Converting Smart 3D for iTwin

2024-03-11

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1. Introduction

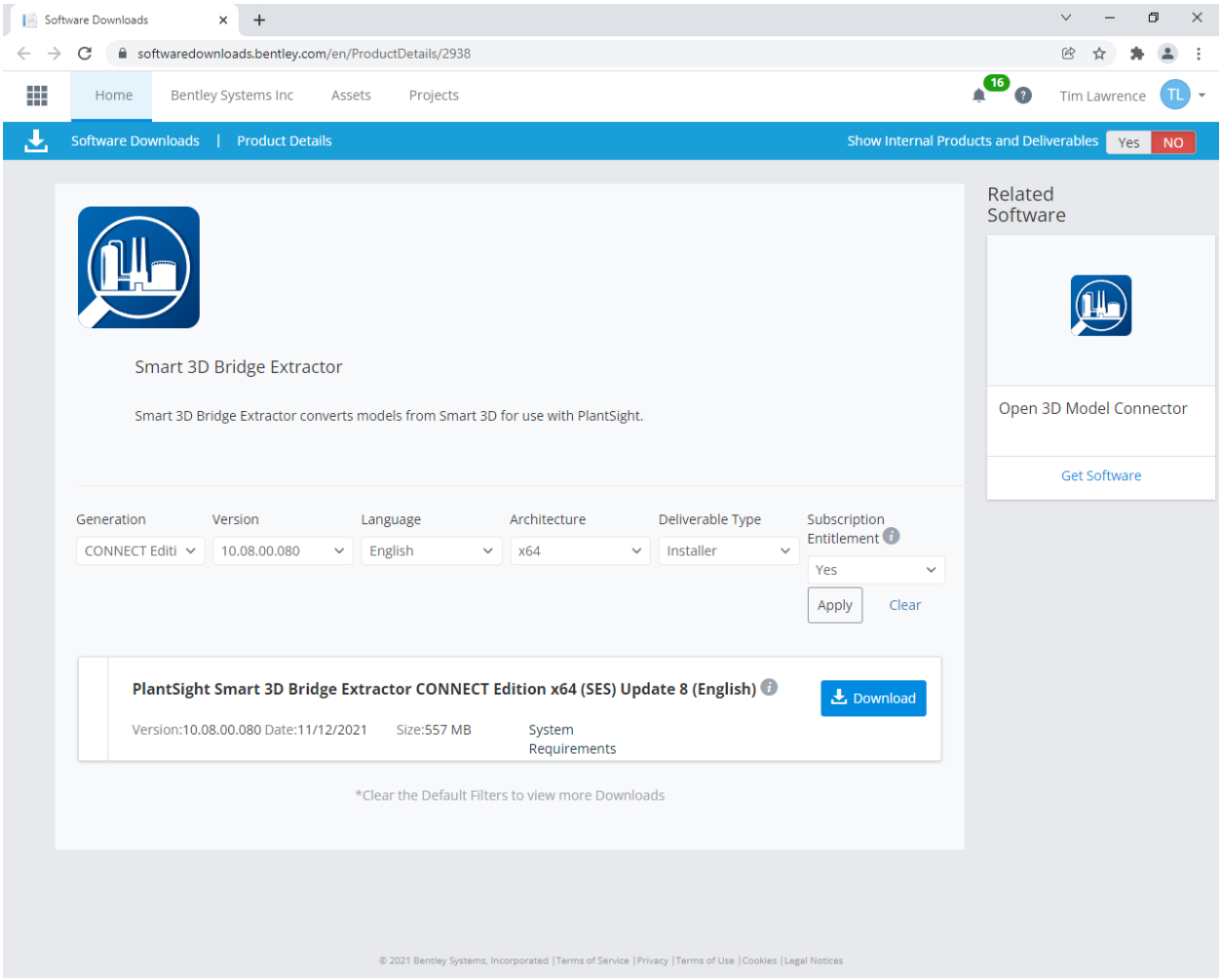
This document outlines the steps required to setup software required for using setup and use the Smart 3D Extractor and the Open 3D Model Connector with iTwins.

2. Software to download

2.1. Smart 3D Extractor

Navigate to:

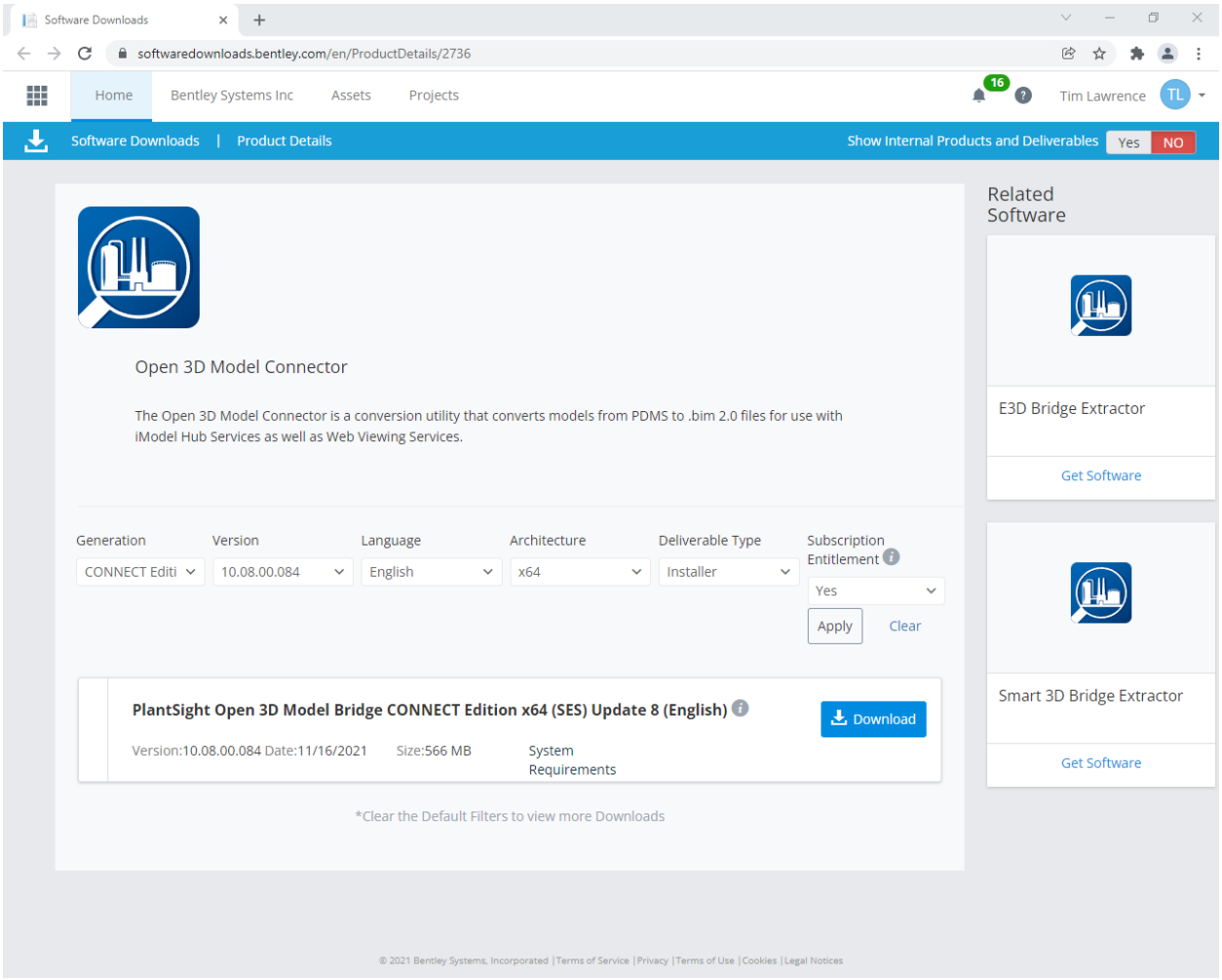
https://softwaredownloads.bentley.com/en/ProductDetails/2938



2.2. Open 3D Model Connector

Navigate to:

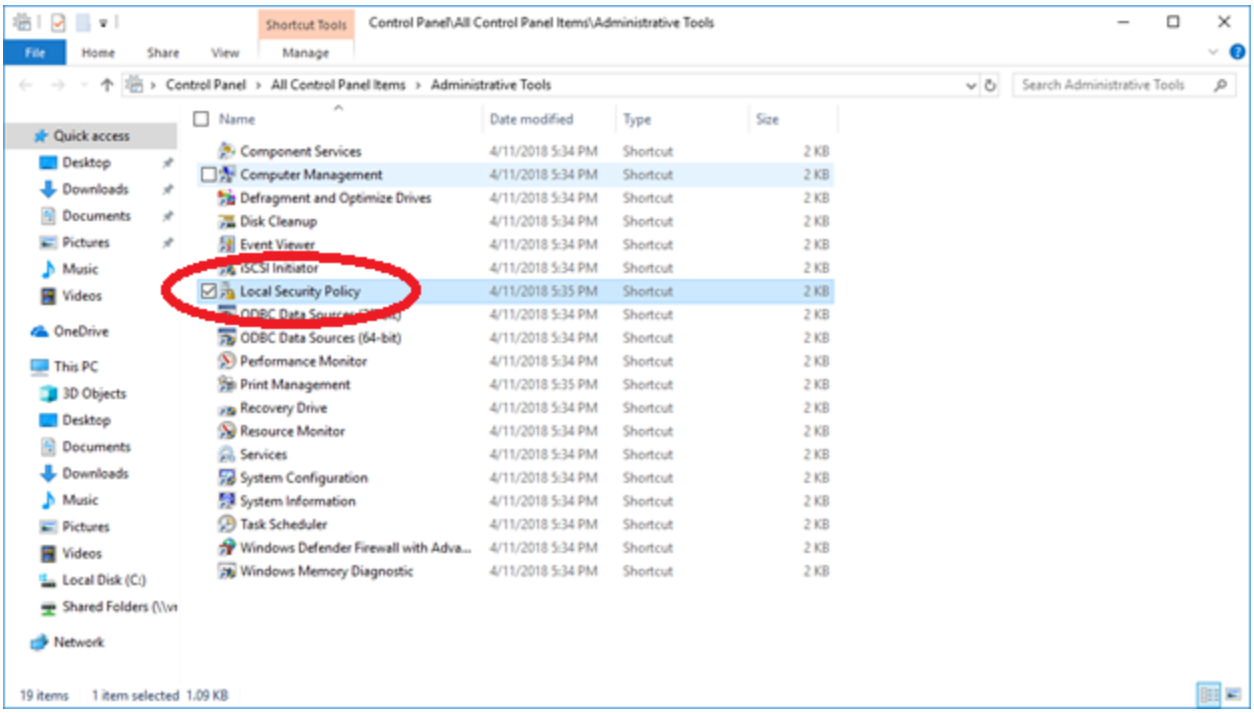
https://softwaredownloads.bentley.com/en/ProductDetails/2736



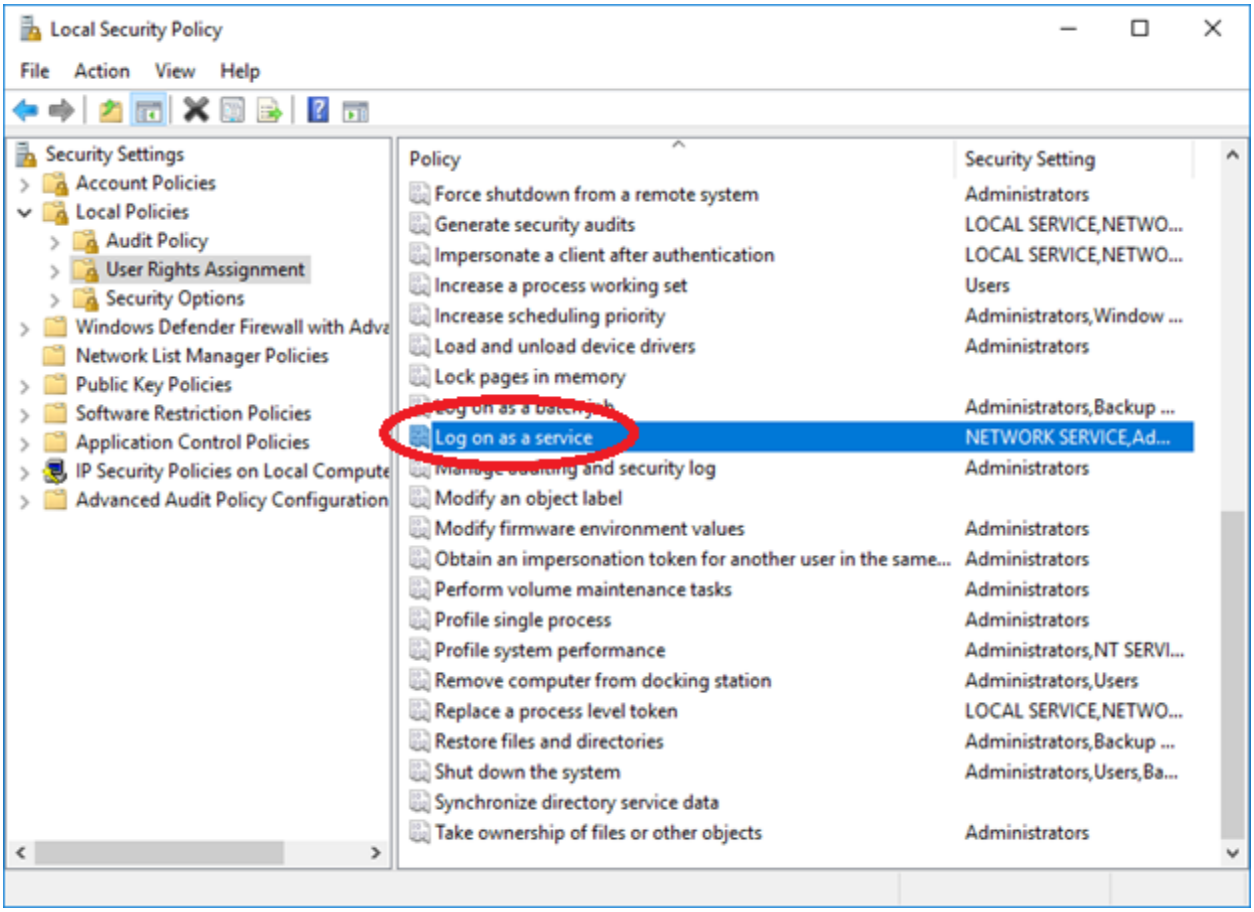
3. Set Logon as a Service

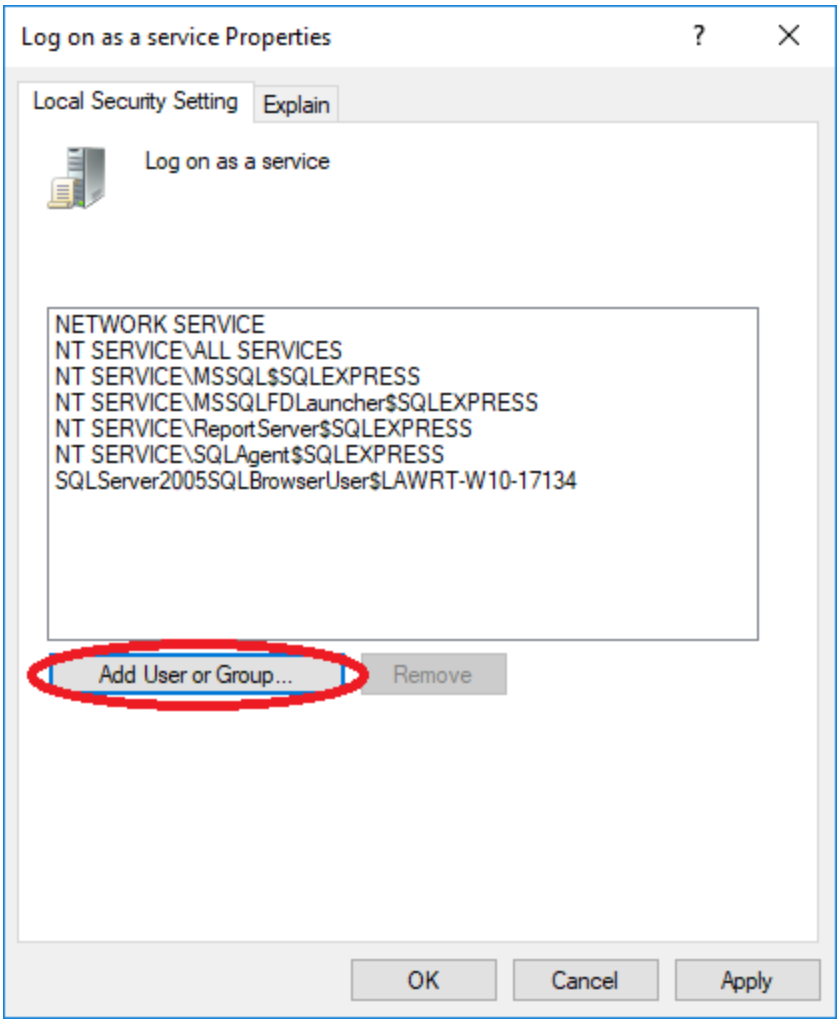
Before installing Smart 3D Extractor, you must enable logon as a service for the current user. This is required as these programs are required to run as a service.

Open Administrative Tools, select Local Security Policy and open it

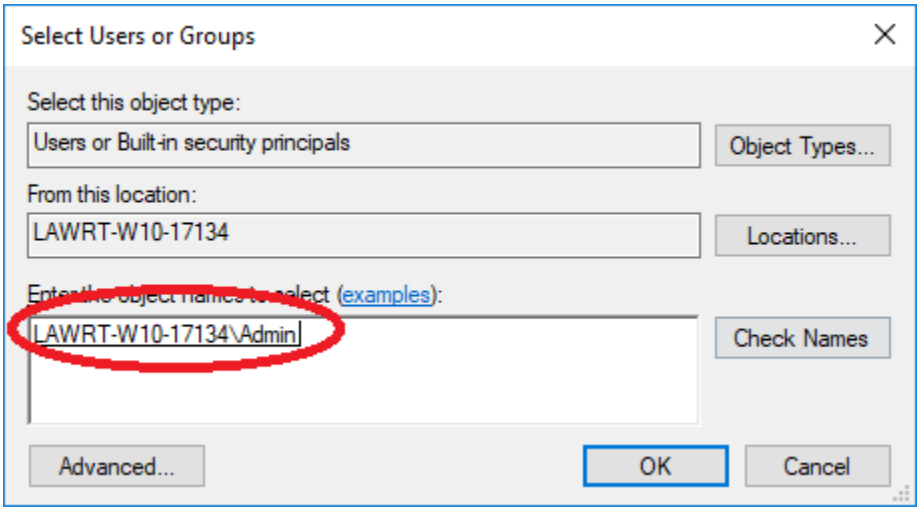


Go to Local Policies and User Rights Assignment, then select Log on as a service


Local Security Policy
File Action View Help
Security Settings
Account Policies
Local Policies
Audit Policy
User Rights Assignment
Security Options
Windows Defender Firewall with Adva
Network List Manager Policies
Public Key Policies
Software Restriction Policies
Application Control Policies
IP Security Policies on Local Compute
Advanced Audit Policy Configuration
Policy
Security Setting
Force shutdown from a remote system
Administrators
Generate security audits
LOCAL SERVICE,NETWO...
Impersonate a client after authentication
LOCAL SERVICE,NETWO...
Increase a process working set
Users
Increase scheduling priority
Administrators,Window ...
Load and unload device drivers
Administrators
Lock pages in memory
Administrators,Backup ...
Log on as a service
NETWORK SERVICE,Ad...
Administrators
Modify an object label
Modify firmware environment values
Administrators
Obtain an impersonation token for another user in the same...
Administrators
Perform volume maintenance tasks
Administrators
Profile single process
Administrators
Profile system performance
Administrators,NT SERVI...
Remove computer from docking station
Administrators,Users
Replace a process level token
LOCAL SERVICE,NETWO...
Restore files and directories
Administrators,Backup ...
Shut down the system
Administrators,Users,Ba...
Synchronize directory service data
Take ownership of files or other objects
Administrators



Add the user name and click OK



4. Software Installation and configuration

4.1. Smart 3D Extractor

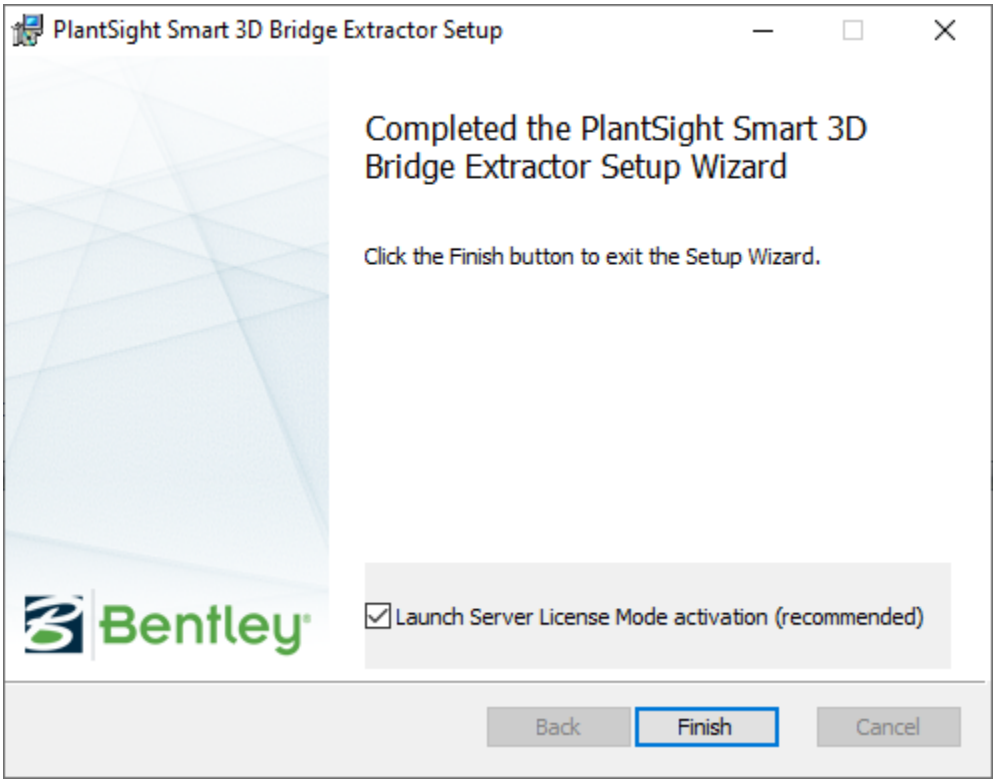
Prior to installing the Smart 3D Extractor, ensure that you have installed SQL Express or SQL Server. The detailed steps for this are outlined in "SQL Express Setup". Download and install Setup_PlantSightSmart3DBridgeExtractorx64_10.08.xx.yy.exe.

The use of SQL Express is sufficient for the sample database that is often used for demo setups, but if data from an actual project is used, it will likely exceed the 10 GB limit of SQL Express. In this case, install SQL Server.

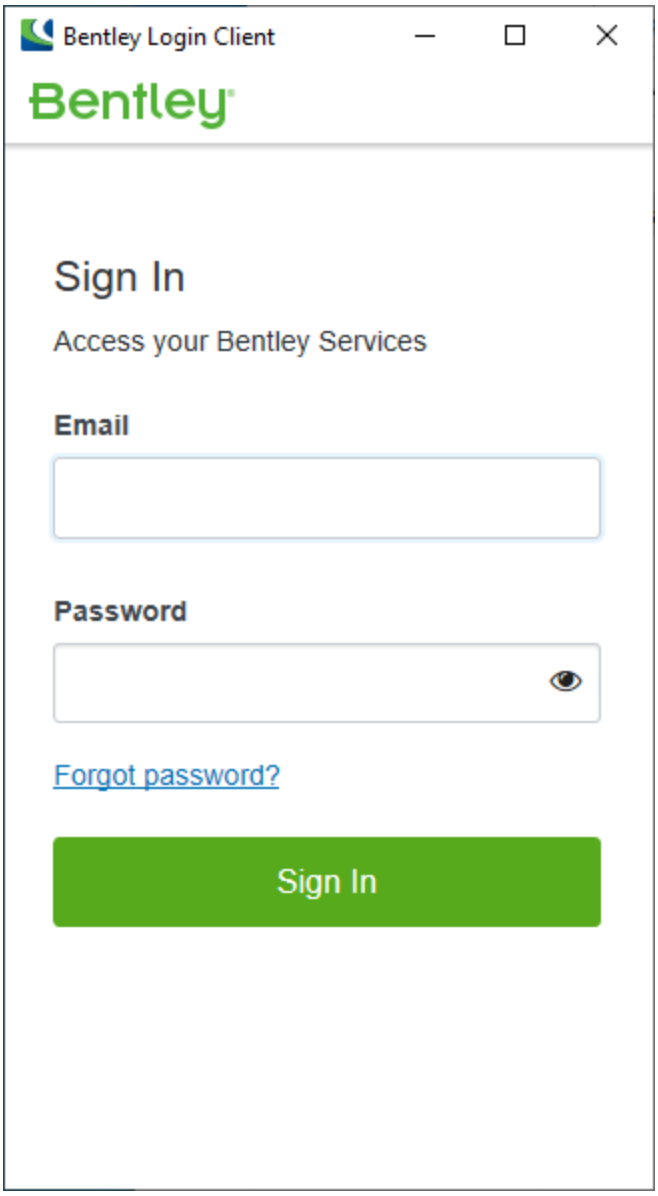
Another alternative is to install the Smart 3D Extractor with your Smart 3D installation and this will allow you to also capture the changes made in the Smart 3D project after the initial model import.

4.1.1. Configure Licensing

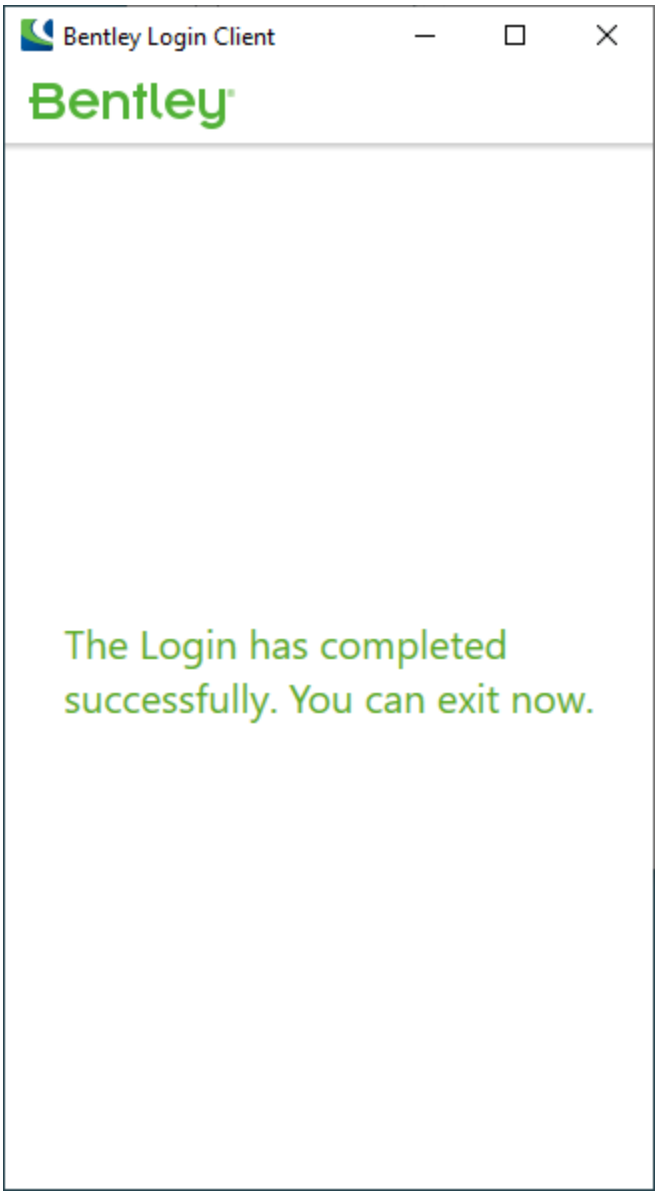
When the install finishes, you should configure the licensing. The licensing for Smart 3D Extractor now uses SES licensing.



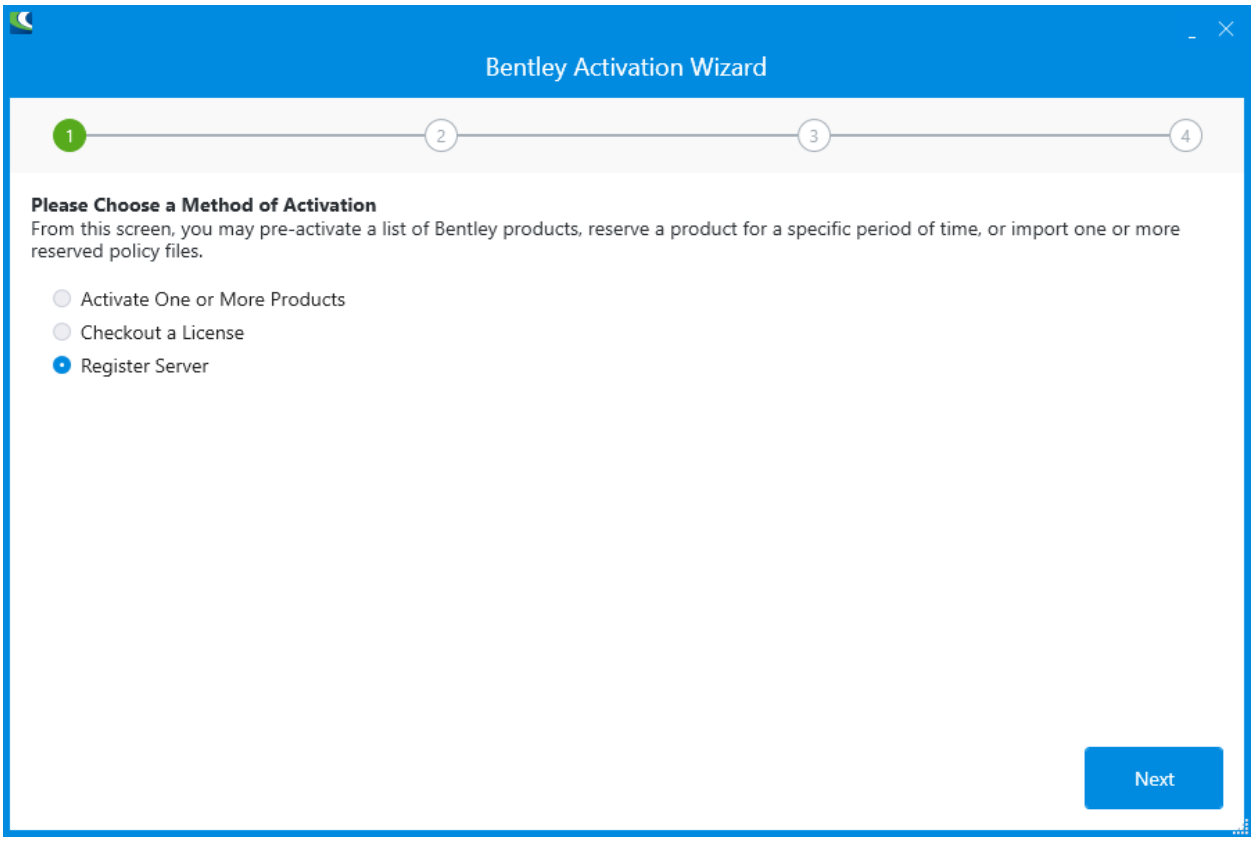
Clicking finish will bring up the Bentley Login Client. Enter the credentials you normally use for the CONNECTION Client.



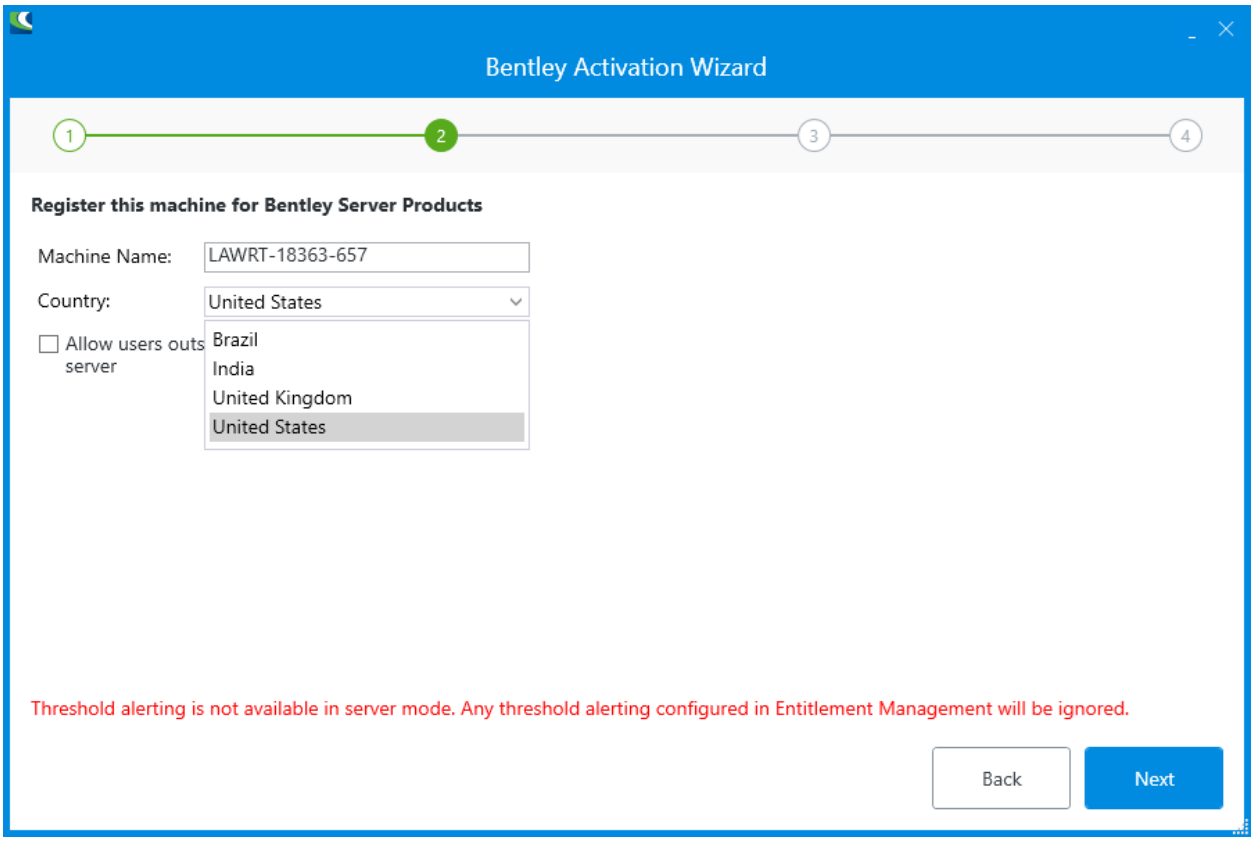
After entering your credentials, you should get this:



Closing this window will bring up the activation wizard where you will add the licensed products you will be using.

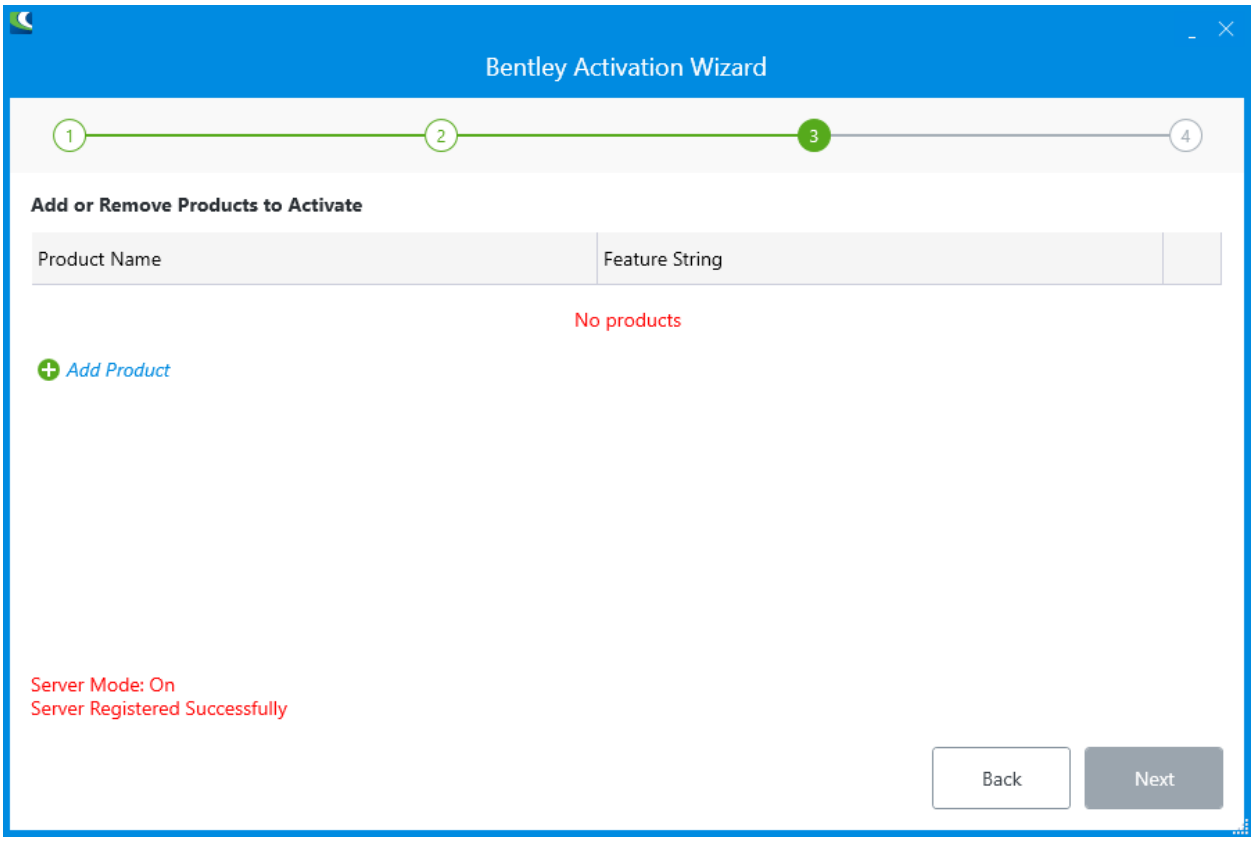


Select a country:



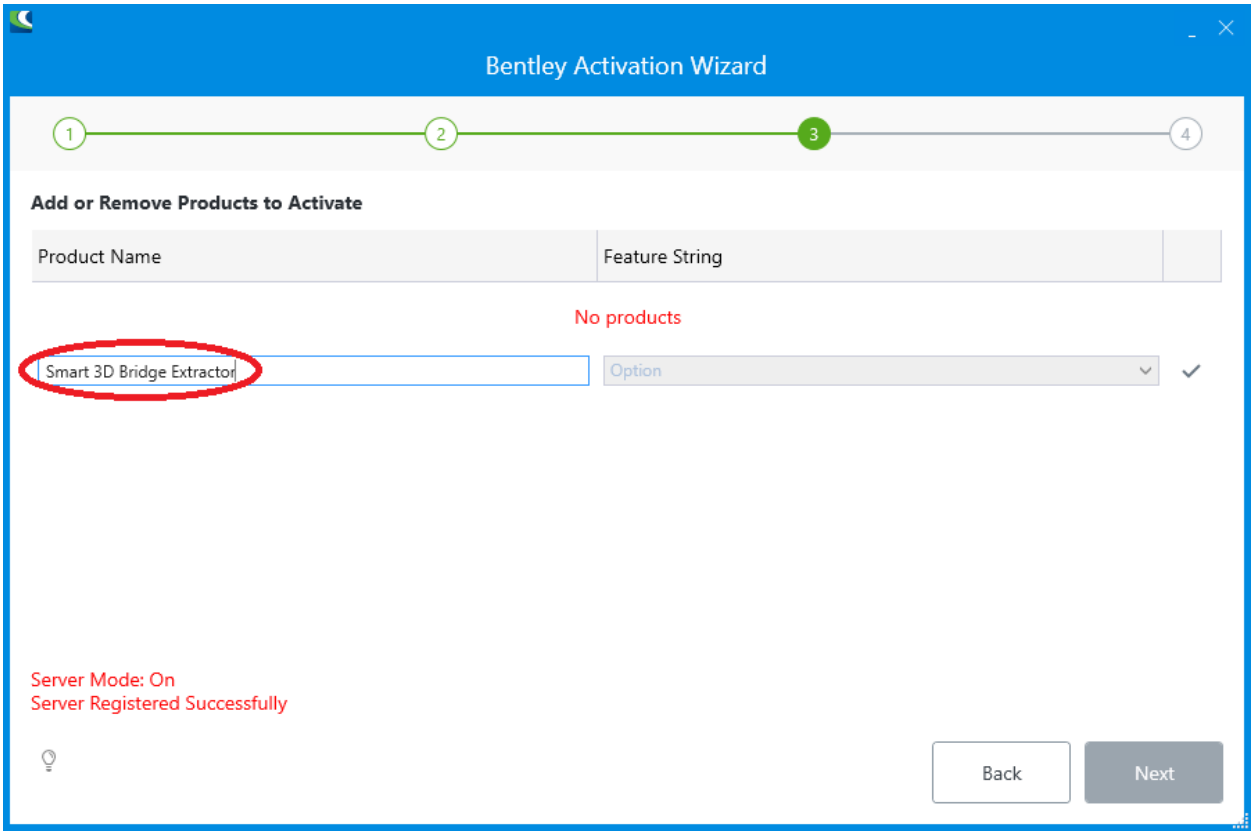
And click Next.

Now you will need to add the products that will be used. Note that when using server based licensing, all products used on this machine will have the usage against this user.

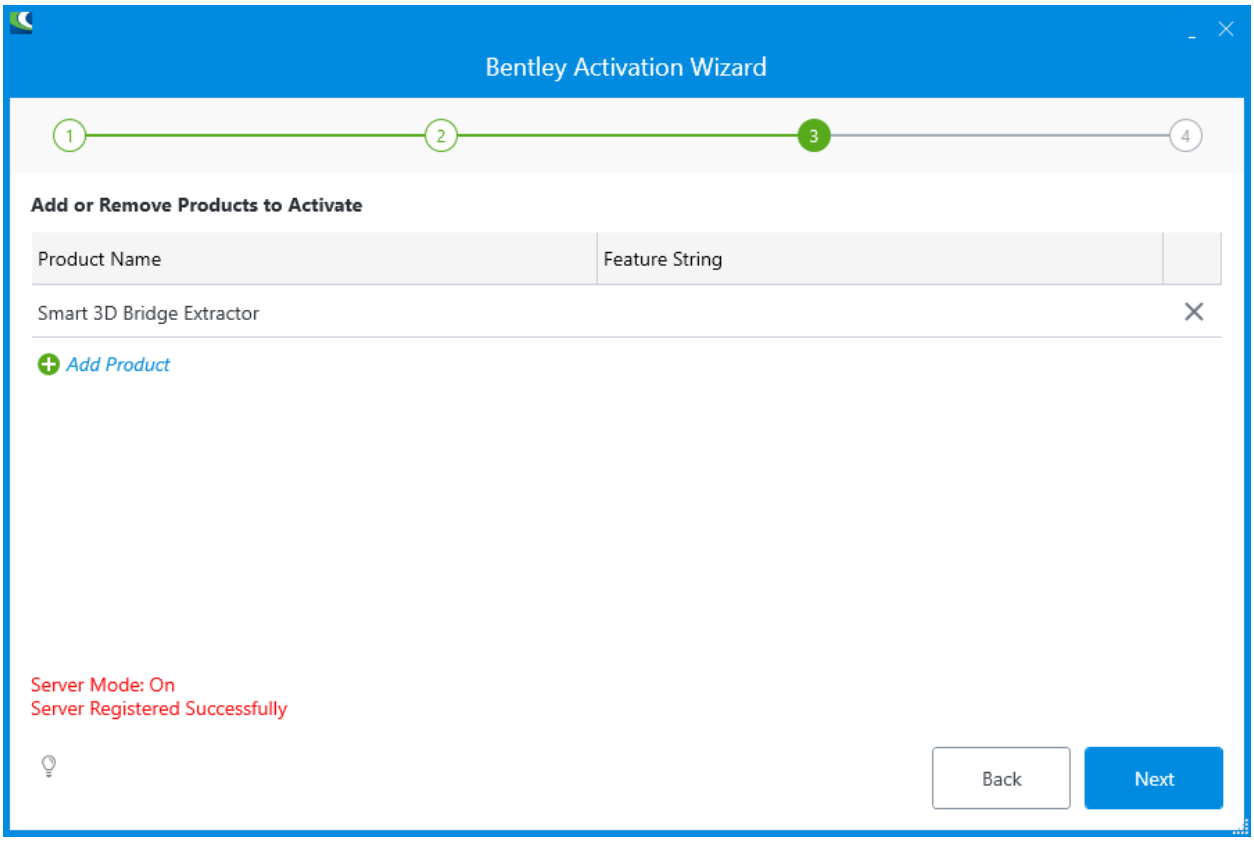


Click “+ Add Product”

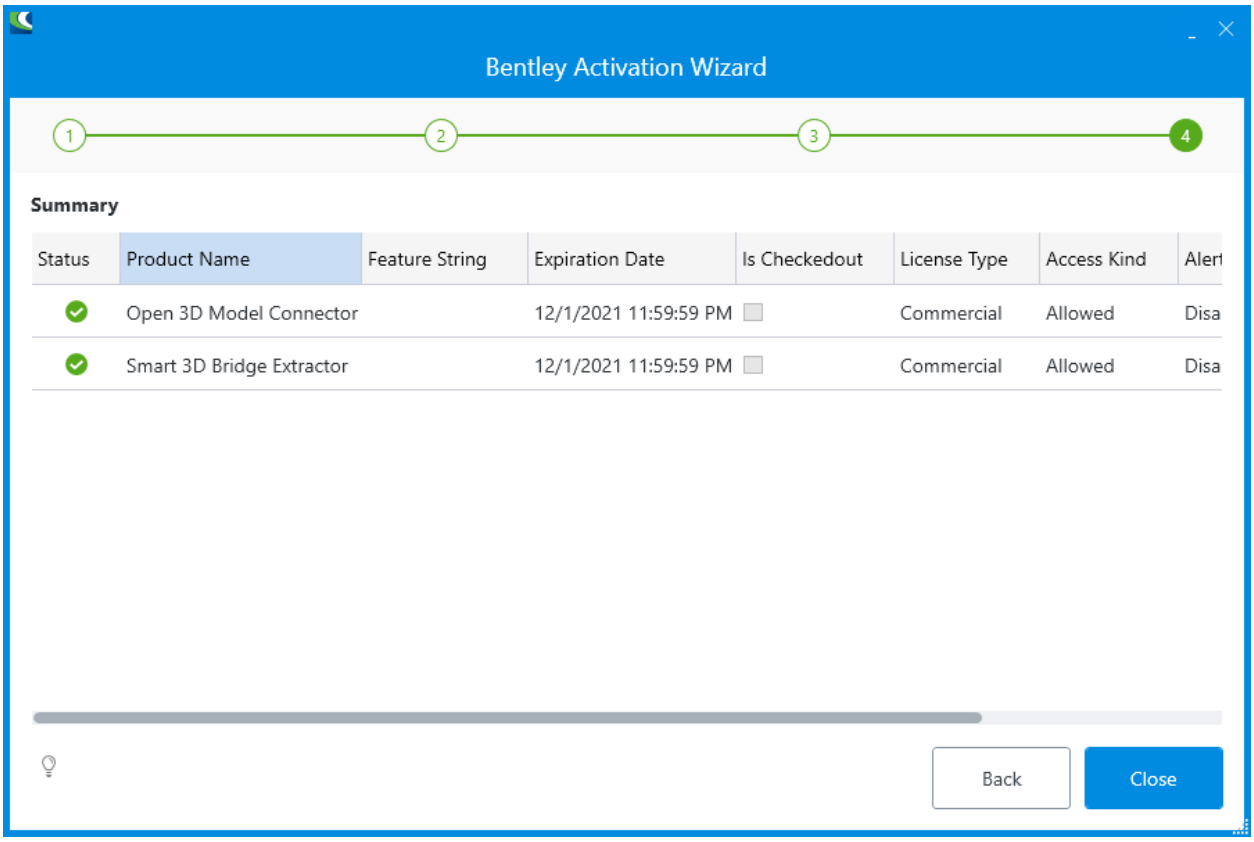
Type in “Smart 3D Extractor”. Make sure the selection is in the text box and then click the check mark at the right.



You should then have this:



Click the “+ Add Product” again and this time add “Open 3D Model Connector”. After adding this product, the wizard should look like this:



Click Next. You should see that the status for both products is labeled with a green checkmark.

Press close and the install of the Smart 3D Extractor should be complete.

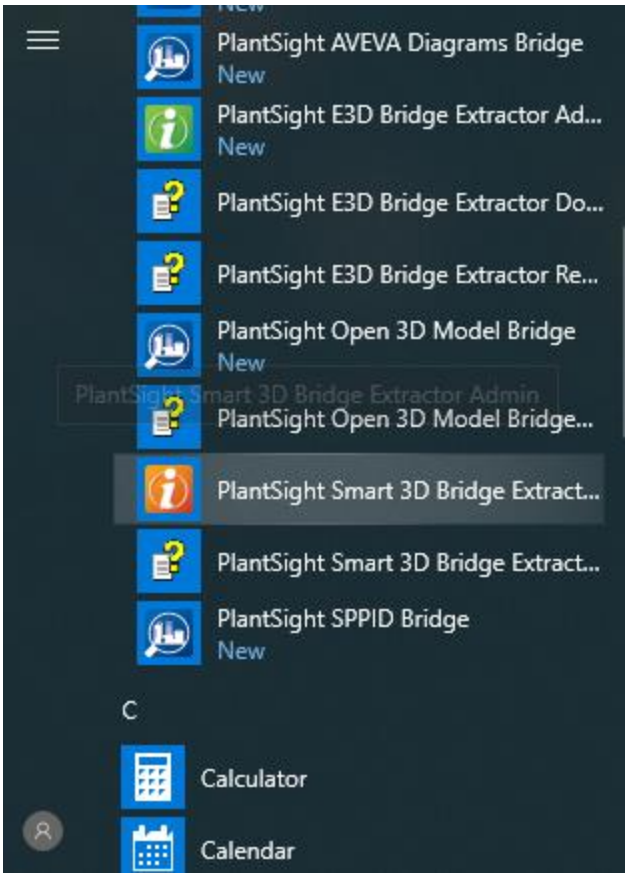
4.2. Installation of Open 3D Model Connector

Install Setup_PlantSightOpen3DModelBridgex64_10.08.xx.yy.exe.

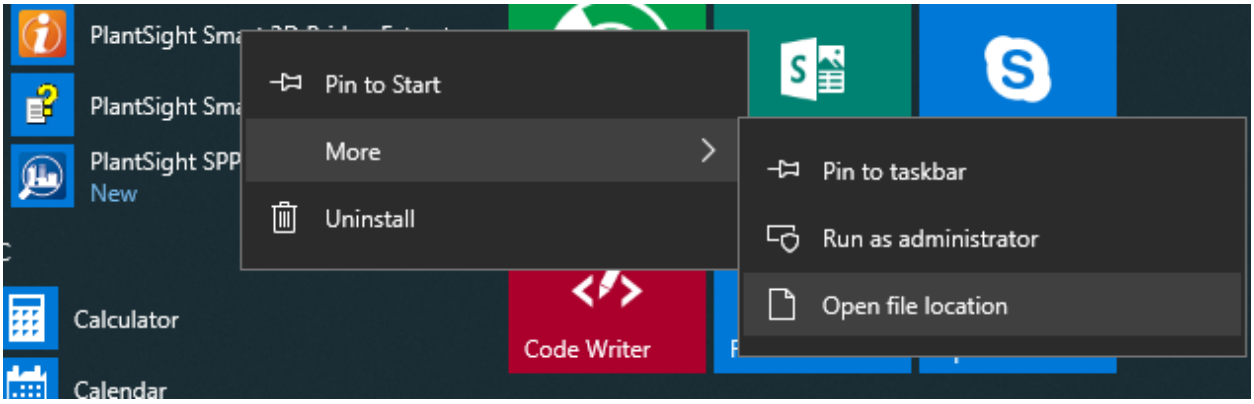
5. Configure Smart 3D Extractor Admin shortcut

If you are using a database that has been restored just on SQL and not on a machine that has Smart 3D installed, you will need to create a different shortcut for Smart 3D Extractor Admin. If you are using the Smart 3D Extractor on a machine with Smart 3D installed, skip this section and the next section.

Find the “PlantSight Smart 3D Extractor Admin” shortcut in the Windows Start menu

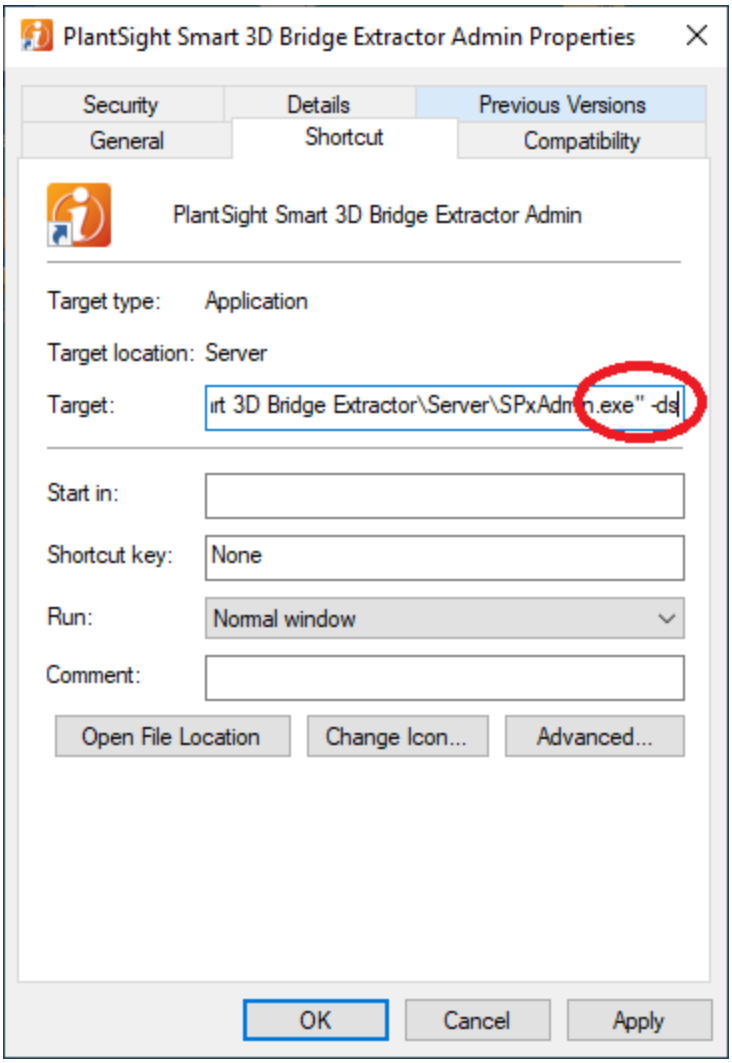


Right click on the shortcut and select Open file location



Copy the shortcut to the desktop.
Right click on the shortcut and select properties.

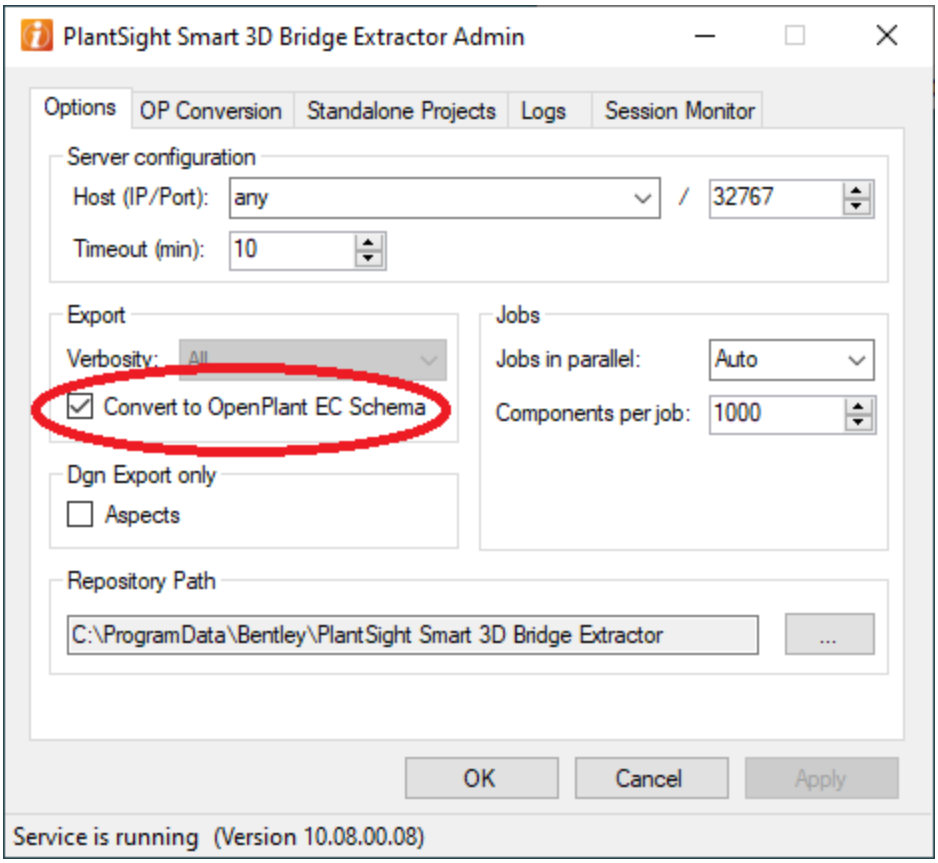
Add " -ds" to the target. By adding the -ds parameter, this will bring up the Data Sources tab in iCS for S3D Admin. This allows restoring Smart 3D databases without the need for installing Smart 3D.



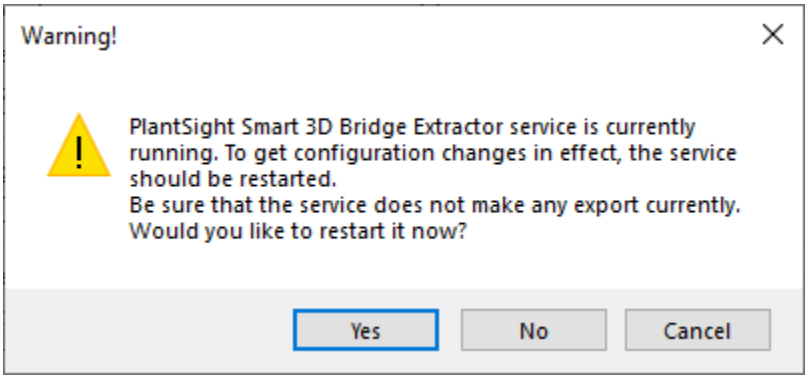
Click OK

Run the shortcut you just created.

Select the “Convert to OpenPlant EC Schema” and click Apply

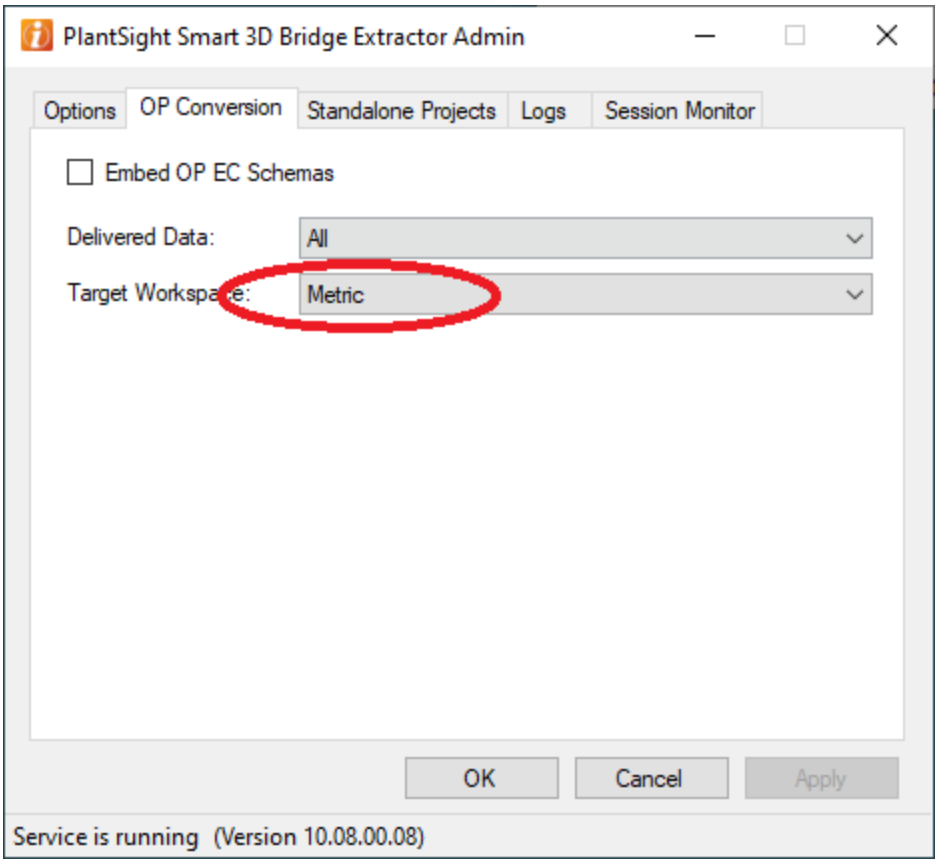


Click Yes



Also make sure that the Convert to OpenPlant EC Schema is set for Smart 3D Extractor as well by running the Smart 3D Extractor Admin from the start menu and setting the “Convert to OpenPlant EC Schema” option.

For Smart 3D Conversions, you should also make sure that the Target Workspace is set before you run any conversions:



6. Restore Smart 3D databases

The ideal configuration is to install the Smart 3D Extractor on a machine with Smart 3D installed and running with the project(s) to be converted, but this is not required. Alternatively, we can restore a backup of the Smart 3D project when we have SQL installed on the machine with Smart 3D Extractor installed. This allows us to get data from a Smart 3D project without having Smart 3D installed and configured. In addition, since we also want to show how changes to the model can be handled, we will actually restore 2 projects. This is only to simulate how the data will be loaded.

In actual usage, instead of restoring the database, we would instead just install the Smart 3D Extractor onto a machine that has access to the Smart 3D project. Any changes made to the model on further imports would be obtained directly from the Smart 3D project.

6.1. Unzip sample databases for Smart 3D

You can request the location of 2 sample projects:

S3D_Train-Original-2018-11-13.7z

S3D_Train-Modified-2018-11-13.7z

These are backups of the same Smart 3D projects, but at different states. Unzip these projects to folders such as:

C:\S3D_Train-modified-2018-11-13\

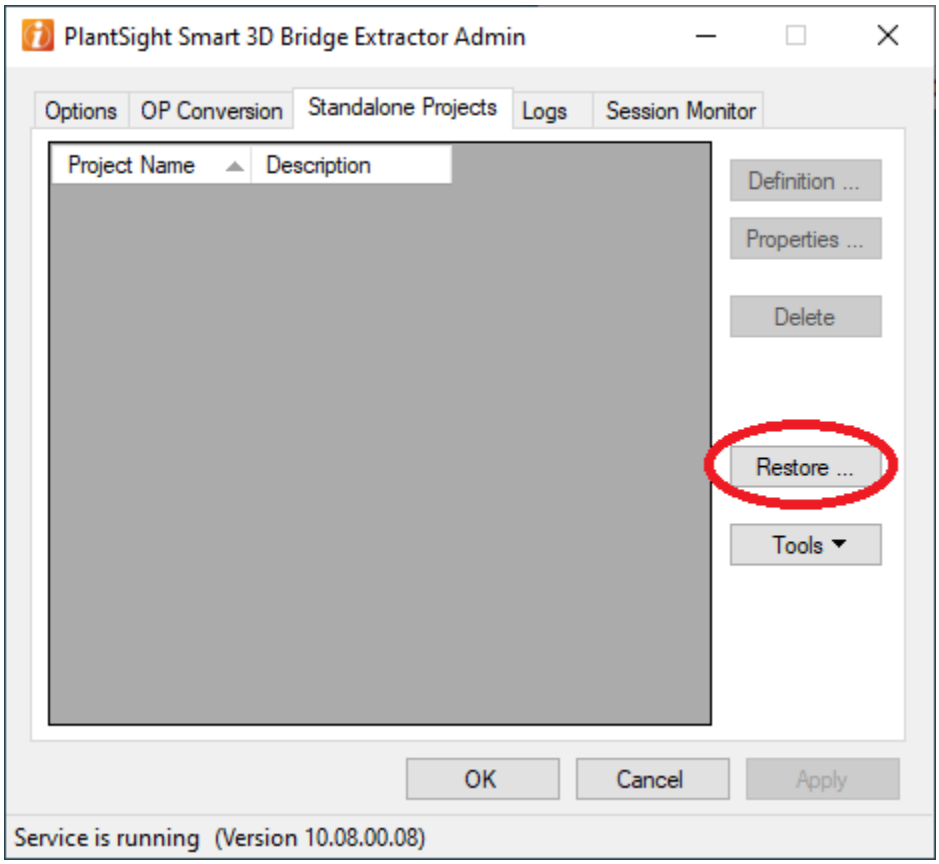
And

C:\S3D_Train-Original-2018-11-13\

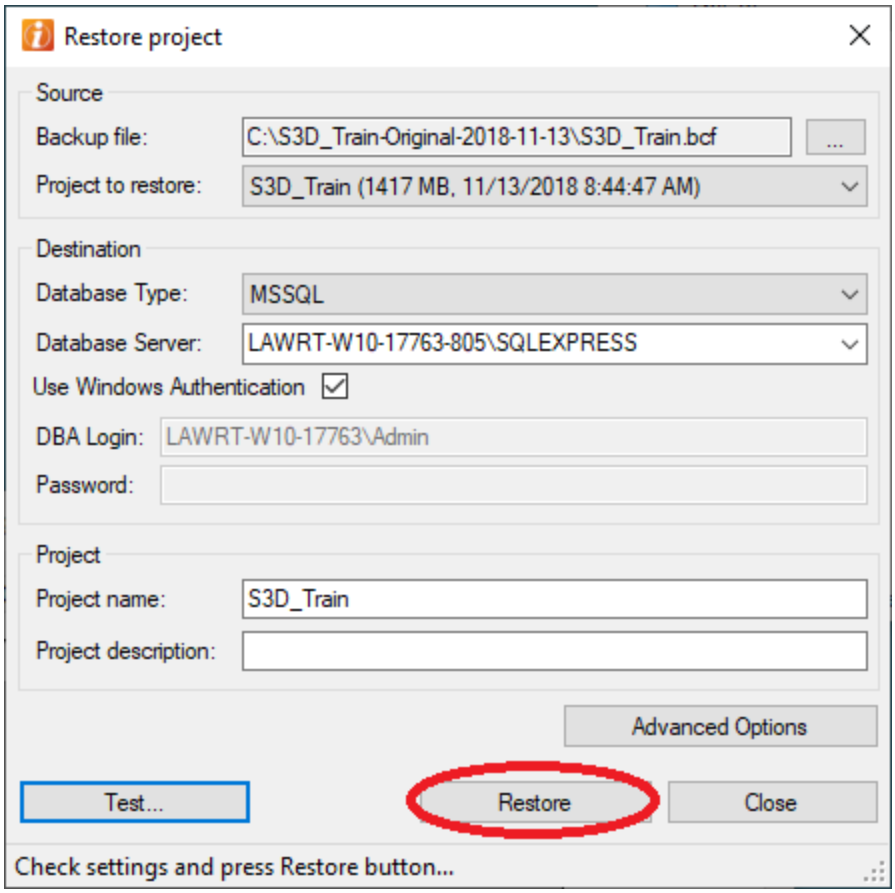
It is recommended these folders be placed on C:\ instead of something such as your desktop because permission issues can cause errors while you are restoring the databases. Once the databases are restored, you can delete these folders to recover the space used.

6.2. Restore the first Smart 3D database

Run the shortcut you created for Smart 3D Extractor.

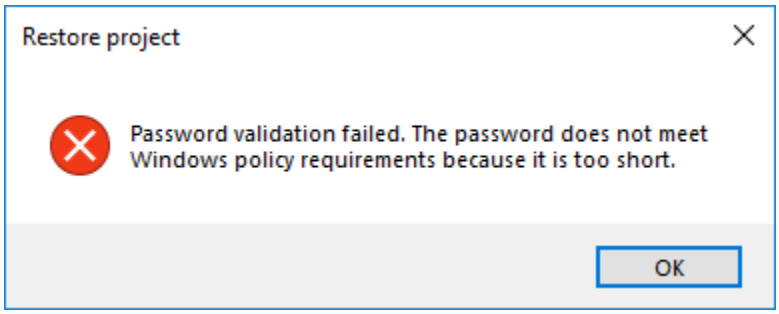


Make sure it has the Data Sources tab and then select Restore.

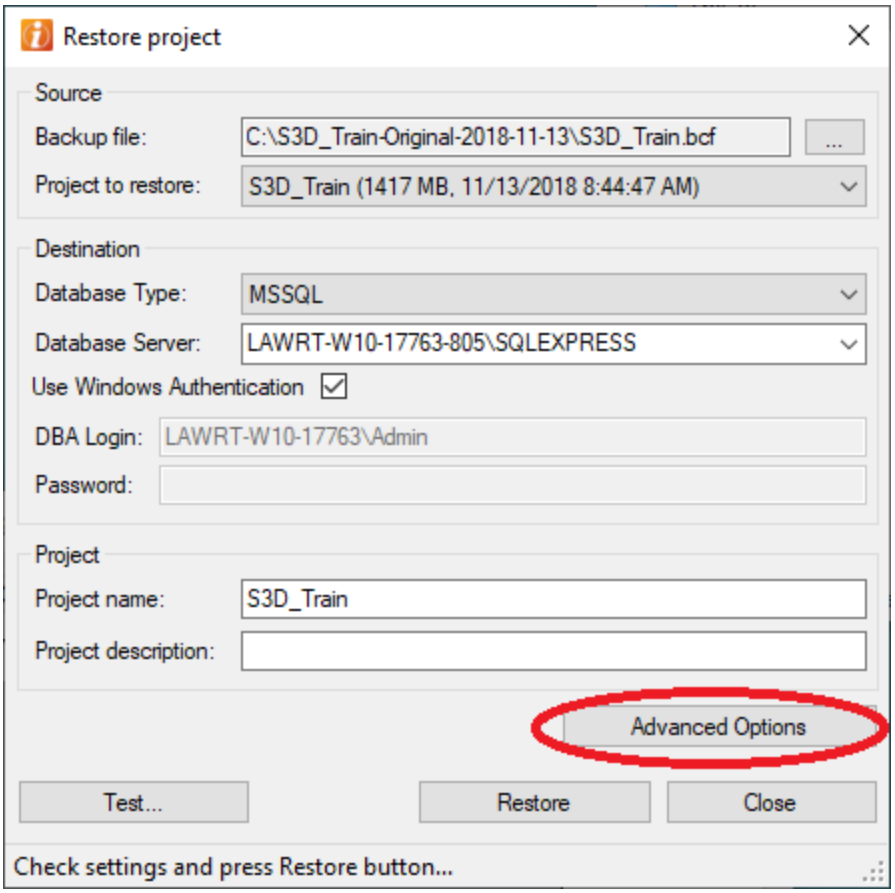


Enter the path to the original restored database along with the Database Server. Then click Restore.

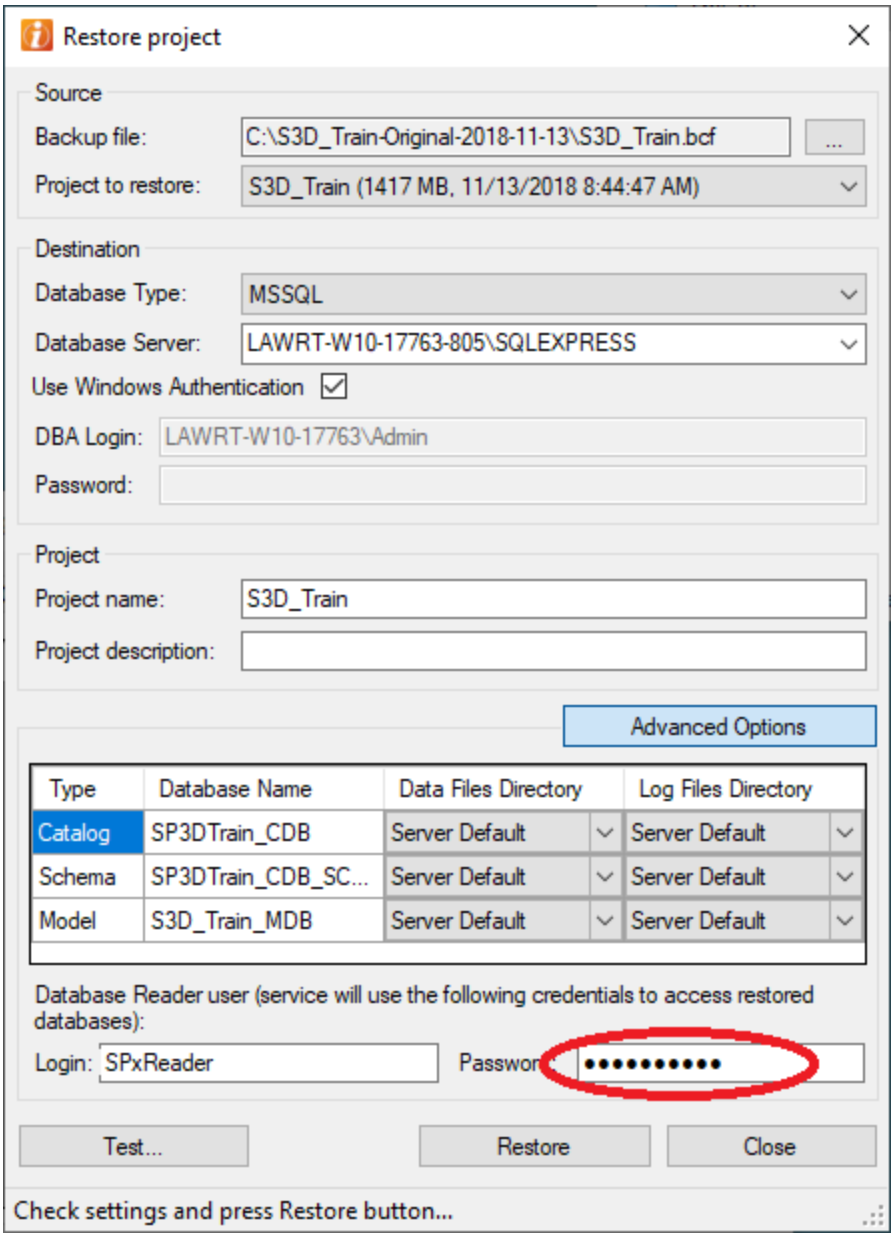
When you click on Restore, you may get this message:



If this happens, click the advanced options, if not you should see a progress bar that reports the progress of the database restore which will probably take a few minutes.



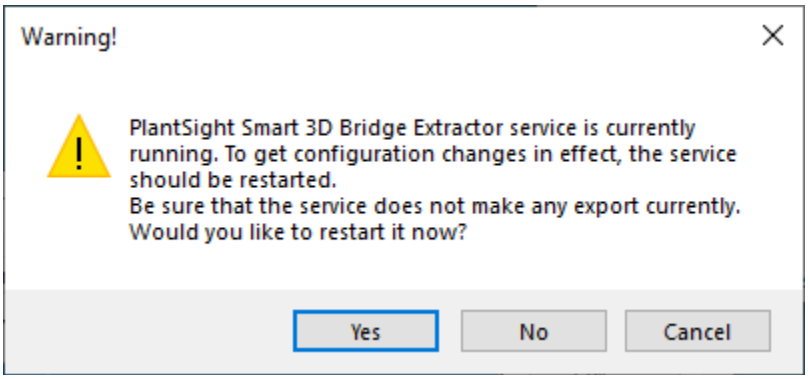
Then update the password with one that meets the requirements specified for your machine. For example, you may require a certain length which may not be met using the default password.



After clicking Restore again, you should get the progress bar for restoring the database.

6.3. After the initial restoration of the Smart 3D Database

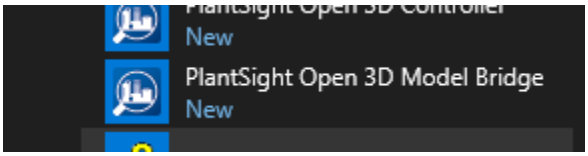
After the restore has completed, click Apply and you will get this message:



Click Yes.

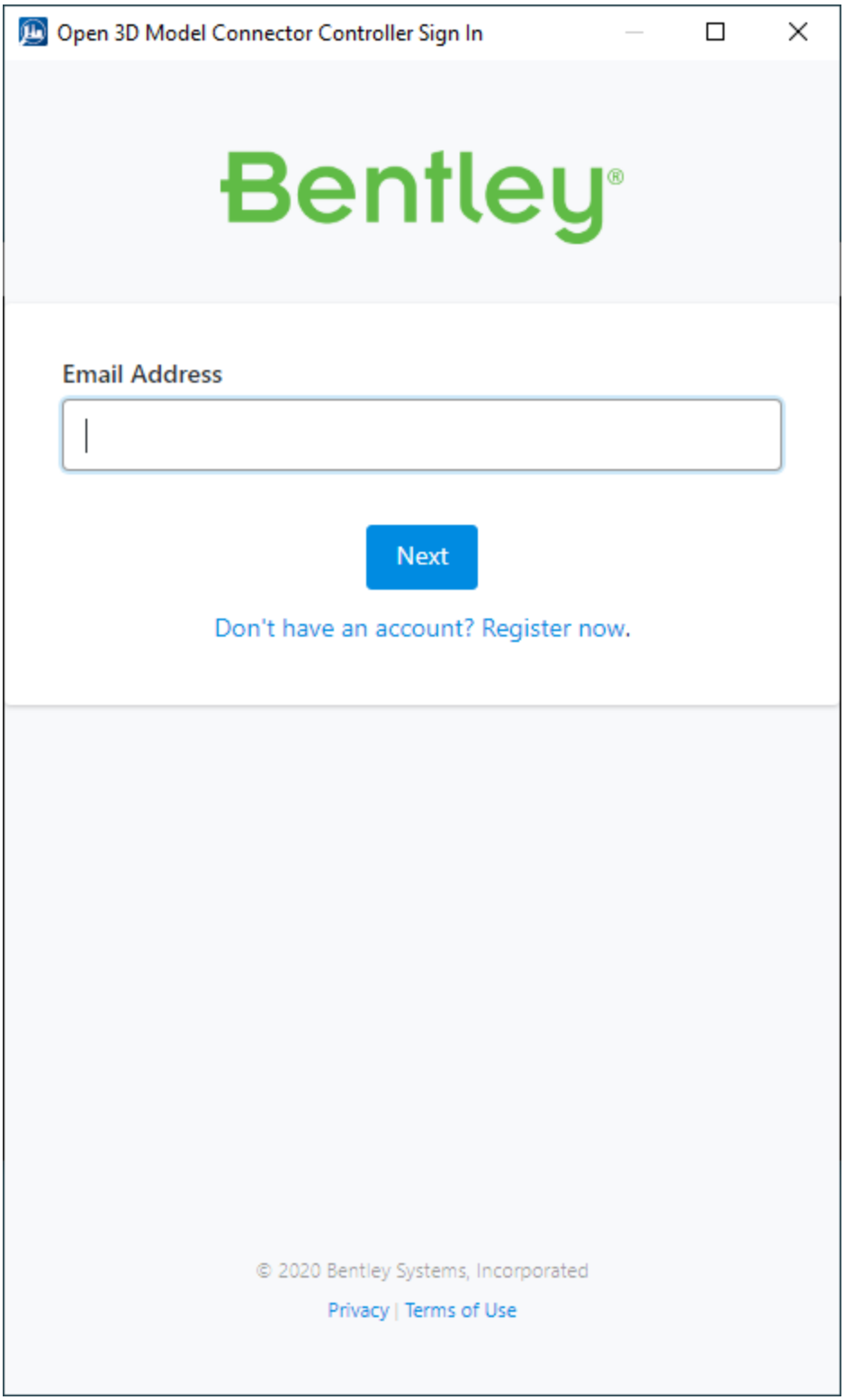
7. Run the Open 3D Model Connector

In the start menu find PlantSight Open 3D Model Bridge.

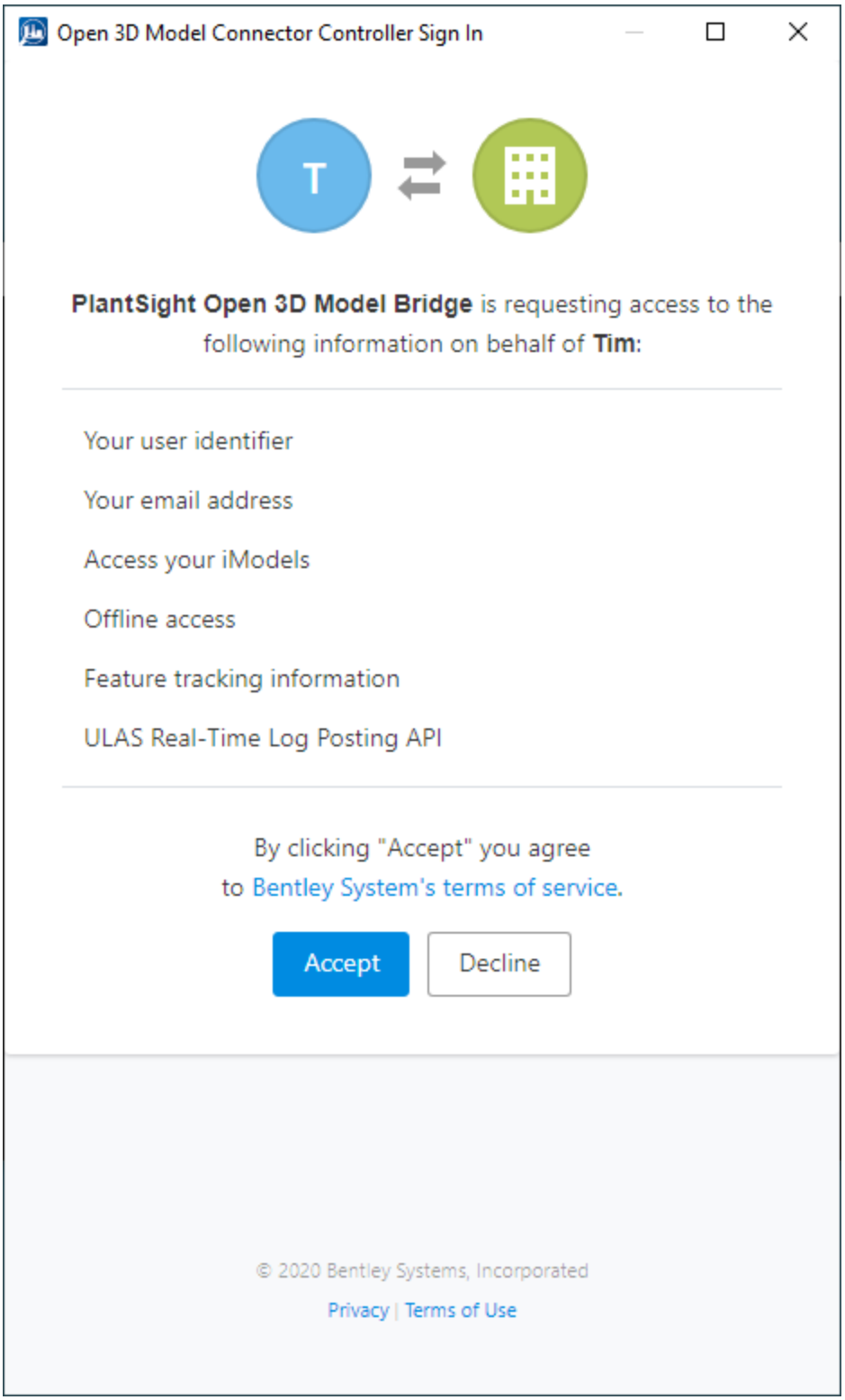


Open 3D Model Bridge and find Open3DModelBridge.exe

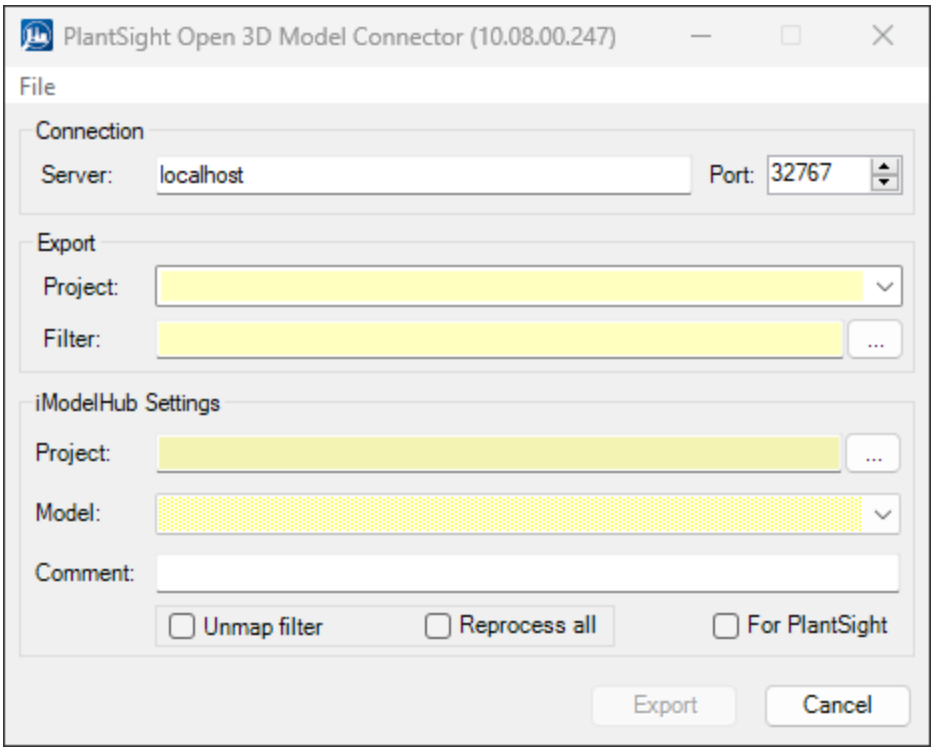
The first time you run it, you will need to authenticate:



Then accept the permission request:



Then the bridge will appear:



Use “local host” for the server site since the Smart 3D Extractor is running on the same machine as the controller. If this is not the case, then you can use the IP Address or the machine name instead of local host.

You also need to set the port number. The default value is set to 32767, which is the default value for the Smart 3D Extractor. You can confirm this by running the Smart 3D Admin application which displays the port number it is using.

Select the CONNECTED and the iModel, then click Export to run the iModel Bridge.

The additional check boxes are:

Unmap filter: This is used when you want to remove a synchronized filter from the iModel. Selecting this and running the connector will result in the content from the filter to be removed from the latest changeset in the iModel.

Reprocess all: In order to utilize changes in a new connector release when your source models have not changed, select this option which will force the synchronization on all elements. Normally if the source data has not changed, a connector run will skip over the synchronization.

For PlantSight: If you are using PlantSight for this iModel and are using the aggregation capabilities, select this option in order to have the iModel Connector create the functional staging model that is required for aggregation.