Deploying aspenONE V11 with SCCM

Best Practices

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Aspen Technology, Inc.
20 Crosby Drive,
Bedford, MA 01730
USA
Phone: (1) (781) 221-6400
Toll Free: (888) 996-7100
URL: http://www.aspentech.com

Contents

1 Introduction

About this Document

The *Deploying aspenONE V11 with SCCM Best Practices* guide details the processes applicable to the SCCM System Administrator for creating Aspen Technology applications in a Microsoft System Center Configuration Manager environment. This document will address Windows 10 64-bit platforms.

The *Deploying aspenONE V11 with SCCM Best Practices* document:

- Is intended to be used by an experienced Microsoft System Center administrator with previous expertise packaging and deploying applications in the SCCM environment.
- Provides instructions at a high level assuming the target audience will have the prerequisite knowledge base mentioned in the *Deploying aspenONE V11 with SCCM Best Practices* document.
- Eliminates a large part of the trial and error involved in packaging an Aspen Technology product for distribution with a SCCM environment.
- Describes the creation of silent installation source files using Aspen Technology silent deployment tools and the best practices for creating SCCM applications with these source files.

Notes:

- This guide goes over one of many ways to package the applications.
- Aspen Technology is not responsible for support of packaging or deployment of third-party software
- Due to differing corporate regulations and policies, we cannot provide an instruction set that will apply to all deployment scenarios.
- It is the responsibility of the SCCM System Administrator to interpret the instructions provided in the document and to make appropriate changes based on his/her enterprise environment.

For supported best practices regarding the silent installation and SCCM packaging of these redistributable components, please consult the documentation for Microsoft.

Silent Install and SCCM

Microsoft's System Center Configuration Manager can be used to facilitate pushing silent installations from a central IT system to computers in an enterprise deployment environment.

Aspen Silent Install is a collection of tools that will allow for creation of .msi packages and scripts for silent installations. The AspenTech Silent Install tools are gathered under the *Prepare Deployment Workflow* in the Installer.

AspenTech Silent Install in combination with SCCM will allow the SCCM System Administrator to:

- Create an Aspen Silent Install Package.
- Utilize an Aspen Silent Install package to create a SCCM application.
- Install and troubleshoot AspenTech products.

The end result of this document will be two **SCCM Applications:**

- An AspenTech V11 Full Release package
- An AspenTech Cumulative Patches package

Refer to **AspenTech Platform Support** for supported applications.

Notes:

- Aspen Technology assumes responsibility and supports only the creation of silent installation source files and SCCM Applications for Aspen Technology products.
- If it is determined that a failed SCCM deployment of Aspen Technology products is due to the packaging or deployment of Microsoft third-party redistributable dependencies or the SCCM system itself, it will be the end user's responsibility to consult with Microsoft to resolve these issues.
- The SCCM environment used in the *Deploying aspenONE V11 SCCM Best Practices* guide is Microsoft System Center Configuration Manager Version 1606.

2 Aspen Technology Products SCCM Deployment

Creating a Silent Install Package

The creation for the silent installation .xml file is written assuming that the end goal is an SCCM package.

This document will outline a single workflow to create a silent installation package, along with how to deploy patches to machines with software already installed.

This example will go over creating a silent installation package for the **V11 Typical Engineering Bundle** on a Windows 10 machine.

On Windows 7 and later client platforms, the AspenTech installer implements an installation of LocalDB for use by the products.

Prerequisites

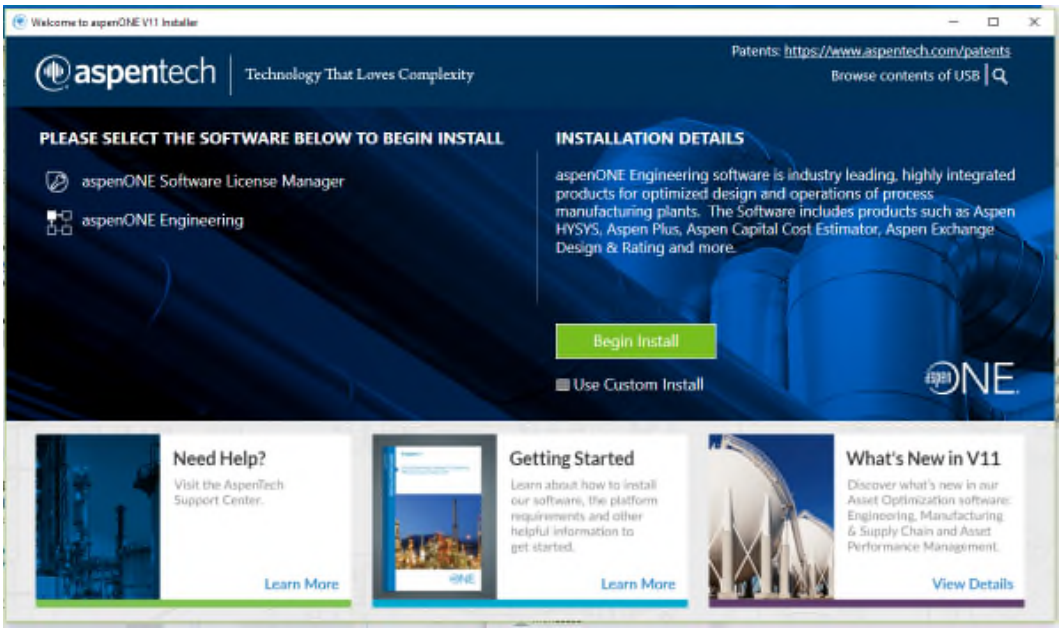
The Aspen Silent Deployment Installation does not check whether prerequisites are installed on the client machines prior to installation. It is up to the customer to work with their IT department to ensure that all prerequisites are installed on the client machines prior to the Aspen Software being deployed.

For a list of prerequisites without having to run the aspenONE Installer, you can download the **Prerequisite Viewer** from the Aspen Support Center.

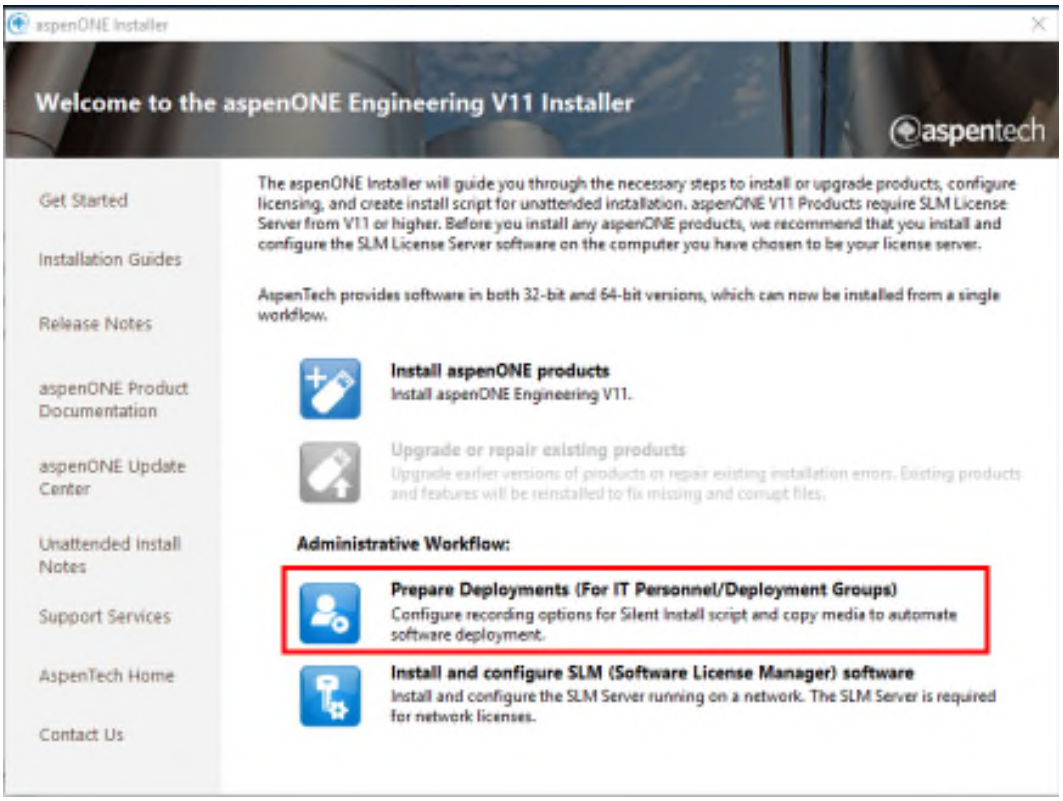
The aspenONE Installer will also notify you if any prerequisites are found missing on the machine performing the Aspen Silent Installation recording.

Aspen Technology Prepare Deployment Workflow

1. Insert the AspenTech USB or browse to a media location on the network share on a Windows 10 machine with a similar set up to ones you will be deploying the software to.
2. Double-click **Setup.exe** to launch the aspenONE Installer
3. Select aspenONE Engineering and click Begin Install.
    - You can also check **Use Custom Install** if you would like to select a subset of products.



4. On the aspenONE Engineering Installer, select **Prepare Deployments**.



5 Create a directory that will be used for your package of AspenTech silent installation files.

Note: In the example, the folder will be **C:\Media\aspenONE_Engineering_V11**.

6 In the **Record installation script** section, specify the following information.

- **Response file name:** Select a file name of your choice. You can leave the default name or enter a more descriptive name.

  In the example, **aspenONE Engineering V11.xml** is used.

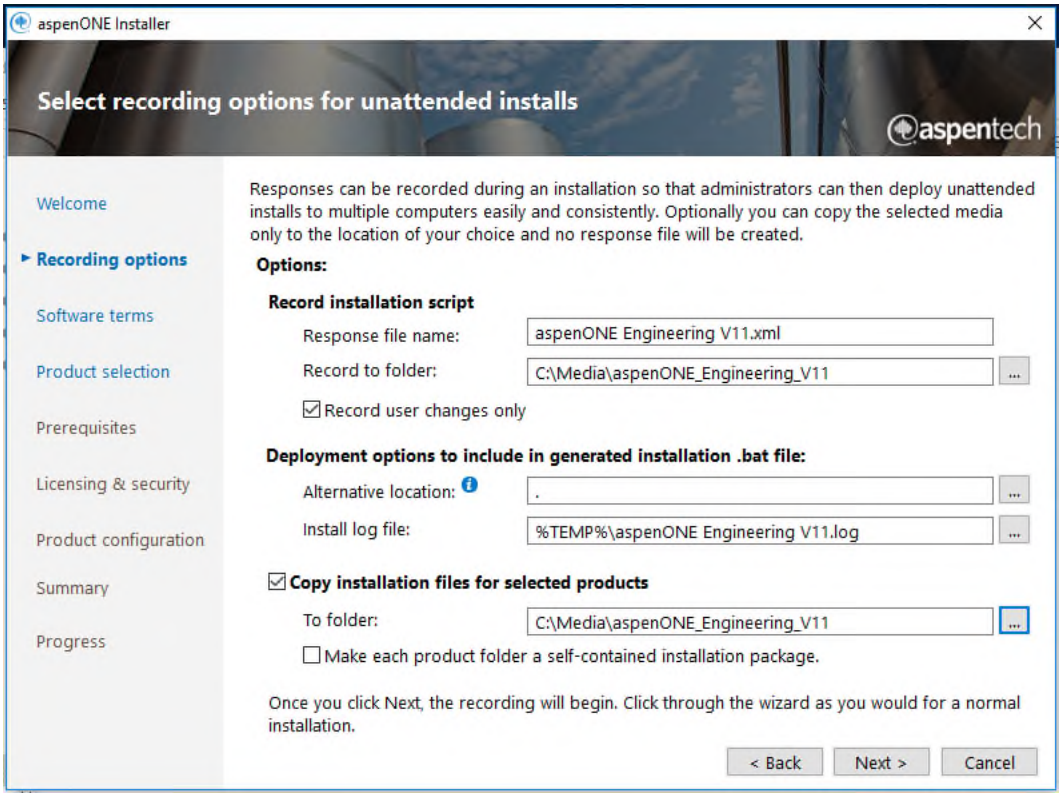
- **Record to folder:** Specify or browse to the directory that you created to store these installation files.
- **Record user changes only**: Selecting this check box records any changes you make from the default installation values and results in the silent installation .xml file being shorter and more manageable.
- **Deployment options to include in generated .bat file:** While this .bat file will not be used in this SCCM Deployment workflow example, the file generated is useful for testing the silent deployment prior to deploying via SCCM. For this package, you will want to leave the *Alternative Location*, as "**.**".

  Notes:

  - Specifying "." as the location will tell the AtRunUnattended.exe to look for the installation files under the same directory as the AtRunUnattended.exe.

- **Install log file:** Creates a log file on the client machine to which the application is being installed. This is used to troubleshoot product installation.
- Select the **Copy installation files for selected products** check box. This will copy the necessary installation files from the AspenTech media to the directory of your silent installation package. This will keep SCCM packages distributed across your infrastructure as lean as possible.

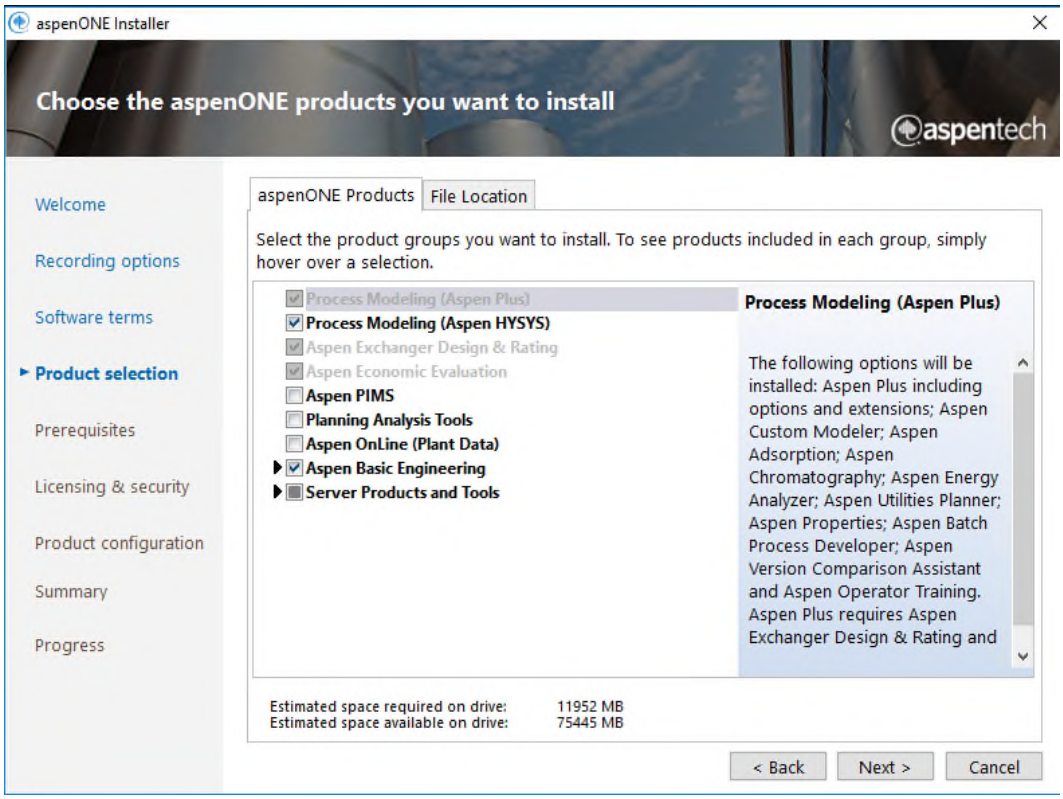
  Browse to the directory that you created to store these installation files.
- Leave the *Make each product folder a self-contained installation package* **unchecked**. Leaving this unchecked will create a leaner installation package as only one Core installation folder will be created for the entire package versus a separate folder under each product.



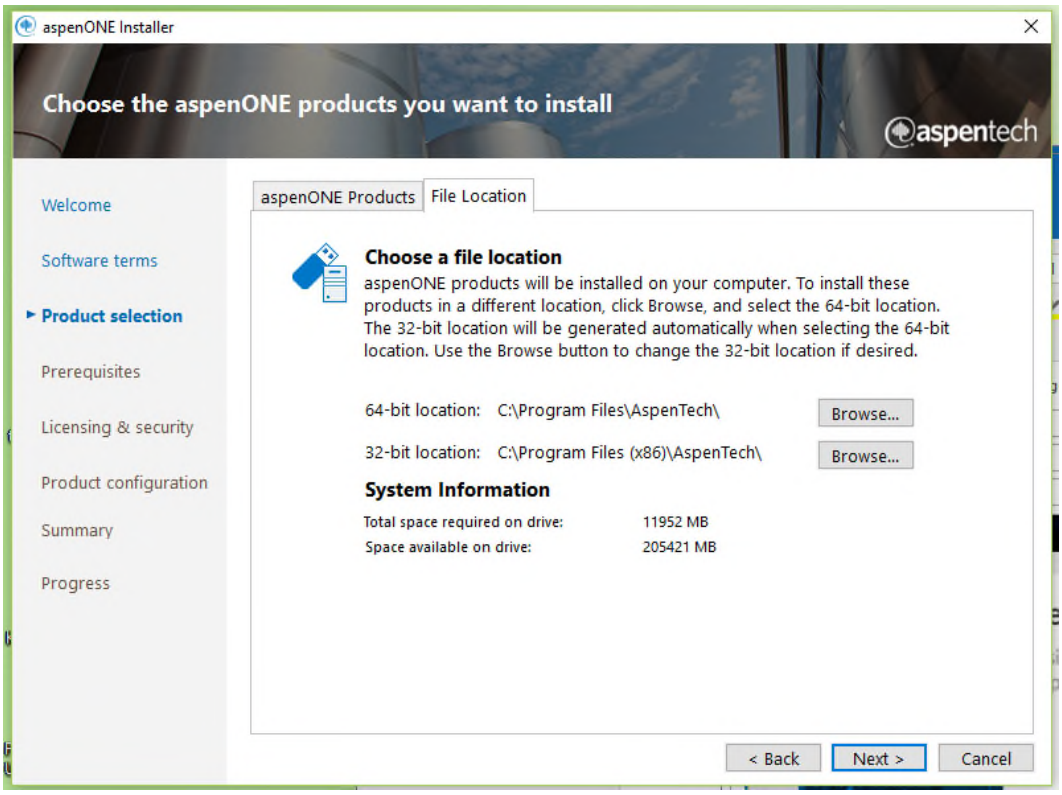
7 Select **Next**, and then accept the licensing terms.

8 In the Product Selection section, leave the default Engineering products selected for the typical Engineering install.

When Aspen HYSYS is selected, Process Modeling (Aspen Plus), Aspen Exchanger Design & Rating, and Aspen Economic Evaluation are included with this product group and are unavailable for removal.

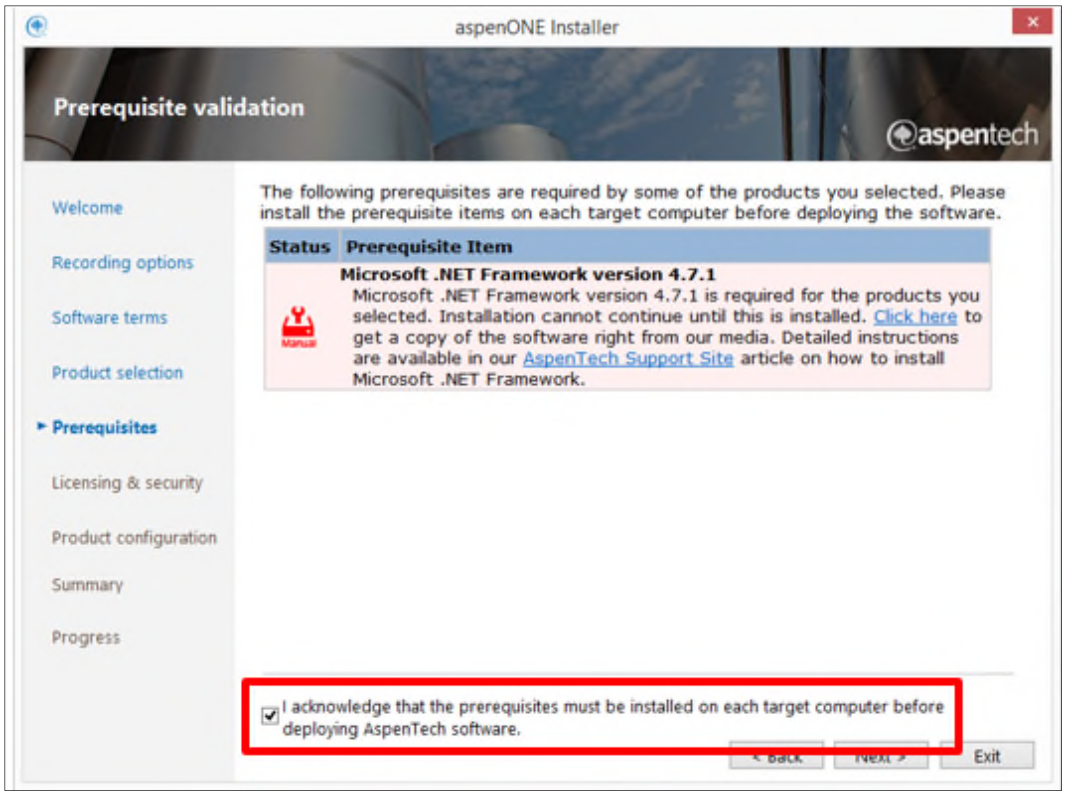


9 **(Optional)** Select the **File Location** tab to install the AspenTech products in your desired location.

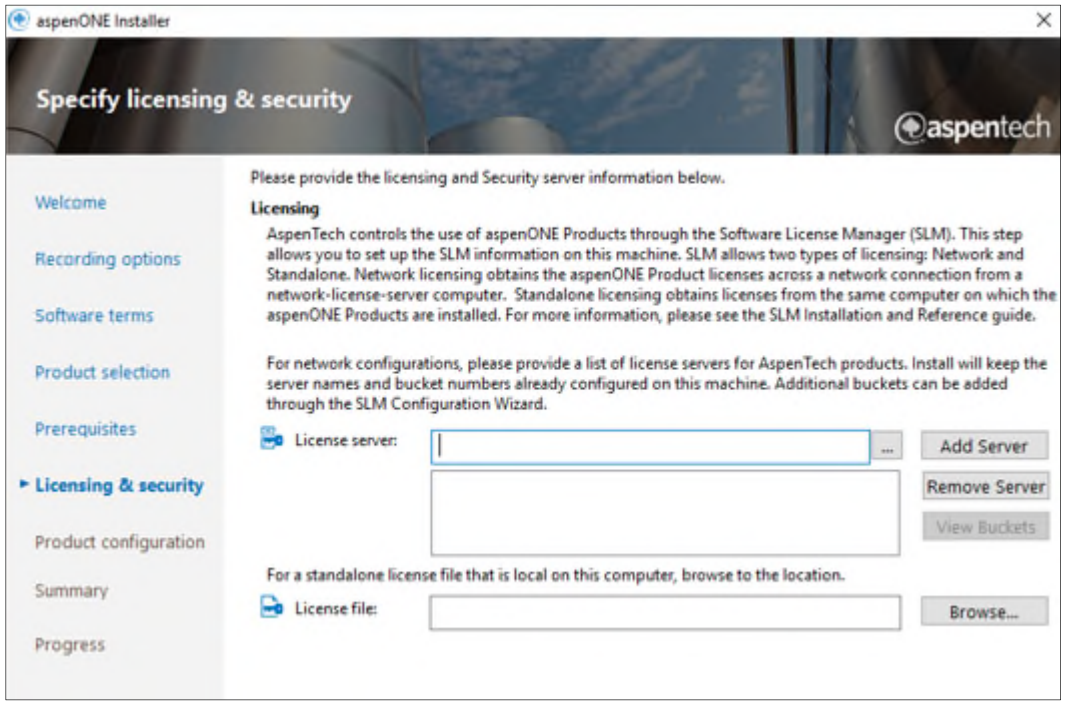


10 You will get prompted if there are any missing prerequisites found on the machine performing the silent install recording. Note the prerequisites missing and make sure all software is deployed to all target client machines prior to deploying the AspenTech software.

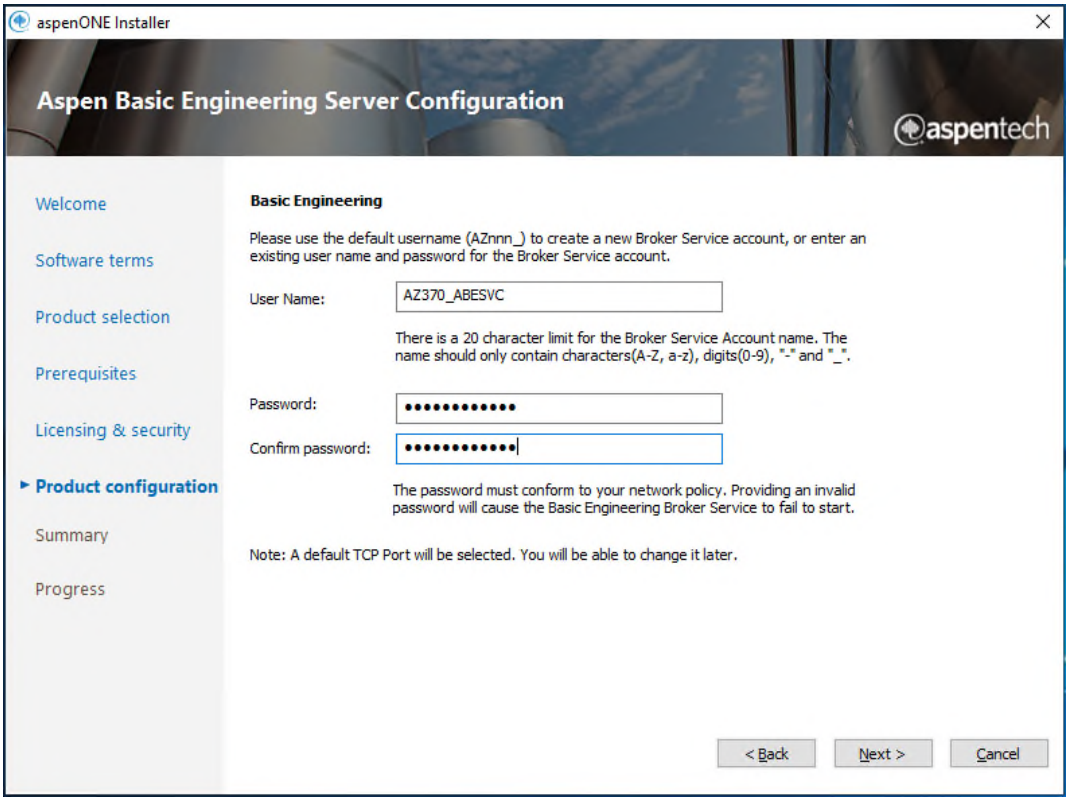
Check the box agreeing you acknowledge that all the prerequisites must be installed on each target computer to continue.



11 Click **Next** and enter the information for your AspenTech license server or a standalone license.

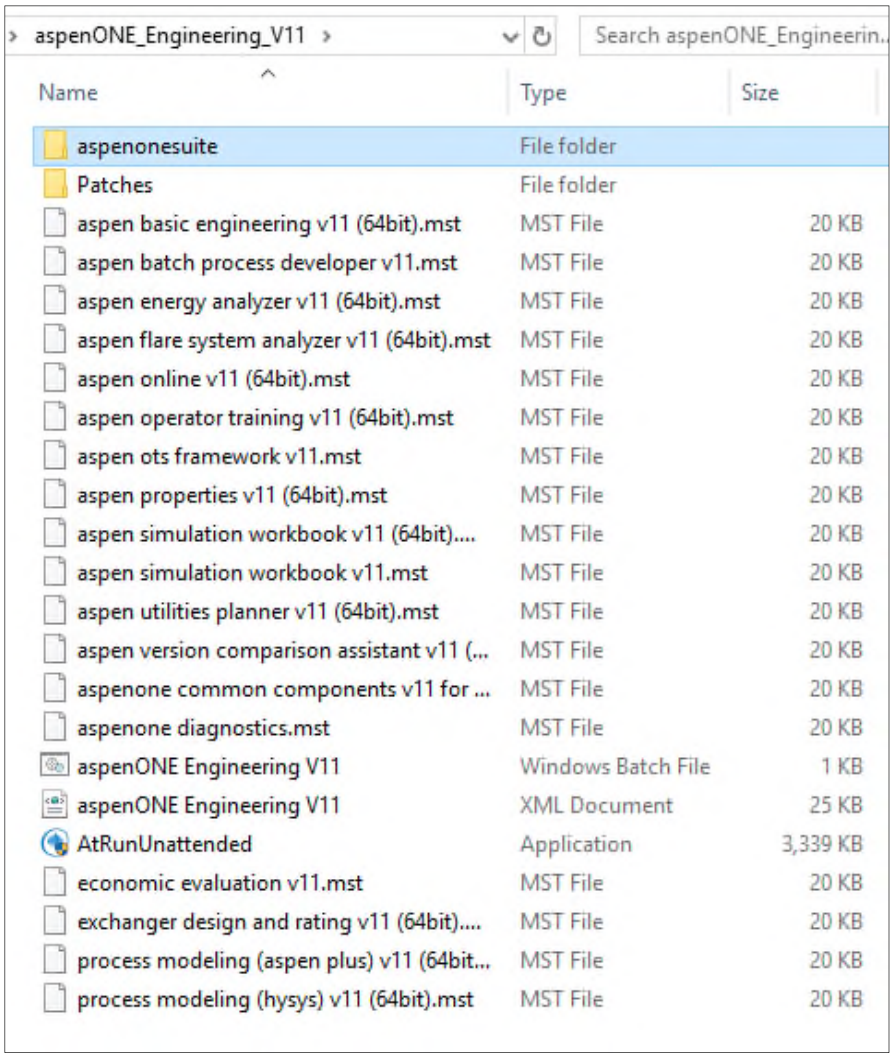


12 Click **Next** and enter in a username and password for the ABE Broker Service configuration.



13 Review your installation settings before recording the .xml file, and then select **Record Now** to create the configuration files and copy the necessary media to the proper location.

14 Once the recording is complete, go to the directory you had created earlier to view the silent installation files:



- The typical Aspen Engineering installation for V11 includes 18 products and a corresponding .MST file for each product.

- **aspenONE Engineering V11.xml** is the response configuration file for the silent installation and was specified during the recording step of the AspenTech prepare deployment tool.

- **aspenONE Engineering V11.bat** is a batch file that can be used for silent deployment; however we will not use this file for deployment with SCCM. You can however use this batch file to launch a silent installation on a test machine prior to deploying via SCCM.

- The **aspenonesuite** directory contains the .MSI and any other necessary installation files for each AspenTech product installation. Within this folder, there will be a directory for each .MST file listed above.

  Note: This directory should also contain one *Core* folder, which contains all needed 3rd party, and shared component files.

If the checkbox, "Make each product folder a self-contained installation package", was checked during the recording process, there would be a Core folder under each product installation folder instead.

- The **Patches** directory contains any patches that already exist on the media, as well as the aspenONE Update Agent.exe. Any applicable patches in this folder will be automatically applied to machines after the installation of the products.

- **ATRunUnattended.exe** is the executable we will be using for the silent installation. Refer to the generated batch file to see what switches are available.

Download patches using aspenONE Update Agent: Unattended Deployments

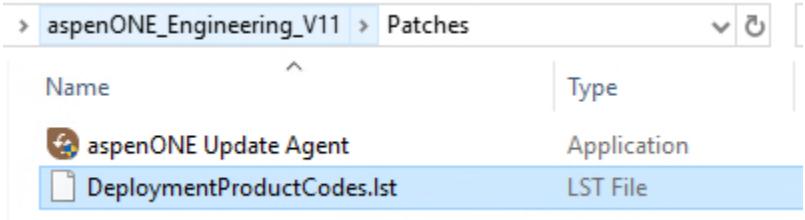
To make sure the latest AspenTech CP patches for the products are installed during the silent deployment, navigate to the **Patches** folder. This folder should contain an **aspenONE Update Agent.exe** and a **DeploymentProductCodes.lst**.

- The **aspenONE Update Agent.exe** is used to install any applicable patches located in that folder. It can also be launched to search for the latest patches available from the aspenONE Update Center.

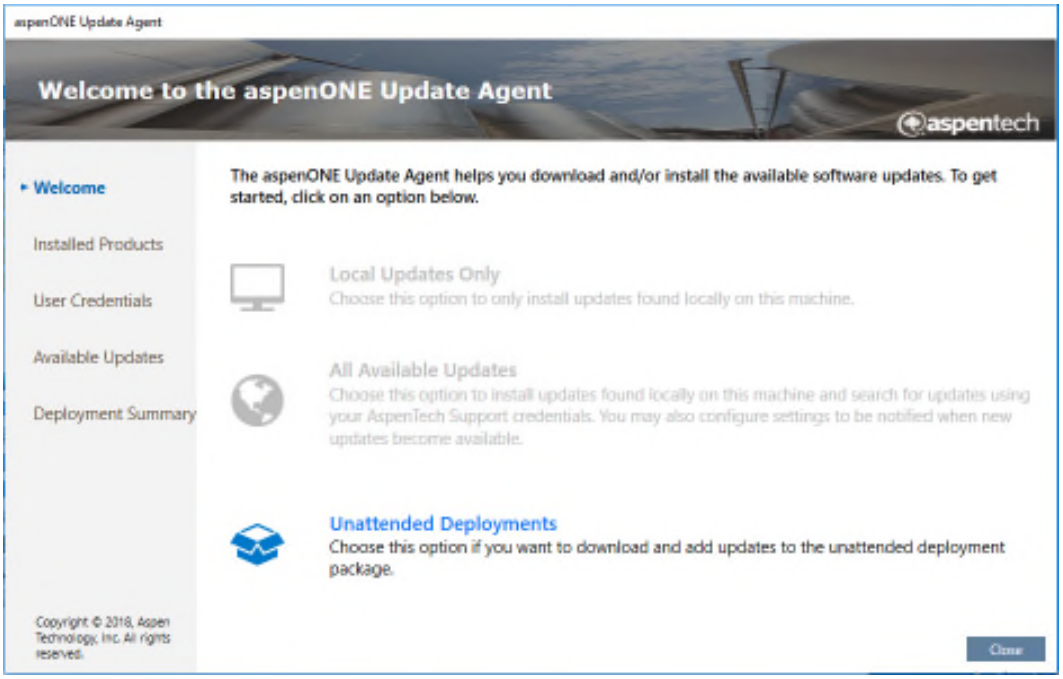
- The **DeploymentProductCodes.lst** is a list that was generated during the Prepare Deployments install script, recording process. It lists the products that were selected in the recording process and is used by the aspenONE Update Center to determine the latest patches that are available for those products.

Note: It is recommended to keep a copy of the *DeploymentProductCodes.lst* file somewhere as it can continue to be used to search and download more applicable patches in the future for your package.

1 Delete any other existing patches in this folder since more recent patches may be available on the Aspen Support Site and will be downloaded.



2 Launch the **aspenONE Update Agent.exe**. Select **Unattended Deployments.** This option is only available when the DeploymentProductCodes.lst file is in the same directory as the Update Agent.



3 Enter in your AspenTech Support Credentials, and enter Test Connection, followed by Next. The Update Agent will use your credentials to search for any applicable updates.

4 If any patches are available, select the Download Only button to download the files.

5 Once the download is complete, another Patches folder, containing all the patches, will be created in the same directory as the aspenONE Update Agent.exe.

6 Now the silent deployment package is complete. Copy the directory containing all the installation files to an appropriate location in your SCCM source directory.

Creating the SCCM Application for Aspen Desktop Products

This guide will go over an example of how to create the SCCM Application for the typical Aspen Engineering package created previously in the guide.

These steps can also be applied with other Aspen Desktop packages created using the Aspen Technology Prepare Deployment workflow above.

1. Select **Create Application** from the SCCM application ribbon.
2. Select Manually specify.
3. Enter general information under Specify information about this application.
4. Set the application catalog properties.
5. Add Deployment Type, and select **Script Installer**.
6. In the **General Information** pane, name your application, and reference the system and architecture to which the deployment applies.

Content

1. For the Content location:

   \\<sccm host>\<sccm source directory>\…\<AspenTech Deployment Package>

   Browse to the directory you created during the preparation of the AspenTech Silent Deployment package:

   Example: \\SCCM-Primary\Media\aspenONE_Engineering_V11

2. For the Installation program, specify:

   AtRunUnattended.exe "aspenONE Engineering V11.xml" altsource="." /L logfile="%TEMP%\Aspen Engineering V11.log" /noreboot

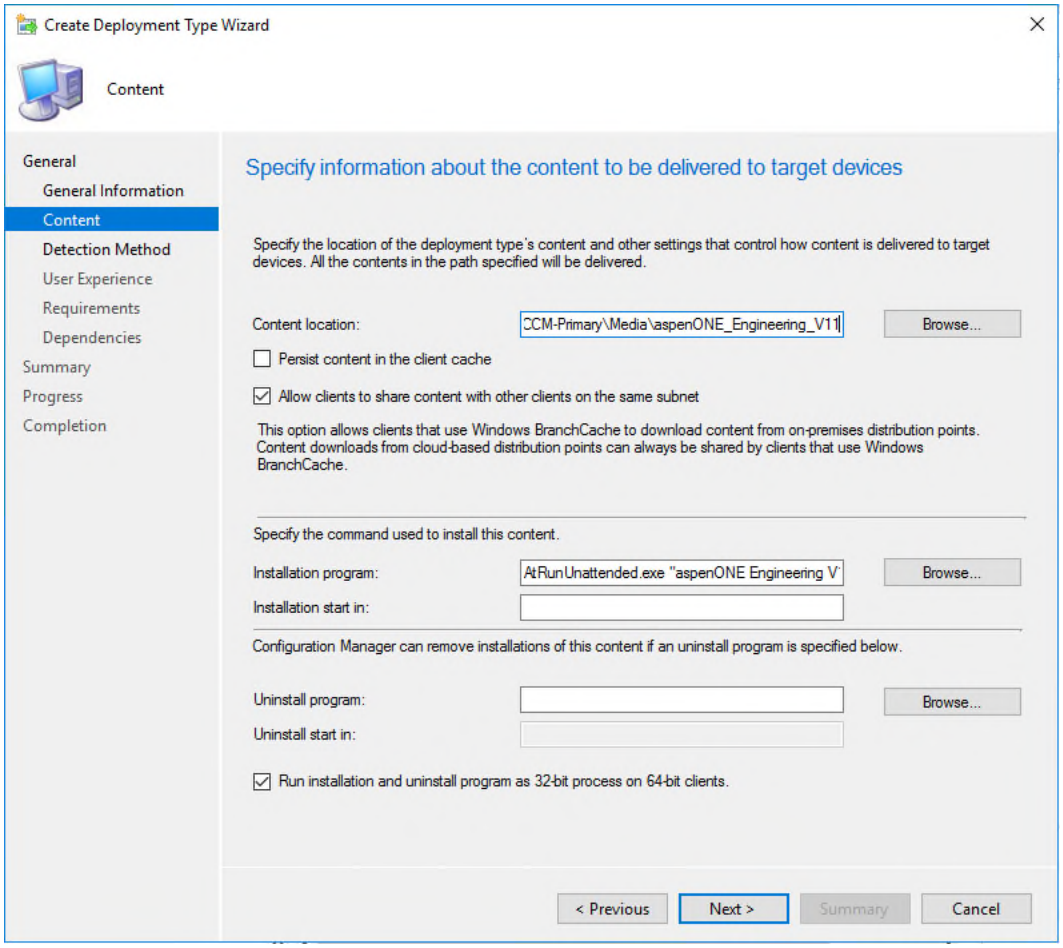
   - **altsource**: Specifies the location the AtRunUnattended.exe should use for getting the media files. Specifying it as ".", tells the program to use the location in its local folder – in this case, the silent installation package that was created.
   - **/L**: Enables verbose logging. This flag will produce detailed MSI logs for each product installation to help with troubleshooting. A custom file location and name can be specified using **/L** logfile = [path\name.log]. For more information, see the "**Logging**" section in Chapter 4 for system specific log location.

     Note: This option increases the installation time by a factor of at least two.
   - **/noreboot**: Suppresses rebooting.

Individual product uninstallation through the SCCM system is not supported.

- To silently uninstall all AspenTech products from a system, run **AtRunUnattended.exe/removeall**.

Note: The example does not include the use of an uninstallation program.
Caution: This will uninstall all versions of all AspenTech products from your system.



Detection Method

For the typical Aspen Engineering package, there are 18 detection rules.

A Windows Installer detection method will be used for each.

1. To find the product codes, select **Windows Installer** as a detection rule and browse to each MSI. Each directory within the **aspenonesuite** directory represents a particular product that will have its own MSI. Browse to the location to import the product code straight from the MSI.

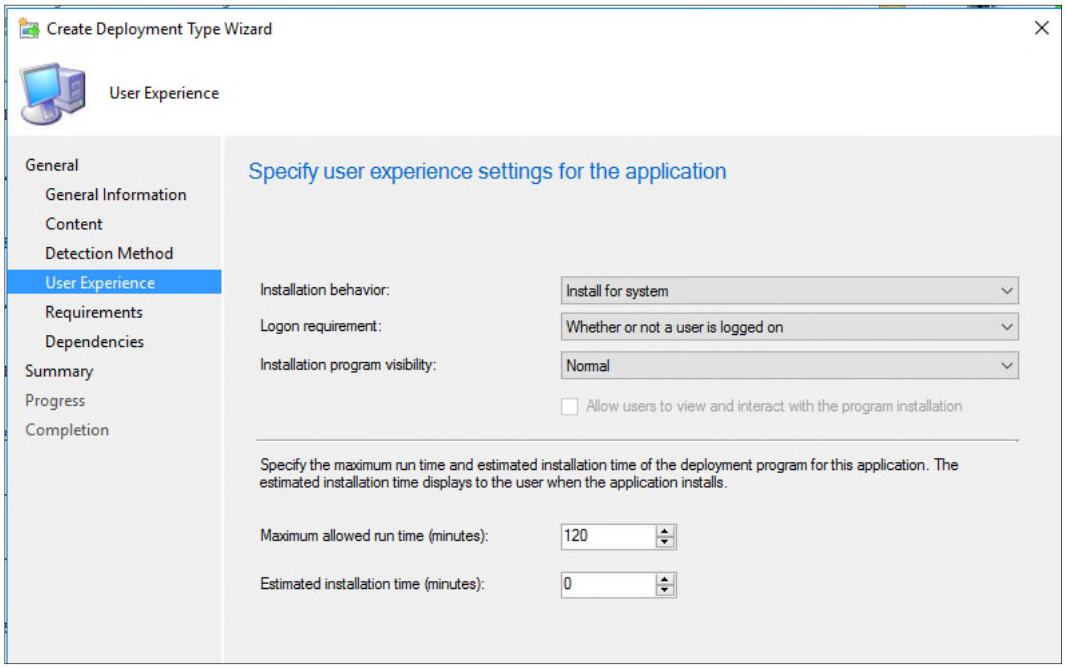
   Here are the product codes for the Aspen Engineering products:
   - Aspen Basic Engineering V11 (64bit): {85D59117-9255-4EA7-A8BF-780B1F8F41EF}
   - Aspen Batch Process Developer V11: {CDD1A07B-00AA-4490-B8D8-1CF9A6EA8729}
   - Aspen Energy Analyzer V11 (64bit): {C3DDD8DD-E4E8-4CF3-863A-7F168CBEC73F}
   - Aspen Flare System Analyzer V11 (64bit): {7E9DCDDC-1519-47E4-A9B4-372738BEDD59}
   - Aspen OnLine V11 (64bit): {FB8F6D4E-D853-4E85-B5E9-D2F743119F59}
   - Aspen Operator Training V11 (64bit): {F1E7C4DC-3369-4377-A438-AEF7784E70B2}
   - Aspen OTS Framework V11: {E4272E7F-D96C-4B26-A4EA-E21781588220}
   - Aspen Properties V11 (64bit): {5593C8BB-9638-4DF0-B85D-A54EE92C3999}
   - Aspen Simulation Workbook V11: {F959A1EF-D3F8-4314-9CB4-8DF5E0DBA9FF}
   - Aspen Simulation Workbook V11 (64bit): {AAB0BE03-214C-418B-AD09-46D04D6A6F6A}
   - Aspen Utilities Planner V11 (64bit): {AC35D5E2-0B0D-4702-B1E0-19F658F82E5D}
   - Aspen Version Comparison Assistant V11 (64bit): {D032E893-4CF6-401F-BF8D-1ABBD5270ECB}
   - aspenONE Common Components V11 for coexist: {85A75F3D-C5C7-40DC-9163-F5CD25D0A464}
   - aspenONE Diagnostics: {F76631C3-51CF-433C-A6EE-1249BAB0B0D9}
   - Economic Evaluation V11: {7A154E42-3531-4957-BFF7-FF208EC5F82D}
   - Exchanger Design and Rating V11 (64bit): {B76C9FFF-741D-4913-9D3F-7775051CBE41}
   - Process Modeling (Aspen Plus) V11 (64bit): {5136017C-F122-4E7A-98FA-5D674145152B}
   - Process Modeling (HYSYS) V11 (64bit): {452CEE7B-0D0A-41C7-A652-4D4E0DE22C5D}
2. Include a Windows Installer Detection Rule for each product, connecting them with "**And"** clauses as they are all required.

- If there were patches included in the Patches directory, you can also configure the detection method to account for them based on the final version number found in each patch XML file. See the "**Detection Method**" section for Patches for more information.

User Experience

In the **User Experience** section, select values based on your deployment methodologies and organizational standards.

- In the **Installation behavior** field, **Install for system** is required.
- In the **Logon requirement** field, select **Whether or not a user is logged on.**
- In the **Visibility** field, **Normal** (installation scripts will suppress interaction) is optional.



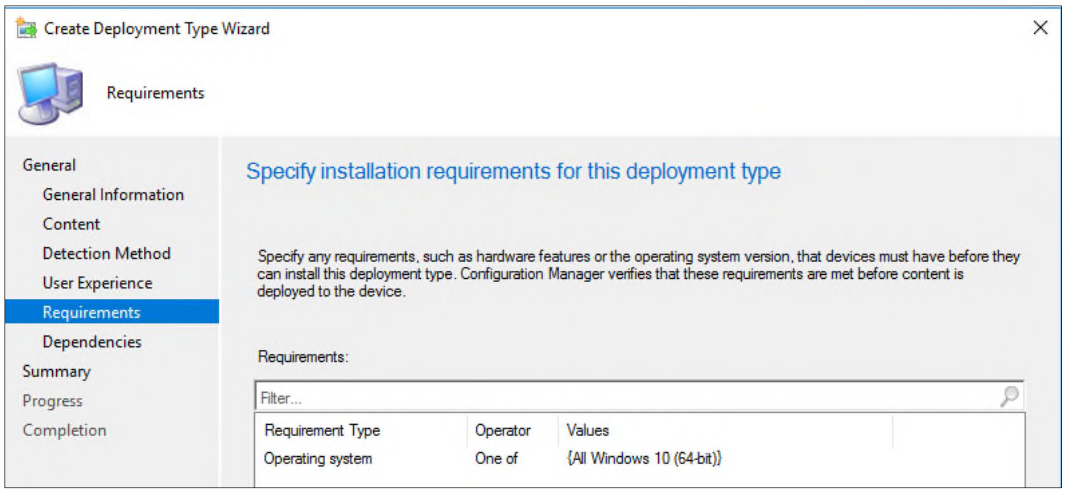
Note: A reboot of the machine may be needed after installation is complete.

There may be some post-install items that need to be run as well, such as registration of services. **A local administrator would need to log into the client machines for the post-install items to run**. Items to be run would be in the RunOnce key in the Registry after installation has finished.

Requirements

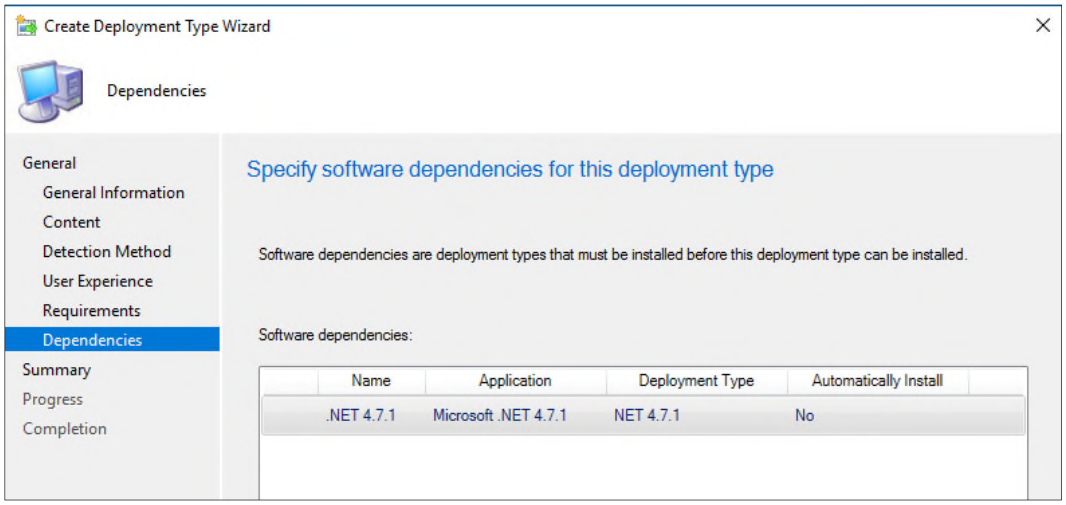
Since the recording of the silent installation package was created on a Windows 10 64-bit machine, set the requirement such that it can only be installed on Windows 10 64-bit operating systems.

A separate recording and deployment type must be made for each type of client operating system to which you are deploying.



Dependencies

Make sure all prerequisites are installed on the client machines prior to the AspenTech software being installed. For the typical Aspen Engineering installation, only .NET 4.7.1 is needed.



Note: Installation of AspenTech products runs more smoothly if the dependencies are already installed on the client machines. Having them install automatically with the Aspen Plus installation packet increases the chance of initial failure to install, since the dependencies may need to restart first.

Proceed through the **Create Deployment Wizard** until you return to the **Deployment Types** pane of the **Create Application Wizard**.

The SCCM application for V11 Aspen Typical Engineering products on a Windows 10 OS is now ready to be deployed.

Creating the SCCM Application for AspenTech Cumulative Patches

This section of the *Deploying aspenONE V11 with SCCM Best Practices* guide will describe how to create a kit to deploy only AspenTech patches on to machines with AspenTech products already installed via SCCM.

See the above section for how to create silent deployment packages that installs both the full release products and latest patches.

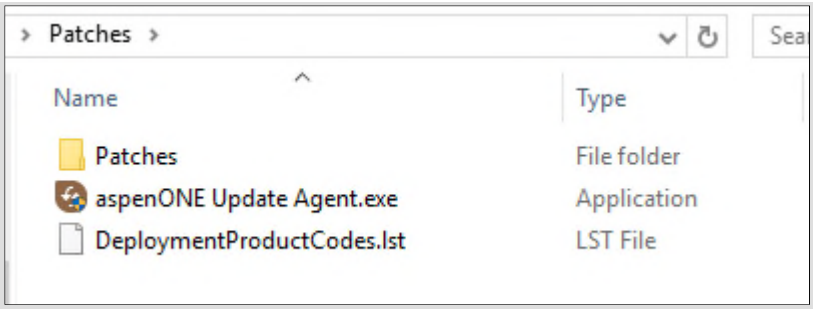
You can refer to the aspenONE Update Agent help for more information regarding how to download patches.

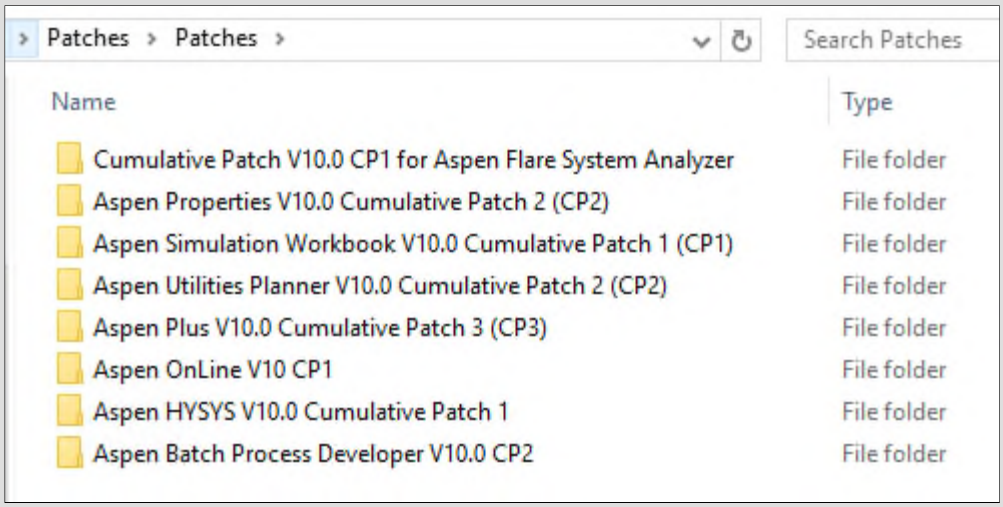
Here are 3 recommended ways to download relevant cumulative patches:

- The *All Available Updates* option in the aspenONE Update Agent.exe.
    - In this case, the Update Agent must be run on a machine with the AspenTech products already installed on it.
- The *Unattended Deployments* option in the aspenONE Update Agent.exe.
    - This Unattended Deployments option will only be available if there is a DeploymentProductCodes.lst file present in the same directory as the Update Agent.
    - No AspenTech products need to be installed on the machine to download the patches.
    - The DeploymentProductCodes.lst file is generated during the **Aspen Technology Prepare Deployment Workflow** and can be reused in the future to search for and download all the latest relevant patches.
- Manually from the AspenTech Support Site – Download Center

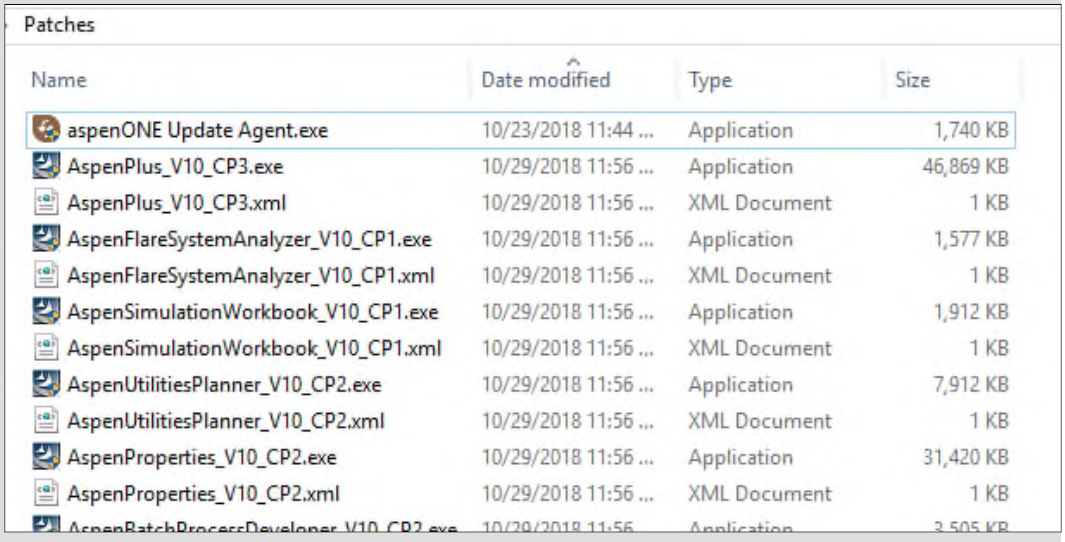
Note: When the Update Agent is used to install patches, it will search for all local patches found in the same directory as the exe, as well as any subdirectories.

For example, the V11 aspenONE Update Agent will download patches in a Patches folder within the same directory as the Update Agent:





However, it is also acceptable to have all patches under the same directory as the exe, or any combination of the two:



Once all relevant patches have been downloaded and are in a similar structure one of the above, copy the folder to the SCCM machine. This will be the silent install kit.

Within the SCCM application:

1. Select **Create Application** from the SCCM application ribbon.
2. Select Manually specify.
3. Specify general information under Specify information about this application.
4. Set the application catalog properties.
5. Add Deployment Type, and select **Script Installer**.
6. In the **General Information** pane, name your application, and reference the system and architecture to which the deployment applies.

Content

In the **Content** section:

- For the **Content location**:

\\<sccm host>\<sccm source directory>\...\<Aspen Patches>

Browse to the directory you created during the preparation of the AspenTech patches silent deployment package:

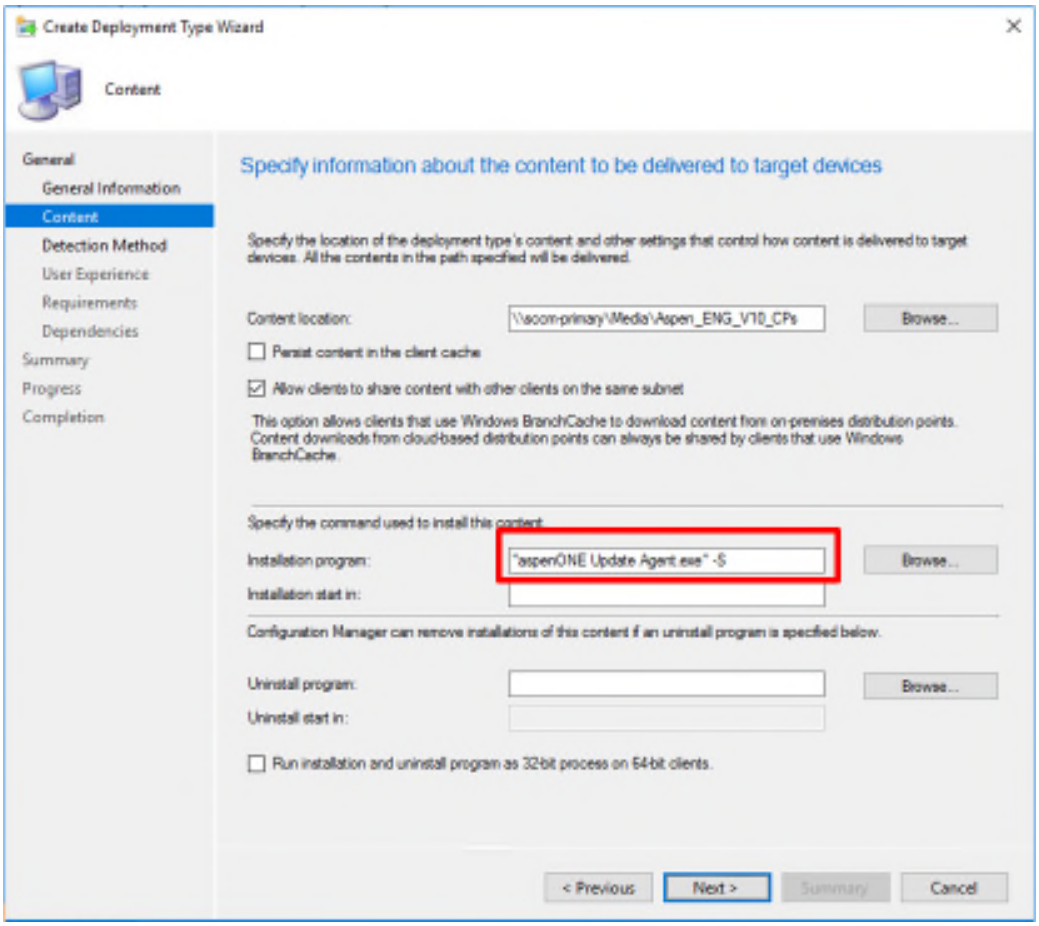
Example: \\sccm-primary\Media\Aspen_ENG_V10_CPs

Installation program:

"aspenONE Update Agent.exe" -S

Where -S = silent installation.

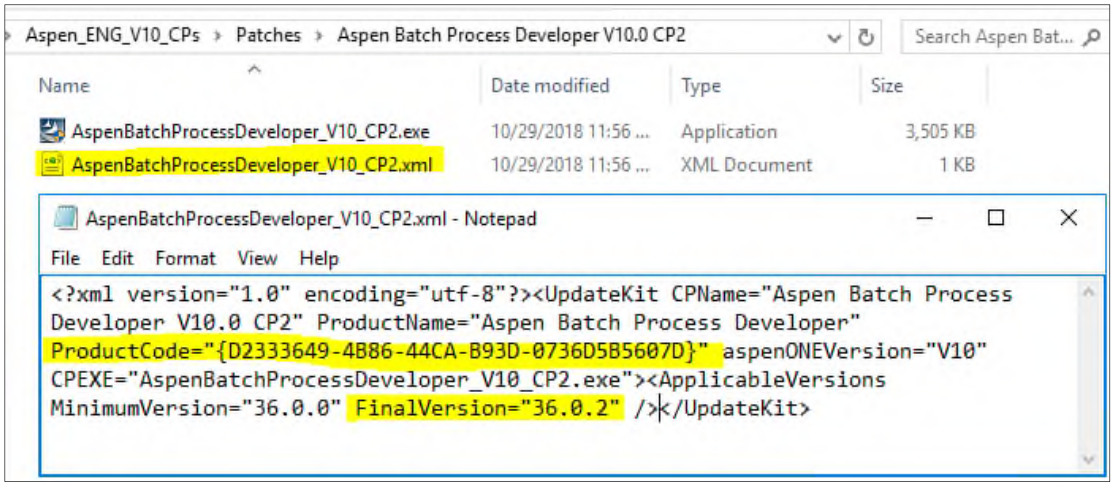
Launching the aspenONE Update Agent will install only the patches in its local directory which it detects to be applicable to the client system.

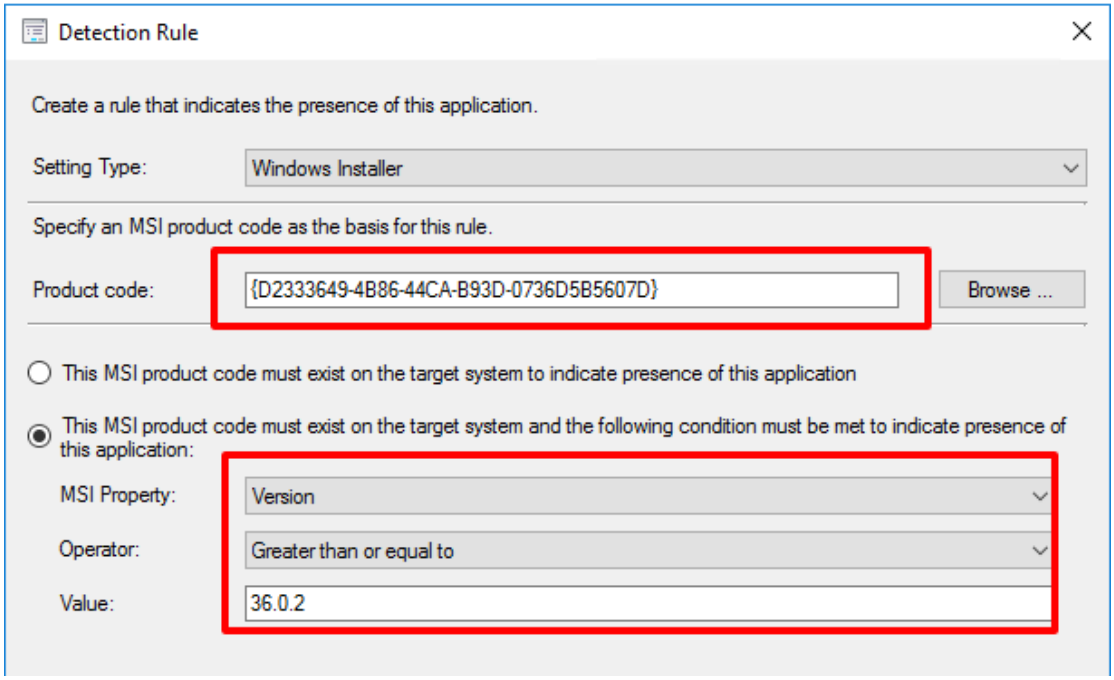


Detection Method

One way to set the detection method is to specify the MSI Version property for each patch. You can use the Windows Installer product code and the Final Version number that was specified in each patch .XML file.

Here is the example of the Aspen Batch Process DeveloperV10_CP2.xml file and the detection rule set for it:



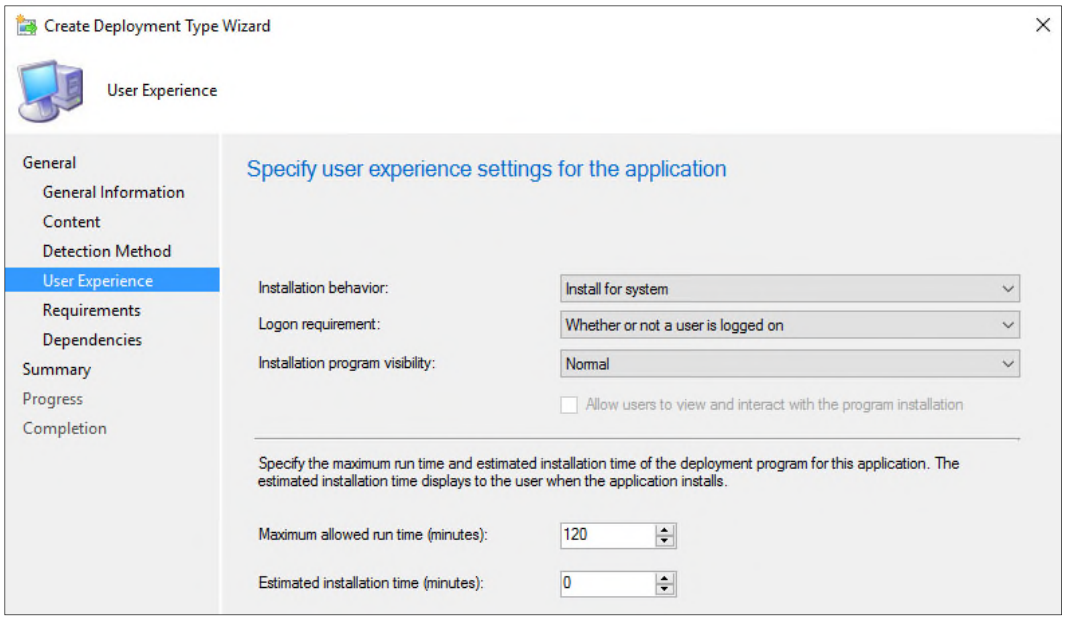


Perform this task for all patches located in the Patches folder.

User Experience

In the **User Experience** section, select values based on your deployment methodologies and organizational standards.

- In the **Installation Behavior** field, **Install for system** is required.
- In the **Logon requirement** field, select **Whether or not a user is logged on.**
- In the **Visibility** field, **Normal** (installation scripts will suppress interaction) is optional.



Requirements

AspenTech patch installation is not operating system specific; as a result, you can deploy the same deployment type to any machine so long as it has the corresponding AspenTech products installed on it.

Dependencies

When launched on a client machine, the aspenONE Update Agent will automatically only install the patches that are relevant for that machine. The application determines this by the .XML file for each patch.

For this example, we set the V10 Aspen Engineering SCCM Application as a dependency.

The SCCM Application for the AspenTech CP patches is now ready to be deployed.

3 Additional Information

Reboots

The packages contained within the *Deploying aspenONE V11 with SCCM Best Practices* document are written to initiate a soft reboot only. Aspen Technology is under the assumption that the packages may be deployed when the end user is actively logged into the client system and suggest that a reboot is not forced by the system even if necessary. Depending on corporate policies, rebooting of user systems by SCCM may be handled differently, especially if the deployment is scheduled to take place when the user will not be at the machine.

For AspenTech software to be properly installed, a user with administrative rights must also log into the machine after the reboot.

This is to ensure that any pending dll registrations and configurations are executed after the system has been restarted. Pending actions can vary across machines and can be found under the RunOnce keys in the registry.

Notes:

- The /noreboot flag for the Aspen Technology silent installation tool, **ATRunUnattended.exe,** flips the /REALLYSUPRESS switch on MSIEXEC.exe. If the installation exits with a reboot required, it will issue the 3010 return code upon completion.
- In the default settings of an SCCM Deployment Type, 3010 is mapped to a **soft reboot** and will be triggered by the SCCM system.

Pre-staging

When deploying Aspen Technology products in locations a great distance (or over a slow link) from the SCCM Primary site, it is useful to pre-stage content on the remote distribution points. When pushing content over a great distance, issues with failed deployments and difficulty syncing content updates across all DPs have occurred.

Cache Size

Ensure that SCCM client caches on machines that Aspen Technology applications deploys to are sufficiently large enough to support deployment of

large products. The **typical Aspen Engineering installation application** is about **6.3GB** in size.

Note: If SCCM is used heavily for application deployment within your enterprise, with the potential for multiple applications to be cached on a client system simultaneously, it may be necessary to adjust this value upwards from 10 GB as deemed appropriate.

Stream vs. Download Content Locally

If Aspen Technology products are being deployed to laptop systems, we recommend that the content be downloaded locally and then installed to lower the risk of failed installation because of the large size of the applications. When the application is set to download locally, after the files are downloaded to the local machine, the application will become available. This removes any networking issues that may negatively impact the installation.

SQL Server

On supported Windows client machines, applicable Aspen Technology products will install a version of SQL, **localDB**, on the client system, which will be used to store AspenTech application data. Windows Server platforms are not compatible with **localDB**, and these systems require **SQL Server** be installed.

AspenTech products support **SQL Server 2008** or newer databases, including Express. An installer for **SQL Server Express 2014 SP2** is distributed with the Aspen Technology V11 media and can be found in the **3rd Party Redistributables** folder.

If only one database instance is installed on the machine, the AspenTech installer will automatically detect and use that instance. However, if there are multiple instances, the appropriate instance must be specified within the .XML file, or the database must be manually restored on the client system before AspenTech products will work.

Logging

To help diagnose a failed Aspen Technology product installation, there are two different types of log files created on the client system if the /L flag is used with ATRunUnattended.exe in the deployment.

The first, and generally most useful with SCCM, is the silent installation log. This file will be named **ATRunUnattended [date and time].log**; it contains the calls **to msiexec.exe** being made by the Aspen Technology silent installation tool. This log file will be generated every time the ATRunUnattended.exe tool is run, whether or not the /L parameter is used.

Second are the individual product installation logs--one log file for each product installed. These verbose log files contain every command executed by MSIExec.exe during the installation.

Example: Process Modeling (Aspen Plus) V11.log.

SCCM runs the installation under a System account and creates the log files in the following location:

C:\Windows\Temp