Aras Innovator 2025 Release

Conversion Server Setup Guide

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Aras Corporation
100 Brickstone Square
Suite 100
Andover, MA 01810
Phone: 978-691-8900

E-mail: support@aras.com

Website: https://www.aras.com/

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1 Overview

The Aras Innovator Conversion Server is a framework to manage file conversion processes. The conversion server is not a file converter itself, but rather a way to manage tasks to be executed similar to the Aras CAD to PDF Converter that transforms native files on CAD Items into PDF files.

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2 Server Prerequisites

Please see the document *Aras Innovator 2025 Release - Platform Specifications* for hardware requirements for the Conversion Server.

2.1 Installation of Aras Agent Service

In order to configure the Aras Conversion Server, the Aras Agent Service must also be installed. For instructions on installing the Aras Agent Service, refer to Section 5.12 of the *Installation Guide*.

2.2 Installation of Aras OAuth Server

In order to configure the Aras Conversion Server, the Aras OAuth server must also be installed. For instructions on installing the Aras OAuth Server, refer to Section 5.9 of the *Installation Guide*.

2.3 Microsoft Visual C++ Redistributable Package

The Microsoft Visual C++ 2010, 2012, 2013, 2015 Redistributable Packages must be installed on the Conversion Server. The links to all Microsoft Visual C++ Redistributables is below:

Microsoft Visual C++ 2010, 2012, 2013, 2015 Redistributable Packages (x64):

https://support.microsoft.com/en-us/help/2977003/the-latest-supported-visual-c-downloads

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3 Installing a Conversion Server

To install the Conversion Server, you need to download the Aras Innovator setup (`InnovatorSetup.msi`). The setup file may be obtained either from https://www.aras.com/support/ or from the Aras Innovator CD Image.

Ensure that Aras Innovator installation file has been downloaded to a local hard drive of the server where the software is installed.

It is recommended not to delete the MSI file (`InnovatorSetup.msi`) after the installation is complete.

3.1 Welcome page

Double click on the file `InnovatorSetup.msi` to start the Aras Innovator Installer.

The first screen of the Installer is shown below.



Figure 1.

Click **Next** to proceed with installation.

Click **Cancel** to exit setup.

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3.2 License Agreement

Make sure that you read the license agreement carefully before agreeing and proceeding with the install.

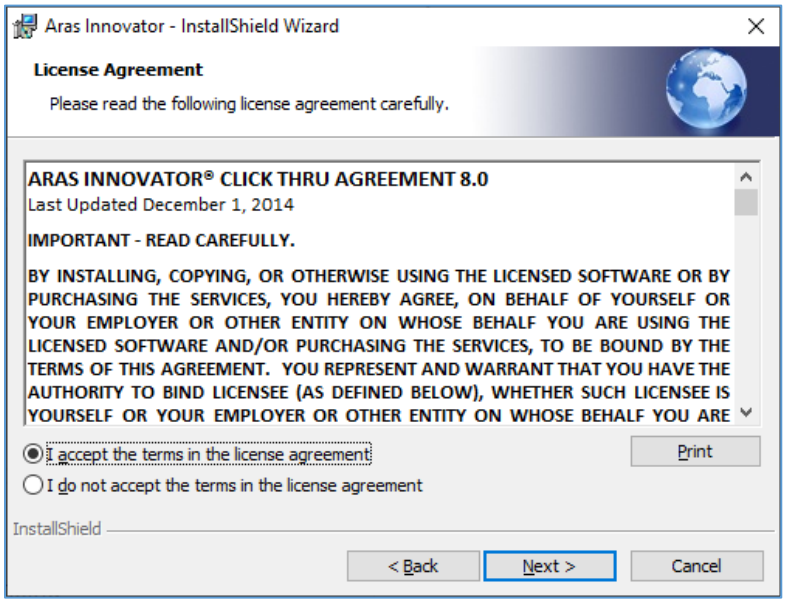

Figure 2.

This screen allows you to print the license agreement using a rich text editor, such as Wordpad, by selecting the **Print** button.

Note: The **Next** button remains disabled, until **I accept the terms in the license agreement** option is selected.

1. Click **Next** to proceed with installation.
2. Click **Back** to return to the previous screen.
3. Click **Cancel** to exit setup.

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3.3 Prerequisites and Documentation

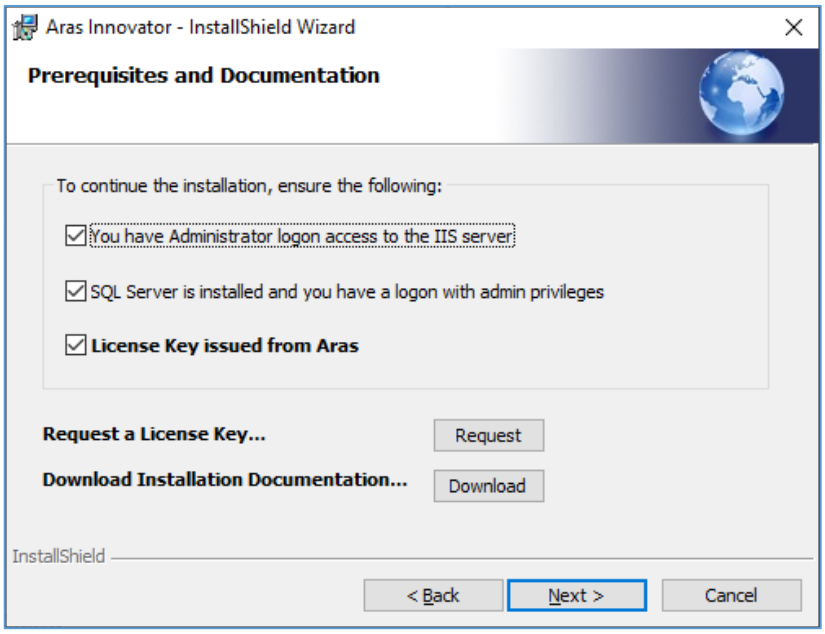

Figure 3.

Check all three checkboxes. The **Next** button is enabled only after you select all the three options.

- **You have Administrator login access to the IIS server:** You have administrative right on the computer you are installing to, and have the IIS server installed and configured.
- **SQL Server is installed and you have a login with admin privileges**:
- **License Key issued from Aras**

> **Note:** SQL Server and the Aras Innovator License are required for the Aras Innovator Server and not for the Conversion Server.

- **Request a License Key…**

  Click the **Request** button to automatically go to the license request page at https://www.aras.com/support/

- **Download Installation Documentation…**

  Click the **Download** button to automatically go to the documentation page at https://www.aras.com/support/

1. Click **Next** to proceed with the installation.
2. Click **Back** to return to the previous screen.
3. Click **Cancel** to exit setup.

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3.4 Aras Innovator Destination Folder

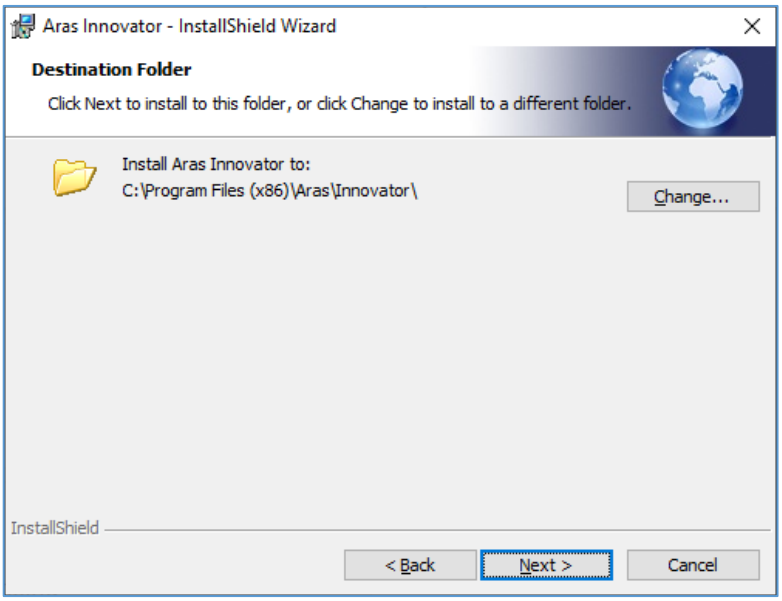

Figure 4.

This screen allows you to specify the directory to which Aras Innovator should be installed. The default directory path is `C:\Program Files (x86)\Aras\Innovator`. But, you can click **Change**… to select a directory of your choice. This document assumes the default value.

1. Click **Next** to proceed with installation.
2. Click **Back** to return to the previous screen.
3. Click **Cancel** to exit setup.

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3.5 Setup Type

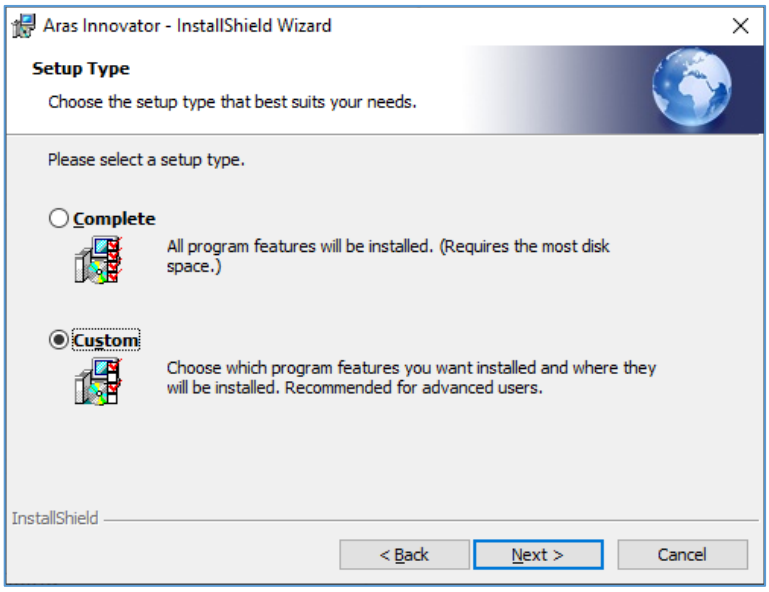

Figure 5.

Select **Custom** for the setup type.

1. Click **Next** to proceed with installation.
2. Click **Back** to return to the previous screen.
3. Click **Cancel** to exit setup.

3.6 Custom Setup

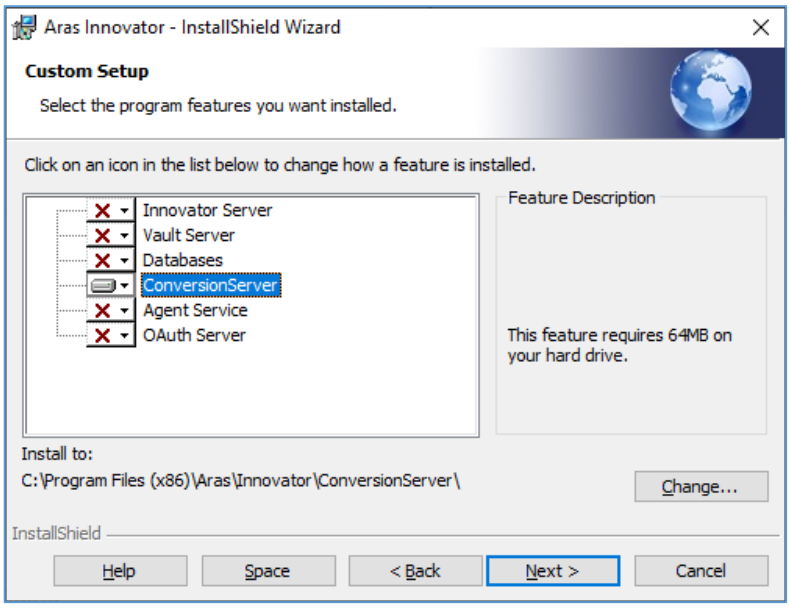

Figure 6.

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Click on each of the features except **ConversionServer** and select **This feature will not be available** to disable their installation.

Click on **ConversionServer** and select **This feature will be installed on local hard drive** to enable its installation.

1. Click **Change** to specify the install directory.
2. Click **Next** to proceed with installation.
3. Click **Back** to return to the previous screen.
4. Click **Cancel** to exit setup.

3.7 Configuring OAuth Certificates

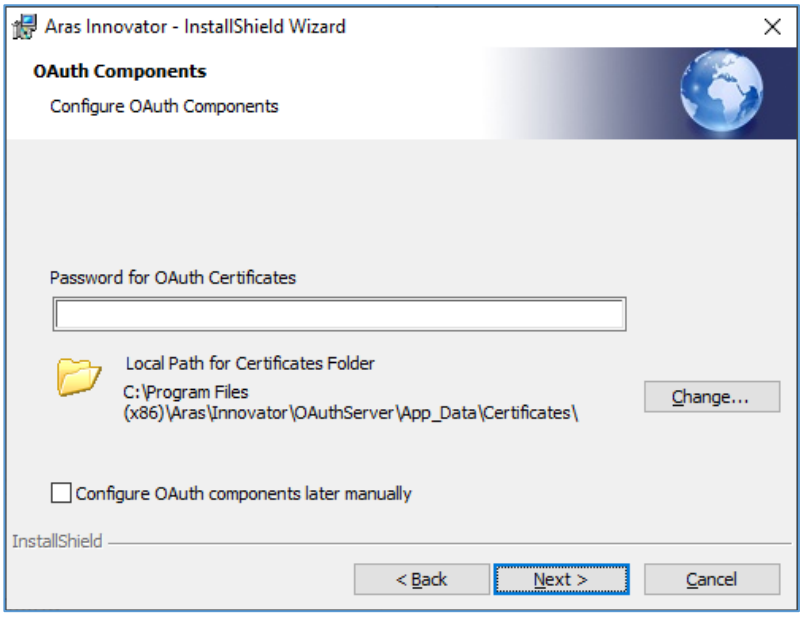

Figure 7.

- Password for OAuth Certificates – Enter the password to protect the private keys of certificates. The password can only contain alphanumerical symbols (a-z, A-Z, 0-9) and any of the standard printable ASCII characters (:_#$%&<> and others). The password cannot contain spaces.
- Local Path for Certificates Folder – the full local path to the OAuth Certificate folder or to a copy of this folder where OAuth certificates were generated during the separate installation of the OAuth Server. The certificate folder should contain all the necessary certificates.

You may check the **Configure OAuth components later manually** and continue with the installation. This will require changing the OAuth.config files and deploying certificates manually.

1. Click **Next** to proceed with installation.
2. Click **Back** to return to the previous screen.
3. Click **Cancel** to exit setup.

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3.8 Conversion Server Preferences

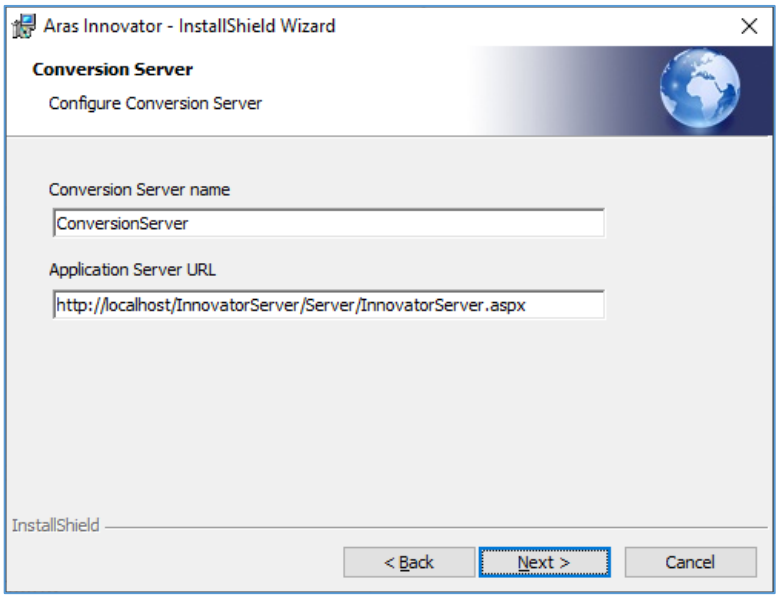

Figure 8.

- **Conversion Server Name** - The Conversion Server instance to be installed. If the Aras Innovator Server is being installed as well, this field is disabled.

  The name of the application installed in IIS. Additional Conversion Servers may be configured separately after the initial installation.

- **Application Server URL** - since the Conversion Server is not a standalone application, and is useful only along with the Aras Innovator Server, this field allows you to specify the Application Server URL for the instance of Aras Innovator you are going to use with this Conversion Server. The Application Server URL is of the following format:

  `http://<servername>/<web_alias>/Server/InnovatorServer.aspx`
  Where:

  - `<servername>` is the name of the server where the Aras Innovator Server is running. For example, if running on the local machine, this is 'localhost'
  - `<web_alias>` is the name of the Aras Innovator Server Virtual Directory.

1. Click **Next** to proceed with installation.
2. Click **Back** to return to the previous screen.
3. Click **Cancel** to exit setup.

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3.9 Begin the Installation

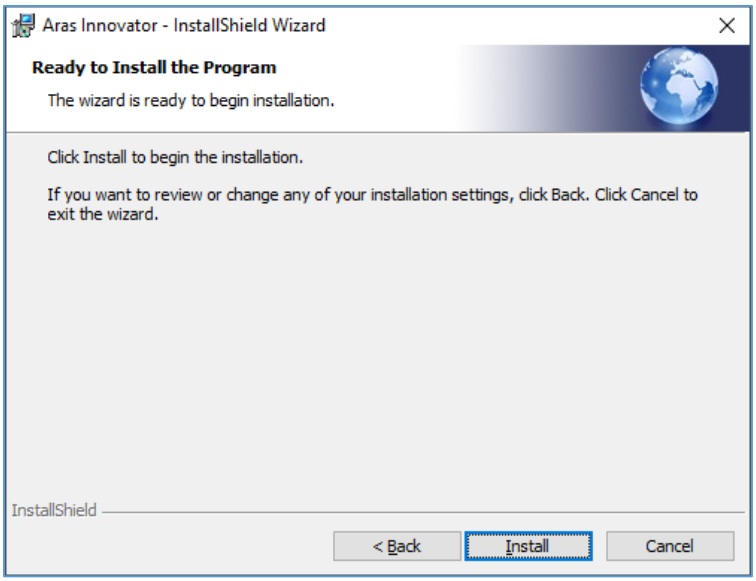

Figure 9.

1. Click **Install** to start the installation of the features

Note: You cannot make any changes after you click **Install** on the screen.

2. Click **Back** to return to the previous screen.
3. Click **Cancel** to exit setup.

3.10 Installation Status

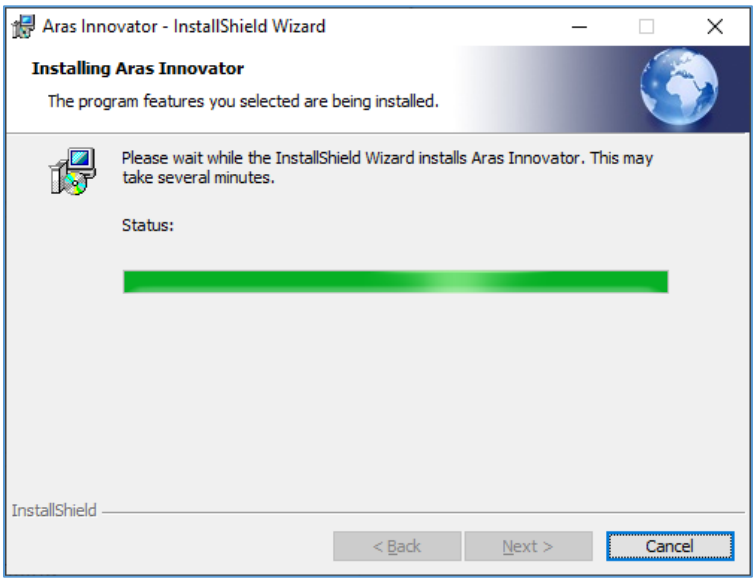

Figure 10.

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This screen shows the installation status.

3.11 Installation Completed

The following screen is the last in the installation wizard.

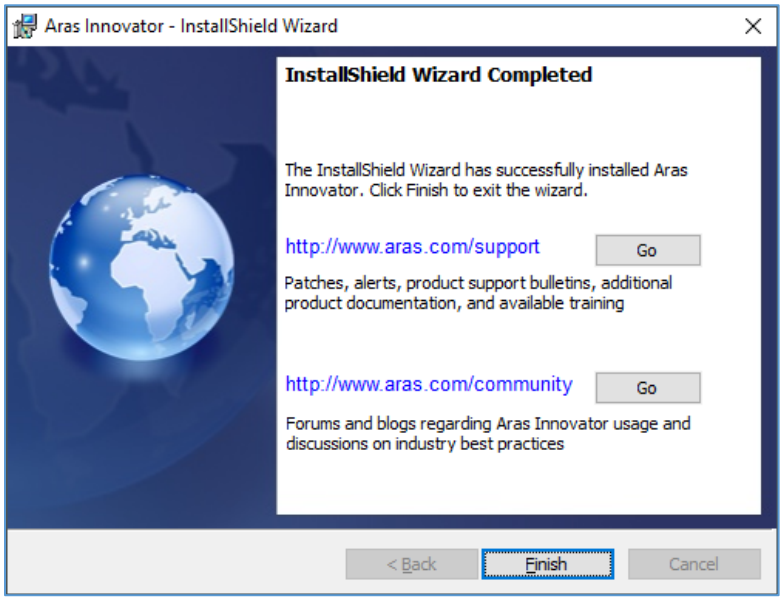

Figure 11.

The **Go** buttons open up a web browser to Aras web pages.

https://www.aras.com/support/ – Location for downloads, documentation, and other Aras Innovator support information.

http://community.aras.com – Location of forums and blogs relating to usage, best practices, and overall enhancement of the Aras Innovator experience.

Click **Finish** to complete the installation process and close the installer.

Note:	Make sure **not** to delete your installer from your hard drive when you are done with an installation. You must reuse the same installer to install other instances of Conversion Server/Aras Innovator or its components.

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4 Configuring the Aras Innovator Server

After installing the Conversion Server, your Aras Innovator Server needs to be configured to communicate with it.

The following steps guide you in the configuration that is required.

4.1 Configuration Steps

1. Open a Windows Explorer window to the root of the Aras Agent Service Installation.
2. Open the **\AgentService\conversion.config** file in text editor.
3. Configure the 'cycle' tag as follows:
   a. **DB**: Aras Innovator Database
   b. **User**: admin

      Another Aras Innovator User can be specified as long as they are a member of the ConversionManager Identity and they have permissions to lock dependencies of ConversionTask Item which are added by ConversionRules.
   c. **Interval**: default is 20000 (set in milliseconds)

      How often the Conversion Server checks if there are Conversion Tasks that need to be processed.
   d. **MaxBatch**: default is 5

      Number of Conversion Tasks that can be processed at the same time.
   e. Uncomment the tag as follows:

```
<configuration>
…
   <Innovator>
      <Conversion>
         <ProcessingCycles>
            <!--cycle DB="{db}" User="{user}" Interval="20000"
MaxBatch="5" /-->
         </ProcessingCycles>
      </Conversion>
   </Innovator>
</configuration>
```

      Should become:

```
<configuration>
…
   <Innovator>
      <Conversion>
         <ProcessingCycles>
            <cycle DB="InnovatorSolutions" User="admin"
Interval="20000" MaxBatch="5" />
```

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```
            </ProcessingCycles>
        </Conversion>
    </Innovator>
</configuration>
```

4. Configure the ‘Conversion’ tag for Force mode as follows:

Warning	Leave the following parameters with the default value, because default configuration covers almost all use cases of Force mode (OnAfterAddConversionTask event) Conversion Tasks execution. Update the following configuration only if it is required.

   a. **ForceModeMaxConcurrentTasksCount**: default is 100

      Max number of Force mode Conversion Tasks that can be processed at the same time.

   b. **ForceModeMaxConcurrentCyclesCount**: default is 10000

      Max number of requests with Force mode Conversion Task, that can be processed at the same time.

```
<configuration>
…
    <Innovator>
        <Conversion ForceModeMaxConcurrentTasksCount="100"
ForceModeMaxConcurrentCyclesCount="10000">
            <ProcessingCycles>
                …
            </ProcessingCycles>
        </Conversion>
    </Innovator>
</configuration>
```

5. Save and close the ‘conversion.config’ file.
6. Log in to Aras Innovator as an administrator.
7. Go to **Administration --> File Handling --> Conversion Servers.**
8. Open the ‘Default’ Conversion Server for editing or create a new Conversion Server.
9. If not filled out (New Conversion Server), enter the name and Impersonation User.
10. Hard-code the URL to the conversion server:

```
http://serverName/ConversionServer/ConversionService.asmx
```

Note:	You must replace the highlighted text above with the location of your Conversion Server web application as specified in IIS.

11. Save, unlock, and close the Conversion Server.

Note:	After making adjustments to the conversion.config file, the Aras Innovator Agent should be restarted via **Control Panel --> Administrative Tools --> Services**.

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4.2 Setting up a Conversion Rule

To begin converting files using the Conversion Server, you need to create or install a Conversion Rule to your instance.

If you want to setup the standard Aras Innovator CAD to PDF Converter in your instance, refer to the *Aras 3D Visualization 21 – Administration Guide*, available in the Documentation folder of the Aras Innovator CD Image.

If you are a developer and want to walk through an example of creating your own custom Conversion Rule, refer to the *Aras Innovator 2025 Release - Example for Developing Conversion Server Tasks*, also available in the Documentation folder of the Aras Innovator CD Image.

4.3 Temp Directory Configuration

This setting is optional.

The conversion server creates a separate temporary folder for each processing conversion task.

The name of this folder is equal to the ID of the corresponding conversion task. However, if this folder exists for some reason, a new folder is created with its name followed by a number suffix (e.g., “CONVTASKID_1”, “CONVTASKID _2”, etc.).

By default, these folders are created within **the Path to Conversion server\..\temp** folder. This setting can also be changed by modifying **appsettings.json** file of conversion server. To do so, add the lines below to appsettings file:

```
"ConversionServiceOptions": {
        "TempDirectory": "new path to temp folder"
}
```

If the provided path is empty or incorrect, the default one will be used instead.

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5 Appendix

5.1 Conversion Data Model

This section describes the complete data model of the File Conversion feature.

5.1.1 ConversionServer

The ‘ConversionServer’ ItemType is where the URL for the Conversion Server is stored. In this regard, it is similar to the Vault ItemType.

Properties:

- **Name**: Unique name for the Conversion Server.

  For example, this could describe what types of Conversions are handled by this Conversion Server, i.e. ‘Cad Native Server’

- **URL**: HTTP path to the ‘/ConversionServer/ConversionService.asmx’ file
- **Impersonation User**: Aras Innovator User that is used to perform the conversion. All Files created by the Conversion Server have their ‘Created_by’ as this User.

> **Note:** The Impersonation User either must be the Vault Admin User or must be a member of the Administrators Identity.

Relationships:

- **Converters** (‘ConversionServerConverterType’): Relationship to ‘ConverterType’

  Used to select which Converters are executed using this Conversion Server.

ConversionServerPriority

The ‘ConversionServerPriority’ ItemType is a Relationship from the ‘Vault’ ItemType to the ‘ConversionServer’ ItemType.

This Relationship specifies which Conversion Server to use based on the Vault that the File was added to or updated in.

5.1.2 ConverterType

The ‘ConverterType’ ItemType uses the name of the Converter to represent the Converter DLL inside of Aras Innovator.

Properties:

- **Name**: This name must match the name attribute set in the ‘Converter’ tag of either the ‘\ConversionServerConfig.xml’ file as follows:

```
<ConversionServer>
   <Converters>
      <Converter name="MyConverter" … />
   </Converters>
</ConversionServer>
```

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5.1.3 ConversionRule

The ‘ConversionRule’ ItemType is where the rules and events for the conversion are defined.

Properties:

- **Name**: Unique name to describe what the Rule does using the Conversion Server.
- **Conversion Type**: Points to the ‘ConverterType’ Item that performs the Conversion.
- **Description** (optional): Detailed description of the Conversion Rule
- **Timeout**: Number of minutes after which the actual converting of the physical file is considered as hung and the conversion task is marked as failed.

  In other words this is the time allowed to the OnConvert event handler to return a result; suggested default is 60 minutes
- **Delay**: The delay in minutes after which a failed task can be rerun; suggested default is 5 minutes
- **Cutoff**: The number of hours that is given to a failed Conversion Task to finish successfully;

  If the Conversion Task has status Failed for the specified number of hours, the conversion task is marked as discarded and removed from the processing by the framework. The suggested default value is 24.
- **Enabled**: Boolean to enable or disable the Conversion Rule.

Relationships:

- **File Types** (ConversionRuleFileType): Relationship to ‘FileType’

  Used to specify which types of files trigger this Conversion Rule. Each FileType can be enabled or disabled using the ‘Enabled’ property on the Relationship.
- **Rule Events** (ConversionRuleEventHandler): Relationship to ‘Method’

  Used to specify Server-side methods that are run prior to the creation of the Conversion Task. (Event Type = OnTaskCreating)

  These methods can then be used to check certain conditions such as the File size and prevent the Conversion Task from being created.
- **Task Event Templates**(ConversionRuleEventTemplate) : Relationship to ‘Method’
  - Used to specify Server-side methods that are run at different times while the Conversion Task is processing.
  - Conversion mode - blocking vs non-blocking (default):
    Non-blocking is intended to process long-running tasks (more than 30 minutes); the Innovator Server sends a request to the Conversion Server to execute a Task, and the Conversion Server notifies the Innovator Server about completion, so the Innovator doesn't wait for completion, which avoids the possibility of a timeout.
  - Available Events (In order of execution):
    - **OnStartTaskProcessing**: Fired right after the conversion task is created and the processing cycle gets the task for processing
    - **OnBeforeConvert**: Fired right before the conversion task is ready to be sent for conversion
    - **OnConvert**: Overrides the conversion event

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- **OnAfterConvert**: Fired on the processing cycle iteration after the framework sets result to ConversionTaskResult

5.1.4 ConversionTask

'ConversionTask' Items are created automatically based on enabled Conversion Rules. Each 'Conversion Task' represents one File being converted by a Conversion Server.

All properties and relationships are automatically populated.

Properties:

- **Status**: Current status of the Task. Can be 'Not Started', 'In Progress', 'Succeeded', 'Failed', or 'Discarded'
- **Rule**: Points to the Conversion Rule that was used for the creation of this Conversion Task
- **File Type**: The type of File that is being converted
- **File**: The ID of the File being converted
- **Started On**: Date that the Conversion Task started
- **Finished On**: Date that the Conversion Task finished
- **User Data**: Text (most probably XML) that could be used by a specific converter to carry the converter specific data that has to be eventually passed to the process that performs actual conversion of the physical file (e.g. conversion options; list of supplementary files that have to be given to the converter in order to convert the file; etc.)
- **Error**: Error description in case the task status is Failed or Discarded

Relationships:

- **Dependencies** ('ConversionTaskDependency'): Null Relationship

  Displays the Type and ID of Items that can be locked by methods during the processing of the Conversion Task.

- **Results** ('ConversionTaskResult'): Null Relationship

  Displays the File IDs that have been created as a result of the Conversion Task and an additional string 'kind' to possibly describe why it was created / what it was created for.

- **Event Handlers** ('ConversionTaskEventHandler'): Relationship to 'Method'
  - Events copied from the 'Task Event Templates' Relationship on the 'Conversion Rule' ItemType.
  - Displays the status of each Event during the processing of the Conversion Task with the following properties:
    - Error […]: Error message set if the Method failed
    - User Data […]: Used by the event handler to pass some information between different invocations of the event handler (e.g. in case the event handler failed it could save in this property some information about what it managed to finish before it failed so that the next invocation of the method does not try to do it again).
    - Started On […]: Date when the first invocation of the method started
    - Finished On […]: Date when the last invocation of the method finished

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- **Execution Attempt**: The number of times the Method has been called by this Conversion Task

Status: Current status of the Event. This can be ‘Not Started’, ‘In Progress’, ‘Failed’, or ‘Succeeded’

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