User Guide

Unified Interface

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Contents

About Theorem

Theorem Solutions is a world leader in the field of Engineering Data Services and Solutions. This leadership position stems from the quality of our technology and the people in the company. Quality comes not only from the skills and commitment of our staff, but also from the vigorous industrial use of our technology & services by world leading customers.

We are proud that the vast majority of the world's leading Automotive, Aerospace, Defense, Power Generation and Transportation companies and their Supply chains use our products and services daily. Working closely with our customers, to both fully understand their requirements and feed their input into our development processes has significantly contributed to our technology and industry knowledge.

Theorem Solutions is an independent UK headquartered company incorporated in 1990, with sales and support offices in the UK and USA. Theorem has strong relationships with the major CAD and PLM vendors, including; Autodesk, Dassault Systemes, ICEM Technologies (a Dassault company), PTC, SolidWorks, Spatial Technology and Siemens PLM Software. These relationships enable us to deliver best in class services and solutions to engineering companies worldwide.

Theorem's Product Suite

Theorem have 3 main Product brands. These are:

CAD**Translate**

Direct translation of 3D data to or from an alternate CAD, Visualization or Standards Based format.

See our website for more detail.

CAD**Publish**

The creation of documents enriched with 3D content

See our website for more detail.

Theorem**XR**

Visualization for Augmented (AR), Mixed (MR) and Virtual (VR) Reality applications

See our website for more detail.

The Unified Interface

The Unified Interface offers a Desktop Environment that allows CAD and Visualization data to be viewed pre and post translation.

The UI was conceived to create an environment that has the ability to incorporate CADverter products in a centralised hub along with the ability to view, navigate and manipulate CAD data. The interface has been designed to incorporate all the vital parts of CADverter into a modern intuitive environment that is fully customisable.

The UI can be set up to work in the way that suits the customers' requirements. Whether it is just to view and manipulate data, performing translations or to collaborate using information from disparate Web-based data sources.

Shipped with the UI are default methods of working e.g. Translation, Visualisation, and Data Exchange Navigator. These can be adapted to the way you want to work.

Primary Product Features

- Easy to use Interface for data translations.
- File Browser window to quickly locate datasets that need translation.
- Drag and drop workflow to easily translate data into one of the available translators.
- Monitor and view status of completion.
- Create batch files containing multiple translation jobs.
- Export of batch files containing multiple jobs which can be Integrated with scheduling workflows.
- Viewer window to visualise datasets In 3D.
- Product Structure window to view the full structure of a dataset with the ability to edit and save.
- Configuration Manager to create configurations with various options for translations.

Primary Product Benefits?

- Being a direct database converter all pre and post processing is eliminated, saving time.
- Reduce costs due to processing time and increase overall conversion success levels by filtering input data and focusing the conversion to only those elements required.
- Reduce costs and risks associated to accessing the wrong version of data by integrating the conversion process into a related business processes.
- With over 20 years of industrial use Theorem translation products robustness and quality is well proven, reducing your business risk.

This document will focus specifically on guidance for the use of the Unified Interface. For information regarding any of Theorem's product ranges please contact sales@theorem.com

Getting Started

Documentation & Installation Media

The latest copy of the User Guide documentation can be found on our web site at:

http://www.theorem.com/Documentation

Each product has a specific link that provides user documentation in the form of PDF and Tutorials.

The latest copy of Theorem software can be found via the link above and by searching for the specific product. Each product has a specific link to the Product Release Document, which contains a link to the download location of the installation CD.

Alternatively, you can request a copy of the software to be shipped on a physical CD.

Installation

The installation is run from the .msi file download provided. For full details of the installation process, visit www.theorem.com/documentation and select UI from the product selection list.

License Configuration

To run any product a valid license file is required. The Flex License Manager is run from the .msi file download provided. For full details of the installation process, visit www.theorem.com/documentation

Using the Product

To use the product, follow the documented steps found in this document or follow the online video tutorials which can be found from www.theorem.com/documentation

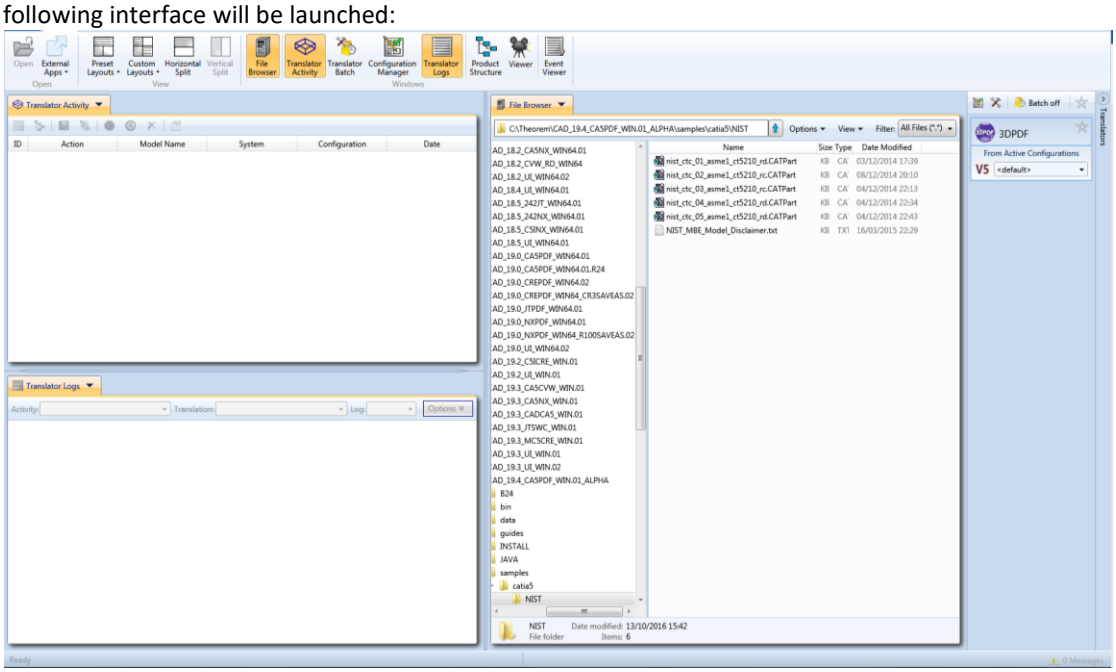
Using the Unified Interface

The Unified Interface can be started via the Start Menu – if a shortcut was added during installation.

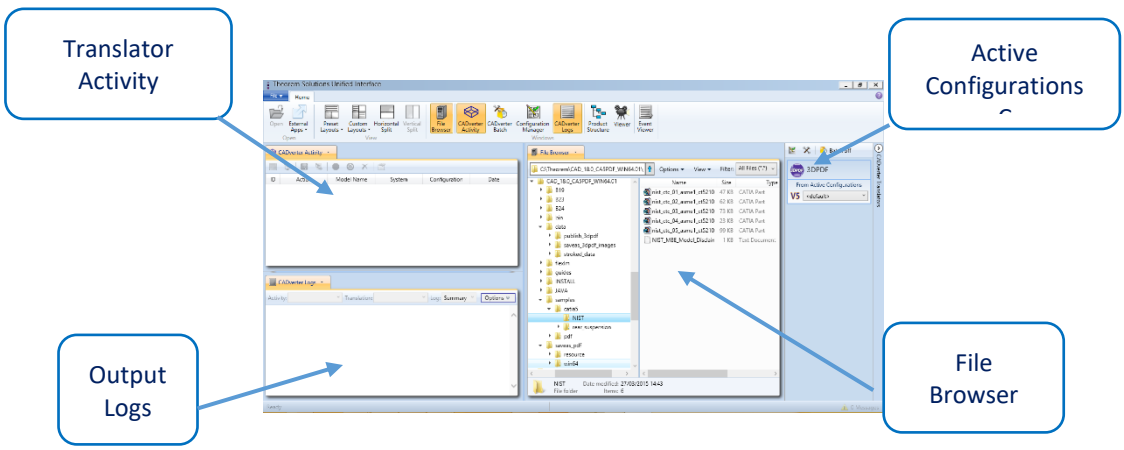
Alternatively, the Unified Interface can be run via a Windows Explorer selection in:

<UI_installation_directory>\bin\Unified_Interface.cmd

The following interface will be launched:

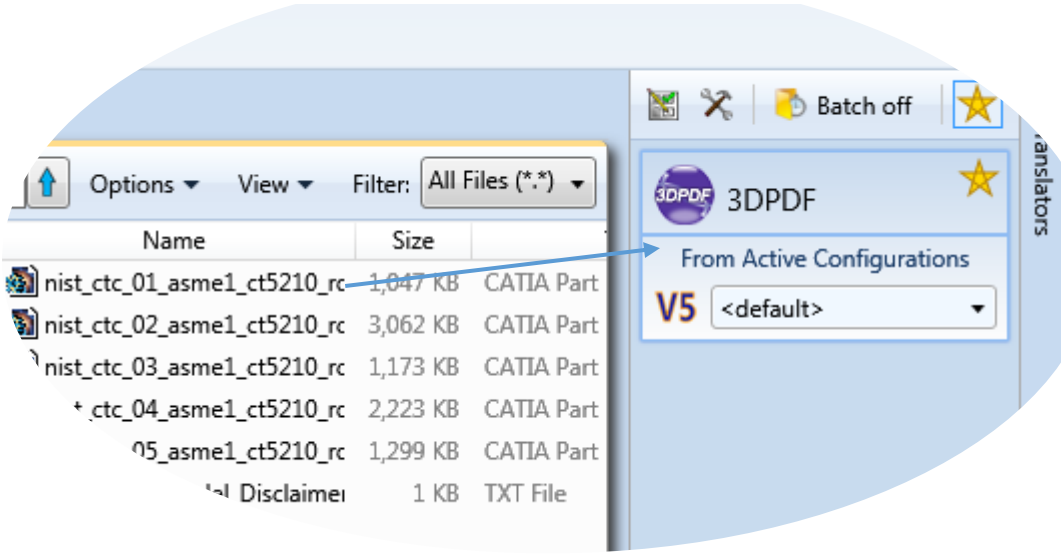


The default layout is split into 4 primary areas, which can be altered to the users prefer:



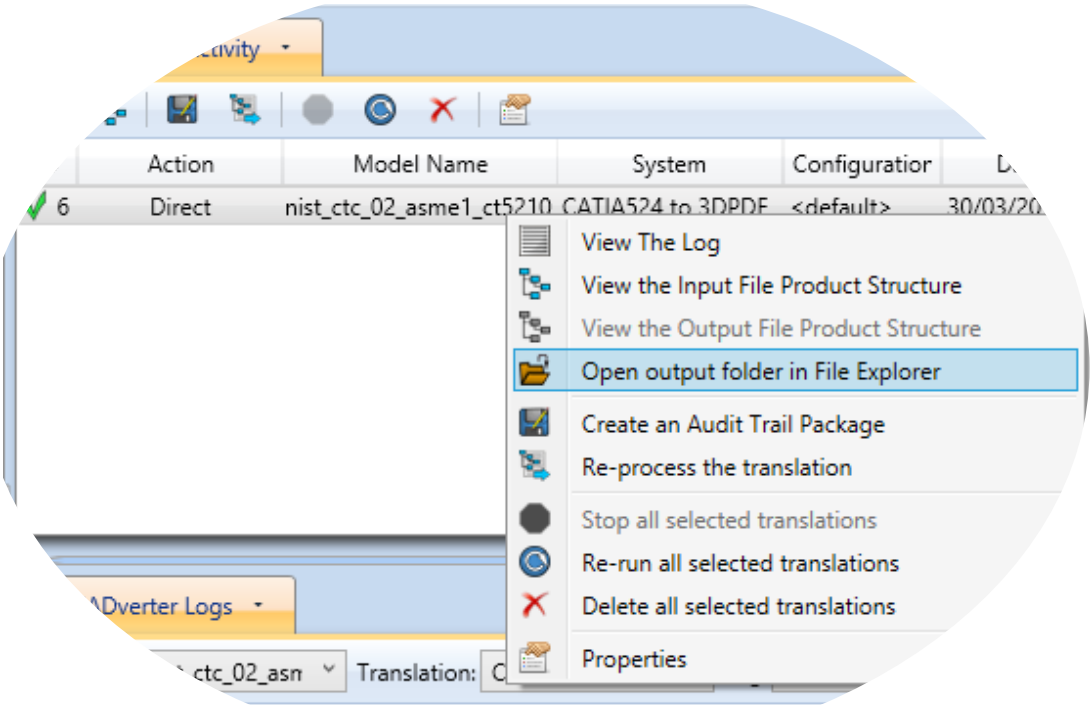
Performing a Translation

The simplest way to translate a file is to drag a file from the File Browser panel on to a compatible Active Configuration Translator. This will create a file based using the default configuration.



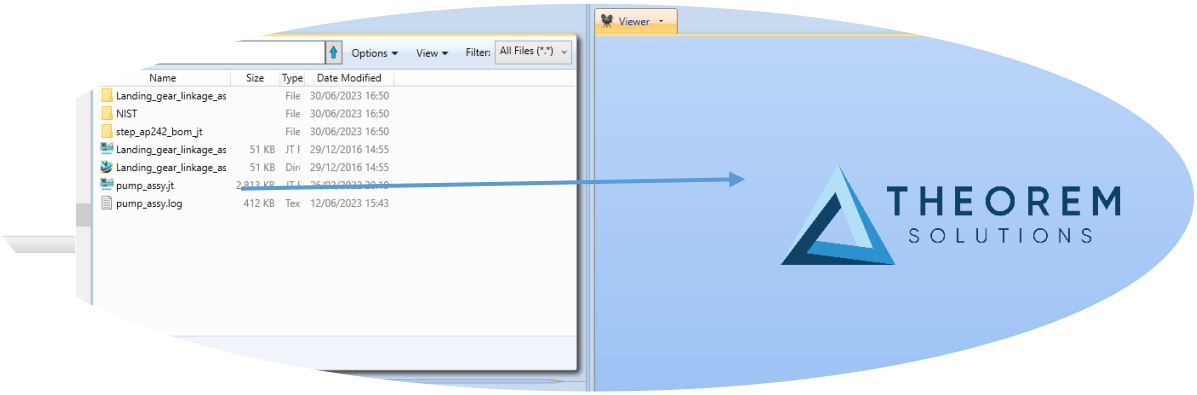
On completion, the Unified Interface will display the activity information and details from the log file created during the translation, if requested, in the Translation Activity and Output Log panes, respectively.

The generated output data can be located by selecting the translation from the Activity pane and opening the output folder:



Visualising and Exporting via the Viewer

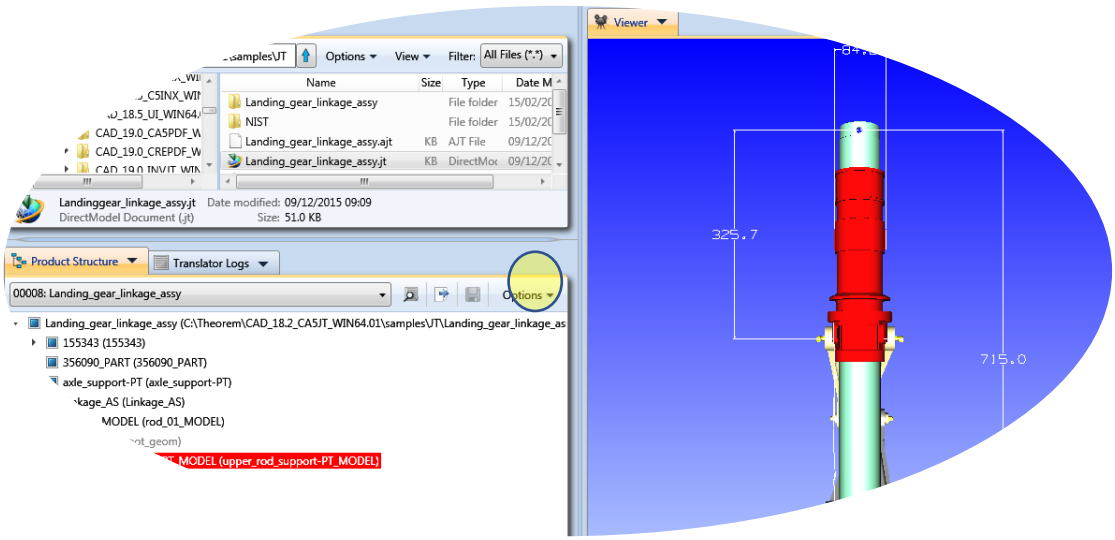
Select the Visualisation pre-set layout and from the file browser, drag and drop (or right click and visualise) a part into the Viewer, this will begin the visualisation process, the progress of which can be seen in the Product Structure window.



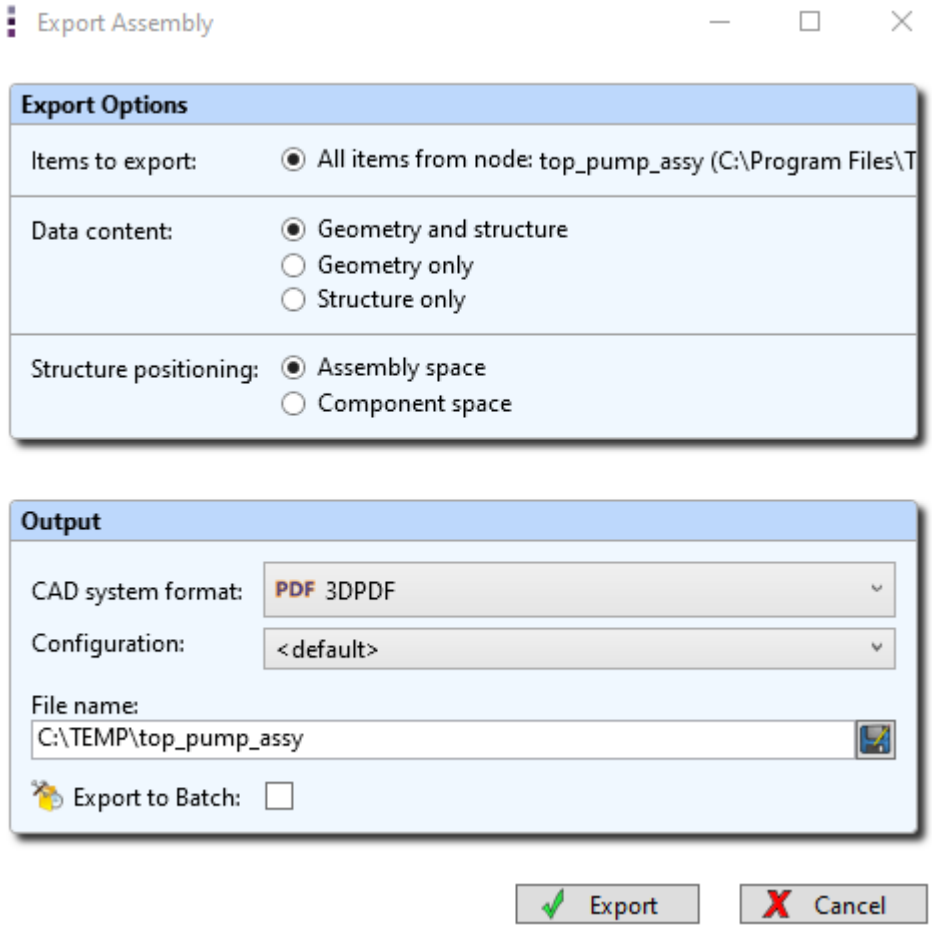
Once a part has been loaded into the viewer, the cursor can be used to manipulate the part. The basic default movement commands are:

- Left mouse button – Rotate
- Scroll Wheel - Zoom
- Scroll wheel button - Pan

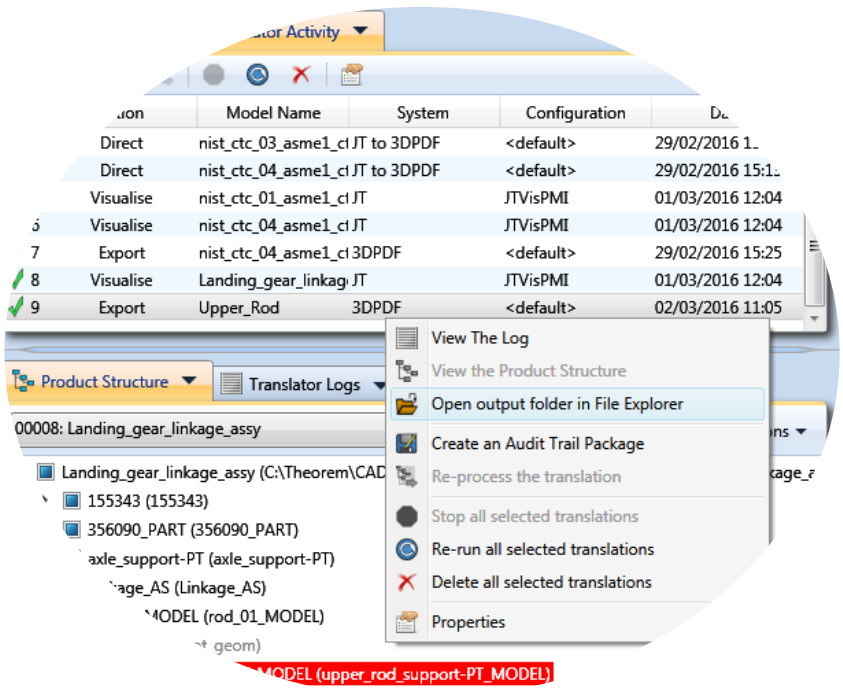
The check box in the Product Structure window signifies parts that are loaded in the Viewer. Clicking on a part in the viewer or the Product Structure tree highlights it. Ctrl + Click can be used to select multiple parts. Once the required parts have been selected, click export in the Product Structure panel to open the Export menu.



Alternatively, the export menu can be opened by right clicking on the Product Structure Tree or the part in the Viewer and choosing export from the Right Click Menu.

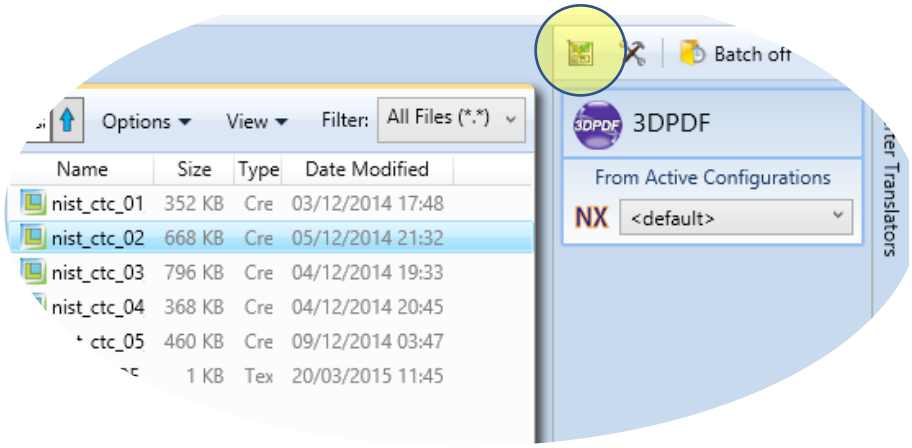


Select the desired options on what to export and click Export. The generated output data can be located by selecting the translation from the Activity pane and opening the output folder:

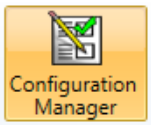


Creating a New Configuration

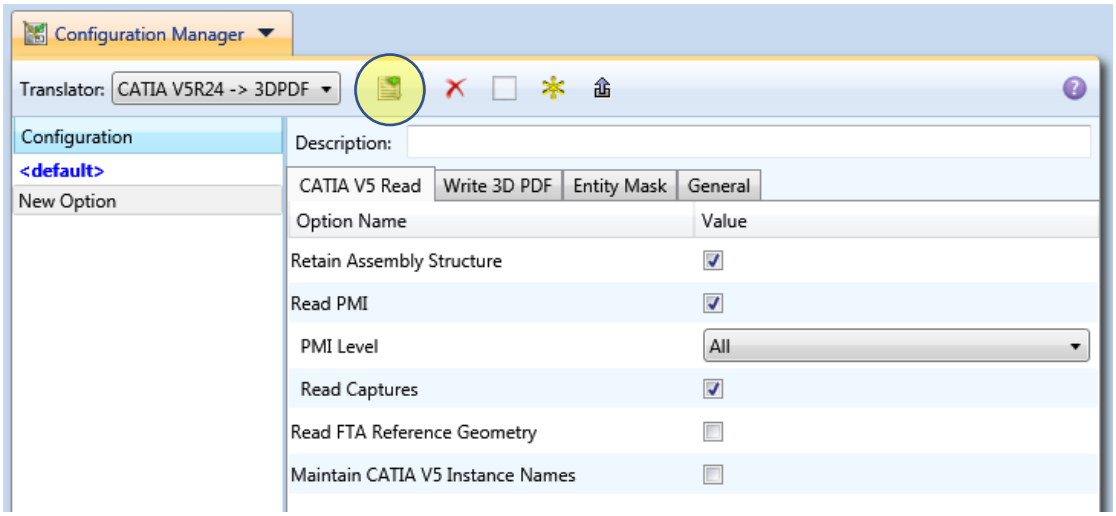
The Configuration Manager panel can be launched via the Active Configuration Pane or from the Ribbon Configuration Manager Button:



OR

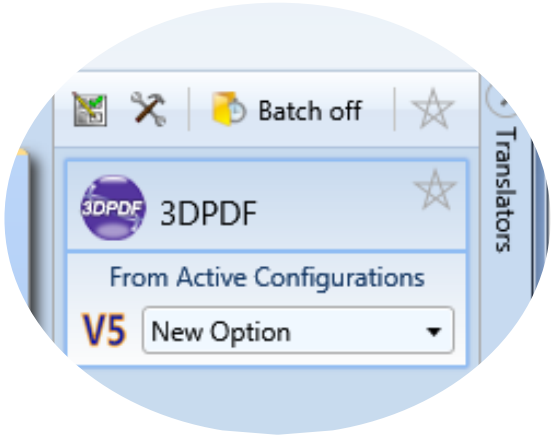


Select the 'Configuration Manager' option from the ribbon menu at the top of the Unified Interface. This will then display the 'Configuration Manager' pane.



The Configuration Panel allows new configurations to be created based upon all available options within the selected application. Selecting the New Configuration icon will allow the user to change any option. For details on each option, refer to the Translator's User Guide or click the help icon in the Configuration Manager.

A configuration can be set as the active by clicking the yellow asterisk icon Alternatively, it can be set as the Active Configuration setting for the translator must be changed to the required configuration on the translator toolbar:



Once this has been done the translation can be invoked in the same manner as standard translations, now with the new options used.

Common Configurations

A common configuration path can be set, so that users can use and create configurations available to others. To set the common configuration path, navigate to the Unified Interface installation bin directory and open **TheoremProps_UI.txt.**
Navigate to the following lines, unhash and amend as required.

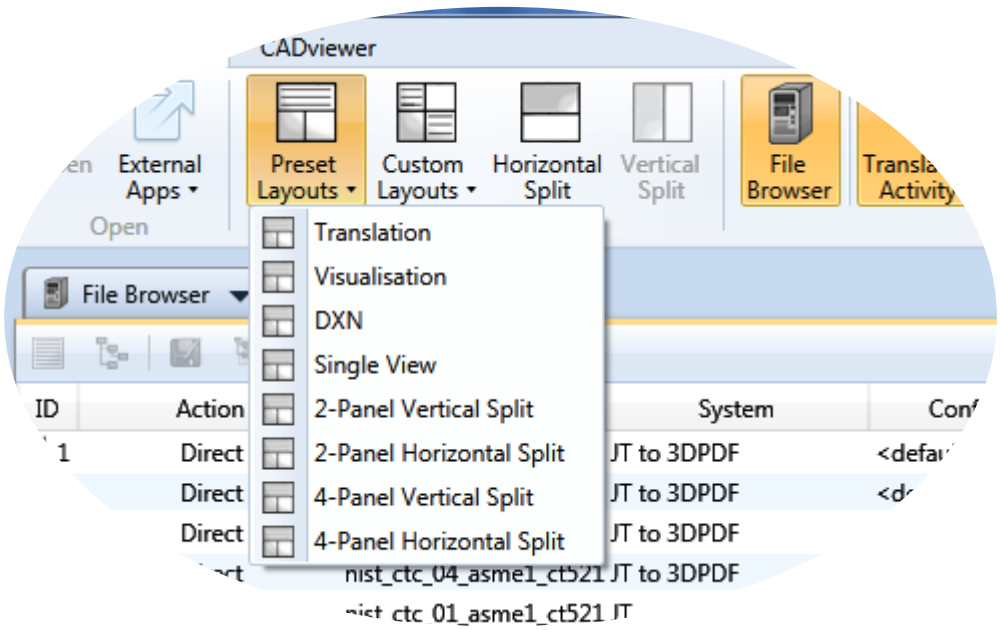
```
26  ######################################################
27  # Common Configuration file settings - Sets the directory that Common Configurations are stored
28  #Theorem.CommonConfigurations=
29  #Theorem.WriteToCommonConfigurations=true
30  ######################################################
```

Setting the first option (e.g. "Theorem.CommonConfigurations=T:\SharedConfigurations") will allow the user to see and use common configurations, whilst still allowing the user to view their personal configurations. Any new configuration created will be create in the user's local area.

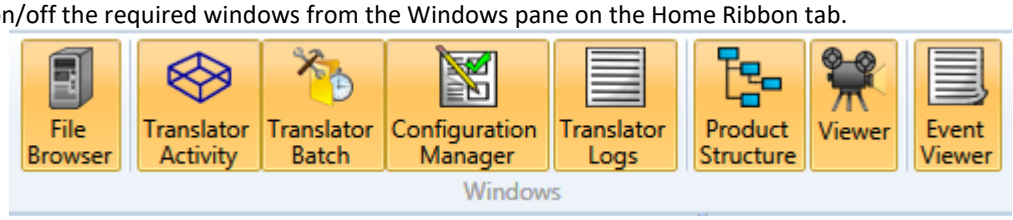
Setting "Theorem.WriteToCommonConfigurations=true" will allow the user to create configurations in the common area. Note that with this mode set, the user will no longer see the local configurations.

Creating a Custom Layout

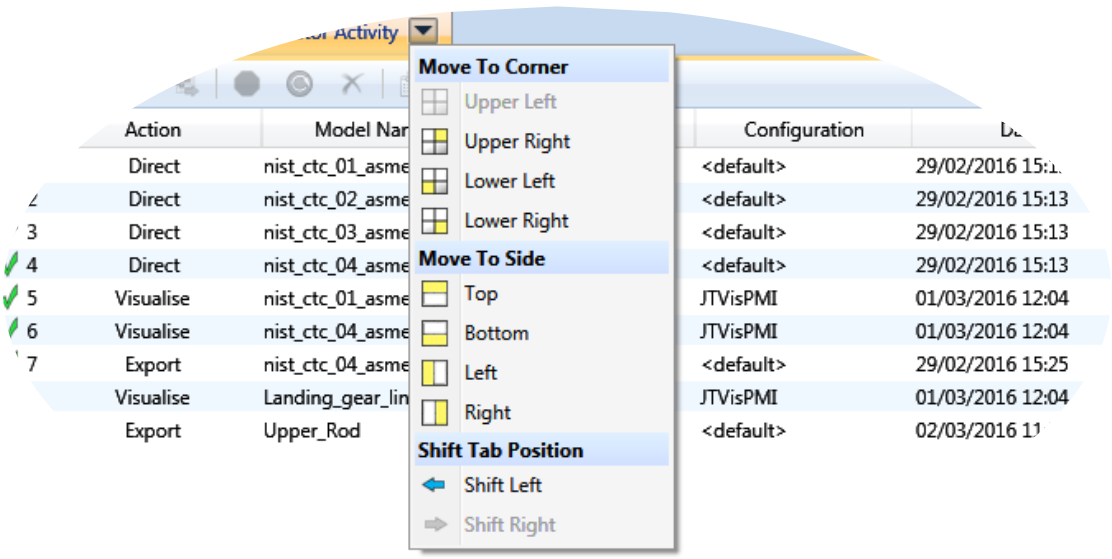
Creating a custom layout can be extremely useful as it allows the user to only have open the windows that they require and in an order that works best for them.
To create a custom layout select a pre-set layout that resembles the format you wish the UI to be displayed. Descriptions of each of these can be found on the Default Layouts page.



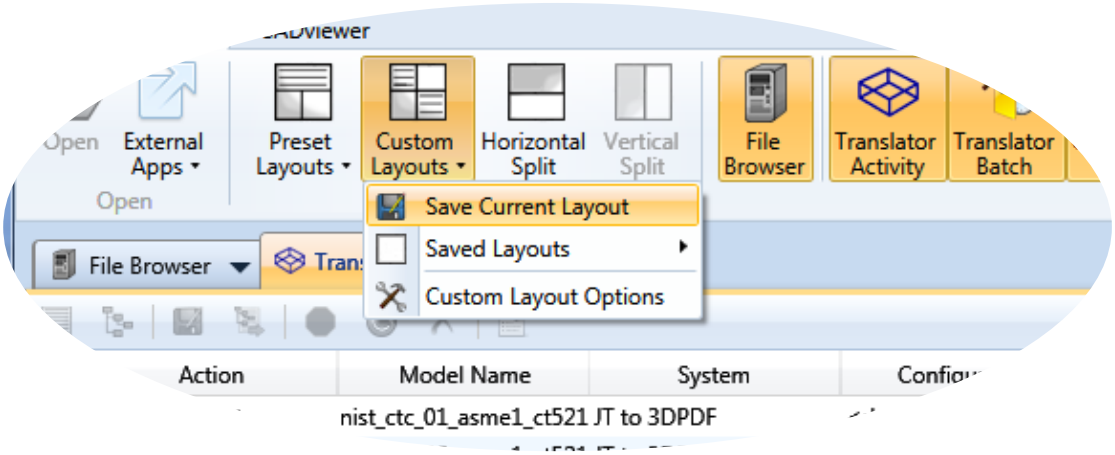
Toggle on/off the required windows from the Windows pane on the Home Ribbon tab.



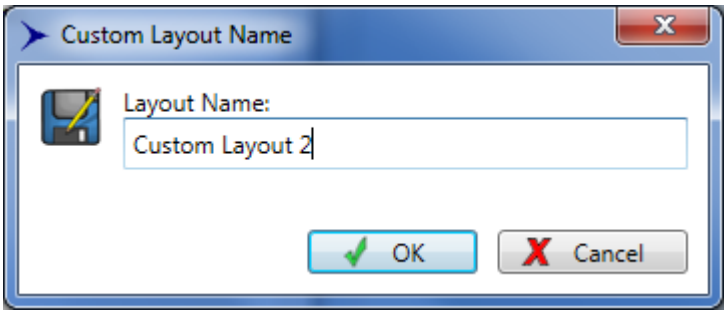
When the required windows have been selected, they can be moved into the desired panel within the UI by clicking on the drop down arrow of the window



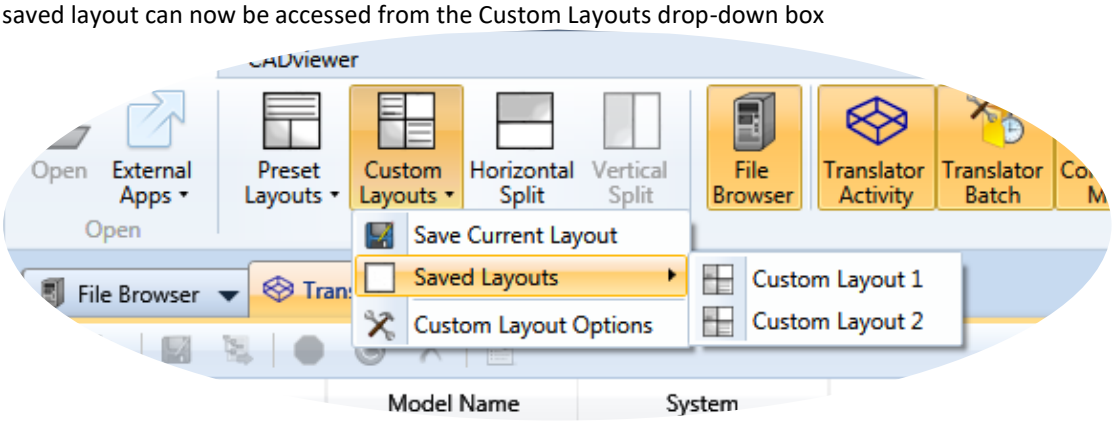
Once all windows are in the required position, select Save Current Layout from the Custom Layouts drop-down box.



Enter a **unique** name and click OK to save.

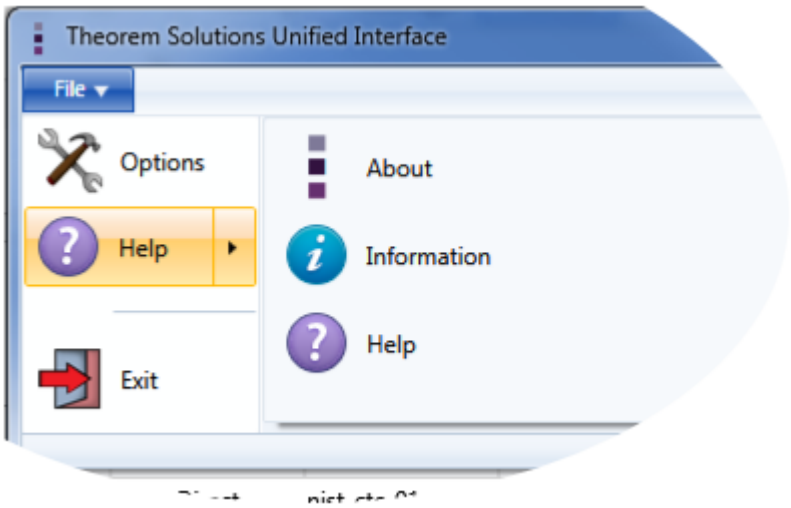


The saved layout can now be accessed from the Custom Layouts drop-down box

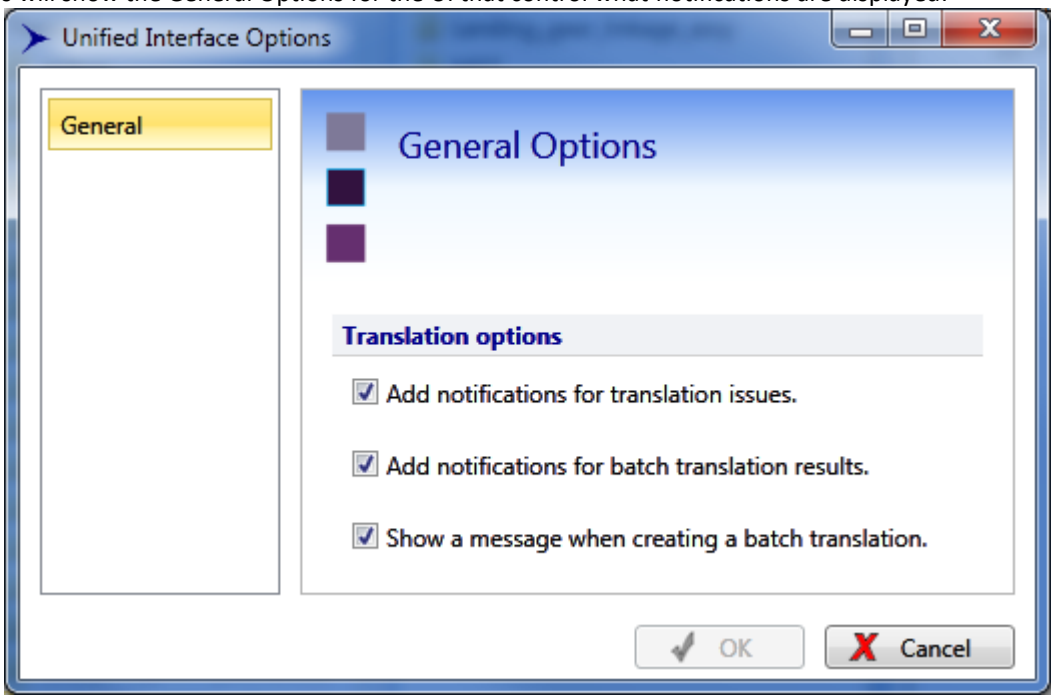


Navigating the Unified Interface

File Menu



Options will show the General Options for the UI that control what notifications are displayed:

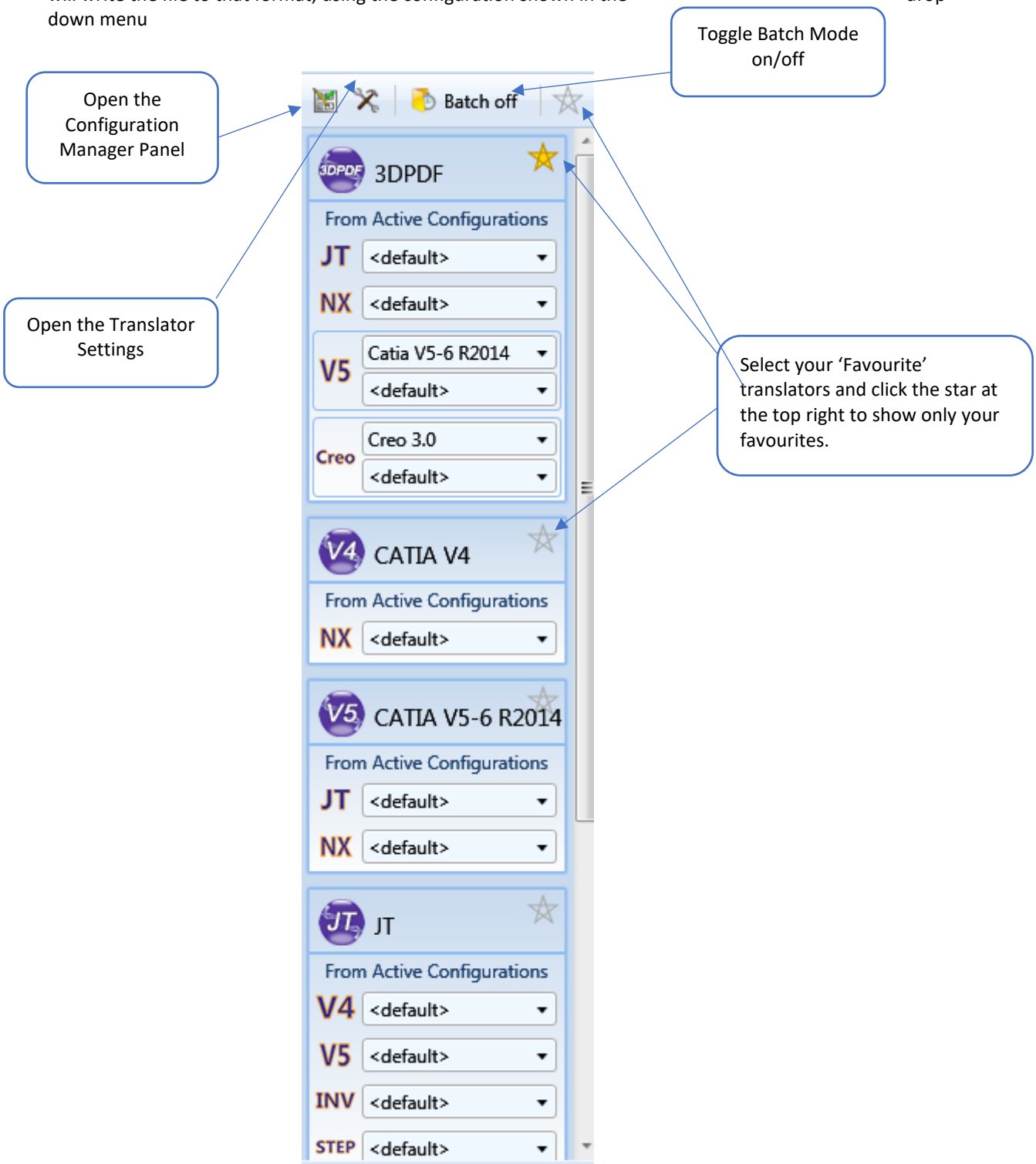


Help Menu

- About displays information about the Unified Interface, including the version number.
- Information displays details about the user's system, including platform, process and system information and environment variables.
- Help Opens the Help file. Can also be opened by pressing f1, or clicking the Help icon in the top right corner.

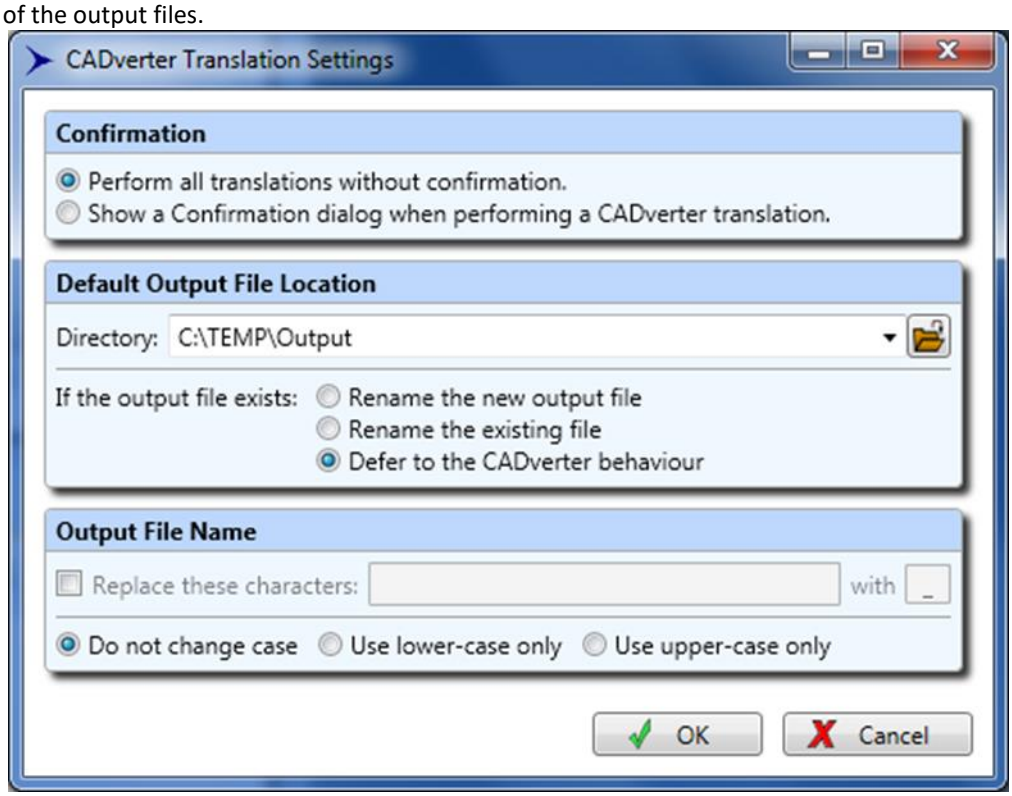
Translator Panel

The Translator panel is the collapsible panel found on the right hand side of the UI
The translators shown in the panel correspond to available write legs and dropping files onto a translator box will write the file to that format, using the configuration shown in the drop-down menu

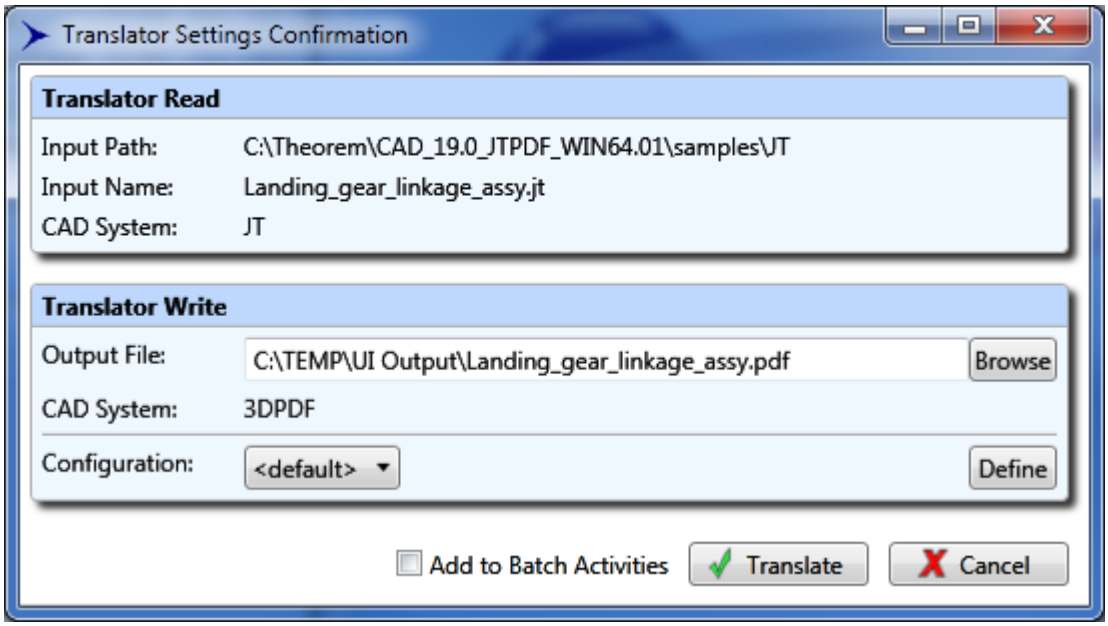


Translator Options

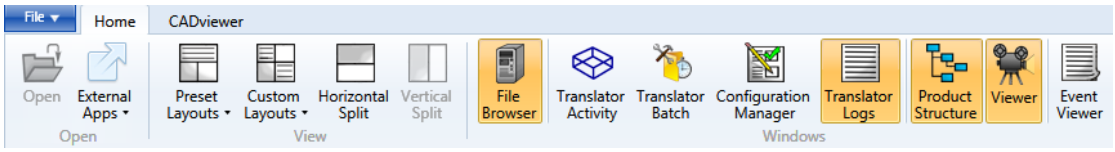
This will allow the users to set general options for the translators. The user can change the output location and how the translator deals with writing to existing files. It also provides the ability to replace characters and alter the case of the output files.



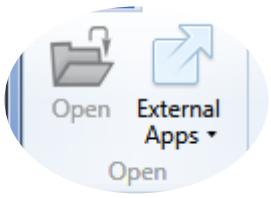
The confirmation dialog will be shown when a translation has been actioned. The output path and configuration can be changed here and the file can be added to the batch activities.



The Ribbon Bar



Open

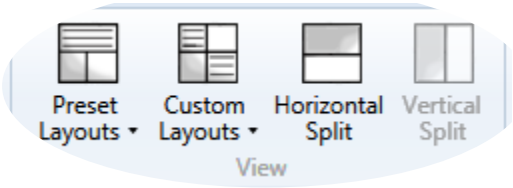


The file open area has two features:

- Open allows the selected file in the File Browser to be opened in its native external application. E.g. a CATPart will be launched in CATIA V5, a Word document in MS Word, etc.
- External Apps allows the user to configure external applications to work in conjunction with the UI.

Layouts

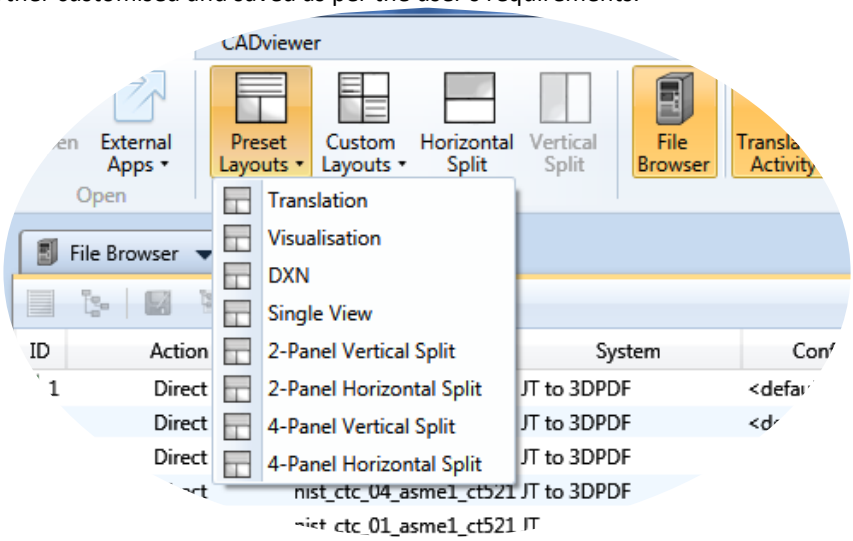
The configuration of all layouts is found in the view area of the ribbon toolbar.



This allows the user to specify the number of panes and the layout of those panes. It also allows the layout and content (see Windows Area) to be saved as a named Layout. These layouts can be modified, re-saved and deleted as required.

Preset Layouts

Shipped with the UI are three default layouts for working within the UI. Along with this are 5 pre-set layouts that give the full range of general layouts of the windows that can be used as a basis for creating a layout which can be further customised and saved as per the user's requirements.



Translation

This allows the user to drag and drop files from the File Browser into the Translator Panel to perform a translation. The Translator Activity window shows the status of the translations and the logs are shown in the Log Viewer.

Visualisation

This allows the user to drag and drop files from the File Browser into the Product Structure or Viewer Panel. The Product Structure window shows the structure of the visualised file whilst the logs for the visualisation activity are show in the Log Viewer.

Data Exchange Navigator

The DXN layout as shipped. This allows the user to select an existing assembly file from the Product Structure window drop down box and visualise and manipulate the data.

Single View

The Single View layout as shipped. Here all windows are displayed in one panel.

2-Panel Vertical Split

The 2-Panel Vertical Split layout as shipped. Here all windows are displayed over two panels, split vertically.

2-Panel Horizontal Split

The 2-Panel Horizontal Split layout as shipped. Here all windows are displayed over two panels, split horizontally.

4-Panel Vertical Split

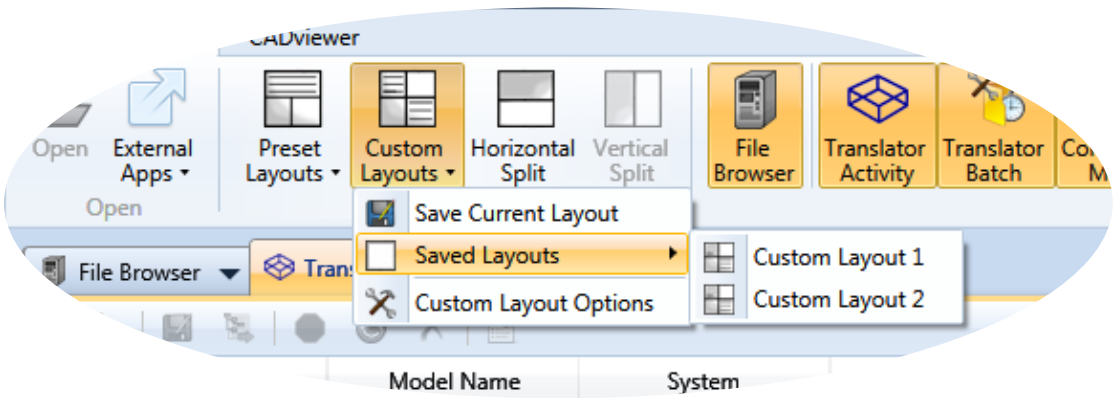
The 4-Panel Vertical Split layout as shipped. Here all windows are displayed over four panels, split vertically.

4-Panel Horizontal Split

The 4-Panel Horizontal Split layout as shipped. Here all windows are displayed over four panels, split horizontally.

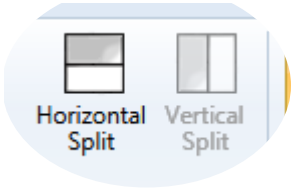
Custom Layouts

The custom layout dropdown gives access to 3 options.



The options are used for creating a creating a custom layout

Horizontal and Vertical Split

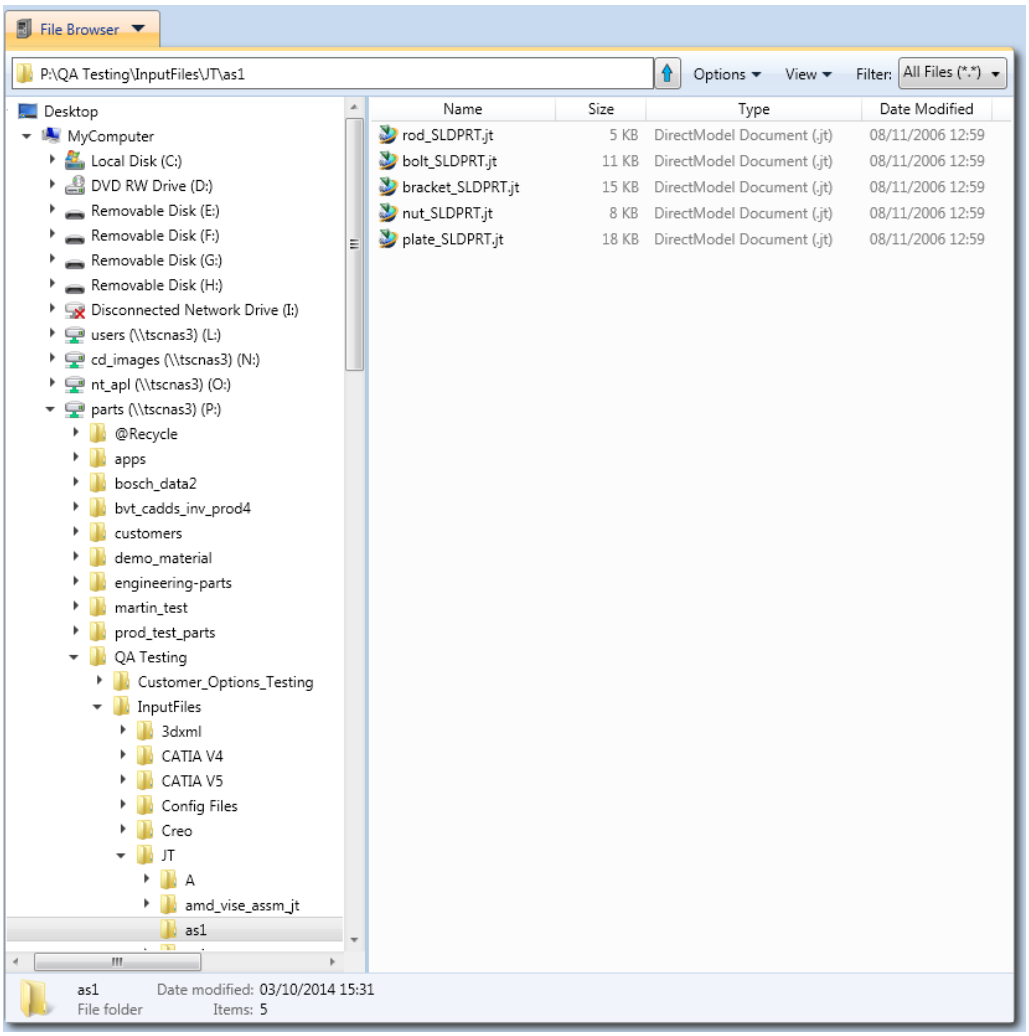


The Horizontal and Vertical Split buttons control whether the main split between the windows is vertical or horizontal. Note that in a Single Window View these options are not available.

Windows

File Browser

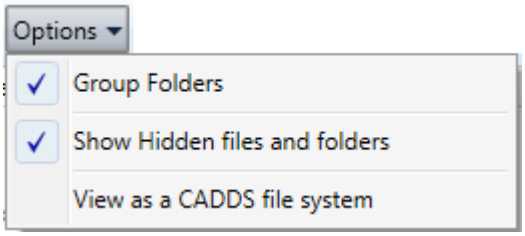
The UI File Browser is used similarly to Windows File Browser. It has an address bar, the left side is the navigation pane, allowing easy access through the folders. The main window is the main browser window displaying the current folder.



Address Bar

The address bar shows the current folder path; this can be entered manually for direct navigation. Clicking the arrow goes to the directory one level up.

Options

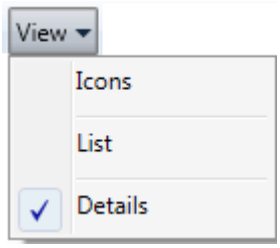


There are three options from the drop-down menu:

- **Group Folders** allow the user to select whether to group folders together, or to sort them in order with all other files.
- **Show Hidden files and folders** shows protected and hidden files. Warning: editing these files could cause your system to become inoperable.
- **View as a CADDS file system** is used when browsing a CADDS file system.

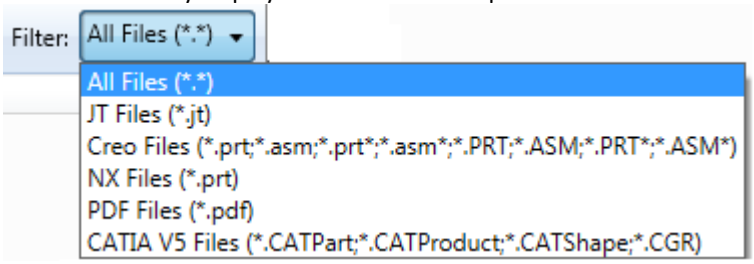
View Options

Select whether to display files as Icons, in a list or in a view with details.



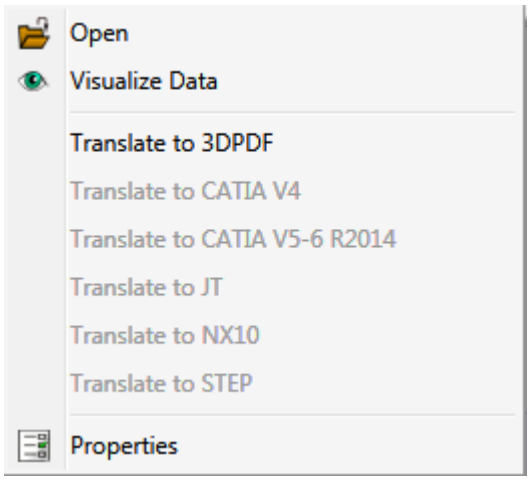
Filter

Set a filter to only display files that have compatible translators installed.



Right Click Menu

Selecting a file in the File Browser and right-clicking shows the right click menu.

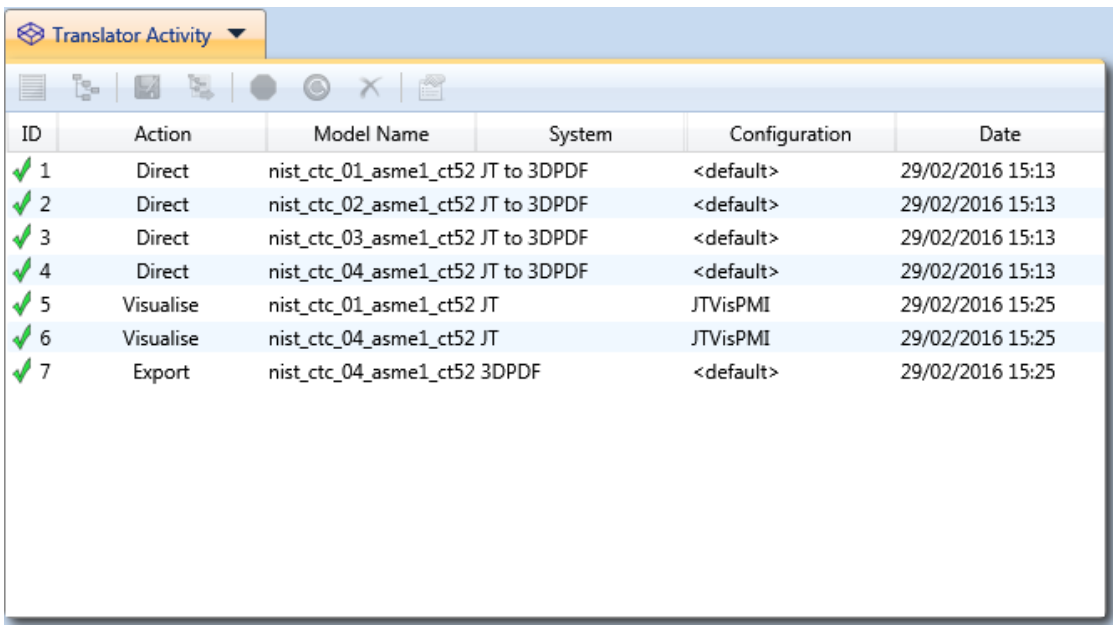


The available options are:

- **Open** the file in its default application
- **Visualise Data** in the Viewer
- **Translate to...** writes the file to compatible CAD systems
- **Properties** opens a window displaying properties about the file.

Translator Activity

The Translator Activity window list all translation activities that have occurred. The list provides a translation ID, the type of action performed for a translation, the Model Name, the CAD system associated with the model, the configuration used (defined by the configuration manager) and the date of the activity.



ID	Action	Model Name	System	Configuration	Date
1	Direct	nist_ctc_01_asme1_ct52	JT to 3DPDF	<default>	29/02/2016 15:13
2	Direct	nist_ctc_02_asme1_ct52	JT to 3DPDF	<default>	29/02/2016 15:13
3	Direct	nist_ctc_03_asme1_ct52	JT to 3DPDF	<default>	29/02/2016 15:13
4	Direct	nist_ctc_04_asme1_ct52	JT to 3DPDF	<default>	29/02/2016 15:13
5	Visualise	nist_ctc_01_asme1_ct52	JT	JTVisPMI	29/02/2016 15:25
6	Visualise	nist_ctc_04_asme1_ct52	JT	JTVisPMI	29/02/2016 15:25
7	Export	nist_ctc_04_asme1_ct52	3DPDF	<default>	29/02/2016 15:25

The results of activities are shown in the ID column:

- ✓ means success.
- ? means completed with errors.
- ✗ means errors and not completed.

Multiple activities can be selected using Ctrl + click or Shift + click.

Ribbon Bar

The top bar of this window has the following functions that are available when an activity has been selected.

View the log displays the log file for the selected activity in the Translator Logs window.

View Product Structure opens the Product Structure window and loads the selected part and consequently it is loaded into the viewer. This is only available for Structure Action.

Create an Audit trail package allows the user to package all input and output files associated with the selected activity, along with the log files and a text file detailing the activities and command line options used, into a zip file.

Re-process the translation allows the user to perform the translation again with a different configuration.

Stop the current activity being performed.

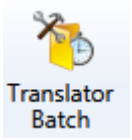
Rerun all selected files activities with the same configuration.

Remove all selected activities.

Properties displays the properties of the activity.

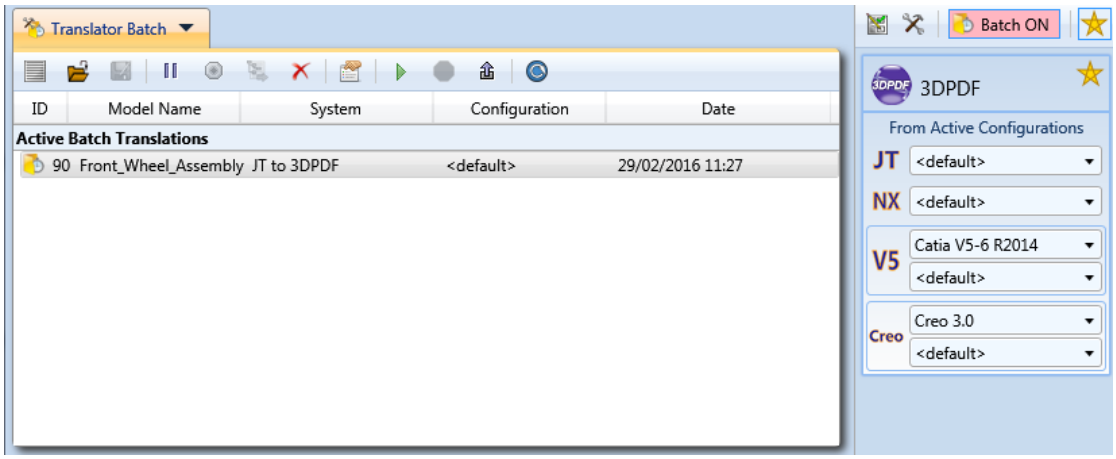
Note that right clicking on an activity provides the same options, along with an extra option allowing the user to open outputted files in windows explorer.

Translator Batch



The Translator Batch window lists all batch translation activities that have been added to the batch. Files are added to a batch by switching on Batch Mode and performing a translation in the usual way. The list provides a translation ID, the type of action performed for a translation, the Model Name, the CAD system associated with the model, the configuration used (defined by the configuration manager) and the date of the activity.

Active translations are shown under the Active Batch Translations section and always have the pending icon



- When a batch activity has been performed, the activity will be transferred into the Translation Activity Window.

The results of completed activities are shown in the ID column of the Translator Activity:

- ✓ means success.
- ? means completed with errors.
- ✗ means errors and not completed.

The status of active Batch Translations are shown by:

- means ready for batch processing
- means the file has been put on hold and is currently inactive.

Multiple activities can be selected using Ctrl + click or Shift + click.

Ribbon Bar

The top bar of this window has the following functions that are available when an activity has been selected.

Put selected Activity on hold to omit certain activities temporarily from a batch translation.

Release from hold to return the selected activity to the active batch list.

Remove all selected activities.

Properties displays the properties of the activity.

Run all active batch translations.

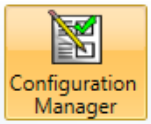
Stop the current batch activity being performed.

Export all active batch translations to a batch command file, which can be run externally to the UI.

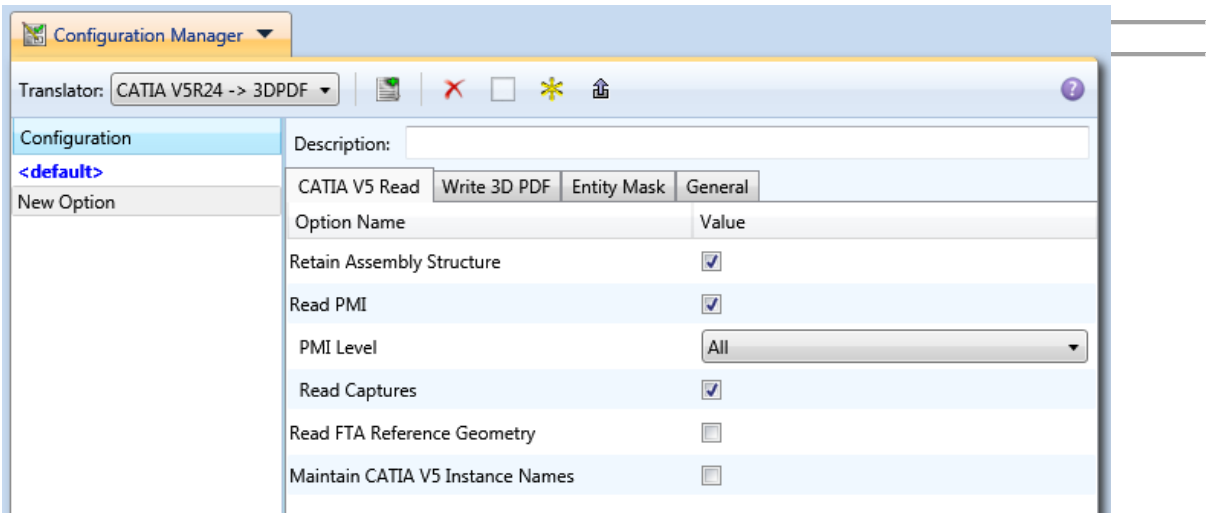
Refresh the status of all activities.

Note that right clicking on an activity provides the same options.

Configuration Manager



The Configuration Manager panel allows the user to edit the settings for both the read and write translators and save them in a configuration file. Configurations files can also be deleted.



Ribbon Toolbar

The top bar of this window has the following functions that are available

Translator drop-down menu allows the user to select which translator to manage the configuration of. Note that if the favourites toggle is activated on the Translator Panel, then only 'favourite' translators will be displayed here.

Add a New Configuration to create a new configuration with the same options used in the previous configuration

Delete selected Configuration will permanently delete the configuration.

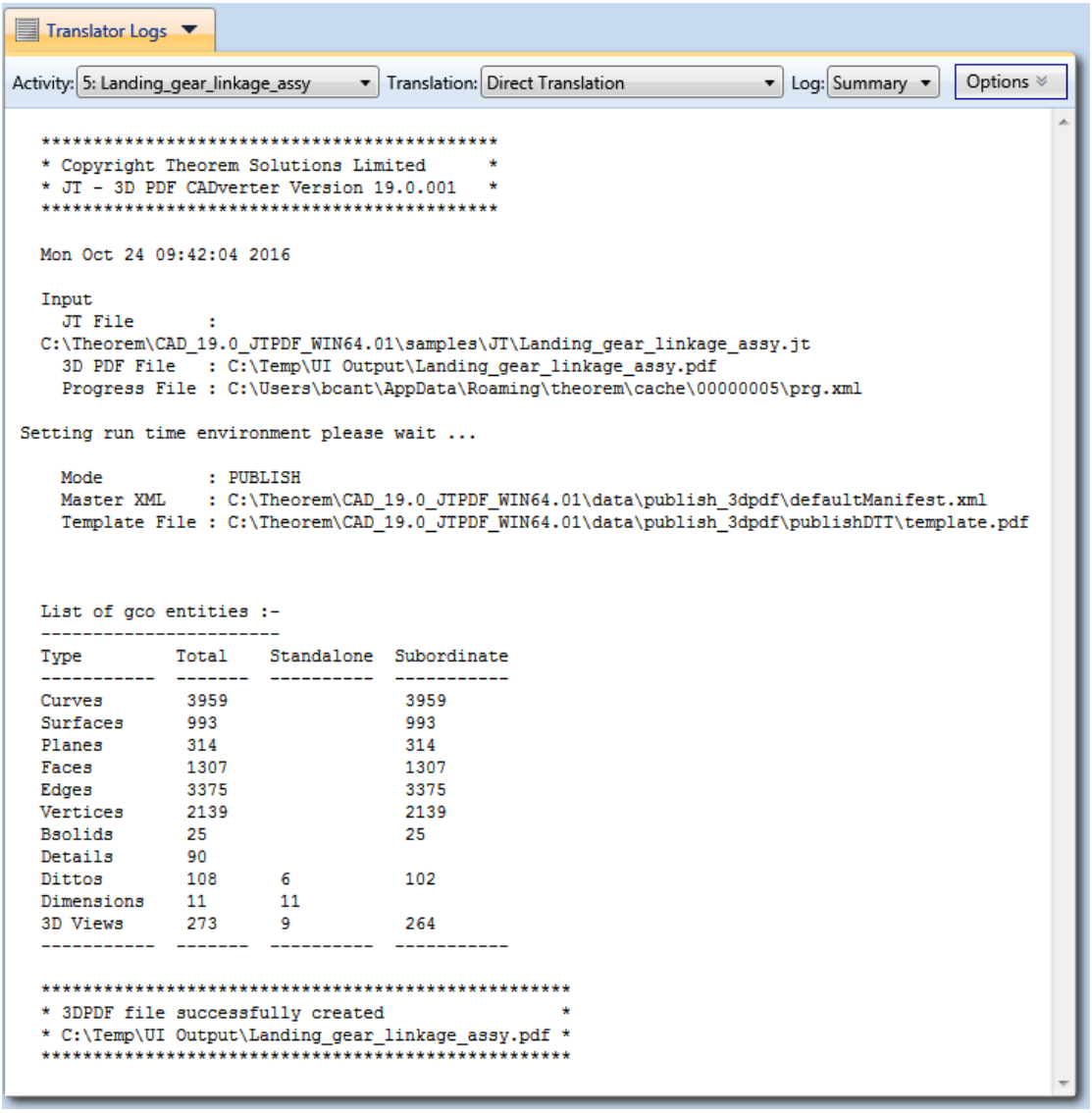
Clear Options to revert to the translator default options.

Make Active to make the selected configuration the active configuration.

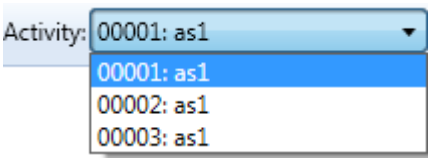
Generate Visual & Export Options for direct translator configurations so these options can be used when visualising and exporting data.

Translator Logs

The Translator Logs displays the log files from all previous available translation activity. The activity can be selected and either the Summary file or tabulated information can be displayed for any of the translator processes.

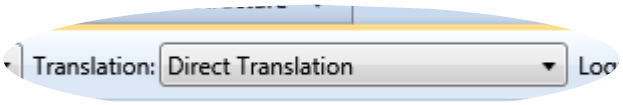


Activity List



Select an activity from the Activity drop-down list. These correspond to the list displayed in the Translator Activity window.

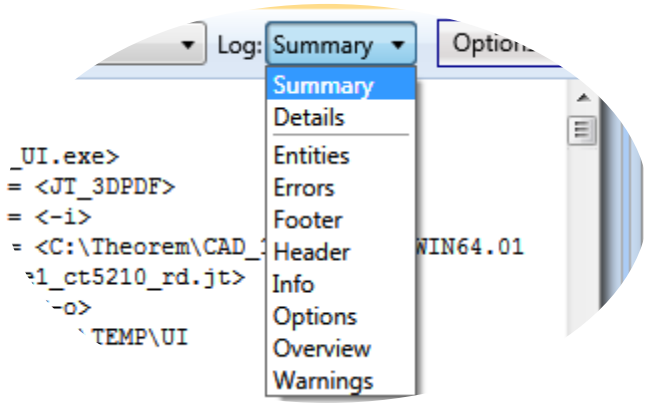
Translation



The Translation drop-down lets the user select what part of the translation activity they would like to view the logs for. The selection choice here varies on what action (shown in the Translator Activity window) has been performed:

- **Direct** will only show Direct Translation log. This details the activity from the full translation.
- **Visualise** will show Translator Read log & Structure Write. Translator Read details the activity from reading the file in its native format and writing it to Theorems Generic CAD Object (GCO). Structure Write details writing the GCO file into a format the Viewer can utilise.
- **Export** will show Structure Export & Translator Write, Structure Export details data from a visualised file to GCO file, and Translator Write will detail the GCO to the output format translation logs.

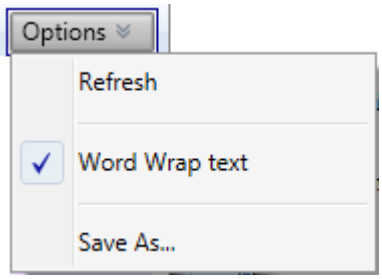
Log Type



The Log drop-down lets the user select what information they would like to see about regarding the selected translation:

- **Summary** an overview of the translation in text format, including the date of translation, files used, entity list and result.
- **Details** shows the full unformatted log file in XML format.
- **Entities** a table of all entities processed during translation.
- **Errors** a list of errors (if any) that occur during translation.
- **Footer** details of the output file.
- **Header** details of the input file.
- **Info** a list of all information processed by the translator.
- **Options** shows a list of all options used for the translation.
- **Overview** combines Header, Entities and Footer lists.
- **Warnings** a list of warnings (if any) that occur during the translation.

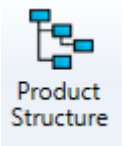
Options



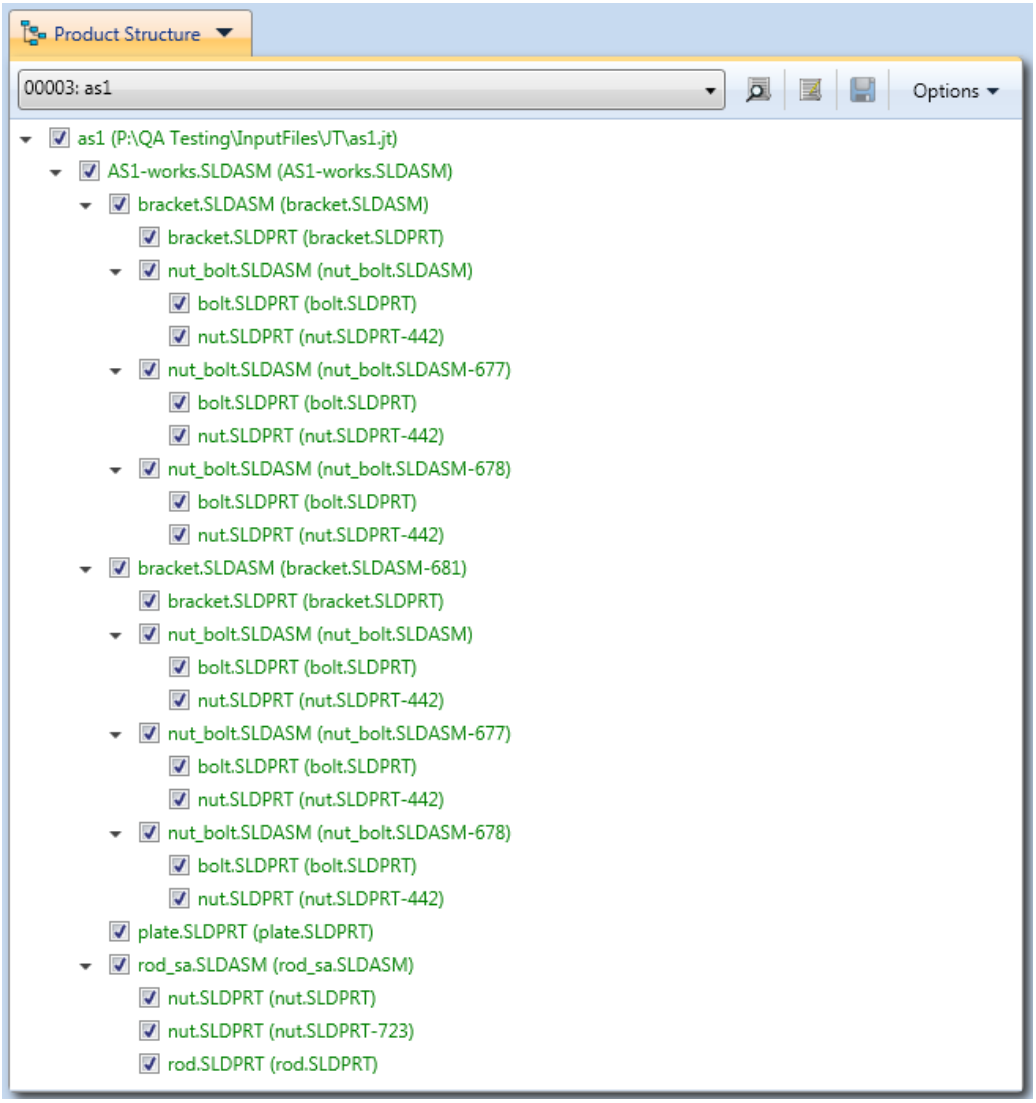
The options drop-down has the following options available:

- **Refresh** refreshes the currently displayed log file. This may need to be used when viewing a log that has recently completed.
- **Word Wrap** switches on/off word wrapping in the log files.
- **Save as** opens a dialog box that allows the user to save the currently displayed log file to a specified location.

Product Structure

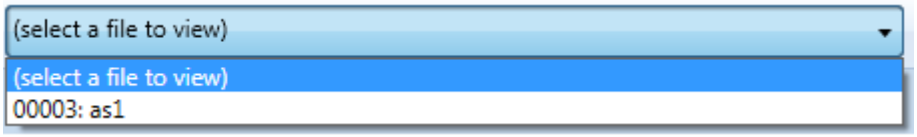


The Product Structure tab displays the assembly structure of a visualised part. The structure can be loaded from the selection bar if the part has already been visualised, or a new file can be dragged and dropped into the window.
The check box signifies parts that are loaded in the Viewer. Clicking on a part in the structure will highlight it, and all its sub-nodes in the structure tree and the Viewer.



Selection Bar

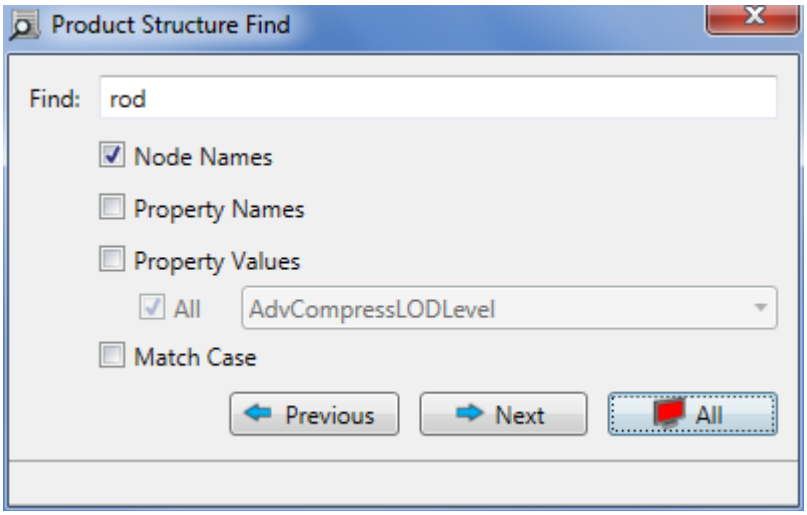
Select a file that has been visualised to display its structure. When a file is loaded, you can clear it from the Product Structure and Viewer window by selecting (Clear View)



Find

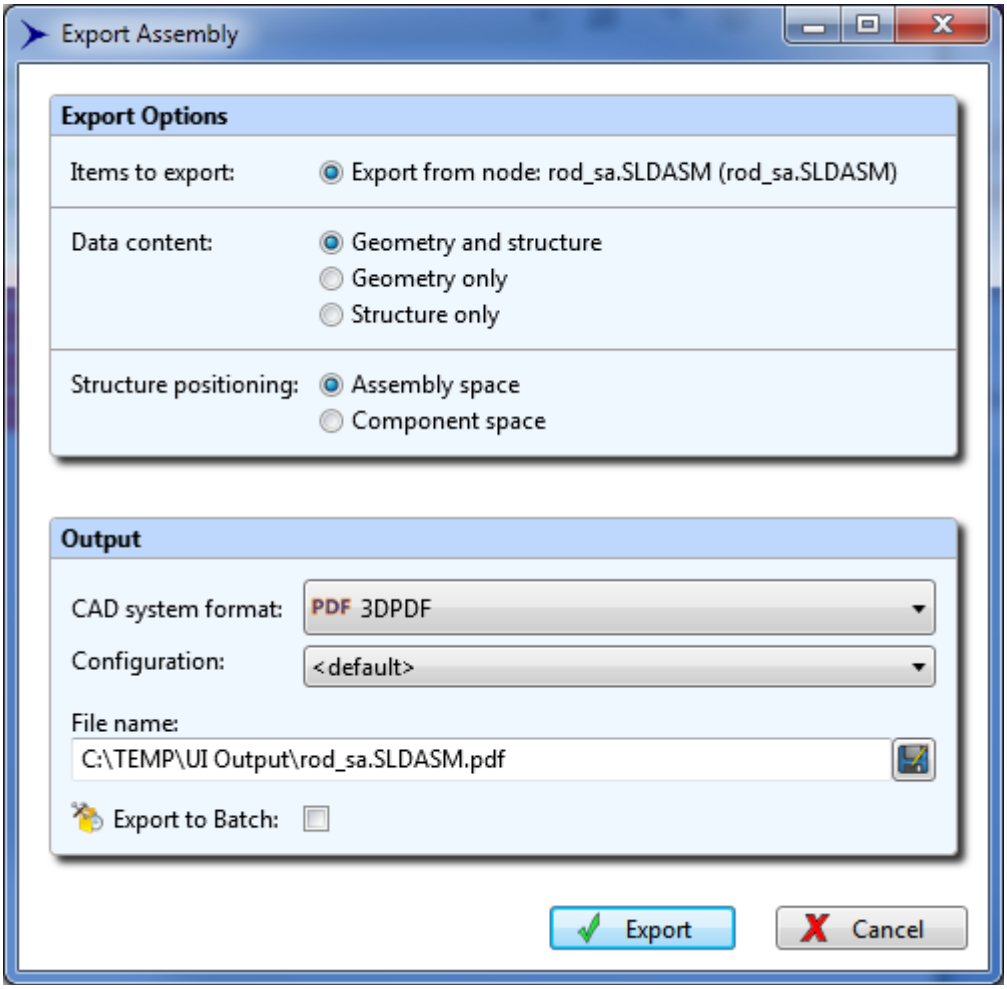
Finding specific parts within a large assembly can be tedious, click the Find icon to open a window allowing specific parts to be easily searched. Alternatively click inside the Product Structure window and use the Ctrl + F shortcut.

Select the criteria you wish to search and matching parts will be highlighted, use ‘Next’ and ‘Previous’ to browse through matching parts, or highlight them all by clicking All.



Export

A single part or assembly can be exported to a different format by selecting the node from the tree, clicking the right mouse button and entering "Export from node". Alternatively, the export button can be clicked.

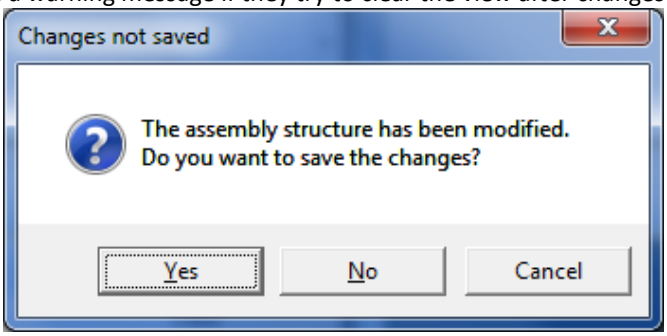


The Export Assembly interface will then open and the user can select which data content will be exported and whether the structure positioning of the exported node should be relative to the original assembly space, or to the selected component space.

The data can be exported to any CAD system format that has a compatible Theorem Translator installed with available configurations created by the user.

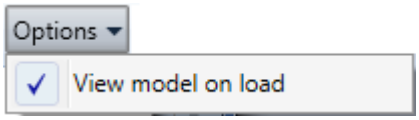
Save

When a part has been modified in the Viewer/Product Structure window, clicking the save icon will save any changes made.
The user will also receive a warning message if they try to clear the view after changes have been made.



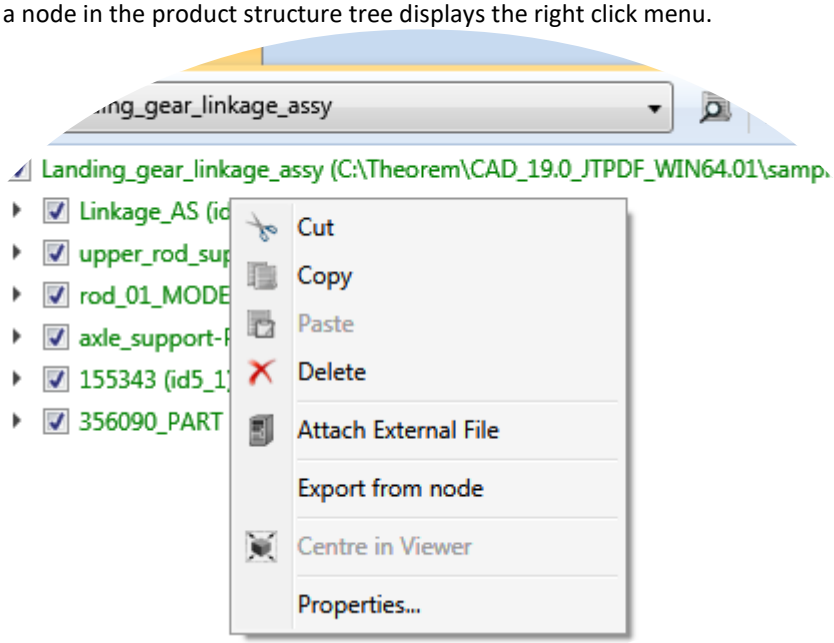
Options

"View Model on Load" option allows the user to choose whether they would like the Product Structure to be automatically loaded into the viewer when loading the Product Structure. It is recommended to switch this option off when using DXN to export data from Large Assemblies as this means unnecessary parts will be loaded into the Viewer.



Right Click Menu

Right clicking on a node in the product structure tree displays the right click menu.



Cut, Copy & Paste lets the user move and copy existing nodes throughout the structure. Copying one part and pasting it under a different sub-assembly will use the original co-ordinate system of the part and then place it in the Structure relative to the sub-assembly co-ordinate system. Note that these features are only available with a DXN license.

Delete will permanently delete the node from the Product Structure.

Attach External File allows the user to import an external part, and place it into the specified location in the loaded structure.

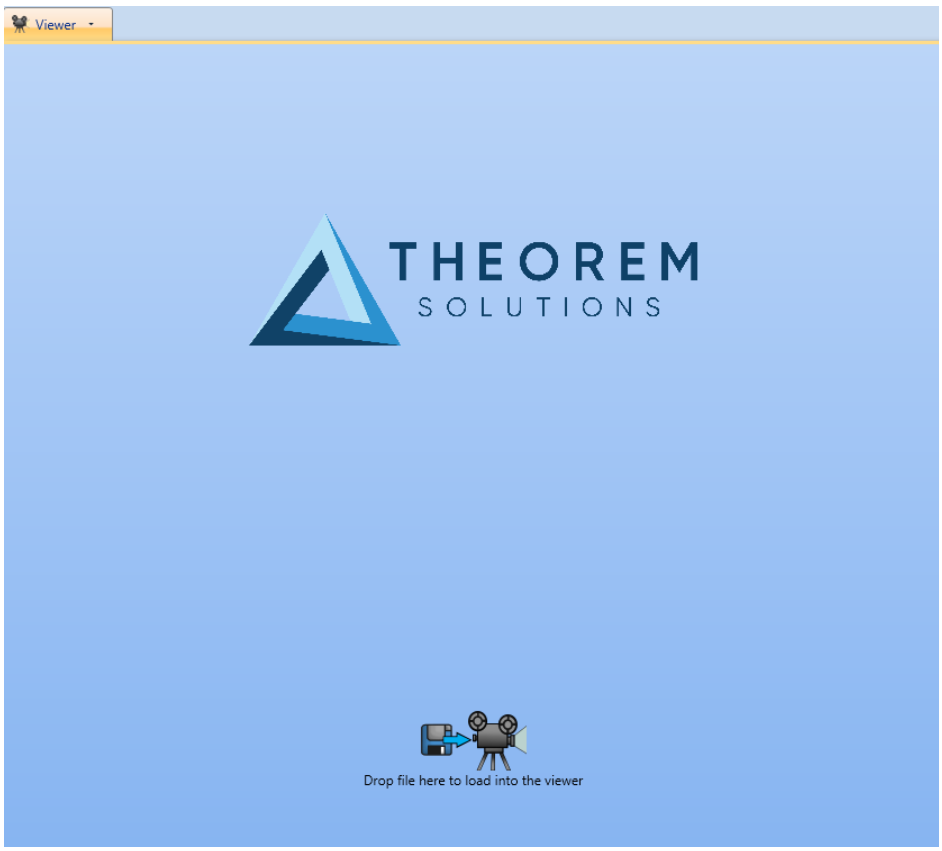
Export from Node allows the user to export the selected node, as detailed above.

Centre in Viewer centres the selected node in the Viewer.

Properties displays the properties of that selected node, including all attributes and the Transform Matrix. New attributes can be added and deleted here as well as modifying existing attributes.

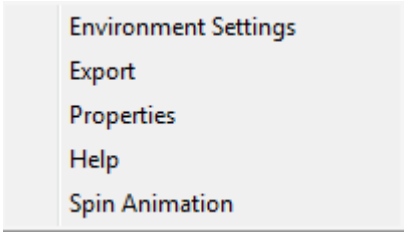
Viewer

The Viewer allows the user to view the contents of many different formats of CAD data, including assemblies. It can be used in conjunction with the "Product Structure" option to view single nodes of an assembly, the top level or sub-assemblies.



Right Click Menu

There are further options that are available by right clicking in the Viewer window.



Environment Settings

This allows the editing of the Light Intensity of parts loaded into the viewer and the highlight and background colours.

Export

Opens up the Export Assembly interface and the user can select which data content will be exported and whether the structure positioning of the exported node should be relative to the original assembly space, or to the selected component space.

The data can be exported to any CAD system format that has a compatible Theorem Translator installed.

Properties

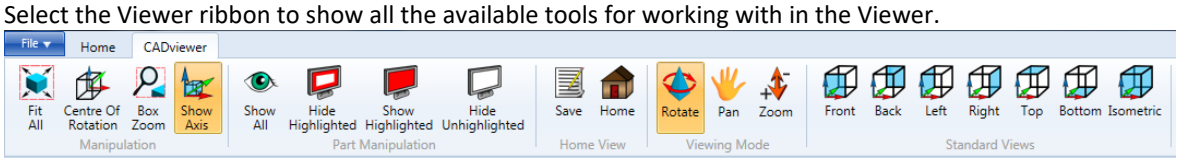
Displays the properties of that selected node, including all attributes and the Transform Matrix. New attributes can be added and deleted here as well as modifying existing attributes.

Spin Animation

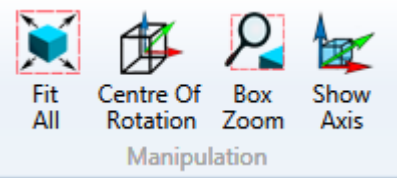
Select this option to initialise the animated spin of the geometry following a rotate command.

Viewer Ribbon Tab

Select the Viewer ribbon to show all the available tools for working with in the Viewer.

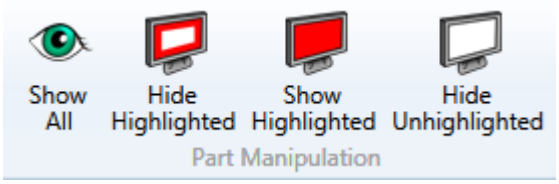


Manipulation



- **Fit All** - loaded part will be fitted to the screen size i.e. a zoom-in or zoom-out will be performed as necessary.
- **Centre of Rotation** - click this button and then somewhere on the loaded part to define the clicked area as the new centre of rotation.
- **Box Zoom** - allows the user to 'draw a box' and zoom into the selected area.
- **Show Axis** - a toggle to show or hide the modelling coordinate axis system marker. The axis colours are Green, Red and Blue indicating X,Y,Z axes respectively.

Part Manipulation



- **Show All** - shows all Geometry
- **Hide Highlighted** - hides any geometry that is highlighted.
- **Show Highlighted** - shows geometry that has been highlighted in the Product Structure tree.
- **Hide Unhighlighted** - hides all geometry that is not highlighted.

Home View

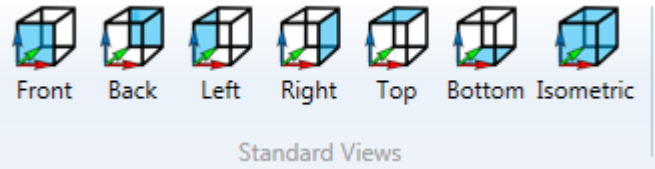
- **Save** - saves the current view as the 'Home' view.
- **Home** - reverts back to the 'Home' view.

Viewing Mode

These options define what default action of clicking and holding the left mouse button (or using arrow keys) when in the Viewer.

- **Rotate** - rotates the part about its centre of rotation.
- **Pan** - drags the part relative to the cursor movement.
- **Zoom** - zooms in and out relative to the cursor moving up and down. Move the cursor down the screen to zoom-in or up the screen to zoom-out.

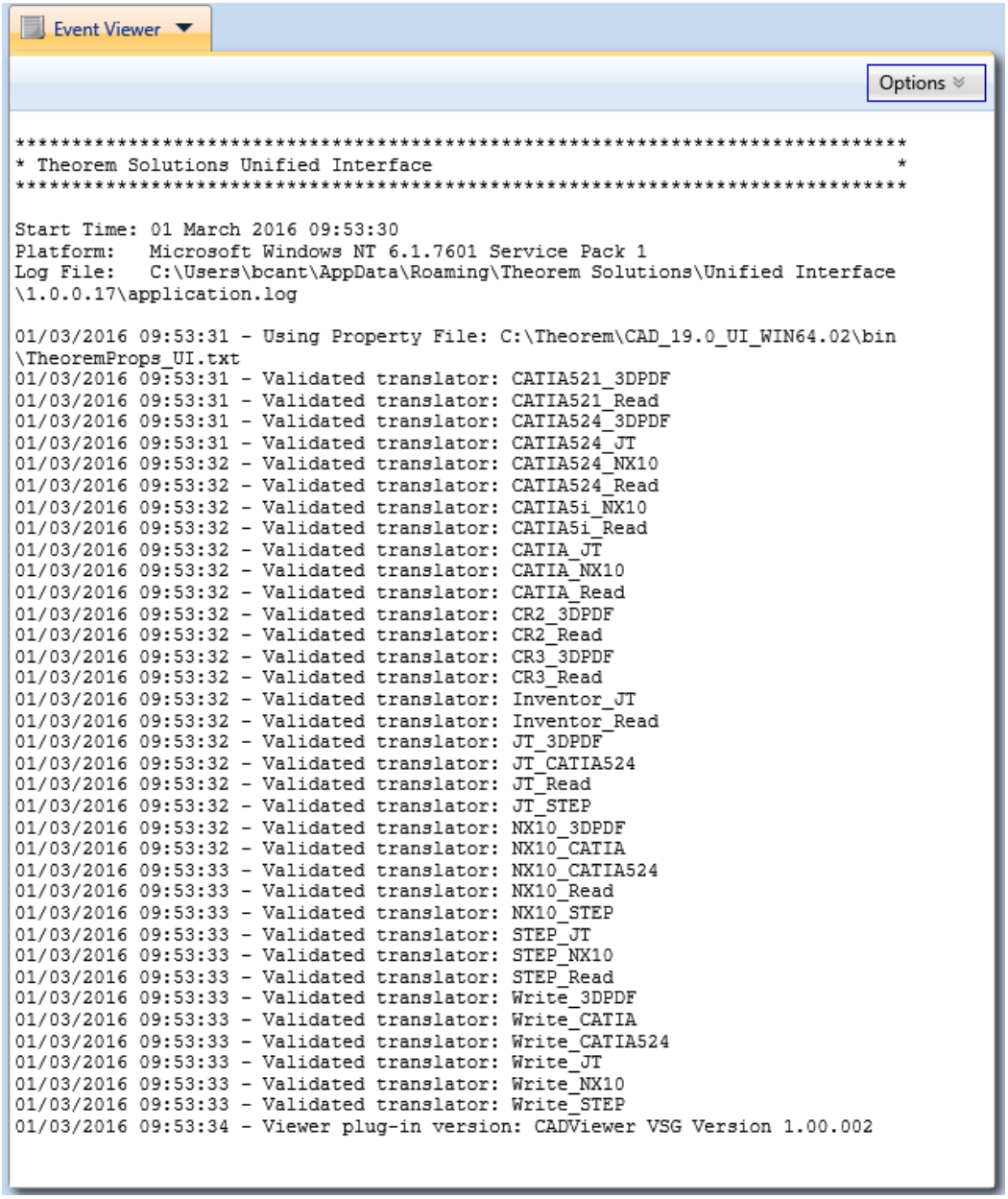
Standard Views



Displays the model as seen from the specified location.

Event Viewer

The diagnostics of the UI are shown here including the Version, Start Time, Platform, Log File location and showing which Translator processes have been validated.



Options allows the user to switch line wrap on/off and gives the option to save the Event Viewer log to a specified location.

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