



USER GUIDE

Publish 3D for
3DEXPERIENCE

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Overview of Publish 3D

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:



TRANSLATE

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

See our [website](#) for more detail.



PUBLISH

The creation of documents enriched with 3D content

See our [website](#) for more detail.



VISUALIZE

Visualization for [Augmented \(AR\)](#), [Mixed \(MR\)](#) and [Virtual \(VR\)](#) Reality applications

See our [website](#) for more detail.

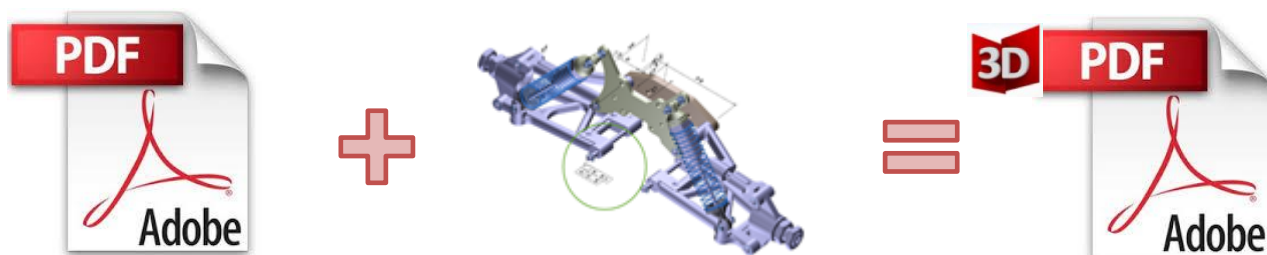
What is a 3D PDF?

In its simplest form a 3D PDF is a standard Adobe PDF document that contains interactive 3D content.

A PDF is a document format that can contain:

- 2D Graphics
- 3D Graphics (3D CAD model)
- Attached files to form a Technical Data Package
- The ability to interrogate and interact with the document.
- The ability to universally review CAD with a free viewer.
- Compressed data for optimum file size for sharing
- [Support for Model Based Definition \(MBD\)](#)
- The addition of 3D content to PDF allows your company:
 - To produce documents to fully describe the product
 - To achieve effective communication regarding product information.
 - To automate specific business processes
 - To improve understanding and eliminate ambiguity in relation to product data.
 - To create and extend customised, dynamic documents
 - To create rich documents with 3D content which can be consumed anywhere.
 - To create interactive and engaging documents such as brochures
 - It's already used for documents which commonly relate to products e.g.; Request for Quotation, Engineering Change Requests, Bill of Material reports, Inspection Documents, Works instructions, Service manuals, Sales literature, etc.

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Review our website [here](#) for a short video explaining 3D PDF or review our [Frequently asked questions](#) for more information

What is Publish 3D?

Theorem's **Publish 3D** brand - offers a **3D PDF** publishing solution for organisations who design with 3DEXPERIENCE, CATIA V5, Creo, NX or who want to extend the use of their JT data to create interactive 3D documentation - **3D PDF's**.

The use of 3D PDF means that anybody can now consume, view and mark up 3D data with Adobe's ubiquitous Reader, eliminating the need to install specialist viewing software or to be trained to use a special tool.

Designed for organizations of all sizes, **Publish 3D** solutions are based on the original Adobe® and vendor specific technology, therefore are fully compatible with Acrobat and native CAD systems enabling users to take the intelligence contained within a 3D model directly in to the world of PDF.

Theorem's Publish 3D suite of products is powered by native Adobe® technology 3D PDF publishing toolkit, which is also used in Adobe Acrobat® and Adobe Reader®. .

For more information regarding Publish 3D *Visualize* please contact sales@theorem.com

What does Publish 3D provide?

A number of Adobe 3D PDF products and solutions are now available as part of the Theorem Solutions Publish 3D suite of applications:

- Publish 3D - **Interactive**
 - 3D PDF Publishing from within CAD Applications:
 - 3D EXPERIENCE / CATIA V5 / Creo / NX
- Publish 3D - **On Demand**
 - Batch Publishing for:
 - CATIA V5 / Creo / NX / JT
- Publish 3D - **Automated**
 - High volume batch 3D PDF Publishing Complex Workflow Support

The remainder of this document will focus on Publish 3D *Document* **On Demand** and **Interactive** Support for NX to 3D PDF. For further information on other Theorem Publish 3D Products please contact sales@theorem.com

Getting Started

Documentation

The latest copy of this 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.

Installation Media

The latest copy of Theorem software can be found via our web site at:

<http://www.theorem.com/Product-Release-Notes>

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 CD or ZIP file download provided.

Currently, there are 2 distinct installation stages that are required.



To install the translator, select the **CAD_24.1_MC6PDF_WIN.01.msi** file and follow the installation process. For a full guide to the process, please see our 'Translator Installation Process' demonstration video located [here](#).



In addition, if you have purchased the "On Demand" product the Theorem Unified Interface will also need to be installed. The installation process is the same as for the Translator. For a full guide to the process, please see our 'Translator Installation Process' demonstration video located [here](#).

Note: If you need to install on to a single central network location, there is a full installation guide documenting how to do this [here](#)

License Configuration



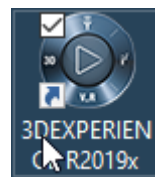
In order for the translation to run successfully, the Theorem license file provided to you needs to be configured using FlexLM. For a full guide to this process, please see our 'FlexLM License Set Up and Configuration' demonstration video located [here](#).

Using the Product

Translating Interactively from within 3DEXPERIENCE

The Publish 3D for 3DEXPERIENCE translator allows an opened CATIA 3DEXPERIENCE part or Assembly to be exported directly to 3DPDF. In order to translate from within CATIA 3DEXPERIENCE, the CATIA 3DEXPERIENCE application must be started using a Theorem environment, so that the appropriate Theorem partner plug-ins are available. (See [CATIA 3DEXPERIENCE Environment files](#))

CATIA 3DEXPERIENCE can be started from a desktop shortcut created at installation time.



Alternatively, it can be started via the script provided in the Translator installation located in:
<installation_directory>\bin

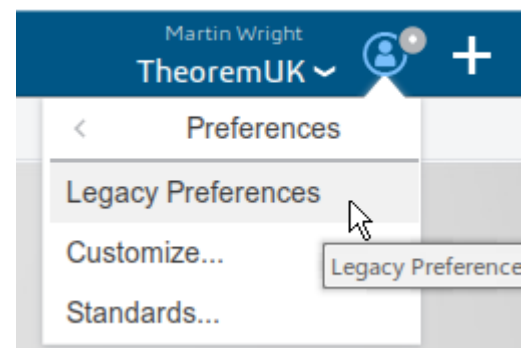
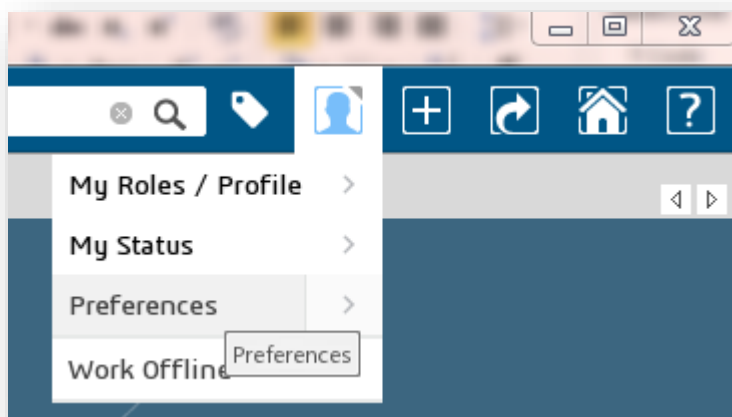
The script name is:

start_3DEXPERIENCE_Theorem_Multi-CAD_3DPDF_CATIAV6R20XXx.cmd

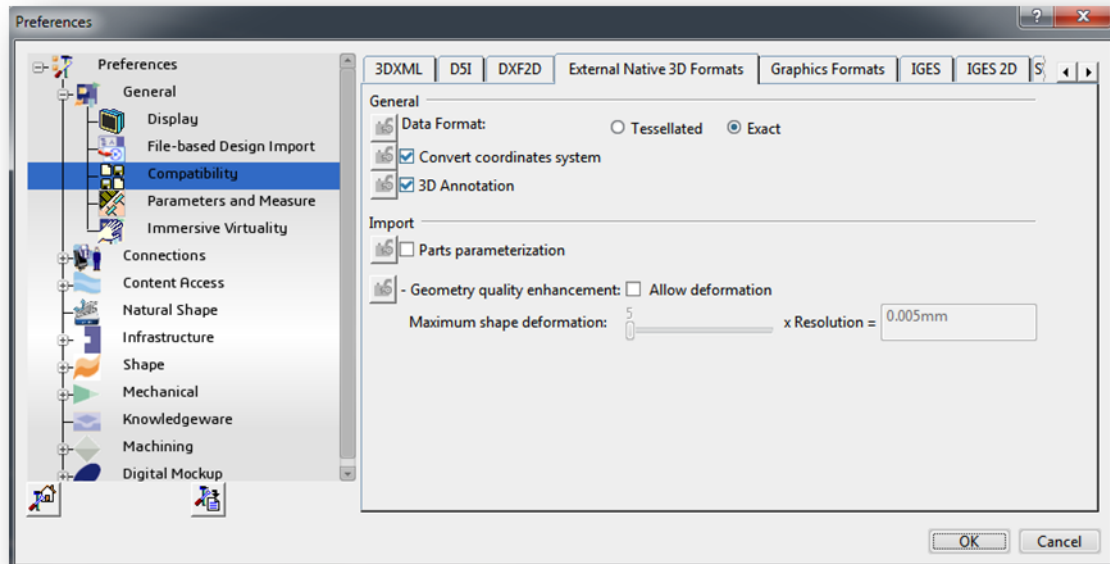
where: XX is the 3DEXPERIENCE release either 2018x, 2019x, 2020x or 2021x

Theorem Interactive Conversion Settings

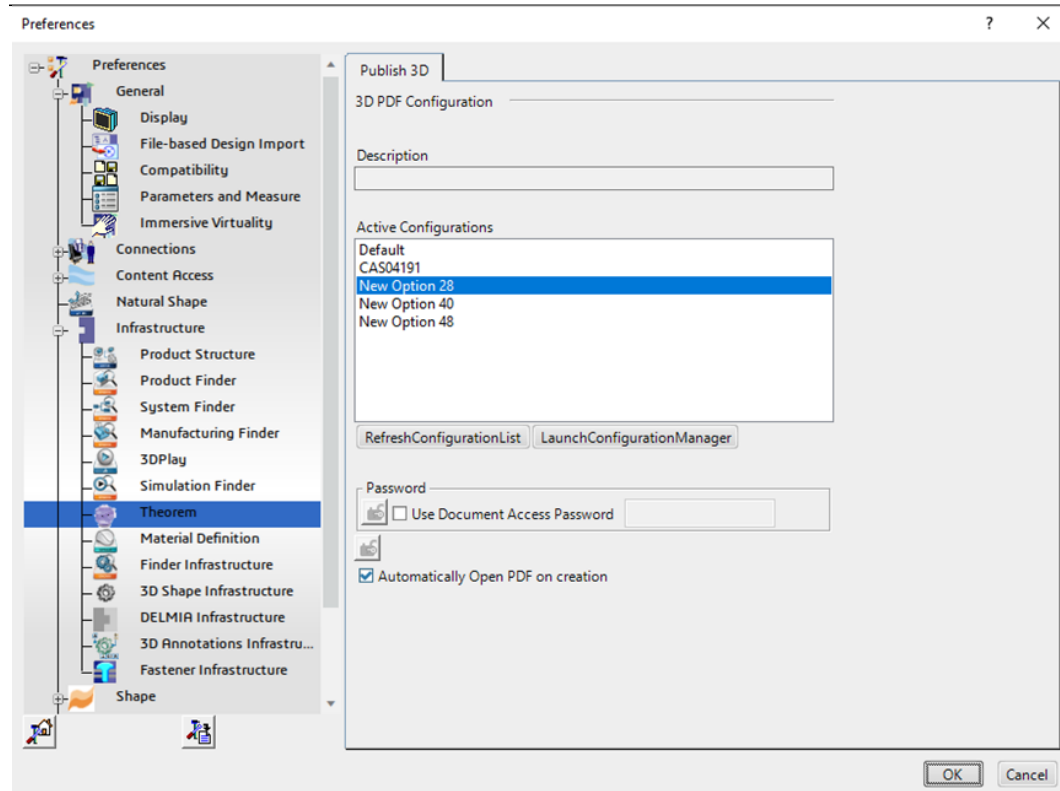
The 3DEXPERIENCE interface offer a number of setting to enable configuration of the Translation Processes. These options are accessed through the <User><Preferences> or <User><Preferences><Legacy Preferences> for “2019x” onwards.



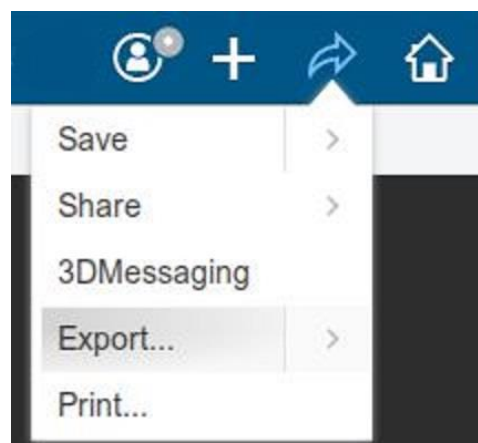
The <Compatibility><External Native 3D Formats> page provides options to set the preferred mode of conversion (Tessellated or Exact), and also the general options “Convert coordinate systems” and “3D Annotation”.



A dedicated page of options for '**Infrastructure -> Theorem**' export operations is available under the '**Infrastructure**' settings and is presented as follows:-



From this Panel, the user can select a predefined configuration, whether a password should be set and whether the PDF document is automatically opened once created. You can also launch and refresh the configuration manager (addon license required). After these options are set, the active Part or Assembly can be exported to 3DPDF via the export option shown below:



This menu action will then present the user with a Save As dialog box similar to this:-

Export

Required

Format

PDF_THEOREM (*.pdf)

Filename

-ImportedAsNewTest_ASSY A.1_(3)

Target

File on disk

Location

C:\demo\output

Options

Report

☒ Save report

Location

C:\demo\output

Report name

ExportReport_(7)

Simulate

OK

Cancel

Translating On-Demand from within 3DEXPERIENCE

Publish 3D supplied templates

By default the “**Interactive**” Publish 3D for 3DEXPERIENCE product is limited to translating source data using a default template.

This template can be used as a basis for a customer’s specific template design and illustrates fundamental capabilities of the translator with regard to publishing 3D data into a pre-defined document format.

The “**On-Demand**” product will allow the use of other templates plus will allow further translation options such as attachments.

More complex template examples are provided in the following the location:

<installation_directory>\data\publish_3dpdf\templates\example_templates

The following examples are available:

- default_template – Illustrates how to output an Assembly Bill of Materials
- publishAttachments – Illustrates adding attachments to a template
- publishBlank – Illustrates publishing to a blank template

<installation_directory>\data\publish_3dpdf\templates\dynamic_templates

The following examples are available:

- publishBOM – Illustrates how to output an Assembly Bill of Materials
- publishMotion – Illustrates using CAD data with motion in PDF
- publishViewer – Illustrates JavaScript additions to a template replicating a CAD viewer

These templates are supplied as examples only and can be used by customers as a guide to creating their own template documents.

Theorem offer a wide range of services to assist customers with their document creation needs. If you would like more information regarding our template design services please contact sales@theorem.com quoting “3D PDF Template Design”.

Default Publishing

Publishing to Specific List of Templates

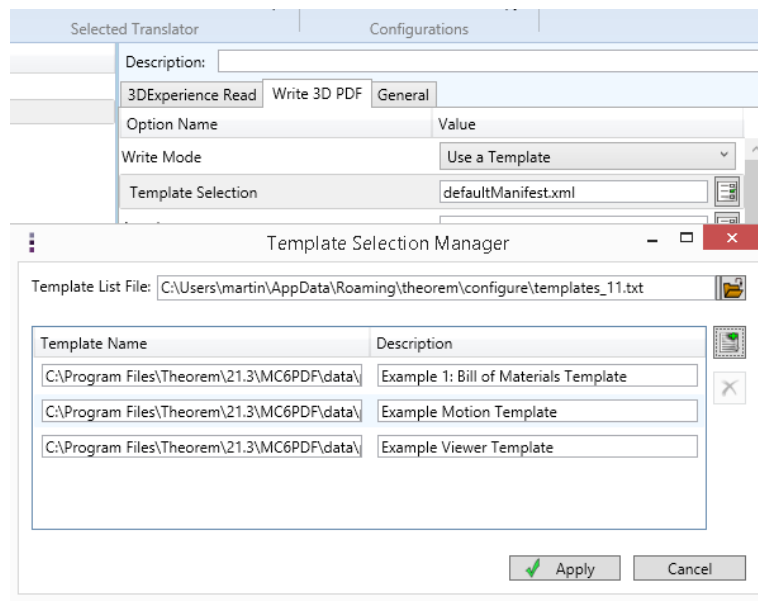
It is possible to publish to an individual or multiple templates via one translation run using the Configuration Manager. In order to do this, a new configuration will be required.

The Configuration Manager can be launched by double clicking the “<ts_inst>/bin/ConfigurationManager.cmd” or from the <Preferences><Infrastructure><Theorem> page (note this requires an additional license).

Description: <input type="text"/>	
3DExperience Read	Write 3D PDF General
Option Name	Value
Preferred Read Data Type	Exact
Read 3D Annotations	<input type="checkbox"/>
Read Captures	<input checked="" type="checkbox"/>
Read NOSHOW Entities	<input type="checkbox"/>
Read FTA Reference Geometry	<input type="checkbox"/>
Disable Points	<input type="checkbox"/>
Disable Axis Systems	<input type="checkbox"/>
Disable Wireframe	<input type="checkbox"/>
Disable Surfaces	<input type="checkbox"/>
Disable Solids	<input type="checkbox"/>
Read As Torus	<input type="checkbox"/>
Read As Cylinder	<input type="checkbox"/>
Read As Cone	<input type="checkbox"/>
Read As Conics	<input type="checkbox"/>
Export Body Names	<input type="checkbox"/>

The Configuration Manager allows new configurations to be created based upon ALL available arguments within the Publish 3D application. Selecting the New Configuration icon will allow the user to change any Publish 3D argument.

The panels below show the required selections to create a Configuration to create output based upon Multiple Templates (Note! The same method is used to target an individual template, by selecting only one template):

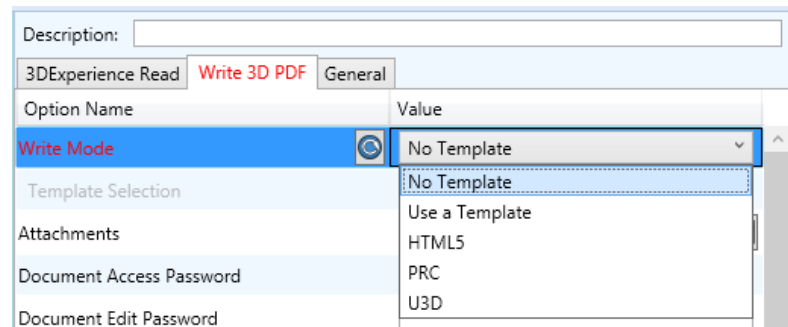


Once this has been done the configuration can be selected using the 'Infrastructure -> Theorem' option shown previously.

Publishing without a Template

Publishing without a Template – via the Configuration Manager

Running without a template will create a 3D PDF output file with no containing document. In order to do this via the *Configuration Manager*, navigate to the configuration manager as described, and from the 'Write Mode' option in the 'Write 3D PDF' tab, select 'No Template'. This configuration is now available for translation.



Publish 3D Customization

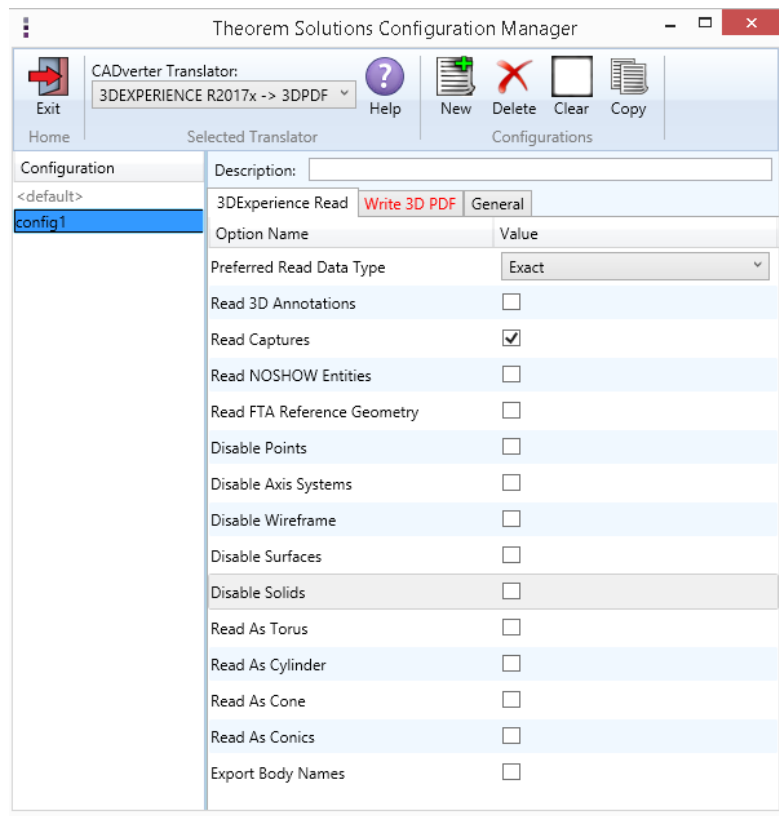
Publish 3D allows the information that is read from the source system and written to the target system to be tailored via a set of user specified arguments. Commonly used arguments are supported via the Configuration Manager, with Advanced Arguments being described within this document for use in the Configuration Manager or via the Command Line invocation.

Common Options for 3DEXPERIENCE Publishing

Within the Configuration Manager pane of the Configuration Manager, arguments that can be specified when publishing 3DEXPERIENCE data into 3D PDF are grouped into 4 areas:

- 3DEXPERIENCE Read – Those arguments that affect how data is read from 3DEXPERIENCE
- Write 3D PDF – Those arguments that affect how the data is written to 3D PDF
- Entity Masking – Those arguments that allow specific read entities to be masked
- General – Those arguments that are common to ALL Publishing activities regardless of source data

The image below shows the 3DEXPERIENCE Read arguments that are available, with their default settings:



Each of these options is described below:

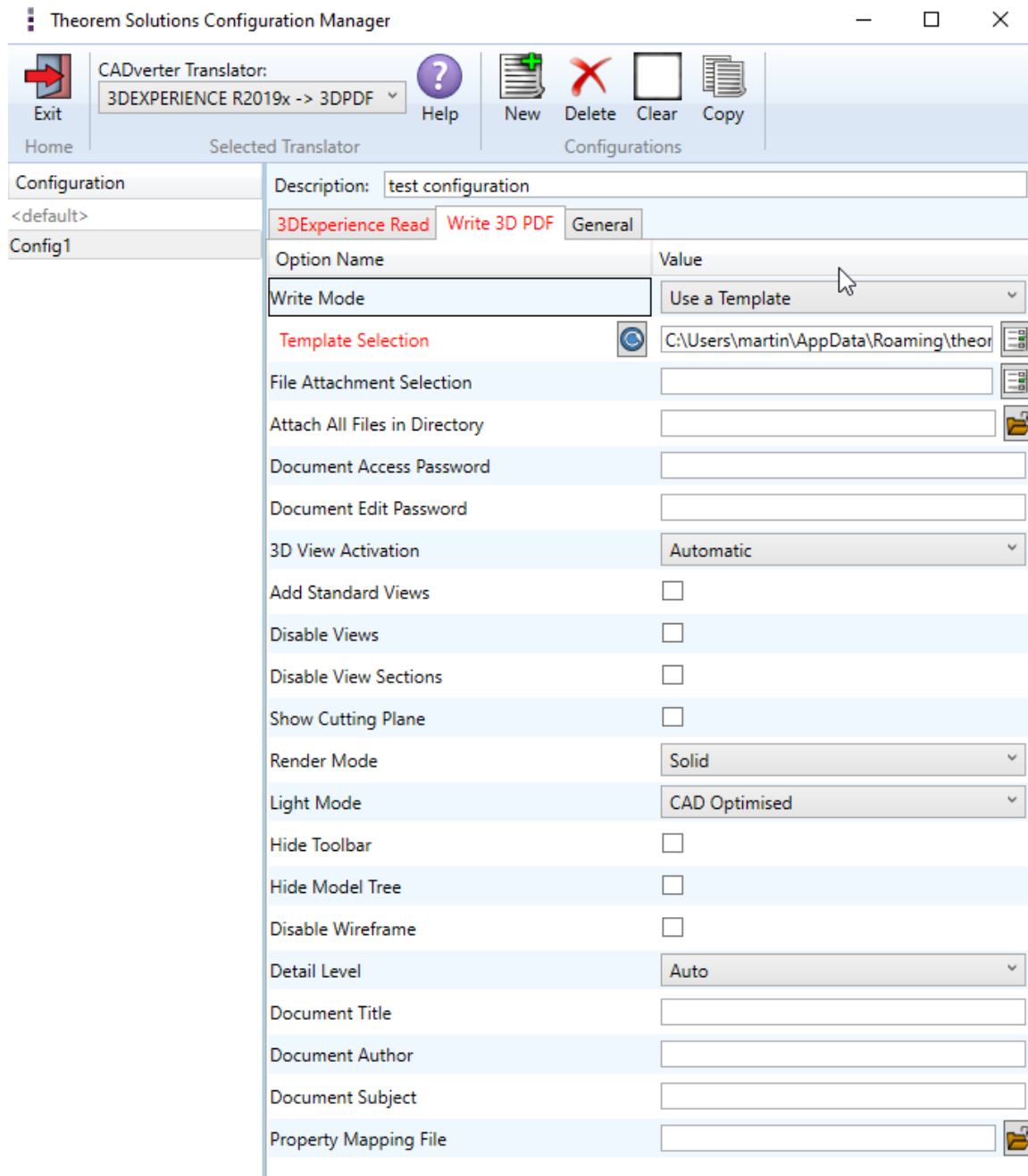
Option	Description
Preferred Read Data Type	The setting options are EXACT (default) or TESSELATED <ul style="list-style-type: none"> Command Line Syntax: <i>read_tess</i>

Read 3D Annotations	<p>Enables PMI data read from the V5 file. (<i>Default is OFF</i>).</p> <ul style="list-style-type: none"> ○ Command Line Syntax: <ul style="list-style-type: none"> ▪ <i>dont_read_pmi</i> – to turn off ▪ <i>read_pmi</i> – to turn on <p>Note! When '<i>read_pmi</i>' is enabled it also enables the '<i>fill_pmi_arrows</i>', '<i>fill_pmi_text</i>' and '<i>pmi_filled_text</i>' options. These can be overridden by setting the Advanced arguments: '<i>dont_fill_pmi_arrows</i>' and/or</p>
Read Captures	<p>A secondary argument to 'Read PMI' and allows the control over whether captures are read as part of the process. Default is ON when 'Read PMI' is marked as ON.</p> <ul style="list-style-type: none"> • Command Line Syntax: <ul style="list-style-type: none"> <i>read_captures</i> - default <i>dont_read_captures</i> – to turn off
Read NOSHOW entities	<p>Read any entities that are in NOSHOW. Default is to not read NOSHOW entities</p> <ul style="list-style-type: none"> • Command Line Syntax: <ul style="list-style-type: none"> <i>noshow</i>
Read FTA Reference Geometry	<p>Enables reading of FTA Reference Geometry (<i>Default is Off</i>)</p> <ul style="list-style-type: none"> • Command Line Syntax: <ul style="list-style-type: none"> <i>read_geometry</i> – to turn on
Disable Points	<p>Switches off Point processing</p> <ul style="list-style-type: none"> • Command Line Syntax: <ul style="list-style-type: none"> <i>disable_points</i>
Disable Axis Systems	<p>Switches off Axis System processing</p> <ul style="list-style-type: none"> • Command Line Syntax: <ul style="list-style-type: none"> <i>disable_axes</i>
Disable wireframe	<p>Switches off Wireframe processing</p> <ul style="list-style-type: none"> • Command Line Syntax: <ul style="list-style-type: none"> <i>disable_wireframe</i>
Disable Surfaces	<p>Switches off Surface processing</p> <ul style="list-style-type: none"> • Command Line Syntax: <ul style="list-style-type: none"> <i>disable_surfaces</i>
Disable Solids	<p>Switches off Solids processing</p> <ul style="list-style-type: none"> • Command Line Syntax: <ul style="list-style-type: none"> <i>disable_solids</i>
Read as Torus	<p>Read Toroidal surfaces in analytical form (default is NURBS)</p> <ul style="list-style-type: none"> • Command Line Syntax: <ul style="list-style-type: none"> <i>read_torus</i>
Read as Cylinder	<p>Read Cylindrical surfaces in analytical form (default is NURBS)</p> <ul style="list-style-type: none"> • Command Line Syntax: <ul style="list-style-type: none"> <i>read_cylinder</i>

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Read as Cone	Read Cone surfaces in analytical form (default is NURBS) <ul style="list-style-type: none"> Command Line Syntax: <i>read_cone</i>
Read as Conic	Read surfaces generated from a Conic in analytical form (default is NURBS) <ul style="list-style-type: none"> Command Line Syntax: <i>read_conics</i>
Export Body Names	Maintains body names for parts that consist of multiple bodies. <ul style="list-style-type: none"> Command Line Syntax: <i>body_names</i>

The image below shows the Write 3D PDF arguments that are available, with their default settings:



The screenshot shows the 'Theorem Solutions Configuration Manager' window. The 'CADverter Translator' is set to '3DEXPERIENCE R2019x -> 3DPDF'. The 'Write 3D PDF' tab is selected, showing various configuration options for the 3D PDF output.

Option Name	Value
Write Mode	Use a Template
Template Selection	C:\Users\martin\AppData\Roaming\theor
File Attachment Selection	
Attach All Files in Directory	
Document Access Password	
Document Edit Password	
3D View Activation	Automatic
Add Standard Views	<input type="checkbox"/>
Disable Views	<input type="checkbox"/>
Disable View Sections	<input type="checkbox"/>
Show Cutting Plane	<input type="checkbox"/>
Render Mode	Solid
Light Mode	CAD Optimised
Hide Toolbar	<input type="checkbox"/>
Hide Model Tree	<input type="checkbox"/>
Disable Wireframe	<input type="checkbox"/>
Detail Level	Auto
Document Title	
Document Author	
Document Subject	
Property Mapping File	

Each of these options is described below:

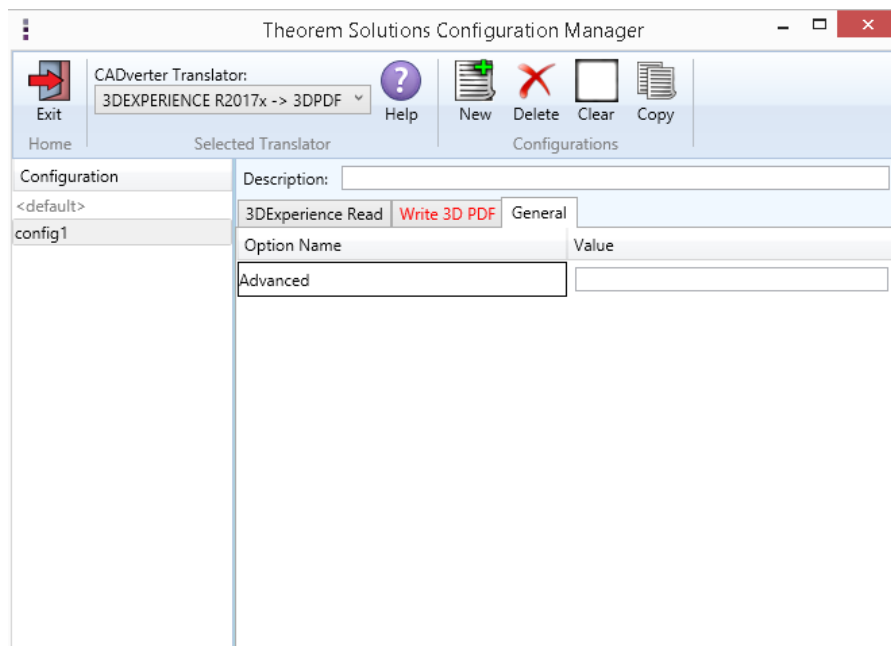
Option	Description
Write Mode	<p>Contains two options:</p> <ul style="list-style-type: none"> • Use a Template – Allows data to be published to a given template (<i>Default</i>) <ul style="list-style-type: none"> ○ Command Line Syntax: <ul style="list-style-type: none"> ▪ <i>Publish std <list of Manifest files></i> • No Template – No template will be used during publishing. If this option is selected, 'Template Selection' is excluded as an option. <ul style="list-style-type: none"> ○ Command Line Syntax: <ul style="list-style-type: none"> ▪ <i>Publish off</i>
Template Selection	<p>Select which templates Publish 3D will use to create the output 3D PDF, if Write Mode is set to <i>Use a Template</i> (<i>Default</i> = <i>defaultManifest.xml</i>)</p> <ul style="list-style-type: none"> • Command Line Syntax: <ul style="list-style-type: none"> ○ <i>This is a secondary argument to the publish command. The argument can be a single xml manifest file to a text file containing a list of manifest files</i>
Attachments	<p>This option allows files to be attached to the output PDF file together with a brief description of the selected files. (<i>Default</i> is for no files to be attached)</p> <ul style="list-style-type: none"> • Command Line Syntax: <ul style="list-style-type: none"> ○ <i>Attach_file <Attachment List></i> <i>Where Attachment_List is a list of full path names to file followed by an optional description line:</i> <i>e.g.</i> <pre> C:\TEMP\my_image.jpg This is a jpg Image C:\TEMP\report.txt Report Document C:\TEMP\related.pdf C:\TEMP\another.pdf This PDF has a description </pre> <i>Note in this example the 'Related.pdf' attached file doesn't have the optional comment.</i> <i>The file path may contain environment variables which will be resolved. e.g. %TEMP%/myFile.pdf</i>
Document Access Password	<p>Contains two options selectable via a checkbox:</p> <ul style="list-style-type: none"> • No Password – Specifies that no password will be used to encrypt the PDF Document (<i>Default</i>). If this option is selected Password is excluded as an option. <ul style="list-style-type: none"> ○ Command Line Syntax: <ul style="list-style-type: none"> ▪ <i>No entry required</i> • Use Password – Allow a password to be specified to encrypt the PDF document. If specified, the user will be prompted for the password to open the resultant PDF files <ul style="list-style-type: none"> ○ Command Line Syntax <ul style="list-style-type: none"> ▪ <i>password <password></i>

Password	<p>Specify what the password is to be used.</p> <ul style="list-style-type: none"> Command Line Syntax: <i>See Document Access Password - This is a secondary argument to this command.</i>
Document Edit Password	<p>Contains two options selectable via a checkbox:</p> <ul style="list-style-type: none"> No Password – Specifies that no password will be used to controls edits to the PDF Document (<i>Default</i>). If this option is selected Password is excluded as an option. <ul style="list-style-type: none"> Command Line Syntax: <ul style="list-style-type: none"> <i>No entry required</i> Use Password – Allow a password to be specified to controls edits to the PDF Document. <ul style="list-style-type: none"> Command Line Syntax: <ul style="list-style-type: none"> <i>permission_password <password></i>
Password	<p>Specify what the password is to be used.</p> <ul style="list-style-type: none"> Command Line Syntax: <i>See Document Edit Password - This is a secondary argument to this command.</i>
3D View Activation	<p>Controls when the 3D view is activated in the PDF document. Has 3 options:</p> <ul style="list-style-type: none"> Automatic – Activates when the page is opened. (<i>Default</i>) <ul style="list-style-type: none"> Command Line Syntax: <ul style="list-style-type: none"> <i>Activate_mode PAGE_OPEN</i> On Selection – Activates when the user clicks on the model. <ul style="list-style-type: none"> Command Line Syntax: <ul style="list-style-type: none"> <i>Activate_mode CLICK (default via the command line)</i> Page Visible – Activates when the page becomes visible to the user <ul style="list-style-type: none"> Command Line Syntax: <ul style="list-style-type: none"> <i>Activate_mode PAGE_VISIBLE</i>
Add Standard Views	<p>Add isometric views to the data being written to PDF (<i>Default is off</i>)</p> <ul style="list-style-type: none"> Command Line Syntax: <ul style="list-style-type: none"> <i>add_standard_views</i>
Disable Views	<p>Switch off any Captures/Views from being written into the PDF. (<i>Default is off</i>)</p> <ul style="list-style-type: none"> Command Line Syntax: <ul style="list-style-type: none"> <i>no_views</i>
Disable View Sections	<p>Switch off any sections within the Captures/Views from being written into the PDF. (<i>Default is off</i>)</p> <ul style="list-style-type: none"> Command Line Syntax: <ul style="list-style-type: none"> <i>no_sections</i>
Show Cutting Plane	<p>Enable cut plane visualization. (<i>Default is off</i>)</p> <ul style="list-style-type: none"> Command Line Syntax: <ul style="list-style-type: none"> <i>cutplane_on</i>

Render Mode	<p>Controls which Rendering Mode to use for the model. Options are:</p> <ul style="list-style-type: none"> • Solid (<i>Default</i>) • Transparent • Wire • Illustrated • Outline • Shaded <ul style="list-style-type: none"> ○ Command Line Syntax: <ul style="list-style-type: none"> ▪ <i>Render_mode <mode></i> Where mode is set to one of the above values
Light Mode	<p>Controls which Light Mode to use. Options are:</p> <ul style="list-style-type: none"> • Default • Off • Day • Bright • Prim • Night • Blue • Red • Cube • Head <ul style="list-style-type: none"> ○ Command Line Syntax: <ul style="list-style-type: none"> ▪ <i>light_mode <mode></i> Where mode is set to one of the above values. Note! No command is required for the default value.
Hide Toolbar	<p>Hide the 3D Toolbar in the resultant document. This can be re-enabled in Adobe if required. (<i>Default is off</i>)</p> <ul style="list-style-type: none"> ○ Command Line Syntax: <ul style="list-style-type: none"> ▪ <i>hide_toolbar</i>
Hide Model Tree	<p>Hide the Model Tree in the resultant document. This can be re-enabled in Adobe if required. (<i>Default is off</i>)</p> <ul style="list-style-type: none"> ○ Command Line Syntax: <ul style="list-style-type: none"> ▪ <i>hide_model_tree</i>
Fill PMI Text	<p>Create filled fonts for PMI (<i>Default is off</i>)</p> <ul style="list-style-type: none"> ○ Command Line Syntax: <ul style="list-style-type: none"> ▪ <i>pmi_filled_text on</i>
Disable Wireframe	<p>Disable Wireframe Processing (<i>Default is to Enable Wireframe processing</i>)</p> <ul style="list-style-type: none"> ○ Command Line Syntax: <ul style="list-style-type: none"> ▪ <i>process_wf off</i>
Detail Level	<p>The Detail Level option can be used to set the render quality of the resultant 3D PDF output. A number of discrete values are made available via the UI. They correspond to a relative chordal deviation (% of the diagonal length across the model bounding box) or absolute</p>

	<p>chordal deviation, whichever is the smaller. The following options are available:</p> <ul style="list-style-type: none"> • Auto (Corresponds approximately to High) • Very High (relative = 0.0001%, absolute = 0.001mm) • High (relative = 0.001%, absolute = 0.01mm) • Medium (relative = 0.01%, absolute = 0.1mm) • Low (relative = 0.1%, absolute = 1mm) • Very Low (relative = 0.5%, absolute = 5mm) • Ultra_Low (relative = 2.0%, absolute = 25mm) <ul style="list-style-type: none"> ▪ for very large plant data <p>For very large (detailed) parts the use of this option (Low or Very Low) can significantly reduce the size of the output PDF file and the time taken to produce it, at the cost of quality.</p> <p>A setting of Medium is seen as a good compromise, between quality and size. This value is the default value.</p> <ul style="list-style-type: none"> ○ Command Line Syntax: <ul style="list-style-type: none"> ▪ <i>lod_level <value></i> <p>Where <i>value</i> = ultra_low, v_low, low, med, high, v_high, off</p>
Document Title	<p>Set the Document Properties 'title' field.</p> <ul style="list-style-type: none"> ○ Command Line Syntax: <ul style="list-style-type: none"> ▪ <i>doc_description_title <text></i> <ul style="list-style-type: none"> • the text should be quoted
Document Author	<p>Set the Document Properties 'author' field</p> <ul style="list-style-type: none"> ○ Command Line Syntax: <ul style="list-style-type: none"> ▪ <i>doc_description_author <text></i> <ul style="list-style-type: none"> • the text should be quoted
Document Subject	<p>Set the Document Properties 'subject' field</p> <ul style="list-style-type: none"> ○ Command Line Syntax: <ul style="list-style-type: none"> ▪ <i>doc_description_subject <text></i> <ul style="list-style-type: none"> • the text should be quoted
Property Mapping file	<p>Map CAD properties using a mapping file</p> <ul style="list-style-type: none"> ○ Command Line Syntax: <ul style="list-style-type: none"> ▪ <i>cad_prop_map_file <file></i>

The image below shows the General arguments that are available, with their default settings:



Each of these options is described below:

Command Line Advanced Arguments

Any of the Advanced arguments can be added to the Command Line Invocation or to the General->Advanced field of the configuration file.

3DEXPERIENCE Advanced Arguments

Argument	Description
convert_curves	Converts curves to NURBS form
convert_surfaces	Converts surfaces to NURBS form
dont_fill_pmi_arrows	Disables the read of filled arrow information (default for <i>'read_pmi'</i>)
dont_fill_pmi_text	Disables the read of filled text information (default for <i>'read_pmi'</i>)
dont_read_captures	Disables the read of PMI Capture information (default for <i>'read_pmi'</i>)
face_opacity	Read face opacity
no_face_colour	Sets the default to SOLID colours
noshow noshow_geom noshow_struct noshow_pmi	Reads hidden geometry / structure / pmi
output_mbd	Allows sub-part specification tree information to be read and presented to 3D PDF as product structure information. This option also enables the <i>'part_level_views'</i> and <i>'part_level_pmi'</i> 3D PDF options
read_geometry_edges	3DEXPERIENCE has a display mode that allows the display of shaded surfaces and edges. This option allows the translator to mimic this for FTA construction geometry by promoting the edge curves to standalone wireframe.

3D PDF Advanced Arguments

Argument	Description
<i>use_part_names <on/off></i>	When 'on' the 3DGeom node names are replaced by the TAG name from the detail (part name). Default is off.
<i>progress_file <filename></i>	Specify the log file for this process.
<i>info</i>	Add 'info' messages to the log file.
<i>no_inst_colours</i>	Switch off the writing of instance colours.
<i>no_colours</i>	Switch off the writing of any colours.
<i>no_attrs</i>	Switch off the writing of attributes into the PDF.
<i>no_pmi_edge_associations</i>	Disables edge highlighting
<i>no_poster</i>	By default a 2D poster is generated from the 3D model which can be very time consuming for a complex model. This option disables that process and uses a default JPG called TS_INST\\data\\saveas_3dpdf_images\\no_poster.jpg . The user could replace this JPG file with their own if desired.
<i>background_RGB <r g b></i>	Where r g b are values 1 to 255, this controls the background colour of the 3D display, which now defaults to pale grey (204,204,204).
<i>pmi_RGB <r g b></i>	Where r g b are values 1 to 255, this controls the override PMI colour. By default PMI is displayed in the same colour as the source CAD system. When a colour is not read the default will be black. This option allows the PMI colour to be fixed to any colour, clearly this is a single override colour for all PMI.
<i>pmi_flat_to_screen <on/all/off></i>	This option enables the processing of flat to screen PMI data, the default is off. Please note fonts are not currently supported 'on' allows for FLAT TO TEXT types to be processed 'all' allows all FLAT TO SCREEN types to be process, however only the text and NOT the frames are processed

wireframe_RGB <r g b>	<p>Where r g b are values 1 to 255, this controls the override PMI colour.</p> <p>By default wireframe is displayed in the same colour(s) as the source CAD system. This option allows the wireframe colour to be fixed to any colour, clearly this is a single override colour for all PMI.</p>
process_wf <value>	<p>Where value = tess_low,tess_med,tess_high, nurb or off</p> <p>When this option is selected the wireframe entities are written as lines/conic/nurbs. This results in a wire node for each entity contained under the Wireframe node in the model tree, there could be many wire nodes in a complex model.</p> <p>If any of the settings prefixed tess are used, these options convert wireframe into a number of sampled points on the curve and writes wireframe as a Poly Line, this allows many wires to be combined. However a Poly Line can only be a single colour, so wireframe of the same colour will be grouped into a Poly Wire, which will be a wire node contained under the Wireframe node in the model tree, there will be a wire node for each colour, when multi colours exist.</p> <p>If however all wireframe is the same colour, all wireframe is contained in the Wireframe node.</p>
attr_filter_file <filter file>	<p>This is a method to define which attributes are masked or included during translation.</p> <p>By default there is an attribute filter file installed at: %TS_INST%\ data\publish_3dpdf\attrFilters\defaultAttrFilter.txt</p> <p>This command line option allows this file to be overridden, such that the named file is used instead of the default.</p> <p>The file format (in blue) is best explained by means of examples :</p> <p>MPARTNAME,,0,,, (Delete MPARTNAME attribute) FILENAME,F I L E (name),1,,, (Rename 'FILENAME' to 'F I L E (name)') FILESIZE,,3,big,, (Default (always) FILESIZE value to big) *END,,0,,, (Delete all attributes that end with 'END') Theorem*,,0,,, (Delete all attributes that start with 'Theorem')</p>

<i>dump_attr_file <file></i>	This is a utility which can be used to generate a text file with the Key/Value pairs from the GCO DESIGN,DITTO and DETAIL entities, this can be used in the 'design' of templates.
<i>hide_empty_node</i>	<p>When assembly nodes contain no geometry, (could be due to missing part files) this option results in the model tree with 'un-ticked' nodes where no geometry was read. Where the 3DGeom node would be there will be a NoGeom node.</p> <p>Please note in order to activate this behaviour it was necessary to add a point at 0,0,0 which is contained by the NoGeom node.</p>
<i>compress_tess <value></i>	<p>Where value = v_low, low,med,high,v_high,off</p> <p>These options can be used to control the tessellation setting, using the values 10, 25, 50, 75, 90%. These compression settings apply ONLY to PRC/U3D output files.</p>
<i>add_standard_views_1st</i>	Force views to be first angle projection regardless of source data
<i>add_standard_views_3rd</i>	Force views to be third angle projection regardless of source data
<i>attach_files_in_dir <dir></i>	Attach ALL file found in specified directory
<i>add_meta_data <default or <file>></i>	<p>Option to append the attributes in PDF with useful data, like part count, which can be consumed by the templates.</p> <p>default - just add part count</p> <p><file> - add the part count and process the file, such that 3 lines are processed</p> <pre> part_name // matches the detail (part name) attr_name // name of attribute to be added attr_value // value of the attribute to be added </pre>
<i>move_subassy_pmi <on/off/all></i>	Move the sub assy PMI to top level. "all" will reposition all PMI into global space which can be used for true assemblies

<i>copy_part_attrs <on/off></i>	Attributes on parts can be copied onto instance nodes with this option (default is off). <i>(The user can enable <code>dump_attr_file <file></code> option to confirm what attributes are available on part/instances, to check the effect of this option)</i>
<i>cutplane_capping_off</i>	Disable section capping (Default is on)
<i>cutplane_RGB <r g b></i>	When section cutting planes are enabled, the cutting plane colour can be controlled by r g b values in the range of 1 to 255
<i>cutplane_opacity <val></i>	When section cutting planes are enabled, the cutting plane opacity can be specified by setting 'val' between 0.0 and 1.0
<i>cutplane_intersections</i>	Section cutting intersections can be enabled via this option. (Default is off)
<i>cutplaneIS_RGB <r g b></i>	When section cutting plane intersections are enabled, the cutting plane intersection colour can be controlled by r g b values in the range of 1 to 255
<i>enable_brep</i>	By default BREP data is omitted when the PDF file is generated so this options allows for such data to be retain. Do not use this option when the generation of BREP data in PDF is forbidden for legal or commercial reasons.
<i>fixup</i>	There are occasions when the source data presented for publishing to 3D PDF is invalid. In these circumstances, a validation of the data is carried out by the translator and the user is advised, via a message to the screen to re-run the translator, specifying the ' <i>fixup</i> ' command line option. Specifying this option will allow the translation to complete, omitting any faces that are not topologically correct.
<i>fix_inst_names <on/off></i>	By default this option is on. It will detect instances with no names and apply the part name to those instances. This accommodates cases where instance names are not available in the source data.
<i>launch_adobe_viewer</i>	This option will automatically display the resulting PDF file in an Adobe Reader. The environment variable TS_CMD_PATH_AND_EXE can be used to specify the Adobe application if it isn't found in a default location.
<i>group_solids</i>	<p>This can be useful when data is created with many open solids (1 per face). This can result in many 100's or even 1000's of solids which causes the 3D PDF file to have a massive entity tree, to be slower and larger than necessary, and with a Bounding Box for each face.</p> <p>Setting this option groups the solids into logical entities.</p>
<i>dont_group_solids</i>	Some systems will group solids by default so this option allows that setting to be disabled.

<i>invisible <on or off></i>	Wireframe entities that are marked as invisible are by default NOT processed. This option allows them to be processed.
<i>pmi_assoc_limit <off or n></i>	<p>This option is used to limit the number of PMI to Geometry associations that exist for any single PMI node. The default value being 500.</p> <p>It has been found that in rare cases many 1000's of associations exist and this has a significant effect on the translation time. If the limit is exceeded the log file reports the PMI entities names and reports an error, allowing the user to modify the limit, or review the PMI's validity.</p>
<i>part_level_views</i>	Enable the processing of Part Level Views within an assembly. (off by default)
<i>part_level_pmi</i>	Enable the processing of PMI on parts within an assembly (off by default)
<i>set_perm <text option></i>	<p>Set the permissions for the PDF file, the options being "PRINT" or "LOCK", if no options are set then the create PDF file is fully open, the "PRINT" setting allows the file ONLY to be printed, the "LOCK" setting ensure the document cannot be modified.</p> <p>(Be aware that with Adobe Writer it is possible to override any permission setting).</p>
<i>set_perm_mask <int value></i>	<p>This allows the full control of all the permission settings when creating a PDF file, the in values need to be logically ORed together so 0x2 and 0x1 become 3. values are 0xHex (decimal)</p> <p>0x01 (1) - DocumentPermOpen The user can open and decrypt the document.</p> <p>0x02 (2) - DocumentPermSecure The user can change the document's security settings.</p> <p>0x04 (4) - DocumentPermPrint The user can print the document. Page Setup access is unaffected by this permission, since that affects Acrobat's preferences - not the document's. In the Document Security dialog, this corresponds to the Printing entry.</p> <p>0x08 (8) - DocumentPermEdit The user can edit the document more than adding or modifying text notes (see also DocumentPermEditNotes). In the Document Security</p>

dialog, this corresponds to the Changing the Document entry.

0x10 (16) - **DocumentPermCopy** The user can copy information from the document to the clipboard. In the document restrictions, this corresponds to the Content Copying or Extraction entry.

0x20 (32) - **DocumentPermEditNotes** The user can add, modify, and delete text notes (see also DocumentPermEdit). In the document restrictions, this corresponds to the Authoring Comments and Form Fields entry.

0x40 (64) - **DocumentPermSaveAs** The user can perform a Save As.... If both DocumentPermEdit and DocumentPermEditNotes are disallowed, Save will be disabled but 'Save As...' will be enabled. The 'Save As...' menu item is not necessarily disabled even if the user is not permitted to perform a Save As...

0x100 (256) - **DocumentPermFillandSign** Overrides other DocumentPerm bits. It allows the user to fill in or sign existing form or signature fields.

0x200 (512) - **DocumentPermAccessible** Overrides DocumentPermCopy to enable the Accessibility API. If a document is saved in Rev2 format (Acrobat 4.0 compatible), only the DocumentPermCopy bit is checked to determine the Accessibility API state.

0x400 (1024) - **DocumentPermDocAssembly** Overrides various DocumentPermEdit bits and allows the following operations: page insert/delete/rotate and create bookmark and thumbnail.

0x800 (2048) - **DocumentPermHighPrint** This bit is a supplement to DocumentPermPrint. If it is clear (disabled) only low quality printing (Print As Image) is allowed. On UNIX platforms where Print As Image doesn't exist, printing is disabled.

0x8000 (32768) - **DocumentPermOwner** The user is permitted to perform all operations, regardless of the permissions specified by the document. Unless this permission is set, the document's permissions will be reset to those in the document after a full save.

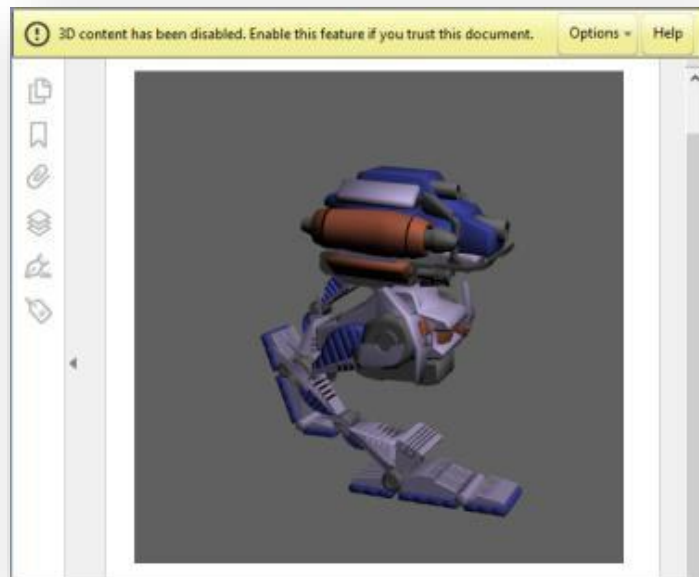
	<p>0x10000 (65536) - DocumentPermFormSubmit This should be set if the user can submit forms outside of the browser. This bit is a supplement to DocumentPermFillandSign.</p> <p>0x20000 (131072) - DocumentPermFormSpawnTempl This should be set if the user can spawn template pages. This bit will allow page template spawning even if DocumentPermEdit and DocumentPermEditNotes are clear.</p> <p>0xFFFFFFFF - All permissions.</p>
<i>expand_part</i>	<p>This option creates a pseudo assembly structure below a part, such that each solid is modelled by a separate node. The default is to combine all solids that belong to the same part.</p> <p>Using this option can be useful when control over part with multiple solids is required, e.g. view/hide separate solids, however it should be noted that this option may compromise other functionality, such a PMI association.</p>
<i>zoom_views_x <value></i>	<p>This option will magnify the view by the value provided, this is defaulted to 2.0 for all CAD systems.</p> <p>Values < 1.0 zoom out and values > 1.0 zoom in.</p> <p>The purpose of this option is to expose an adjustment factor that a given CAD system might need to best fit the VIEWS in PDF, this may be affected by the aspect ratio of the page size/template used in PDF write.</p> <p>Every effort has been made to set a good value by default.</p>
<i>optimize_save off</i>	<p>By default the PDF will be automatically optimized to make the file smaller. This disables the optimization feature.</p>
<i>image_dir <directory></i>	<p>Import images into a template from a directory.</p>

<p><i>axis_systems</i> <i><on>/<size in mm></i> <i>with default being 25mm</i></p>	<p>Enables the output of axis systems to the PDF.</p>
<p><i>ts_cfile</i></p>	<p>This option allows command line arguments to be placed in a text (command) file, with one command or option line per line, for example :</p> <p>attach_files C:\TEMP\attach_file_list.txt info no_pmi</p>

Please note! that the progress_file <file> option cannot be added into the command file, because the progress file is opened before the command file is read.

Security Changes to Adobe Reader PDF Documents

Adobe have implemented new security options to disable the auto-play of 3D content in PDF files. The following banner will be displayed upon opening a PDF file that contains 3D content:



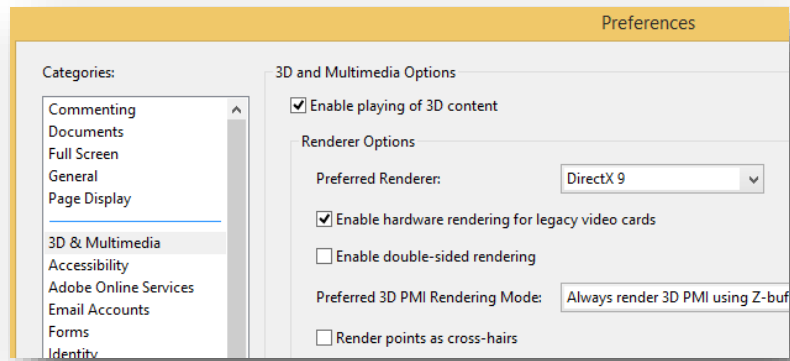
To enable 3D content in the current document:

Click the Options button and then select an appropriate option:

- Trust this document one time only
- Trust this document always

To enable 3D content permanently in ALL documents:

- Go to Edit > Preferences > 3D & Multimedia and then select the Enable playing 3D content checkbox



CATIA 3DEXPERIENCE Environment Files

As part of the Theorem installation process, a set of CATIA 3DEXPERIENCE environment files are created which are subsequently used in the launch of 3DEXPERIENCE and CATUtil sessions to support the Theorem partner plug-ins for JT import and export.

A 'CATEnv' file is created for each installed version of CATIA 3DEXPERIENCE.

These environment files are located in

<install_directory>\B419\win_b64\ CATenv\Theorem_Multi-CAD_3DPDF_CATIAV6R2017x.txt

Translating in Batch using CATUtil – PLMBatchDataExchange

The Dassault Systemes CATUTIL batch management tool can be launched with the correct Theorem enabled environment using the scripts provided in the Translator installation at:

`<installation_directory>\bin\start_CATUTIL_Theorem_Multi-CAD_JT_CATIAV6R<revision>.cmd`

(where [revision] should be substituted for the version of 3DEXPERIENCE that you have installed – e.g. 2013x, 2014x, 2015x, 2016x)

The settings made in the user options page “MultiCAD PDF” described in the interactive usage above, are also used in BATCH mode.

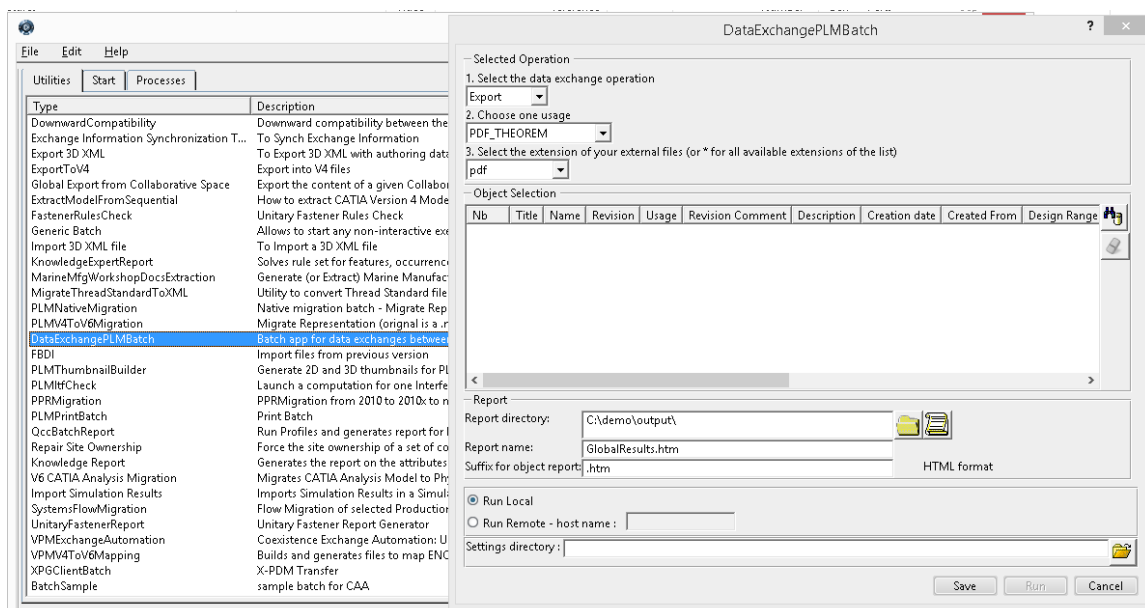
In some cases, it may be desirable to ignore the interactive settings while running in batch mode.

This can be achieved by setting the following variable in the CATIA Environment being used:-

`TS_IGNORE_JT_CATSETTINGS=1`

Batch Export to PDF

Here is an example showing the appropriate settings in preparation for an export “save” or “run”:-



Note selection of “Export” operation, usage “PDF_THEOREM” and extension “pdf”.

Log File Generation

Export process Log Files

In the process of exporting the selected CATIA 3DEXPERIENCE part or assembly, the following log files are generated by the JT Export plug-in.

The process log and error messages are recorded in a '.err' file located in the CATIA 3DEXPERIENCE CATReport directory. The file is named after the active CATIA component.

e.g. %CATReport%\model1.err

Additional log files are created in the TSC_TEMP_DIR directory. This directory is defined in the %TS_INST%\ts_env.bat file.

%TSC_TEMP_DIR%\Read_to_viewer_<input_part_name>.log

Where: <input_part_name> is the name of the input part (or the active part name in interactive usage)

This contains information describing the CATIA 3DEXPERIENCE 'data read' processing into Theorem Intermediate data format

%TSC_TEMP_DIR%\viewer_<part-name>_screen_output.log

Where <part-name> is the selected output file name

This contains the screen output of the process of writing the data to PDF.

%TSC_TEMP_DIR%\viewer_<part-name>.log

Where <part-name> is the selected output file name

This contains detailed process information of the write of the data to PDF.

Appendix A – Job Files

Batch Processing

As part of the development of Large Assembly Processing, a new batch processing utility has been created for 3DEXPERIENCE V6 CATIA export to Creo View.

This runs as a command line executable which requires the following inputs:-

<TS_INST>\bin\catia6R2017X_pdf.cmd <input_file> <output_path <output_file>

Where:-

<TS_INST>

is the Theorem Solutions software installation directory.

<input_file>

is an xml file defining the access to a specific object in a specified 3DEXPERIENCE PLM database.

This file provides user login details (V6R2017x) or a Login Ticket (2017x), to a specified Enovia repository plus a set of 3 attribute names and values which will uniquely identify the input PLM object of the conversion.

Here is an example of the xml input file for 3DEXPERIENCE V6 R2017x:-

```
<?xml version="1.0" encoding="utf-8"?>

<mc6_read>
  <!-- parameters must be in this ORDER -->
  <!-- parameters only the value passed to V6 -->
  <parameters>
    <attribute name="repository" value="PLM1"/>
    <attribute name="ServerName" value="3dspace.2017x.theorem.com"/>
    <attribute name="ServerPort" value="447"/>
    <attribute name="ServerRootURI" value="3dspace"/>
    <attribute name="LoginTicket"
value="QzdBRTA4NzEzNOI5NDRFNTIFRTUOM0RFMDRFRDc1N0N8Um9iaW4xNnh8Um
9iaW4xNnh8fHwwfA==" />
    <attribute name="PLMType" value="VPMReference"/>
    <attribute name="ReportDirectory" value="C:\TEMP\V6Export"/>
    <attribute name="LicenseData" value="LIC"/>
    <attribute name="BatchXMLFileName" value="Default"/>
  </parameters>
  <!-- arguments both key and value are passed to V6 -->
  <arguments>
    <attribute key="PLM_ExternalID" value="sprd-49550079-00000063"/>
    <attribute key="V_version" value="A"/>
    <attribute key="minorrevision" value="1"/>
  </arguments>
</mc6_read>
```


Appendix B – Creating a Login Ticket

Use a browser link (similar to the one below) to your 3DExperience Server

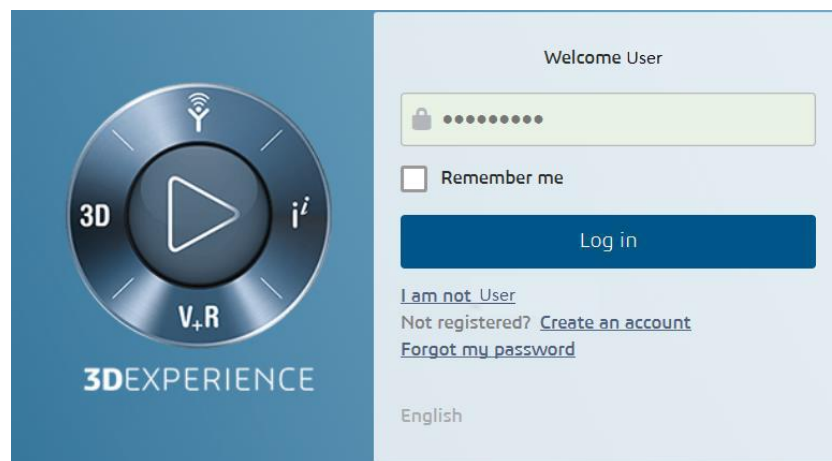
<https://3dspace.2018x.theorem.com:447/3dspace/common/emxNavigator.jsp>

<https://3dspace.2019x.theorem.com:447/3dspace/common/emxNavigator.jsp>

<https://3dspace.2020x.theorem.com:447/3dspace/common/emxNavigator.jsp>

<https://3dspace.2021x.theorem.com:447/3dspace/common/emxNavigator.jsp>

A page will appear in the browser

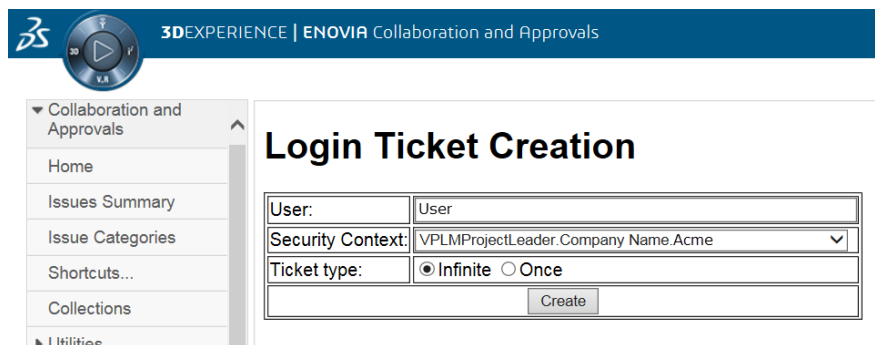


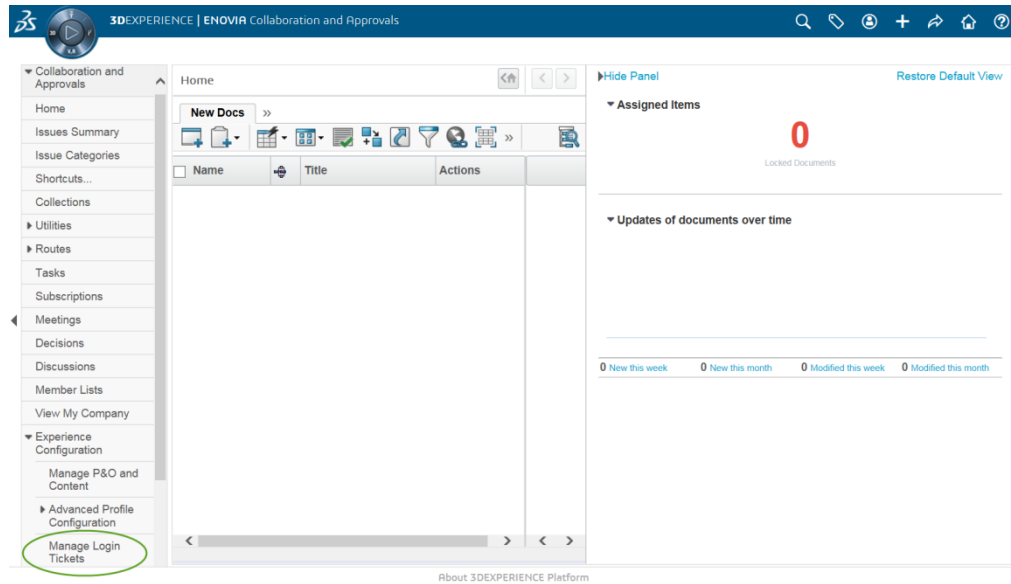
Login as normal, e.g.

User

Password

Select Collaboration and Approvals > Experience Configuration > Manage Login Tickets





Select the values required for your user:

User and Security Context should already be set, make sure that Ticket Type: Infinite is selected. Then click on 'Create'

"Create" will produce the ticket:-

REEyNzM3STE1MER2NDgxQzIFNzk1QzlwNjZGNATzDAN8Um9iaW58Um9iaW58fHwwfA==

This can then be used as the 'LoginTicket' value in the job xml file described in Appendix A