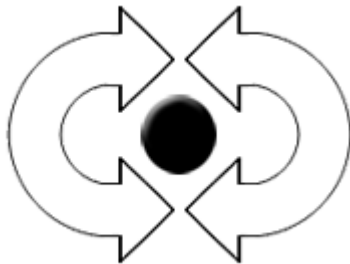
If the cursor is near the left or right edge of the Viewing window when you begin, a horizontal axis is used for rotation.




If the cursor is near the bottom edge, a vertical axis is used for rotation.



If the cursor is near the top edge, a perpendicular axis is used for rotation.




4. Pan across the model.

- a. Click **Pan** .
- b. In the Viewing window, click and drag in any direction.

The navigation camera pans across the model.

5. Zoom in or out on the model.

- a. Click **Navigate** .
- b. In the Viewing window, click and drag up toward the top of the Viewing window then down toward the bottom.

The navigation camera zooms in and out on the model.

View 3D models from preset viewing angles

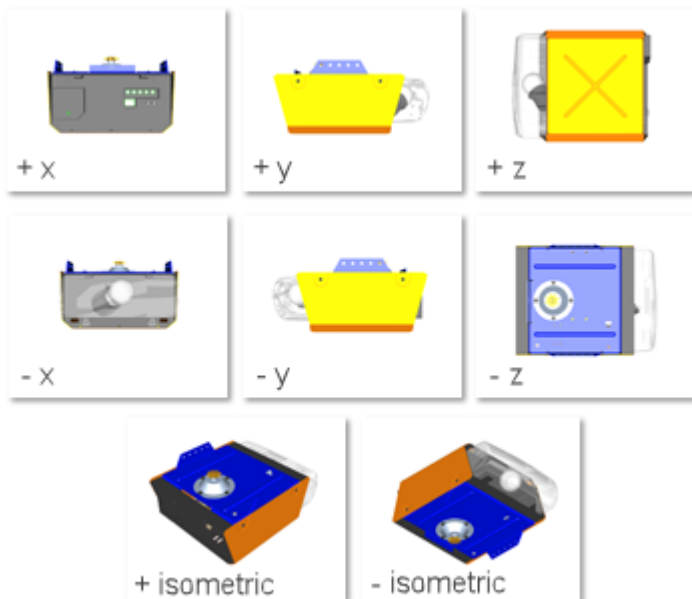
1. Open and display a 3D model.
2. Right-click the toolbar area of the application, and select **3D Standard Views**.

The **3D Standard Views** toolbar is displayed.

Standard, Professional, and Mockup

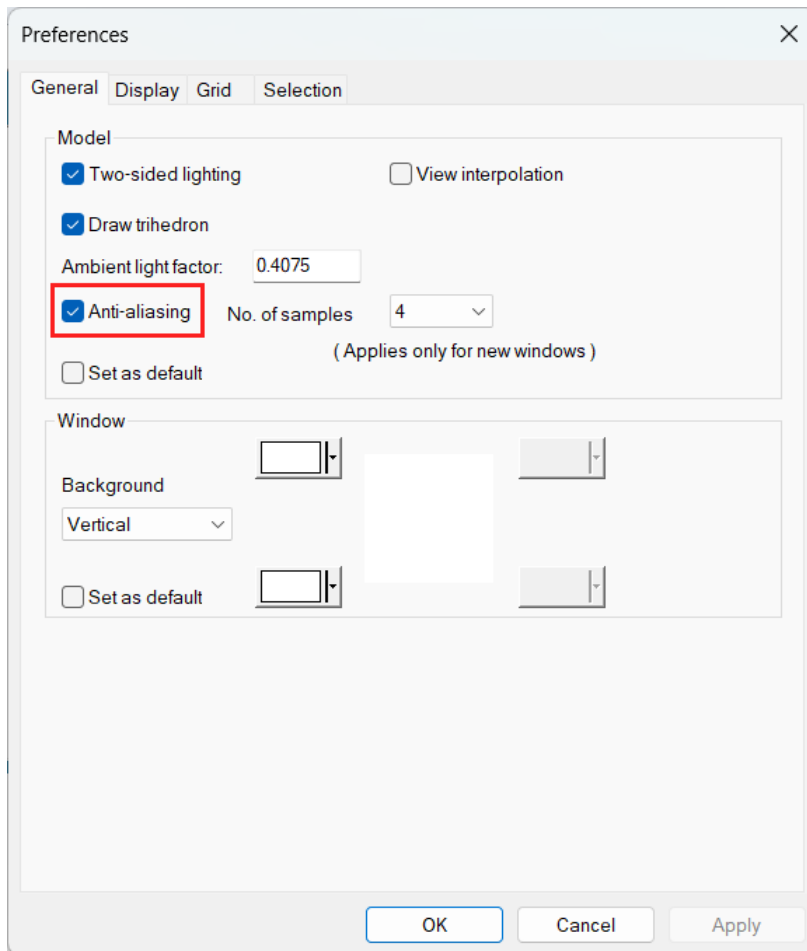


3. On the **3D Standard Views** toolbar, click **Align to Axis** , and then choose a viewing angle.

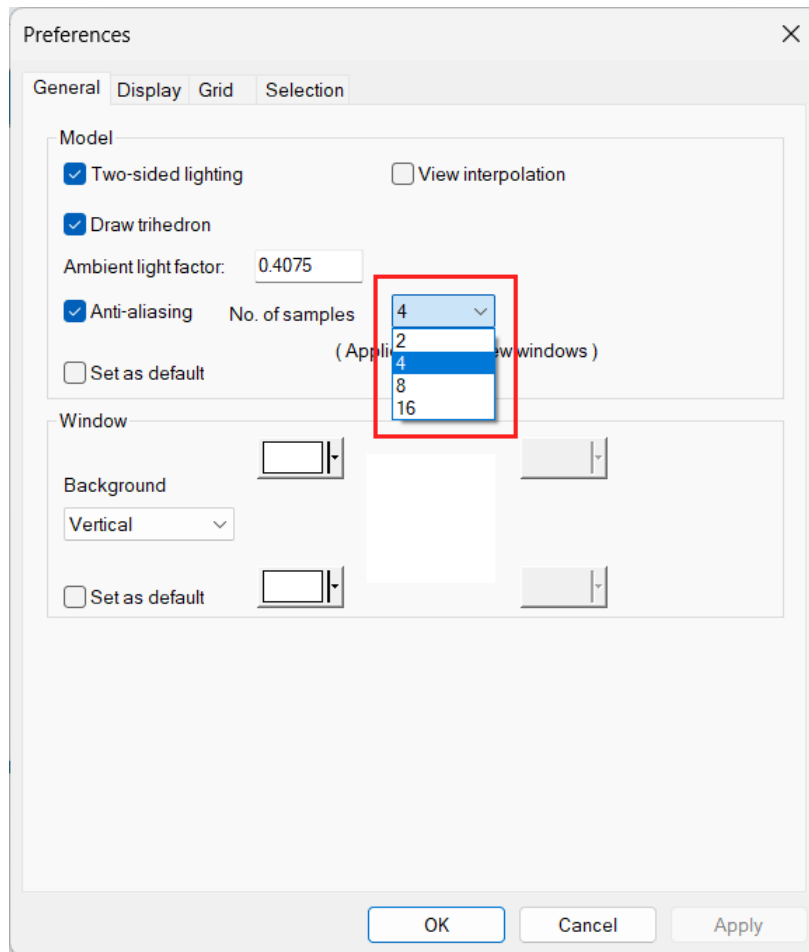


Smooth the edges of 3D models

1. Open and display a 3D model.
2. Turn on anti-aliasing.
 - a. Right-click a blank area of the Viewing window and choose **Preferences**.
 - b. On the **General** tab of the **Preferences** dialog box, select the **Anti-aliasing** check box.

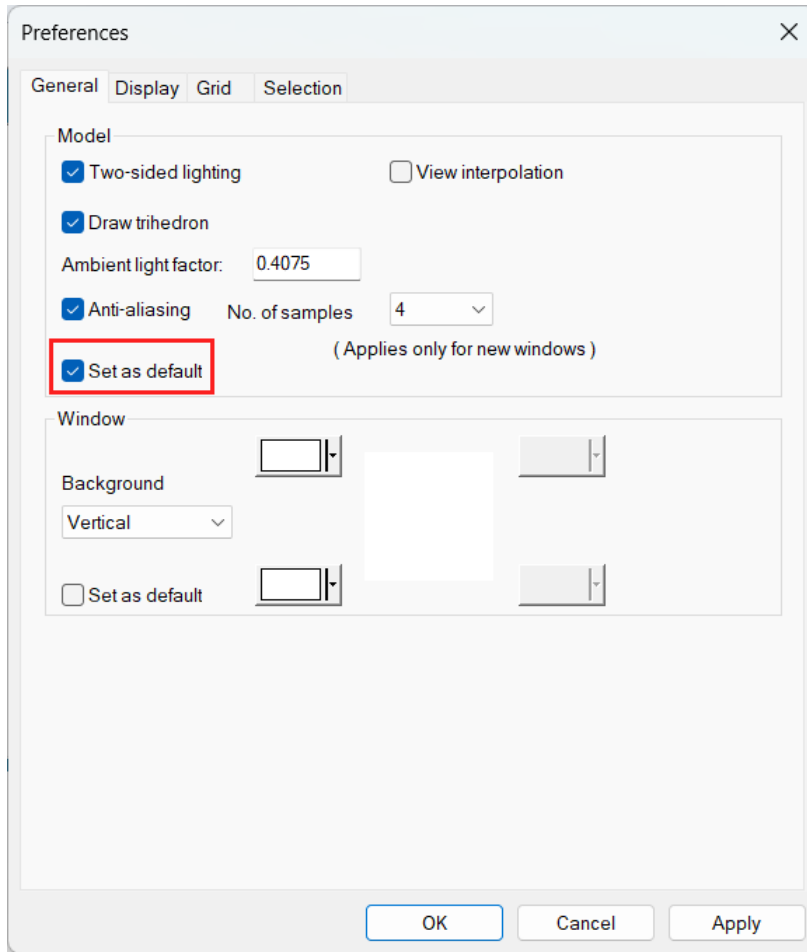


- c. From the **No. of samples** list, choose the number of samples for anti-aliasing.

**Note:**

A higher number of samples results in smoother edges. However, using a higher number of samples may also impact the performance of your system.

- d. Select the **Set as default** check box to automatically apply your anti-aliasing settings when you open 3D models.



- e. Click **OK** to close the preferences.

The anti-aliasing changes are applied to the model.



Capture an image of a 3D model

1. Open and display a 3D model.
2. Capture the 2D image.
 - a. Right-click the toolbar area of the application, and select **Image Capture**.

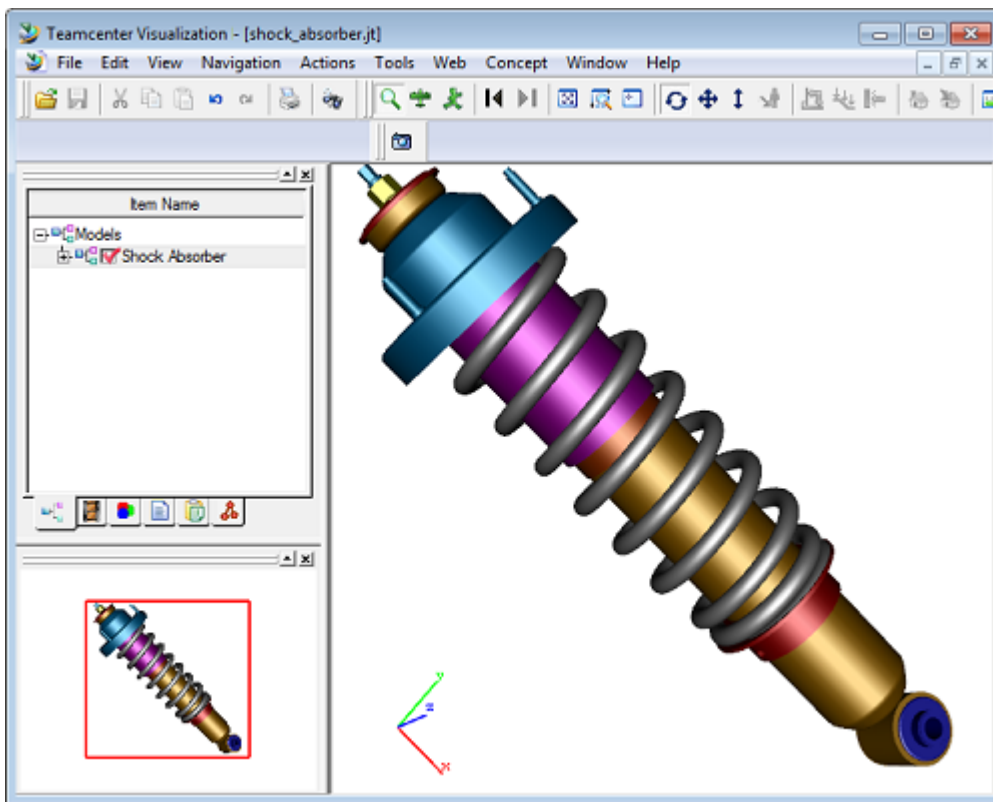
The **Image Capture** toolbar is displayed.



- b. Stage the contents of the Viewing window as needed.

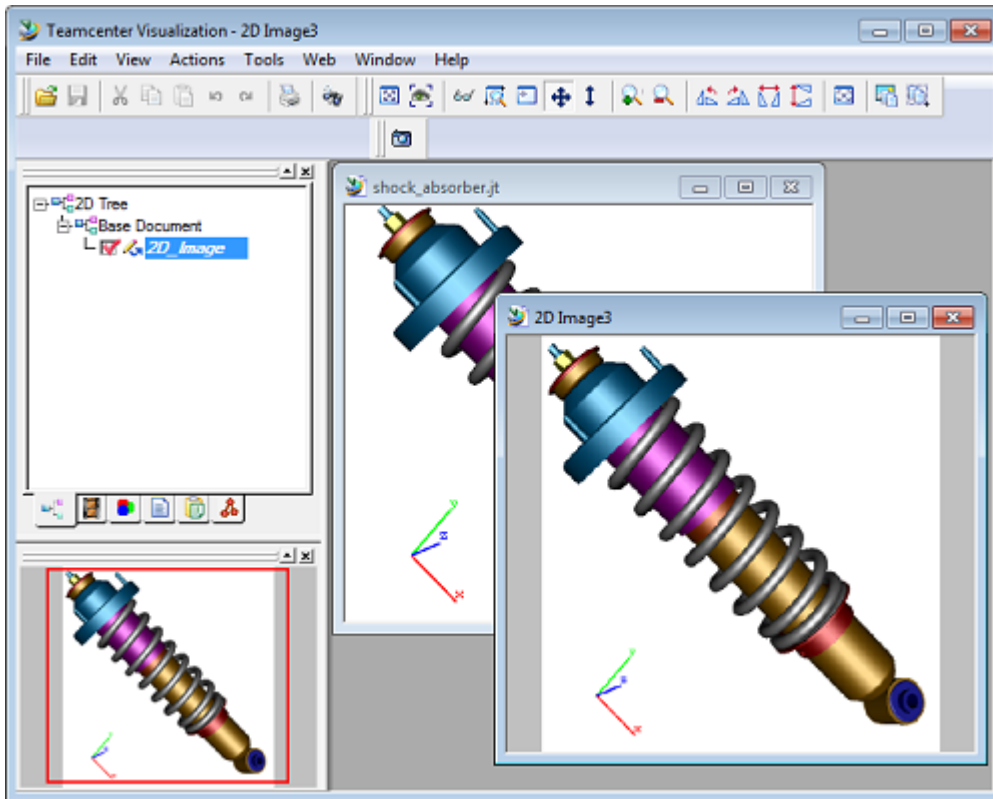
Tip:

A 2D image capture exactly matches what you see in the Viewing window, so you may want to adjust the visibility and position of your model. You can also control the dimensions of the image by changing the size of the Viewing window.



- c. On the **Image Capture** toolbar, click **Image Capture** .

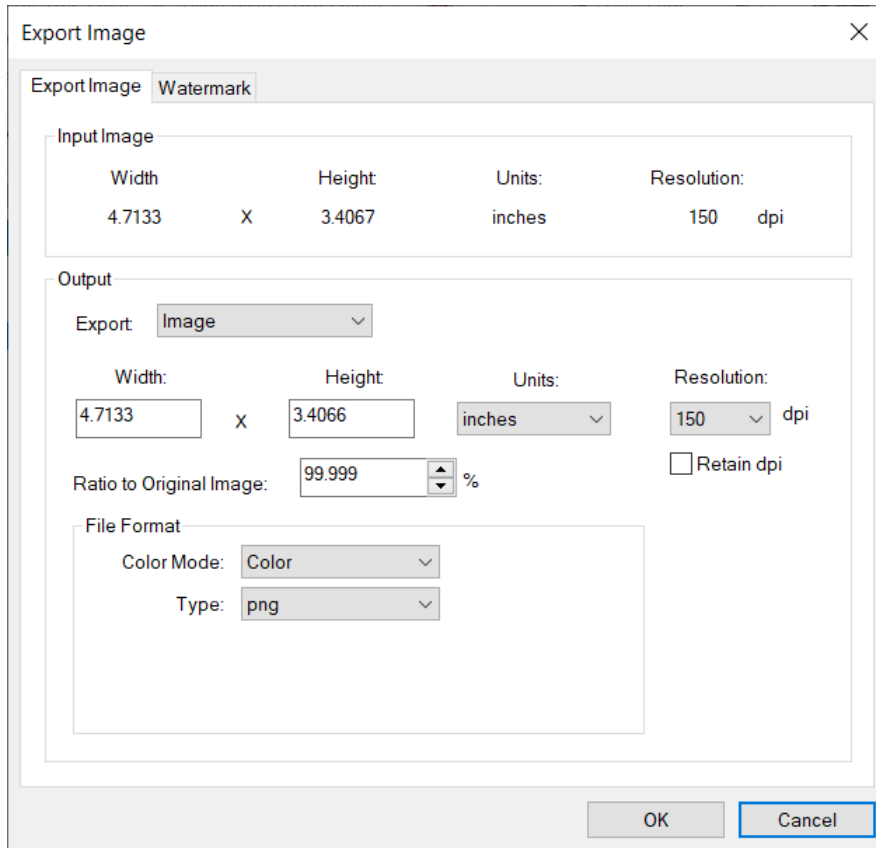
A 2D image capture of the Viewing window is created.



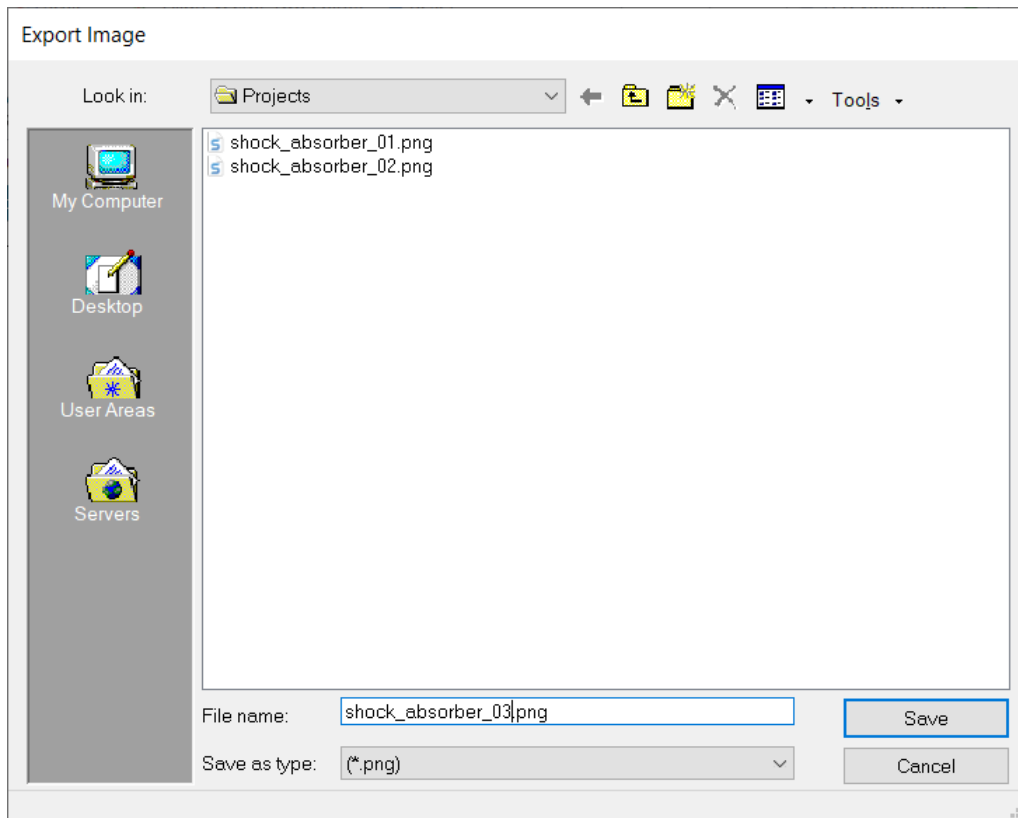
3. Save the 2D image.
 - a. Choose **File**→**Export Image**.
 - b. In the **Export Image** dialog box, adjust the settings as needed.

Tip:

A resolution of 72 DPI is suitable for images to display on a monitor (email and web pages). Use a resolution of at least 300 DPI for print content.



- c. Click **OK**.
- d. In the **Export Image** save dialog box, browse to the location where you want to save your image, and click **Save**.

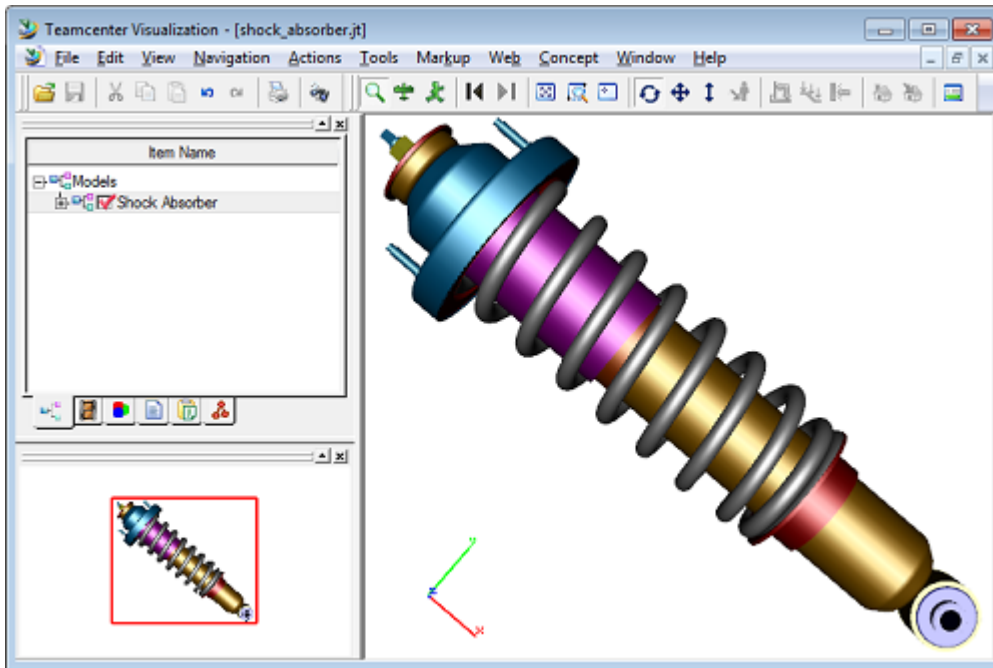


Create line drawings from 3D models

1. Open and display a 3D model.
2. Create the outline capture.
 - a. Stage the contents of the Viewing window as needed.

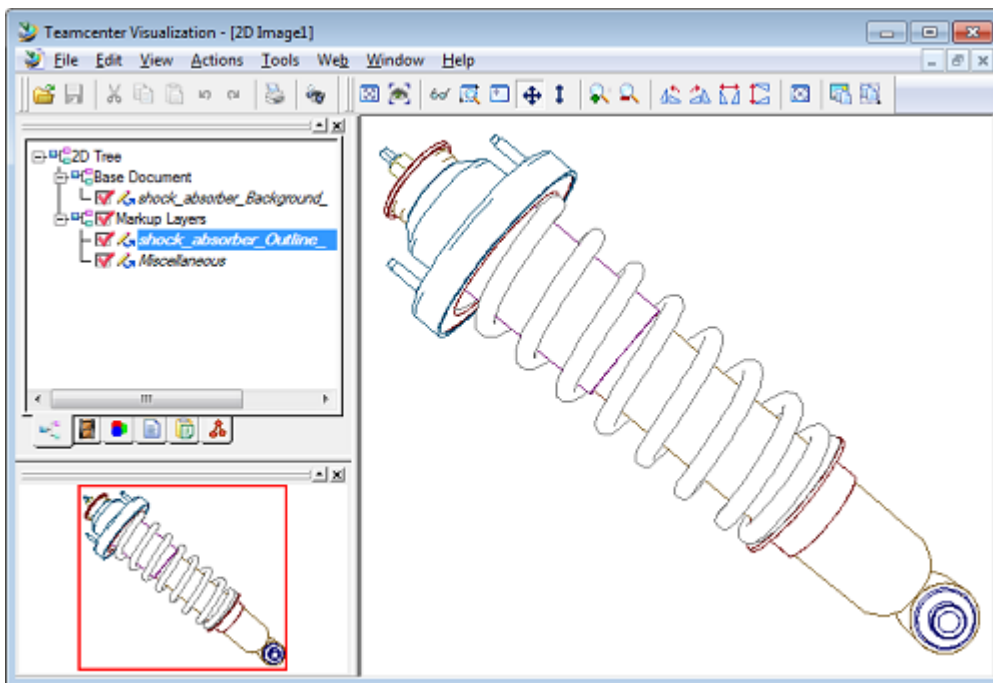
Tip:

An outline capture includes only what you see in the Viewing window, so you may want to adjust the visibility of your model. Since the capture is a vector image, the position of the model within the boundaries of the Viewing window does not matter because you can scale the image with no loss of image quality. Any part of the model that is turned off or outside of the Viewing window is not included in the capture.



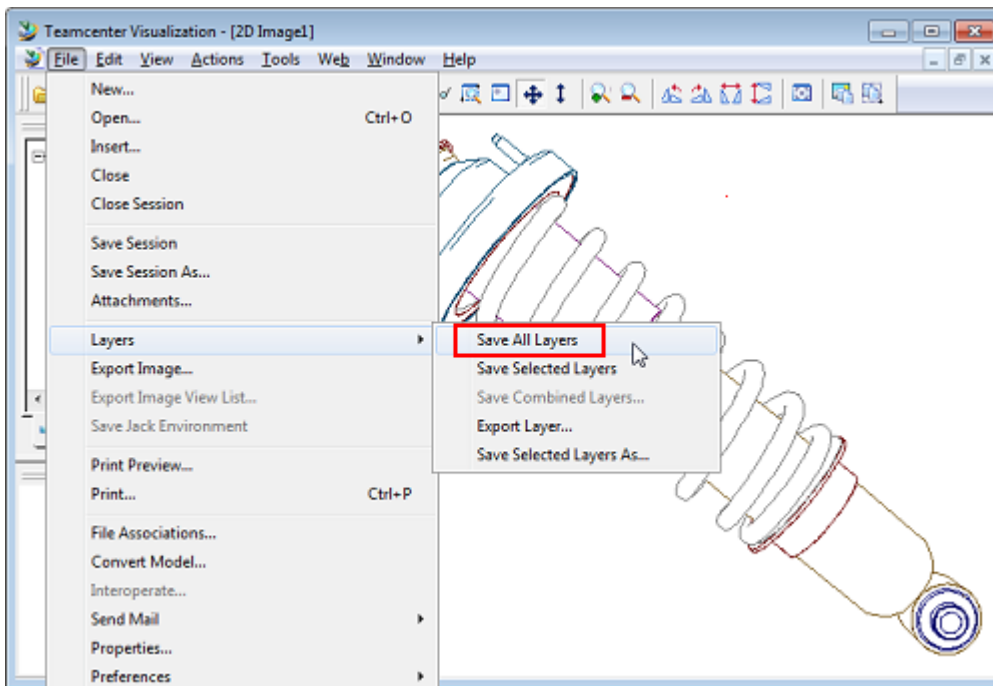
- b. Choose **Actions**→**Outline Capture**→**Current 3D Window**.

The outline capture is created. The drawing of the model is placed on a unique layer in the tree. Any 3D measurements or markups included in the capture are placed on separate layers.



3. Save the outline capture as a 2D vector image.

- a. Choose **File**→**Layers**→**Save All Layers**.

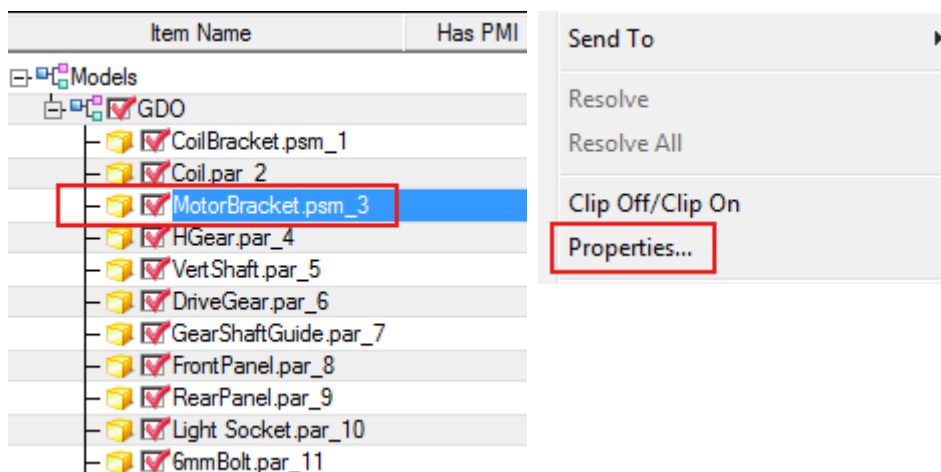


- b. In the **Save As** dialog box, browse to the location where you want to save your image, and click **Save**.

View part properties

You can view properties of an assembly or part in the **Properties** dialog box, and you can add an attribute from the **Properties** dialog box to the **Assembly** view as a **new column of information** for part and assembly nodes.

1. In the **Assembly** view, right-click a part or assembly and choose **Properties**.

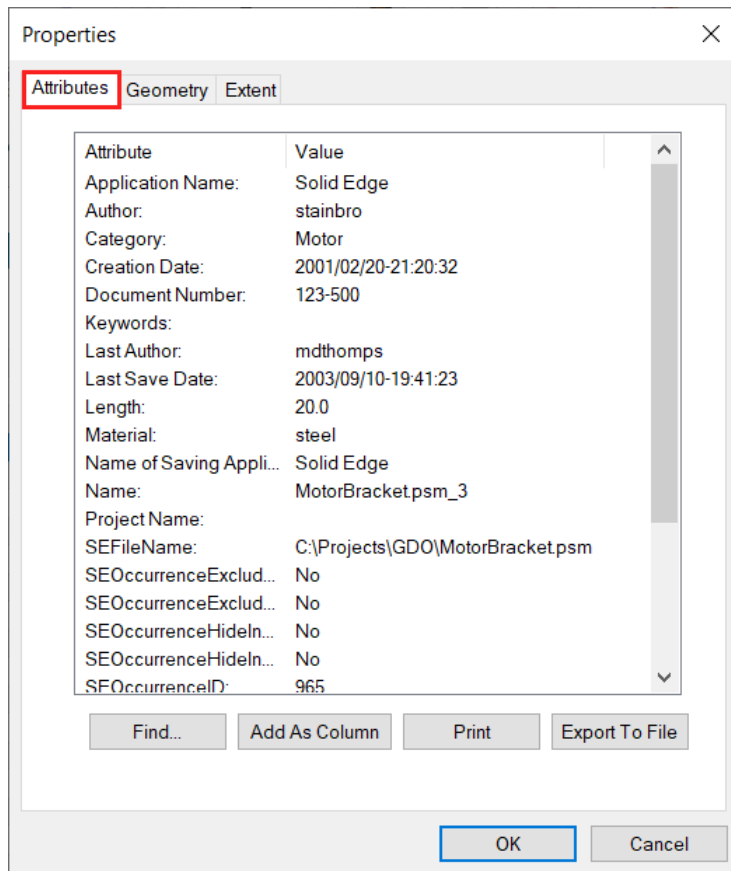


- In the **Properties** dialog box, view the part or assembly properties on the respective properties page.

Attributes
Geometry
Extent

Attributes page

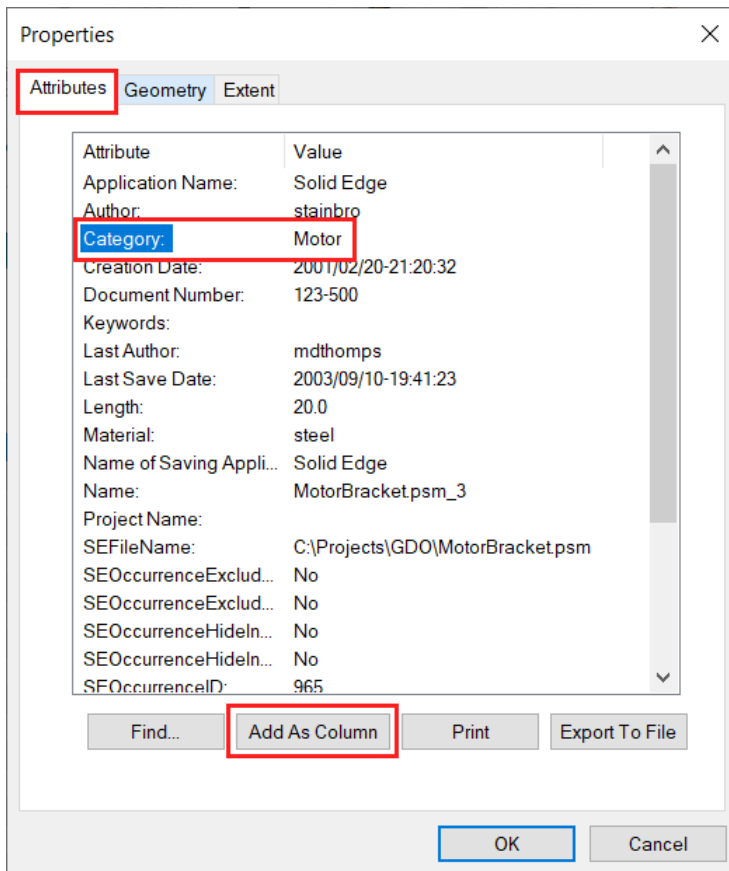
The **Attributes** page of the **Properties** dialog box displays any metadata associated with the part or assembly.



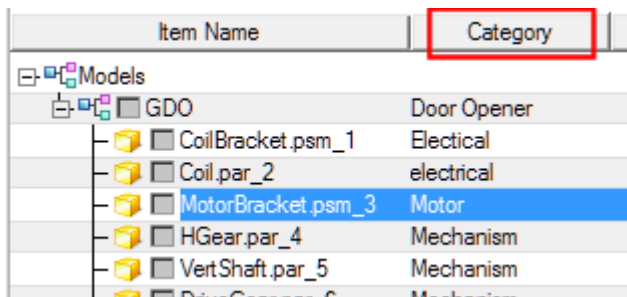
Tip:

You can add an attribute from the **Properties** dialog box to the **Assembly** view as a new column of information for part and assembly nodes.

- On the **Attributes** page, in the **Attribute** column, select an attribute.
- Click **Add as Column**.



A new column for the attribute appears in the assembly tree.



Geometry page

The **Geometry** page of the **Properties** dialog box displays **Area**, **Volume**, **Density**, **Mass**, and **Center of mass** for the part or assembly. For each property, a numeric annotation within curly braces { } identifies the source of the value.

Properties

Attributes **Geometry** Extent

Part name: MotorBracket.psm_3

Area: ~ 62361.9258 mm² {2}

Volume: ~ 139538 mm³ {2}

Density: g/mm³ {3}

Mass: ~ 0.00013953837 g {2}

Center of mass: ~ [-25.8454
38.5420
-61.7450] mm {2}

{1} From model
{2} Calculated
{3} Default Measurement
{4} User-defined

OK Cancel

{1} From model

The JT model contains specific properties that hold the exact measurements, and those are used to populate the dialog box. These JT properties are:

JT Property Name	Meaning
JT_PROP_MEASUREMENT_UNITS	CAD Model Units
CAD_MASS_UNITS	Units of mass
CAD_SURFACE_AREA	Surface area of solids within a part
CAD_VOLUME	Volume of solids within a part
CAD_DENSITY	Density of solids within a part While the single value implies uniform density, such may not be the case.
CAD_MASS	Mass or weight of solids within a part
CAD_CENTER_OF_GRAVITY	Center of gravity of solids within a part

{2} Calculated

The JT model properties listed in {1} are not present. Therefore, an approximate value is calculated from the polygonal data. The tilde ~ symbol appears in front of a calculated value. BREP data is not used for the calculation.

{3} Default Measurement

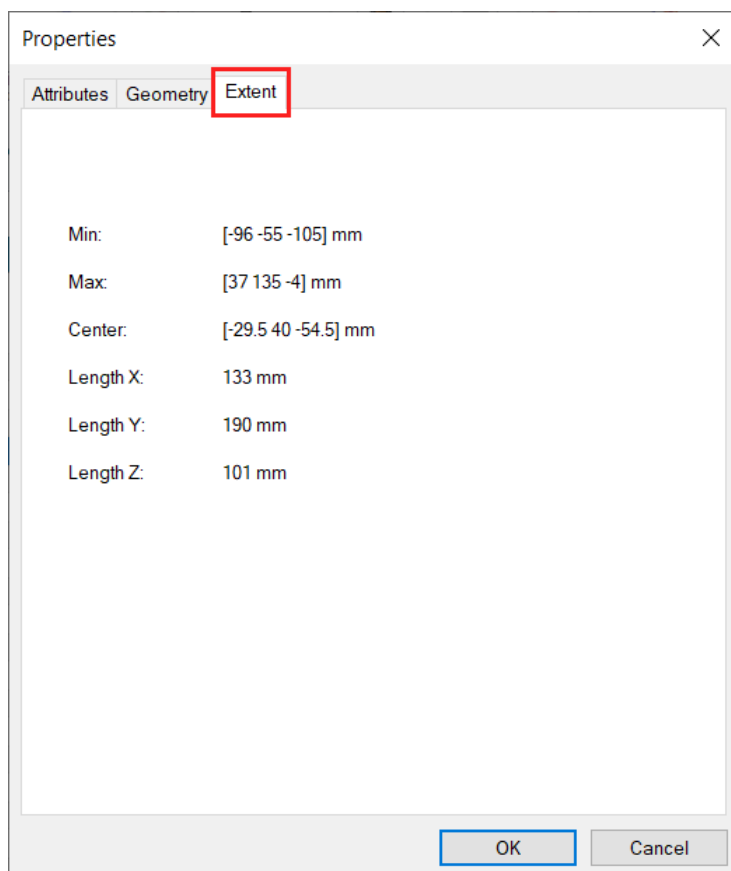
The JT model property `CAD_DENSITY` is not present and the **Density** value has not been manually entered. Therefore, the default density value as specified in the **Calculations** tab of the **Measurement Preferences** dialog box is used.

{4} User-Defined

The **Density** value is manually entered.

Extent page

The **Extent** page of the **Properties** dialog box displays location and size information for the part or assembly, including **Min**, **Max**, **Center**, **Length X**, **Length Y**, and **Length Z**.



**Add text markups to the 3D scene**

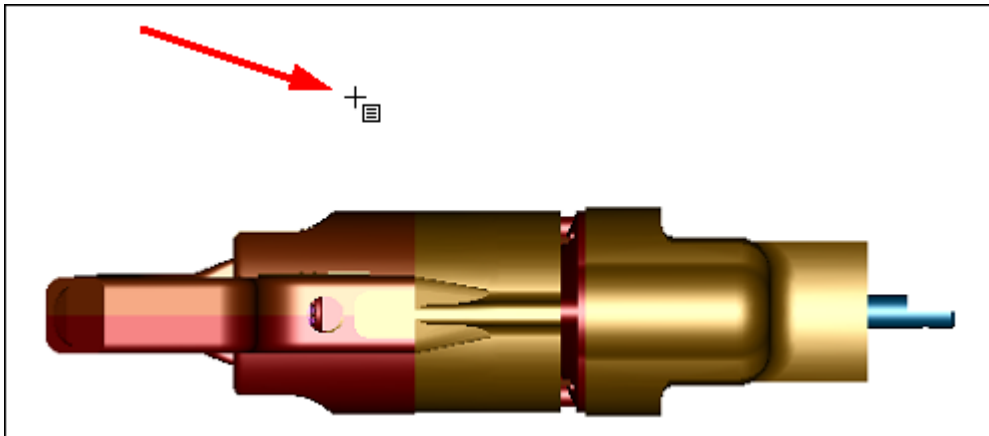
1. Open and display a 3D model.

2. Right-click the toolbar area of the application, and select **3D Markup**.

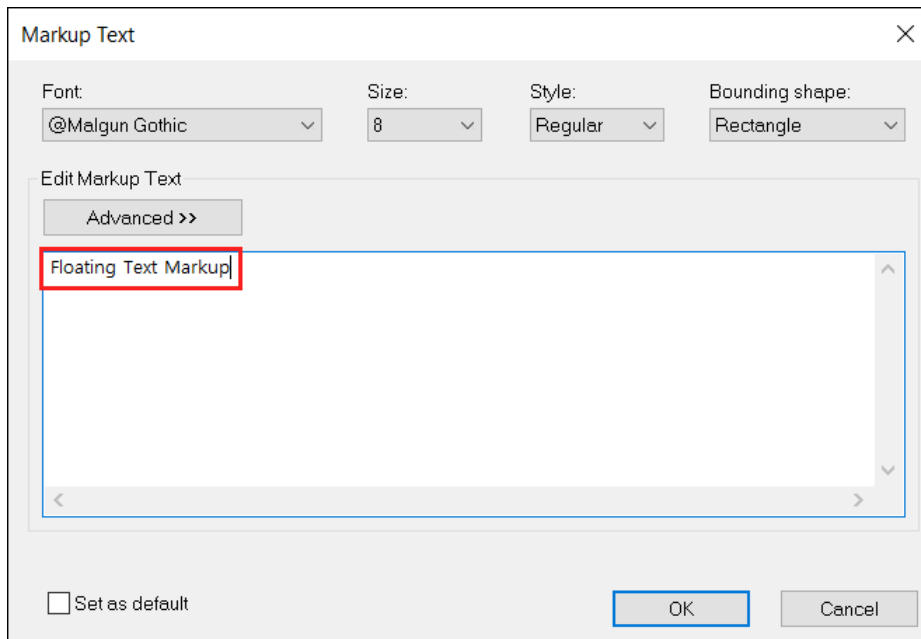
The **3D Markup** toolbar is displayed.



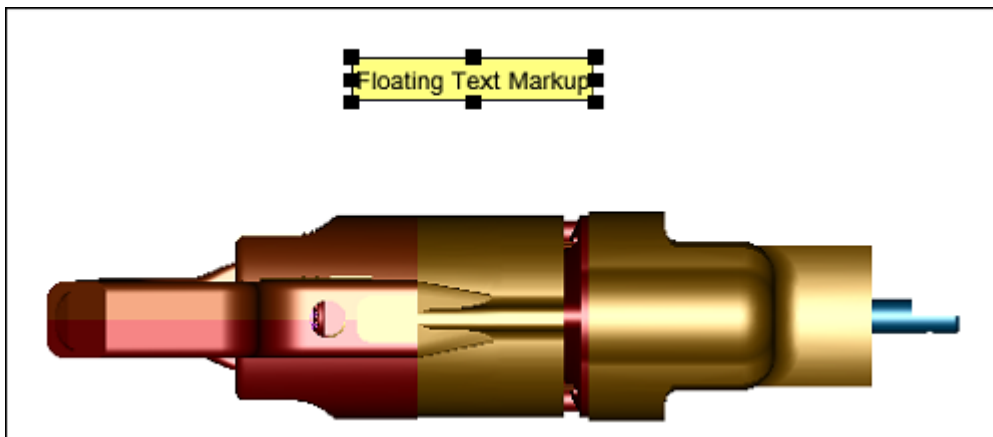
3. Add a comment to the 3D scene.
 - a. On the **3D Markup** toolbar, click **3D Markup** .
 - b. Click **Text** .
 - c. Click anywhere in the Viewing window.




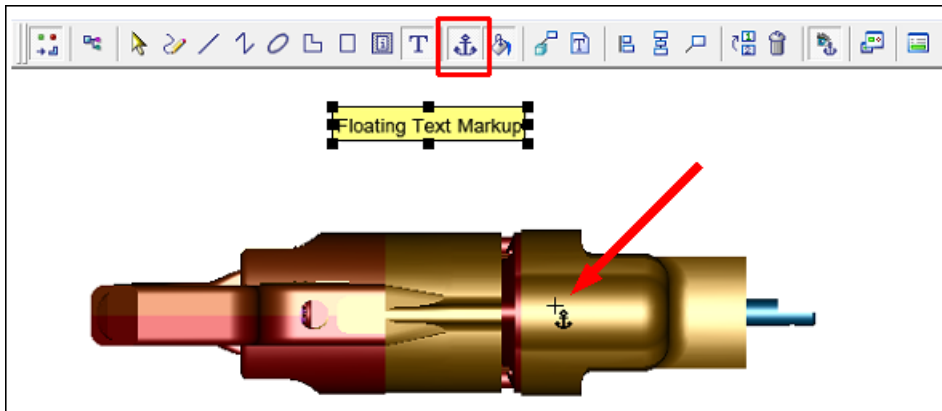
- d. In the **Markup Text** dialog box, type some text and click **OK**.



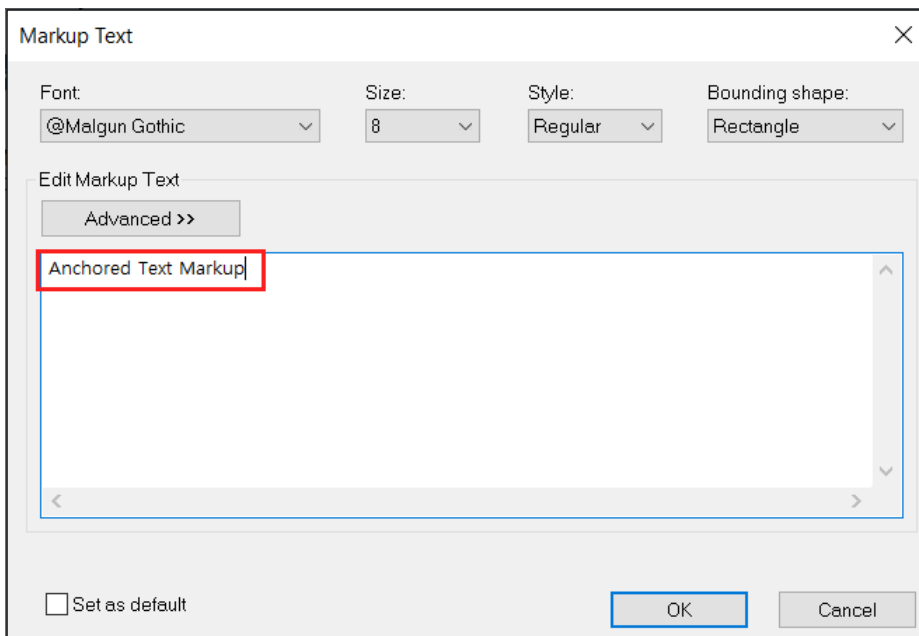
The text is displayed in the scene.



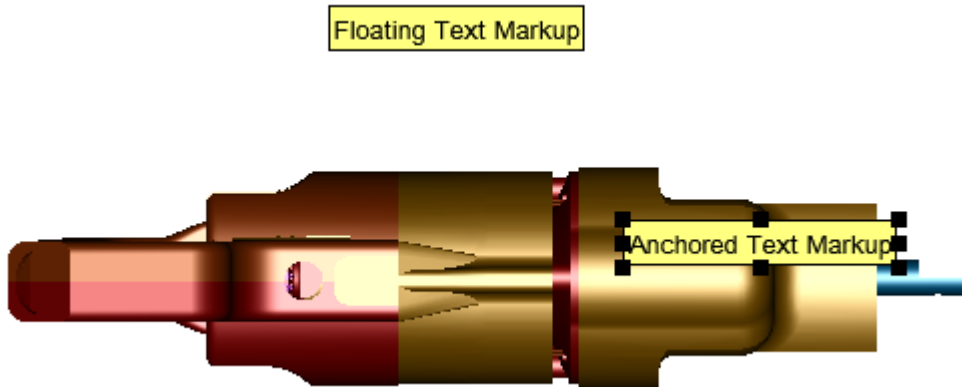
4. Create a text markup that is anchored to a part.
 - a. On the **3D Markup** toolbar, click **Anchor** .
 - b. Click a part.




- c. In the **Markup Text** dialog box, type some text and click **OK**.



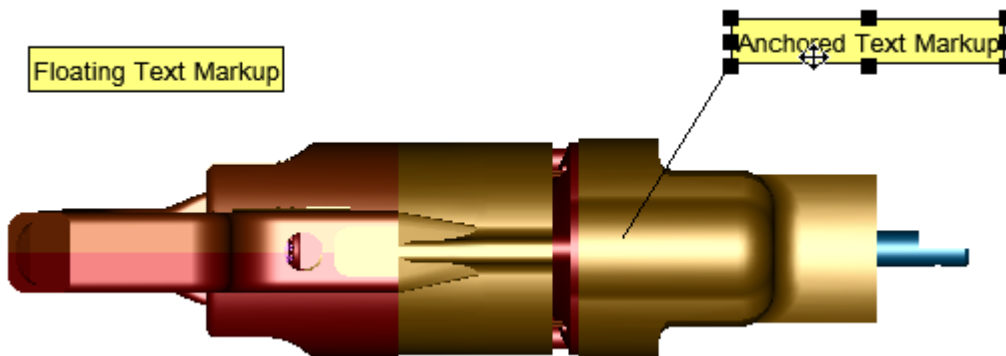
A text markup that is anchored to the part is created.



5. Change the position of a text markup.

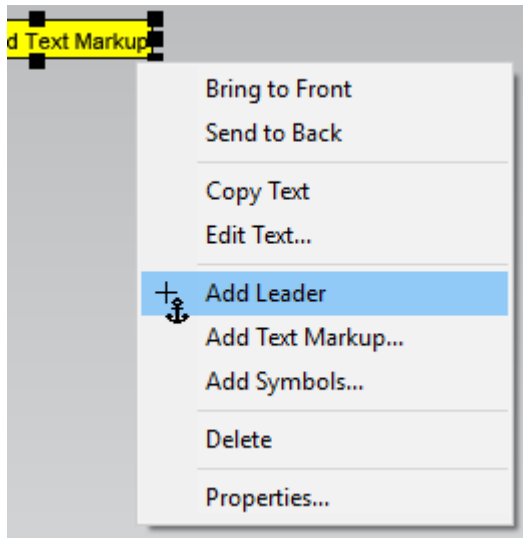
- a. On the **3D Markup** toolbar, click **Select** .
- b. In the Viewing window, click and drag the markups to new locations.

The anchored text markup has a leader line connecting it to the part.



6. (Optional, anchored text) To add another leader to the markup, do the following:

- a. Right-click the text markup and choose **Add Leader**. The add leader mode is enabled.

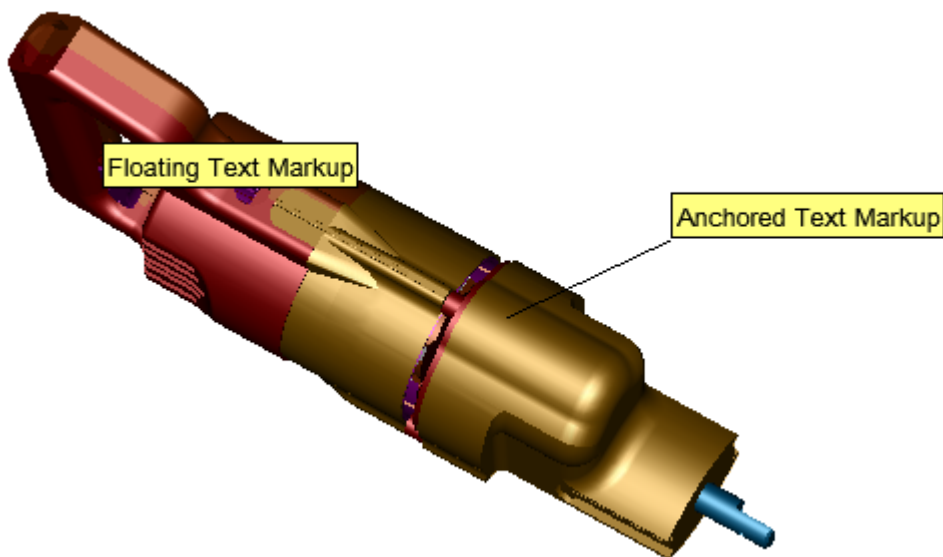


- b. Click the next part, or another point on the same part, to which you want to add a leader.

A leader is added to the markup.

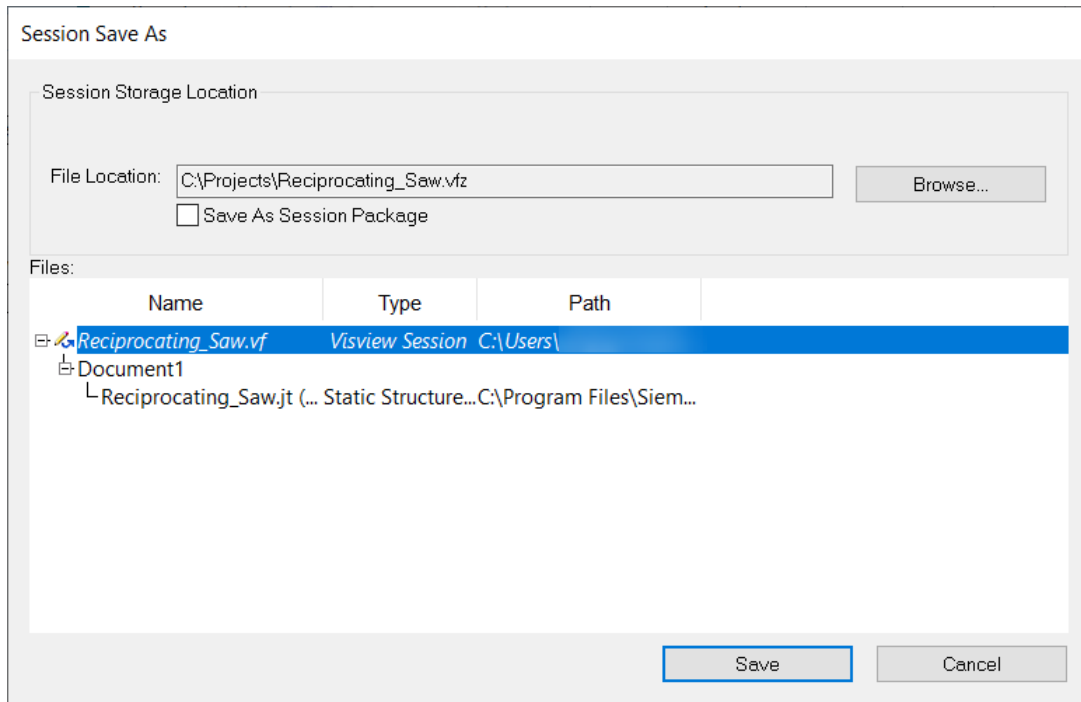
- c. Disable the add leader mode by right-clicking the text markup again and choosing **Add Leader**. The add leader mode is now toggled off.

7. Rotate your view to see how the two types of markups behave.



8. Save your markups with the model.
 - a. Choose **File**→**Save Session**.

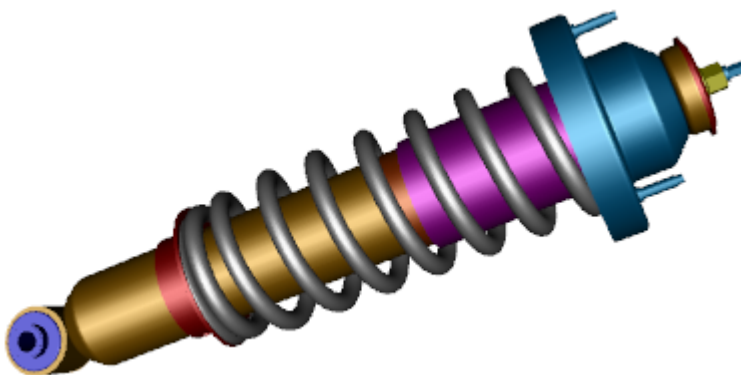
- b. In the **Session Save As** dialog box, click **Browse** to specify the location where you want to save the session file.



- c. Click **Save**.

Add callouts to parts



1. Open and display a 3D model.

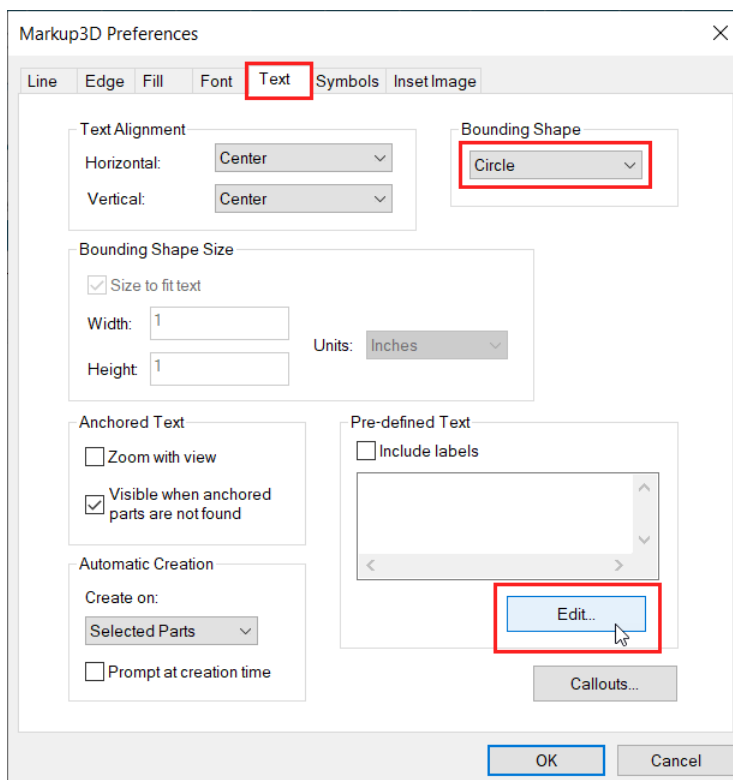


2. Right-click the toolbar area of the application, and select **3D Markup**.

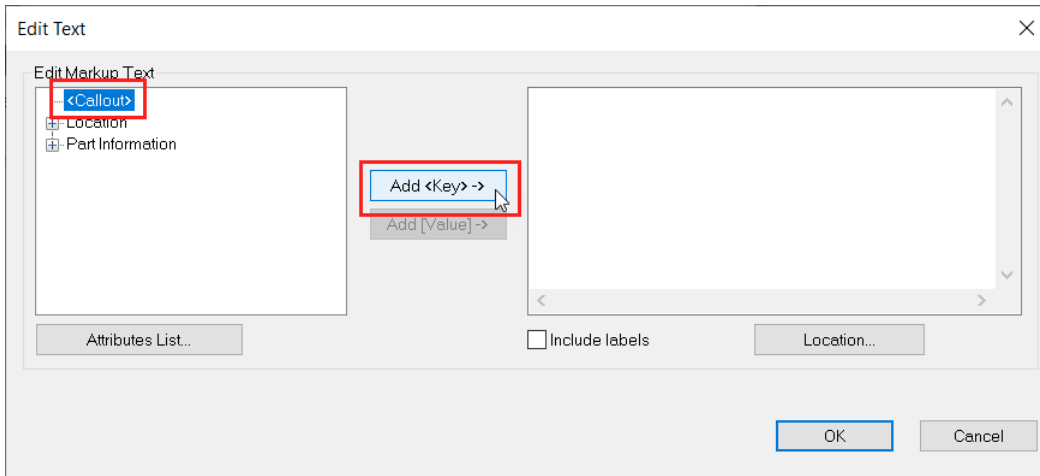
The **3D Markup** toolbar is displayed.



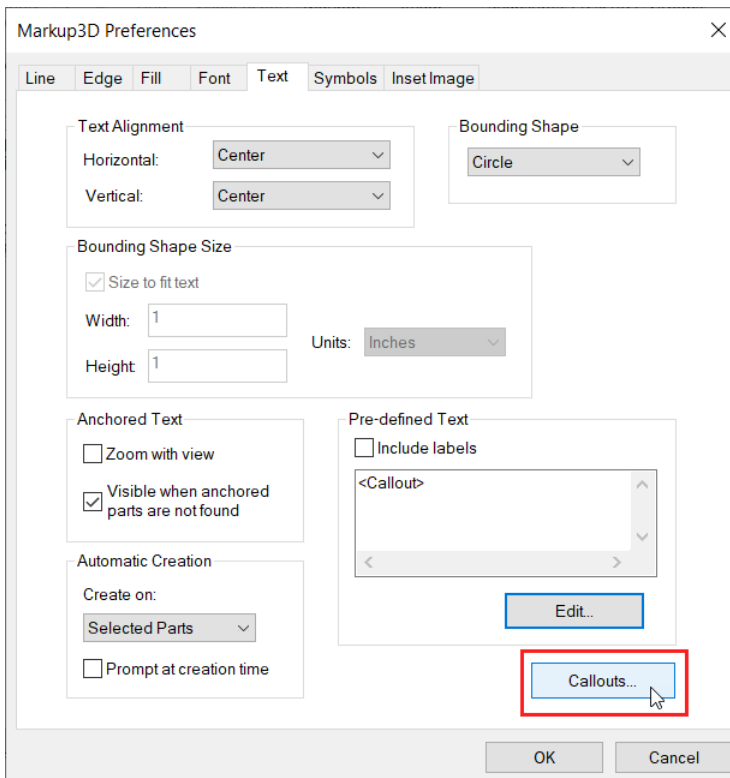
3. Set up the callouts.
 - a. On the **3D Markup** toolbar, click **Enable Markup** .
 - b. Click **Preferences** .
 - c. In the **Markup 3D Preferences** dialog box, click the **Text** tab.
 - d. In the **Bounding Shape** section, select **Circle** from the list.
 - e. In the **Pre-defined Text** section, click **Edit**.



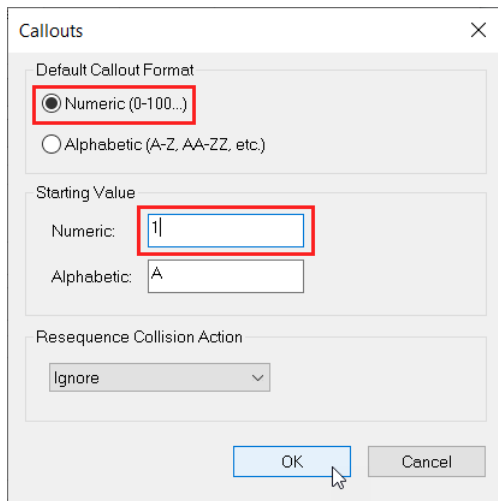
- f. In the **Edit Text** dialog box, click **<Callout>**, click **Add Key**, and then click **OK**.



- g. At the bottom of the **Text** tab, click **Callouts**.






- h. In the **Callouts** dialog box, in the **Default Callout Format** section, choose **Numeric**.
- i. In the **Starting Value** section, in **Numeric**, type **1**.



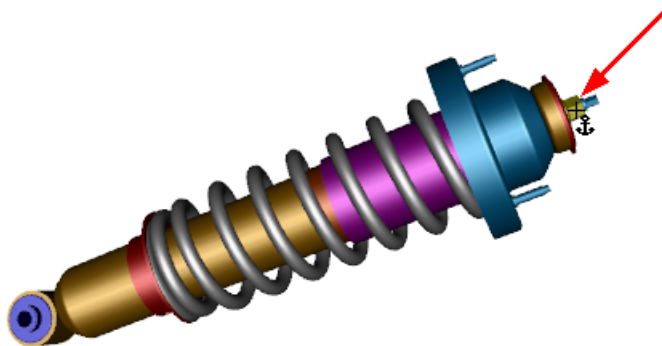
j. Click **OK** twice to close the preferences.

4. Add the first callout.

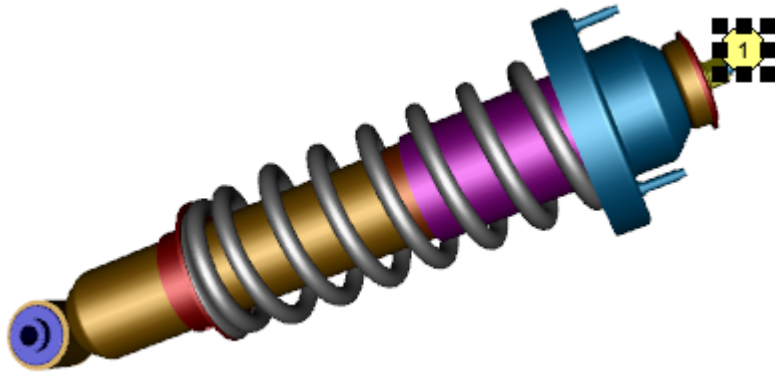
a. On the **3D Markup** toolbar, click the following buttons:

- **Text** 
- **Anchor Mode** 
- **Use Pre-defined Text Mode** 

b. In the Viewing window, pick a part.

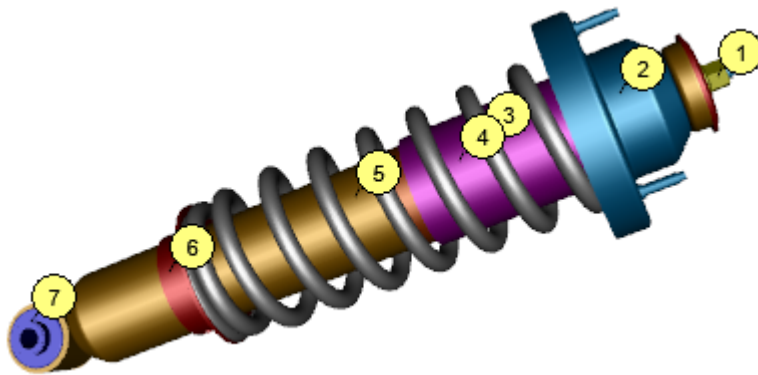


The callout appears on the part.

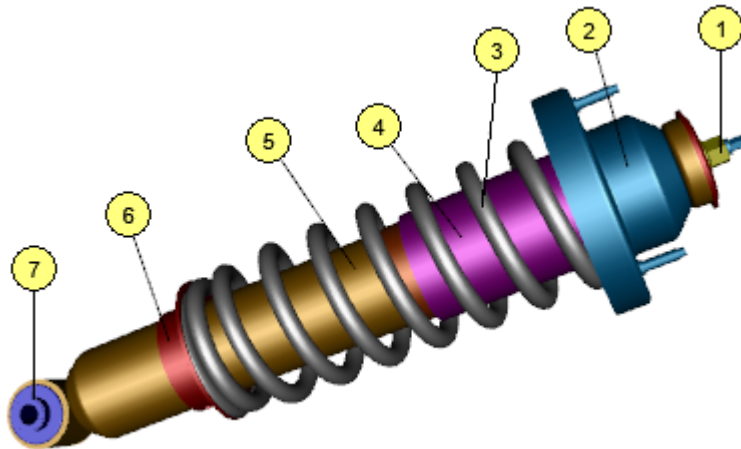


5. Add more callouts.


a. Pick several more parts.

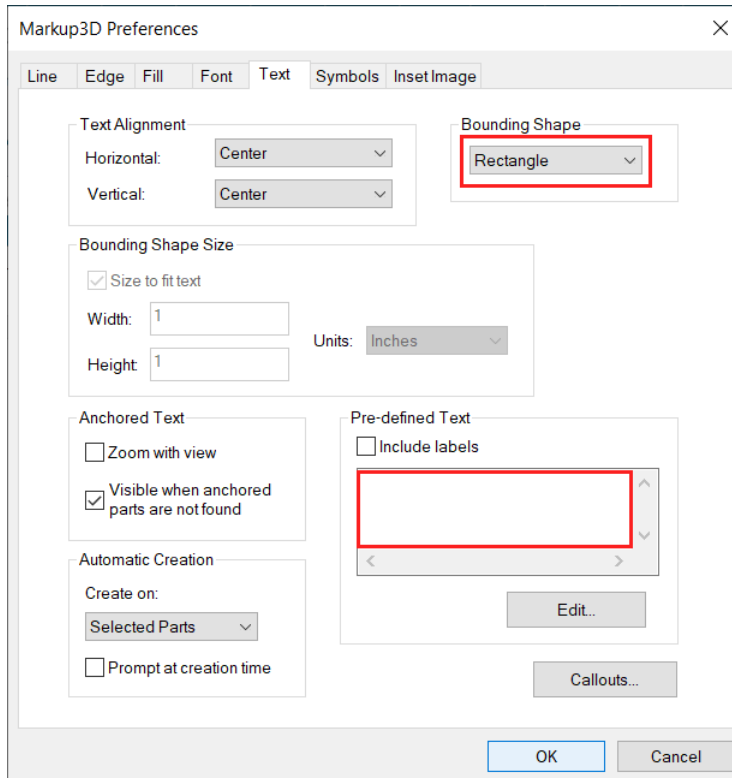


b. On the **3D Markup** toolbar, click **Select**  and drag the callouts away from the parts.



6. Reset your markup preferences.

- On the **3D Markup** toolbar, click **Preferences** .
- On the **Text** tab, set the **Bounding Shape** to **Rectangle**.
- In the **Pre-defined Text** section, click **Edit**, delete **<Callout>**, and click **OK**.



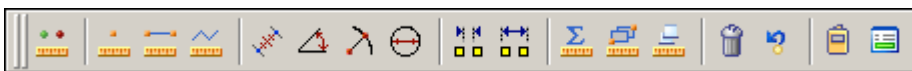
Measure angles on 3D models

- Open and display a 3D model.
- Right-click the toolbar area of the application, and select the following:

- 3D Measurement**

The **3D Measurement** toolbar is displayed.

Mockup





- 3D Selection**

The **3D Selection** toolbar is displayed.

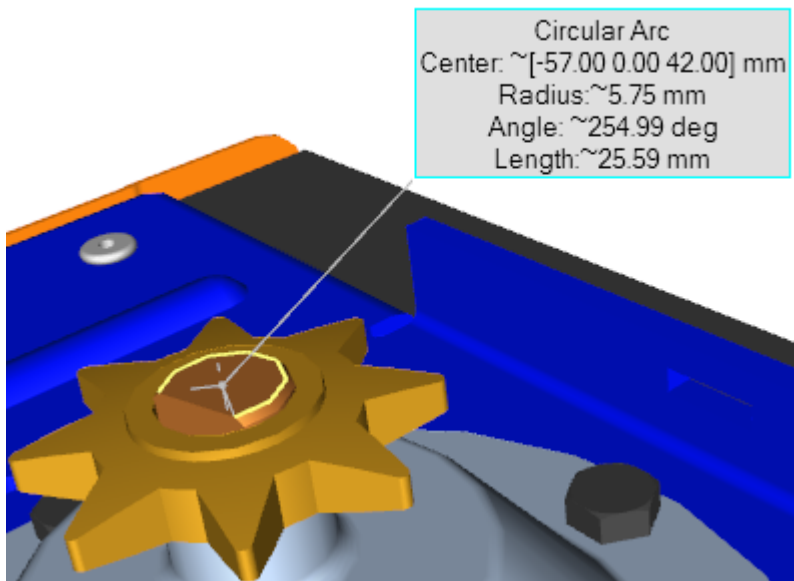
Standard, Professional, and Mockup





3. Measure the angle of a circular arc.

- Press Ctrl and on the **3D Selection** toolbar, click **Edge**  to make it the only active selection filter.
- On the **3D Measurement** toolbar, click **Single Measurement** .
- In the Viewing window, click a curving edge.

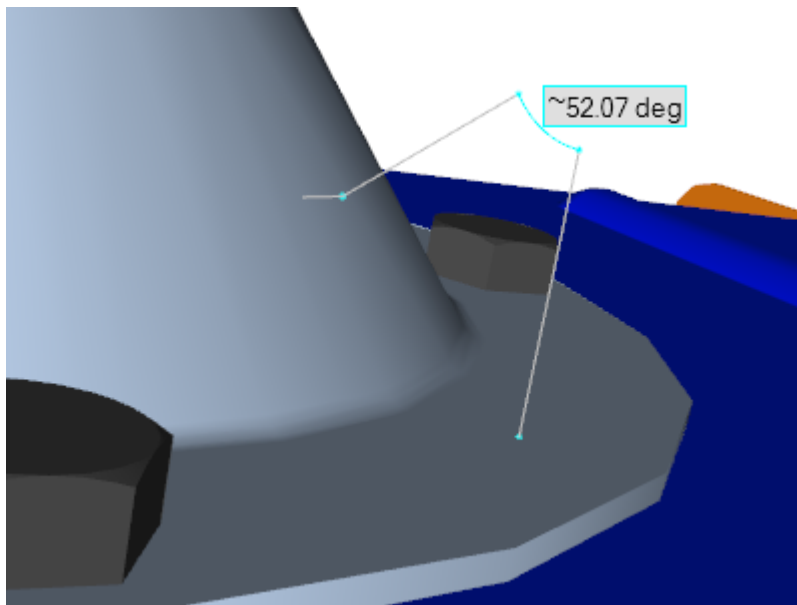
The application measures the edge, displaying its center, radius, angle, and length.



4. Measure the angle between two surfaces.

- Press Ctrl and on the **3D Selection** toolbar, click **Surface**  to make it the only active selection filter.
- On the **3D Measurement** toolbar, click **Angle** .
- In the Viewing window, click two surfaces.

The application measures the angle between the two surfaces.



Save 3D measurements

1. Open and display a 3D model.
2. Right-click the toolbar area of the application, and select **3D Measurement**.

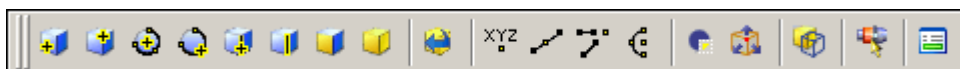
The **3D Measurement** toolbar is displayed.



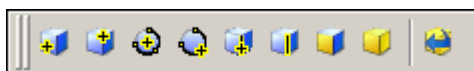
3. Right-click the toolbar area of the application, and select **3D Selection**.

The **3D Selection** toolbar is displayed.



Standard, Professional, and Mockup

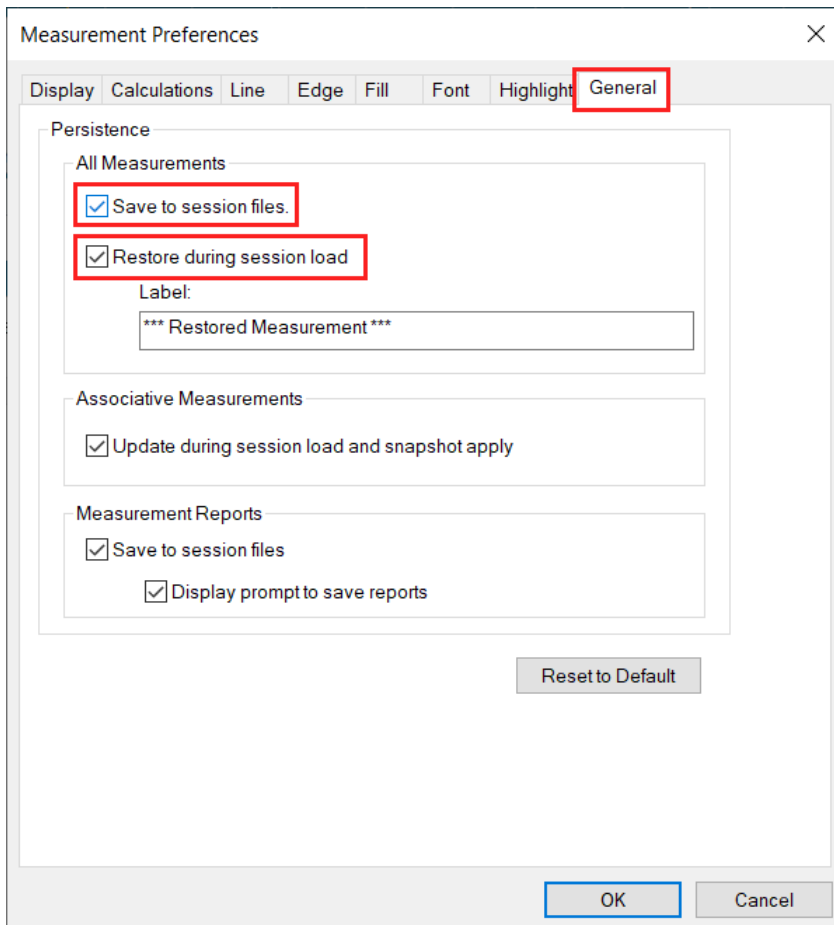



Base




4. Specify the preference to include measurements in session files.

- a. On the **3D Measurement** toolbar, click **3D Measurement** .
- b. Click **Preferences** .
- c. In the **Measurement Preferences** dialog box, click the **General** tab.
- d. In the **All Measurements** section, click the following check boxes:
 - **Save to session files**
 - **Restore during session load**

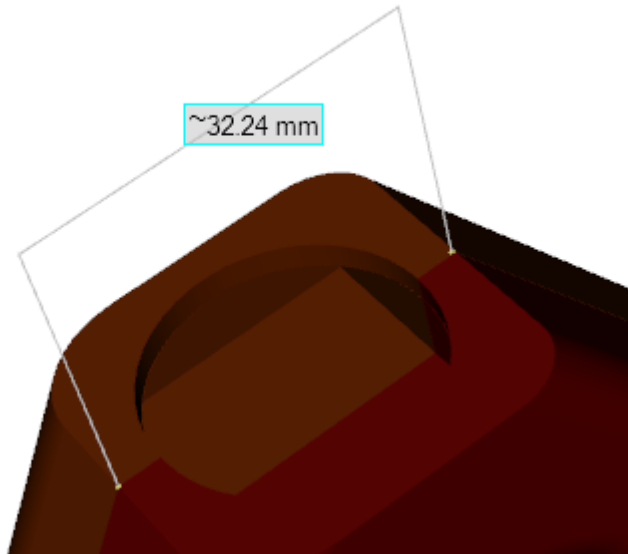


- e. Click **OK** to close the preferences.
5. Measure the distance between two points on your model.
 - a. On the **3D Measurement** toolbar, click **Distance** .

- b. On the **3D Selection** toolbar, if **Point** is not the only active selection filter, press Ctrl and click **Point** .

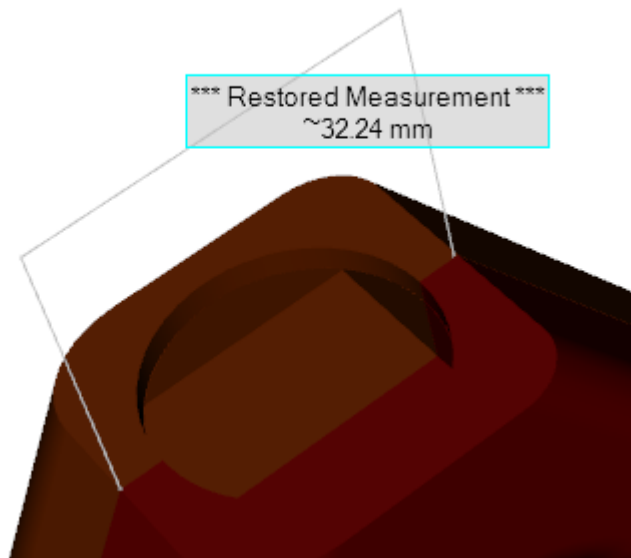
- c. In the Viewing window, click two points on the model.

The measurement is created.



6. Save the measurement with a session file.
 - a. Choose **File**→**Save Session**.
 - b. In the **Session Save As** dialog box, click **Browse** to specify the location where you want to save the session file.
 - c. Click **Save**.
7. Close and reopen the session file to restore your measurement.
 - a. Choose **File**→**Close Session**.
 - b. Choose **File**→**Open**.
 - c. In the **Open** dialog box, open your session file.

The saved measurement is automatically displayed in the Viewing window.





Display Product Manufacturing Information (PMI)

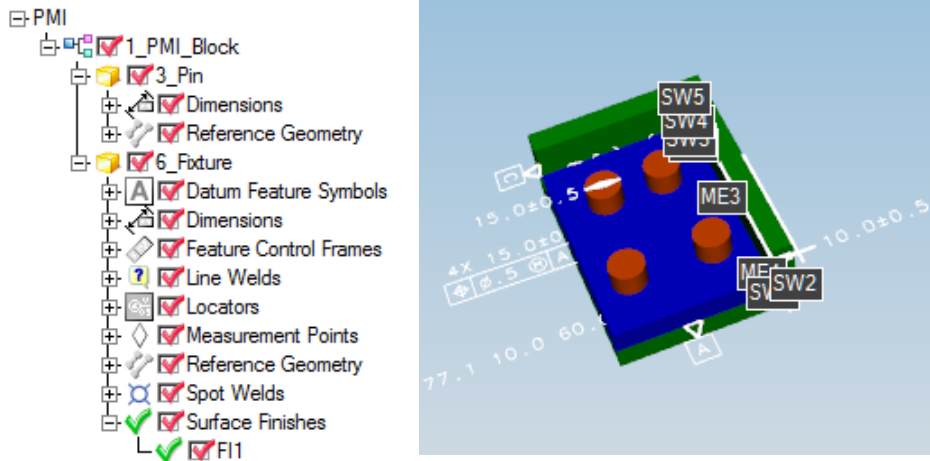
1. Open and display a 3D model that includes PMI.
2. Right-click the toolbar area of the application, and select **3D PMI**.

The **3D PMI** toolbar is displayed.




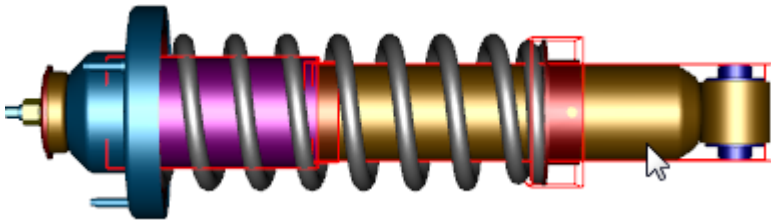
3. On the **3D PMI** toolbar, click **PMI** .
4. Click **Multiple Entity Mode** .
5. In the Viewing window, click parts to display PMI.

The PMI is displayed in the Viewing window and in the **PMI** view.

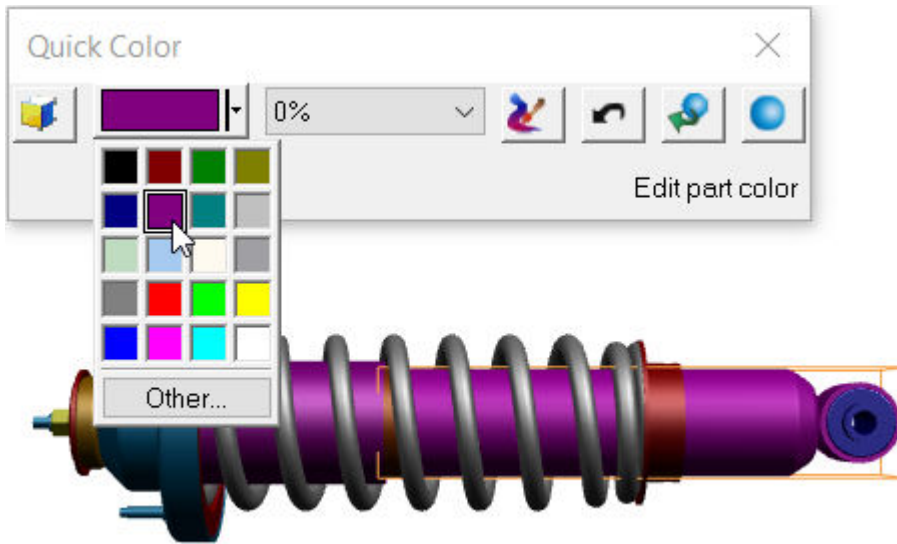


Change the color of a part

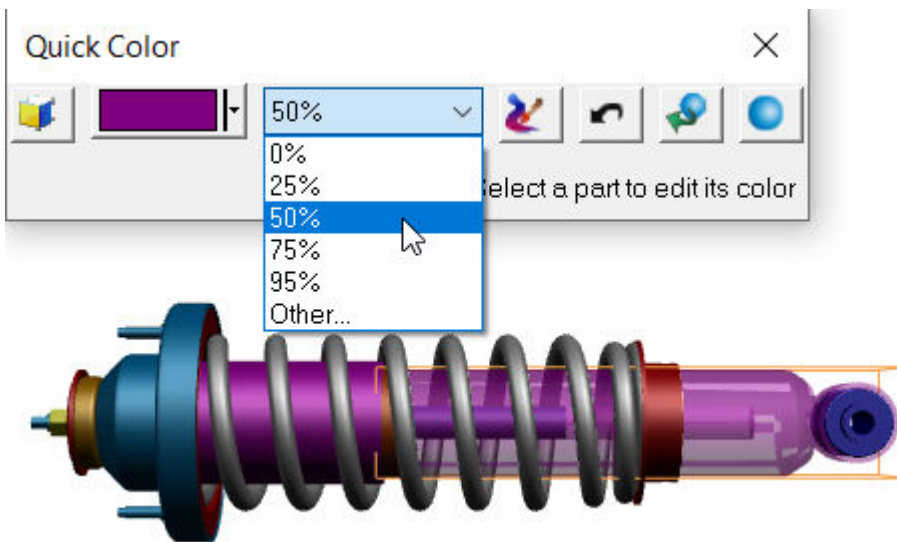
1. On the **3D Appearance** toolbar, click **Quick Color Tool** .
2. In the Viewing window or the assembly tree, select the part to change (or hold Ctrl and select multiple parts).



3. In the **Quick Color** dialog box, choose a color from the color well.



- From the transparency list, select a level of transparency.




Create 3D snapshots

- Open and display a model.
- Choose **Toolbars**→**Snapshots**.



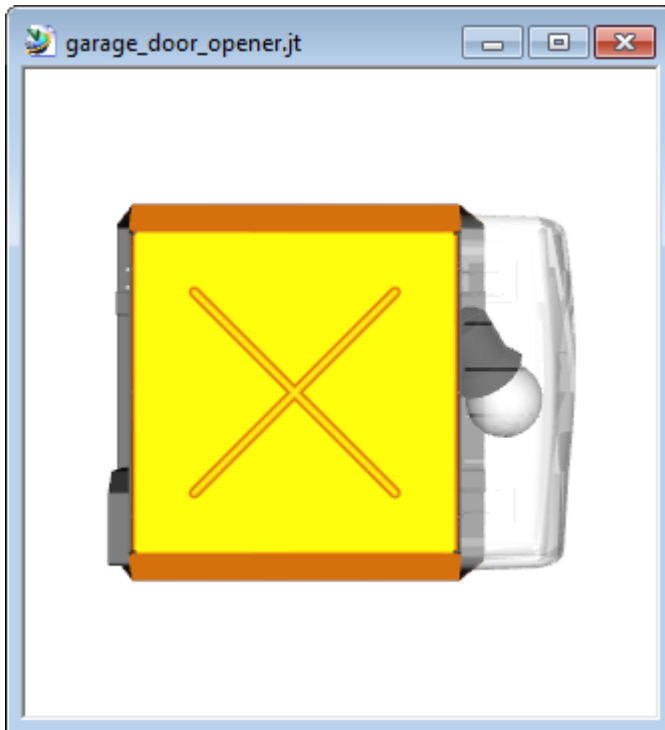
The **Snapshots** toolbar is displayed.

3. Create the snapshots.

- a. Open the **Snapshots** view.
- b. On the **Snapshots** toolbar, click **Add** .

A new snapshot is created in the **Snapshots** view.

- c. Rotate the model view in the Viewing window.

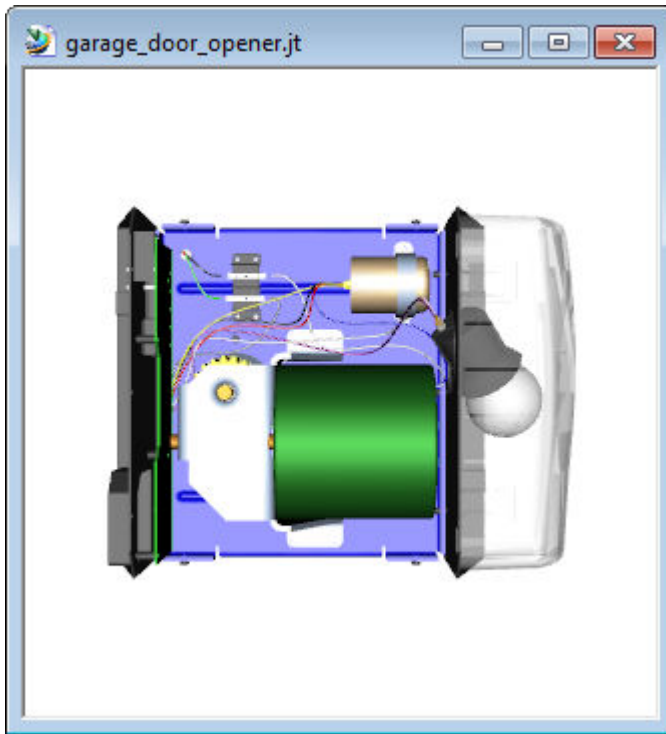



- d. On the **Snapshots** toolbar, click **Add** .

A snapshot capturing the new model orientation is created.

- e. In the Viewing window, right-click a part and select **Turn Off**.

The part is no longer displayed.



- f. On the **Snapshots** toolbar, click **Add** .

A snapshot capturing the modified part visibility is created.

4. Apply the snapshots.

- a. In the **Snapshots** view, double-click the first snapshot.

The Viewing window updates to match the snapshot.

- b. In the **Snapshots** view, double-click the second snapshot.

The Viewing window updates to match the snapshot.

- c. In the **Snapshots** view, double-click the third snapshot.

The Viewing window updates to match the snapshot.

Create Visual Reports



Note:

You can also use the Find command identify parts that match specified criteria.

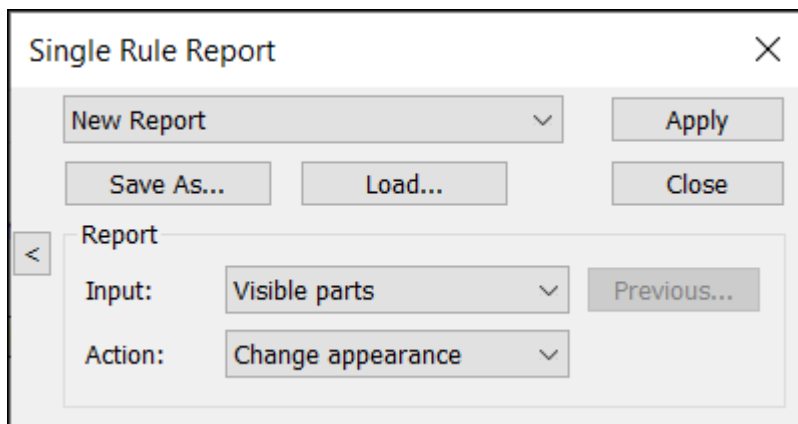
1. Open and display a 3D model.
2. Right-click the toolbar area of the application, and select **3D Visual Report**.

The **3D Visual Report** toolbar is displayed.

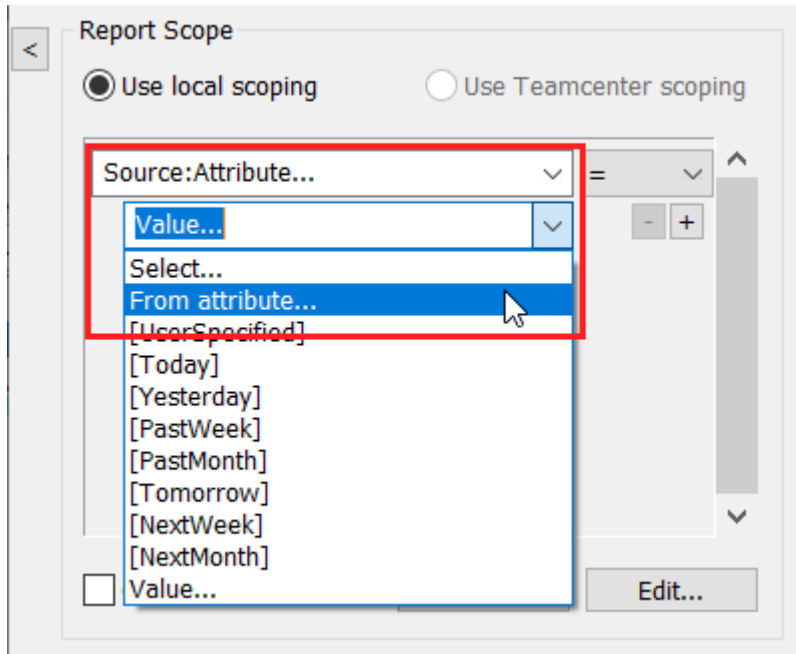


3. Create a single rule report.
 - a. On the **Visual Report** toolbar, click **Visual Report** .
 - b. Click **Single Rule Report** .

The **Single Rule Report** dialog box is displayed.



4. Define the scope of the report.
 - a. In the **Report Scope** section, from the **Source:Attribute** list, choose **From attribute**.

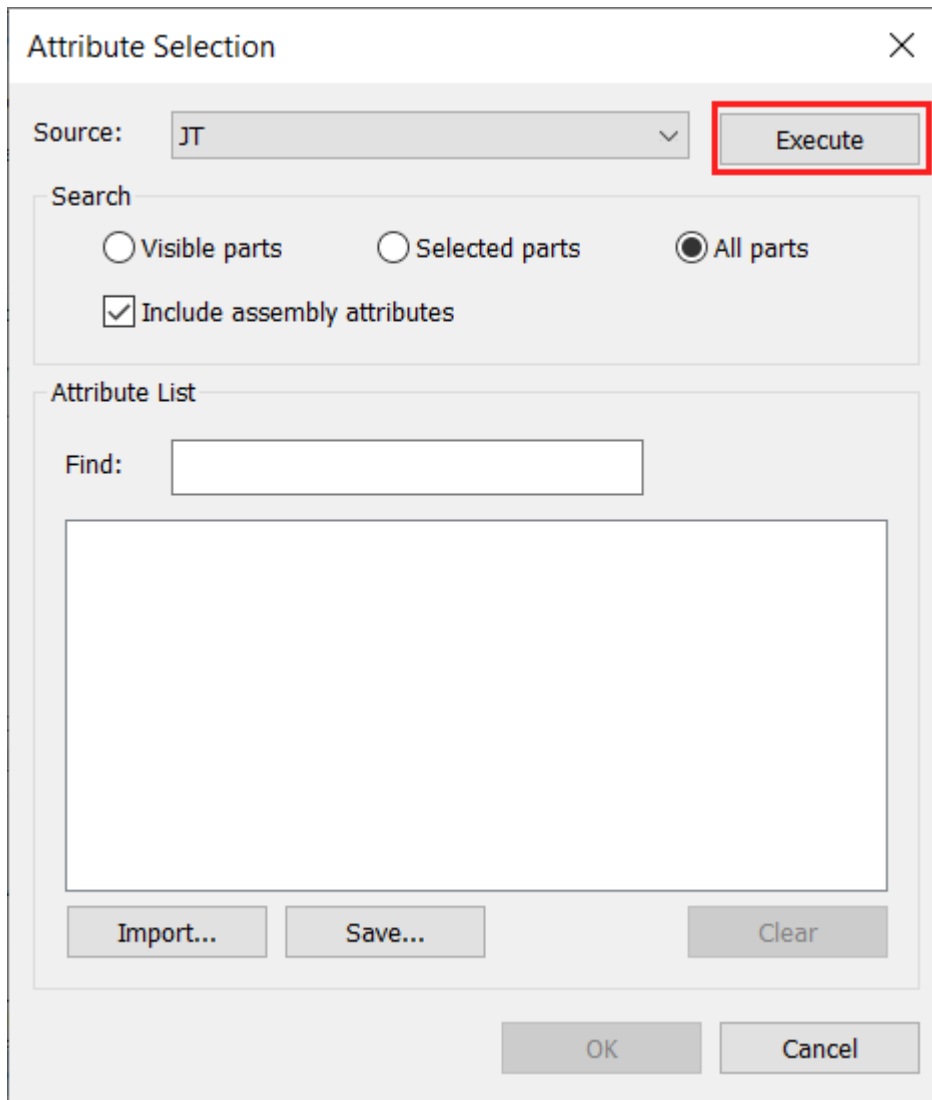


The **Attribute Selection** dialog box is displayed.

The image shows a dialog box titled "Attribute Selection" with a close button (X) in the top right corner. The dialog is divided into several sections:

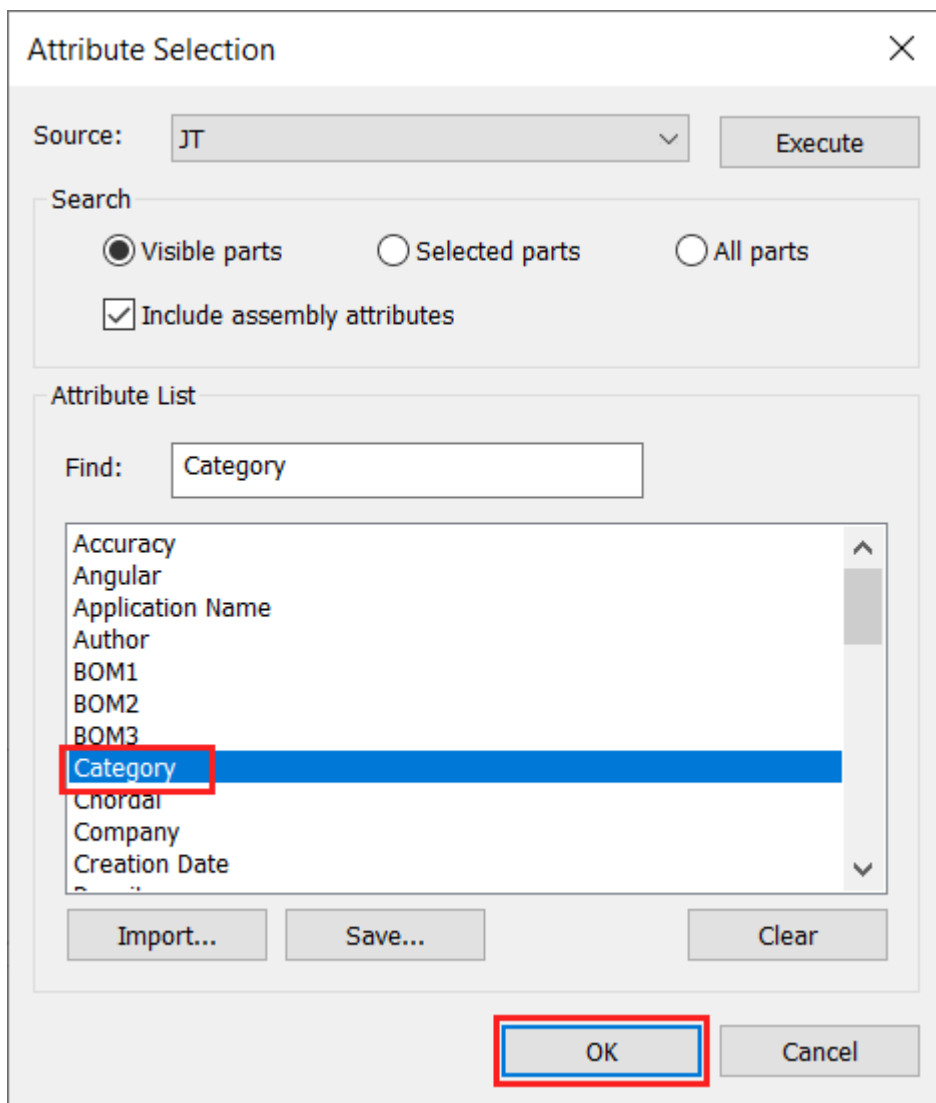
- Source:** A dropdown menu showing "JT" and an "Execute" button to its right.
- Search:** A section containing three radio buttons: "Visible parts", "Selected parts", and "All parts" (which is selected). Below these is a checked checkbox labeled "Include assembly attributes".
- Attribute List:** A section with a "Find:" label and an empty text input field. Below the input field is a large, empty rectangular area for displaying the attribute list.
- Buttons:** At the bottom of the dialog are three buttons: "Import...", "Save...", and "Clear". At the very bottom are "OK" and "Cancel" buttons.

- b. In the **Attribute Selection** dialog box, click **Execute**.

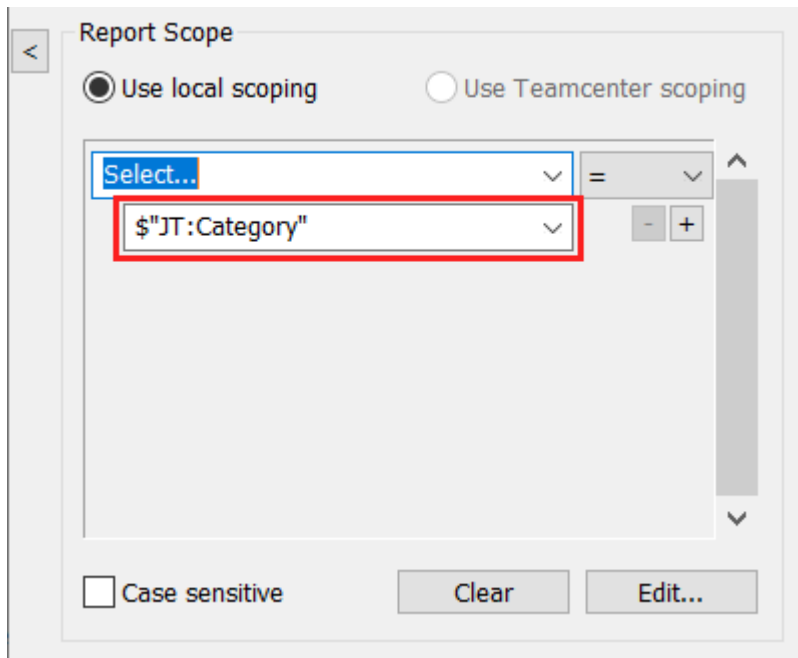


The **Attribute List** is populated with data from the model.

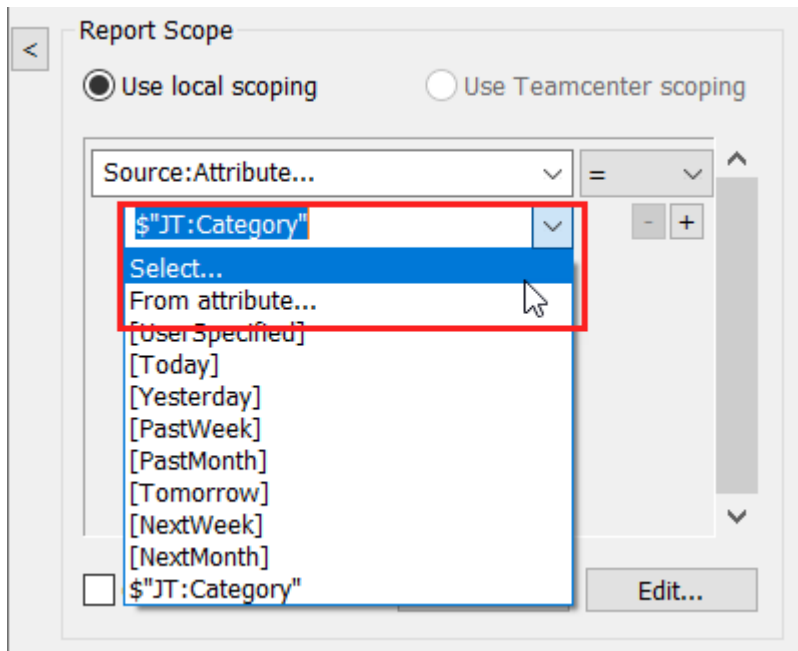
- c. Choose **Category**, and click **OK**.



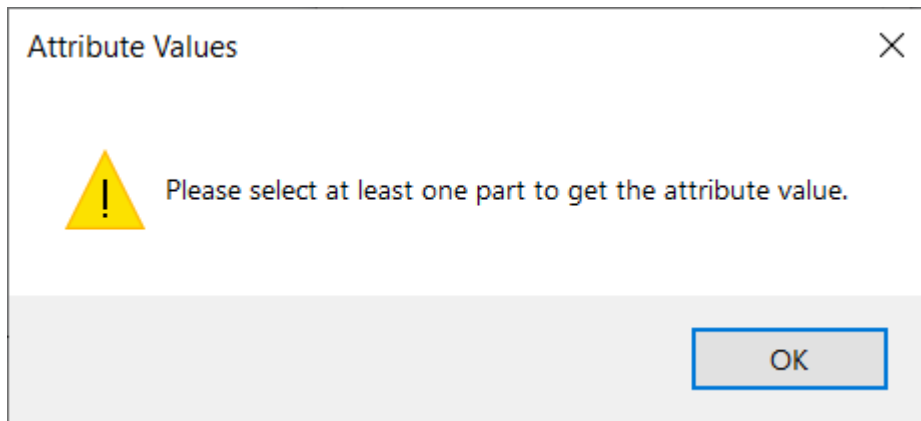
- d. The first part of the query is now displayed.



- e. To specify the category value, from the second list, choose **Select**.



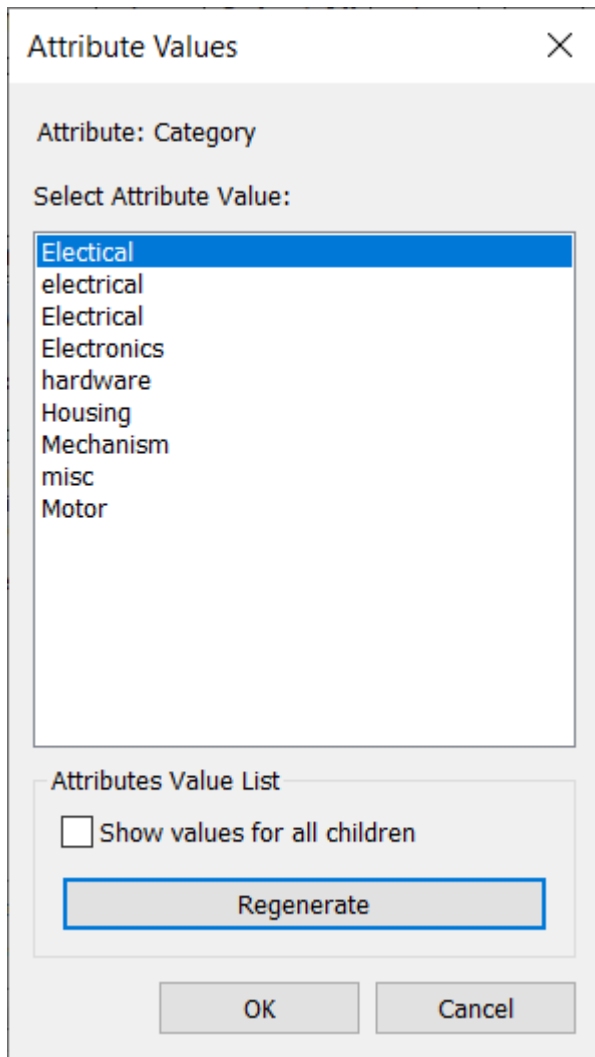
- f. An error message is displayed because you must first specify the parts that you want to search for attribute values. Click **OK** to close the message.



- g. Right-click in the Viewing window, and choose **Select All**.

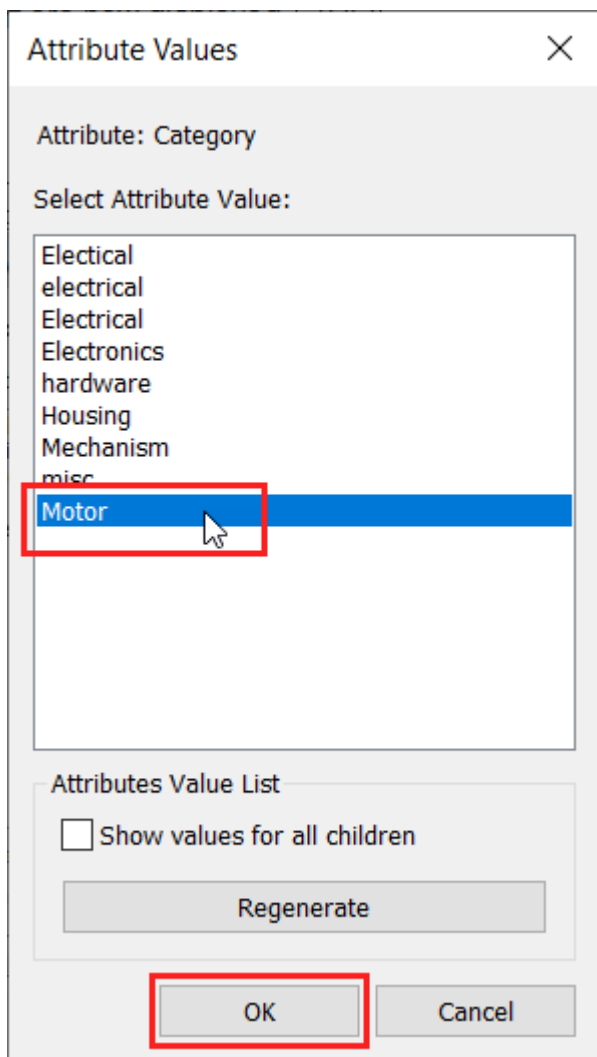
This selects all of the parts in the model.

- h. In the **Attribute Values** dialog box, click **Regenerate**.

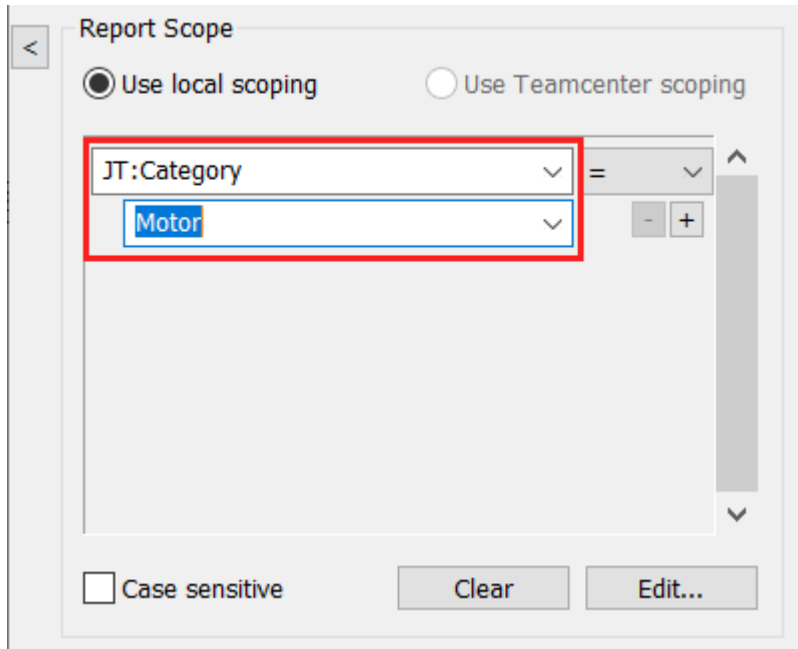


The attribute values available to the report are now displayed.

- i. Select an attribute value, and then click **OK**.

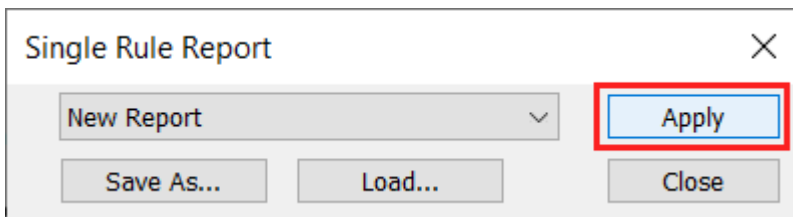


The second part of the query is now displayed.

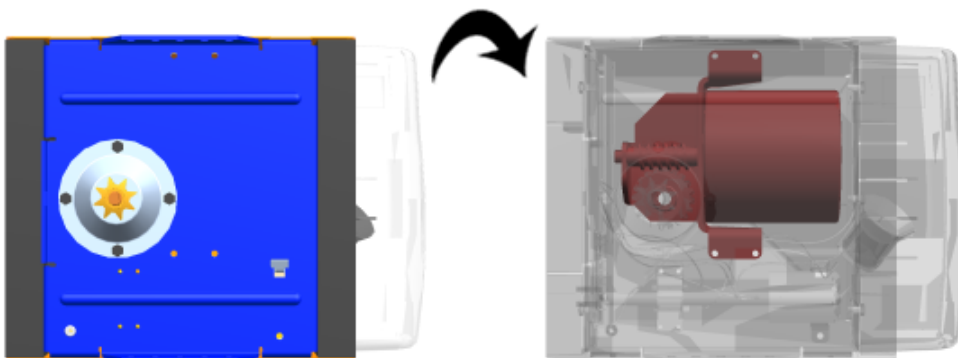


5. Apply the report.

In the **Single Rule Report** dialog box, click **Apply**.



All of the parts that match the query are displayed in red; unmatched parts turn semi-transparent gray.



Email your work session

To send email from the viewer, through an MAPI email program like Microsoft Outlook, the viewer and email program must have the same *bitness*. If one is 32-bit and the other is 64-bit, you get a warning message and the email is not sent.

1. Open a 3D model and display the content that you want to include in the collaboration file, such as parts, 3D markups, and groups.

Note:

Only what is visible in the Viewing window is included in the collaboration file. Snapshots are not packaged in new collaboration files because they may reference parts that are not currently visible, which may result in a reconcile problem for the recipient of the file.

2. Email the collaboration file.
 - a. Choose **File**→**Send Mail**→**Collaboration File**.




Your work session is packaged as a .vz file and attached to a new email message.

- b. Send the email to your recipient.
3. View the collaboration file.
 - a. Open the email with the collaboration file attachment.
 - b. Open the attachment to display the saved session in the viewer.

View 2D images

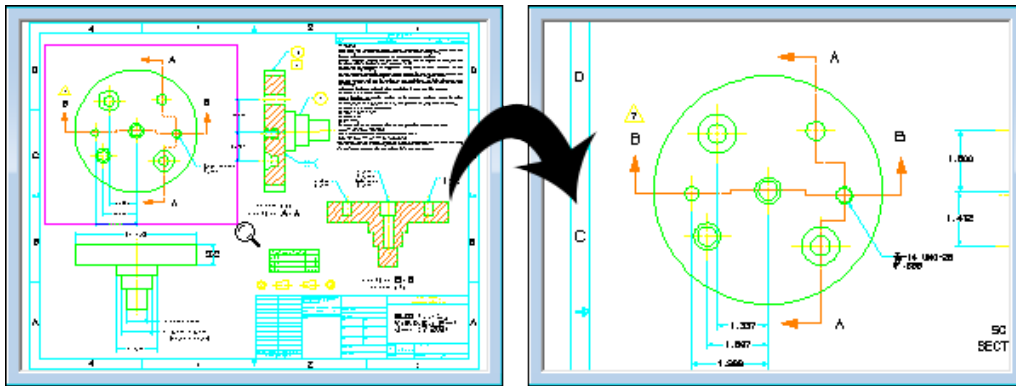
1. Open a 2D image.
2. Right-click the toolbar area of the application, and select **2D Viewing**.

The **2D Viewing** toolbar is displayed.


3. Zoom in on an area of the image.
 - a. On the **2D Viewing** toolbar, click **Zoom Area** .

- b. In the Viewing window, click and drag a box around an area of the image.

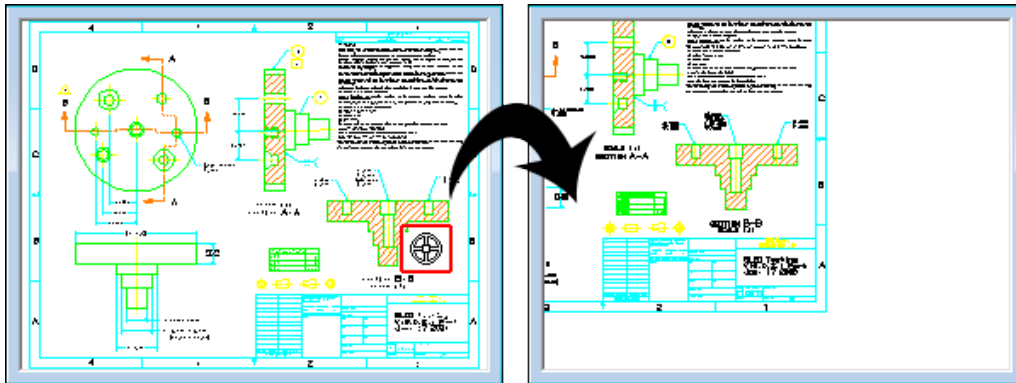
The selected area fills the window.




4. Center the image on a specific point.

- a. On the **2D Viewing** toolbar, click **Seek** .
- b. In the Viewing window, click anywhere.

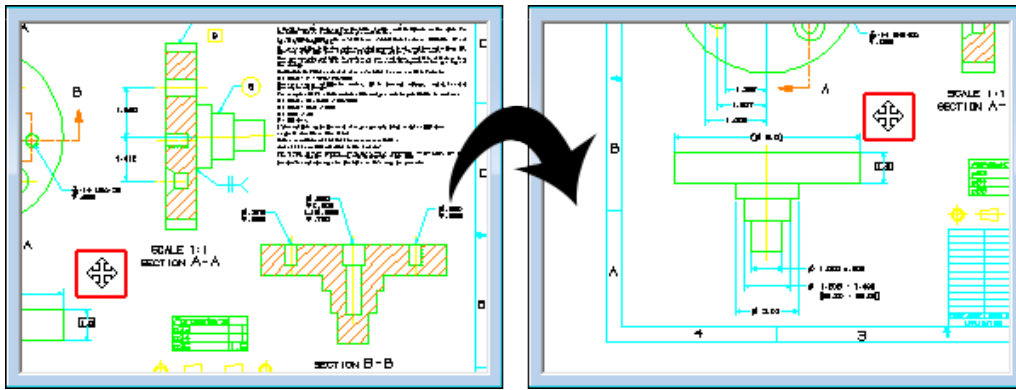
The image is centered on the specified point.




5. Pan across the image.

- a. On the **2D Viewing** toolbar, click **Pan** .
- b. In the Viewing window, click and drag across the image.

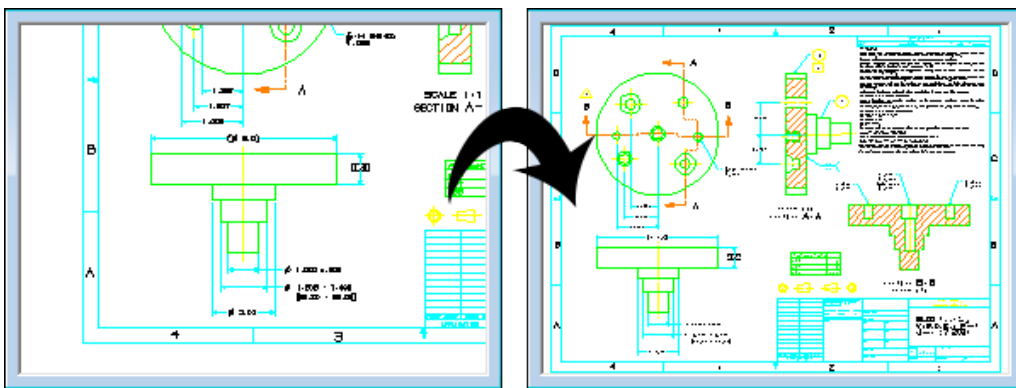
The image pans across the screen.




6. Fit the entire image in the Viewing window.

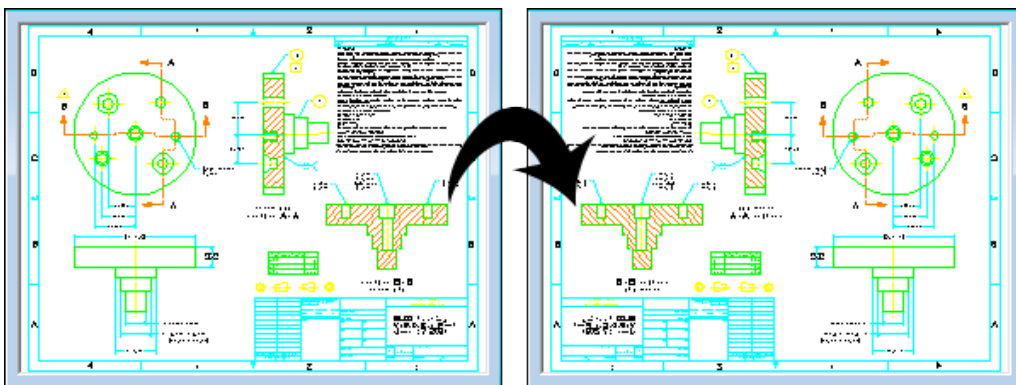
- On the **2D Viewing** toolbar, click **Fit All** .


The image is scaled to fit within the Viewing window.

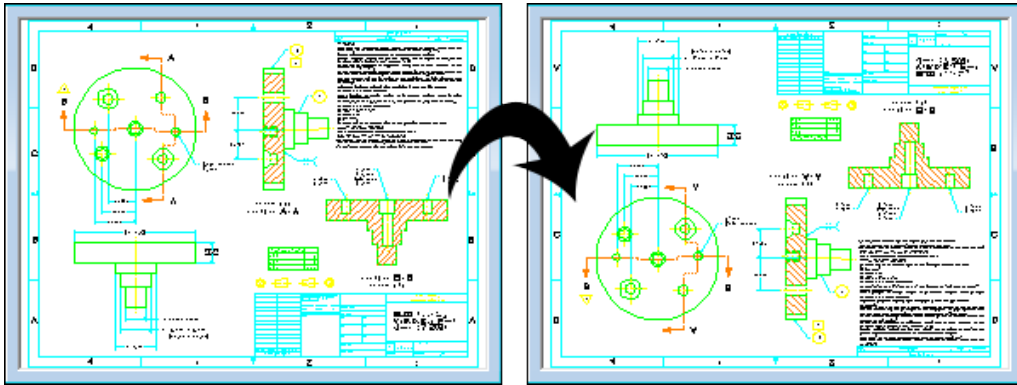


7. Flip the image horizontally and vertically.


- On the **2D Viewing** toolbar, click **Flip Horizontal** .

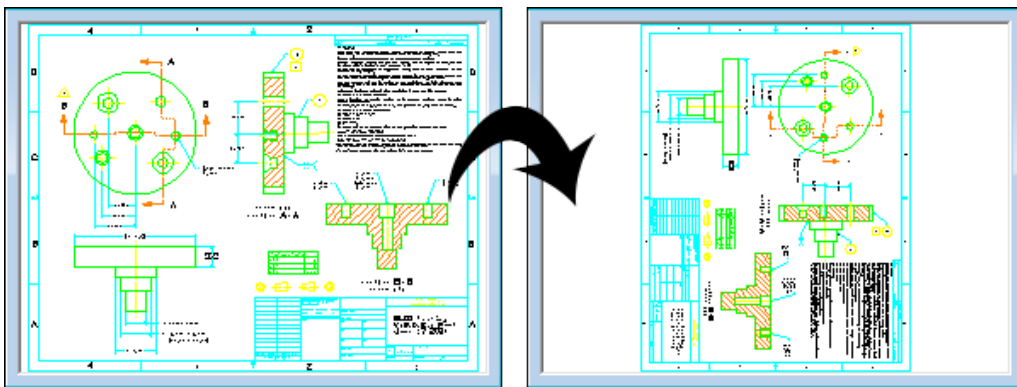


- On the **2D Viewing** toolbar, click **Flip Vertical** .

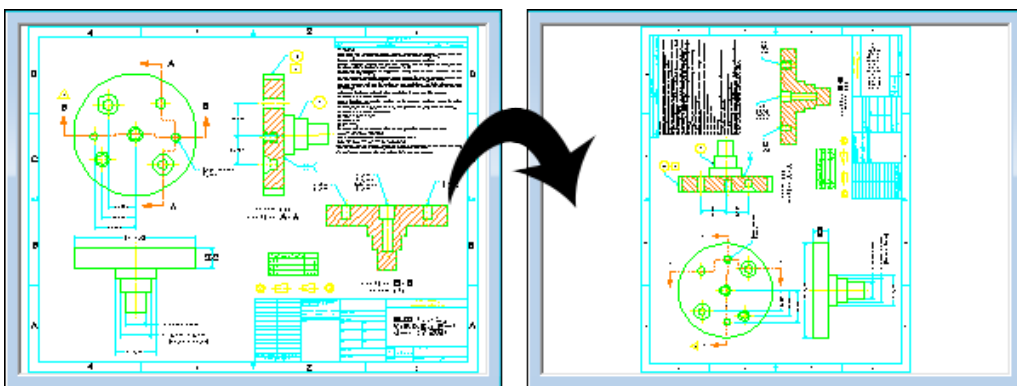


8. Rotate the image.

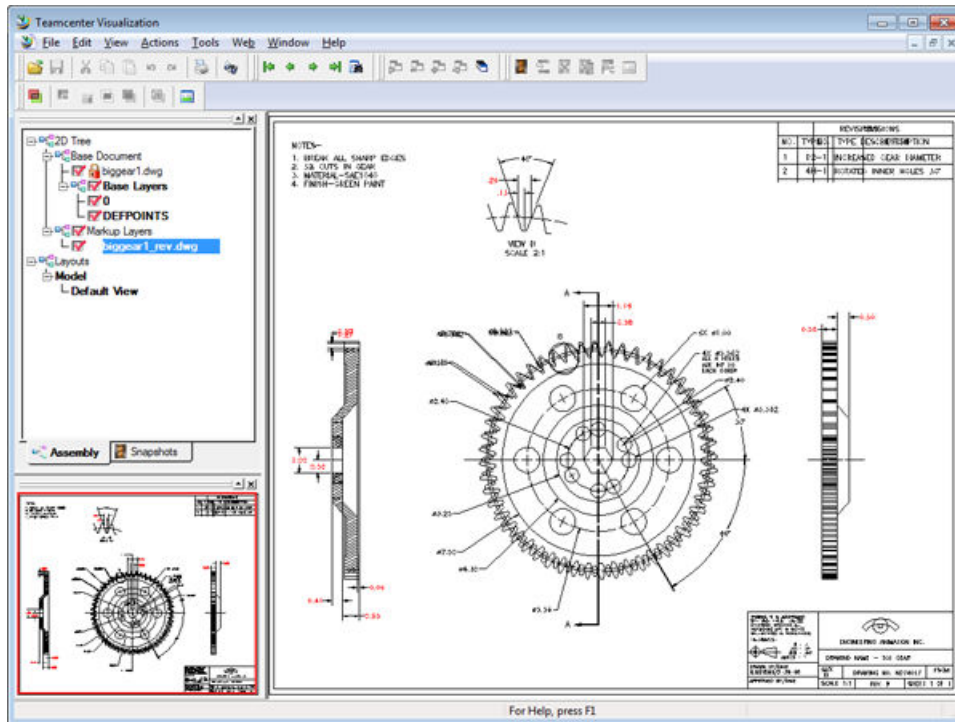
- On the **2D Viewing** toolbar, click **Rotate Clockwise** .



- On the **2D Viewing** toolbar, click **Rotate Counterclockwise** .



2. How do I?




2. Perform the 2D comparison.

a. Right-click the toolbar area of the application, and select **2D Compare**.

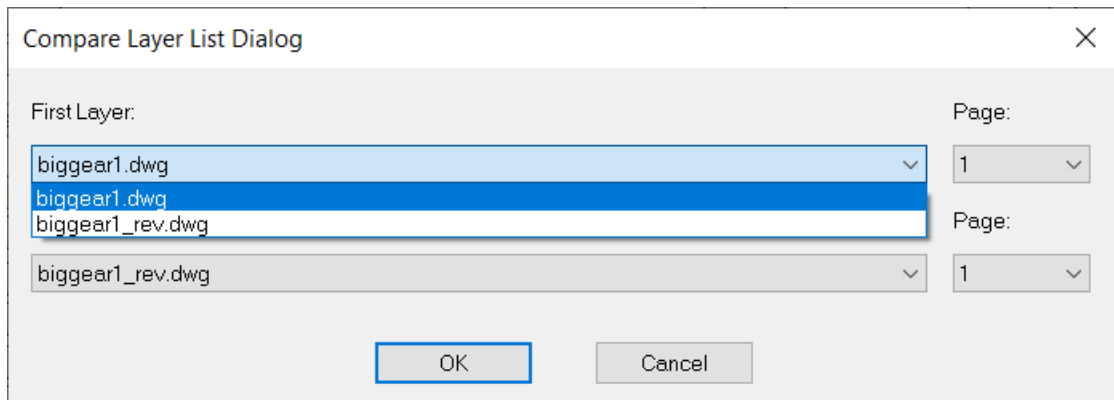
The **2D Compare** toolbar is displayed.



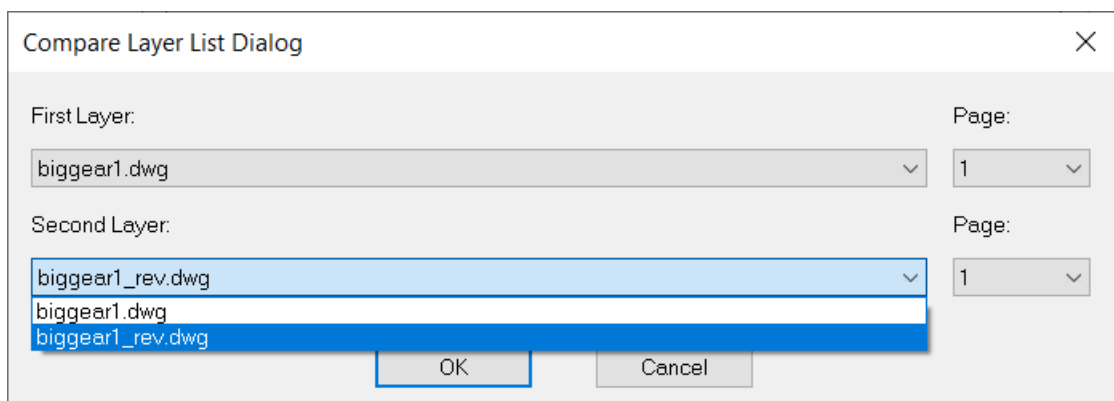
b. On the **2D Compare** toolbar, click **Compare Layers** .

The **Compare Layer List Dialog** dialog box opens.

c. From the **First Layer** list, choose one of the open images.



- d. From the **Second Layer** list, choose the other image.

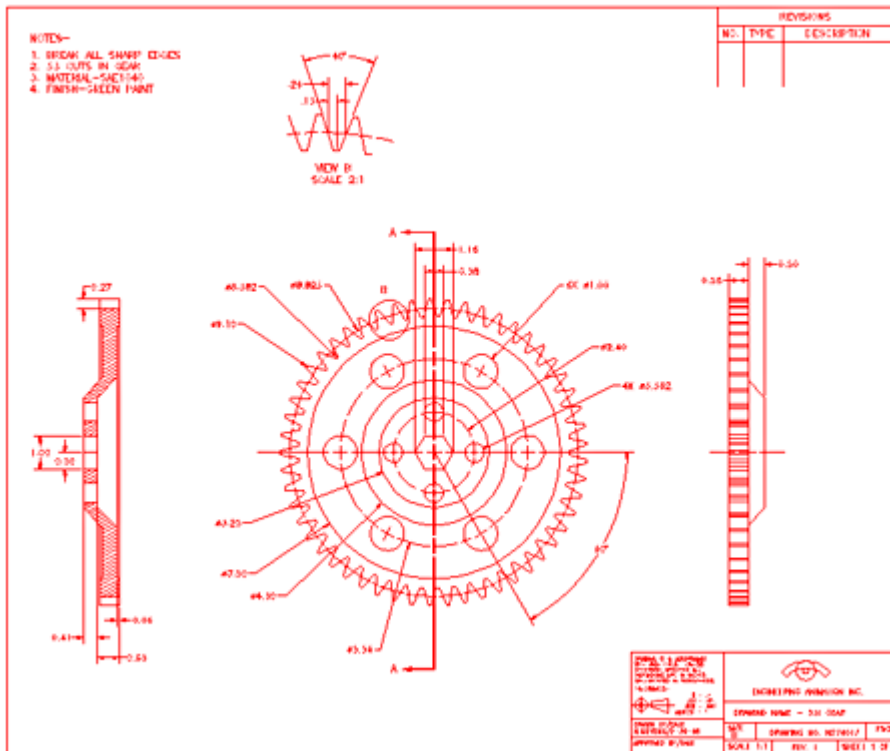


- e. Click **OK**.

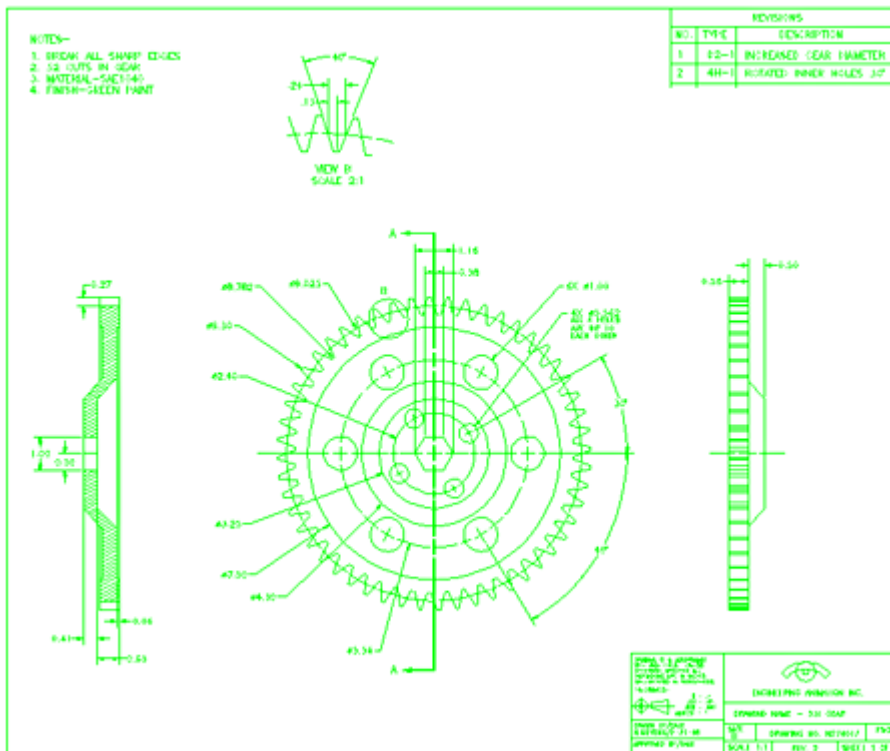
The image comparison is performed. A new layer called the *compare layer* is created. The compare layer, which is black, shows only the common elements of the compared images. The first layer image turns red; the second layer image turns green.

3. Review the results of the comparison.

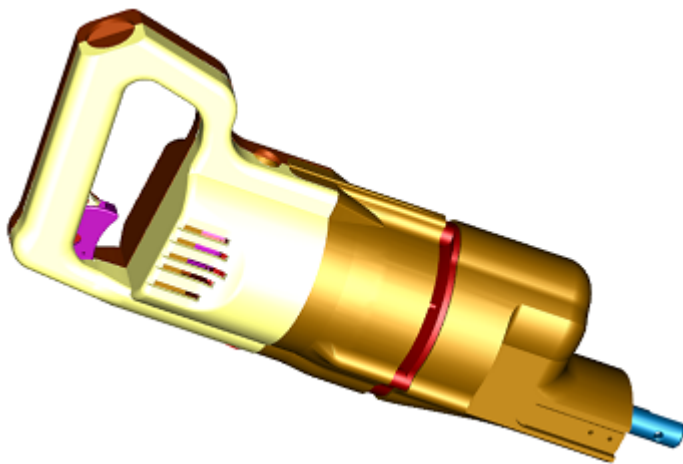
- To display the first layer only, on the **2D Compare** toolbar, click **Display 1st Layer** .




- To display the second layer only, on the 2D Compare toolbar, click **Display 2nd Layer** .





3. Change the display mode for individual parts.
 - a. In the Viewing window, select a part.

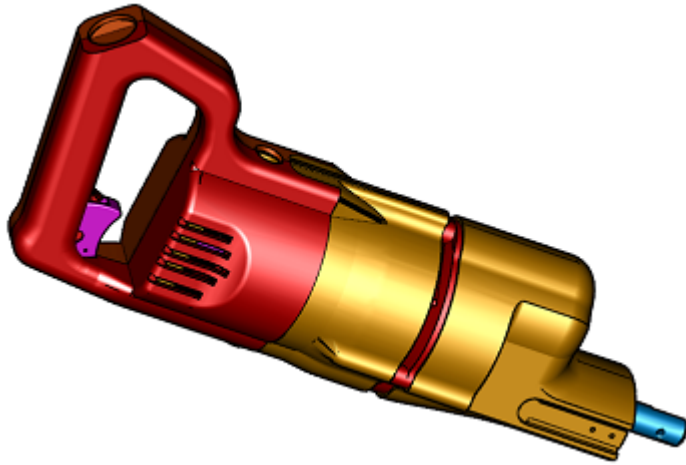



- b. On the **3D Display Modes** toolbar, click **Draw tessellation lines** .
 - c. The part is displayed in the Tessellation Lines display mode.



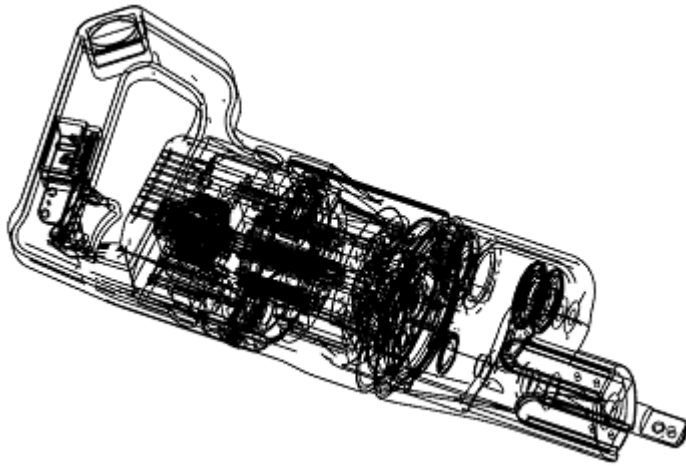
4. To reset the part appearance, click **Clear display modes** .
5. Change the display mode for the entire model.
 - a. To ensure that no parts are selected, click on a blank area of the Viewing window.
 - b. On the **3D Display Modes** toolbar, click **Draw feature lines** .


Lines are displayed on the edges of the model.

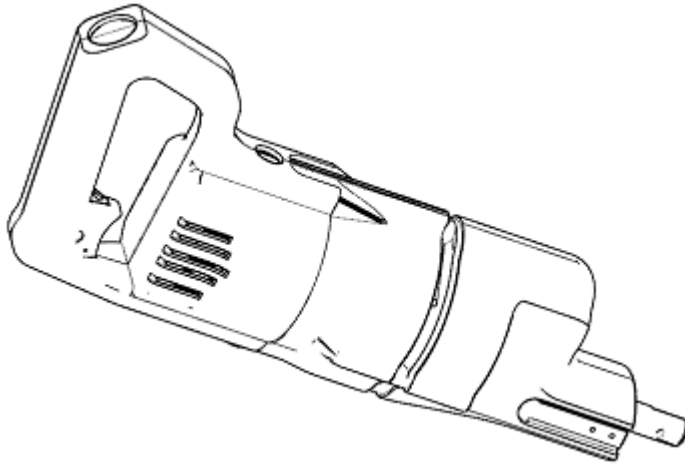


- c. To show only the feature lines, click **Draw shaded model** .

The model is displayed in the Feature Lines display mode.



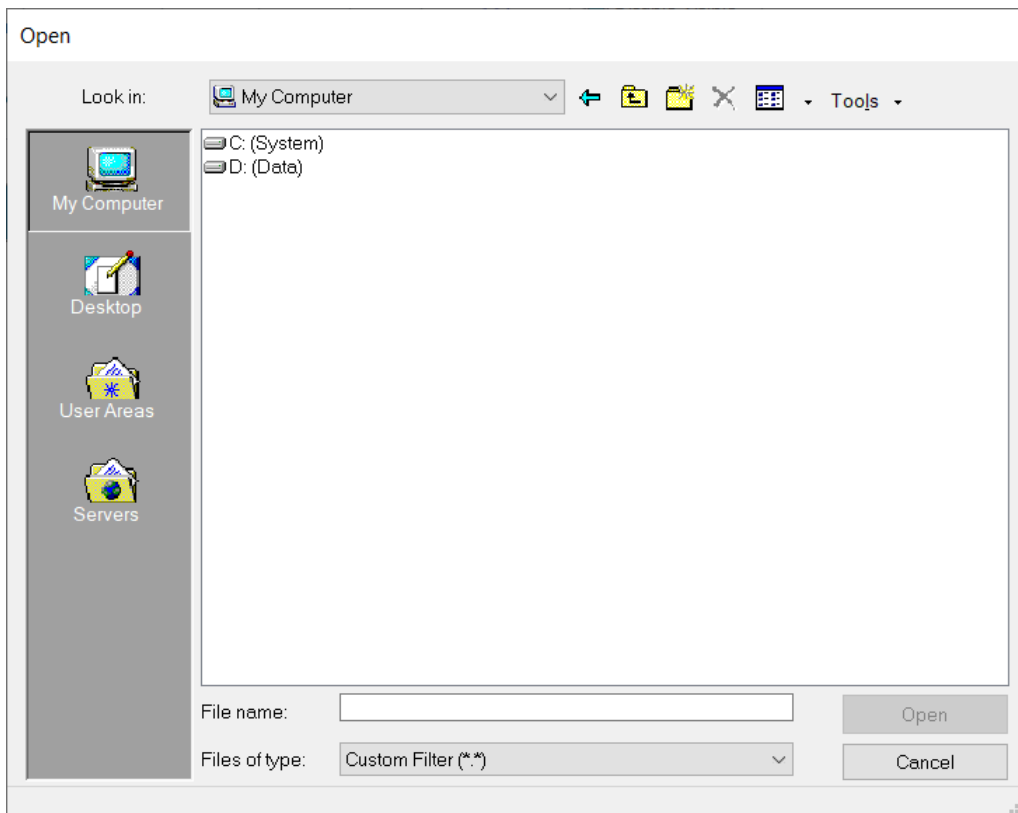
- d. To remove hidden lines from the model, click **Hidden lines invisible** .



Create shortcuts to file locations

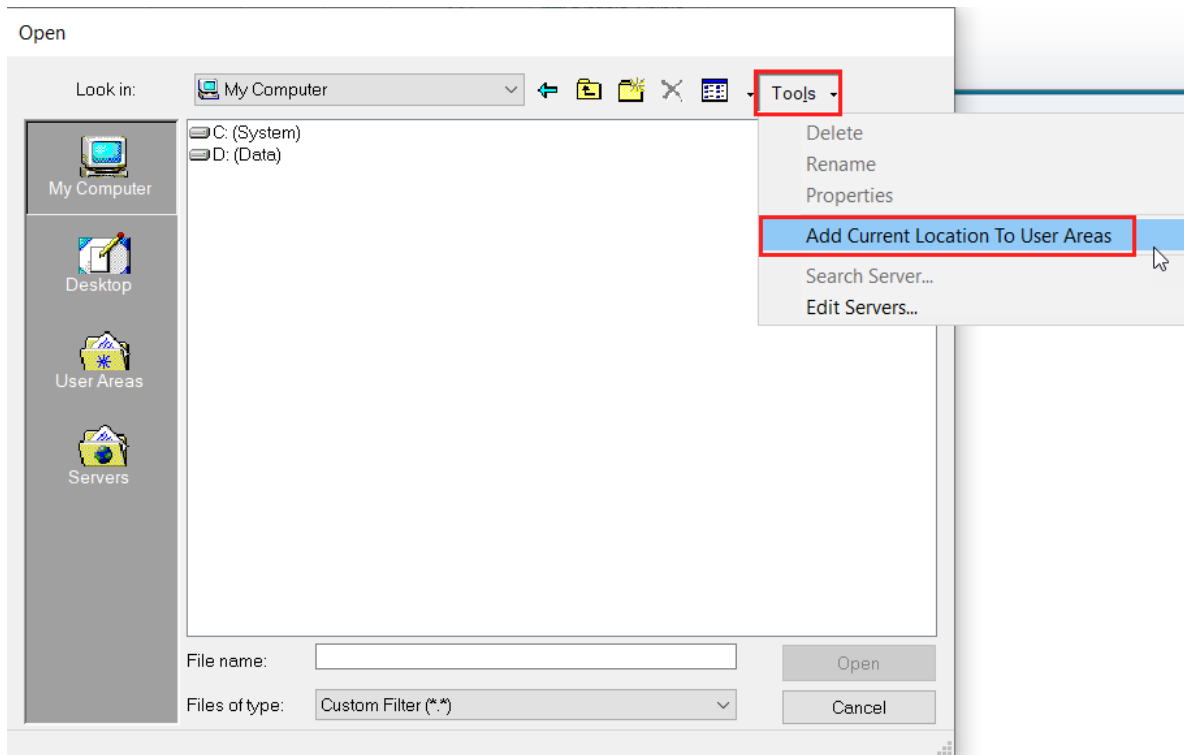
1. Choose **File**→**Open**.

The **Open** dialog box is displayed.



2. Add a folder to your user areas.
 - a. Browse to a location you want to bookmark.

- b. On the **Open** dialog box, choose **Tools**→**Add Current Location To User Areas**.



A new folder appears in your user areas.

- c. Name the folder.
- d. Double-click the folder and open a file.

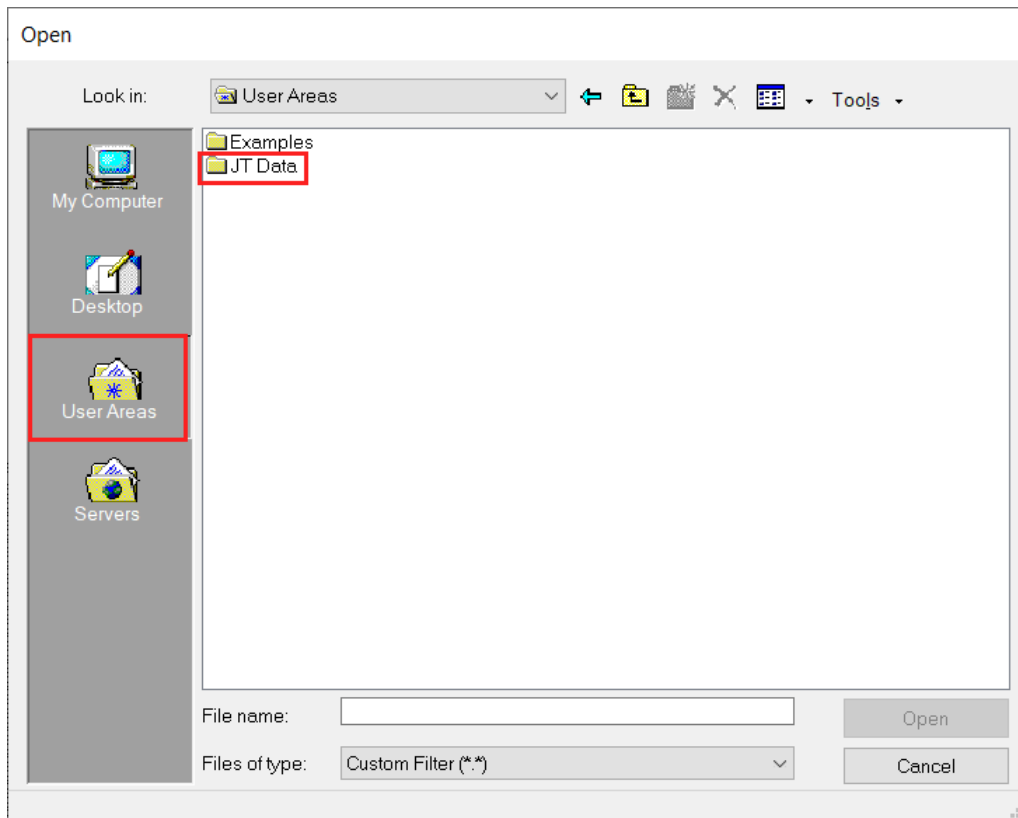
The user area is created.

- e. Close the file.

3. Access a user area.

- a. Choose **File**→**Open**.
- b. On the left side of the **Open** dialog box, click **User Areas**.

Your user areas are displayed.

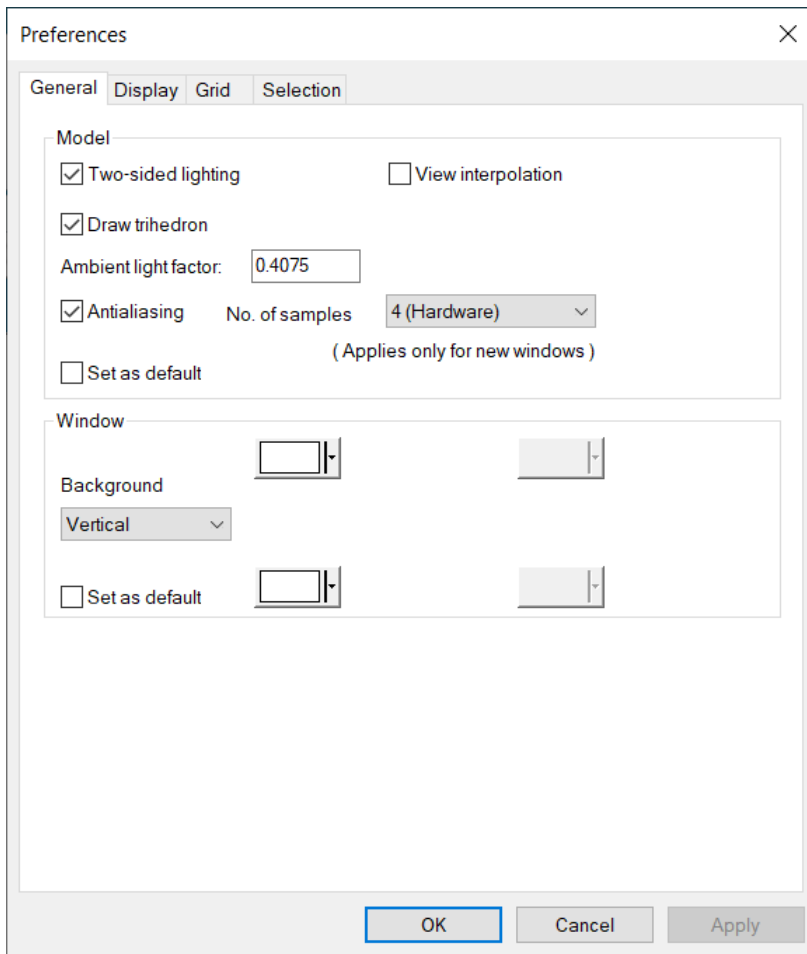


- c. Double-click a folder to access your files.

Change the background color

1. Open and display a 3D model.
2. Right-click a blank area of the Viewing window and choose **Preferences**.

The **Preferences** dialog box is displayed.



3. Specify a solid color for the background.
 - a. In the **Window** section, from the **Background** list, choose **Solid**.



- b. Click the color well and choose the background color.

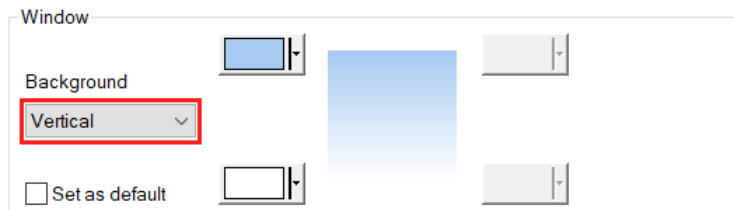


c. Click **Apply**.

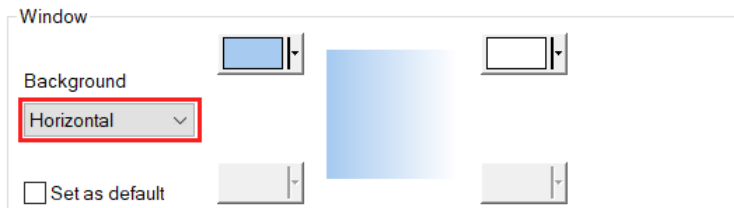
4. Specify a color gradient for the background.

a. In the **Window** section, from the **Background** list, choose from the following gradients:

- **Vertical** — A two color vertical gradient.



- **Horizontal** — A two color horizontal gradient.



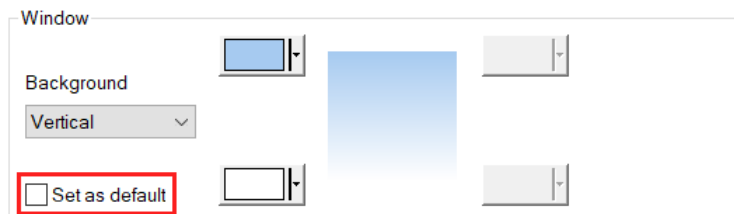
- **Corners** — A four color diagonal gradient.



b. Click the color wells and choose the gradient colors.

5. Save your settings.

- a. In the **Window** section, click the **Set as default** check box.



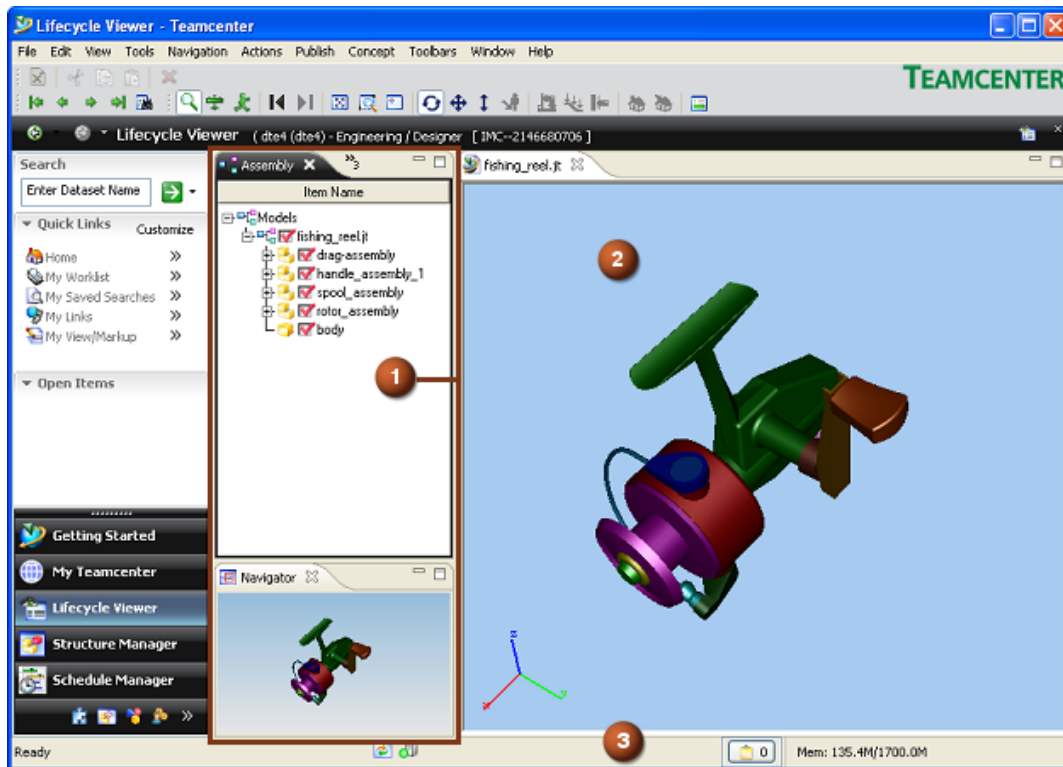
- b. Click **OK**.

The background color settings are saved.

3. Exploring the Interface

Overview of the interface

The Lifecycle Viewer interface consists of a Teamcenter perspective, associated views, the Viewing window, toolbars, and the Status bar. As you switch between different types of documents (2D, 3D, or ECAD), the toolbars and menus update for the type of active document. The figure below shows the default 3D interface, with two visible views: the **Assembly** and the **Navigator** views.



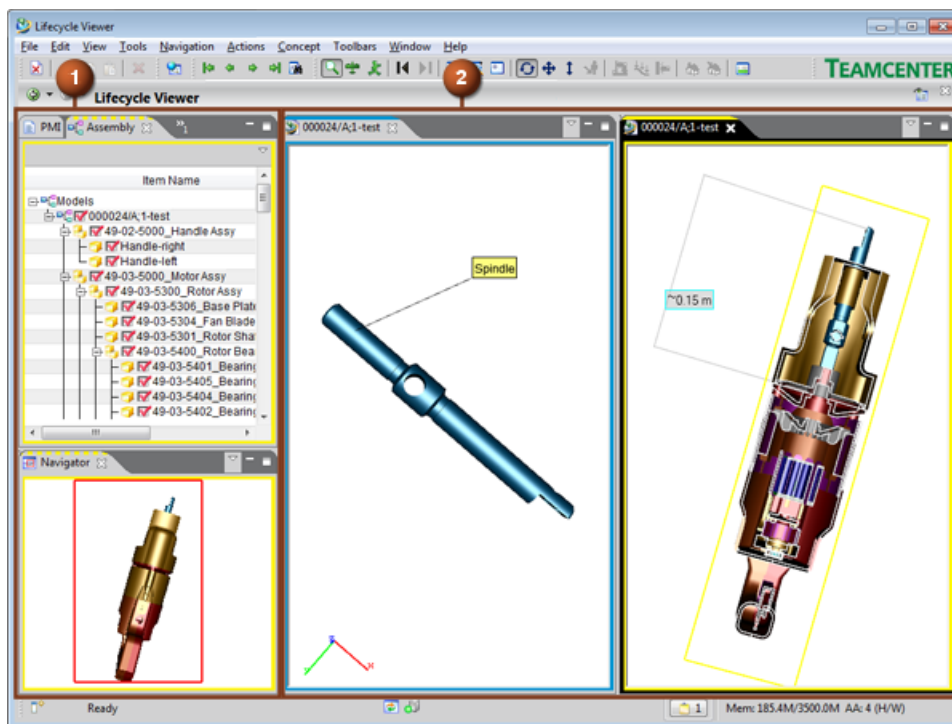
- 1 Views** Enable you to perform such tasks as displaying the product structure or showing and hiding 2D image layers.
- 2 Viewing window** Displays your 3D model or 2D image. When you open multiple files, the 3D model or 2D image associated with each file appears in a separate Viewing window.
As you switch between viewing windows, the supporting views update for the contents of the active viewing window.
- 3 Status bar** Displays information about the current state of the product, including the amount of memory that is available for 3D documents.

Working with windows and views

Overview of visualization views and windows

Visualization views in the Lifecycle Viewer make up a view network where a *primary view* is always active and may be implicitly associated with one or more *secondary views*. Primary views are the active Viewing windows where you can interact with 2D images or 3D models. Secondary visualization views display information about the 2D image or 3D model contained in the active primary view. Examples of secondary visualization views include the **Assembly**, **Snapshots**, and **PMI** views.

You can open multiple visualization files at once, with each file residing in a unique primary view, only one of which is active at a time. Secondary visualization views always display information related to the active primary view. When you switch from one primary view to another, all secondary views update automatically to reflect the newly active image or model. You cannot open more than one instance of each secondary visualization view at a time.



- 1 **Secondary visualization views** Secondary visualization views display information about the 2D image or 3D model contained in the active primary view. This example shows the **Assembly** and **Navigator** views, which are outlined in yellow to indicate their relation to the active primary view.
- 2 **Primary visualization views** Primary visualization views are the main Viewing windows where you can interact with 2D images or 3D models. This example shows two primary views, each of which contains a 3D model. The active view is outlined in yellow, which


matches the related **Assembly** and **Navigator** views. The inactive view is outlined in blue and not currently related to any secondary visualization views.

Move windows and views around your workspace


Do one of the following:

- Click the window or view header bar and drag the window around the interface.
- Right-click the view or window tab, choose **Move** and then select what you want to move from the shortcut menu.

The window or view moves with your mouse pointer around the screen.

As you move the window or view the cursor changes to indicate where the view will be docked when you release the mouse button. For example,  indicates that the view will be placed at the top of the window.

Note:

The stack cursor  appears as you drag the view across other views indicating that you can rearrange the views or move a view into the view group.

Control window and view docking

- Right-click the Viewing window or view, and select or clear **Detached**.


The window or view floats in the interface and you can move it anywhere in your screen area. When a window or view is detached, a title bar appears.

Show or hide visualization views

You can show or hide secondary views, such as the **Navigator** and the **Assembly** view.

- Do any of the following:

To	Do this
Display a secondary view	<ul style="list-style-type: none"> • On the upper right side of a primary visualization view (the main Viewing window that displays a 2D image or 3D model), click the arrow and select a view.


To	Do this
	
Close a view	Do one of the following: <ul style="list-style-type: none"> • On the view tab, click X. • Right-click the view tab and choose Close.

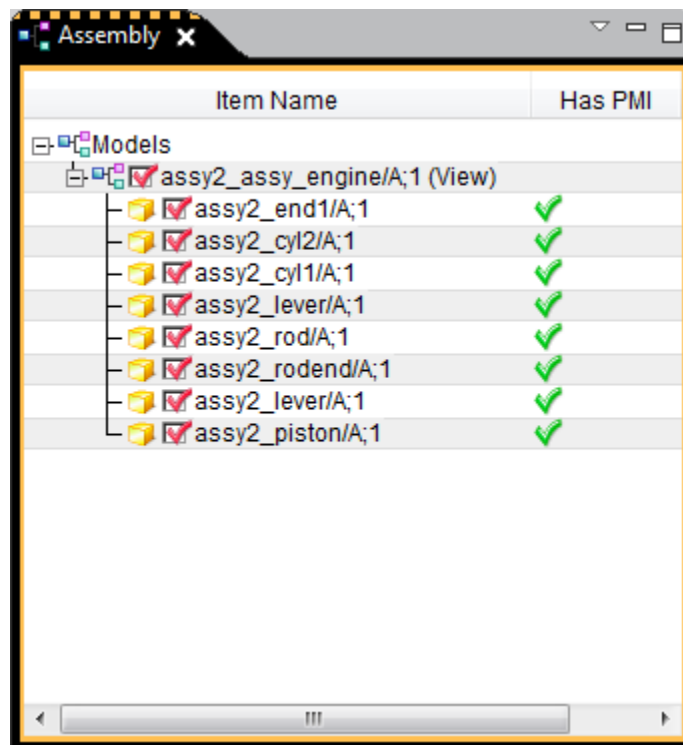
Note:

To reset the Lifecycle Viewer to its default state, choose **Window** → **Reset Perspective**.


List of visualization views

Assembly view

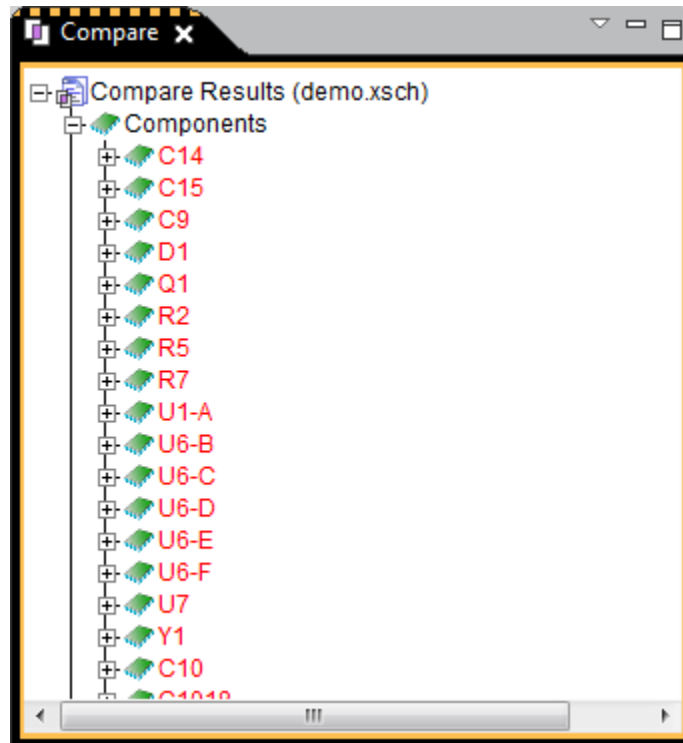
Use the **Assembly**  view to work with 2D images, 3D models, and ECAD documents in the Lifecycle Viewer.




Compare view

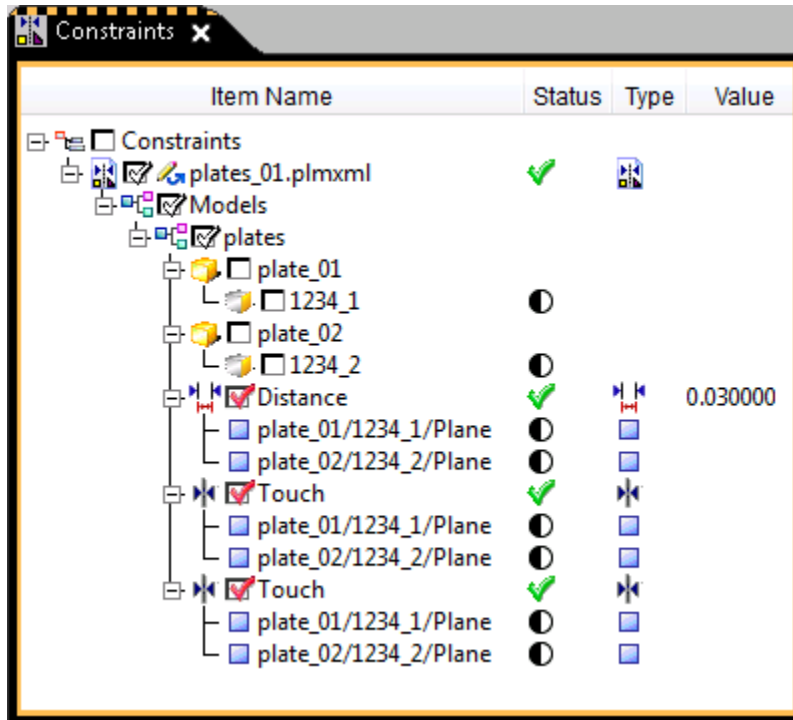
Use the **Compare**  view to display ECAD document differences between two opened ECAD documents. You can display differences from one design revision to other revisions, and you can

display differences between a PCB and its schematic design. When you highlight differences on the **Compare** view, the ECAD object is centered and highlighted in the Viewing window. You can also display differences by selecting **View Differences** from the compare shortcut menu.




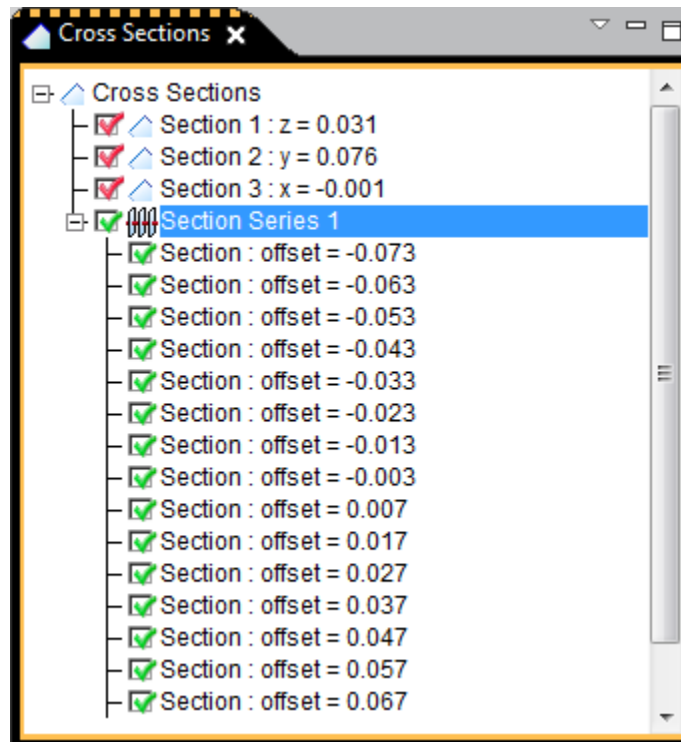
Constraints view

Use the **Constraints**  view to work with constraints in the Lifecycle Viewer.



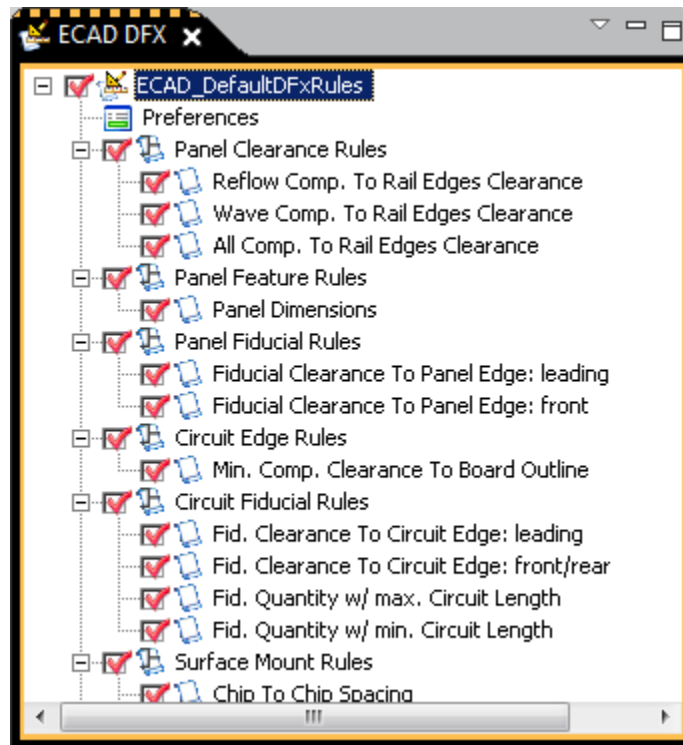
Cross Sections view

Use the **Cross Sections**  view to work with 3D cross sections in the Lifecycle Viewer.




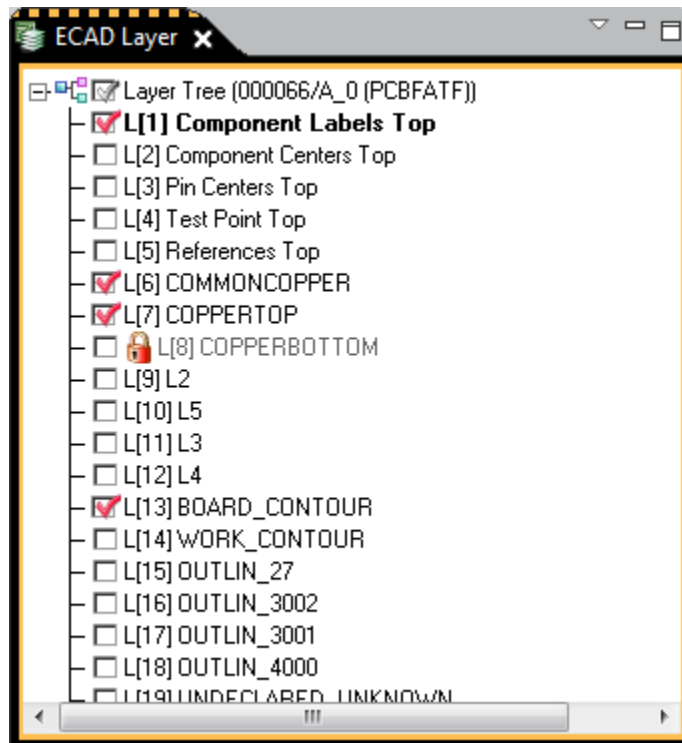
ECAD DFX view

Use the **ECAD DFX**  view to work with ECAD rules-based analysis in the Lifecycle Viewer.




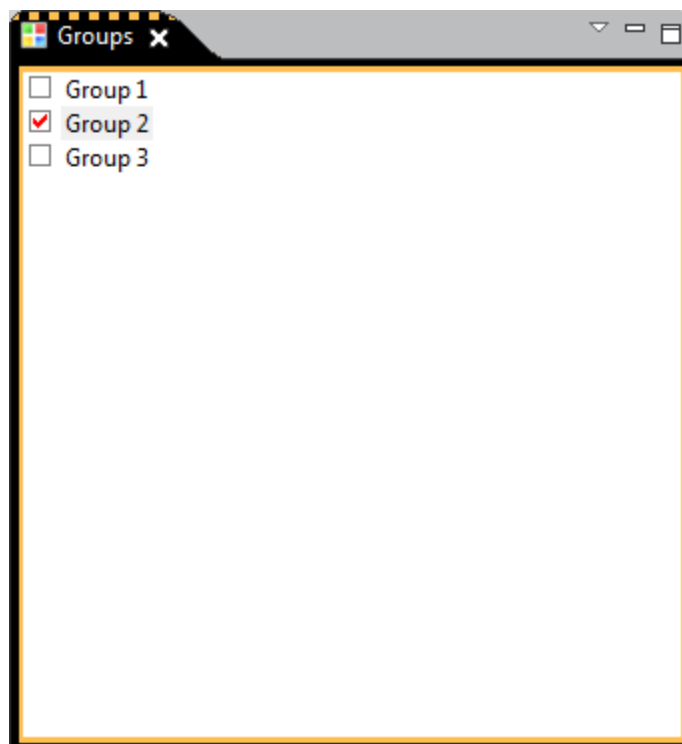
ECAD Layer view

Use the **ECAD Layer**  view to show, hide, and otherwise manipulate ECAD layers in the Lifecycle Viewer.




Groups view

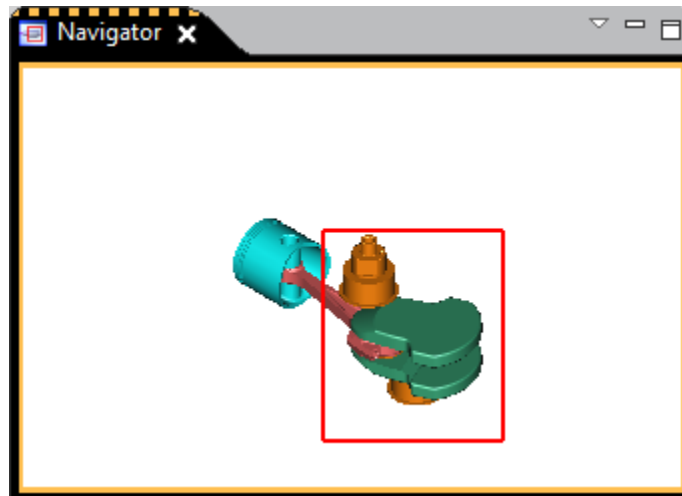
Use the **Groups**  view to show, hide, and select part groups in the Lifecycle Viewer.



Navigator view

Introduction to the Navigator view

Use the **Navigator**  view to zoom in quickly for a closer look at 2D images and 3D models in the Lifecycle Viewer.



Zoom to a portion of your image or model with the Navigator view

You can zoom and pan your view in the Viewing window by selecting a portion of the full view to display in the Viewing window. The result is the same using **Fit All** and then **Zoom Area** in the Viewing window.

1. In the **Navigator** view, place the cursor over a portion of the image or model.
2. Hold the left mouse button and move the cursor.

The view box in the **Navigator** view is redrawn to enclose the area you have indicated. When you release the mouse button, the portion of the image or model inside the view box in the **Navigator** view is displayed in the Viewing window. A red view box in the **Navigator** view identifies the portion of the image or model displayed in the Viewing window.


Change your lookat point with the Navigator view

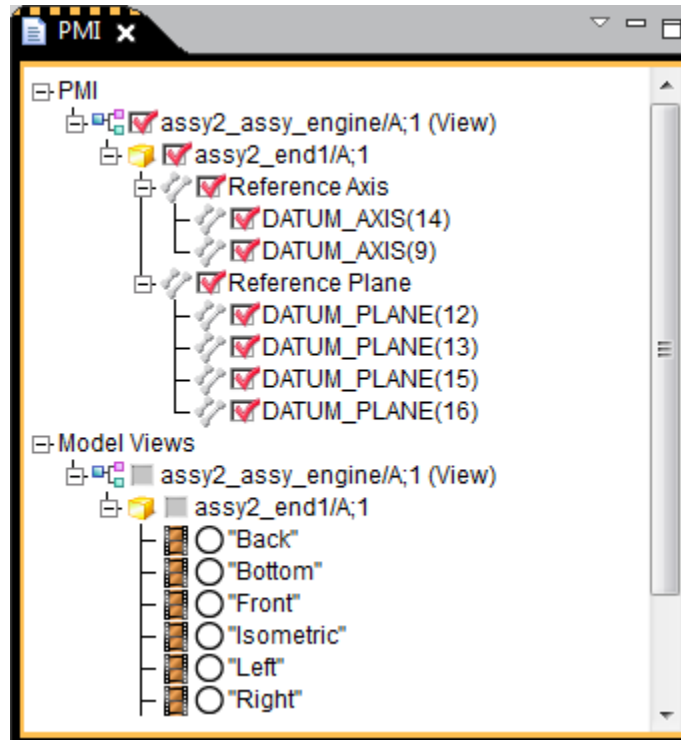
You can pan your view in the Viewing window by picking a new lookat point in the full view without zooming. This is similar to using **Pan** or **Seek** in the Viewing window, but with the **Navigator** view, you can pick a lookat point that is outside of your Viewing window.

In the **Navigator** view, click the point that you want to center in the Viewing window.


The view box moves to the portion of the image or model you select, and the view in the Viewing window changes.

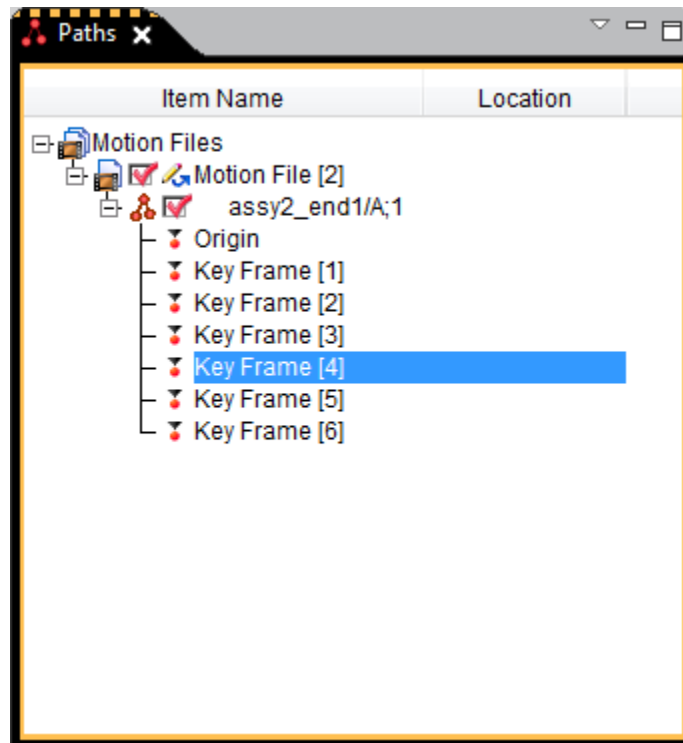
PMI view

Use the **PMI**  view to manipulate Product and Manufacturing Information (PMI) in the Lifecycle Viewer.




Paths view

Use the **Paths**  view to work with motion documents in the Lifecycle Viewer.



Snapshots view

Use the **Snapshots**  view to activate and manipulate snapshots of your 2D image or 3D model in the Lifecycle Viewer.

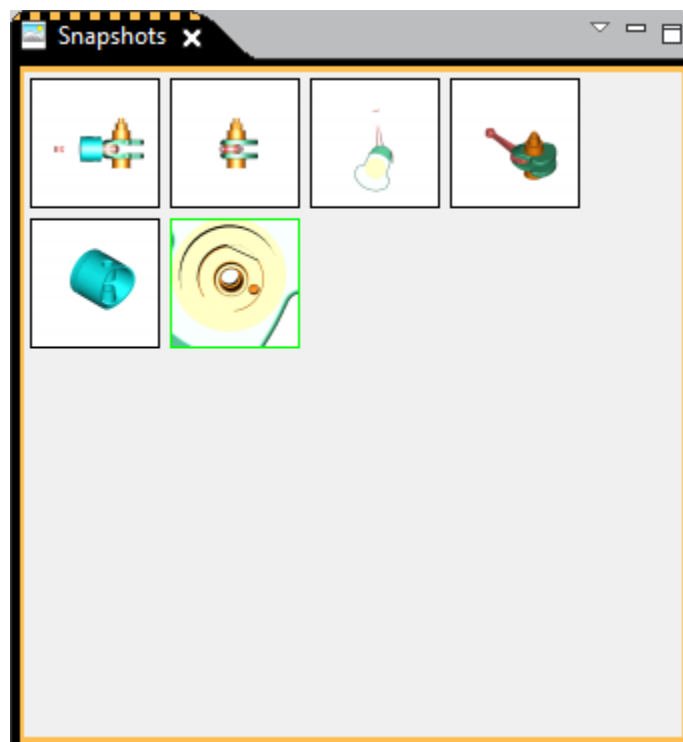




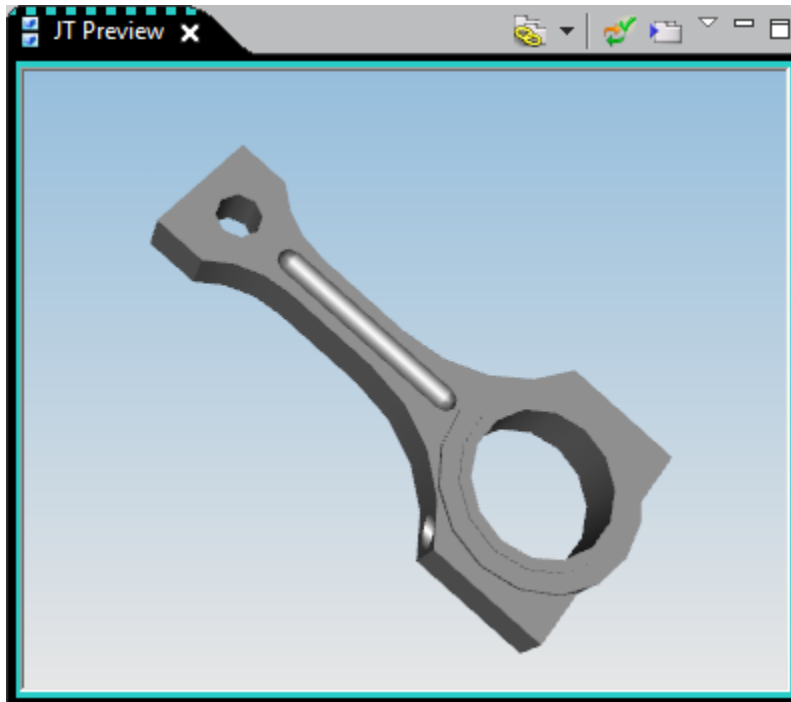
Image Preview view

Use the **Image Preview**  view to display 2D raster images associated with items, item revisions, and datasets in My Teamcenter.



JT Preview view

Use the **JT Preview**  view to display .jt parts associated with items, item revisions, and datasets in My Teamcenter.



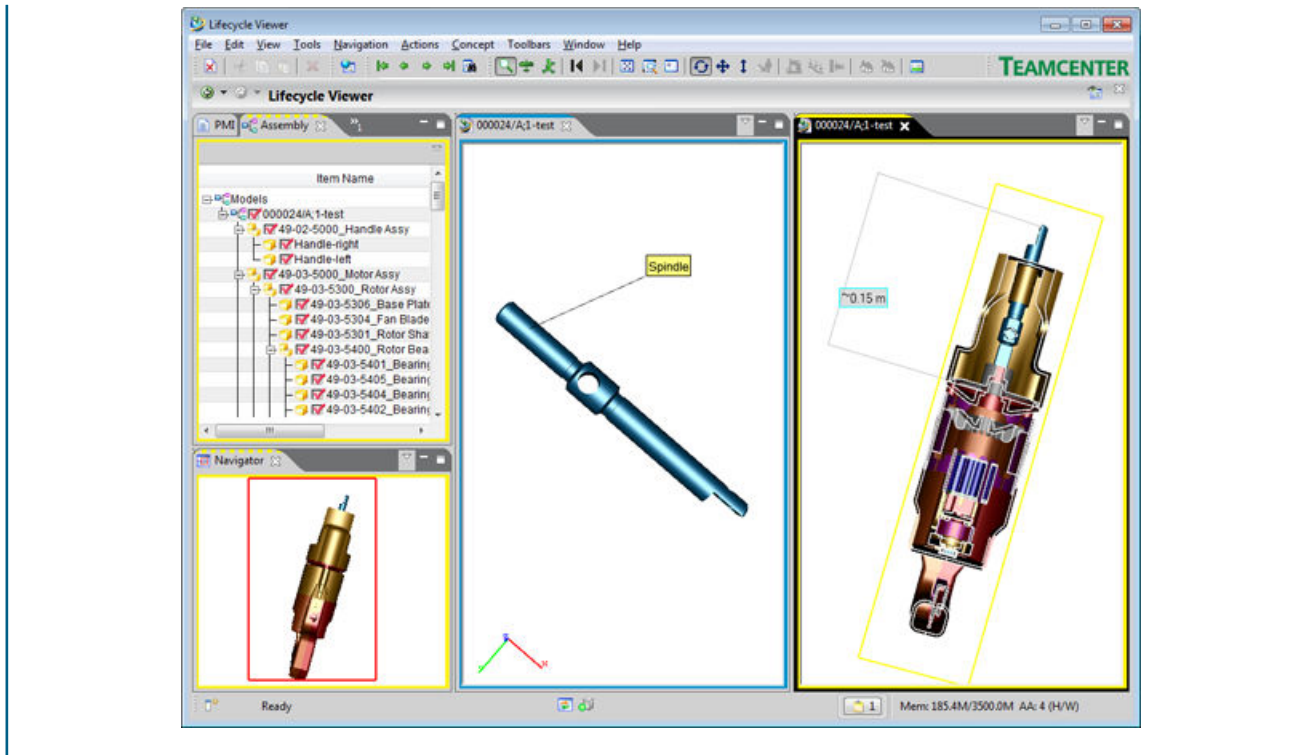
Viewing window

Send open 2D or 3D documents to new Viewing windows

You can create a new instance of the active visualization document view. When you have a single document open in multiple views, while the session is active you can manipulate the model independently in each Viewing window.

Example:

A single 3D model is displayed in two separate 3D views. Each view shows different parts from the model, a different viewing angle, and unique 3D elements, such as a markup, a measurement, and a cross section.



1. Click the 2D or 3D view that you want to send to a new window to make it active.
2. Choose **Window**→**New Window**.

A copy of the view is created.

Clone the 3D Viewing window

You can create an exact copy of the active visualization document view, including 3D elements such as the current visibility state and markups.

1. Click the 3D view that you want to clone to make it active.
2. Choose **Window**→**Clone Window**.

A copy of the active 3D view is created.

Working with toolbars

Display or hide toolbars

- Choose **Toolbars**, and then select or clear the check box to the left of the toolbar name.

Note:

If the functions associated with a toolbar are not enabled, the toolbar buttons are grayed out.

Tip:

To change the display of all toolbars at once, choose **Windows**→**Toolbars**.

Move toolbars

1. Place the cursor on the handle of a visualization toolbar. The handle is the vertical line on the left of the toolbar, as shown below:









2. Drag the toolbar to a new position within the toolbar area.




List of toolbars

2D Adjust toolbar

Use the command buttons on the **2D Adjust** toolbar to adjust 2D markup layers and to align vector and raster points associated with similar 2D files. The result of these 2D markup layer adjustments appear in the Viewing window.





	Use this option	To do this
	Enable Adjust	Activate and deactivate the 2D markup layer feature.
	Translate	Pan or move the selected markup layer.
	Scale	Zoom in and out of the selected markup layer.
	Rotate	Rotate the selected markup layer.
	Align Vector One Point	Align a point on one markup layer with a point on another layer.
	Align Vector Two Points	Align two points on one markup layer with two points on another layer.







	Use this option	To do this						
	Align Raster One Point	Align a point on one markup layer with a point on another layer.						
	Align Raster Two Points	Align two points on one markup layer with two points on another layer.						
	Reset	<table border="1"> <thead> <tr> <th>If you do this</th> <th>This happens</th> </tr> </thead> <tbody> <tr> <td>Insert or create the selected 2D image layer in the current work session</td> <td>All adjustments to the markup layer are cleared and the markup returns to its original position.</td> </tr> <tr> <td>Open the selected 2D image layer by opening a session (VF) file or a PVL file.</td> <td>All adjustments made to the opened sessions file are cleared and the markup returns to the saved sessions file position.</td> </tr> </tbody> </table> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>Note:</p> <p>Click Reset again to clear all the adjustments made to the selected layer, including adjustments from the saved session.</p> <p>The markup layer returns to its original position.</p> <p>Clicking Reset a third time returns the selected layer back to the saved session position. In other words, clicking Reset switches the markup layer between a "clear" and an "as-loaded" state.</p> </div>	If you do this	This happens	Insert or create the selected 2D image layer in the current work session	All adjustments to the markup layer are cleared and the markup returns to its original position.	Open the selected 2D image layer by opening a session (VF) file or a PVL file.	All adjustments made to the opened sessions file are cleared and the markup returns to the saved sessions file position.
If you do this	This happens							
Insert or create the selected 2D image layer in the current work session	All adjustments to the markup layer are cleared and the markup returns to its original position.							
Open the selected 2D image layer by opening a session (VF) file or a PVL file.	All adjustments made to the opened sessions file are cleared and the markup returns to the saved sessions file position.							

2D Compare toolbar

Use the option buttons on the **2D Compare** toolbar to compare 2D image layers in the Viewing window.








	Use this option	To do this
	Compare Layers	Create a comparison layer.
	Display 1st Layer	Display only the first layer in a comparison.



	Use this option	To do this
	Display 2nd Layer	Display only the second layer in a comparison.
	Display Compare Layer	Display only the comparison layer. The comparison layer shows either the common elements from both comparison layers or the elements that are unique to the first or second layers. This definition is set either in preferences or by the Toggle Layer Definition command.
	Display All	Display both the first and second layers, and also the comparison layer.
	Clear Compare	Clear the comparison layer.
	Toggle Layer Definition	Switch between either showing the common elements from both comparison layers or the elements that are unique to each of the layers. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Tip: This sets the Show overlap or Show differences option in the Compare Preferences dialog box.</p> </div>
	Compare Preferences	Specify compare preferences.

2D GD&T markup toolbar

You can use the **GD&T Markup** toolbar to insert 2D GD&T markups on 2D markup layers in the Viewing window.



	Use this option	To do this
	Enable GD&T Markup	Activate and deactivate the 2D GD&T markup feature.
	GD&T Annotation Editor	Open the GD&T Annotation Editor dialog box.
	Stack Mode	Enable or disable Stack Mode.
	Copy GD&T Annotation	Copy a GD&T annotation.
	Paste GD&T Annotation	Paste a GD&T annotation.













	Use this option	To do this
	New Layer	Add a new GD&T markup layer.
	GD&T Markup Preferences	Specify GD&T annotation preferences.








2D Markup toolbar

You can use the markup option buttons on the **2D Markup** toolbar to quickly mark up your 2D image.

You can also use the **2D Markup** toolbar to access markup preferences.

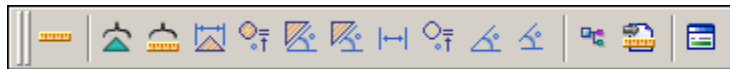









	Use this option	To do this
	Enable 2D Markup	Display the Markup menu and begin to markup the 2D image.
	Select	Select an existing markup displayed on the 2D markup layer in the Viewing window.
	Freehand Marker	Draw a marker at a selected point on the selected 2D markup layer.
	Intersection Marker	Draw a point at which two lines intersect on the selected 2D markup layer.
	Midpoint Marker	Draw a midpoint of two points on the selected 2D markup layer.
	Centerpoint Marker	Draw a centerpoint of a circle or arc on the selected 2D markup layer.
	Freehand Line	Draw a freehand line on the selected 2D markup layer.
	Leader Line	Draw a leader line on the selected 2D markup layer.
	Line	Draw a straight line on the selected 2D markup layer.
	Polyline	Draw a polyline on the selected 2D markup layer.
	Ellipse	Draw an ellipse on the selected 2D markup layer.
	Polygon	Draw a polygon on the selected layer.








	Use this option	To do this
	Rectangle	Draw a rectangle on the selected 2D markup layer.
	Restricted Text	Specify a bounding box you want your text to fit into.
	Unrestricted Text	Write text on the selected 2D markup layer.
	Inset Image	Inset a 2D image from a file onto the selected 2D markup layer.
	Rubber Stamp	Write prepared text from a rubber stamp .TXT file on the selected layer.
	New Layers	Add a new 2D markup layer.
	Markup Preferences	Specify the preferences of various 2D markups.

2D Measurement toolbar

You can use the measurement options on the **2D Measurement** toolbar to make angle, radial, and linear measurements on the base file or on 2D markup layers.








	Use this option	To do this
	Enable Measurement	Enable 2D measurements.
	Calibrate Vector	Calibrate the system for vector measurements.
	Calibrate Raster	Calibrate the system for raster measurements.
	Vector Linear	Measure a line by selecting points on the image.
	Vector Radial	Measure the radius of an arc or circle by selecting points on the image.
	Vector 3 Pt Angular	Measure an angle by selecting three points on the image (one endpoint, vertex, and then a second endpoint).
	Vector 4 Pt Angular	Measure the angle between two non-intersecting lines on the image (both endpoints of one line, then both endpoints of a second line).

	Use this option	To do this
	Raster Linear	Measure a line by selecting pixels.
	Raster Radial	Measure the radius of an arc or circle.
	Raster 3 Pt Angular	Measure an angle by selecting three points on the image.
	Raster 4 Pt Angular	Measure the angle between two non-intersecting lines.
	New Layer	Create a new markup layer.
	Persist Measurements	Maintain measurement results as markups.
	Measurement Preferences	Set 2D measurement preferences.

2D Multipage toolbar

Use the **2D Multipage** toolbar to navigate among pages in multiple-page 2D images or documents.








	Use this option	To do this
	First Page	Go to the first page in a multiple-page image.
	Previous Page	Go to the previous page in a multiple-page image.
	Next Page	Go to the next page in a multiple-page image.
	Last Page	Go to the last page in a multiple-page image.
	Go To Page	Go to a specific page in a multiple-page image.



2D Viewing toolbar

Use the **2D Viewing** toolbar to quickly manage or change how you view your image in the Viewing window.



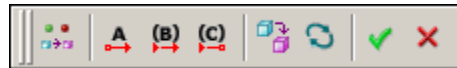










	Use this option	To do this
	Fit All	Fit the entire image into the Viewing window.
	Base View	Size the view to the extent of the first layer in a series of layers. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>If you only have one layer in your Viewing window, this option works the same as Fit All.</p> </div>
	Browse	<ul style="list-style-type: none"> • Select hyperlinks. • Display screen tips. • Display contents of PDF sticky notes.
	Zoom Area	Zoom to a specific area of the image.
	Seek	Center a point of the image.
	Pan	Move the image in the plane of the Viewing window.
	Zoom	Move closer to or farther from the image.
	Zoom In	Move closer to your image in the Viewing window.
	Zoom Out	Move farther from your image in the Viewing window.
	Rotate Counterclockwise	Rotate your image 90 degrees counterclockwise.
	Rotate Clockwise	Rotate your image 90 degrees clockwise
	Flip Horizontal	Flip your image 180 degrees horizontally.
	Flip Vertical	Flip your image to a vertical position.
	Copy Image	Copy the image in the Viewing window to the clipboard.

	Use this option	To do this
	Copy Region	Copy a section of the image to the clipboard.
	Search	When a PDF is opened in the viewer, search for text strings in the document.

3D Alignment toolbar

Use the **3D Alignment** toolbar to move individual parts or groups of parts and align them to other parts in the Viewing window.














	Use this option	To do this
	3D Alignment	Activate and deactivate the alignment feature.
	Preview Alignment	Align the parts as specified by the constraints.
	Accept Alignment	Accept the current alignment and move the part.
	Next Alignment	Display an alternate alignment that conforms to the constraints.
	Cancel Alignment	Clear all alignment and return the part to its original position.
	Primary Constraints	Set or change the primary alignment constraints on parts.
	Secondary Constraints	Set or change the secondary alignment constraints on parts.
	Tertiary Constraints	Set or change the tertiary alignment constraints on parts.

3D Appearance toolbar

Use the **3D Appearance** toolbar to work with part appearance.




	Use this option	To do this
	Quick Color Tool	Display the Quick Color dialog box.
	Edit Materials	Display the Material page of the Appearance Editor.
	Load Images	Display the Image page of the Appearance Editor.
	Edit Texture Coordinates	Display the Texture page of the Appearance Editor.
	Edit Lights	Display the Light page of the Appearance Editor.
	Material Palette	Display the Material page of the Appearance Palette.
	Image Palette	Display the Image page of the Appearance Palette.
	Texture Coordinate Palette	Display the Texture Coordinate page of the Appearance Palette.
	Light Palette	Display the Light page of the Appearance Palette.
	Color Range Tool	Display the Color Range Tool.
	Appearance Preferences	Display the Preferences dialog box.





3D CAE Viewing toolbar

Use the **Render (3D)** tab → **CAE Viewing** group to set display options for your 3D model as well as annotation appearance preferences.

Use the **3D CAE Viewing** toolbar to set display options for your 3D model as well as annotation appearance preferences.











	Use this option	To do this
	Enable CAE Results Viewing	Activate and deactivate the 3D CAE viewing feature.











	Use this option	To do this
		<div style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>If no CAE data exists in your model, a warning message is displayed when you attempt to enable the CAE functionality.</p> </div>
	Display Options	Set color bar, lighting, and results display options.
	Identify	Probe the 3D model for CAE results values at specific node or element locations.
	Annotations	Annotate CAE results.
	CAE Preferences	Set appearance preferences for annotations.

3D Clearance toolbar

Use the **Clearance** toolbar to check the clearance of parts in your model.







	Use this option	To do this
	Enable Clearance Analysis	Start checking clearance.
	Set Clearance	Set a Clearance requirement.
	Matrix Clearance	Create a list of all elements that come within the Clearance requirement of other elements.
	Selected Clearance	Identify elements that come within the Clearance requirement of the selected elements.
	All Elements	Check the clearance of all elements in the file and whether or not the elements are loaded.
	Loaded Elements	Check the clearance of elements that are loaded and whether or not the elements are visible.
	Visible Elements	Check the clearance of visible elements.
	Dynamic Clearance	Identify elements that move to within the Clearance requirement when the model is in motion.








	Use this option	To do this
	Previous Result	Go to the previous result in the General Clearance Results window or Clearance Navigation & Analysis dialog box.
	Next Result	Go to the next result in the General Clearance Results window or Clearance Navigation & Analysis dialog box.
	Previous Region	Go to the previous region in the Clearance Navigation & Analysis dialog box.
	Next Region	Go to the next region in the Clearance Navigation & Analysis dialog box.
	Analyze Clearance	Navigate between Clearance results and their related contact and penetration regions of violations using the Clearance Navigation & Analysis dialog box.
	Clear Analysis	Clear all results in the General Clearance Results window.
	Results Window	Show or hide the General Clearance Results window.
	Load Results	Load a Clearance results file or a Clearance Database Connection (.dbc) file.
	Quick-load results	Automatically load the last Clearance results file or Clearance Database Connection (.dbc) file that was opened or saved.
	Results Preferences	Set preferences for Clearance results.

3D Comparison toolbar

Use the **3D Comparison** toolbar to compare the geometry of two sets of parts or two or more models in multiple Viewing windows.

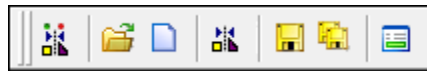









	Use this option	To do this
	Enable Comparison	Activate and deactivate the comparison feature.
	Set Part Group 1	Specify the first set of parts to compare.
	Show Part Group 1	Display the parts of group 1.
	Set Part Group 2	Specify the second group of parts to compare.

	Use this option	To do this
	Show Part Group 2	Display the parts of group 2.
	Multiple window comparison	Start a side by side comparison of the contents of multiple 3D Viewing windows.
	Synchronized Viewing	Synchronize the navigation cameras for the Viewing windows involved in the comparison.
	Reposition Windows	Re-tile the Viewing windows.
	Tricolor Mapping	Display the parts of group 1 in one color, the parts of group 2 in a second color, and the parts that are the same in a third color.
	Distance Mapping	Display the parts in a range of colors that identify the distance between the two parts.
	Compare Preferences	Change the colors of compared parts.

3D Constraints toolbar

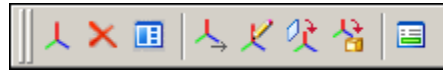
Use the 3D Constraints toolbar to add constraints and manage constraint files.











	Use this option	To do this
	Enable Constraints	Activate and deactivate the constraints feature.
	Open Constraint File	Open an existing constraint file.
	New Constraint File	Open a new constraint file.
	Create Constraint	Add a constraint.
	Save Constraint File	Save the active constraint file.
	Save As Constraint File	Save the active constraint file and optionally specify a new name and path.
	Constraint Preferences	Set constraint behavior and appearance preferences

3D Coordinate System toolbar

Use the **3D Coordinate System** toolbar to work with User Defined and PMI coordinate systems.











	Use this option	To do this
	Create Coordinate System	Create a new coordinate system.
	Delete Selected Coordinate System	Delete the selected coordinate system.
	Manage Coordinate Systems	Manage coordinate systems.
	Manipulate Selected Coordinate System	Use a manipulator to reposition the selected coordinate system.
	Edit Selected Coordinate System	Edit the properties of a coordinate system.
	Align View To Selected Coordinate System	Align your view to the XY plane of a coordinate system.
	Align Part To Selected Coordinate System	Align a part or assembly to a coordinate system.
	Coordinate System Preferences	Change coordinate system preferences.

3D GD&T Markup toolbar

You can use the **3D GD&T Markup** toolbar to quickly insert GD&T Markups on your 3D models.









	Use this option	To do this
	Enable GD&T Markup	Activate and deactivate the GD&T markup feature.
	GD&T Annotation Editor	Open the GD&T Annotation Editor.
	Anchor Mode	Select and clear Anchor Mode.

	Use this option	To do this
	Stack Mode	Select and clear Stack Mode.
	Copy GD&T Annotation	Copy a GD&T annotation.
	Paste GD&T Annotation	Paste a GD&T annotation.
	New Layer	Add a new GD&T markup layer.
	GD&T Markup Preferences	Specify GD&T annotation properties.

3D Groups toolbar

Use the **3D Groups** toolbar to create and manage groups of parts.

























	Use this option	To do this
	Add Group (Visible)	Create a group that includes all the visible parts.
	Add Group (Selected)	Create a group that includes all the selected parts.
	Single Group Only	Display only the groups that are checked.
	Delete Group	Remove the selected groups.
	Replace Group (Visible)	Replace the parts in the selected group with the parts that are visible in the Viewing window.
	Replace Group (Selected)	Replace the parts in the selected group with the parts that are selected in the Viewing window.

3D Markup toolbar

Use the **3D Markup** toolbar to add text or graphical elements on your 3D model in the Viewing window.

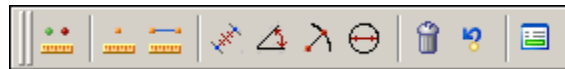









	Use this option	To do this
	3D Markup	Enable the 3D markup feature.
	New Layers	Create a new 3D markup layer.
	Select	Select an existing markup.
	Freehand	Draw a freehand line.
	Line	Draw a straight line.
	Polyline	Draw a polyline.
	Ellipse	Draw an ellipse or circle.
	Polygon	Draw a polygon.
	Rectangle	Draw a rectangle or square.
	Inset Image	Add an image.
	Text	Draw text.
	In-Plane Mode	Allows for precise tracking with the markup's original position to the model, including model scaling.
	Anchor Mode	Attach the markups you draw to parts of the model.
	Fill Mode	Draw filled rectangle, polygon, ellipse, or text markups.
	Auto Create	Create anchored text which is added to either selected or visible parts at once.
	Predefined Text	Add predefined text that needs to appear every time you add a text markup.
	Align	Align multiple anchored text markups for readability
	Distribute	Distribute markups as needed to evenly space them.
	Position	Position anchored text markups precisely where you want them.
	Edit Properties	Change specified properties of markups included in a filtered set of all markups.












	Use this option	To do this
	Resequencing Callouts	Resequencing the order callouts appear in the Viewing window.
	View Anchored with Part	Associate the visibility of anchored markups with the visibility of the parts they are attached to.
	Remove All	Remove all markups.
	Manage Symbol Library	Access the Symbol Manager dialog box.
	Markup Preferences	Change the colors, styles, and display of 3D markups.

3D Measurement toolbar

Use the **3D Measurement** toolbar to measure your 3D model.






	Use this option	To do this
	Enable 3D Measurement	Activate and deactivate the 3D measurement feature.
	Single	Display information about a single part feature.
	Double	Measure between two part features.
	Chain/Fan	(Chain) Measure between a series of part features. (Fan) Measure between a part feature and a series of other part features.
	Distance	Measure the distance between two part features.
	Angle	Measure the angle between two edges or surfaces.
	Radius	Measure the radius of a circular edge or surface.

	Use this option	To do this
	Diameter	Measure the diameter of a circular edge or surface.
	Local Radius	Measure the local radius of a point on edge or a point on surface.
	Minimum Distance	Display the minimum distance when performing measurements between part features.
	Maximum Distance	Display the maximum distance when performing measurements between part features.
	Part Summation Measurement	Display the total area, volume, and mass of a selected set of parts.
	Bounding Box Measurement	Display the bounding box for a selected set of parts, and display the measurements of the bounding box.
	Part Set Measurement	Display the distance between two sets of parts.
	Clear	Clear all measurements.
	Undo Pick	Clear the last part feature you picked.
	Reports	Create measurement reports. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>This button is only available if you have a product that supports measurement reports.</p> </div>
	Measurement Preferences	Specify the 3D measurement preferences.

3D MMV toolbar

Use the **3D MMV** toolbar to control which parts of the 3D model are fully loaded. When in MMV mode, you can choose to load complete parts for the entire 3D model, visible parts only, or selected parts only.














	Use this option	To do this
	Exit MMV	Fully load the entire 3D model.
	Disable MMV Visible	Fully load all visible parts.
	Disable MMV Selected	Fully load all selected parts.

3D Motion toolbar

Use the **3D Motion** toolbar to manage motion documents.






	Use this option	To do this
	Open Motion File	Add a motion document to the current session.
	New Motion File	Create a new motion document.
	Save Motion File	Save the motion document.
	Delete	Remove the motion document from the current session.
	New Path	Create a new path and add it to the end of the current list of paths in the motion document.
	Insert Key Frame	Insert a new key frame after the currently selected key frame node.
	Edit Key Frame	Edit the currently selected key frame node.
	Preview	Quickly view the motion without modifying the play list.
	Motion Playback	Play motion documents and view the play list.
	Reset All Parts	Reset all parts to their original locations.
	Motion Playback Preferences	Specify default settings for motion documents.

3D Movie Capture toolbar

Use the **3D Movie Capture** toolbar to capture the contents of the Viewing window as you move the camera around, show or hide parts, transform parts, play animation sequences, and play .vfm motion files associated with your model.






















	Use this option	To do this
	Record	Record a movie.
	Stop	Stop recording.
	Movie Capture Preferences	Set record and playback speeds and compression.

3D Navigation toolbar

Use the **3D Navigation** toolbar to manipulate the 3D view.






	Option name	Use this button to
	Examine	Activate Examine mode.
	Fly	Activate Fly mode.
	Explore	Activate Explore mode.
	Previous View	Return to the last static view.
	Next View	Move to the next static view
	Fit All	Fit all visible parts of the model into the Viewing window.
	Zoom Area	Zoom to a specific area of the model.
	Seek	Center a point of the model. This point becomes the center of rotation.








	Option name	Use this button to
	Rotate	Rotate your model in the Viewing window.
	Pan	Pan the model in the plane of the Viewing window.
	Navigate	Move closer to or farther from the model.
	Position	Choose an Explore mode start position on a part surface.
	Level	Return your view to level in Fly and Explore modes.
	Terrain Following	In Fly or Explore mode, remain a specified distance above the "floor" upon which you are flying or exploring.
	Collision Detection	In Fly or Explore modes, stop moving when you come into contact with a part.
	Go Home	In Explore mode, return to the location and position you were at when you last selected Set Home .
	Set Home	In Explore mode, make the current location and position your home location.
	Automatic Motion	Continuously rotate the navigation camera around the model, creating a spinning turntable effect.
	Navigation Preferences	Set 3D navigation preferences.

3D Standard Views toolbar

Use the **3D Standard Views** toolbar to examine your model from different views.

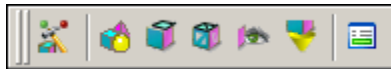









	Use this option	To do this
	Enable View Control	Open the Rotate dialog box to view or rotate the model.
	Standard Views	Open the Standard Views dialog box to view or rotate the model, or position the camera.
	View Clipping	Add a near and a far clipping plane to the Viewing window.

	Use this option	To do this
	Rotate Up	Rotate the model up 90 degrees.
	Rotate Down	Rotate the model down 90 degrees.
	Rotate Left	Rotate the model 90 degrees to the left.
	Rotate Right	Rotate the model 90 degrees to the right.
	Rotate Clockwise	Rotate the model clockwise 90 degrees.
	Rotate Counterclockwise	Rotate the model counter-clockwise 90 degrees.
	Align to Axis	Align the plane to the positive or negative X, Y, or Z axis, or Isometric view.

3D Part Edit toolbar

Use the **3D Part Edit** toolbar to view and modify model LODs.














	Use this option	To do this
	Enable Part Edit	Activate and deactivate the part edit feature.
	Control	Control model LODs, and define a working set of parts for use in geometry simplification.
	B-Rep	Reverse B-Rep face orientation.
	Tessellation	Tessellate parts.
	Visibility	Simplify parts based upon visibility.
	Decimation	Simplify parts based upon a specified triangle reduction.
	Part Edit Preferences	Specify Part Edit Preferences.

3D Part Manipulation toolbar

Use the **3D Part Manipulation** toolbar to manipulate parts interactively.








	Use this option	To do this
	Enable Part Manipulation	Activate and deactivate part manipulation mode.
	Use Screen Coordinates	Manipulate selected parts using the screen coordinate system.
	Use Global Coordinates	Manipulate selected parts using the global coordinate system.
	Use Part Coordinates	Manipulate selected parts using the part coordinate system.
	X-Axis	Translate selected parts along the X axis.
	Y-Axis	Translate selected parts along the Y axis.
	Z-Axis	Translate selected parts along the Z axis.
	XY-Plane	Translate selected parts along the XY plane.
	XZ-Plane	Translate selected parts along the XZ plane.
	YZ-Plane	Translate selected parts along the YZ plane.
	Reset to Original Position	Return selected parts to the original position.

3D Part Transformation toolbar

Use the **3D Part Transformation** toolbar to translate, rotate, and scale parts in your model.










	Use this option	To do this
	Add Part	Display an interactive manipulator for the selected part.
	Remove	Remove the active manipulator.
	Reset Manipulator Position	Return the active manipulator to its original position.

	Use this option	To do this
	Transform	Translate, rotate, and scale parts by using the using the Part Transformation dialog box.
	Relocate	Move and rotate parts from one location to another.

3D Path Editor

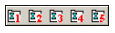


This group is available from the **Actions**→**Path Editor** menu.

	Use this option	To do this
	New Path	Generate a new extraction path using key positions.
	Edit Path	Modify an extraction path.
	Add Position	Add a key position to an extraction path.
	Replace Position	Replace a key position with the current manipulator position.
	Remove Position	Remove a key position from an extraction path.
	Path Editor Toolbar	Activate or deactivate the floating Path Editor Toolbar .
	Advanced Editor	Add or modify key positions and review key position statuses.
	Motion Path Preview	Preview the motion file associated with an extraction path.
	Path Planning	Generate an extraction path using automated algorithms.
	User Aided Fitting	Interactively generate extraction paths.
	Unstick	Resolve collisions in an extraction path at key positions.
	Path Editor Preferences	Customize the path planning default settings.
	Collision Settings	Define the acceptable collision clearance requirement between parts, or for more specific clearance paths, define collision sets.
	Constraints	Constrain target part translation and rotation.

3D Performance toolbar

Use the **3D Performance** toolbar to change the performance preferences for your 3D model.















	Use this option	To do this
	Performance Setting 1 - 5	Save 1-5 performance settings that can be accessed by selecting the specified options.
	Stop Streaming	Stop the loading of your 3D model. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Note: This button is only active during loading. </div>
	Edit Performance Settings	Set the performance for Culling, Rendering, Memory, and change Toolbar options.

3D PMI toolbar

Use the **PMI** toolbar to display and control product and manufacturing information in your model.










	Use this option	To do this
	Enable PMI	Activate and deactivate the PMI feature.
	Feature-based Multiple Entity Mode	(For JT models containing feature level designs) PMI for all faces and edges associated with the feature level. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Note: If you use this option and the JT model does not contain a feature level, PMI is displayed from the selected face and all its edges. </div>
	Multiple Entity Mode	Display all the PMI for a model.
	Single Entity Mode	Display each PMI one at a time.

	Use this option	To do this
	Previous Entity	(For Single Entity Mode) Display the previous PMI.
	Next Entity	(For Single Entity Mode) Display the next PMI.
	Filter Configuration	Filter out specific types of PMI.
	Text Orientation	Change the orientation of PMI text.
	Fit View to Selected	Display all PMI in the PMI list, without changing the direction or orientation of the camera.
	Palette	Display the Model View Palette.
	Clear Entities	Turn off the display of all PMI.
	PMI Preferences	Set PMI appearance and behavior preferences.

3D Section toolbar

Use the **3D Section** toolbar to work with cross sections of your 3D model.

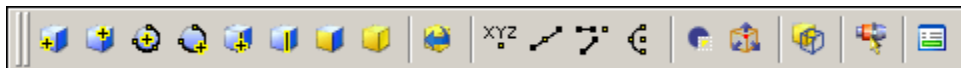













	Use this option	To do this
	Enable 3D Section	Enable the 3D Section functionality.
	Create Section	Create a cross section, normal to the Z-axis, in the current 3D view.
	Create Grid	Create a grid, normal to the Z-axis, in the current 3D view.
	Create Series	Create multiple cross section views along an axis, along a linear edge, or between two points.
	Create Section Along Curve	Create a cross section positioned along a curve.
	Delete Section	Delete the active cross section in the current 3D view.
	Delete All	Delete all cross sections.

	Use this option	To do this
	Clip Near	Clip away the near side of the model.
	Clip Far	Clip away the far side of the model.
	Clip Both	Clip away the model on both sides of the plane, leaving only the section lines.
	Plane View	Align the view normal to the section plane.
	Align To Feature	Align the cross section plane to a feature of the model.
	Position Plane	Show or hide the Position Plane dialog box to position section planes
	3D Manipulator	Show and hide a 3D manipulator to dynamically move and rotate the section plane.
	Show in Viewer	Display the active section or section series in the Cross Section Viewer.
	Create Report	Create cross section reports that can include analysis of the section area or perimeter, moment of inertia, center of gravity, and other calculated cross section properties. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Note: Only Perimeter and Area are available if the model does not contain B-Rep data.</p> </div>
	Manual Update	Update cross section rendering when the Fast Mode section preference is active.
	Update Parts	Updates the cross section to include the selected parts.
	Section Preferences	Change the settings for general cross section features, the grid, and clipping display.

3D Selection toolbar

Use the **3D Selection** toolbar to pick part features.



	Use this option	To do this
	Point	Pick a point on the part.
	Vertex	Pick a vertex on the part.
	Arc Center	Pick the center of an arc
	Midpoint	Pick the midpoint of a line or arc
	Point on Edge	Pick a point on an edge
	Edge	Pick an edge on the part.
	Surface	Pick a surface on the part.
	Part	Pick the entire part.
	Disable Active Tool	Disable the active tool, for example, 3D Measurement.
	User Defined Point	Type the coordinates of a point.
	Construct Midpoint	Pick a point midway between two points.
	Intersection	Pick the intersection of two edges.
	3Point Circular Arc	Pick the center of a circular arc you define by picking three points.
	Select Parts by Area	Select parts within an area that you define.
	Select Parts by Volume	Select parts within a volume that you define.
	Pick Through Unshaded Parts	Pick geometry visible through parts displayed in the tessellated or feature lines display modes.
	Generate Selection Preview Data	If it does not already exist, generate the data required for part feature selection preview.
	3D Selection Preferences	Change the settings for selection and selection preview.

3D Display Modes toolbar











Use the **3D Display Modes** toolbar to control the display mode of geometry in the 3D Viewing window. You can display geometry as shaded, tessellated lines, feature lines, or any combination of the above.

Tessellation or feature lines hidden by other geometry can be viewed as normal, semi-transparent, or invisible.



Note:










Hidden lines invisible, **Hidden lines ghosted** and **Hidden lines visible** are only enabled if the default display mode is set to **Tessellation Lines**, **Feature Lines**, or both. The default display mode can be set on the **Display** page of the 3D Viewing preferences dialog box, or on the **3D Display Modes** toolbar when no parts are selected. If any parts are selected, changing the display mode with the toolbar only changes the display mode for the selected parts.

	Use this option	To do this
	Draw shaded model	Display geometry in the shaded rendering style.
	Display Construction Geometry	Display wireframe construction geometry.
	Display Construction Geometry On Top	Display wireframe construction geometry on top of the shaded geometry.
	Draw tessellation lines	Display geometry in the tessellation line rendering style.
	Draw feature lines	Display geometry in the feature line rendering style.
	Hidden lines invisible	Remove hidden tessellation or feature lines from view.
	Hidden lines ghosted	Display hidden tessellation or feature lines in a semi-transparent rendering style.
	Hidden lines visible	Display hidden tessellation or feature lines in a fully visible rendering style.
	Clear All	Reset the display modes for all parts, including model View Style set by PMI.
	See-Thru Solids	Display all solid geometry as transparent.

3D Surface Analysis toolbar

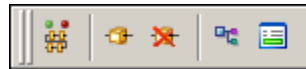
Use the **3D Surface Analysis** toolbar to evaluate part surfaces.








	Use this option	To do this
	Multi-Effect	Display a combination of surface analysis effects.
	Reflection	Apply reflections to your part surfaces.
	Flow Lines	Apply flow lines to part surfaces.
	Curvature	Shade parts based upon the curvature values of their surfaces.
	Random Colors	Apply random colors to part surfaces.
	Hide Effects	Hide surface analysis effects in the Viewing window.
	Set Working Set	Create a new working set of parts based upon part selection or visibility in the Viewing window.
	Workspace	Manage surface analysis settings and effects.
	Surface Analysis Preferences	Adjust the surface analysis preferences.

3D Thrustline Editor toolbar

Use the **3D Thrustline Editor** toolbar to create and manipulate thrustlines.



	Use this option	To do this
	Enable Thrustline	Activate and deactivate the thrustline feature.
	Align to Part Feature	Create a part feature aligned thrustline.
	Delete Thrustline	Delete the currently selected thrustline.
	New Layer	Create a new layer in the 3D scene.
	Thrustline Preferences	Edit thrustline preferences.

3D True Shading toolbar

Use the **3D True Shading** toolbar to quickly change the appearance of 3D models via predefined visual effects.











	Use this option	To do this
	True Shading	Activate and deactivate the true shading effects feature.
	Global Materials	Choose a predefined material that affects the appearance of the entire model.
	Global Reflections	Choose a predefined reflection that affects the appearance of the entire model. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: Parts assigned True Shading materials such as rubber are not included in global reflections.</p> </div>
	Occurrence Specific Materials	Choose a predefined material that affects the appearance of selected parts or assemblies.
	Backgrounds	Choose a background color, gradient, or image.
	Apply True Shading Materials	Turn True Shading materials and global reflections on or off in the Viewing window.
	Show Floor	Display a floor in the 3D scene.
	Floor Grid	Display a grid upon the floor in the 3D scene.
	Show Floor Reflection	Display a reflection of the 3D model upon the floor in the 3D scene.
	Floor Shadows	Display a shadow of the 3D model upon the floor in the 3D scene.
	True Shading Editor	Adjust True Shading settings in the True Shading Editor .

3D Visibility toolbar

Use the **3D Visibility** toolbar to hide obscuring parts and clip areas of your model.













	Use this option	To do this
	Hide Obscuring	Hide parts that obscure your view of specified parts by making the obscuring parts transparent.
	Add Clipping Manipulator	Create manipulators to control the area of your model that you want to hide.
	Remove Clipping Manipulator	Remove manipulators from your model.
	Hide Manipulators	Hide the manipulators and motion jacks.
	Hide Jacks	Hide the motion jacks, but not the manipulators.
	Clip Inside	Hide the area inside the manipulator.
	Clip Outside	Hide the area outside the manipulator.
	View Properties	Access the View Clipping Properties settings.

3D Visual Report toolbar

Use the **3D Visual Report** toolbar options to create visual reports and apply them to the parts and assemblies. For example, you can search the properties of parts and create a visual report that shows all metal parts in a specific color. You can also reset the appearance of parts and assemblies, as well as specify visual report preferences.

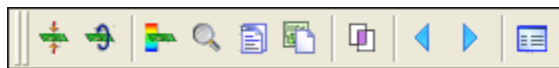





	Use this option	To do this
	Enable Visual Report	Activate and deactivate the Visual Report feature.
	Apply Report	Open the Apply Report dialog box. Use the Apply Report dialog box to edit and load existing visual reports.
	Quick Report	Open the Quick Report dialog box. Use the Quick Report dialog box to quickly identify the parts that match your metadata search query.








	Use this option	To do this
	Single Report	Open the Single Rule Report dialog box. Use the Single Rule Report dialog box to generate metadata search conditions and to specify how you want matched and unmatched parts displayed.
	Multiple Reports	Open the Multiple Rules Report dialog box. Use the Multiple Rules Report dialog box to generate multiple metadata search conditions.
	Report Legend	Display detailed information about completed visual reports. This information includes details as the current rule name and scope, names of parts, and the attributes and values used in the report.
	Explore Reports	Open the Report Explore dialog box. Use the Report Explore dialog box to set options for how you view the results of your visual report.
	Reset Reports	Discard visual changes and return to the original visual representation.
	Find	Open the Find dialog box. Use the Find dialog box to find parts and assemblies with property values that match a search pattern.
	Visual Report Preferences	Specify the default options for various visual reports preferences.

ECAD Base toolbar

Use the **ECAD Base** toolbar to manage specific ECAD functionality such as specifying side views, changing layer characteristics, navigating nets, creating reports, and setting cross probing for both the PCB and schematic.









	Use this option	To do this
	View Top and Bottom Side	Specify the order in which you view document layers.
	View Opposite Side	View the top or bottom side depending on the side that is currently showing.
	Layer Color	Change layer colors and layer visibility states. Use the Layer Color dialog box to manage these options.



	Use this option	To do this
	Search	Search for objects by using the options associated with the Search dialog box.
	Create Report	Open the Reports dialog box to create and run various ECAD reports.
	Cross Probe	Explore both the PCB and schematic in one Viewing window.
	Previous	Move the net marker to the previous point in navigating the net.
	Next	Move the net marker to the next point in navigating the net.
	Visual Compare	Compare the differences between two ECAD documents.
	PCB Properties	Display document property data by using the Properties dialog box.

ECAD DfX toolbar

Use the **DfX** toolbar to manage how you want to evaluate and analyze your designs against manufacturing rules.



	Use this option	To do this
	Open Rules File	Open the Open Rules dialog box and select a configuration file containing the rules for evaluating the open PCB.
	Edit Rules File	Open the DfX Rule Set Editor dialog box to review and modify Design for Assembly and Design for Test rules.
	Open Results File	Open a previously generated results file for the current PCB.
	Save DfX Files	Save the active rules file and results using the current dataset name.
	Save DfX Files As	Save the active rules file and results. You will be prompted for a new dataset name.
	Run DfX Rules	Start the design evaluation on the active PCB.

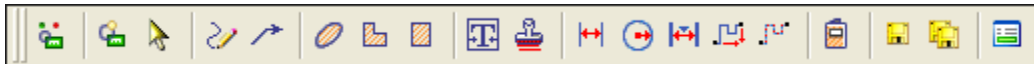
	Use this option	To do this
	Display DfX Summary Report	Open the most recently saved summary results report for the active PCB.
	Display DfX Detail Report	Open the most recently saved detail results report for the active PCB.











Note:










Most of these options require a DfX authoring license.

ECAD Markup toolbar

Use the **ECAD Markup** toolbar options to manage how you want to mark up ECAD documents. In most cases, markup support applies to both the PCB and schematic documents.








	Use this option	To do this
	Enable Markup	Activate and deactivate the ECAD markup feature.
	Create New Markup	Open the Markup Topic dialog box. After selecting this option, click in the Viewing window and enter a markup topic.
	Select Markup	Select a markup that is displayed in the Viewing window.
	Freehand Line	Draw a freehand line.
	Leader Line	Draw a straight line and optionally add leader ends to the line.
	Ellipse	Draw an ellipse or circle on the ECAD document.
	Polygon	Draw a polygon on the ECAD document.
	Rectangle	Draw a rectangle or a square on the ECAD document.
	Text	Open the Text Editor dialog box and add text markups.
	Rubber Stamp	Open the Rubber Stamp dialog box. Select either auto-translate selected predefined text or select existing predefined text from a note file.

	Use this option	To do this
	Distance Measurement	(PCB only) Measure the distance between one point to another point, between one point to a specific location on a line, or between one line and another line.
	Radial Measurement	(PCB only) Measure the radial distance on any ring or circle.
	Clearance Measurement	(PCB only) Measure the minimum distance between two objects.
	Manhattan Length	(PCB only) Measure the distance between any point along the trace and via contained within the same net. <div style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>Manhattan length refers to the sum of the X- and Y-distances between the two selected points.</p> </div>
	Routed Length	(PCB only) Measure the distance between any point along the trace and via contained within the same net. <div style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>Routed length refers to sum of each segment along the trace between the two selected points.</p> </div>
	Markup Log	Open the Markup Log dialog box to display markup activity related to the ECAD document.
	Save Markups	Save the markup in the established dataset.
	Save Markups As	Save the markup in a different dataset.
	Markup Profile Preferences	Display the Markup Profiles dialog box which contains markup profile names and markup preferences.

ECAD Multipage toolbar

Use the **ECAD Multipage** toolbar to navigate among pages in a multipage ECAD document.














	Use this option	To do this
	First Page	Go to the first page in a multipage file.
	Previous Page	Go to the previous page in a multipage file.
	Go To Page	Go to a specific page in a multipage file.
	Last Page	Go to the last page in a multipage file.
	Next Page	Go to the next page in a multipage file.

ECAD Viewing toolbar

Use the **ECAD Viewing** toolbar to quickly manage or change how you view ECAD documents.



	Use this option	To do this
	Fit All	Fit the entire design into the Viewing window.
	Base View	Size the view to the extents of the PCB dimensions.
	Browse	Display the name of ECAD objects as you move the cursor around the Viewing window.
	Zoom Area	Zoom to a specific area of the document.
	Seek	Center a point on the document.
	Pan	Move the document around the Viewing window.
	Zoom	Move closer to or farther from the document.
	Zoom In	Move the document closer to your view.
	Zoom Out	Move the document farther from your view.
	Rotate Counterclockwise	Rotate the document 90 degrees counterclockwise.
	Rotate Clockwise	Rotate the document 90 degrees clockwise.





	Use this option	To do this
	Flip Horizontal	Flip the document 180 degrees horizontally.
	Flip Vertical	Flip the document to a vertical position.
	Copy image	Copy the image in the Viewing window to the clipboard.
	Copy region	Copy a section of the image to the clipboard.

Image Capture toolbar





You can use the **Image Capture** toolbar to capture the view of your image exactly as it is displayed in the Viewing window, including all visible markups. The captured image appears in a new Viewing window.



Issues toolbar

Use the **Issues** toolbar to communicate design issues.





	Use this option	To do this
	Add	Create new visual issues.
	Update	Update the visual issue currently active in the Viewer.
	Delete	Delete the visual issue currently active in the Viewer. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: If working with Teamcenter visual issues, the issue report and issue report revision are deleted.</p> </div>
	View	Display the visual issues list in Issue Manager.

Printing toolbar

You can use the **Printing** toolbar to quick preview and print models and images.










	Use this option	To do this
	Print Current View	Print your model or image.
	Print Preview	Preview the image before printing.

Reconcile toolbar

Use the **Reconcile** toolbar to resolve broken file references to parts and assemblies.



	Use this option	To do this
	Enable Reconcile	Activate and deactivate the file reconcile feature.
	Validate All References	Validate references in a file.
	Reconcile Broken References	Create or delete file mappings.
	Reload Session	Reload the file.
	Import	Load a mapping file.
	Export	Save a mapping file.
	Reconcile Preferences	Specify preferences.

Snapshots toolbar







Use the **Snapshots** toolbar to add and manipulate snapshots of your model or image.



2D and ECAD








3D

	Use this option	To do this
	Add	Add a snapshot of the Viewing window.
	Insert	Insert a snapshot between two existing snapshots.
	Delete	Delete the selected snapshot.
	Replace	Replace the selected snapshot with a snapshot of the Viewing window.
	Toggle View (3D only)	Display 3D snapshots as thumbnails or a list.
	Snapshots Preferences (3D only)	Specify 3D snapshot preferences.

Tree Control toolbar

Use the **Tree Control** toolbar to navigate the list in the **Assembly** view.

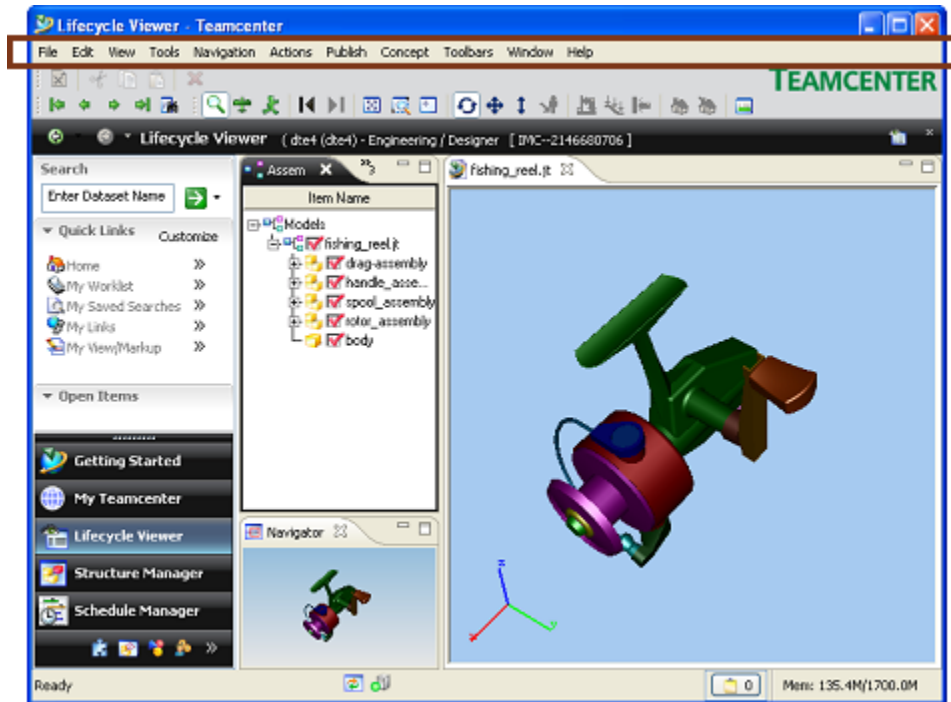


	Use this option	To do this
	Collapse All	Display only the first level of the list.
	Collapse One	Hide the lowest level of the list that is currently showing.
	Expand One	Display one more level of the list than is currently showing.
	Expand All	Display all levels of the list.
	Find Item	Search for a text string in the list.

Working with menus

Overview of menus

The menu bar provides access to much of the application's functionality. You can also right-click items and areas to access shortcut menus.

**Note:**

Menus are available only in the Lifecycle Viewer. You must use **toolbars** to access visualization features when working in the viewers that are embedded within Teamcenter applications such as My Teamcenter and Structure Manager.

List of menus

Actions menu

The **Actions** menu is on the **Menu** bar. Some options are available only when a 2D or 3D file is open.

Use this option	To do this
Image Capture (2D and 3D)	<p>Save the view of your 2D image in the Viewing window.</p> <p>In Standard, Professional, and Mockup, save the view of your 3D model in the Viewing window as a 2D image.</p>
Compare (2D)	<p>Identify similarities and differences in 2D image layers.</p> <ul style="list-style-type: none"> Use Compare Layers to specify which 2D images to compare. Use 1st Layer to display only the first image. Use 2nd Layer to display only the second image.

Use this option	To do this
	<ul style="list-style-type: none"> • Use Compare Layer to display the first and second images simultaneously and identify the differences between the images. • Use Clear Compare to clear the comparison layer. • Use Toggle Layer Definition to switch between either showing the common elements from both comparison layers or the elements that are unique to each of the layers. • Use All to display all layers. • Use Preferences to choose colors for the images.
Movie Capture (3D)	<p>Record the movements of your model in the Viewing window as a movie.</p> <div data-bbox="505 758 1451 890" style="border: 1px solid black; padding: 5px;"> <p>Note: Only available in Professional and Mockup.</p> </div>
Outline Capture (3D)	<p>Create an outline drawing of your model.</p> <div data-bbox="505 989 1451 1121" style="border: 1px solid black; padding: 5px;"> <p>Note: Only available in Professional and Mockup.</p> </div>
Issues (2D and 3D)	<p>Communicate across a corporate intranet.</p> <div data-bbox="505 1213 1451 1346" style="border: 1px solid black; padding: 5px;"> <p>Note: Not available in Base.</p> </div>
Part Manipulation Mode (3D)	<p>Drag parts interactively around the Viewing window.</p> <div data-bbox="505 1438 1451 1570" style="border: 1px solid black; padding: 5px;"> <p>Note: Only available in Professional and Mockup.</p> </div>
Part Transformation (3D)	<p>Translate, rotate, and scale parts in 3D models.</p> <div data-bbox="505 1663 1451 1795" style="border: 1px solid black; padding: 5px;"> <p>Note: Only available in Professional and Mockup.</p> </div>
Motion (3D)	<p>In Base and Standard, reset all transformed parts to their original positions.</p>

Use this option	To do this
	In Professional and Mockup, animate your 3D model.
Path Editor (3D)	Generate extraction paths for parts or assemblies that need to be removed from models for maintenance or replacement. <div data-bbox="505 388 1451 520" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: Only available in Mockup.</p> </div>
Swept Volume (3D)	Create a graphical representation of the volume and path of a part as it moves. <div data-bbox="505 653 1451 785" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: Only available in Mockup.</p> </div>
Quick Color (3D)	Change the color and transparency of parts and part groups.
Coordinate Systems (3D)	Create and work with coordinate systems. <div data-bbox="505 938 1451 1071" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: Only available in Professional and Mockup.</p> </div>
Exploded View (3D)	Move parts and groups of parts specified distances along the x, y, or z axis. <div data-bbox="505 1169 1451 1302" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: Only available in Professional and Mockup.</p> </div>
Filters (3D)	Constrain which parts are loaded or displayed in the Viewing window. <div data-bbox="505 1400 1451 1533" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: Only available in Mockup.</p> </div>
View Zones (3D)	Display the 3D zones defined by a zone (.ZN) file. <div data-bbox="505 1631 1451 1764" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: Only available in Mockup.</p> </div>
Inspector (3D)	Examine and validate the data structure and integrity of .jt files.
Layer Filter (3D)	Filter part visibility based upon the layer settings within the file.

Use this option	To do this
Reference Sets (3D)	Change the active reference set.
True Shading (3D)	Quickly change the appearance of 3D models via predefined visual effects. <div style="border: 1px solid black; padding: 5px;"> <p>Note: Only available in Professional and Mockup.</p> </div>
Part Report (3D)	Generate part reports to examine attribute information such as angles, chordal lengths, and part names. <div style="border: 1px solid black; padding: 5px;"> <p>Note: Not available in Base.</p> </div>

Adjust menu (2D)

Open a 2D image and then add a new layer to the **Base Document**. The **Adjust** menu appears on the **Menu** bar when you enable **Adjust** from the **Tools** menu.

Use this option	To do this						
Translate	Pan (move) the selected markup layer in the Viewing window.						
Scale	Zoom in and out of the selected markup layer in the Viewing window.						
Rotate	Turn the selected markup layer in the Viewing window.						
Vector Alignment	One Point – Align one point or position on one 2D vector markup layer with a point on another vector 2D markup layer. Two Points – Align two points on a vector 2D markup layer with two points on another vector 2D markup layer.						
Raster Alignment	One Point – Align one point on a raster markup image layer with one point on another raster markup layer. Two Points – Align two points on a raster markup layer with two points on another raster markup layer.						
Reset	<table border="1"> <thead> <tr> <th>If you</th> <th>This happens</th> </tr> </thead> <tbody> <tr> <td>Insert or create the selected 2D image layer in the current work session, and then click Reset.</td> <td>All adjustments to the markup layer are cleared and the markup returns to its original position.</td> </tr> <tr> <td>Open the selected 2D image layer by opening a session (VF)</td> <td>All adjustments made to the opened sessions file are cleared and the markup</td> </tr> </tbody> </table>	If you	This happens	Insert or create the selected 2D image layer in the current work session, and then click Reset .	All adjustments to the markup layer are cleared and the markup returns to its original position.	Open the selected 2D image layer by opening a session (VF)	All adjustments made to the opened sessions file are cleared and the markup
If you	This happens						
Insert or create the selected 2D image layer in the current work session, and then click Reset .	All adjustments to the markup layer are cleared and the markup returns to its original position.						
Open the selected 2D image layer by opening a session (VF)	All adjustments made to the opened sessions file are cleared and the markup						

Use this option	To do this	
	file or PVL file, and then click Reset .	<p>returns to the saved sessions file position.</p> <div style="border: 1px solid black; padding: 10px;"> <p>Note:</p> <p>Click Reset again to clear all the adjustments made to the selected layer, including adjustments from the saved session.</p> <p>The markup layer returns to its original position.</p> <p>Click Reset a third time returns the selected layer back to the saved session position. In other words, clicking Reset switches the markup layer between a "clear" and an "as-loaded" state.</p> </div>

Alignment menu (3D)

Use the **Alignment** menu to align parts of 3D models to other parts. The **Alignment** menu appears on the Menu bar when you choose **Alignment** from the **Tools** menu.

Use this option	To do this
Primary Constraints	Set or change the first part feature you pick for alignment.
Secondary Constraints	Set or change the second part feature you pick for alignment.
Tertiary Constraints	Set or change the third part feature you pick for alignment.
Preview Alignment	Align the parts when the entities have been picked.
Next Alignment	View the other alignments that are possible with the same constraints.
Accept Alignment	Move the parts to the positions displayed in the current alignment.
Cancel Alignment	Return the parts to their previous positions and clear all constraints.
Preferences	Change the colors, sizes, and display of coordinate systems during alignment.

Assembly menu

Use the **Assembly** menu to work with the assembly in the **Assembly** view. The **Assembly** menu is on the **Menu** bar when you choose **Assembly** from the **Tools** menu.

Use this option	To do this
Expand All	Display all subassemblies and parts (3D model) or all layers (2D image).
Collapse All	Hide all subassemblies and parts (3D model) or all layers (2D image).
Pack All	Pack all occurrences of the identical objects within each assembly in the structure as single lines.
Unpack All	Unpack all packed lines to view each occurrence of all objects in the structure as individual lines.
Find	Find a text string in the assembly.
Retry Failed	Attempt to load parts that failed to load.
Failure Report	Generate a summary report of parts that failed to load.
Failure Preferences	Specify the type of information that is displayed in your reports, as well as disabling the Reports Wizard by using the options.
Create Alt Hierarchy	Use options to create an alternate hierarchy.
Reconcile Hierarchy	Use Reconcile Hierarchy to compare your assembly to the same assembly saved in a session file.
Show Leaf Structure	Use Show Leaf Structure to show or hide leaf component structure in the assembly tree.
Preferences	Specify how you want to display model parts that you select in the Viewing window.
Save Indented	Save the assembly as a text file.

CAE Viewing menu

The **CAE Viewing** menu appears on the **Menu** bar when you choose **CAE Viewing** from the **Tools** menu.

Use this option	To do this
Display Options	Set color bar and lighting options.
Identify	Probe the 3D model for CAE results values at specific node or element locations.
Annotations	Annotate CAE results.
Preferences	Set appearance preferences for annotations.

Clearance menu

Use the **Clearance** menu to identify the Clearance of elements in 3D models. The **Clearance** menu appears on the **Menu** bar when you choose **Clearance** from the **Tools** menu.

Use this option	To do this
Set Clearance	Set the Clearance requirement between elements.
Dynamic Clearance	Identify Clearance violations while playing a motion file or transforming parts in the 3D Viewing window. To locate violations quickly, you can highlight parts that move within the Clearance requirement of a selected part. You can also indicate whether a results list is generated.
Stop on Collision	Stop playback of a motion file if the selected part or parts moves within the Clearance requirement of another part. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: This option is available only if Dynamic Clearance is selected.</p> </div>
Matrix Clearance	Generate a list of all elements within the Clearance requirement of any element. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: This option is not available if Dynamic Clearance is selected.</p> </div>
Group to Group Clearance	Set up and compare multiple groups of data while avoiding checks between elements within the same group or group set.
Selected Clearance	Check for elements within the Clearance requirement of the selected part.
Scope	Specify which parts to check when you check Clearance. <ul style="list-style-type: none"> • All Elements checks all elements in your model file. • Loaded Elements checks all elements in your model file that are loaded. • Visible Elements checks all elements that are currently visible in the Viewing window.
Visibility Action	Specify the method used to visibly identify elements within the Clearance requirement. <ul style="list-style-type: none"> • No Action does not visibly identify elements within the Clearance requirement. • Show Elements displays elements within the Clearance requirement.

Use this option	To do this
	<ul style="list-style-type: none"> • Hide Elements hides elements within the Clearance requirement. Visibility of other elements is not affected. • Select Elements highlights elements within the Clearance requirement. • Visual Report displays the Clearance issues in a visual report on the Viewing window.
Results	<p>Work with the element pair list in the General Clearance Results window.</p> <ul style="list-style-type: none"> • Results Window displays the General Clearance Results window. • Legacy Filter changes the rows of information that appear in the General Clearance Results window in accordance with filters you created. • Find finds text strings in the results that are visible in the General Clearance Results window. • Clear Results List clears the list that appears in the General Clearance Results window. • Remove Annotations removes from the Viewing window the label that identifies the element pair that is selected in the General Clearance Results window. • Save All saves the list that appears in the General Clearance Results window, as well as any items that have been filtered, as a .txt file. • Save Visible saves the list that appears in the General Clearance Results window as a .txt file. • Load opens a Clearance results list that has been saved in a previous work session or a Clearance Database Connection (.dbc) file. • Quick-load automatically opens the last Clearance results file or Clearance Database Connection (.dbc) file that was opened or saved. • Compare List to File compares the information in the General Clearance Results window to Clearance results that have been saved in a file. • Email All Owners sends an email message to the owners of all issues listed in the General Clearance Results window.

Use this option	To do this
	<ul style="list-style-type: none"> • Recalculate Zones uses the zone file specified in the Clearance Zone Preferences dialog box to recalculate the zones in your model and identify which Clearance issues occur in which zones. • Post All Issues posts all the issues listed in the General Clearance Results window to the visual issues list on your Community Collaboration site. • Remove All Issues removes all the issues listed in the General Clearance Results window from the visual issues list on your Community Collaboration site. • Preferences specifies your preferences for the General Clearance Results window. • Report saves the results list in the General Clearance Results window as a standard or custom report.
Navigation	<p>Navigate to the Previous Result or Next Result in the General Clearance Results window, or to the Previous Region or Next Region of contact or penetration in the Clearance Navigation & Analysis dialog box.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>Note:</p> <p>Generate a results list containing multiple results for all elements within a Clearance requirement or elements within a Clearance requirement of a selected part to navigate between results. The Clearance Navigation & Analysis dialog box must be open and contain multiple regions of contact or penetration to navigate between regions.</p> </div>
Preferences	<p>Change settings that control appearance, precision, and behavior when you check Clearance.</p> <ul style="list-style-type: none"> • Calculator Settings specifies the precision and nature of the Clearance check. • Display Precision changes the number of decimal places to which Clearance requirements are calculated. • Show Estimated Time toggles display of time estimate during the Clearance check. • Email specifies when and to whom email messages are automatically sent when clearance is checked.

Use this option	To do this
	<ul style="list-style-type: none"> • Owner specifies the attribute that identifies the owner of a part. • Part Creation Date specifies the attribute that identifies the creation date of a part, as well as the format of the date. • Zones specifies the list of zones that have been defined by your company for the model. • Attributes defines the attributes included in the General Clearance Results list. • Requirement Components specifies whether to use a Universal Clearance Requirement or other requirements and conditions present in the Oracle database. • Result Components specifies whether to visually display results within the application or upload the results to the Oracle database. • Product Configurator loads the available variant rules and criteria for the current product from Product Configurator allowing the user to select a variant rule to be used during Clearance analysis.

Comparison menu

You can use the **Comparison** menu to display differences between two part sets or Viewing windows.

The **Comparison** menu is on the **Menu** bar when a 3D model file is in the active Viewing window and you choose **Tools**→**Comparison**.

Use this option	To do this
Geometry	<p>Display differences between two parts or two sets of parts.</p> <ul style="list-style-type: none"> • Set Part Group 1: Set your first set of parts for comparison. • Show Part Group 1: Show the parts in Part Group 1. • Set Part Group 2: Set your second set of parts for comparison. • Show Part Group 2: Show the parts in Part Group 2. • Tricolor Mapping: Display Part Group 1 and Part Group 2 in the same Part Compare Viewing window and identify the similarities and differences between the part sets.

Use this option	To do this
	<ul style="list-style-type: none"> • Distance Mapping: Display Part Group 1 and Part Group 2 in the same Part Compare Viewing window and identify the extent of the differences between the part sets.
Side by Side	<p>Visually inspect models side by side in two or more 3D Viewing windows.</p> <ul style="list-style-type: none"> • View Multiple Windows: Start a side by side comparison of the contents of multiple 3D Viewing windows. • Synchronized Viewing: Synchronize the navigation cameras for the Viewing windows involved in the comparison. • Reposition Windows: Re-tile the Viewing windows.
Preferences	Specify the default behavior of 3D comparisons.

Concept menu

In Professional and Mockup, use the **Concept** menu to work with advanced appearance attributes.

Use this option	To do this
Appearance	Specify appearance options.
Behaviors	Create and manage Behaviors.
Presenter	Play presentations.
Desktop Display	Set the desktop display mode.
Immersive Display	Specify immersive display options.
Sensors	Configure sensors.
Surface Analysis	Evaluate part surface fairness.

Constraint menu

Use the **Constraint** menu to constrain parts in an assembly and manage constraint files. The **Constraint** menu appears on the **Menu** bar when you choose **Constraint** from the **Tools** menu.

Use this option	To do this
Open Constraint File	Open an existing constraint (.plmxml) file.
New Constraint File	Create a new constraint file.

Use this option	To do this
Save Constraint File	Save the constraints to a constraint file. If you opened an existing constraint file, save the changes to the same file.
Save As Constraint File	Save the constraints to a constraint file. You can specify a new file name and path.
Update	Update
Create Constraint	Create new constraints.
Create Mechanism Link	Create a mechanism link for each component added to the mechanism.
Remove Mechanism Link	Remove a mechanism link from the mechanism.
Preferences	Set global constraint behavior and appearance preferences.

DFx menu

The **DFx** menu is accessible from the **Tools** menu when an ECAD image is opened in the Viewing window.

Use this option	To do this
Open Rules	Open the Open Rules dialog box and select a configuration file containing the rules for evaluating the open PCB.
Edit Rules	Open the DFx Rule Set Editor dialog box to review and modify Design for Assembly and Design for Test rules.
Open Results	Open a previously generated results file for the current PCB.
Save	Save the active rules file and results using the current dataset name.
Save As	Save the active rules file and results. You will be prompted for a new dataset name.
Run	Start the design evaluation on the active PCB.
Summary Report	Open the most recently saved summary results report for the active PCB.
Detail Report	Open the most recently saved detail results report for the active PCB.

Edit menu

The **Edit** menu appears in the **Menu** bar when a file is open. **Edit** menu items are available when markups are selected.

Use this option	To do this
Copy (2D, 3D)	Copy a selected markup.
Copy Image (2D)	Copy an image as it appears in the Viewing window, then paste the image into another application that accepts bitmap images.
Copy Region (2D)	Select a section of an image and copy it to the clipboard.
Cut (2D, 3D)	Cut a selected markup.
Delete (2D, 3D)	Delete a markup.
Options	Modify Teamcenter options.
Paste (2D, 3D)	Paste a cut or copied markup into the selected markup layer.
Redo (2D, 3D)	Reverse an undo.
Select All (2D)	Select all the markups on your image.
Undo	Reverse the last action you performed.
User Settings	Update your Teamcenter user settings.
Edit Text (2D)	Update the text in a 2D file.

File menu

The **File** menu is on the menu bar.

Some options are available only when files of a particular type are open.

Use this option	To do this
Attachments	Save attachments, such as Microsoft Office documents, with your session package.
Close	Close the active file. If you have used the New Window option to create additional views of your document, all views close. To close only one view, close the window itself.
Convert Model	Convert a 3D model file to .jt format.
Exit	Close all files and exit the program.
Export (3D)	Export 3D model files.
Export Image	Save a 2D image of your current view, as a raster image.
Export Image View List (2D)	Save 2D current view information as a file or macro.
Preferences	Set your preferences when opening files.

Use this option	To do this
Print	Print the image in the current Viewing window.
Print Preview	View and manipulate your 2D image or 3D model, then print the view in the Print Preview window.
Properties (2D)	Display information about your 2D image. You can display the name and location of your file, as well as the dimensions, depth, and resolution of your image. You can also view any metadata that has been stored with your image file.
Save All Layers (2D)	Save your layers as separate CGM markup layers. If a layer has not been saved, you will be prompted for a file name.
Save As (3D)	Save 3D model files as .plmxml.
Save Combined Layers (2D)	Save all selected layers as one CGM file. <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p>Tip:</p> <ul style="list-style-type: none"> You can select layers by clicking the layer name in the layer tree. You can select multiple layers by pressing the CTRL key while you click. </div> <div style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>If the environment variable EAI_EXPORT_COMBINED_VISIBLE is set to YES, all visible layers are combined in this operation, whether or not they are selected.</p> </div>
Save Layer	Save the selected 3D layer.
Save Layer As	Save the selected 3D layer with a new name.
Save Selected Layers As (2D)	Save the selected layers as separate CGM markup layer.
Save Session	Save a session file.
Send Mail (2D, 3D)	Send an email message with a .png image capture of the contents of the 2D or 3D Viewing window or with a .vfx collaboration file that captures your work session.

2D GD&T Markup menu

You can use the **GD&T Markup** menu to control how GD&T markups appear in the Viewing window. The **GD&T Markup** menu appears on the **Menu** bar when you choose **GD&T Markup** from the **Tools** menu.

Use this option	To do this
GD&T Annotation Editor	Open the GD&T Annotation Editor dialog box.
Stack	Enable or disable Stack Mode.
Copy GD&T Annotation	Copy a GD&T annotation.
Paste GD&T Annotation	Paste a GD&T annotation.
New Layer	Add a new GD&T markup layer.
Preferences	Specify GD&T annotation preferences.

3D GD&T Markup menu

You can use the **GD&T Markup** menu to control how GD&T markups appear in the Viewing window. The **GD&T Markup** menu appears on the **Menu** bar when you choose **GD&T Markup** from the **Tools** menu.

Use this option	To do this
GD&T Annotation Editor	Open the GD&T Annotation Editor dialog box.
Anchor	Enable or disable Anchor Mode.
Stack	Enable or disable Stack Mode.
Copy GD&T Annotation	Copy a GD&T annotation.
Paste GD&T Annotation	Paste a GD&T annotation.
New Layer	Add a new GD&T markup layer.
Preferences	Specify GD&T annotation preferences.

Groups menu

Use the **Groups** menu to create sets of visible parts (groups), and display, hide, or select each group.

The **Groups** menu appears on the first level of the **Menu** bar when you choose **Tools**→**Groups** to activate the **Groups** menu.

Use this option	To do this
Add Selected	Create a new group from the parts that are selected in the Viewing window.
Add Visible	Create a new group from the parts that are currently visible.
Copy to Alt. Hierarchy	Create an assembly of the active group in the Assembly tree.
Delete	Delete the selected group from the Groups view.
Edit Group Appearance	Change the appearance of the parts in the selected group.
Full Subtract	Change the way group parts are hidden.
Rename	Rename the selected group from the Groups view.
Replace Selected	Replace the parts in the selected group with the parts that are selected in the Viewing window.
Replace Visible	Replace the parts in the selected group with the parts that are currently visible in the Viewing window.
Single Group Mode	Display, hide, or select the parts in only one group at a time.
Use Group Appearance	Display the parts in groups with the appearance you set with the Edit Group Appearance option.
Sort	Sort groups in ascending or descending order.

Help menu

Use the **Help** menu to access the information you need to use the software.

Use this option	To do this
Current Application	Launch the online help for the active application.
Help Library	Launch the full help library.
About	Display version, copyright, and requirement information about the software.

Markup menu (2D)

The 2D **Markup** menu appears on the **Menu** bar when a 2D image file is in the active Viewing window and you choose **Markup** from the **Tools** menu.

Use this option	To do this
New Layer	Create a new 2D markup layer on your 2D image.
Select	Select individual markups to move them around the Viewing window and between 2D markup layers.
Draw	Select a type of markup to place on your 2D image. You can choose to create markers, lines, shapes, and text. You can also select the options to insert another 2D image or predefined data from a rubber stamp.
Bring to Front	Move a 2D markup to the top of all other 2D markups on the 2D markup layer.
Send to Back	Move a 2D markup behind all other 2D markups on the 2D markup layer.
Bring Forward	Move a 2D markup one position forward on the 2D markup layer.
Send Back	Move a 2D markup one position back on the 2D markup layer.
Properties	Change the characteristics existing 2D markups.
Preferences	Specify the characteristics of new 2D markups.

Markup menu (3D)

The **Markup** menu appears on the menu bar when a 3D file is in the active Viewing window, and you choose **Tools**→**Markup**.

Use this option	To do this
New Layer	Create a new 3D markup layer.
Layer Authoring	Create authored layers to use during collaboration sessions.
Select	Select an existing markup.
Draw	Draw markups in the Viewing window.
Anchor	Attach the markups you draw to parts of the model. Clear Anchor to draw markups that are not attached to a part, but instead “float” in the Viewing window.
Fill	Draw filled rectangle, polygon, ellipse, or text markups. Clear Fill to draw only the outline of a rectangle, polygon, ellipse, or text.
Auto Create Anchored Text	Create anchored text which is added to either selected or visible parts at once.
Use Predefined Text	Add predefined text that needs to appear every time you add a text markup.
Align	Align multiple anchored text markups for readability.
Distribute	Distribute markups as needed to evenly space them.

Use this option	To do this
Position Anchored Text	Position anchored text markups precisely where you want them.
Find	Find and replace text in the current view's anchored and unanchored text markups.
Edit Properties	Change specified properties of a filtered set of markups.
Resequence Callouts	Resequence the order callouts appear in the Viewing window.
Remove All	Remove all 3D markups.
View Anchored with Part	Associate the visibility of anchored markups with the visibility of the parts they are attached to.
Manage Symbols	Access the Symbol Manager dialog box.
Preferences	Change the colors, styles, and display of 3D markups.

Measurement menu (2D)

The **Measurement** menu appears on the **Menu** bar when a 2D image is in the Viewing window and when you choose **Tools**→**Measurement**.

Use this option	To do this
New Layer	Create a new markup layer.
Calibrate Vector	Calibrate the measurement device between two points drawn on your base file or markup layer.
Calibrate Raster	Calibrate the measurement device between any two points (pixels) on your base file or markup layer.
Vector Measurement	Measure a drawn angle or radius, between two drawn points, or the angle between two drawn lines on your base file or markup layer.
Raster Measurement	Measure any angle or radius, between any two points, or between any two lines on your base file or markup layer.
Persistent Measurement	Maintain measurement results by saving the data as a base file or markup layer.
Preferences	Set precision, color, and text height for 2D measurements.

Measurement menu (3D)

The **Measurement** menu appears on the **Menu** bar when you open a 3D file and enable **3D Measurement** from the **Tools** menu.

Use this option	To do this
Type	In Standard, Professional and Mockup, select the type of 3D measurement (single, double, chain, fan, distance, angle, radius, or diameter).
Clear	Delete all 3D measurement display labels.
Undo Pick	Clear your last measurement pick.
Create Part Summation Measurement	Display the total area, volume, and mass of a selected set of parts.
Create Bounding Box Measurement	Display the bounding box for a selected set of parts, and display the measurements of the bounding box.
Create Part Set Measurement	Display the distance between two sets of parts.
Show Minimum Distance Only	Display the minimum distance when performing measurements between part features.
Show Maximum Distance Only	Display the maximum distance when performing measurements between part features.
Measure Surface Centerline	Measure the centerline curve of a surface or calculate the cumulative length of curves of multiple surfaces.
Use Approximate	Disable NURBS measurement for some model files.
Preferences	the units of measurement, precision, lines, edges, fill, and font displayed in the measurement display labels. You can also choose to display arc and circles with radius or diameter measurements, to measure the minimum or maximum distance between parts, and to display XYZ delta measurements.
Reports	Create and edit measurement reports.
Display Active Measurement	Display information about the active double measurement in the upper left corner of the Viewing window.
Measurement Logging	Record initial information for all double measurements and log any subsequent changes to double associative measurements as you play a motion file or interactively move parts.

Navigation menu (3D)

The **Navigation** menu is on the **Menu** bar when a 3D file is open.

Some options are available only when you are working in a particular mode.

Use this option	To do this
Examine Mode	Examine your model by panning, zooming, and rotating the navigation camera.
Explore Mode	Explore forward or back and look left or right as you move through your model.
Fly Mode	Move forward, back, left, right, up, and down through your model.
Previous View	Return to the last static view.
Next View	Move to the next static view.
Fit All	Fit all the visible parts of your 3D model into the Viewing window.
Zoom Area	Zoom to a specific portion of your 3D model.
Seek	<ul style="list-style-type: none"> Center a point of your 3D model in the Viewing window. View the normal of any face on your 3D model.
Automatic Motion	Continuously rotate the navigation camera around the model, creating a spinning turntable effect.
Rotate	Rotate around a specific point on your 3D model.
Navigate	Move closer to or farther from the model.
Pan	Move the view of your 3D model in the plane of the Viewing window.
Position	Choose your initial position in your model.
Level	Return your view of the model to level.
Follow Terrain	Remain a specified distance above the "floor" upon which you are moving.
Stop on Collision	Stop moving through your model when you come into contact with a part.
Go Home	Return to the location and position you were at when you last selected Set Home .
Set Home	Set the current location and position as the home location.
Preferences	Set parameters for moving through your model.

Part Edit menu

The **Part Edit** menu is on the **Menu** bar when you choose **Part Edit** from the **Tools** menu.

Use this option	To do this
Control	Control model LODs, and define a working set of parts for use in geometry simplification.
B-Rep	Reverse B-Rep face orientation.
Tessellation	Tessellate parts.
Visibility	Simplify parts based upon visibility.
Decimation	Simplify parts based upon a specified triangle reduction.
Preferences	Specify Part Edit Preferences.

PMI menu

The **PMI** menu is on the menu bar when a 3D model file is in the active Viewing window and you choose **PMI** from the **Tools** menu.

Use the **PMI** menu to display product and manufacturing information (PMI) that is attached to your model.

Use this option	To do this
Feature-based Multiple Entity Mode	(For JT models containing feature level designs) PMI for all faces and edges associated with the feature level. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Note: If you use this option and the JT model does not contain a feature level, PMI is displayed from the selected face and all its edges.</p> </div>
Toggle Multiple Entity Mode	Display all the PMI that pass the filter.
Previous Entity	(For Single Entity Mode) Display the previous PMI, when you are cycling through a series.
Toggle Single Entity Mode	Display each PMI one at a time.
Next Entity	(For Single Entity Mode) Display the next PMI, when you are cycling through a series.
Model View Palette	Open the Model View Palette.
Filter Configuration	Choose which types of PMI are displayed.
Text Orientation	Change the orientation of PMI text so it is displayed correctly.

Use this option	To do this
Fit View to Selected	Display all PMI in the PMI list, without changing the direction or orientation of the camera.
Clear Entities	Clear all the PMI that are currently displayed.
Point Report	Display a text dialog box that lists points and normals for selected Measurement Point and Spot Weld PMI entities.
Preferences	Set PMI preferences to control the appearance of PMI labels.

Reconcile menu

Use the **Reconcile** menu to resolve broken references to parts and assemblies. The **Reconcile** menu appears in the **Menu** bar when you choose **Reconcile** from the **Tools** menu.

Use this option	To do this
Validate All References	Validate references in a file.
Reconcile Broken References	Open the Reconcile Reference dialog box so you can manually reconcile broken references.
Delete All Mapping Rules	Removes all mapping rules from the session. <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>Note:</p> <p>Mapping rules record of how the broken references were resolved, and they are retained in session files. Resolving broken references for the externally stored Visualization files such as VFM, Constraints, and VAN files require mapping rules.</p> <p>You can remove the mapping rules from the session file to reduce the size of a session file. References that are already resolved in the session will remain resolved, but removing the rules affects working with the externally stored Visualization files such as motion (.vfm), constraint (.plmxml), and animation (.van) files. For that reason, this command should be used sparingly.</p> </div>
Import Mapping File	Load a mapping file.
Export Mapping File	Save a mapping file.
Preferences	Specify reconcile preferences.

Section3D menu

The **Section3D** menu appears on the **Menu** bar when a 3D model is in the active Viewing window and you choose **Section3D** from the **Tools** menu.

Use this option	To do this
Create Section	Create a cross section that is normal to the X, Y, or Z axis.
Create Grid	Create a cross section grid.
Create Series	Create a series of equally spaced cross sections along an axis, along a linear edge, or between two points.
Delete	Delete the active cross section in the current 3D view.
Delete All	Delete all cross sections.
Position Plane	Show or hide the Position Plane dialog box or 3D manipulator for positioning section planes.
Align Plane	Align the active cross section plane in the current view normal to the X, Y, or Z axis, or to a feature of the model.
Show in Viewer	Show or hide the Cross Section Viewer for the active section.
Select Parts	Select all parts in an existing cross section.
Update Parts	Update a cross section after adding or removing parts.
Send to 2D	Capture a cross section as a 2D image.
Send to 3D	Capture a cross section as a 3D document.
Clipping	Clip away the near or far side of the model, or clip away both sides to display only the cross section edges.
Plane View	Rotate the view to make it parallel to the active cross section plane.
Fix Label Orientation	Correct the orientation of cross section grid labels.
Show Borders	Display all cross section borders.
Hide Borders	Hide all cross section borders.
Create Point Sheets	Generate point sheets and display the points in the 3D scene. Choose Section for points that are generated at the intersection of section and grid lines parallel to the X, Y, or Z axes. Choose Curve for points that are generated along a single curve or multiple connected curves.
Preferences	Specify appearance and behavior preferences for new cross sections.

Use this option	To do this
Update	Update cross section rendering when the Fast Mode section preference is active.
Report	Create cross section reports that can include analysis of the section area or perimeter, moment of inertia, center of gravity, and other calculated cross section properties. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>Only Perimeter and Area are available if the model does not contain B-Rep data.</p> </div>

Snapshots menu

The **Snapshots** menu is on the **Menu** bar when you choose **Snapshots** from the **Tools** menu.

Note:

Menu options vary depending on the type of file you are working with. For example, when you work with 3D snapshots you can cycle through the snapshots, change the view between thumbnail images and a list, and set 3D snapshot preferences.

Use this option	To do this
Cycle	Cycle through a series of snapshots. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>This feature is supported by 3D snapshots.</p> </div>
Add	Add a snapshot of the Viewing window.
Insert	Insert a snapshot between two existing snapshots.
Delete	Delete the selected snapshot.
Replace	Replace a snapshot with a new snapshot.
Recapture Image	Recapture the image displayed in the Snapshots view.
Preferences	Specify snapshot preferences.

Use this option	To do this
	<p>Note:</p> <p>This feature is supported by 3D snapshots.</p>
Toggle View	<p>Display snapshots as thumbnails or a list.</p> <p>Note:</p> <p>This feature is supported by 3D snapshots.</p>

Tools menu

Use the **Tools** menu to enable and use various features of the software.

Some options are available only when files of a particular type are in the active Viewing window.

Use this option	To do this
Adjust	<p>Translate, scale, or rotate your 2D image.</p> <p>When you select Adjust, the Adjust menu appears on the Menu bar.</p> <p>Note:</p> <p>When you open a 2D image and add a layer, this menu option becomes available.</p>
Alignment	<p>Align 3D model parts.</p> <p>When you choose Alignment, the Alignment menu appears on the Menu bar.</p> <p>Note:</p> <p>When you open a 3D model, this menu option becomes available.</p>
Assembly	<p>Work with the assembly of your 3D model.</p> <p>When you select Assembly, the Assembly menu appears on the Menu bar.</p>
Auto Correct	<p>Set up automatic correction and text replacement as you type in a technical illustration.</p>
CAE Viewing	<p>View CAE data exported as a .jt file from a supported application.</p>

Use this option	To do this
Clearance	<p>Enable clearance checking of your 3D model.</p> <p>When you select Clearance, the Clearance menu appears on the Menu bar.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>When you open a 3D model, this menu option becomes available.</p> </div>
Color Palette	<p>Define and select colors for elements of a technical illustration.</p>
Comparison	<p>Identify similarities and differences between sets of parts.</p> <p>When you select Comparison, the Comparison menu appears on the Menu bar.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>When you open a 3D model, this menu option becomes available.</p> </div>
Custom Property Sets	<p>Define stencils that contain similar data types (such as names, ID, dates, or descriptions), or add data sets to make the data fields consistent for each shape.</p>
GD&T Markup	<p>Create GD&T markups.</p> <p>When you select GD&T Markup the GD&T Markup menu appears on the Menu bar.</p>
Groups	<p>Create sets of visible parts (groups), and display, hide, or select each group.</p> <p>When you select Groups, the Groups menu appears on the Menu bar.</p>
Markup	<p>Draw markups on your 2D image.</p> <p>Draw markups on your 3D model.</p> <p>When you choose Markup, the Markup menu appears on the Menu bar.</p>
Measurement	<p>Measure your 2D image or 3D model.</p> <p>When you select Measurement, the (2D) Measurement menu or (3D) Measurement menu appears on the Menu bar.</p>
Options	<p>Define specific Visio options for use in a technical illustration.</p>
PMI	<p>Display product and manufacturing information (PMI) that is attached to your model.</p> <p>When you select PMI, the PMI menu appears on the Menu bar.</p>

Use this option	To do this
	<div style="border: 1px solid black; padding: 5px;"> <p>Note: When you open a 3D model, this menu option becomes available.</p> </div>
Part Edit	<p>View, create, and delete part Level of Details (LODs).</p> <p>When you choose Part Edit, the Part Edit menu appears on the Menu bar.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Note: When you open a 3D model, this menu option becomes available.</p> </div>
Reconcile	<p>Resolve broken file references to parts and assemblies.</p> <p>When you select Reconcile, the Reconcile menu appears on the Menu bar.</p>
Ruler and Grid	<p>Show, hide or change the grid or ruler measurement units in a technical illustration.</p>
Run Add-On	<p>Run a special program (add-on) to perform specific Microsoft Office Visio tasks and operations in a technical illustration.</p>
Section3D	<p>Create and work with cross section views of your 3D model.</p> <p>When you select Section3D, the Section3D menu appears on the Menu bar.</p>
Snap and Glue	<p>Determine how shapes are aligned with other shapes and how shapes are attached to each other.</p>
Snapshots	<p>Create or work with snapshots to mark your place.</p> <p>When you select Snapshots, the Snapshots menu appears on the Menu bar.</p>
Spelling	<p>Check the spelling in a technical illustration.</p>
Thrustline	<p>Create thrustlines that show the order and relationship of parts in assemblies.</p> <p>When you choose Thrustline, the Thrustline menu appears on the Menu bar.</p>
Visual Report	<p>Create Visual Reports and apply them to your 3D models.</p> <p>Use this feature to create a systematic auto-color distinction between parts using a specific condition. For example, create a Visual Report that displays parts that are in a working status as red and all other parts as green.</p> <p>When you select Visual Report, the Visual Report menu appears on the Menu bar.</p>

Thrustline menu

The **Thrustline** menu appears on the **Menu** bar when you open a 3D file and enable **Thrustlines** from the **Tools** menu.

Use this option	To do this
New Layer	Create a new layer on the 3D scene.
New Thrustline	Create a new thrustline.
Delete Thrustline	Delete the currently selected thrustline.
Preferences	Edit preferences for thrustlines.

View menu (2D)

Use the **View** menu to manage or change how you view 2D images in the Viewing window. A separate menu is available for 3D viewing. Some options are available only when files of a particular type are open.

Use this option	To do this
Fit All	Fit your entire 2D image into the Viewing window.
Base View	Size the view to the extents of the first layer in a multi-layered 2D document. <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>Note:</p> <p>If the 2D document that you are viewing only has one layer, this option works the same as Fit All.</p> </div>
Browse	<ul style="list-style-type: none"> • Select hyperlinks. • Display screen tips. • Display contents of PDF sticky notes.
Zoom Area	Define an area of your 2D image and zoom to fit that area in the Viewing window.
Seek	Center a point of your 2D image in the viewing window.
Pan	Move your 2D image around in the plane of the Viewing window.
Zoom	Move closer to or farther from your 2D image.
Zoom Scale	Zoom a proportional amount closer to or farther from your 2D image in the Viewing window.

Use this option	To do this
	<ul style="list-style-type: none"> Use Zoom In to move closer to your 2D image in the Viewing window. Use Zoom Out to move farther from your 2D image in the Viewing window.
Zoom - Drawing Scale	Zoom to standard drawing scales, for example, 1:4, 1:2, 1:1, 2:1, and 4:1.
Orient	Rotate or flip the view of your image. <ul style="list-style-type: none"> Rotate Counterclockwise: Rotate the view 90 degrees counterclockwise. Rotate Clockwise: Rotate the view 90 degrees clockwise. Flip Vertical: Flip the view vertically. Flip Horizontal: Flip the view horizontally.
Page	Move to a different page in a 2D image file that contains multiple pages.
Preferences	Specify Viewing window appearance and initial view preferences.
Full Screen Display	Enable full screen display of 2D images.
Search	Search for text strings in PDF files.

View menu (3D)

Use the **View** menu to manage or change how you view 3D images in the Viewing window. A separate menu is available for 2D viewing. Some options are available only when files of a particular type are open.

Use this option	To do this
Standard Views	Switch to a standard view. Asterisks next to the view name indicates that view is the default view.
Rotate	Use the Rotate control panel or rotate your 3D model specific ways in the viewing window.
View Clipping	Add a near and a far clipping plane to the 3D Viewing window. You can also adjust the field of view for the perspective display mode.
Visibility	Display or hide selected parts, vertices, and edges of 3D models. <ul style="list-style-type: none"> Control by Selected: Display or hide parts when you select them. All On: Display all parts.

Use this option	To do this
	<ul style="list-style-type: none"> • All Off: Hide all parts. • Selected On: Display parts that are selected in the assembly tree. (When Control by Selected is not active.) • Selected Off: Hide parts that are selected. (When Control by Selected is not active.) • Visited On: Display all parts that you have explicitly made visible during the work session. • Invert Visited: Swap the visibility state of parts that you have explicitly made visible during the work session. • Show Edges: Display feature or B-Rep edges for the selected parts. • Show Vertices: Display B-Rep vertices for the selected parts. • Hide Edged: Hide feature or B-Rep edges for the selected parts. • Hide Vertices: Hide B-Rep vertices for the selected parts. • Hide All: Hide all edges and vertices for all parts. • Hide Obscuring: Hide parts that obscure your view of other parts. • Clipping Volumes: Clip areas of a 3D model for a better view of a part or assembly.
Select	<p>Select parts or part features in your model.</p> <ul style="list-style-type: none"> • All: Select all parts. • None: Deselect all parts. • Selection Filter: Specify Point, Vertex, Arc Center, Midpoint, Point on Edge, Surface, or Part. Check marks <input checked="" type="checkbox"/> indicate part feature types that are active for Smart Pick and QuickPick. • Disable Active Tool: Cancel the operation that is expecting a part feature selection, for example, 3D Measurement. • Define Point: Specify User Defined Point, Midpoint, Intersection, or Center of Three Point Arc.

Use this option	To do this
	<ul style="list-style-type: none"> • Select Parts by Area: Select parts within an area that you define. • Select Parts by Volume: Select parts within a volume that you define. • Pick Through Unshaded Parts: Pick geometry visible through parts displayed in the tessellated or feature lines display modes. • Generate Selection Preview Data: Load the B-Rep data required for previewing part feature selection.
Orthographic	Display an orthographic view of your model.
Perspective	Display a perspective view of your model.
Page Extents	Enable page extents functionality to size 3D entities relative to a 2D space.
Preferences	Specify 3D viewing and selection preferences.
Performance	Change the 3D Viewing options to improve the viewing quality.
Part Display Modes	Specify part display mode options. <ul style="list-style-type: none"> • Clear display modes: Reset the display modes for all parts. • Set all occurrences: Apply display modes to all instances of selected parts. • Show confirmation dialog: Confirm that you want to reset the display modes for all parts.

Visual Report menu

Use the **Visual Report** menu options to create visual reports and apply them to the parts and assemblies.

Use this option	To do this
Apply Report	Open the Apply Report dialog box. Use the Apply Report dialog box to load and apply existing visual reports.
Quick Report	Open the Quick Report dialog box. Use the Quick Report dialog box to quickly identify the parts that match your metadata search query.
Single Rule Report	Open the Single Rule Report dialog box.

Use this option	To do this
	Use the Single Rule Report dialog box to generate metadata search conditions and to specify how you want matched and unmatched parts displayed.
Multiple Rules Report	Open the Multiple Rules Report dialog box. Use the Multiple Rules Report dialog box to generate metadata search conditions.
Results Legend	Open the Results Legend dialog box. Use the Results Legend dialog box to display detailed information about processed visual reports. This information includes details as the current rule name and scope, names of parts, and the attributes and values used in the report.
Report Explore	Open the Report Explore dialog box. Use the Report Explore dialog box to set options for how you view the results of your visual report.
Reset Appearance	Discard visual changes and return to the original visual representation.
Preferences	Specify the default options for various visual reports preferences.

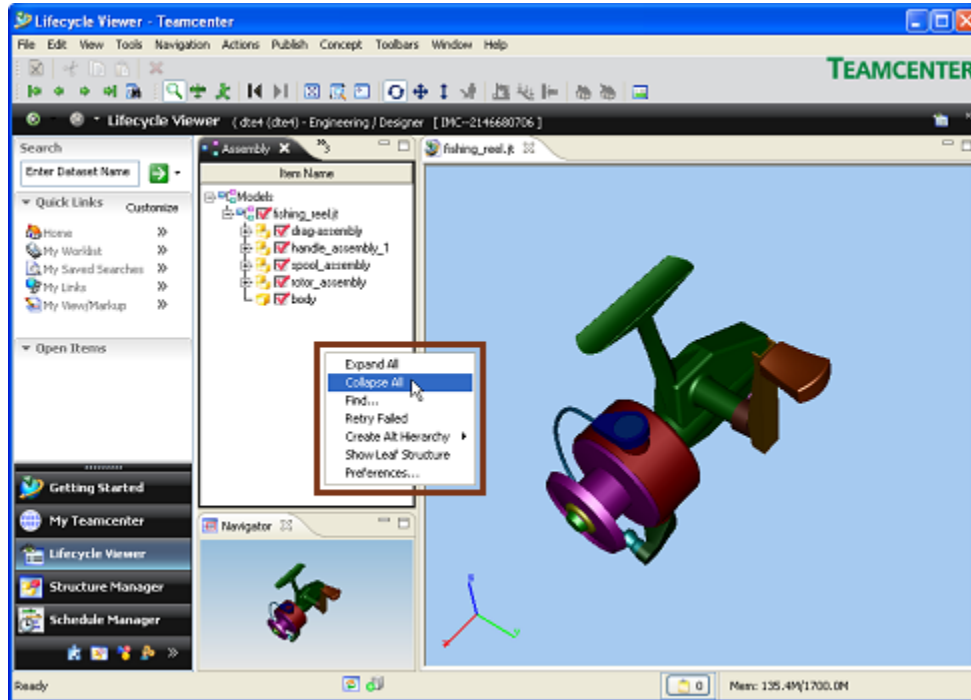
Window menu

Use the options from the **Window** menu to create a new instance of the 2D or 3D Viewing window or clone the 3D Viewing window.

Use this option	To
New Window	Open a copy of the active 2D or 3D Viewing window. <div style="border: 1px solid black; padding: 10px;"> <p>Note:</p> <p>If you have created copies of the file with the New Window option, and then you choose Close, all windows that contain the file in the active window close. To close a Viewing window without closing other Viewing windows that display the same file, click the X in the upper right corner of the Viewing window.</p> </div>
Clone Window (3D)	Create the same 3D view window as with New Window , but also apply view-based information from the active 3D view being cloned.

Shortcut menus

Shortcut menus are accessed by right-clicking items in locations, such as the assembly view. They provide quick access to much of the application's functionality.



Working with the status bar

Status bar overview

Located at the bottom of the interface, the Status bar displays information such as the following.

- The amount of memory that is available for 3D documents.
- The current number of anti-aliasing samples being used in the Viewing window.
- The loading progress of the 3D assembly. For example, when loading parts you will see file names appear in the Status bar, and the number of remaining shapes to load (with a time estimate for completion).
- Progress information for long running operations. The messages are not necessarily meant to provide precise information on every step in a process, but to communicate that the process is moving forward.

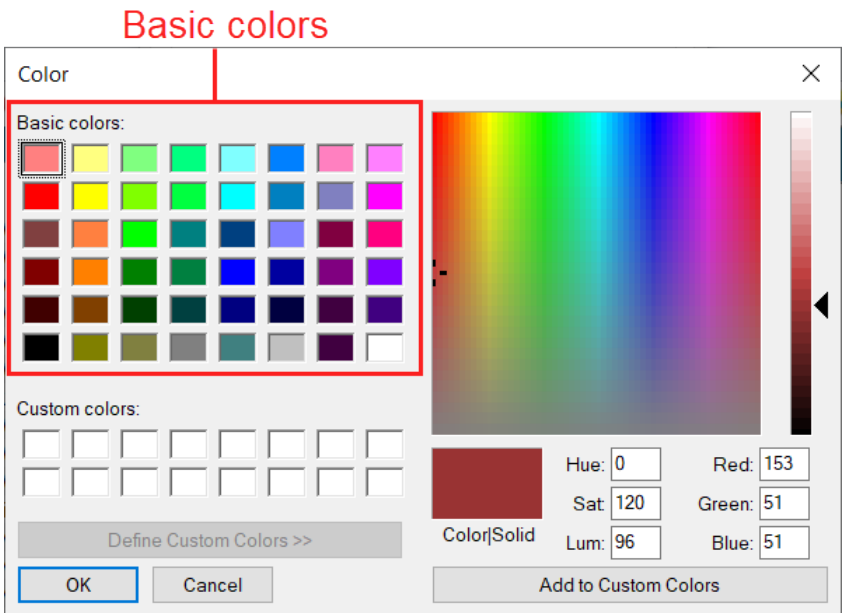
Due to the number of messages potentially displayed in the Status bar, these messages are not documented.

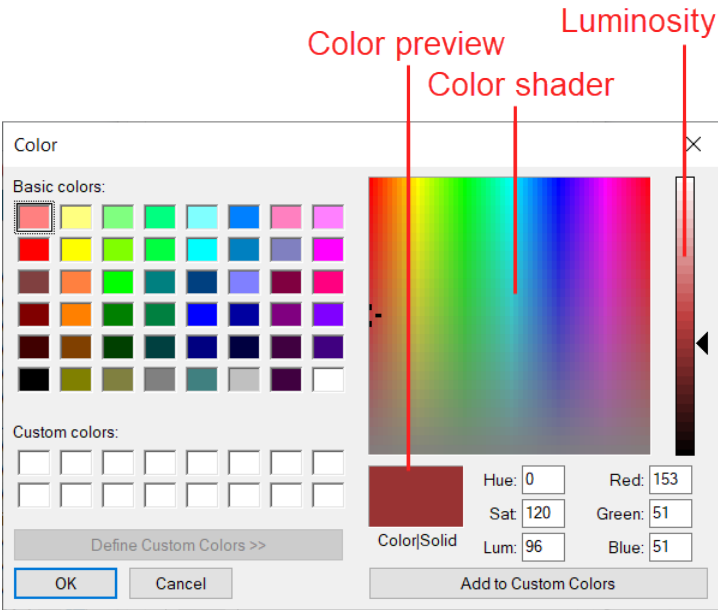
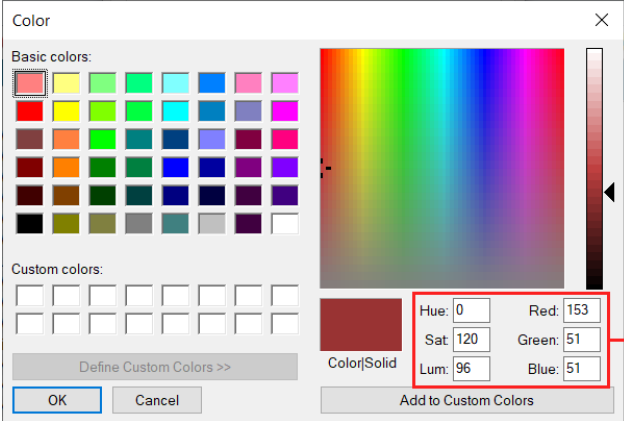
Choosing colors

When you select an option that involves choosing colors, you can choose from a palette of standard colors or create custom colors.

Do one of the following when the standard color palette appears:



To	Do this
Choose a color from the standard color palette	Click a color.
Choose a color from a larger color palette	<ol style="list-style-type: none"> Click Other to open the Color dialog box with a larger palette.  <ol style="list-style-type: none"> Click a color in the Basic colors area. Click OK.
Create a custom color interactively	<ol style="list-style-type: none"> Click Other to open the Color dialog box.

To	Do this
	 <ol style="list-style-type: none"> In the <i>color shader</i> section, drag the mouse pointer until the color preview displays the correct color (hue and saturation). Drag the <i>luminosity slider</i> up and down until the color preview displays the correct brightness. (Optional) To save your custom color for use in the current work session, click Add to Custom Colors. <p>The color appears in the Custom colors section.</p> <ol style="list-style-type: none"> Click OK.
Create a custom color by typing color values	<ol style="list-style-type: none"> Click Other to open the Color dialog box. 

To	Do this
	<p data-bbox="553 239 1133 275">2. Type values to define your custom color.</p> <p data-bbox="618 315 1442 380">Hue: Enter a value from 0 to 239 to define the hue (color) of the color.</p> <p data-bbox="618 426 1406 491">Sat: Enter a value from 0 (gray) to 240 (intense) to define the saturation of the color.</p> <p data-bbox="618 537 1409 602">Lum: Enter a value from 0 (black) to 240 (white) to define the luminosity (brightness) of the color.</p> <p data-bbox="618 648 1430 714">Red: Enter a value from 0 to 255 to define the amount of red in the color.</p> <p data-bbox="618 760 1463 825">Green: Enter a value from 0 to 255 to define the amount of green in the color.</p> <p data-bbox="618 871 1455 936">Blue: Enter a value from 0 to 255 to define the amount of blue in the color.</p> <p data-bbox="553 982 1442 1047">3. (Optional) To save your custom color for future use, click Add to Custom Colors.</p> <p data-bbox="618 1094 1446 1159">The color in the Color window appears in the Custom colors list on the left side of the Color dialog box.</p> <p data-bbox="553 1205 737 1241">4. Click OK.</p>

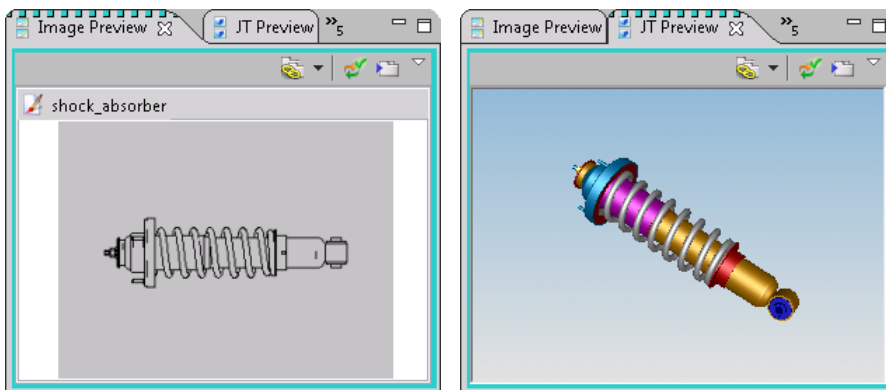
4. Previewing images and .jt parts

Image Preview and JT Preview views

Use the **Image Preview** and the **JT Preview** views to examine 2D raster images and .jt parts associated with items, item revisions, and datasets. When you select compatible objects within the My Teamcenter tree or the trees of other perspectives, the associated image or .jt part is displayed in the appropriate preview viewer.

Note:

Images and parts are displayed according to the order specified in the *tcgrb.properties* file (for 2D images) and the *tctdv.properties* file (for .jt parts).



Preview images

Preview 2D raster images in the **Image Preview** view.

1. (If you do not have a tab for the **Image Preview** view) Choose **Window**→**Show View**→**Other**→**Teamcenter**→**Image Preview**.
2. Select an item, item revision, dataset, or other object associated with a 2D image.

The image is displayed in the **Image Preview** view.

Note:

- The **Image Preview** view supports raster images only, such as bitmap (.bmp), JPEG (.jpg, jpeg), and TIFF (.tif, .tiff) files. Vector formats are not supported.
- The **Image Preview** view is displayed by default in the Relation Browser application.

Tip:

The **Image Preview** view provides a basic preview of 2D raster images. To view vector images or work with additional 2D visualization functionality, right-click the object and choose **Send To→Lifecycle Viewer**.

Preview .jt parts

1. (If you do not have a tab for the **JT Preview** view) Choose **Window→Show View→Other→Teamcenter→JT Preview**.
2. Select an item, item revision, dataset, or other object associated with a .jt file.
3. Do any of the following to examine your part:

To	Do this
Rotate the camera around the part	In the background of the view, drag the cursor.
Pan the camera along the current plane	Press Ctrl and then in the background of the view drag the cursor.
Zoom the camera	Press Shift and then in the background of the view drag the cursor.

Note:

- The **JT Preview** view can display only one .jt dataset at a time.
- The **JT Preview** view is displayed by default in the My Teamcenter application.

Tip:

- If a dataset is revised while active in the **JT Preview** view, right-click the dataset and choose **Refresh** to see the latest changes.
- The **JT Preview** view provides a basic preview of .jt parts. To work with additional 3D visualization functionality, right-click the object and choose **Send To→Lifecycle Viewer**.

5. Opening files

Primary and secondary visualization documents

Visualization files in Teamcenter are always either *primary* or *secondary* documents. You can open primary documents independently from other documents, while secondary documents are dependent upon primary documents. For example, a JT file is a primary document, which you can view on its own without any other file having to be open; a markup layer (VPL file), in contrast, cannot be viewed on its own, and must be opened in the context of a primary document, such as a JT file.

A primary document:

- Can exist in the database on its own.
- Consists of data that has been translated from some master source data such as a CAD file.
- Consists of one file (for example, a 2D image) or a logical set of files (for example, assembly and part files).
- Can be opened in a Lifecycle Visualization viewer independently of any other documents.
- May have secondary types of documents that depend on it, but may not be aware of these secondary files.

A secondary document:

- Always relies on a primary document.
- Is only meaningful in the context of a primary document (for example, a 3D markup).
- Cannot be viewed in a Lifecycle Visualization viewer without a primary document.
- Is always aware of its primary document.
- May contain many types of data which may serve different purposes (for example, a snapshot consists of layer data, view data, motion data, thumbnail data, and so forth).
- May capture additional information about the primary document.


Open visualization data from Teamcenter

You can open visualization data, including 2D images and 3D models, in the standalone viewer and the Lifecycle Viewer.

Note:

The options to send Teamcenter managed visualization data to the standalone viewer may not be shown by default on the user interface of the rich client. For these options to be displayed, you must enable them using the Lifecycle Visualization options in the rich client or the `TC_show_open_in_vmu_button` preference.


Do any of the following:

To	Do this
<p>Send any of the following to the standalone viewer:</p> <ul style="list-style-type: none"> • An item or item revision that includes visualization data • A BOM view • Selected product structure • Worksets • A 3D dataset such as a JT file • A 2D or ECAD dataset such as an image or PCB file 	<p>Select the object and do one of the following:</p> <ul style="list-style-type: none"> • On the My Teamcenter toolbar, click Start/ Open In Lifecycle Visualization . • Choose File→Open in Lifecycle Visualization.
<p>Send any of the following to the Lifecycle Viewer:</p> <ul style="list-style-type: none"> • An item or item revision that includes visualization data • A BOM view • Selected product structure • Worksets • A 3D dataset such as a JT file • A 2D or ECAD dataset such as an image or PCB file 	<p>Right-click the object and click Send To→Lifecycle Viewer.</p>

Working with product structure from Teamcenter

You can send a full or partial product structure from the Structure Manager to the Lifecycle Viewer or a standalone viewer. Open the structure in a new Viewing window, insert the structure as a new assembly in an active Viewing window, or merge the structure with an existing assembly in an active Viewing window.

To send product structure to the visualization client, select the product structure within the Structure Manager and then do one of the following:

- Click **Start/Open In Lifecycle Visualization**  to send the product structure to a standalone viewer.
- Right-click the product structure and choose **Send To→Lifecycle Viewer** to send the product structure to the Lifecycle Viewer.

To send a full product structure to the visualization client, select the root or top line of the product structure. To send a partial product structure, select any child nodes within the root product structure hierarchy. Partial product structure consists of the lines representing the unique paths down to the selected structure.

Note:

When working with partial product structures, the following limitations apply:

- You can expand only the child hierarchy of the launched lines.
- All viewer operations, such as filters and Clearance analysis, are applicable only for the launched lines.

Note:

Teamcenter applications such as Structure Manager include view toggles that enable you to see BOM lines that are configured out because of effectivity or variants. The view toggle **Show Suppressed Occurrences** enables you to see BOM lines that are suppressed in the current assembly arrangement. If you send an assembly to the standalone application viewer or the Lifecycle Viewer when this view toggle is on, the suppressed structure elements are grayed out. If you open a product view that captured suppressed occurrences, an inactive structure warning is displayed. To avoid this problem, set the **Product View Creation Preferences** to prevent the creation of product views when the **Show Suppressed Occurrences** view toggle is enabled.

Inserting and merging files

When you want to insert or merge a 2D, 3D, or ECAD file into an opened similar file format, the system asks how you want to open the file. The following insert and merge options exist:

- Insert the file into the current window.
- Merge the file into the current window.
- Insert or merge the file into a new Viewing window.

The steps required to insert or merge files vary slightly depending upon the applications involved. When working with local data in the standalone viewer, you must use the Application toolbar **Menu**→**File**→**Insert** or **File**→**Merge** commands. When working with Teamcenter managed data, you send the data you want to insert or merge into the standalone viewer or the Lifecycle Viewer, and then specify how you want to open the data in the **Load Option Preferences** dialog box.

Specify load option preferences

1. Choose **File**→**Preferences**→**Load Options**.
2. In the **Load Option Preferences** dialog box, choose from the following preferences:
 - On the **3D** tab:

In this section	Select this	To
Product Structure	Open document	Do one of the following: <ul style="list-style-type: none"> • Open the document in a new window. • (If the document is already open in a window) display the window.
	Insert document into active window	Insert the data into the currently active window.
	Merge document into active window	Merge the data into the currently active window. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>You can merge product structure only if the data being sent is compatible with the contents of the active Viewing window. For structure to merge, the data being sent to the visualization client and the data in the active Viewing window must share the following structure configuration properties:</p> </div>

In this section	Select this	To
		<ul style="list-style-type: none"> • Revision rule • Root or top line • Variant rule (if either set of data uses a variant rule) • Active assembly arrangement (if either set of data uses arrangements)
	Ask at load time	Select your options each time you open a file.
Markups	Open with markups	Open markups associated with the data.
	Ask at load time	Select your options each time you open a file.

- On the **2D** tab:

Select this	To
Open document	Do one of the following: <ul style="list-style-type: none"> • Open the document in a new window. • (If the document is already open in a window) display the window.
Insert document into active window	Insert the data into the currently active window.
Ask at load time	Select your options each time you open a file.
Open with markups	Open markups associated with the data.
Ask at load time	Select your options each time you open a file.

- On the **ECAD** tab:

Select this	To
Open document	Do one of the following: <ul style="list-style-type: none"> • Open the document in a new window.

Select this	To
	<ul style="list-style-type: none"> (If the document is already open in a window) display the window.
Insert documents into active window	Insert the data into the currently active window.
Ask at load time	Select your options each time you open a file.

Note:

- Selections are persisted each time the dialog box opens.
- The default settings for the **Load Option Preferences** dialog box are **Ask at load time** and **Merge document into active window**.
- For **3D**, for **If merge is not possible** the default is **Open document**.
- If you choose **Ask at load time**, you can use the load option preference to change how you want to open files.

Open visualization data in My Teamcenter

1. In My Teamcenter, select an item, item revision, dataset, or other object associated with a 2D or 3D file.
2. Select the **Viewer** view.

The visualization components load and the My Teamcenter embedded viewer opens.

Tip:

Right-click the embedded viewer toolbar area to turn on additional visualization toolbars.

Open visualization data in Structure Manager

1. In My Teamcenter, right-click an item, item revision, dataset, or other visualization-related object that contains product structure and choose **Send To**→**Structure Manager**.

The Structure Manager opens and displays the product structure.

2. Choose **View**→**Show/Hide Data Panel**.
3. In the Data Panel, click the **Viewer** tab.

The visualization components load and the Structure Manager embedded viewer opens.

4. In the **BOM Line**, select the check box for the part or assembly you want to view.

Tip:

Right-click the embedded viewer toolbar area to turn on additional visualization toolbars.

View related documents in My Teamcenter

When viewing a 3D model, you can open the associated item revision in My Teamcenter to access additional information or attachments.

1. Display the product structure or part.
2. In the **Assembly** view, right-click the product structure or parts and choose **Send to My Teamcenter**.

-or-

In the Viewing window, right-click the geometry and choose **Send to My Teamcenter**.

The associated item revision is opened in My Teamcenter.

Specify open preferences for 2D or 3D files

Some CAD related file types can contain 2D or 3D data. You can set preferences to always open DWG/DFX, IGES, and PRT files in a 2D Viewing window or a 3D Viewing window. Another option is to be prompted to choose each time you open a file.

1. Choose **File**→**Preferences**→**File Open**.
2. In the **File Open Preferences** dialog box, choose one of the following for each file type:
 - 2D
 - 3D
 - Prompt

Note:

- This functionality is supported in Standard service levels and above. For Base service levels, these files always open as 2D file types.

- 3D IGES files are supported only in the standalone viewers.

Specify the PLM XML load preferences

1. Choose **File**→**Preferences**→**PLM XML**.
2. In the **PLM XML Preferences** dialog box, on the **Load** page, choose from the following preferences:

Select this	To
PLM XML Units	<p>Define the unit of measurement. By default, the unit of measurement for PLM XML and Parasolid files is meters. You can use the PLM XML Units setting to specify another unit of measurement.</p> <div style="border: 1px solid black; padding: 10px;"> <p>Note:</p> <ul style="list-style-type: none"> • The PLM XML Units setting is saved in session files. If you change and save the model units setting with a VF file, the specified model units of the session file override the current PLM XML Units setting. • Session files referencing PLM XML models that were created prior to Teamcenter lifecycle visualization 5.1.0.2, do not contain the model units specification. The software uses the current PLM XML Units setting on the Load page of the PLM XML Preferences dialog box if you load the session file with a newer viewer. This event may result in content displayed in the wrong scale. The model units is always meters for pre-5.1.0.2 PLM XML files. <p>As a work around, migrate the session file to a Teamcenter lifecycle visualization 5.1.0.2 version. Load and save the file in Teamcenter lifecycle visualization 5.1.0.2.</p> </div>
<p>Apply the default product view on load</p> <p>(if unchecked, it will be added as a snapshot)</p>	<p>Load the default product view when the PLM XML file is loaded. If this option is not selected, the default product view is not loaded but is added as a snapshot, which reduces load time.</p>

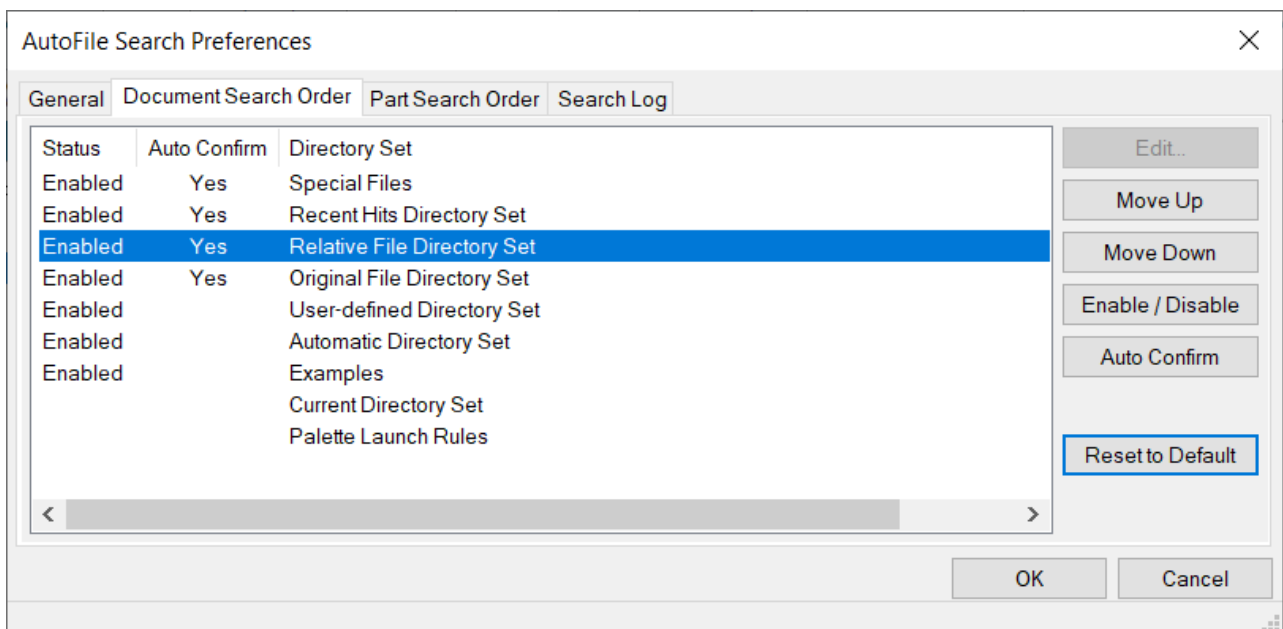
Configure updating session files in Multi-Site environments

When working in a Multi-Site Collaboration environment, Teamcenter lifecycle visualization session files referencing dynamic 3D documents may not update correctly. This issue can appear under the following conditions:

- The session file is created on the master site.
- The session file references dynamic 3D documents.
- The session file and all referenced data are replicated on another site in the network.
- The session file is loaded into Teamcenter lifecycle visualization from a replica site.

To prevent session update failures in Teamcenter lifecycle visualization, perform the following steps to update the **File Locate** preferences:

1. Choose **File**→**Preferences**→**File Locate**.
2. In the **AutoFile Search Preferences** dialog box, click the **Document Search Order** tab.
3. In the search order list, select **Relative File Directory Set**.
4. Click **Move Up** to position **Relative File Directory Set** above **Original File Directory Set** in the list.
5. Click **Auto Confirm**.



6. Click **OK**.

6. Locating referenced data automatically

Overview of locating referenced data automatically

Some file types support references to external files. If the referenced files are moved, the **AutoFile Search** tools attempts to locate the files automatically, in local directories as well as on remote servers.

You can specify **AutoFile Search** preferences for locating files referenced by high-level containers such as session files or Technical Portfolios. You also can specify preferences for locating the 3D sub-part files of assemblies. The **AutoFile Search Preferences** dialog box has four tabs:

- **General**
- **Document Search Order**
- **Part Search Order**
- **Search Log**

Specify general loading preferences

You can choose to display a file confirmation dialog box when attempting to load documents or parts.

1. Choose **File**→**Preferences**→**File Locate**.
2. On the **General** tab of the **AutoFile Search Preferences** dialog box, choose from the following:

To	Do this
Always display the File Usage Confirmation dialog box	Choose Always ask . <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"><p>Note: For Directory Sets on the Document Search Order tab, Always ask is superseded if Auto Confirm is turned on.</p></div>
Display the File Usage Confirmation dialog box only when more than one potential file is found	Choose Ask only when multiple matches are found .

To	Do this
Never display the File Usage Confirmation dialog box	Choose Never ask .
Do not load files that are located on remote servers	Select the Ignore remote servers check box.

Confirm documents located automatically

Use the **File Usage Confirmation** dialog box to accept and load files identified by AutoFile Search. The **File Usage Confirmation** dialog box is displayed based upon the general loading preferences and the results of a file search operation.

Note:

- The **File Usage Confirmation** dialog box is displayed only for primary documents such as top level assembly files that link to separate JT files, not to the shattered JT files themselves.
- For Directory Sets on the **Document Search Order** tab, if **Auto Confirm** is turned on, the **File Usage Confirmation** dialog box is never displayed.

1. Specify **general loading preferences** to display the **File Usage Confirmation** dialog box when locating files.

When you open a document that contains references to an external file that cannot be found, the program searches for the file according to preferences specified on the **Document Search Order** tab.

2. In the **File Usage Confirmation** dialog box, do any of the following:

To	Do this
Display the search report	Click Show Details . Detailed search information is displayed.
Confirm located files	Click Use Selected Location .
Manually locate files	Click Browse , and locate the file that you want to load.
Cancel the file search operation	Do one of the following: <ul style="list-style-type: none"> • (To cancel for multiple files) Click Cancel All. • (To cancel for a single file) Click Cancel.

Understanding Directory Sets

Directory Sets are collections of rules that produce locations where files may be located. You can change the order in which Directory Sets are searched, turn them on or off, and specify to automatically load files that are located within them.

Use Directory Sets to help locate documents and parts. Access Directory Sets from the **Document Search Order** and **Part Search Order** tabs of the **AutoFile Search Preferences** dialog box.

Directory Sets for documents

Use this option	To do this
Automatic Directory Set	Search locations where files have been found and loaded via the File Usage Confirmation dialog box. If the list becomes too long, older locations are removed.
Current Location Directory Set	Search the location of the last session file opened.
Examples Directory Set	Search the location of the example files installed during the product installation. This Directory Set assists you in resolving references to example files from other example files.
Original Location Directory Set	Search the original location of the file.
Palette Launch Rules Directory Set	Search locations identified dynamically based on rules associated with palette entries and the last opened session file. Its primary use is to help resolve JT file references from palette entries.
Recent Hits Directory Set	Search the locations of recently found files. This Directory Set, which is dynamically built and reset each time the application starts, appears on the Search Log tab and ensures that recently resolved searches are included in the current search.
Relative File Directory Set	Search the location of the target file relative to the base file (for example, a JT file referenced by a session file).
Root Directory Set	Search a location specified by your organization. This Directory Set is available only if your System Administrator defines the location and provides access to its preferences file. If the preferences file is not found, the Directory Set is not displayed. For more information on defining root directory sets, see Teamcenter lifecycle visualization Installation.
Special Files Directory Set	Search locations where specialized files used by specific applications are installed (for example, files used by Variation Analysis).
User-Defined Directory Set	Search locations specified on the User-Defined tab .

Directory Sets for parts

Use this option	To do this
Relative to Parent Location and Original Location	Search locations dynamically identified according to references in JT or PLM XML files. Searches are based upon the current location of the parent file, and the original location of the parent file. This Directory Set cannot be disabled or edited.
User-defined Directory Set	Search locations specified on the Part Search Order tab .

Specify the document search order

Use the **Document Search Order** tab of the **AutoFile Search Preferences** dialog box to specify preferences for locating files referenced by high-level containers such as session files or Technical Portfolios.

Example:

If you save a session file that references a 3D model, and then move the model to another location, the **Document Search Order** tab can help you find and access the model.

1. Choose **File**→**Preferences**→**File Locate**.
2. On the **Document Search Order** tab of the **AutoFile Search Preferences** dialog box, do any of the following:

To	Do this
Change the Directory Set search order	Select a Directory Set, and click Move Up or Move Down .
Enable or disable a Directory Set	Select the Directory Set, and click Enable / Disable .
Specify to load files automatically from a Directory Set if a match is found	Select a Directory Set, and click Auto Confirm . <div data-bbox="617 1486 1451 1654" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: Auto Confirm supersedes the preferences specified on the General tab.</p> </div>
Edit the User-defined Directory Set	<ol style="list-style-type: none"> a. Select User-defined Directory Set, and click Edit. b. Adjust the contents of the Directory Set.

To	Do this
Edit the Automatic Directory Set	<ol style="list-style-type: none"> Select Automatic Directory Set, and click Edit. Adjust the contents of the Directory Set.
Reset the search order preferences to the default settings	Click Reset to Default .

Specify search locations for documents

You can search specific directories for file types. You also can change the order in which the directories are searched.

- Choose **File**→**Preferences**→**File Locate**.
- On the **Document Search Order** tab of the **AutoFile Search Preferences** dialog box, select **User-defined Directory Set**, and click **Edit**.
- In the **User-Defined Directory Set** dialog box, do any of the following:

To	Do this
Associate file types with directories	<ol style="list-style-type: none"> In the Extensions section, click Add. In the Add Extension dialog box, in the Enter new extension box, type the file type extension that you want to associate with the directory (for example, <i>.jt</i>), and click OK. In the Extensions section, select the file type extension. <div data-bbox="683 1339 1451 1539" style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Note: To specify directories that you want to search but do not want to attach to a specific file type extension, select Unatt (unattached).</p> </div> In the Directories for Selected Extension section, click Add. In the Select new directory dialog box, browse to the location of the directory that you want to associate with the selected file type, select it, and click OK.

To	Do this
	The directory is added to the Directories for Selected Extension list.
Add file types to the list of extensions searched for in a directory	<p>a. In the Directories for Selected Extension section, select a directory, and click Edit Extensions.</p> <p>b. In the Edit Extensions Assigned To Directory dialog box, do one of the following:</p> <ul style="list-style-type: none"> In the Extensions section, type the file type extensions that you want to look for in this directory, and click Add. Separate multiple extensions with spaces. In the Vis Extensions section, select a file type, and click Add. <p>The new extension appears in the Assigned Extensions section.</p> <p>c. (Optional) To remove an extension, in the Assigned Extensions section, select the extension, and click Delete.</p>
Automatically load files when they are found in a directory	<p>In the Directories for Selected Extension section, select a directory, and click Auto Confirm.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>When you specify Auto Confirm for a directory, you are never prompted to confirm the opening of any file of the specified types in this directory, regardless of any other preferences you have set.</p> </div>

Manage document locations

When you use the **File Usage Confirmation** dialog box to accept and load documents identified by AutoFile Search, the file locations are added to the **Automatic Directory Set**. If you want to include a location in future searches, you can add it to the **User-defined Directory Set**.

Tip:

As more file locations are added to the **Automatic Directory Set**, you can manually remove them from the list. Older locations are automatically removed if the list becomes too long.

1. Choose **File**→**Preferences**→**File Locate**.

- In the **AutoFile Search Preferences** dialog box, on the **Document Search Order** tab, select **Automatic Directory Set** and click **Edit**.
- In the **Extensions** section of the **Automatic Directory Set** dialog box, select a file type.

The **Directories for Selected Extension** section displays the directories where files of the selected type were found.

- Do any of the following:

To	Do this
Add a location to the User-defined Directory Set	Select a location, and click Move to User Set . In the User-defined Directory Set , the location is added to the list of directories to search.
Delete a directory from the list	In the Directories for Selected Extension section, select a location, and click Delete .
Delete the file type and all associated directories	In the Extensions section, click Delete .
Delete all displayed extensions and directories	In the Extensions section, click Clear All .

Specify the part search order

You can specify search behavior for locating part files within multi-site environments.

Example:

If you save a 3D model with sub-part assemblies as a shattered JT file, creating individual JT files for each sub-part, and then move the sub-part files to another location, the Part Search Order preferences can help you find and load the files.

- Choose **File**→**Preferences**→**File Locate**.
- On the **Part Search Order** tab of the **AutoFile Search Preferences** dialog box, do any of the following:

To	Do this
Change the Directory Set search order	Select a Directory Set, and click Move Up or Move Down .
Enable or disable the User-defined Directory Set	Select the User-defined Directory Set, and click Enable / Disable .

To	Do this
Edit the User-defined Directory Set	<ol style="list-style-type: none"> Select User-defined Directory Set, and click Edit. In the User-defined Part Loading Directory Set dialog box, click Add, and add a location that you want searched for parts.
Reset the search order preferences to the default settings	Click Reset to Default .
Make temporary changes	Select the Consider all changes to this tab as temporary (will be reset after application exit) check box.

View search results

Recent search results are displayed on the **Search Log** tab of the **AutoFile Search Preferences** dialog box. You can access detailed information for each search operation. Search results are displayed with the most recent search at the top of the list.

- Choose **File**→**Preferences**→**File Locate**.
- On the **Search Log** tab of the **AutoFile Search Preferences** dialog box, do one of the following:

To	Do this
Display detailed search information	<ol style="list-style-type: none"> Select an entry from the list of search results, and click Show Details. In the Search Trace dialog box, select an entry, and click Show Details. <p>The details of your selection are displayed.</p>
Export search results as an XML file	<ol style="list-style-type: none"> Select an entry from the list of search results, and click Show Details. In the Search Trace dialog box, click Export. In the Select file to save to dialog box, save the file. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>Use the <i>SearchTrace.xslt</i> file included in the <i>Examples</i> directory of your installation to view the XML file as in the HTML format. Copy <i>SearchTrace.xslt</i> to the same directory</p> </div>

To	Do this
	<div style="border: 1px solid black; padding: 5px;"> as your XML file, and then open the XML file in an XSLT-compatible browser. </div>
Remove files from the list	Select an entry from the list of search results, and click Delete . -or- Click Delete All .

Specify part logging preferences

You can specify to log detailed part loading information, such as file locations and moniker data.

Note:

Generating part logging information results in longer part loading times.

1. Choose **File**→**Preferences**→**File Locate**.
2. On the **Search Log** tab of the **AutoFile Search Preferences** dialog box, click **Part Logging**.
3. Choose any of the following:

To	Do this
Log part loading information for individual parts	Choose one of the following: <ul style="list-style-type: none"> • Nothing • Only missing parts • Only found parts • All parts <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>To control the number of entries added to the search log, in the Maximum number of logging events to record box, type a value. Very large values may cause out of memory errors.</p> </div>
Log additional information	Select any of the following check boxes:

To	Do this
	<ul style="list-style-type: none"> • Unique locations where parts were found • Include moniker data where appropriate
Delete changes when exiting the application	Select the Changes are temporary (will reset after application exit) check box.

Disabling the File Locator search progress dialog

You can create an environment variable called **TCVIS_DISABLE_SEARCH_PROGRESS** with a value of **True** to disable the File Locator progress dialog. This may be necessary if the dialog blocks the Teamcenter authentication prompt.

Saving and loading AutoFile Search preferences

You can save your AutoFile Search preferences as a .vfp file, which you can distribute for use with other installations.

Tip:

You also can save AutoFile Search preferences as an .xml file to review your current settings. However, the application loads .vfp files only.

1. Choose **File**→**Preferences**→**File Locate**.
2. In the **AutoFile Search Preferences** dialog box, on the **General** tab, do one of the following:

To	Do this
Save AutoFile Search preferences	<ol style="list-style-type: none"> a. Click Save Preferences. b. In the Select file to save to dialog box, save the file.
Load AutoFile Search preferences	<ol style="list-style-type: none"> a. Click Load Preferences. b. In the Select preference file to open dialog box, open a .vfp file. <div data-bbox="682 1638 1445 1806" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>Loading a preferences file overwrites the current preferences.</p> </div>


7. Understanding your work session

Working with session files

Overview of session files

Session files save the state of the viewer so you can resume your work later. Saving your work as a session file enables you to preserve the following:

Note:

- To use sessions, your system administrator must define ACL (access control list) rules for Vis_Session using Access Manager. For details, see *Configure Teamcenter Lifecycle Visualization sessions in Teamcenter Visualization Deployment and Administration*.
- If a document has been inserted into the session file, the session file becomes a stand-alone Lifecycle Visualization AppSession and is not interoperable. Stand-alone Lifecycle Visualization AppSession can be identified in other applications, such as Active Workspace and NX, by the following icon .

- Open files
- Inserted 2D and 3D models and documents
- Pruned structures
- Session package
- Snapshot information
- 3D preferences
- Alternate assembly hierarchies
- True Shading settings
- Cross sections
- 3D Measurements
- User Defined coordinate systems
- 3D layers

- Teamcenter revision rules, effectivity, variant rules, active assembly arrangements, and other configuration settings.

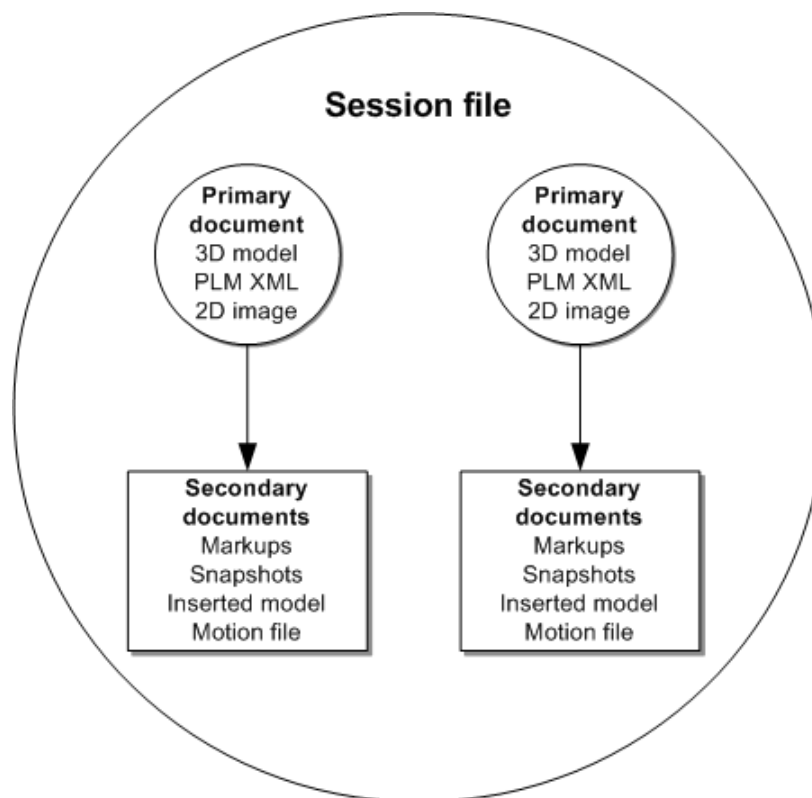
Example:

You are working with *model1.jt*, *model2.jt*, and *image.tif*. You have created snapshots, changed background colors, and created markup layers. You then save your work as a .vf session file.

When you re-open the session file, the three files open, and the snapshots, background colors, and markup layers appear as they were when you saved the session.

Primary and secondary documents

Session files reference *primary* and *secondary* documents. A session file can preserve the state of multiple primary documents, and each primary document may be associated with multiple secondary documents.



Static and configured product structure

In terms of session files, product structure is considered to be either *static* or *configured*. Static product structure is a unique version of the document that is created at the time the session is saved. This type

of data ensures that loading the session at a later time will result in the same product structure that was loaded when the session was first saved. Configured product structure is dynamic and references Teamcenter configuration settings. This type of data can be thought of as a recipe which can be used later to get different document revisions.

What is the difference between worksets and session files?

Worksets are a collection of design components that may contain subsets, items, item revisions, BOM view, and BOM view revisions that represent existing parts or assemblies.

Session files save the state of the viewer so you can resume work on your workset later. Sessions retain the filters and configurations applied to the structure and may contain worksets, snapshots, and other documents.

Save your work session

You can save your work as a .vf session file. When you open the session file later, your work is restored.

Under certain conditions, warning messages display when saving legacy session files (release 12.4 and earlier). To avoid overwriting the legacy session file, which will cause issues with legacy viewers, on the warning dialog click **Save as** and choose a different file location to create a new session file.

Note:

If you want updated layers to be saved as external files, save the layers first using **Save All Layers** or **Save Selected Layer**. If you don't save modified layers before saving the session, the layers become part of the session file and cannot be loaded independently.

1. Choose **File** → **Save Session**.
2. In **Session Storage Location**, click one of the following.

Use this option	To do this
Attach to Base Document	Save the session within the Item Revision of the base document.
Attach to Selected Bomline	Save the session within the Item Revision of the selected BOM line in the 3D assembly tree.
Alternate location	Save the session to a different location. Click Browse , and then specify the folder, Item, or Item Revision within which you want to save the session.

3. To rename the session file or any secondary documents that you have created during your work session and not yet saved, such as markup layers, double-click the default name of the document and type a new name.

Note:


You cannot use any non-ASCII character (including 8 bit accented Western European and multi-byte characters) for a file name.

- To save the session file in a format that has interoperability between other applications, such as NX and Active Workspace, select the **Save as a collaborative session** check box.

This check box is not displayed under the following conditions:

- When saving to a local file path.
- If the session contains data that is not supported by the **AppSession interoperability** data model.
- If the `TCVIS_SHOW_APPSESSION_SAVE_OPTION` is set to **False**.

Note:

If a document has been inserted into the session file, the session file becomes a stand-alone Lifecycle Visualization AppSession and is not interoperable. Stand-alone Lifecycle Visualization AppSession files can be identified in other applications, such as Active Workspace and NX, by the following icon .

- Click **Save**.

The session file is saved. Any new or unsaved secondary documents are also saved with the session file to their specified locations.

Note:

- If you have unsaved clearance results, the **Save Clearance Results As** dialog box appears. You must save to a .txt file to reference the results in a session file.
- If late loading product views are enabled, and the **Vis_PV_LateLoadSaveOp** preference is set to **Ask**, a dialog box appears in which you must choose how to handle saving partially loaded product views.
- By default, in a four-tier environment, when you launch stand-alone Lifecycle Visualization from the Teamcenter rich client, the viewer and the rich client share the same tcserver session. When you perform stand-alone viewer operations, such as saving a session file, the rich client may appear to lock up until the viewer operation is finished. If this is a problem, you can configure Teamcenter to create a separate tcserver session for the stand-alone viewer.

- Ensure that your administrator has related the **Vis Session** dataset to the specific item revision type that you plan to use for sessions. This enables viewing the session saved in stand-alone Lifecycle Visualization in Teamcenter rich client.


Session save options

You have a number of options for saving session data to different locations, depending upon whether the session consists of local data only or includes data from Teamcenter.

If the session includes only data loaded from your local machine, you can save the session file to a location on your local machine or network.

If the session includes Teamcenter-managed data, you can save the session file to the Teamcenter server in the following ways:

- **Attach to Base Document** — Save the session file within the item revision of the primary document.
- **Attach to Selected Bomline** — Save the session file within the item revision of the selected BOM line in the 3D assembly tree.
- **Alternate Location** — Save the session file to a different location. Click **Browse**, and then specify the folder, item, or item revision within which you want to save the session.

Session files can be saved using either the Vis_session data model or the AppSession data model. The Vis_session data model supports all features but is not interoperable with other applications, such as NX and Active Workspace. The AppSession data model has limited feature support, but is interoperable with the NX and Active Workspace applications. AppSessions that contain an unsupported feature, such as a multi-document session, appear in other applications with the following icon . Your administrator can define the TCVIS_APPSESSION_SAVE_DEFAULT and TCVIS_SHOW_APPSESSION_SAVE_OPTION environment variables to determine the **Session save** behavior for your environment.

Note:

You can use the Teamcenter Integration Session preferences to specify default session save options.

Saving legacy sessions and layers

Note:

This topic applies to Teamcenter lifecycle visualization release 13.0 and above.

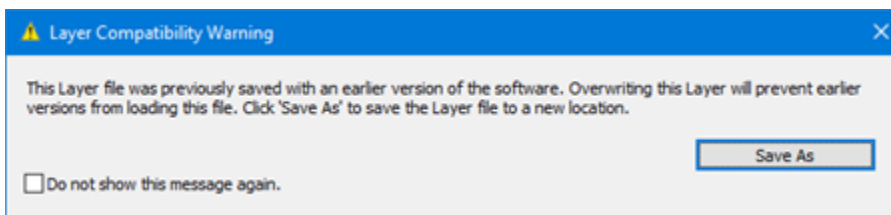
Warning messages display when saving legacy session and layer files (created in release 12.4 and earlier). The warning dialogs prompt you to **Save as** and choose a different file location to create a new session or layer file.

Caution:

Legacy viewers cannot open session or layer files created in release 13.0 or higher, so do not overwrite legacy files if these files might be opened in legacy viewers.

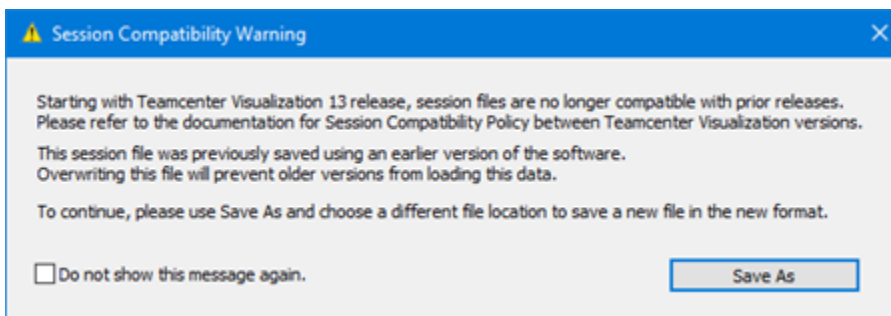
If you select the **Do not show this message again** check box, that specific warning dialog will not display again and the action defaults to **Save As**.

Layer Compatibility Warning during Layer Save



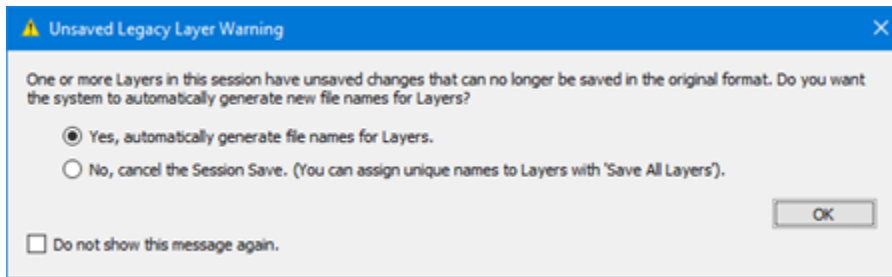
The **Layer Compatibility Warning** displays when saving legacy layers independent of a session.

Session Compatibility Warning during Session Save



The **Session Compatibility Warning** displays when a legacy session is loaded and you select **Save Session** to overwrite the original file.

Unsaved Layer Warning during Session Save



The **Unsaved Legacy Layer Warning** displays when a legacy layer is loaded and modified and you select **Save Session** or **Save Session As**. The **Unsaved Legacy Layer Warning** is followed by a **Session Compatibility Warning** when a legacy session references a legacy layer that was modified prior to selecting **Save Session**.

Overview of static and configured product structure

Product structure from Teamcenter is either static or configured. Configured product structure is dynamically built according to revision rules, effectivity, variant rules, active assembly arrangements, and other settings, depending on how the structure is initially launched and how the visualization session is subsequently authored.

Configured structure

The following scenarios result in a configured structure in the viewer:

- From My Teamcenter, launch a BOM view or BOM view revision (or any object that includes a BOM view or BOM view revision, such as an item or item revision) into the standalone viewer or the Lifecycle Viewer. The structure is configured in the viewer according to your default revision rule.
- From the standalone viewer, open a BOM view or BOM view revision (or any object that includes a BOM view or BOM view revision, such as an item or item revision). The structure is configured in the viewer according to your default revision rule.
- From Structure Manager, Multi-Structure Manager, or Manufacturing Process Planner in the rich client, launch one or more BOM lines into the standalone viewer or the Lifecycle Viewer. The structure is configured in the viewer according to whatever configuration is currently active in the launching application.

Static structure

The following scenarios result in a static structure in the viewer:

- Perform any process that results in opening a PLM XML file in the standalone viewer or the Lifecycle Viewer. For example, launching a QL file or a DirectModelAssembly dataset results in the loading of a

PLM XML file into the viewer. The viewer treats these data types as static structure, since a **session file** authored in the viewer references the static PLM XML.

- Open a VF session file that points to static PLM XML. This occurs under the following conditions:
 - The **Capture Static Structure** check box is selected when the session file is authored.
 - The structure in the viewer is saved as PLM XML (**File→Save As**) before the session is authored.

VF session files and configured or static structures

Opening a session dataset can result in the loading of a static structure or a configured structure, depending upon the data and the conditions under which the session authored.

When you save a session referencing configured structure, the session preserves the product structure configuration active in the viewer. However, if you select the **Capture Static Structure** check box in the **Session Save As** dialog box, the viewer also saves the exact product structure you have open at the time you save the session. When you load the session later, the viewer detects if this static structure is available and asks you how you want to open it: as a static structure (the exact product structure that was active in the viewer at the time the session was saved) or a configured structure (according to the configuration settings in effect at the time the session was saved). Note that if the **Capture Static Structure** check box is not selected when you initially save the session, when you open the session later the structure is loaded dynamically based on the configuration in effect at the time the session was saved.

You can set a Teamcenter Integration Preference to automatically handle this when loading a session. You can choose to:

- Always load the static structure
- Always load the configured structure (the latest version of the structure according to the configuration settings in effect at the time the session was saved)
- Ask how to load a structure at load time

Merge a saved session with an active session

1. Start a new work session or open a session file.
2. In My Teamcenter, right-click a session dataset and choose **Send To→Lifecycle Viewer**.

If the sessions can be merged, the **Merge Sessions** dialog box appears.

3. Click **Merge**.

The saved session is merged with the contents of the active session.

Specify session preferences

1. Choose **File**→**Preferences**→**Session**.
2. In the **Session Preferences** dialog box, change any of the following settings:

In this section	Use this preference	To
Session Merge	Reuse existing windows if possible	<p>When opening a session while another session is active, merge the sessions in the active Viewing window.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>If this option is not turned on, the sessions are opened in separate Viewing windows.</p> </div>
	Ask at load time	When attempting to open a session while another session is active, display the Merge Sessions dialog box, from which you can specify to merge the session into a single Viewing window.
Session Save	Enable password protection for session package	Apply password protection to .vfz session packages.
	Maintain dynamic references when possible	When session files are opened, attempt to update linked references.
	Show compatibility warning	When a legacy session is loaded and you select Save Session to overwrite the original file.
	Show legacy layer resave warning	When saving legacy layers independent of a session.
	Save as collaborative session when available	<p>Save session using the collaborative AppSession data model, which allows session file interoperability between applications such as NX and Active Workspace.</p> <p>If the features contained in the session file are not supported by the AppSession data model, you will receive a session interoperability warning message.</p> <p>This checkbox is enabled only when the current contents can be saved with the AppSession data model and the TCVIS_SHOW_APPSESSION_SAVE_OPTION environment variable is <i>not</i> set to False.</p>

- Click **OK**.

Understanding the differences when saving session files or PLM XML files

Understanding the differences between session files and PLM XML files

When you create alternate hierarchies, add 3D markups to your model, or create snapshots that contain extended 3D information (for example, camera orientations or behaviors), you can save your work using either the .vf or .plmxml file types. With .vf and .plmxml formats you can save the information that cannot be included in file types that you initially read into the application, such as .jt files.

In Teamcenter lifecycle visualization, both .vf documents and .plmxml documents can contain extended session data (for example, materials, markups, and sections) as well as product structure. However, the .vf file type is a binary format that cannot be created or altered outside Teamcenter lifecycle visualization, while the .plmxml file type is XML, and as long as the contents of the file are structured according to the PLM XML schema it can be created using any text editor.

The following terms are related to saving your work within Teamcenter lifecycle visualization:

This term	Can be defined as
Model	<p>The <i>in memory</i> equivalent of a file.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Example:</p> <p>A single assembly within a JT file.</p> </div>
Extended content	<p>Any data that is not stored in the original 2D/3D files.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Example:</p> <p>3D information, such as visibility, transforms, materials, lights, sections, behaviors, and markups.</p> </div>
Snapshot	<p>A container for storing subsets of extended content.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Example:</p> <p>Captured 3D information, such as visibility, transforms, materials, lights, sections, behaviors, and markups.</p> </div>
Document	<p>A container for one or more models and (optionally) extended content associated with those models.</p>

Example:

- A PLM XML file. A .plmxml document is product structure and (optionally) extended content associated with that document.
- A session file. A .vf file is a collection of one or more documents, each containing product structure and (optionally) extended content associated with those documents.

Overview of options when saving session files or PLM XML files

You have many options for persisting product structure and extended 3D content, including:

- Standard session file with .jt product structure
- Standard session file with .plmxml product structure
- PLM XML session file with .jt product structure
- PLM XML session file with .plmxml product structure
- Session Package File

Session documents (.vf) can be saved from the **File** menu using the **Save Session** or **Save Session As** options. PLM XML documents can be saved from the menu using the **Save As** and **Export** options. You can use the **Save As** option to create a .plmxml file that preserves all supported content from the active 3D Viewing window. Use the **Export** option to increase control over what is persisted in the .plmxml file. You can specify what supported content to include and what supported content to leave out of the exported file.

When saving session files, any derived documents that have not been saved at the time of the session save, such as markups layers or motion documents, are saved with the session file to the same location.

Working with session packages

Overview of session packages

Session packages are compressed file archives that enable you to package your work session with any referenced files. When you create a session package, you can specify to include any files referenced by your work session. Once the session package is created on your local machine, you can easily move your work to another location.

Generally, the maximum size of a session package file is 4GB; however other system factors may impact this limit. For example, since lengths and offsets within JT version 9.x files are 32-bits, the limitation for

packages with these files is 2.1GB. Files of JT version 10 and later have 64-bit offsets, so packages with these files do not have this limitation.

The number of files that can be included in the session file are:

- In a 64-bit OS: Approximately 64,000 files
- In a 32-bit OS: Approximately 16,000 files

Save a session package

Save all of the files referenced by your work session as a .vfz session package on your local machine.

1. (To password-protect your session package) Click **File**→**Preferences**→**Session**, and then select the **Enable password protection for session package** check box.
2. Choose **File**→**Save Session**.

The **Session Save As** dialog box appears.

3. In **Session Storage Location**, click **Alternate Location**.

Note:

You must save session packages on your local network or file system.

4. Click **Browse** and select the folder on your local machine where you want to save the file.
5. Select the **Save as Session Package** check box.

In **Files** section, the **Package** column appears with a check box for the document in the session.

Note:

You can save **attachments** only as session packages. If you have added attachments to the work session, the **Save As Session Package** check box is selected automatically.

6. If you do not want to include a document in the package, clear the check box beside the document in the **Package** column.
7. If you want to save the most recent version of configured product structure, select the **Capture static structure** check box.
8. Click **Save**.

9. (If you turned on password protection) In the **Password Option** dialog box, type a password and then click **OK**.

The session package is created and saved on your local machine.

Add attachments to session packages

Save attachments, such as Microsoft Office documents, with your session package.

Note:

Visualization files active in the session, such as open 2D or 3D files and layers, are automatically included in the session package and do not need to be manually attached. Attachments enable you to include files that are related but not compatible with Teamcenter lifecycle visualization, such as spreadsheets or product specifications. When the session package is opened, you can **launch the attachments** in their respective applications.

1. Choose **File**→**Attachments**.
2. In the **Attachments** dialog box, click **Add**.
3. In the **Choose attachment file location** dialog box, choose the file you want to attach to your session package, and click **Open**.

The name of the file appears in the attachment list.

Note:

To delete an attachment, select the attachment, and then click **Remove**.

Open session package attachments

1. Open a session package containing attachments.
2. Choose **File**→**Attachments**.
3. In the **Attachments** dialog box, select the attachment and then click **Open**.

The attachment opens in the application associated with the file type.

4. (Optional) To save a copy of the attachment, select the attachment and then click **Save Copy**.

Specify the File Locate preferences for session packages

1. Choose **File**→**Preferences**→**File Locate**.

2. On the **General** tab of the **AutoFile Search Preferences** dialog box, click **Ask only when multiple matches are found**.
3. On the **Document Search Order** tab, select **Relative File Directory Set** and click **Move Up** until the selection is the first item in the list.
4. Click **OK**.

Resolving broken references

Overview of broken references

Session files, PLM XML files, Teamcenter product views, constraint files, motion files, and animation files contain references to entities in the product structure. As the product structure evolves during the design process, the entity references in your saved files may no longer be valid. There are many structure editing scenarios that can result in broken references; for example, a part is removed from the structure and replaced with different part, or a part is moved from one subassembly to another within the structure.

When you open or load a file that references entities, the viewer attempts to automatically resolve any broken references it finds, but there are cases where the system requires your help to determine how to resolve broken references. In those cases, the **Broken References Warning** dialog box appears. You can then:


- Open the **Reconcile Reference Dialog** dialog box to see list of broken references, find reconcile candidates, and **manually resolve** the broken references.
- Use previously saved **mapping files to resolve** the broken references.




Once you have resolved the broken references, you can re-save the file. You can also export a mapping file and use it to resolve broken references in other files.

Resolve broken references manually

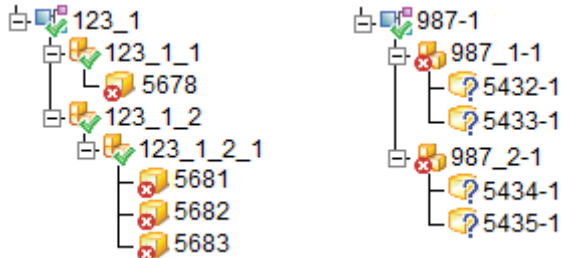
To manually fix a broken reference, select an unresolved reference, select a reconcile candidate, and update the reference. You can then save the updated references to a mapping file and use it to fix broken references in other files that reference the same data.

1. Do one of the following:

To	Do this
Check for and resolve broken references	a. On the Reconcile toolbar, click Reconcile  .

To	Do this
	b. On the Reconcile toolbar, click Validate all references  .
Resolve references when the Broken References Warning dialog box appears	Select the Open the Reconcile Reference dialog check box and click OK .
Open the Reconcile References Dialog dialog box	a. On the Reconcile toolbar, click Reconcile  b. On the Reconcile toolbar, click Reconcile Broken References  .

The **Reconcile References Dialog** dialog box appears. Broken references are shown in the tree.

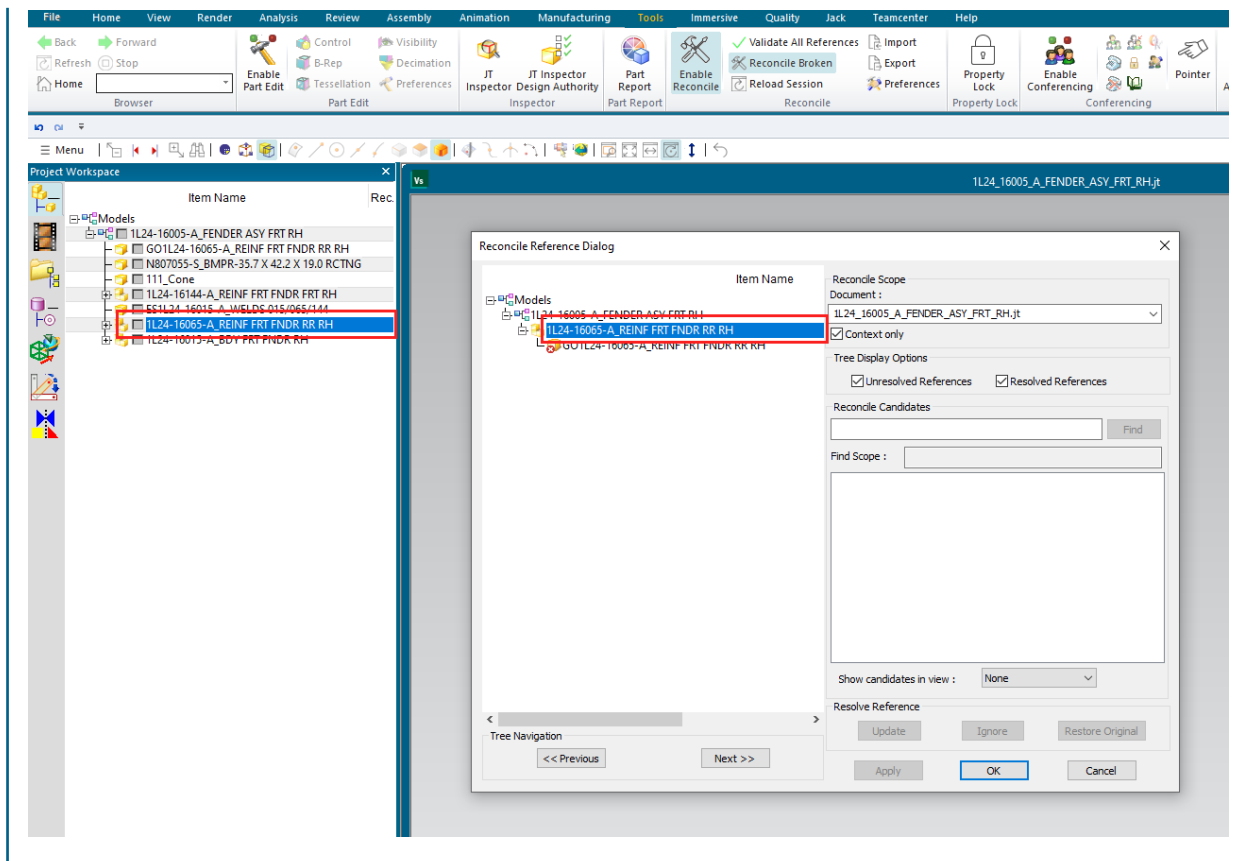


Broken references

Intermediate broken references

Tip:

Double click on the resolved assembly reference in the **Reconcile Reference Dialog** to load the corresponding assembly tree in the **Project Workspace**.



2. (If you have more than one document open in the session) In the **Reconcile Scope** section of the dialog box, select the document to work with from the **Document** list.
3. (Optional) If the dialog box appears because of broken references in a snapshot or group, you can select the **Context only** check box to filter the tree to show only broken references referenced by the snapshot or group.
4. Select a broken reference in the tree.

A list of possible reconcile candidates appears for the selected broken reference.

5. Do one of the following:
 - If the candidate is on the list, select it.
 - If the candidate is not on the list, use **Find** to search for other candidates, and then select the candidate.
 - Select the candidate part or assembly in the Viewing window.
 - Select the candidate part or assembly node in the assembly tree in the Project Workspace window.

- If the broken node is no longer needed, and you want to permanently delete the reference from the tree and the session, click **Ignore**.

Note:

If you ignore an intermediate broken reference, its children are ignored if not already resolved.

6. To resolve the broken reference by mapping it to the selected candidate, click **Update**.

Note:

If you resolve an intermediate broken reference, the system tries to resolve its children automatically.

7. (Optional) To undo a resolved or ignored reference, select the node and click **Restore Original**.
8. (Optional) In the **Tree Display Options** section, select or clear the **Resolved References** check box to show or hide the resolved references.
9. To resolve another broken reference, select the reference in the tree and repeat the process.

Tip:

You can click **Next** and **Previous** to navigate through the tree.

10. Do one of the following to apply the changes:
 - Click **Apply** to apply the changes and continue resolving references.
 - Click **OK** to apply the changes and close the dialog box.
11. (Optional) On **Reconcile** toolbar, click **Export** to save the mapping to a mapping file.
12. To apply the new mappings for motion, animation, and Clearance files, save the session, and then reopen it.

Search for reconcile candidates

You can search for reconcile candidates by item name or part ID. In Mockup, you can also use an attribute filter to find candidates.

1. Select a broken node in the broken references tree. The node name appears in the text search box next to the **Find** button.

If the candidate does not appear on the candidate list, you can type a search string to find.

2. Type the search string in the text search box. It is not case sensitive. You can use * as a wild card.
3. (Optional) Do one of the following:
 - To limit the search scope, on the Assembly page of the Project Workspace window, select a node to search. Everything below the selected node will be searched.
 - (If the assembly is loaded from Teamcenter) To search for the candidates in the Teamcenter, set the **Use Teamcenter to find candidates, if available reconcile preference**.
4. Click **Find**.

The search results are displayed in the candidate list.

The scope of the search is shown in the **Find Scope** box.

If necessary, you can click **Stop** to cancel the search.

Note:

Clicking **Stop** does not immediately cancel the search, as Teamcenter-based searches can only be canceled at certain points in the search process. Once **Stop** is clicked, the search will be canceled at the next available opportunity for termination.


5. (Optional) In addition to displaying the search results in the candidate list, you have options to identify the candidates in the Viewing window and assembly tree. Choose one of the following from the **Show candidates in view** list:

Choose this option	To
None	Do to nothing in the 3D Viewing window or assembly tree.
Show Only	Show only the selected candidates in the Viewing window and highlight them in the assembly tree.
Select Only	Select only the selected candidates in the assembly tree and the Viewing window, and deselect all other parts.

6. (Optional) If searching for name or ID does not find the required candidate, you can use an attribute filter to search for candidates. If the attribute search finds suitable candidates, select the candidate and update the broken reference in the **Reconcile Reference Dialog** dialog box.

Export mapping files

After resolving broken references in a file, you can export a mapping file, and then use it to automatically resolve broken references in other files that reference the same data.



1. Open a file containing broken references to parts and assemblies.
2. **Resolve the broken references.**
3. On the **Reconcile** toolbar, click **Export** .
4. In the **Save As** dialog box, enter a file name, and then click **Save**.

Resolve broken references automatically with mapping files

After resolving broken references in a file, you can **export** a mapping file. You can then import the mapping file to have it automatically resolve broken references in other files that reference the same data.

Note:

If you import a mapping file before you open a file with broken references, the mapping are applied automatically. If you import a mapping file after opening a file with broken references, save the session and reopen it to apply the mappings.

1. On the **Reconcile** toolbar, click **Reconcile** .
2. On the **Reconcile** toolbar, click **Import** .
3. In the **Open** dialog box, select the mapping file and click **Open**.
4. Do one of the following:
 - Open a file with broken references.
 - If you already opened a file with broken references, save the session and reopen it to apply the mappings.



The mapping file is searched for matches for each broken reference. If a match is found, the part or assembly loads without incident. If a match is not found, you can **manually resolve** any remaining broken references.

Validate references

When working with files that contain references to parts or assemblies, you can validate the references to ensure that they still function.

Example:

If you use session files to preserve snapshots of geometry, if the geometry changes the references may break. Validating the session file tells you if your snapshots work properly, without activating each snapshot.

1. On the **Reconcile** toolbar, click **Reconcile** .
2. On the **Reconcile** toolbar, click **Validate All References** .

A progress bar displays the progress of the file validation.

Note:



Click **Cancel** if you want to stop the validation before it is finished. However, if you cancel a validation check, your file may contain broken references. Saving a file with broken references may result in the loss of data.

If your file does not contain broken references, a message informs you that your product structure references are valid.

3. If your file contains broken references, **resolve** them before saving the file.

Specify Reconcile preferences

Use the Reconcile preferences to specify whether or not an error message is displayed when a broken reference is detected, and to customize the handling of candidate references.

1. On the **Reconcile** toolbar, click **Reconcile** .
2. On the **Reconcile** toolbar, click **Preferences** .
3. In the **Reconcile Preferences** dialog box, specify the following settings:

Use this option	To
Provide a warning when references break	Display an error message when a broken reference to a part or assembly is detected. The error message only appears for the first broken reference found.
Provide Candidates	Display a list of potential replacements.
Use candidate if only one is found	Use the candidate to resolve the broken reference automatically if only one potential replacement is found.

Use this option	To
Maximum number of candidate character differences	Specify the maximum number of characters that can differ in a part or assembly name. You can specify a maximum number of differences from the beginning of a name, and from the end of a name.
Use any combination of beginning and end	If you specify different values for the options from beginning and from end , make the values interchangeable.
Use Teamcenter to find candidates, if available	If the assembly is loaded from Teamcenter, have Find search for candidates in Teamcenter.

4. Click OK.

Mapping file guidelines

Change Reconcile mapping files adhere to the following structure:

- Map file version
- Locale
- CADID string
- NGID string

For example, a mapping file created in the English locale would resemble this:

```

Vis Product Structure Mapping File: Version 2

C

"CHLD0000\x00fishing_reel.asm;0;0:\x00handle_assembly_1.asm;0;0:\x00\x00"

"CHLD0000\x00fishing_reel.asm;0;0:\x00yyy_handle_assembly_1.asm;0;0:\x00\x00" "$$NGID<child>=0\x00$
$NGID<chain>=\x22JT_INST_REFID_PDM\x22\x000_TOP_ASM\
x001_YYY_HANDLE_ASM\x00$$NGID<chain>=\x22JT_PROP_NAME\x22\x00CHLD0000\
x00fishing_reel.asm;0;0:\x00yyy_handle_assembly_1.asm;0;0:\x00\x00"

```

Map file version

The first line of the mapping file must specify the map file version. The current version is 2. However, the only difference between version 1 and 2 mapping files is the inclusion of NGID strings, which can be created only with Teamcenter lifecycle visualization. If you are creating mapping files outside of the

Teamcenter lifecycle visualization application, specify version 1. The first line of the mapping file should look like this:

Vis Product Structure Mapping File: Version 1

Locale

The second line must specify the locale.

Use this abbreviation	For this locale
C	English
de	German
es	Spanish
fr	French
it	Italian
JaPCK	Japanese
ko	Korean
ZhBIG5	Chinese (Traditional)
ZhGBK	Chinese (Simplified)

CADID string (old and new)

The third and following lines must contain a pair of CADID strings, one for the original reference and one for the updated reference. Each CADID string in the pair must be enclosed in quotes and separated by a space.

Here is an example of a correctly formatted CADID string:

```
"CHLD0000\x00fishing_reel.asm;0;0:\x00handle_assembly_1.asm;0;0:\x00\x00"
"CHLD0000\x00fishing_reel.asm;0;0:\x00yyy_handle_assembly_1.asm;0;0:\x00\x00"
```

Mapping file CADID strings must adhere to the following rules:

- CADID strings must be enclosed in double quotes ("").
- CADID strings must be NULL delimited. The NULL delimiter is represented by \x00.
- CADID strings must end in two trailing NULL delimiters.

- ASCII values from 0 - 31 (decimal) and 176 - 255 (decimal), all non-ASCII characters, and the character " (ASCII value 34 (decimal)), must be converted to the following format for inclusion in the mapping file:

\xHH, where HH is the hexadecimal ASCII value of the character or the hexadecimal value of the current byte in the multi-byte character. Thus, if a multi-byte character has two bytes there will be two values printed out. For example, \xAA\xBB.

NGID string (version 2 mapping files only)

In addition to original and updated CADID strings, version 2 mapping files contain NGID strings. NGID strings appear after each updated CADID string. NGID strings are enclosed in quotes, and share the same formatting rules as CADID strings.

8. Saving files and visualization datasets

Exporting 3D models

Overview of exporting 3D models

You can export 3D models in a variety of 3D formats:

- JT files and datasets
- PLM XML files and datasets
- VRML files and datasets
- NASTRAN BULK files and datasets
- ROBFACE files and datasets

Exporting JT files

Overview of exporting JT files and datasets

You can export 3D models in the JT format. You also can set options that affect how the model is saved.

Note:

- Only visible parts and the assembly hierarchy of those parts are saved.
- Lights assigned to the root node (the "Models" node in the assembly tree) are not exported when you save a model as a JT file. To save a light source that is assigned to the root node, you must move it at least one level lower in the assembly tree.
- Materials and material assignments are saved. To save material assignments to faces to the Direct Model file format, the version must be set to v10.5 or greater.
- If you have directories containing hundreds or thousands of files, it may take a while for the complete list of files to appear in the Export dialog box. You can press Ctrl-Break to stop the file listing at any point.

Export JT files and datasets

Export 3D models in the JT format.

1. Display the parts that you want to save.

2. Choose **File**→**Export**.
3. In the **Export** dialog box, browse to the location where you want to save the file, and enter a name for the file.

Note:

You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.

4. From the **File Format** list, select **DirectModel (*.jt)**.
5. (Optional) In the **Hierarchy** list, select an alternate assembly hierarchy or inserted model.

Note:

If the 3D model does not include an alternate assembly hierarchy, then the **Hierarchy** list only includes one choice, **Model**, which represents the original assembly hierarchy. You can create alternate hierarchies using the **Assembly** tool.

6. (Optional) Click **Options** to **change settings** that affect file content and structure, and then click **OK**.
7. In the **Affected Files and Directories** dialog box, review the list of affected files and directories, and then click **OK**.

A progress bar appears as the model is saved. Upon completion, a message informs you if the model was successfully saved.

8. Click **OK**.

Specify JT export options

You can set options that affect how the model is saved as a JT file.

1. Choose **File**→**Export**.
2. From the **File Format** list, select **DirectModel (*.jt)**.
3. Click **Options**.
4. In the **JT Export Options** dialog box, edit any of the following settings:

In this section	Use this option	To do this
File contents and structure	Saving	<p>Choose one of the following assembly structure settings:</p> <ul style="list-style-type: none"> • Both assembly structure and parts: Save both the assembly structure and parts. • Assembly structure only: Save only the assembly structure. • Parts only: Save only the parts.
	File structure	<p>Choose one of the following file structure settings:</p> <ul style="list-style-type: none"> • Standard (single assembly file, multiple part files): Save using the standard JT file structure (single assembly file, multiple part files). • Shattered (multiple subassembly files, multiple part files): Save using a shattered file structure (multiple subassembly files, multiple part files). • Monolithic (all data saved to a single file): Save using a monolithic file structure (all data saved to a single file). • Maintain the current file structure: Save using the current file structure.
Optional data	Include wireframe	If the model has wireframe data, include it in the exported model.
	Include PMI	<p>If the model has PMI, include them in the exported JT file.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>Note:</p> <p>JT versions higher than 9.7 do not support older legacy PMI. If you select this option and attempt to export a model with legacy PMI, and you choose a JT version higher than 9.7, a warning appears about data that cannot be saved. If you need the PMI data, you can cancel the export and re-export using a lower JT version.</p> </div>
	Include precise geometry	If the model has precise geometry (B-Rep or NURBS data), include it in the exported JT file.
File format	JT Version	Specify the JT version.

In this section	Use this option	To do this
		<p>Note:</p> <ul style="list-style-type: none"> • JT features introduced in a particular release are not supported in earlier versions of the application. However, with later version JT files, you still may be able to view the geometry in an earlier Viewer, although the application will disregard unsupported features. • When exporting assemblies, if any part in the assembly is a JT version 8.0 or above higher, the entire assembly is exported in the latest JT version present in the model. • HDR images used in light maps are not saved in JT files.
	Advanced Geometric Compression	Use compression to lower the file size of the exported model. Type a value between 0.0 and 1.0 or use the slider bar to adjust the amount of compression applied to the exported model.
	Embed images in JT files	Specify how to save images used in texture maps and light maps. Do one of the following: <ul style="list-style-type: none"> • Select the check box to embed the images in the JT file. • Clear the check box to save images as separate files in the same location as the JT file.
	Fix non-standard characters in filenames	Replace non-standard characters in filenames with underscores.
	Exclude disabled bodies from export when possible	Determines whether disabled, yet visible, structures are included when the assembly is exported. This option does not affect structures with leaf bodies that contain assembly-level geometry or assembly PMI which must be present if the parent assembly is exported.
	Alternate Hierarchy Units	Determines the units set on the alternate hierarchy assembly file when it is exported.

5. Click **OK**.

Understanding advanced geometric compression

Turning on advanced geometric compression can lower the file size of exported JT files. The amount of compression applied to the exported model corresponds to a specified value from 0.0 up to 1.0, with compression disabled at 0.0 and maximized at 1.0. You also can use the slider bar to adjust the compression level, with less compression applied as you move the slider to the left and more compression applied as you move the slider to the right.

Regardless of the type of data in the model (tessellated, semi-precise, or precise), all values above 0.0 use advanced geometric compression. Measurement accuracy usually begins to be affected at values of 0.2 or 0.3. Visual accuracy typically begins to be affected at values of 0.4 or 0.6. These values are not exact due to possible differences in model geometry.

The table below provides generalized descriptions of the effects of advanced geometric compression at different values.

Compression value	Effect on geometry
0.0	Lossless compression with no effect on the measurement accuracy and appearance of geometry.
0.1	Minimal lossy compression with little if any effect on the measurement accuracy and appearance of geometry.
0.5	Moderate lossy compression with a noticeable effect on the measurement accuracy and appearance of geometry.
1.0	Aggressive lossy compression with an obvious effect on the measurement accuracy and appearance of geometry.

Understanding the Ultra-Lightweight Precise (ULP) format

The Ultra-Lightweight Precise (ULP) format is a lightweight, semi-precise representation of 3D geometry in JT files. Due to their smaller size, ULP files load much faster than JT files containing full B-Rep information, and are nearly as accurate.

ULP data provides you with the following benefits:

- Smaller file sizes than JT files containing full B-Rep data.
- Semi-precise geometry with a measurement accuracy that is much greater than tessellated geometry and very close to full B-Rep data. Semi-precise measurements typically achieve a measurement accuracy of 1e-5 meters.
- High quality surface geometry with little deviation of the normal direction or curvature distribution from the original B-Rep geometry.
- Support for per-face color specifications.

- Support for PMI markups.

ULP compression settings

When creating JT files containing ULP data, it is important to understand the four possible ULP compression settings that impact the size and accuracy of an exported JT file:

ULP compression setting	JT precision (in meters)	JT size
0.001mm accuracy	1.E-05	50% larger than 0.1mm accuracy
0.01mm accuracy	1.E-05 ~ 1.E-04	25% larger than 0.1mm accuracy
0.1mm accuracy	1.E-04	Smallest practical JT file size (up to 100 times smaller than CAD formats)
1.0mm accuracy	> 1E-03 meters	Smallest possible JT file size (more than 100 times smaller than CAD model in many cases)

Note:

Semi-precise measurements that use ULP data are indicated by a tilde and an equals sign (~=) in the measurement display label.

Exporting PLM XML files

Overview of exporting PLM XML files and datasets

You can export product structure as PLM XML. You also can set options that affect how the product structure is saved.

Note:

- 3D parts cannot be saved as PLM XML. Use the **Absolute File Path** or **Relative File Path** PLM XML export options to reference the original locations of your JT files, or use the **JT Geometry Creation** option to create new JT files.
- You also can save extended 3D content to **session files**.
- Materials and material assignments are saved, except when the initial JT has assembly-level assignments not authored in Teamcenter lifecycle visualization. In that case, those assembly-level material assignments are not saved.

- If you have directories containing hundreds or thousands of files, it may take a while for the complete list of files to appear in the Export dialog box. You can press Ctrl-Break to stop the file listing at any point.

Export PLM XML files and datasets

Export product structure as PLM XML.

1. Choose **File**→**Export**.
2. In the **Export** dialog box, browse to the location where you want to save the file, and enter a name for the file.

Note:

You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.

3. From the **File Format** list, select **Product Structure (*.plmxml)**.
4. (Optional) In the **Hierarchy** list, select an alternate assembly hierarchy or inserted model.

Note:

If the 3D model does not include an alternate assembly hierarchy, then the **Hierarchy** list only includes one choice, **Model**, which represents the original assembly hierarchy. You can create alternate hierarchies using the **Assembly** tool.

5. (Optional) Click **Options** to **change settings** that affect file content and structure.
6. Click **OK**.
7. In the **Affected Files and Directories** dialog box, review the list of affected files and directories, and then click **OK**.

A progress bar appears as the model is saved. Upon completion, a message informs you if the model was successfully saved.

8. Click **OK**.

Note:

- If you have unsaved Clearance results, the **Save Clearance Results As** dialog box appears. You must save to a .txt file to reference the results.

- If you have unsaved motion files, a **Warning** dialog box appears asking if you want to save the changes to a file.

Specify PLM XML export options

You can set options that affect how the product structure is saved as PLM XML.

1. Choose **File**→**Export**.
2. From the **File Format** list, select **Product Structure (*.plmxml)**.
3. Click **Options**.
4. In the **PLM XML** dialog box, edit any of the following settings:

On this tab	Use this option	To do this
General	Product Structure Data	Include product structure.
	Product View Data	Include product view data.
	Current State of Document	<p>Include the current state of the document. Provided they are within the current session, you can specify to include any of the following 3D elements:</p> <ul style="list-style-type: none"> • Jack • Camera Orientation • Part Display Mode • Visibility • Selection • Active Hierarchy • Markup Layers • Transforms • Behaviors • Layer Filters

On this tab	Use this option	To do this
		<ul style="list-style-type: none"> • Reference Sets • PMI • Material Assignments • Light Assignments • Texture Coordinate Assignments • CAE • Visual Report • True Shading • Exploded Views • Coordinate System • Cross Sections • Constraint • Measurements • Volume Clipping • Hide Obscuring
	Document Description	Include a description.
Product Structure	Export	
	Visible Product Structure	Save visible product structure only.
	Complete Product Structure	Save all product structure contained within the model.
	Include late loaded attributes	Include the assembly-level attributes from Teamcenter even if you have not downloaded them for viewing. If not checked, only downloaded attributes are saved.
	Export Partition Schemes	

On this tab	Use this option	To do this
	All Active None	Specifies which partition schemes to export. You can export all existing partition schemes for the model or the active partition schemes or none.
	External References	
	Absolute File Path	Save references using absolute file paths.
	Relative File Path	Save references using relative file paths.
	JT Geometry Creation	Export a JT file for each part reference. JT files created using this option are saved in the same location as the exported .plmxml file.
Product View	[a list of your snapshots]	Specify which snapshots to save with your file.

- Click **OK**.

The changes are saved to the registry on your local system and become the default settings.

Exporting VRML files

Overview of exporting VRML files and datasets

You can export 3D models in the VRML 1.0 format. You also can set options that affect how the model is saved.

Note:

If you have directories containing hundreds or thousands of files, it may take a while for the complete list of files to appear in the Export dialog box. You can press Ctrl-Break to stop the file listing at any point.

Export VRML files and datasets

Export 3D models in the VRML 1.0 format.

- Choose **File**→**Export**.
- In the **Export** dialog box, browse to the location where you want to save the file, and enter a name for the file.

Note:

You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.

3. From the **File Format** list, select **VRML 1.0 (*.wrl)**.
4. (Optional) In the **Hierarchy** list, select an alternate assembly hierarchy or inserted model.

Note:

If the 3D model does not include an alternate assembly hierarchy, then the **Hierarchy** list only includes one choice, **Model**, which represents the original assembly hierarchy. You can create alternate hierarchies using the **Assembly** tool.

5. (Optional) Click **Options** to change settings that affect file content and structure.
6. Click **OK**.
7. In the **Affected Files and Directories** dialog box, review the list of affected files and directories, and then click **OK**.

A progress bar appears as the model is saved. Upon completion, a message informs you if the model was successfully saved.

8. Click **OK**.

Specify VRML export options

You can set options that affect how the model is saved as a VRML file.

1. Choose **File**→**Export**.
2. From the **File Format** list, select **VRML 1.0 (*.wrl)**.
3. In the **Save As VRML** dialog box, edit any of the following settings:

Use this option	To do this
LOD	Select the amount of detail to be saved: <ul style="list-style-type: none"> • LOD: All Level of Detail • LOD: Highest Level of Detail

Use this option	To do this
	<ul style="list-style-type: none"> • LOD: Lowest Level of Detail
Bounding Box Only	Save simplified geometry for testing or review.
Use VRML Instancing	Save the model with VRML instancing. <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>Example:</p> <p>If you want to save four identical wheels, you can save the geometry of one wheel and use instancing to represent the others in the model.</p> </div>
Backface Culling	Save the model with visible polygons (positive vector) only.

4. Click OK.

Exporting NASTRAN BULK files

Overview of exporting NASTRAN BULK files and datasets

You can export 3D models in the NASTRAN BULK format.

Note:

- For the NASTRAN BULK (BLK) format, Teamcenter lifecycle visualization turns polygons and tristrrips from visible parts into triangles, and then translates them into the CTRIA3 element type. Polyline sets or point sets are ignored.
- Different parts are assigned different PIDs (property IDs) in the exported file.
- Material properties, load cases, and boundary conditions are ignored. This means that the exported BLK file cannot be used directly by NASTRAN for analysis purposes without manually adding additional information.
- Teamcenter lifecycle visualization cannot load BLK files. The application can only export them.
- If you have directories containing hundreds or thousands of files, it may take a while for the complete list of files to appear in the Export dialog box. You can press Ctrl-Break to stop the file listing at any point.

Export NASTRAN BULK files and datasets

Export 3D models in the NASTRAN BULK format.

1. Choose **File**→**Export**.
2. In the **Export** dialog box, browse to the location where you want to save the file, and enter a name for the file.

Note:

You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.

3. From the **File Format** list, select **NASTRAN BULK (*.blk)**.
4. (Optional) In the **Hierarchy** list, select an alternate assembly hierarchy or inserted model.

Note:

If the 3D model does not include an alternate assembly hierarchy, then the **Hierarchy** list only includes one choice, **Model**, which represents the original assembly hierarchy. You can create alternate hierarchies using the **Assembly** tool.

5. In the **Save As NASTRAN BULK** dialog box, click **OK**.
6. In the **Affected Files and Directories** dialog box, review the list of affected files and directories, and then click **OK**.

A progress bar appears as the model is saved. Upon completion, a message informs you if the model was successfully saved.

7. Click **OK**.

Exporting ROBFACE files

Overview of exporting ROBFACE files and datasets

You can export 3D models in the ROBFACE format. You also can set options that affect how the model is saved.

Note:

- Teamcenter lifecycle visualization cannot load ASY files. The application can only export them.
- If you have directories containing hundreds or thousands of files, it may take a while for the complete list of files to appear in the Export dialog box. You can press Ctrl-Break to stop the file listing at any point.

Export ROBFACE files and datasets

Export 3D models in the ROBFACE format.

1. Choose **File**→**Export**.
2. In the **Export** dialog box, browse to the location where you want to save the file, and enter a name for the file.

Note:

You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.

3. From the **File Format** list, select **ROBFACE (*.asy)**.
4. (Optional) In the **Hierarchy** list, select an alternate assembly hierarchy or inserted model.

Note:

If the 3D model does not include an alternate assembly hierarchy, then the **Hierarchy** list only includes one choice, **Model**, which represents the original assembly hierarchy. You can create alternate hierarchies using the **Assembly** tool.

5. (Optional) Click **Options** to **change settings** that affect file content and structure.
6. Click **OK**.
7. In the **Affected Files and Directories** dialog box, review the list of affected files and directories, and then click **OK**.

A progress bar appears as the model is saved. Upon completion, a message informs you if the model was successfully saved.

8. Click **OK**.

Specify ROBFACE export options

You can set options that affect how the model is saved as a ROBFACE file.

1. Choose **File**→**Export**.
2. From the **File Format** list, select **ROBFACE (*.asy)**.
3. In the **Save As ROBFACE** dialog box, edit any of the following settings:

Use this option	To do this
Save assembly file	Include the assembly file (.ASY).
Include metadata for all nodes	Include the metadata for each node of the assembly.
Save part files	Include the part file (.JT).
LOD	Select the amount of detail to be saved: <ul style="list-style-type: none"> • LOD: High Level of Detail • LOD: Medium Level of Detail • LOD: Low Level of Detail

4. Click OK.

Saving 3D documents as PLM XML

Overview of saving 3D documents as PLM XML

In Standard, Professional, and Mockup, you can save 3D documents as PLM XML. You can use the **Save As** option to create a PLM XML file that preserves all supported content from the active 3D Viewing window.

In Professional and Mockup, the following apply:

- Functionality persisted with PLM XML includes extended 3D content such as transformations and camera orientations, 3D snapshots, and product structure. Also included are references to motion files, Clearance results files, JT files, and other PLM XML files.
- Use the **Export** option to increase control over what is persisted in the PLM XML file. You can specify what supported content to include and what supported content to leave out of the exported file.

Use the **PLM XML preferences** to change options for how PLM XML files are saved.

Note:

- 3D geometry cannot be saved as PLM XML. To save parts as a supported 3D format, you must use the **Export** option.
- You can also save 3D snapshot information as **session files**.

- Materials and material assignments are saved, except when the initial JT has assembly-level assignments not authored in Teamcenter lifecycle visualization. In that case, those assembly-level material assignments are not saved.

Save the active 3D document as PLM XML

In Base, do the following.

1. Choose **File**→**Save As**.
2. In the **Save File** dialog box, browse to the location where you want to save the file, enter a name for the file, and click **Save**.

The model is saved as PLM XML.

Note:

You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.

In Standard, Professional, and Mockup, do the following.

1. Choose **File**→**Save As**.
2. (Optional, if the **PLM XML Preferences** are set to appear when you save a PLM XML file) Adjust the PLM XML Preferences, and then click **OK**.
3. In the **Save File** dialog box, browse to the location where you want to save the file, enter a name for the file, and click **Save**.

The model is saved as PLM XML.

Note:

- You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.
- If late loading product views are enabled, and the **Vis_PV_LateLoadSaveOp** preference is set to **Ask**, a dialog box appears in which you must choose how to handle saving partially loaded product views.

Export the active 3D model as a PLM XML file

1. Choose **File**→**Export**.

- In the **Export** dialog box, In the **File** section, browse to the location where you want to export the file, and enter a name for the file.

Note:

You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.

- In the **File format** section, select **Product Structure (*.plmxml)**.
- (Optional) In the **Hierarchy** section, select an alternate assembly hierarchy.

Note:

If the 3D model does not include an alternate assembly hierarchy, then the **Hierarchy** list only includes one choice, **Model**, which represents the original assembly hierarchy. You can create alternate hierarchies using the **Assembly** tool.

- (Optional) In the **Hierarchy** section, select an inserted model.
- Click **OK**.

A progress bar appears as the model is saved. Upon completion, a dialog box appears indicating that the model was successfully saved.

Specify PLM XML preferences

- Choose **File**→**Preferences**→**PLM XML**.
- In the **PLM XML Preferences** dialog box, on the **Save** tab, change any of the following options:

Use this option	To do this
Save extended 3D content into PLM XML	Include extended 3D information captured with snapshots.
Save the default snapshot	Save the .plmxml file with or without the default product view. When unselected, the .plmxml file is created without the default product view, which provides a faster save time and a smaller file.
Save inserted models	Include inserted models.
Copy parts locally	Create local part copies in the JT format.
Retain references to original Product Structure	Keep the model's original product structure.

Use this option	To do this
Include late loaded attributes	Include all assembly-level attributes from Teamcenter even if you have not downloaded them for viewing. If not checked, only downloaded attributes are saved.
Always ask at save time	Open the PLM XML Preferences dialog box when you use save a session file.

Convert 3D files to DirectModel

If you have the appropriate optional translators installed and licensed, when you open a 3D model file in the following formats, the file is translated to the .jt file format:

- VRML (.wrl, .vrm)
- STL (.stl, .sla)
- IGES (.igs, .iges)
- STEP (.stp)
- DXF (.dxf)
- DWG (.dwg)

For DWG, DXF, and IGES files, surfaces are the only 3D objects translated to the .jt format. You can open DWG, DXF, and IGES files that contain line drawings as 2D images.

1. Choose **File**→**Convert Model**.

Tip:

If you have directories containing hundreds or thousands of files, it may take a while for the complete list of files to appear in the **Open File to Translate** dialog box. You can press Ctrl-Break to stop the file listing at any point.

2. In the **Open File to Translate** dialog box, browse to the file, and click **Open**.
3. In the **Choose File to Translate to** dialog box, type a name for the translated file and browse to the location where you want to save it.

Note:

You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.

4. (To open the file) Select **Open File After Translation**.
5. Click **Save**.

The file is translated into a JT file.

Save 3D markup layers

1. In the **Assembly** view, select the layer you want to save, right-click and choose a save option from the list.
2. Choose one of these options:

Choose this option	To save
Save All Layers	All markup layers associated with the base document. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: Modified markup layers are saved to their associated markup datasets. New layers are saved to a new markup dataset.</p> </div>
Save Selected Layer	Highlighted markup layer associated with the base document.
Save Selected Layer As	Highlighted markup layer as a new markup dataset associated with the base document.

Under certain conditions, warning messages display when saving legacy layer files (release 12.4 and earlier). To avoid overwriting the legacy layer file, which will cause issues with legacy viewers, on the warning dialog click **Save as** and choose a different file location to create a new layer file.

3. In the **Save** dialog box, select or type the name of the markup layer file to save.


Note:

You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.

4. Click **Save**.

(If you chose **Save All Layers**) A new **Save** dialog box appears for each markup that you save.

Note:

When you create or edit a 3D layer, a pen and arrow icon  appears before the name of the markup layer in the **Markup Layers** list until you save the layer. When you save the layer, the icon disappears until the layer is edited again.

Save an image of a 3D model

Capture and save an image of a 3D model in a 2D raster format.

1. Display the model parts to include in the view.
2. Navigate the model until the Viewing window displays the view you want to save.
3. Choose **Actions**→**Image Capture**.

A 2D image of your model appears in your Viewing window.

4. Save the image as a .bmp, .tiff, .png, or .jpg file.

Save your 3D assembly as a text file

When you can save the assembly as a text file, you can choose to include all parts in the model, or only those parts that are currently displayed.

1. Choose **Tools**→**Assembly**.
2. Expand or collapse the assembly until it displays the level of detail you want to save.
3. Choose **Assembly**→**Save Indented**, then and select **Visible** or **Full**.

Use this option	To do this
Visible	Save a text file that includes only the nodes for parts that are currently displayed
Full	Save a text file that includes nodes for parts that are hidden and displayed

4. In the **Save** or **Save As** dialog box, browse to the appropriate file path.

Tip:

If you have directories containing hundreds or thousands of files, it may take a while for the complete list of files to appear in the **Save As** dialog box. You can press Ctrl-Break to stop the file listing at any point.

- In **File name**, type a name for the text file.

Note:

You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.

- Click **Save**.

Save a graphic for Teamcenter Content Management

You can save 2D images or 3D models so that they can be used as 2D graphics in print and online publications that are managed in Teamcenter Content Management.

If the 3D model changes, you can **recapture the image** in Teamcenter lifecycle visualization to update it in Content Management.

- In Teamcenter, send a 2D image or 3D model to the standalone application viewer or the Lifecycle Viewer.
- In Teamcenter lifecycle visualization, choose **File**→**Publish 2D graphic to Teamcenter Content Management**.

Note:

This option is available only if the graphic is stored in Teamcenter.

- In the **Graphic Option** dialog box, do the following:

For this option**Do this****Name**

Type a name for the graphic.

Graphic Usage

Do one of the following:

- Select the **Use Graphic Usages from Graphics Mapping** check box to use the graphic usages defined in the **ctm0GraphicUsagePref** preference.

For this option**Do this**

- Select the graphic usages that you want to assign to this graphic option:

Caution:

Each graphic option of the same graphic file must have unique usages. For example, do not use piston.png and piston.gif both with the **VIEW** option.

If the graphic will be used for this purpose	Select this graphic usage
Icon in published output.	ICON
High-resolution graphic in printed output.	PDF
Graphic in a resolution appropriate for the printer where it will be printed.	PRINT
Small-scale image.	THUMBNAIL
Low-resolution image, typically for viewing only.	VIEW
Image to appear in a Web browser.	WEB

Graphic Attribute

Select the appropriate graphic attribute defined by your application administrator.

Graphic Classname

Select one of the following:

- **Graphic**—for non-S1000D content.
- **S1000D Graphic**—for S1000D content.

Language

Select the languages for the graphics being saved, or choose **Multilanguage** if the graphics have no specific language associated with them. A separate graphic option will be saved for each language you choose.

Note:

For S1000D graphics, select the site master language. The S1000D standard does not require you to associate a language with graphics, and the S1000D graphic

For this option**Do this**

attribute mapping that is provided with the Content Management installation does not support multiple languages for graphics.

Overwrite Mode

Select one of the following:

Note:

If you select neither overwrite mode, the graphic will be saved as a new graphic if a graphic option with the same **Original Imported Name** property and graphic usage does not already exist in the system.

- **Skip existing**

The graphics are not saved if they already exist in Content Management.

- **Overwrite existing**

If the graphics already exist in Content Management, they are overwritten.

If you select **Overwrite existing**, select one of the following usage handling options:

Tip:

To view the usages associated with an existing graphic option, right-click the graphic option revision, and choose **View Properties**.

Note:

Edit, publish, and export functions always use the latest revision of graphic options. If you revise a graphic, the new revision appears in all content that it is referenced in. If you want to change a graphic but you do not want the graphic updated in all content, you must save the changed graphic as a new graphic with a different name.

- **Keep**

For this option**Do this**

The usages of the existing graphics are retained.

- **Merge**

The usages of the existing graphics are retained, and the new usages selected for this save are added to the graphics. For example, if a graphic being saved already exists with the VIEW and WEB usages, and the selected usages in the **Graphic Options** dialog box are THUMBNAIL and ICON, the graphic is saved with the VIEW, WEB, THUMBNAIL, and ICON usages.

- **Overwrite**

The usages of the existing graphics are removed and replaced by the usages selected in the **Graphic Options** dialog box.

4. Click **Next**.
5. In the **Export Image** dialog box, adjust the settings as needed.

Tip:

A resolution of 72 DPI is suitable for images to display on a monitor (email and web pages). Use a resolution of at least 300 DPI for print content.

6. Click **Finish**.

Note:

If your organization uses watermarks, a watermark page may appear before you can click **Finish**.

The graphic is saved in Teamcenter.

7. In Content Management, search for the graphic, and then move it to the folder where you want to store it.
8. Right-click the graphic option revision, and choose **Copy For Editor**→**Graphic Content**.
9. In the editing tool, right-click the valid position in the topic where you want to insert the graphic, and choose **Paste**.

The graphic reference is inserted in the topic's XML, using the tag information from your Graphic Link Clipboard preference and the identifying information for the graphic file.

Update a graphic for Teamcenter Content Management

If you **add a Teamcenter lifecycle visualization graphic** to a topic in Teamcenter Content Management and the 2D image or 3D model changes, you can recapture the image to update the graphic in Content Management.

This procedure is also useful if you use the graphic in translated content and need to associate the graphic with a different language.

Note:

- If you update a graphic that is included in published content, you must republish the content for the update to appear.
- Edit, publish, and export functions always use the latest revision of graphic options. If you revise a graphic, the new revision appears in all content that it is referenced in. If you want to change a graphic but you do not want the graphic updated in all content, you must save the changed graphic as a new graphic with a different name.

1. In Teamcenter, send a 2D image or 3D model to the standalone application viewer or the Lifecycle Viewer.
2. Choose **File**→**Publish 2D graphic to Teamcenter Content Management**.

Note:

This option is available only if the graphic is stored in Teamcenter.

3. In the **Graphic Option** dialog box, adjust the settings as needed.

Tip:

- If you are using the graphic in translated content and need to associate the graphic with a different language, select the language from the **Language** list.
- To update an existing graphic with modifications you make to a 3D model, select **Overwrite existing** under **Overwrite Mode**, and then select one of the following usage handling options:
 - **Keep**
The usages of the existing graphics are retained.

- **Merge**

The usages of the existing graphics are retained, and the new usages selected for this save are added to the graphics. For example, if a graphic being saved already exists with the VIEW and WEB usages, and the selected usages in the **Graphic Options** dialog box are THUMBNAIL and ICON, the graphic is saved with the VIEW, WEB, THUMBNAIL, and ICON usages.

- **Overwrite**

The usages of the existing graphics are removed and replaced by the usages selected in the **Graphic Options** dialog box.

4. Click **Next**.
5. In the **Export Image** dialog box, adjust the settings as needed.

Tip:

A resolution of 72 DPI is suitable for images to display on a monitor (email and web pages). Use a resolution of at least 300 DPI for print content.

6. Click **Finish**.

Note:

If your organization uses watermarks, a watermark page may appear before you can click **Finish**.

The graphic is saved in Teamcenter.

Save 2D layers

1. In the **Assembly** view, select the 2D layers you want to save.
2. From the **File** menu, choose an option:

Use this option	To do this
Save All Layers	Save each 2D layer independently.
Save Selected Layers As	Save selected 2D layers with a new file name.

	<p>Tip:</p> <p>You can select layers by clicking the layer in the Assembly view. To select multiple layers, hold the Ctrl key while you click.</p>
Export Combined Layers	Save all selected 2D layers as one 2D layer file.

- In the **Save** dialog box, select or type a file name.

Note:

You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.

- In **Save as type**, choose a CGM version.

The 2D layer is saved with a **.cgm** file extension.

Note:

If you selected multiple 2D layers and chose the **Save Selected Layers As** option, you are prompted with more than one **Save As** dialog box.

Export images, create watermarks, and save 2D images

- Choose **File**→**Export Image**.
- From the **Export Image** dialog box, choose from the following options:

On this tab	Use this option	To do this
Export	Export	<p>Export your view as one of the following:</p> <ul style="list-style-type: none"> Image – the application exports the entire image, including markup layers. For example, even if the Viewing window displays only a portion of the complete image, the application saves the complete image. View (WYSIWYG) – the application exports just the viewable image from the Viewing window only.

On this tab	Use this option	To do this
		<ul style="list-style-type: none"> • Page Extents - the application exports what is within the active page extents rather than what is in the Viewing window extents. This option is available when the Enable Page Extents check box on the Page Extents dialog box is selected. • Document – the application exports the entire document, including all pages and markups as either PDF or CGM. <div data-bbox="906 655 1451 1073" style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <ul style="list-style-type: none"> • When you export a PDF file as a PDF file, an exact copy of the input PDF file is exported. That is, the original quality of the PDF is exported. • When you export a PDF file as a Document file, changes in text output, for example background color, are not supported. </div>
	Resolution	<p>Change the dots per inch (DPI).</p> <div data-bbox="873 1171 1451 1371" style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>Increasing the resolution does not improve the quality of the output for 2D raster files; it only increases the file size.</p> </div>
	Retain dpi	<p>Check Retain dpi to store and retain your selected dpi setting in the registry. This value is recalled each time you navigate to Export Image.</p> <p>If the option is cleared, the application calculates an appropriate dpi.</p>
	Units	<p>Choose the units of measurement in which to export the image.</p>
	Ratio to Original Image	<p>Select the percentage of size the exported image will appear compared to the original image.</p>

On this tab	Use this option	To do this
	Color Mode	Select one of the following modes: <ul style="list-style-type: none"> • Black and White • Grayscale • Color
	Type	Choose a file type from the list. <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>Note:</p> <ul style="list-style-type: none"> • Exporting TIFF images: <ul style="list-style-type: none"> • To export 1-bit TIFF white-out layers, from Type select tif, and from Color Mode select Black and White. Select Enable masking / white-out to enable white-out effects. Clear this option to bypass the white-out capability. • When you export an image to TIFF, the output file conforms to TIFF 6.0 standards. • If you select TIFF with a Black and White Color Mode, the output file compression standard is TIFF CCITT Group 4. • Exporting Color and Grayscale images: <ul style="list-style-type: none"> • Color and Grayscale are supported for JPEG files (.jpg). Color is supported for JPEG 2000 (.pg2 and .jpc) files. • Exporting HP RTL images: <ul style="list-style-type: none"> • To export HP RTL images, from Type, select hpgl. • Exporting JPEG images: </div>

On this tab	Use this option	To do this
		<ul style="list-style-type: none"> Select the quality level of an exported JPEG by setting the value from 1–100. <p>The default is set at 98. When you increase the quality of the image by increasing this value, you also increase the size of the file. You can often decrease the file size and maintain acceptable results by lowering the value.</p>
	Output Format	Specify the type of PDF output. This option is available only when PDF is selected in the Type field.
	Colorspace	Specify which color model is used to create the various printing colors for PDF/A output types. This option is available only when one of the PDF/A output types is selected in the Output Format field.
	Compression	Specify a compression option for a color or grayscale TIFF file. <div data-bbox="873 1087 1451 1398" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Tip:</p> <ul style="list-style-type: none"> From the list, click one of these options; None, PackBits, or Deflate(ZIP). Choose a compression standard that is supported by your viewer. </div>
Watermark	Watermark	Activate the watermark option.
	Font	Click one of the following: <ul style="list-style-type: none"> Select Font, to choose a font name, style, size and color. Auto Scale Font Size, to automatically fit the text to the available space.
	Watermark	Add watermark text.

On this tab	Use this option	To do this
		<p>Note:</p> <p>For additional watermark options, right-click, point to Insert and choose one of following:</p> <ul style="list-style-type: none"> • Date • Time • File • Path and File • UserID • Page <p>Note:</p> <p>If the administrator creates an MDS file, the Watermark option is unavailable.</p>
	Watermark text location	<p>Choose the direction of the text.</p> <p>Note:</p> <p>The text can appear diagonally, from lower left to upper right or upper left to lower right, or it can appear horizontally in the center of the document.</p>
	Opaque	<p>Render the text as solid.</p> <p>Note:</p> <ul style="list-style-type: none"> • A watermark that covers the underlying document appears on the printed document. • When you export a PDF file as a Document file, <i>opaque</i> is not supported.

On this tab	Use this option	To do this
	Transparent	Render the text as half tone. <div data-bbox="873 296 1451 606" style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <ul style="list-style-type: none"> • 50% of the underlying document appears on the printed document. • When you export a PDF file as a Document file, <i>transparent</i> is not supported. </div>
	Background Color	Select a background color for your Watermark. <div data-bbox="873 705 1451 1121" style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <ul style="list-style-type: none"> • By default, Background Color is unchecked. • By default, white is the selected background color. • When you export a PDF file as a Document file, <i>background color</i> is not supported. </div>

3. Click **OK**.

A second **Export Image** dialog box appears.

4. (Optional) Specify a new file name and, if necessary, browse to a directory in which you want to save the file.

Note:

You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.

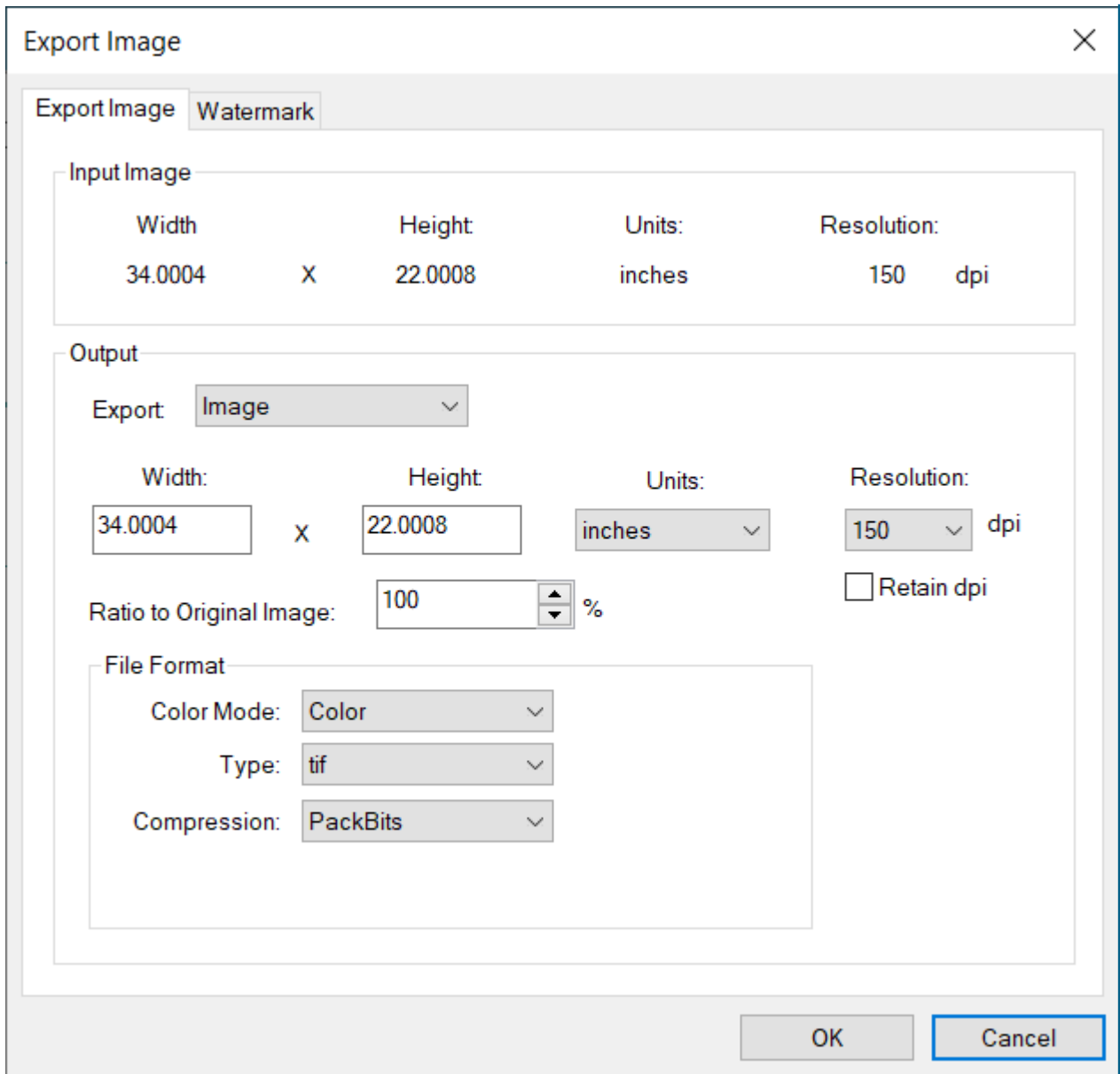
5. Click **Save**.

The 2D image is saved with the file name and extension you specified. The original image is unchanged.

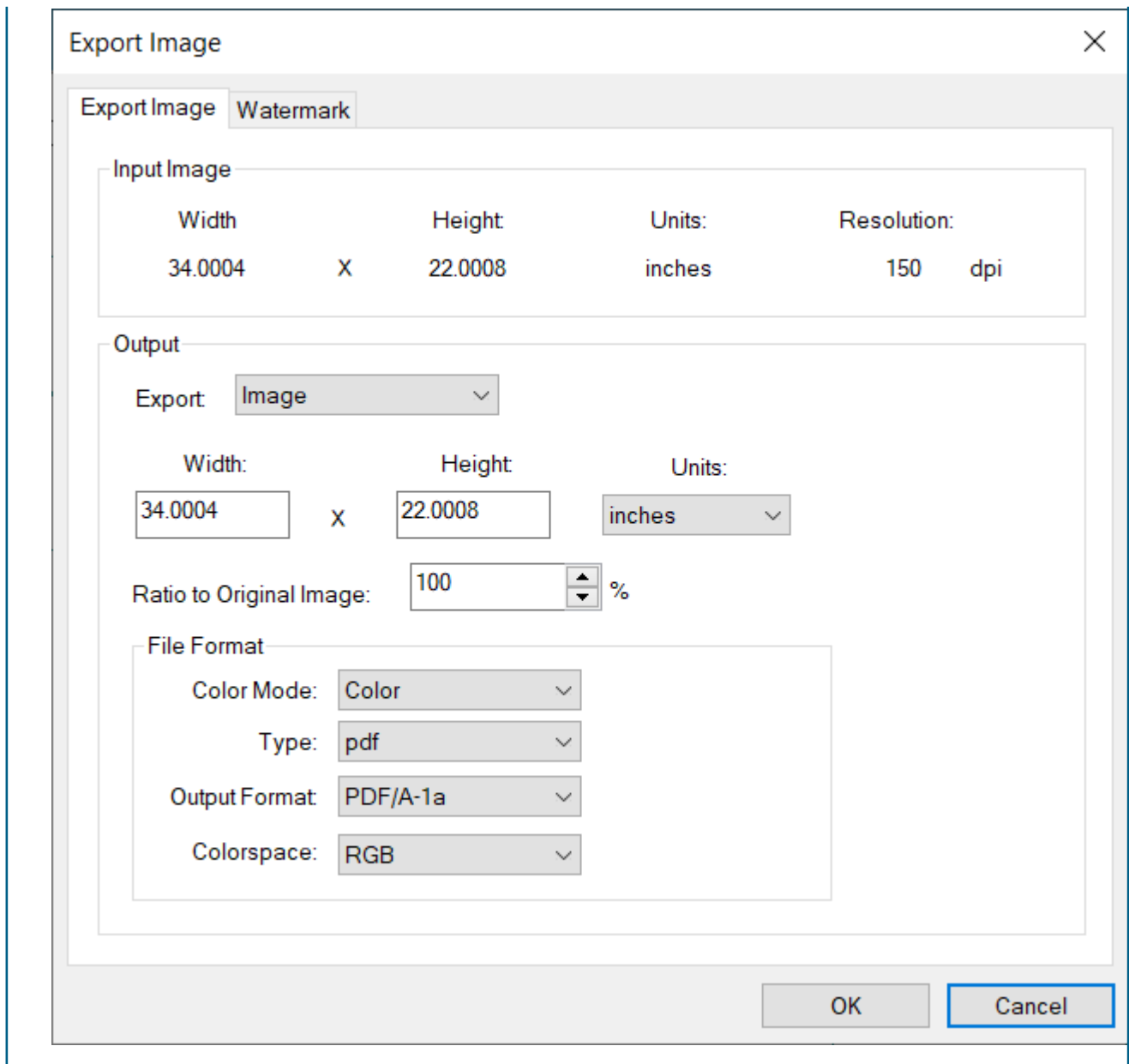
Note:

You can use any of the following features when you export (save) a 2D image:

- Save the 2D image exactly as it is displayed in the Viewing window (a zoomed in view, for example). You can also save the entire 2D image and any markup layers associated with it.
- Export the 2D image to other supported file format, for example export a TIFF file and convert it to PDF.
- Create a Watermark that is placed on the 2D image. The watermark is saved on all pages of your 2D image.
- Export document files using PDF or CGM file type options. In each instance, you can export multiple-page documents.



Vector images are not affected by resolution settings. Notice that **Resolution** has been removed from the **Output** section of the **Export Image** dialog box for vector output.



Creating uniform watermark stamps when exporting files

Save 2D layers using Image Capture

You can use Image Capture to capture the view of your image exactly as it is displayed in the Viewing window, including all visible markups. The captured image appears in a new Viewing window. You can then save this view.

1. Choose **Actions**→**Image Capture**.
2. Save the Image Capture in one of the following ways

- Choose **File**→**Save All Layers**.
 - After closing the Viewing window, click **Yes** when the application prompts you to save changes.
3. In the **Save As** dialog box enter a name for the file in **File name**.

Note:

You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.

4. In **Save as type**, select the CGM version of your choice.
5. Click **Save**.

The application displays the saved Image Capture in the Viewing window.

Note:

For best results when viewing the image with markups, zoom the image to a 1:1 scale.

6. To save the image in Metaphase, choose **File**→**Save All Layers**.
7. The **Save** dialog box appears, prompting you to type a name for each layer file.

Note:

You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.

8. Click **Save All Layers**.

The layer files are saved in Metaphase with a **.png** extension.

PVL files

Save 2D images as PVL files

You can save the currently displayed 2D image as a text file by generating a .pvl file or macro. You can save the .pvl as a file on disk or you can automatically send it to a user-defined macro. The .pvl text file gets binary or PDF data by pointing to or referencing the location of the source file.

1. Choose **File**→**Export Image View List**.
2. From the **Export Image View List** dialog box, select from the following options:

Choose this option	Then do this
<p>Save to File</p>	<p>a. In the Specify Filename dialog box, in File Name, type a name for your file.</p> <div data-bbox="938 327 1451 564" style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>You cannot use any non-ASCII character, including 8 bit accented Western European and multi-byte characters, for a file name.</p> </div> <p>b. In Save as type, select PVL Files (*.pvl).</p> <p>c. Navigate to where you want to store the file and click Save.</p>
<p>Execute Macro</p>	<p>No further action is necessary.</p> <div data-bbox="872 829 1451 1247" style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <ul style="list-style-type: none"> • When you execute the macro, the information is saved in a temporary directory. This directory is then emptied when you exit the program. • If the <code>EAI_SAVE_PVL_MACRO</code> environment variable is not defined, you cannot execute the macro and an error message will appear. </div>

The .pvl **file** is generated.

Generated .pvl example

You can use the following .pvl text file to get an understanding of how these files are coded.

```
# ViewList { background job ... } # create ViewSet # # load the
base layer document into the view: Sheet Open BaseLayer "C:\Program
Files\EAI\OEV\Examples\2d\biggear1.dwg" # # load layer 1 into the
view: Sheet Open Layer1 "C:\Temp\VisProd18027c\vvBGPrintTmp0\layer1.cgm"
# # load layer 2 into the view: Sheet Open Layer2
"C:\VisProd18027c\vvBGPrintTmp0\layer2.cgm" # # Open the document:
ViewSet Open ThisViewSet BaseLayer Layer1 Layer2 # Viewport settings of
the view: ViewSet Set Viewport ThisViewSet Absolute 8.956356 8.532558
26.922378 22.564855# Base Layer Page: 1 of 1 # Base Layer Width:
26.922378 # Base Layer Height: 22.564855
```

Code explanation

- General Notes
 - Comment records begin with the "#" character.
 - In the following, the term "layer" refers to both the original and markup layers to be written to the .pvl file from the Viewing window.
- # ViewList {comment text}
 - This message must be the first line in a View List file and the syntax is specific.
 - "comment text" can be any comment or nomenclature.
 - The "{ background job ... }" string will identify .pvl files generated from the Export Image View List command.
- # Sheet Open
 - Each sheet will have a unique name and will identify one file.
 - This command will appear for each layer that is to be written to the .pvl file from the active view.
 - The base layer will be identified first, followed by the added markup layers.
 - The markup layers are saved as temporary files and are automatically deleted when the application exits.
- # ViewSet Open
 - After opening an individual sheet for each layer in the view, this command combines the sheets into a single view.
 - Each ViewSet will have a unique name (up to 40 characters) and will reference all layers visible in the view. For Export Image View List PVL files, this will always be "ThisViewSet."
- # ViewSet Set Viewport
 - The name of the ViewSet is again identified.
 - The key word "Absolute" identifies that the numbers that follow are real numbers that identify the following coordinate pairs:
 - x and y coordinates for the center of the viewport (uses units from the sheet)

- x and y indicating the width and height of the viewport (uses units from the sheet)
- #Base Layer Page
 - The page of the base layer currently being viewed
- #Base Layer Width
 - The width of the base image.
- #Base Layer Height
 - The height of the base image.

Setting PVL macro environment variables

Purpose

When you export an image to a macro, the program uses a .pvl file type. You declare which program the .pvl file is passed to by setting the `EAI_SAVE_PVL_MACRO` environment variable. You can also specify how you want the PVL layers to be processed by setting the `EAI_SAVE_PVL_LAYERS` environment variable.

Add an environment variable

1. Choose **Start Menu**→**Control Panel**.

The **Control Panel** dialog box appears.

2. Select **Performance and Maintenance** and then select **System**, or just select **System**.

The **System Properties** dialog box appears.

3. Select the Advanced page.

4. Click **Environment Variables**.

The **Environment Variables** dialog box appears.

5. From **User Variables**, select **New**.

The **New User Variable** dialog box appears.

6. In **Variable Name**, type: `EAI_SAVE_PVL_MACRO`.

7. In **Variable Value**, type the value of the executable.

8. Click **OK**.

9. In the **Environment Variables** dialog box, click **OK**.

Set the environment variable for PVL layers

- The environment variable is `EAI_SAVE_PVL_LAYERS`.
- To add all layers

In **Variable Value**, type `ALL`.

- To add only visible layers

In **Variable Value**, type `VISIBLE`.

Sample **.pvl file**.

9. Emailing your work

Capture and email an image of the Viewing window

Note:

To send email from the viewer through a MAPI email program like Microsoft Outlook, the MAPI program must be 64-bit. If it is not, you get a warning message and no message is sent.

Choose **File**→**Send Mail**→**Image Capture File**.

A .png image capture of the Viewing window is created and attached to a new email message.

E-mailing your work session as a .vfz collaboration file

Overview of emailing your work session

You can package all of the files involved in your work session into a single .vfz collaboration file, which you can email to other members of your organization. You can specify to package the session contents of all open Viewing windows or only the contents of the active Viewing window.

Note:

- To create .vfz collaboration files, you must have the Professional or Mockup service level, along with an additional .vfz collaboration file license.
- You can open .vfz collaboration files in any viewer service level.
- You can edit, repackage, and re-send the data from existing collaboration files if you have the Standard, Professional, or Mockup service level.
- To send email from the viewer through a MAPI email program like Microsoft Outlook, the MAPI program must be 64-bit. If it is not, you get a warning message and no message is sent.

Introduction to .vfz collaboration files

You can use the .vfz collaboration format to share your work with suppliers or other members of your organization. A .vfz collaboration file consists of the visible contents of the active Viewing window or all open Viewing windows, including externally referenced files and attachments.

It is important to understand the distinction between creating new .vfz collaboration files and editing existing files. Creating entails opening, inserting, or merging 2D and 3D documents, which are packaged as a new .vfz collaboration file and sent to collaborators; it requires the Professional or Mockup service level, along with an additional .vfz collaboration file license. Editing consists of repackaging the data

from an original .vfx file with new content, such as markups, snapshots, groups, and measurements; it requires the Standard, Professional, or Mockup service level.

Creating .vfx collaboration files

After you open documents from your local file system or Teamcenter, you can package the data as a new .vfx collaboration file and send it to your collaborators. Creating .vfx collaboration files requires the Professional or Mockup service level, along with an additional .vfx collaboration file license.

The following components are included in collaboration files:

- Copies of 2D image files
- Copies of visible 3D parts
- Attachments
- A .vfx session file that includes an automatically generated snapshot

Note:

If you are working with files in multiple Viewing windows and the collaboration preferences are set to package all views, a snapshot is included for each Viewing window. These snapshots persist the state of the data visible in the Viewing windows. If you have created other snapshots, they are not included in the packaged file because they may reference parts that are not currently visible, which would result in a reconcile problem for the email recipient. However, you can include new snapshots when editing an existing .vfx collaboration file.

Editing .vfx collaboration files

After you receive a .vfx collaboration file and review its contents in your visualization client, you can edit the data from the file and then re-send it. Edits can consist of content such as markups, cross sections, and groups. Because the scope of the data is limited, you also can include new snapshots in the repackaged file. If you have the Standard, Professional, or Mockup service level, you can edit, repackage, and re-send the data from existing collaboration files.

When you edit .vfx collaboration files, you cannot add new 2D or 3D documents to the session. This invalidates the edits and disables the option for sending the file.

Example:

You receive a collaboration file, which you open in your Viewer. The file consists of a 3D model, a 2D image, markups, and a snapshot. After creating new markups, performing measurements, and capturing new snapshots, you choose **File**→**Send Mail**→**Collaboration File**. The data from the original .vfx file is repackaged to include your edits and is attached to a new email message, which you can send back to the person who initially sent you the file or to someone else.

Create and send .vfz collaboration files

1. In the 3D Viewing window, display the content that you want to include in the session package, such as parts, 3D markups, and groups.

Note:

Only visible parts are included in the collaboration file. Snapshots are not packaged in new collaboration files because they may reference parts that are not currently visible, which may result in a reconcile problem for the recipient of the file.

2. Adjust the options for the creation of .vfz collaboration files:
 - a. Choose **File**→**Preferences**→**Collaboration**.
 - b. On the **Packaged Collaboration File Preferences** dialog box, choose one of the following options to package the session contents of the active Viewing window only or the contents of all open Viewing windows:
 - **Active View**
 - **All Views**
 - c. (Optional) Select the **Enable password protection** check box.
 - d. Click **OK**.
3. (Optional) Add attachments, such as Microsoft Office documents, to .vfz collaboration files:
 - a. Choose **File**→**Attachments**.
 - b. In the **Attachments** dialog box, click **Add**.
 - c. In the **Choose attachment file location** dialog box, choose the file you want to attach to your work session or session package, and click **Open**.

Tip:

To view the contents an attached file, select the file in the **Attachments** dialog box and click **Open**.

4. Choose **File**→**Send Mail**→**Collaboration File**.

Your work session is packaged as a .vfz file and attached to a new email message. If you turned on password protection, a dialog box appears asking you to provide a password for the file before it is created.

5. Send the email message to your recipient.

Note:

To send email from the viewer through a MAPI email program like Microsoft Outlook, the MAPI program must be 64-bit. If it is not, you get a warning message and no message is sent.

Open and view e-mailed .vfz collaboration files

When you receive an email message containing a .vfz collaboration file, you can open and view the work session and any attachments.

1. Open the email message.
2. Double-click the attached collaboration file.

The work session opens in your Lifecycle Visualization viewer.

3. (Optional) To view any files attached to the session, do the following:
 - a. Choose **File**→**Attachments**.
 - b. Select the attached file and click **Open**.

Edit and re-send .vfz collaboration files

After receiving an email message containing a .vfz collaboration file, you can open work session, make changes and additions, and then email a repackaged collaboration file.

1. Open the email message.
2. Double-click the attached collaboration file.

The work session opens in your Lifecycle Visualization viewer.

3. Add content that you want included in the repackaged collaboration file, for example, 3D markups, groups, or snapshots.

Note:

When you edit a .vfz collaboration file, you cannot add new documents to the work session; you can only edit documents included in the original file. A .vfz collaboration file license is required to add new documents to an existing file.

4. When you are ready to re-send the updated work session, choose **File**→**Send Mail**→**Collaboration File**.

The .vfx collaboration file is repackaged and attached to a new email message.

5. Send the message to your recipient.

Note:

To send email from the viewer through a MAPI email program like Microsoft Outlook, the MAPI program must be 64-bit. If it is not, you get a warning message and no message is sent.

Specify output preferences for .vfx collaboration files

1. Choose **File**→**Preferences**→**Collaboration**.
2. On the **Packaged Collaboration File Preferences** dialog box, do any of the following:

To	Do this
Include only the contents of the active Viewing window in the .vfx file.	Choose Active View .
Include the contents of all of the open Viewing windows in the .vfx file.	Click All Views .
Turn on password protection for .vfx files.	Select the Enable password protection check box. <div data-bbox="771 1052 1451 1255" style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>When you create a .vfx collaboration file, a dialog box appears asking you to provide a password for the file before it is created.</p> </div>
Show the data that will be included in the .vfx file.	Select the Review content before sending check box.

3. Click **OK**.

10. Printing


Overview of printing

You can print your current view of a 2D image or 3D model. In addition to using standard printing functionality, you can do the following:

- Preview before printing.
- Configure page headers and footers.
- Add watermark stamps.
- Add date and time stamps.
- Print using the HP Raster Transfer Language (RTL).

Preview images and models before printing

You can preview images and models to display each page as they will look when printed.

1. On the **Printing** toolbar, click **Print Preview** .

A preview of what will be printed appears in the **Print Preview** dialog box.

2. (Optional) In the Viewing window, manipulate the model or image.

Changes are displayed in the **Print Preview** dialog box.

3. (Optional) To change the printer configuration and options, click **Setup**.


4. (Optional) Click **Print**.

Your file is sent to your specified printer.

Print your current 2D or 3D view

You can preview and print images and models that are displayed in the Viewing window.

1. (Optional) **Preview** documents to display as they look when printed.

2. From the **Printing** toolbar, click **Print** .

3. In the **Print** dialog box, specify options in the following ways:

On this tab	Choose this option	Then do this
Print	Name	<p>Select a printer to print the documents.</p> <div data-bbox="743 407 1451 573" style="border: 1px solid black; padding: 5px;"> <p>Tip: Click Properties to view and modify available printer options.</p> </div> <div data-bbox="743 594 1451 793" style="border: 1px solid black; padding: 5px;"> <p>Tip: To print embedded Hewlett Packard Raster Transfer Language images, you must select an HPGL printer or plotter.</p> </div>
	Default print settings	<p>Select one of the following:</p> <ul style="list-style-type: none"> • To use the default print settings, click Print Defaults. • To use the print settings used the last time you printed, click Last Used. • To save the current print settings, click Save As, and in the Save Settings dialog box, type a name for the print settings, and click Save.
	Open Documents	<p>Select the names of open documents that you want to print.</p> <div data-bbox="743 1314 1451 1480" style="border: 1px solid black; padding: 5px;"> <p>Tip: You can also choose Select None to clear all selections, or Select All to select all documents.</p> </div> <p>If your document is multipaged, you can use the Page command button to display the Page Selection dialog box. Use the Print Range you can choose to print All pages, to print a range of Pages, or to print the Current page.</p>
Print Layout	Orientation	<p>Select one of the following page layouts:</p> <ul style="list-style-type: none"> • Portrait • Landscape

On this tab	Choose this option	Then do this
		<ul style="list-style-type: none"> • Best Fit <div data-bbox="776 331 1451 495" style="border: 1px solid black; padding: 5px;"> <p>Note: If you choose Best Fit, all pages print with the same orientation.</p> </div>
	Print Scale	<p>Select one of the following print scale options:</p> <ul style="list-style-type: none"> • Fit to Page • 1:1 scale • Scale <div data-bbox="776 821 1451 984" style="border: 1px solid black; padding: 5px;"> <p>Tip: Use the arrows to increase or decrease the scale percentage, or type in a percentage.</p> </div>
	Roll Plotter	<p>Select one of the following:</p> <ul style="list-style-type: none"> • Roll Paper Auto Size <p>The system calculates the paper length needed to fit the plot. The limitation is the maximum length of a custom page, which is 129 inches.</p> <ul style="list-style-type: none"> • Bypass Printer Driver <p>This option bypasses the Printer driver during the printing process. The 129 inch limitation is removed, but you may experience decreased image quality.</p>
	Printer Language	<div data-bbox="745 1528 1451 1730" style="border: 1px solid black; padding: 5px;"> <p>Note: The Printer Language option is only available when you select Bypass Printer Driver from Roll Plotter.</p> </div> <p>Select one of the following:</p>

On this tab	Choose this option	Then do this																
		<table border="1"> <thead> <tr> <th data-bbox="721 275 886 331">Language</th> <th data-bbox="886 275 1471 331">Issues</th> </tr> </thead> <tbody> <tr> <td data-bbox="721 331 886 426">PostScript</td> <td data-bbox="886 331 1471 426">PostScript data is not compressed, resulting in larger data files.</td> </tr> <tr> <td data-bbox="721 426 886 483">HP-GL/2</td> <td data-bbox="886 426 1471 483">None.</td> </tr> <tr> <td data-bbox="721 483 886 539">Calcomp</td> <td data-bbox="886 483 1471 539">Prints 906/907 with images.</td> </tr> <tr> <td data-bbox="721 539 886 596">C4</td> <td data-bbox="886 539 1471 596">Prints monochrome color only.</td> </tr> <tr> <td data-bbox="721 596 886 653">MIL-R</td> <td data-bbox="886 596 1471 653">Prints monochrome color only.</td> </tr> <tr> <td data-bbox="721 653 886 709">CGM</td> <td data-bbox="886 653 1471 709">None.</td> </tr> <tr> <td data-bbox="721 709 886 766">TIFF</td> <td data-bbox="886 709 1471 766">Prints color.</td> </tr> </tbody> </table>	Language	Issues	PostScript	PostScript data is not compressed, resulting in larger data files.	HP-GL/2	None.	Calcomp	Prints 906/907 with images.	C4	Prints monochrome color only.	MIL-R	Prints monochrome color only.	CGM	None.	TIFF	Prints color.
Language	Issues																	
PostScript	PostScript data is not compressed, resulting in larger data files.																	
HP-GL/2	None.																	
Calcomp	Prints 906/907 with images.																	
C4	Prints monochrome color only.																	
MIL-R	Prints monochrome color only.																	
CGM	None.																	
TIFF	Prints color.																	
	Quality	<p>Do one of the following:</p> <ul style="list-style-type: none"> • Move the slider to improve the clarity or readability of images previewed or printed. • Print Image <p>Moving the slider to the right may improve the print quality of some images.</p> <ul style="list-style-type: none"> • Preview Image <p>Moving the slider to the right may improve the readability and clarity of some images.</p> <p>Select Auto Calculate Print Quality to have the software calculate a solid balance between printing speed and quality for each print job.</p>																
	Special Settings	<p>Select the following:</p> <ul style="list-style-type: none"> • Select Print as Monocolor to print any image (color or grayscale) black and white. • Select Print Full View to always print the entire image even if you zoom in or out on the image. 																
Advanced	Image Alignment	<p>Specify where you want an image placed (printed) on the page.</p>																
	Margins	<p>Set page margins before printing.</p>																

On this tab	Choose this option	Then do this
	Treat 2D Vector as Raster	<p>Select or clear letting the software handle how the text is sent to the printer.</p> <div data-bbox="745 365 1451 724" style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>This setting is useful when printing Vector images that contain font style and font characteristics that are not supported by the local computer.</p> <p>If the Vector image includes a font style that is not supported by the local computer, the software tries to select a close approximation of the font. This may result in text output that is slightly off.</p> </div>
	2D Line Font Relative Spacing	<p>Select this setting to print dashed lines.</p> <div data-bbox="745 823 1451 989" style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>The patterns of font lines are not a fixed size. They are sized relative to the size of the output.</p> </div>
	MDS File Settings	<p>Select Page Centric to set MDS position values to absolute.</p> <div data-bbox="745 1121 1451 1375" style="border: 1px solid black; padding: 5px;"> <p>Example:</p> <p>A starting point for copyright text is set to one inch from the top left corner of the page.</p> <p>The text will always be at this location regardless of the size of the page.</p> </div> <p>Select Geometry Centric to scale the location and size of the text with the rest of the image.</p>
FlowCharter	Don't print blank pages	Specify printing fewer pages in long flow charts.
	Single Flow Chart	<p>Specify printing a chart as a standalone entity.</p> <div data-bbox="745 1635 1451 1801" style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>If links to other charts exist, a displayed icon represents the link to these charts.</p> </div>

On this tab	Choose this option	Then do this
	Linked Flow Chart	Specify printing multiple-linked flow charts side-by-side.
Header and Footer	Font	<p>To make the Header or Footer section available, select one or both of them.</p> <p>Click Select Font, and then choose a font name, style, size, and color.</p>
	Header	<p>Type the header text in the space provided.</p> <ul style="list-style-type: none"> • For additional header options, right-click, point to Insert, and then choose one of following: <ul style="list-style-type: none"> • Date • Time • File • Path and File • UserID • Page
	Footer	<p>Type the footer text in the space provided.</p> <ul style="list-style-type: none"> • To make the Header or Footer section available, select one or both of them. • For additional footer options, right-click, point to Insert, and then choose one of following: <ul style="list-style-type: none"> • Date • Time • File • Path and File • UserID • Page

On this tab	Choose this option	Then do this
Watermark	Font	<p>Select Watermark to make these options available.</p> <p>Choose Select Font to select a font name, style, size, and color.</p> <p>Select Auto Scale Font Size to automatically fit the text to the available space.</p>
	Watermark	<p>Type the watermark text in the space provided.</p> <ul style="list-style-type: none"> • For additional watermark options, right-click, point to Insert, and then choose one of following: <ul style="list-style-type: none"> • Date • Time • File • Path and File • UserID • Page <div data-bbox="743 1129 1451 1297" style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>If the administrator creates an MDS file, the Watermark option is unavailable.</p> </div>
	The button to the left of Watermark text location	<p>Choose the direction of the watermark text.</p> <div data-bbox="743 1394 1451 1593" style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>Options include text that is displayed diagonally, from lower left to upper right or upper left to lower right, or horizontally in the center of the page.</p> </div>
	Opaque	<p>No further action is required.</p> <div data-bbox="743 1692 1451 1822" style="border: 1px solid black; padding: 5px;"> <p>Note:</p> <p>An opaque watermark can cover text and graphics.</p> </div>

On this tab	Choose this option	Then do this
	Transparent	No further action is required. <div data-bbox="745 329 1451 531" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>A transparent watermark lightly covers text and graphics. About 50% of the covered data displays on the printed document.</p> </div>
	Background Color	Check Background Color , and then select a color. <div data-bbox="745 630 1451 831" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <ul style="list-style-type: none"> • By default, Background Color is unchecked. • By default, the background color is white. </div>

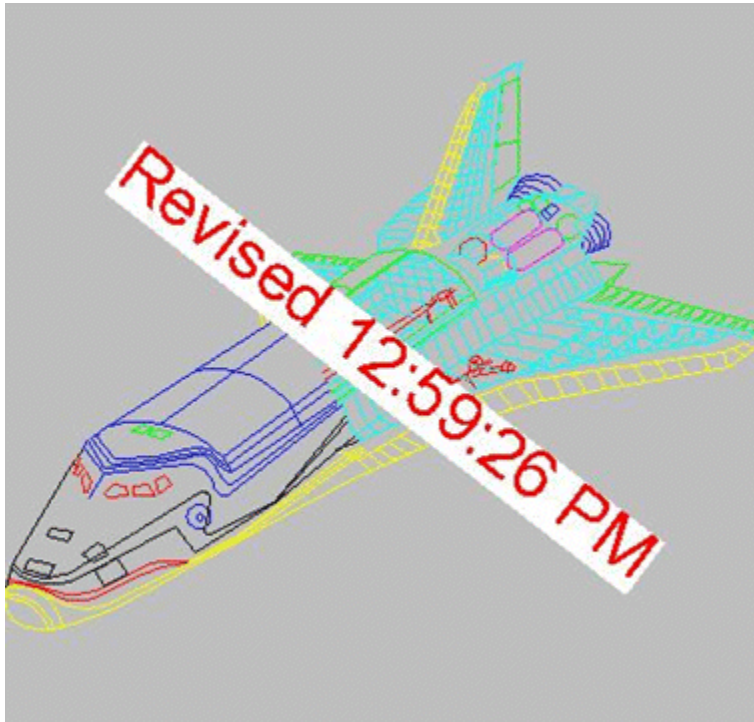
4. Click **Print**.

Note:

- If your administrator created a Watermark stamp or Header and Footer, the **Watermark** and the **Header and Footer** tabs are unavailable.
- The **FlowCharter** tab only appears if you are printing a Flowcharter file.


Watermark page example

The following graphic illustrates the result of using various options from the Watermark page.



Print HP Raster Transfer Language (RTL) embedded images

You can print Hewlett Packard © RTL embedded images to HP-GL printers and plotters. You can also display selected embedded RTL images by exporting and saving the file for subsequent viewing.

1. Select a 2D image containing the Raster Transfer Language.
2. From the **Printing** toolbar, click **Print** .
3. In the **Print** dialog box, select an HPGL printer or plotter and click **OK**.

The file is sent to your printer.

Note:

- RTL is a subset of Hewlett Packard PCL (Print Command Language) and RTL is used to embed true raster images (bitmaps) into plotter files.
- You can print HP RTL images in RGB color (color represented by 8-bits each of red, green and blue), in indexed color (color represented by an 8-bit index that is stored in a table of RGB colors), and in monochrome (color represented by a single bit – black and white).
- HP RTL images are compressed, which significantly reduces file size.

- Scaled images and 8-bit color output are not supported at this time. Also, unsupported commands are skipped, and the application continues to process files. The application supports only those HP RTL commands and compression methods necessary for output.
- Use **Export Image** to export and save the file. Later, you can open the file in the Viewing window.

Creating text and watermark stamps using an MDS file

Overview of adding text and watermark stamps with an MDS file

As an administrator you can create an MDS stamp file to add a watermark and stamp text to all printed images. You can specify a background color to the watermark, add headers and footers, and modify the stamp further by using additional MDS commands. You write a text file that includes your MDS stamp information and name it **default.mds**. Save this file in the **\etc** folder within the installation directory.

Note:

You use the **MetaDataStamp Template** to control the formatting styles used in text and watermark stamps. The default **MDS_default_styles_template.mds** template file is located in the **TC_DATA** directory in the RAC; it is imported to the database as a dataset called **MDS_default_styles_template**. For information on importing a custom **MDS_default_styles_template.mds** template file, see the **MetaDataStamp_template** preference.

Caution:

When you create and save the **default.mds** file, end-user watermark preferences become unavailable.

The watermark MDS command operates differently from other MDS stamp commands.

- Only one **Watermark** command is supported in an MDS file. However, you can enter several other basic MDS commands that create useful watermark stamps.
- The beginning position of the watermark text always defaults to the center of the page. However, you can modify the beginning position of the watermark by using the **\Ppos** option.

Note:

- Type each MDS command on a separate line.
- Basic text and watermarks stamps support the following replacement strings:

- **%Date** – date only
- **%Time** – time only
- **%User** – the user name
- **%File** – a file name
- **%FilePath** – a path and file name
- **%Page** – page number
- Invalid or non-supported MDS commands are ignored.

Create text and watermark stamps using an MDS file

1. Open a text editor and type in options from the following list:

Type this option	To do this
\BackgroundColor (Color or RGB value)	<p>Set the background color for text lines, including Watermarks.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Example:</p> <pre>\BackgroundColor(Red) \BackgroundColor(255 , 0 , 0)</pre> </div> <ul style="list-style-type: none"> • Control the background color value in one of these ways: <ul style="list-style-type: none"> • Enter a standard RGB value. • Enter the exact name of one of the following supported colors: <ul style="list-style-type: none"> ■ white ■ yellow ■ cornsilk ■ green ■ cyan ■ sky blue

Type this option	To do this
	<ul style="list-style-type: none"> ■ blue ■ midnight blue ■ purple ■ magenta ■ red ■ orange ■ salmon ■ gray80 ■ slate ■ gray ■ black <ul style="list-style-type: none"> • For text without a background color use <code>\BackgroundColor (None)</code>.
<code>\Char(size)</code>	<p>Set the font size for text.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Example: <code>\Char (12)</code></p> </div>
<code>\Color(color)</code>	<p>Set the color for text.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Example: <code>\Color (Red)</code></p> </div>
<code>\Date</code>	Display the system date and time.
<code>\File</code>	Display the document path and file name.
<code>\Font(name)</code>	Set the font.

Type this option	To do this
	<p>Example:</p> <pre>\Font (Courier)</pre>
\FooterLeft \FooterCenter \FooterRight	<p>Enter text that is displayed at the bottom of the page.</p> <p>Example:</p> <pre>\FooterCenter Confidential</pre>
\Halftone(1.0 or 0.5)	<p>Set the halftone to opaque (a value of 1.0) or to transparent (a value of 0.5).</p> <p>Example:</p> <pre>\Halftone(0.5)</pre>
\HeaderLeft \HeaderCenter \HeaderRight	<p>Enter text that is displayed at the top of the page.</p> <p>Example:</p> <pre>\HeaderCenter Confidential</pre>
\Pos(x,y)	Set the beginning cursor position. The default cursor position is (36,36).
\Rotate(angle)	Set the rotation angle of your text. <p>Example:</p> <pre>\Rotate(45) \Rotate(-45)</pre>
\User	Display the current user ID.
\Watermark	<p>Specify the watermark command on one line in the MDS file. The next line of text includes your watermark message.</p> <p>Example:</p> <pre>\Watermark (HORIZ, AUTO) Sample Text</pre>

Type this option	To do this
	<ul style="list-style-type: none"> The Orientation parameter supports the following values <ul style="list-style-type: none"> (LL2UR) – lower left to upper right (UL2LR) – upper left to lower right (HORIZ) – horizontal <p>If you do not specify a value, the default, HORIZ, is used.</p> <ul style="list-style-type: none"> You can use the value AUTO to set watermark text to be as large as possible. If AUTO is not specified, text size is determined by the last value in <code>\Char</code>, or to the default value, <code>\Char(12)</code>.

- Name the MDS file, **default.mds**, and save it to the **etc** folder within your installation directory.

All printed images will now contain the watermark defined by the MDS file.

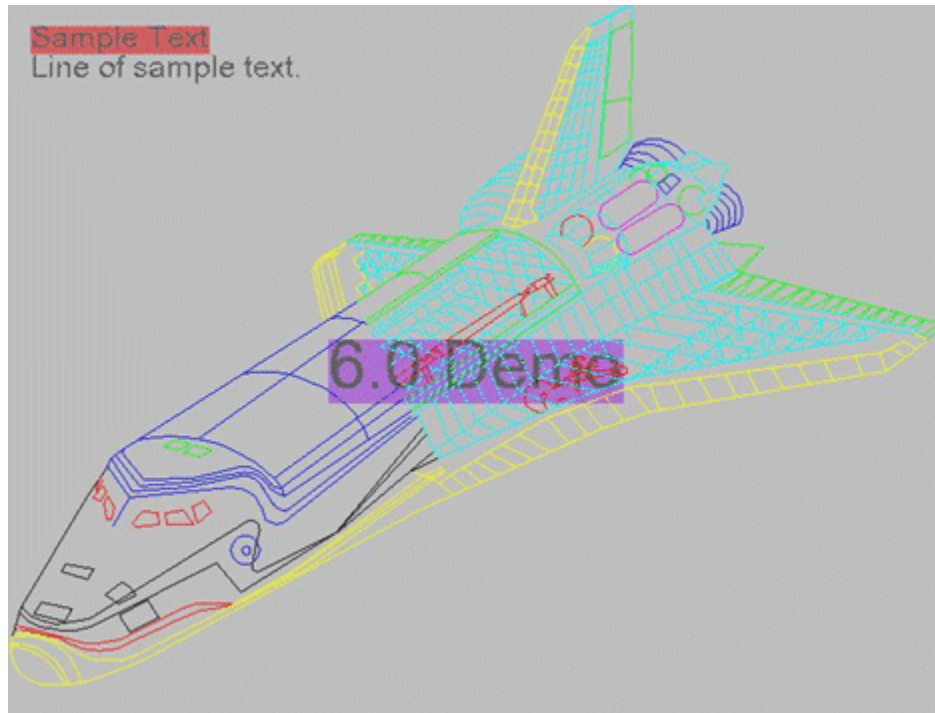
MDS text and watermark examples

An example using the `\Halftone` MDS command

```

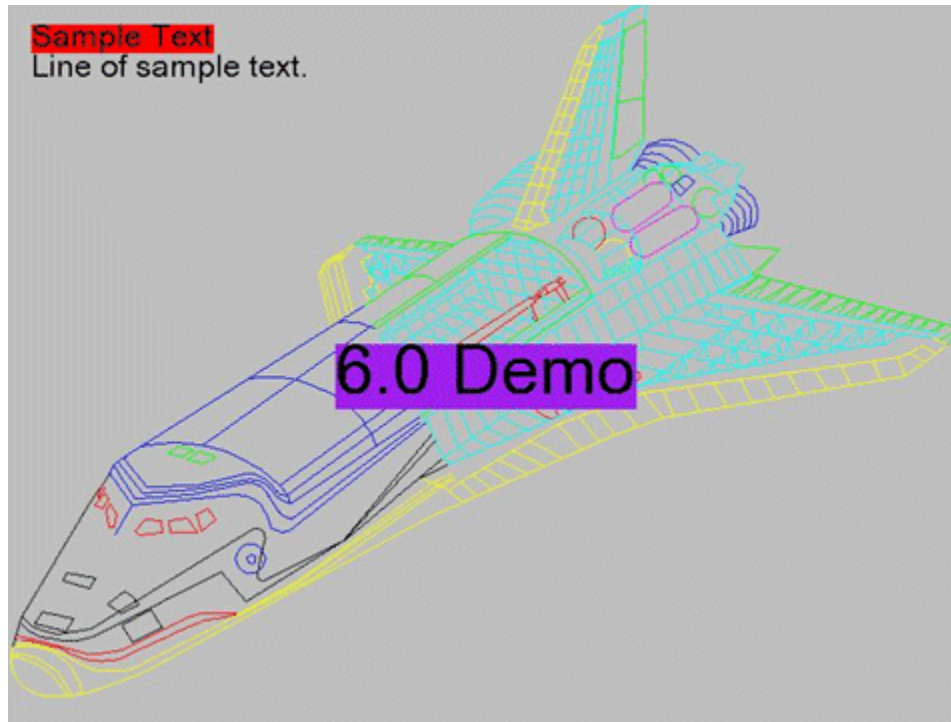
\Color(Black)
\Font(Arial)
\Char(16)
\Pos(20,20)
\Halftone(0.5)
\BackgroundColor(Red)
Sample Text
\BackgroundColor(None)
Line of sample text.
\BackgroundColor(Purple)
\Char(36)
\Watermark(HORIZ)
6.0 Demo

```



An example without using the \HalfTone MDS command

```
\Color(Black)
\Font(Arial)
\Char(16)
\Pos(-20,20)
\BackgroundColor(Red)
Sample Text
\BackgroundColor(None)
Line of sample text.
\BackgroundColor(Purple)
\Char(36)
\Watermark(HORIZ)
6.0 Demo
```



Set the beginning cursor position for stamps with MDS files

If you create additional detailed stamps for your files by using MDS stamps, use the MDS command **/Pos(x,y)** to specify the beginning cursor position of the stamp. The numeric values, *x* and *y* are measured in point-size, where one point is equal to 1/72 of an inch.

The default starting position for all MDS text entries is the upper-left corner of the page, or a position equal to **/Pos(36,36)**. This means the cursor begins at a point that is 1/2 inch from the top of the page and 1/2 inch from the left edge of the page.

You can use these additional cursor position options, as needed:

Use this option	To do this
=	Position the stamp outside the stamped image and into the margin. This position indicator is only available for HPGL-based stamping and cannot be used with the ! position indicator. This may only be used for the vertical position.
!	Measure the position in point sizes (1/72 of an inch or approximately 0.35 millimeters). Without the symbol (!), the current operating coordinate system determines the units of measure.
-	Begin the cursor at the lower right-hand corner of the image. Without the symbol (-), the position is measured from the upper left-hand corner.

Note:

Allow enough space for the character size in the y direction to avoid truncating (cropping) the stamp.

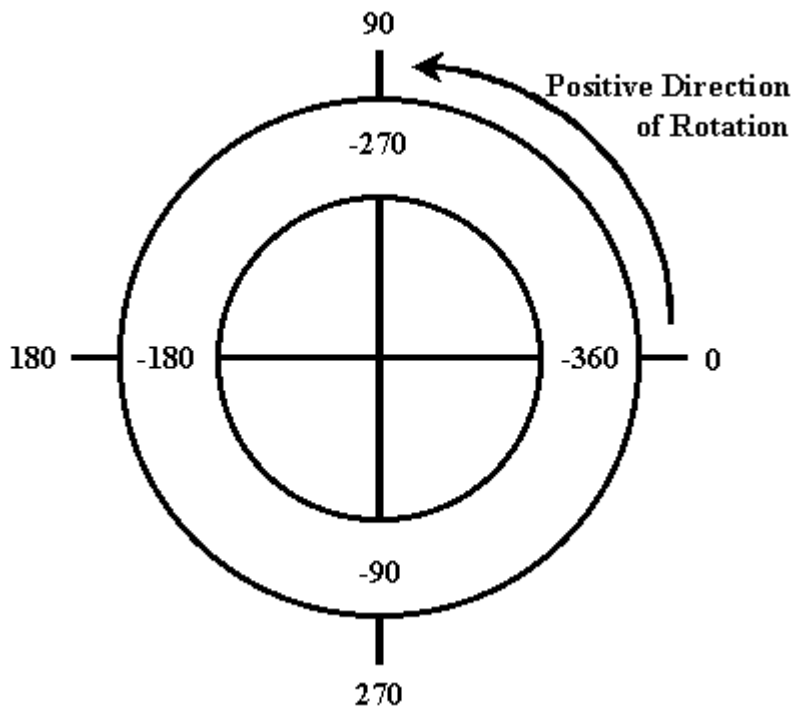
Example:

This example shows how to position the cursor 3 inches up from the bottom and 2 inches from the right-hand edge of the page.

```
\pos(!-144, !-216)
```

Specify the orientation of text stamps with MDS files

1. Use the MDS **Rotate** command to specify how your stamp displayed on the page.
2. Use positive rotation values to rotate text counter-clockwise. The zero angle (or start) is the point of intersection on the right side of a horizontal line crossing through the center of rotation. The center of rotation is the midpoint of the height and the midpoint of the width before rotation.



Example:

Type this	To do this
<code>\Rotate(45)</code>	Rotate the text 45 degrees counter-clockwise. The text flows from the starting position on a lower left corner to the upper right corner angle.
<code>\Rotate(90)</code>	Rotate the text 90 degrees counter-clockwise. The text flows from the starting position straight up the page on a perpendicular angle.
<code>\Rotate(-90)</code>	Rotate the text 90 degrees clockwise. The text flows from the starting position straight down the page on a perpendicular angle.

Tip:

- The angle value must be an integer.
- To prevent truncated or cropped text, be mindful of your text starting point, font size, and rotation angle.

Add uniform watermark stamps when exporting files

As an administrator you can create an MDS stamp file to add a watermark and stamp text to all 2D images created using **Export Image**. You write a text file that includes your MDS stamp information and name it **export.mds**. Save this file in the **letc** folder within the installation directory. You can also set a background color to the watermark and modify the stamp further by using additional MDS commands.

Caution:

When you create and save the **export.mds** file, end-user watermark preferences become unavailable.

The following apply:

- Type each MDS command on a separate line.
- Invalid or non-supported MDS commands are ignored.
- Only one **watermark** command is supported in an MDX file.

- The beginning position of the watermark text always defaults to the center of the page. However, you can modify the beginning position of the watermark by using the **lPos** option.
 - Watermark stamps support the following replacement strings:
 - *%Date* – date only
 - *%Time* – time only
 - *%User* – the user name
 - *%File* – a file name; stamp.mds
 - *%FilePath* – a path and file name; c:\etc\stamp.mds
 - *%Page* – page number; 1 of 2
1. Open a new file in a text editor.
 2. Select from the following:

Type this option	To do this
\BackgroundColor (Color or RGB value)	<p>Set the background color for text lines, including Watermarks.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Example:</p> <pre>\BackgroundColor (Red) \BackgroundColor (255,0,0)</pre> </div> <ul style="list-style-type: none"> • Control the background color value in one of these ways: <ul style="list-style-type: none"> • Enter a standard RGB value. • Enter the exact name of one of the following supported colors: <ul style="list-style-type: none"> ■ white ■ yellow ■ cornsilk ■ green ■ cyan

Type this option	To do this
	<ul style="list-style-type: none"> ■ sky blue ■ blue ■ midnight blue ■ purple ■ magenta ■ red ■ orange ■ salmon ■ gray80 ■ slate ■ gray ■ black <ul style="list-style-type: none"> • For text without a background color use <code>\BackgroundColor (None)</code>.
<code>\Char(size)</code>	Set the font size for text. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Example: <code>\Char (12)</code> </div>
<code>\Color(color)</code>	Set the color for text. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Example: <code>\Color (Red)</code> </div>
<code>\Date</code>	Display the system date and time.
<code>\File</code>	Display the document path and file name.
<code>\Font(name)</code>	Set the font.

Type this option	To do this
	<p>Example:</p> <pre>\Font (Courier)</pre>
\Halftone(1.0 or 0.5)	<p>Set the halftone to opaque (a value of 1.0) or to transparent (a value of 0.5).</p> <p>Example:</p> <pre>\Halftone(0.5)</pre>
\Pos(x,y)	<p>Set the beginning cursor position. The default cursor position is (36,36).</p>
\Rotate(angle)	<p>Set the rotation angle of your text.</p> <p>Example:</p> <pre>\Rotate(45) \Rotate(-45)</pre>
\User	<p>Display the current user ID.</p>
\Watermark	<p>Specify the watermark command on one line in the MDS file. The next line of text includes your watermark message.</p> <p>Example:</p> <pre>\Watermark (HORIZ, AUTO) Sample Text</pre> <ul style="list-style-type: none"> The Orientation parameter supports the following values <ul style="list-style-type: none"> (LL2UR) – lower left to upper right (UL2LR) – upper left to lower right (HORIZ) – horizontal <p>If you do not specify a value, the default, HORIZ, is used.</p> You can use the value AUTO to set watermark text to be as large as possible. If AUTO is not specified, text size is determined by the last value in \Char, or to the default value, \Char(12).

- Name the file, **export.mds**, and save it to the **etc** folder within your installation directory.

All images saved using **Export Image** are saved with the uniform watermark stamp.

Example:

This example shows the text of a watermark stamp that is embedded on all images saved by **Export Image**.

```
\Color(0,255,0)
\Font(Arial)
\Char(18)
\BackgroundColor(white)
\Watermark(UL2LR)
%File: Restricted Document %Time
```

Printing a date and time

Overview of printing a date and time

When printing, you can add a date and time to headers, footers, watermarks, and MDS stamps.

The syntax for these options includes the following:

To print	Type this
Today's date	%Date
Tomorrow's date	%Date(1)
Yesterday's date	%Date(-1)
30 days in the future	%Date(30)
The current time	%Time
The current time plus 30 minutes	%Time(30)
The current time plus 2 hours	%Time(120)

Note:

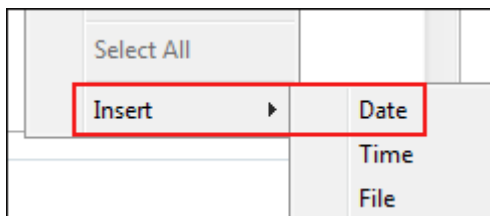
- Days and times in the future are positive; to set them to the past, use negative numbers.
- The date option limit is 5000 days in the future or in the past. The time option limit is 1500 minutes in the future or in the past.

Add a date and time to headers and footers

Note:

You can type specific tokens (for example, **%Date**) into the appropriate field.

1. Choose **File**→**Print**.
2. In the **Print** dialog box, click the **Header and Footer** tab.
3. Select the **Header** check box, the **Footer** check box, or both and then select the location of the text (left, center, or right).
4. To add a date, right-click in the selected location and choose **Insert**→**Date**.



To add a time, right-click in the selected location and choose **Insert**→**Time**.

5. Add the necessary text and date information for the header or footer.

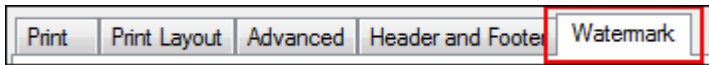
In this example, the text used is *Expires on %Date(30)*.



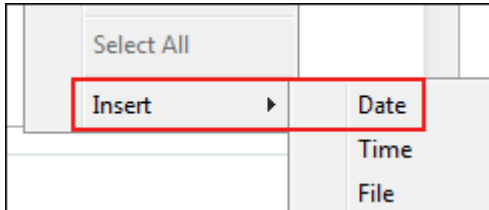
The image is printed with the header text in the top left corner of the page. A specific date is printed 30 days from the date of printing the file.

Add a date and time to a watermark

1. Choose **File**→**Print**.
2. In the **Print** dialog box, click the **Watermark** tab.

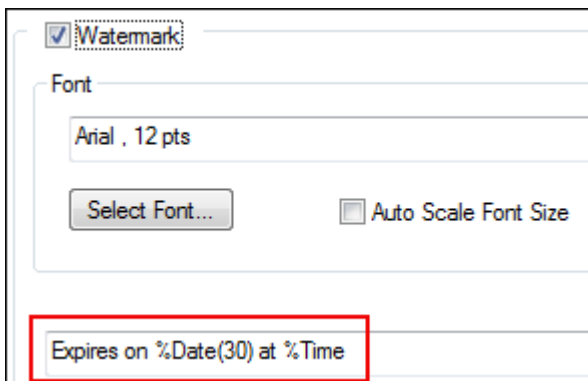


3. Select the **Watermark** check box.
4. To add a date, right-click in the text box and choose **Insert**→**Date**.



To add a time, right-click in the text box and choose **Insert**→**Time**.

5. (Optional) Create the text and then insert the variables or insert the variables and create text around them.



In this example, the watermark text is *Expires on %Date(30) at %Time*.

Add a date and time using an MDS file

When an MDS stamp is used to print files, watermark options are unavailable and the text associated with the MDS file is used in all print jobs. For these reasons, usually an administrator creates the MDS file.

1. Open a text editor and save the file as *default.mds*.
2. Add the replacement strings, %Date, %Time, or both as appropriate.

Use the syntax as described before.

3. Add additional MDS commands, as needed.

- Save the file, *default.mds* in the `\etc` folder.

Note:

Type each MDS command on a separate line.

For complete details about MDS stamp files, see [Creating text and watermark stamps using an MDS file](#).

System administrator reference for configuring default Windows print preferences

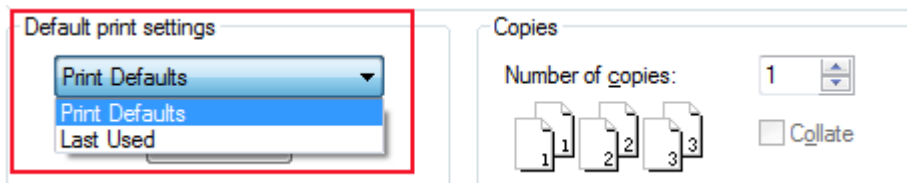
Overview of system administrator reference for configuring default Windows print preferences

As system administrator, you can modify the default print settings for Windows operating systems. When the print dialog box appears, you can do the following:

- Run the print job. This action prints the job using the original default values.
- Modify the default settings temporarily by changing their values. For example, change the print orientation from portrait (the default setting) to landscape for this specific print job.

Note:

The print default settings appear the next time you request a print job, unless you select **Last Used Print** dialog box. Use **Last Used** to repeat a temporary change in default setting options. For example, if you change print orientation from portrait to landscape the **Print Default** setting generates a portrait print job and the **Last Used** settings prints landscape.



- Modify the default settings permanently.

How to change default print settings for Windows systems

- Navigate to *Initialization.xml*, which is saved in the `/etc` subfolder of the Teamcenter lifecycle visualization installation directory.

Example:

```
C:\Program Files\Siemens\Teamcenter<release_version>\Visualization\etc
```

- Use a text editor to open, review, and change the values associated with this XML file. Once the changes are made, save the modified *Initialization.xml*.

Tip:

For each section that you configure, be sure to configure the `OverWrite` preference to "Yes" if the current value is set to "No".

Here is sample section of an *Initialization.xml* that shows default print options and their values.

```
<Section_Printing>
  <!-- OverwriteDefaults: yes to set defaults each time app start, no
to set defaults once
if value not set yes is recommended -->
  <OverwriteDefaults state="no" />

  <PrintOptions>
    <NumCopies value="1"/>
    <!-- Collate: "yes" "no" -->
    <Collate state="no"/>
    <!-- FullPathNameFlag: "yes" "no" -->
    <FullPathNameFlag state="no"/>
    <!-- PrintToFile: "yes" "no" -->
    <PrintToFile state="no"/>
  </PrintOptions>
  <PrintLayout>
    <!-- Orientation: 0=Portrait 1=Landscape 2=Best Fit -->
    <Orientation value="0"/>
    <!-- PrintScale: 0=Fit to Page 1=1:1 Scale 2=Scale -->
    <PrintScale value="0"/>
    <!-- ScalePercentage: 1-100 -->
    <ScalePercentage value="100"/>
    <!-- RollPaperAutoSize: "yes" "no" -->
    <RollPaperAutoSize state="no"/>
    <!-- BypassPrinterDriver: "yes" "no" -->
    <BypassPrinterDriver state="no"/>
    <!-- PrinterLanguage: 0=Post Script 1=HPGL 2=TIFF 3=C4 4=MILR -->
    <PrinterLanguage value="0"/>
    <!-- PrintQuality: 0.0 - 100.0 -->
    <PrintQuality value="0.0"/>
    <!-- PreviewQuality: 0.0 - 100.0 -->
    <PreviewQuality value="0.0"/>
    <!-- AutoCalcPrintQuality: "yes" "no" -->
    <AutoCalcPrintQuality state="yes"/>
  </PrintLayout>
</Section_Printing>
```

```
        <!-- PrintAsMonocolor: "yes" "no" -->
<PrintAsMonocolor state="no"/>
        <!-- PrintFullView: "yes" "no" -->
<PrintFullView state="no"/>
</PrintLayout>
<Advanced>
        <!-- ImageAlignment: 0 to 8 -->
<ImageAlignment value="4"/>
        <!-- UseWYSIWYG: "yes" "no" -->
<UseWYSIWYG state="yes"/>
<LeftMargin value="0"/>
<RightMargin value="0"/>
<TopMargin value="0"/>
<BottomMargin value="0"/>
        <!-- MarginUnits: 0=Inches 1=Millimeters -->
<MarginUnits value="0"/>
        <!-- TreatVectorAsRaster: "yes" "no" -->
<TreatVectorAsRaster state="no"/>
        <!-- RelativeLineFonts: "yes" "no" -->
<RelativeLineFonts state="no"/>
        <!-- MDSIsGeoCentric: no=Page Centric yes=Geometry Centric -->
<MDSIsGeoCentric state="no"/>
</Advanced>
</Section_Printing>
```


11. Specifying preferences

Migrate user preferences when moving to a new version

If you saved user preferences, such as color and font preferences, in a previous version of the product, you can migrate them for use with an updated version.

If settings from a previous version are detected, the **Migrate Preferences** dialog box appears when you first start the product.

1. In the **Migrate Preferences** dialog box, click **Yes** or **No**.

Note:

If you want to stop the dialog box from appearing each time you start the application, select the **Do Not Ask Again** check box. If you choose both **No** and **Do Not Ask Again**, migrating your preference settings to your current version is no longer possible.

2. Click **OK**.

Setting higher security (FIPS)

Overview of setting higher security (FIPS)

You may need to set higher security standards when you work with government entities and other similar organizations. The National Institute of Standards and Technology (NIST) developed Federal Information Processing Standards (FIPS) for use government-wide. These standards relate to such security features as the size of a public key, the strength of a cipher, and the way information must be sent between computers.

Activate FIPS security standards

If your organization uses FIPS security standards, you must enable FIPS mode for the heightened security to take effect in the application.

1. Use Microsoft guidelines to configure your computer to run in FIPS mode.
2. Choose **File**→**Preferences**→**Use FIPS**.

-or-

Set the `TCCRYPTO_FORCE_FIPS_MODE` environment variable to `True`.

Note:

If the variable is set to true, the menu option **Use FIPS** will be unavailable. You will be unable to turn FIPS on or off because your computer will always be configured FIPS mode.

Teamcenter Integration preferences

Overview of Teamcenter Integration preferences

Use the Teamcenter Integration Preferences to specify the default behavior of visualization datasets in Lifecycle Visualization. In the standalone viewer or the Lifecycle Viewer, choose **File**→**Preferences**→**Teamcenter Integration** to adjust any of the following preferences:

These preferences	Do this
Teamcenter Integration 3D Loader preferences	Specify the unit of measurement for PLM XML and Parasolid files loaded from Teamcenter. Also specify how to load 3D documents containing both static and configured product structure.
Teamcenter Integration Session preferences	Control the default save location for session files.
Teamcenter Integration Markup preferences	Control how new markups are named and whether or not to display messages during batch modifications.
Teamcenter Integration Check Out preferences	Specify the default behavior when attempting to load checked out objects.
Teamcenter Integration Attributes preferences	Control the display of Teamcenter and NX attributes present in visualization datasets.
Teamcenter Integration Snapshot preferences	Control how 2D snapshots and 3D product views are saved to Teamcenter.
Teamcenter Integration Visual Issue preferences	Specify the default behavior for visual issue creation.
Teamcenter Integration 3D Save preferences	Specify how to save 3D documents with both configured and static product structure.

Teamcenter Integration 3D Loader preferences

Use the Teamcenter integration 3D loader preferences to specify the unit of length for product structure data sent as a new document to the Lifecycle Viewer or standalone application viewer. You can also specify how to load 3D documents containing both static and configured structure.

1. Choose **File**→**Preferences**→**Teamcenter Integration**.

2. Click the **3D Loader** tab.
3. In the **Document Units** section, from the **Document Units** list, select a unit of measurement.

Note:

- The default unit of length for product structure data sent to the Lifecycle Viewer or the standalone application viewer is meters.
- Changes to the **Document Units** preference do not apply to documents that are open in the session. After modifying the preference, close and reopen your documents for the change to take effect.
- The **Document Units** preference is not applicable for structure that is inserted or merged into an existing document.
- The **Document Units** preference has no effect on static structure that is opened in the Lifecycle Viewer or the standalone application viewer. The document unit of length for static data is specified using the **PLM XML units** setting in **PLM XML Preferences**.

4. In the **Product Structure** section, choose one of the following:

To	Do this
Open configured structure according to its current state in Teamcenter. The most recent structure configuration is loaded.	Click Configure an updated structure .
For 4GD subsets, replay the subset recipe before opening the data.	<ol style="list-style-type: none"> a. Click Configure an updated structure. b. From the Update subset on load list, select one of the following: <ul style="list-style-type: none"> • No Update • Replay Recipe
When both configured and static product structure are available, open the structure according to its state at the time the session was saved.	Click Load static structure (structure at time of session save) .
When both configured and static product structure are available, choose how to load the structure when you attempt to open it.	Click Ask at load time .

- In the **Partitions** section, select the **Show empty partitions** check box if, when viewing partition hierarchies in the assembly tree, you want to show partitions that have no design element members. When this option is not selected, empty partitions do not appear.

Teamcenter Integration Session preferences

Use the Teamcenter Integration Session preferences to control how a session file is saved.

- Choose **File**→**Preferences**→**Teamcenter Integration**.
- Click the **Session** tab.
- In the **Default Storage Location** section, do any of the following:

To	Do this
Save session files with the base document.	Click Attach to base document .
Save session files in a new location.	Click Alternate location .

Teamcenter Integration Markup preferences

Use the Teamcenter Integration Markup preferences to control how new markups are named and to display messages during batch modifications.

Note:

The Teamcenter site preference **TC_Generate_Markup_Name** determines whether dataset names are hard-coded or generated. This controls the markup name only in Teamcenter. In standalone Lifecycle Visualization, the generated markup name is always used.

- Choose **File**→**Preferences**→**Teamcenter Integration**.
- Click the **Markup** tab.
- In the **General** section, do any of the following:

To	Do this
Name new markup datasets as you create them	Select the Show New Dataset selection dialog check box.
Display warning messages during batch operations	Select the Show warnings during batch modifications check box.
Display errors that occur during batch operations	Select the Show partial errors during batch modifications check box.

Teamcenter Integration Check Out preferences

Use the Teamcenter Integration Check Out Preferences to specify the default behavior when attempting to load checked out objects.

1. Choose **File**→**Preferences**→**Teamcenter Integration**.
2. Click the **Check Out** tab.
3. In the **Document Checked Out By** section, do any of the following:

To specify how to load documents	Do this
When the documents are checked out by someone else	In the Different user section, choose from the following options <ul style="list-style-type: none"> • Load in read only mode • Cancel load • Show warnings
When you have opened the documents in another application	In the Same User / Different Application section, choose from the following options <ul style="list-style-type: none"> • Load in read only mode • Break lock and check out • Cancel load • Show warnings
When you have already opened the documents in the viewer	In the Same User / Same Application section, choose from the following options <ul style="list-style-type: none"> • Load in read only mode • Cancel load • Show warnings

Teamcenter Integration Attributes preferences

Use the Teamcenter Integration Attributes Preferences to control the display of Teamcenter and NX attributes present in visualization datasets.

Note:

This preference is applicable for assemblies only. It has no effect on individual JT datasets.

1. Choose **File**→**Preferences**→**Teamcenter Integration**.
2. Click the **Attributes** tab.
3. In the **Teamcenter Attributes** tab, select the attributes that you want to display.

Tip:

To select multiple adjacent attributes, click the first attribute, press Shift, and then click the last attribute. To select multiple nonadjacent attributes, hold Ctrl as you click each item.

4. Click **Add**.

The selected attributes move to the **Displayed Attributes** section.

5. (Optional) Select the **Use Display Names** check box.

The attributes are shown using display names if your database administrator defined them.

6. Close and restart the application.

Note:

- You can also set the attributes to display within Teamcenter. Choose **Edit**→**Options**→**Index**, and then search for **Interop_Vis_Attributes**.
- To display attributes that are longer than a single line, your system administrator must have grouped them into a single, multiline attribute.

Teamcenter Integration Snapshot preferences

Use the Teamcenter Integration Snapshot Preferences to control how 2D and 3D snapshots are saved to Teamcenter.

1. Choose **File**→**Preferences**→**Teamcenter Integration**.
2. Click the **Snapshot** tab.
3. In the **2D Snapshot** section, do any of the following:

To	Do this
Enter form data on 2D snapshots	<p>Select the Show attributes form on save check box.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>You can enter data for any custom form fields. Revision and Page information is entered automatically.</p> </div>
Save a 2D geometry asset	<ol style="list-style-type: none"> a. Select the Capture 2D geometry asset check box. b. (Optional) Adjust the Geometry asset image quality slider.
Adjust the 2D geometry asset image quality	<p>Use the slider bar to make adjustments in a range from Good, Better, or Best.</p>

4. In the **Teamcenter Product View** section, do any of the following:

To	Do this
Add or update 3D geometry asset for product views	<ol style="list-style-type: none"> a. Select the Add or Update 3D Geometry Asset check box. b. (Optional) Select the Draw Outline check box to generate an outline of the 3D geometry asset. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>If you do not see the Add or Update 3D Geometry Asset check box, contact your administrator.</p> </div>
Create an image capture of the product view	<ol style="list-style-type: none"> a. Select the Image Capture check box. b. (Optional) Select the Use image export dialog check box to display the Export Image dialog box when you save the product view. If this option is cleared, the application uses Teamcenter preferences to control such image capture options as size, file type, and resolution. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>If you do not see the Image Capture check box, contact your administrator.</p> </div>
Rename the product view before saving it	<ol style="list-style-type: none"> a. Select the Show Snapshot Name Dialog check box to display the New Teamcenter Product View Dataset dialog box.

To	Do this
	b. In the New Teamcenter Product View Dataset dialog box, type a new name for the product view.

Note:

- Use **3D Product View** preferences to modify how Teamcenter product views are processed.
- The **3D Product View** preferences are unavailable in the following conditions:
 - When you do not send Teamcenter data to Lifecycle Viewer. That is, you must have an active connection to a Teamcenter server.
 - When the Teamcenter protection scope of the preferences is higher than your permission scope. For example, if your administrator set the preference protection scope to SITE, and your protection scope is set to USER, the **3D Product View** options are unavailable.
- If you have permissions, when you change a product view preference in Lifecycle Viewer you also change the corresponding Teamcenter preference on the server.

Teamcenter Integration Visual Issue preferences

Use the Teamcenter Integration Visual Issue Preferences to control the default behavior of visual issue creation.

1. Choose **File**→**Preferences**→**Teamcenter Integration**.
2. Click the **Visual Issue** tab,
3. Do any of the following:

To	Do this
Specify a visual report template	From the Issue Type list, select a template. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note:</p> <p>Issue Report is the default issue type. Your organization may also allow you to choose from additional issue types.</p> </div>
Specify the issue relation to use for snapshots	In the Issue Relation for Snapshots section, choose one of the following:

To	Do this
	<ul style="list-style-type: none"> • Snapshot Before Fix • Snapshot After Fix
Specify the data type attached to the visual issue	From the Data Type list, select one of the following: <ul style="list-style-type: none"> • Product View or 2D Snapshot • Session File
Enter options for visual issue creation each time an issue is created	Select the Ask at the time the Issue is created check box.

Teamcenter Integration 3D Save preferences

Use the Teamcenter Integration 3D Save Preferences to specify how to save 3D documents that contain both configured and static product structure.

1. Choose **File**→**Preferences**→**Teamcenter Integration**.
2. Click the **3D Save** tab.
3. In the **Product Structure** section, do any of the following:

To	Do this
Specify to save configured structure only	Select Save only configured structure .
Specify to save both configured and static representations of the current structure	Select Save configured and static representations of the current structure .