Aras 3D Visualization 12.0R2

CAD to PDF Converter Setup Guide

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Table of Contents

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Document Conventions

The following table highlights the document conventions used in the document:

Table 1: Document Conventions

Convention	Description
Bold	This shows the names of menu items, dialog boxes, dialog box elements, and commands. Example: Click **OK**.
`Code`	Code examples appear in `courier` font. It may represent text you type or data you read.
`Yellow highlight`	Code highlighted in yellow draws attention to the code that is being indicated in the content.
`Yellow highlight with red text`	Red text highlighted in yellow indicates the code parameter that needs to be changed or replaced.
Italics	Reference to other documents.
Note:	Notes contain additional useful information.
Warning	Warnings contain important information. Pay special attention to information highlighted this way.
Successive menu choices	Successive menu choices may appear with a greater than sign (-->) between the items that you will select consecutively. Example: Navigate to **File** --> **Save** --> **OK**.

1 Overview

The Aras Innovator Conversion Server is a framework to manage file conversion processes used to transform native files into other viewable formats, such as TIFF or PDF.

This document describes the installation of the Aras CAD to PDF Converter, which you can use to convert CAD Native Files to PDF and PNG viewable files.

2 Configuring CAD to PDF Converter Installation

The installation process creates a default configuration for CAD to PDF Converter. For installation details, refer to the *Aras 3D Visualization – Installation Guide*.

The following section explains the command arguments. Any outputs not required by your implementation can be removed from the command arguments.

2.1 Out of the Box Setup

When Aras 3D Visualization is installed, the following OOTB setup is used in `ConversionServerConfig.xml` file.

```
<ConverterSettings>
       <ArasCadConverter>
          <Application converterPath="C:\HOOPS_Converter\bin\converter.exe"/>
          <Command arguments="--sc_compute_bounding_boxes 'All' --
input_pdf_template_file 'C:\HOOPS Converter\templates\Blank_Template_L.pdf' --
output_pdf '%filepath%\%filename%.pdf' --output_png '%filepath%\%filename%.png' --
output_png_resolution '150x150' --output_scs '%filepath%\%filename%.scs' --
output_xml_assemblytree '%filepath%\%filename%.xml' --output_prc
'%filepath%\%filename%.prc' --background_color '1.0, 1.0, 1.0' --output_logfile
'%filepath%\%filename%'" />
<Output>
        <UploadToVault>
          <File extension="prc" argsMarkers="--output_prc" />
          <File extension="scs" argsMarkers="--output_scs" />
          <File extension="pdf" argsMarkers="--output_pdf" />
          <File extension="png" argsMarkers="--output_png" />
          <File extension="stl" argsMarkers="--output_stl" />
          <File extension="xml" argsMarkers="--output_xml_assemblytree" />
        </UploadToVault>
</Output>
<AssemblyCommand dynamicEnabled="True" arguments="--sc_compute_bounding_boxes 'All'
--input_pdf_template_file 'C:\HOOPS Converter\templates\Blank_Template_L.pdf' --
output_pdf '%filepath%\%filename%.pdf' --output_png '%filepath%\%filename%.png' --
output_png_resolution '150x150' --output_scs '%filepath%\%filename%.scs' --
output_xml_assemblytree '%filepath%\%filename%.xml' --output_prc
'%filepath%\%filename%.prc' --background_color '1.0, 1.0, 1.0' --output_logfile
'%filepath%\%filename%'" />
       </ArasCadConverter>
<ArasCadConverterPrc>
          <Application converterPath="C:\HOOPS_Converter\bin\converter.exe"/>
          <Command arguments="--output_scs '%filepath%\%filename%.scs' --
output_xml_assemblytree '%filepath%\%filename%.xml' --output_logfile
'%filepath%\%filename%.log'" />
        <UploadToVault>
          <File extension="prc" argsMarkers="--output_prc" />
          <File extension="scs" argsMarkers="--output_scs" />
          <File extension="pdf" argsMarkers="--output_pdf" />
          <File extension="png" argsMarkers="--output_png" />
          <File extension="stl" argsMarkers="--output_stl" />
          <File extension="xml" argsMarkers="--output_xml_assemblytree" />
        </UploadToVault>
```

```
      </Output>
</ArasCadConverterPrc>
   </ConverterSettings>
```

2.2 Customization Options

The following table describes the command arguments that should be used. Any outputs not required by your implementation can be removed from the command arguments.

Table 2: Conversion Command-line Arguments

Command-line Argument	Required	Description
--sc_compute_bounding_boxes	True	Used to position the camera in the viewer and prioritize the rendering order of an assembly. The bounding box information will be extracted from the native CAD file.
--input_pdf_template_file	False	Required only if generating PDF viewable files for the Item.
--output_pdf	False	Required only if generating PDF viewable files for the Item.
--output_png	True	Used to produce a thumbnail image for the Item.
--output_scs	True	Enables the monolithic and dynamic viewers.
--output_xml_assemblytree	True	Required to map 3D component geometry.
--output_prc	False	Required only if generating PRC files for the Item, which may be used for industry standard archival purposes.
--background_color	True	Used for the background color for thumbnail images (png) and the 3D PDF. Default is black. However, a background color other than white may affect the display of the image in the Item Form.
--output_logfile	False	If provided, the name of the log file where the HOOPS Converter will write error and warning messages.

Please see the included documentation for a complete description of available parameters and their functions: `\HOOPS_Converter\Documentation\online_docs.html`

3 Using Legacy View Files

The most recent version of the 3D Viewing and Translation software does not require users to convert their existing HWF view files. Aras PLM provides backward compatibility in both the data model and viewing features. There is a new viewer in HOOPS Communicator 2017 that gives users the ability to convert legacy HWF View files to the new Stream Cache Single (SCS) file format using an automated, asynchronous process. CAD items can either use the legacy HWF format or the SCS format.

3.1 Preference Settings

Users can choose to always display legacy HWF files instead of converting them to SCS by selecting the **Use Legacy 3D View Files** checkbox on the Secure Social tab.

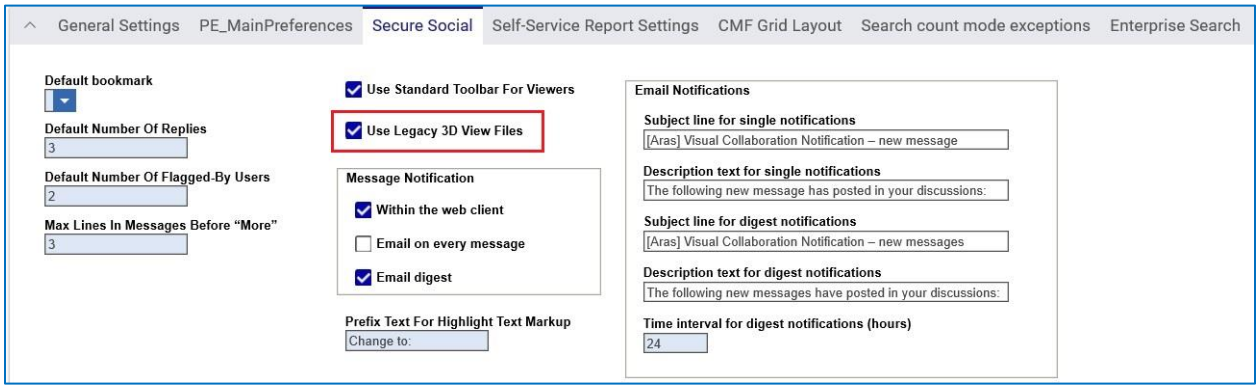

Figure 1.

The process for viewing and converting files are based on the following:

- The value of the Preference setting.
- The existence of a PRC file.
- The existence of an SCS file.

PRC files are created by default as part of the standard conversion server settings.

3.2 Converting Legacy View Files

The conversion process for legacy view files begins when a user asks to view a CAD document or a Part with a related CAD document that includes a legacy view file (HWF). The following figure describes the process.

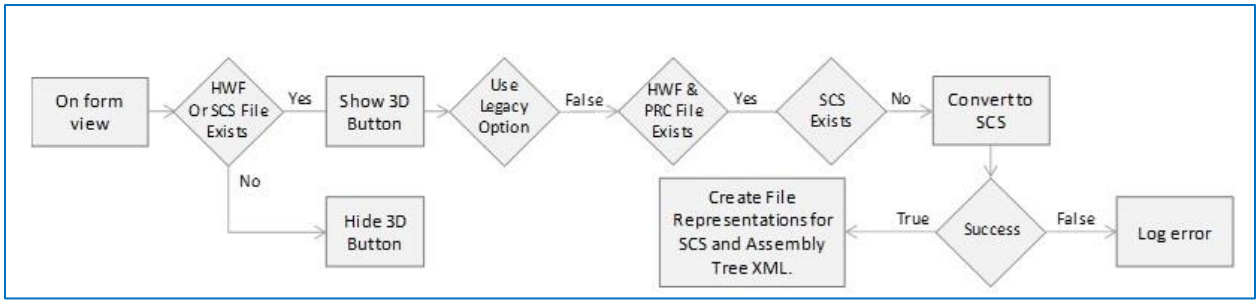

Figure 2.

The existence of an HWF or SCS file determines whether the 3D Viewer can be opened. If it can, a button appears in the sidebar enabling users to open the viewer. If either of these files do not exist, the user is unable to open the 3D Viewer. The value of the preference setting and the existence of an SCS file determines whether it is necessary to convert the file. If the following conditions exist, an ad hoc, asynchronous conversion process starts:

- The Preference setting is False.
- HWF and PRC files exist.
- An SCS file has not been created previously.

A successful conversion process results in a new file representation that points to the generated SCS and Assembly Tree files. Conversion process errors should be logged. Subsequent attempts to open the same CAD document after a successful conversion result in viewing the generated SCS file.

4 Confirming the Application Installation

Once setup is complete, CAD files imported into Aras Innovator will trigger a conversion task to create a PDF. This PDF will be viewable in the default CAD ItemType form under “Viewable File”. There are several methods of importing CAD geometry into Aras Innovator:

1. Native CAD files may be imported manually by adding them to the ‘Native File’ of the CAD ItemType through a selection dialog in Aras Innovator. See *Aras Innovator 12.0 Product Engineering User* Guide “Managing CAD Files”.
1. Native CAD files may be imported using a third-party CAD Connector accessed directly from the CAD application. CAD Connectors are the preferred solution for integrating Aras Innovator with your preferred CAD application.

To monitor a conversion task, navigate to **TOC>Administration>File Handling>Conversion Tasks**

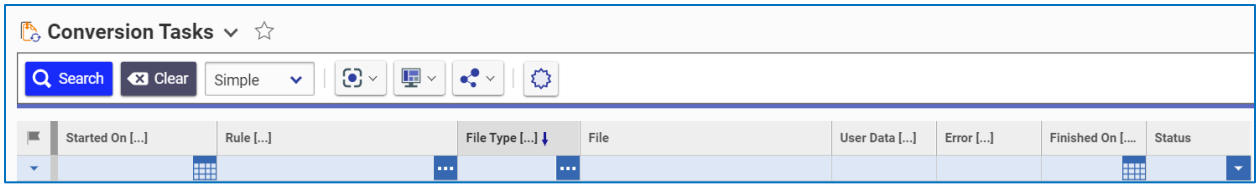

Figure 3.

Under Conversion Tasks, the conversion status for each file conversion will be listed. Files will progress through “Not Started”, “Started”, “In Progress”, then “Succeeded”, “Failed” or “Discarded”. If a Conversion Task has “Failed”, it will be restarted after a delay until it displays the configurable time out, or number of attempts cutoff. A successful set up should result in a ‘Succeeded’ conversion task.

The default values for the ‘Aras CAD 3D CAD to PDF’ conversion rules are shown in Figure 4. The conversion rules for timeout, delay and cutoff can be modified under **TOC>Administration>File Handling>Conversion Rules**.

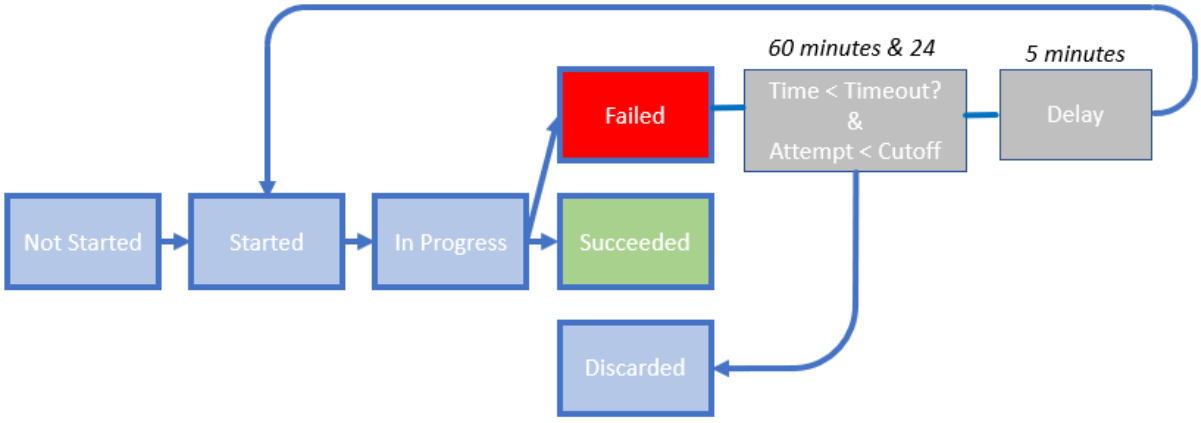

Figure 4. Aras CAD to PDF Conversion Task States

If a Conversion Task has “Failed”, further information is provided if you right click the Conversion Task, and left click “Open”. Then, under the “Event Handlers” tab, right click the row of a step which failed, then left click on “Event Handlers” then left click “Open”. Under the “Event Handler Errors” tab, right click a row, left click “Event Handler Errors”, then left click “Open”. The error message can be expanded to provide more information on the failed conversion.

5 Troubleshooting

5.1 Conversion Tasks Not Created

If more than one FileType Item has the same file extension set, then newly added files automatically choose the FileType that alphabetically comes first.

Due to this behavior, Conversion Rules should specify all possible FileTypes for each file extension that should be included in the rule.

5.2 Unauthorized Access Exception

Error Message:

```
System.Web.Services.Protocols.SoapException:
System.Web.Services.Protocols.SoapException: Server was unable to process
request. ---> System.UnauthorizedAccessException: Access to the path
'…\ConversionServer\temp\...' is denied.
   at System.IO.__Error.WinIOError(Int32 errorCode, String maybeFullPath)
   at System.IO.Directory.InternalCreateDirectory(String fullPath, String
path, DirectorySecurity dirSecurity)
   at System.IO.Directory.CreateDirectory(String path, DirectorySecurity
directorySecurity)
…
```

Solution:

Expand permissions for the installed location to allow access as follows:

1. Go to the location of the '\ConversionServer\' directory as listed in the error message.
2. Right click on the 'ConversionServer\' folder and select **Properties**.
3. On the **Security** tab, select **Advanced**.
4. Click **Change Permissions**.
5. Click **Add**.
6. Type **Everyone** and click **OK**.
7. Select the **Full control allow** checkbox and click **OK**.
8. Select **Replace all child object permissions with inheritable permissions from this object**.
9. Click **Apply** and click **Yes** when prompted.

5.3 500.19 – Internal Server Error

Error Message:

System.InvalidOperationException: Client found response content type of 'text/html; charset=utf-8' but expected 'text/xml'.

The request failed with the error message:

--

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>IIS 7.0 Detailed Error - 500.19 - Internal Server Error</title>
…
 <fieldset><legend>Error Summary</legend>
  <h2>HTTP Error 500.19 - Internal Server Error</h2>
  <h3>The requested page cannot be accessed because the related configuration
data for the page is invalid.</h3>
…
```

Solution:

Check for capitalization differences, other typos, and additional carriage returns in the `ConversionServerConfig.xml` file that was modified in section Error! Reference source not found.. Note that the entire 'arguments' attribute must not contain carriage returns or new lines.

5.4 404: Not Found

Error Message:

```
System.Net.WebException: The request failed with HTTP status 404: Not Found.
   at
System.Web.Services.Protocols.SoapHttpClientProtocol.ReadResponse(SoapClientM
essage message, WebResponse response, Stream responseStream, Boolean
asyncCall)
   at
System.Web.Services.Protocols.SoapHttpClientProtocol.EndInvoke(IAsyncResult
asyncResult)
   at
Aras.ConversionFramework.Proxy.ConversionService.EndConvert(IAsyncResult
asyncResult) in d:\Builds\Daily\5779\RELS9-
3\Innovator\CompilableCode\_CommonFiles\ConversionService\ConversionService.v
b:line 78
   at Aras.Server.Core.InvokeStandardConverter.ConvertCallback(IAsyncResult
ar) in d:\Builds\Daily\5779\RELS9-
3\Innovator\Server\src\Core\InternalMethods\InvokeStandardConverter.vb:line
85
   at System.Web.Services.Protocols.WebClientAsyncResult.Complete()
   at
System.Web.Services.Protocols.WebClientProtocol.ProcessAsyncResponseStreamRes
ult(WebClientAsyncResult client, IAsyncResult asyncResult)
   at
System.Web.Services.Protocols.WebClientProtocol.ReadAsyncResponseStream(WebCl
ientAsyncResult client)
   at
System.Web.Services.Protocols.WebClientProtocol.ReadAsyncResponse(WebClientAs
yncResult client)
```

Solution:

Confirm that the URL that you are using for the Conversion Server Item in Aras Innovator is correct.

This URL is dependent on where under your website you installed the Conversion Server using the Aras Innovator installer. For example:

- In a standard complete install of Aras Innovator, the URL will be http://serverName/InnovatorServer/ConversionServer/ConversionService.asmx
- In a standard custom install of only the Conversion Server, the URL will be http://serverName/ConversionServer/ConversionService.asmx

Note: The 'serverName' refers to the domain of your Conversion Server.

5.5 3D PDF does not activate in Firefox

Clicking on the CAD image within a converted PDF file activates the ability to interactively manipulate the CAD Item. If this feature is not available when you open the PDF from within Firefox, then it is likely that the PDF is not being loaded in Adobe Reader.

Use the following procedure to configure Firefox to load PDFs using Adobe Reader:

1. Open Mozilla Firefox.
2. Select **Option** from the Firefox menu.
3. Select the **Application** section.
4. Scroll down to **Portable Document Format (PDF)** and change the Action to **Use Adobe Reader (default)**.

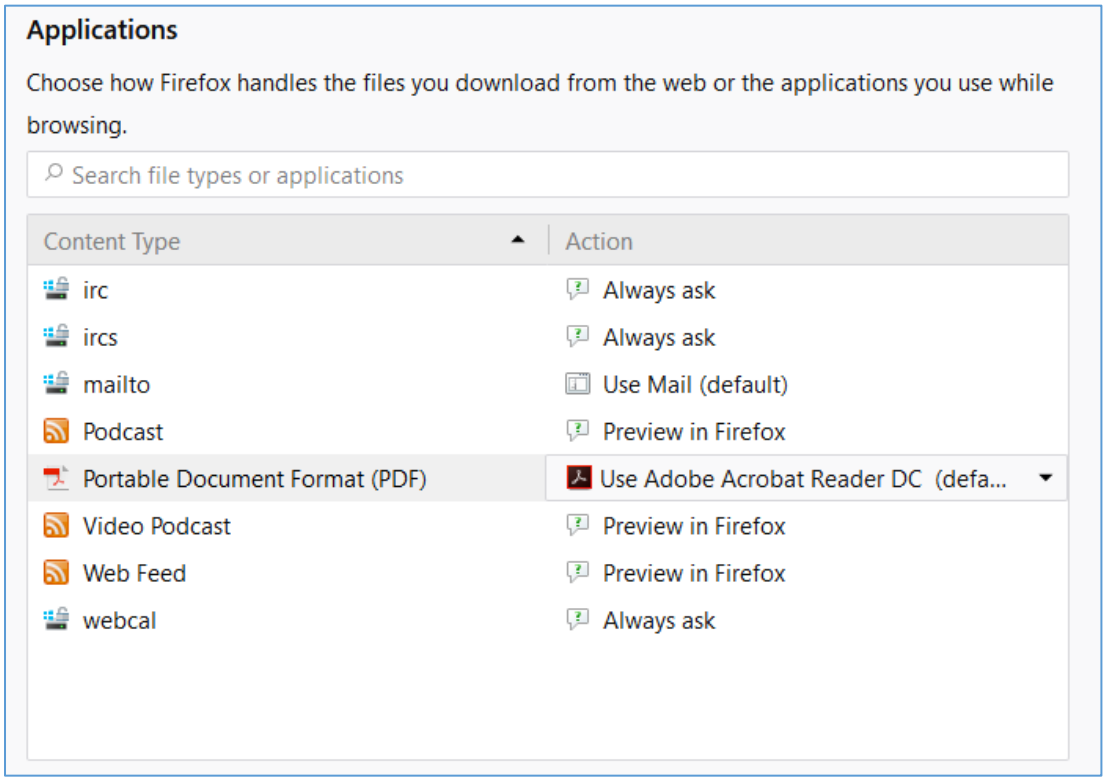

Figure 5.