Converting Smart 3D for iTwin

2024-03-11

Contents

1.	Introduction	
2.	Software to download3	
2.1.	Smart 3D Extractor3	
2.2.	Open 3D Model Connector3	
3.	Set Logon as a Service4	
4.	Software Installation and configuration8	
4.1.	Smart 3D Extractor	
4.1.1	. Configure Licensing	
4.2.	Installation of Open 3D Model Connector16	1
5.	Configure Smart 3D Extractor Admin shortcut	1
6.	Restore Smart 3D databases20	I
6.1.	Unzip sample databases for Smart 3D20	I
6.2.	Restore the first Smart 3D database21	
6.3.	After the initial restoration of the Smart 3D Database24	
7.	Run the Open 3D Model Connector25	

1. Introduction

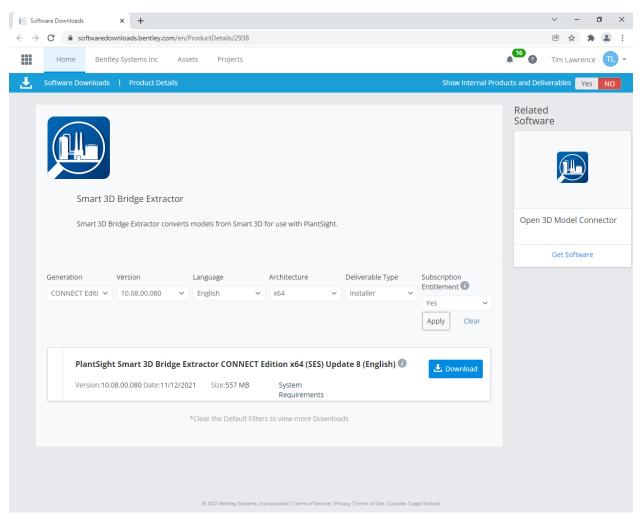
This document outlines the steps required to setup software required for using setup and use the Smart 3D Extractor and the Open 3D Model Connector with iTwins.

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

📔 Software Downloads 🗙 + 🗸 - 🗇 🗙							
\leftrightarrow \rightarrow C \bullet	oftwaredownloads.bentley.com/er	/ProductDetails/2736				Ŕ	🖈 🗯 😩 E
Home	Bentley Systems Inc A	ssets Projects				Tim L	awrence TL -
🤳 Software D	ownloads Product Details				Show Internal Proc	lucts and Deliverable	s Yes NO
1	Open 3D Model Connecto he Open 3D Model Connector is Addel Hub Services as well as We	a conversion utility that c	onverts models from PE	DMS to .bim 2.0 files for t	use with	Related Software	
						Get S	Software
Generatio		Language English v	Architecture	Deliverable Type	Subscription Entitlement Yes Apply Clear	<u>(</u>	
F	antSight Open 3D Model B	ridge CONNECT Editi	on x64 (SES) Update	e 8 (English) 🕢	🛃 Download	Smart 3D Brid	lge Extractor
V	ersion:10.08.00.084 Date:11/16/2	021 Size:566 MB	System Requirements			Get S	oftware
		*Clear the Default Filter	is to view more Downloa	ads rivacy Terms of Use Cookies Le	gal Notices		

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

→ 丶 个 樯 › Co	ntrol Panel > All Control Panel Items > Adminis	trative Tools			~ Õ	Search Administrative Tools	,p
	Name ^	Date modified	Туре	Size			
🖈 Quick access	Component Services	4/11/2018 5:34 PM	Shortcut	2 KB			
Desktop 🖈	Computer Management	4/11/2018 5:34 PM	Shortcut	2 KB			
🕹 Downloads 🛛 🖈	Defragment and Optimize Drives	4/11/2018 5:34 PM	Shortcut	2 KB			
🛐 Documents 🛛 🖈	Tisk Cleanup	4/11/2018 5:34 PM	Shortcut	2 KB			
Pictures x*	Event Viewer	4/11/2018 5:34 PM	Shortcut	2 KB			
Music	26 ISCSI Initiator	4/11/2018 5:34 PM	Shortcut	2 KB			
Videos	Decal Security Policy	4/11/2018 5:35 PM	Shortcut	2 KB			
Videos	DDBC Data Sources Differen	4/11/2018 5:34 PM	Shortcut	2 KB			
ConeDrive	ODBC Data Sources (64-bit)	4/11/2018 5:34 PM	Shortcut	2 KB			
This PC	S Performance Monitor	4/11/2018 5:34 PM	Shortcut	2 KB			
	Dirint Management	4/11/2018 5:35 PM	Shortcut	2 KB			
3D Objects	Recovery Drive	4/11/2018 5:34 PM	Shortcut	2 KB			
Desktop	S Resource Monitor	4/11/2018 5:34 PM	Shortcut	2 KB			
B Documents	Services	4/11/2018 5:34 PM	Shortcut	2 KB			
🕹 Downloads	System Configuration	4/11/2018 5:34 PM	Shortcut	2 KB			
Music	5 System Information	4/11/2018 5:34 PM	Shortcut	2 KB			
Pictures	Task Scheduler	4/11/2018 5:34 PM	Shortcut	2 KB			
Videos	Windows Defender Firewall with Adva	4/11/2018 5:34 PM	Shortcut	2 KB			
Local Disk (C:)	Windows Memory Diagnostic	4/11/2018 5:34 PM	Shortcut	2 KB			
Shared Folders (\\vr							
-							
Network							

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

h Local Security Policy		- 0	×
File Action View Help			
Þ 🔿 🔯 📷 🗙 💿 🗟 🛛 📷			
Security Settings Security Settings Security Policies Security Policies Security Options Windows Defender Firewall with Adva Network List Manager Policies Public Key Policies Software Restriction Policies Software Restriction Policies Software Audit Policy Configuration Advanced Audit Policy Configuration	Policy Image: Porce shutdown from a remote system Generate security audits Impersonate a client after authentication Impersonate a client after authentication Increase a process working set Increase scheduling priority Load and unload device drivers Lock pages in memory tog on as a batchight Cog on as a service Modify an object label Modify firmware environment values Obtain an impersonation token for another user in the same Perform volume maintenance tasks Profile single process Profile system performance Remove computer from docking station Replace a process level token Restore files and directories Shut down the system	Security Setting Administrators LOCAL SERVICE,NETWO LOCAL SERVICE,NETWO Users Administrators,Window Administrators Administrators Administrators Administrators Administrators Administrators Administrators Administrators Administrators Administrators Administrators,NT SERVI Administrators,Users LOCAL SERVICE,NETWO Administrators,Backup Administrators,Users	
· · · · · · · · · · · · · · · · · · ·	Synchronize directory service data Take ownership of files or other objects	Administrators	

Log on as a service Properties	?	×
Local Security Setting Explain		
Log on as a service		
NETWORK SERVICE NT SERVICE\ALL SERVICES NT SERVICE\MSSQL\$SQLEXPRESS NT SERVICE\MSSQLFDLauncher\$SQLEXPRESS NT SERVICE\ReportServer\$SQLEXPRESS NT SERVICE\SQLAgent\$SQLEXPRESS SQLServer2005SQLBrowserUser\$LAWRT-W10-17134		
Add User or Group D Remove		
OK Cancel	Арр	ly

Add the user name and click OK

Select Users or Groups	×
Select this object type:	
Users or Built-in security principals	Object Types
From this location:	
LAWRT-W10-17134	Locations
Enterthe object names to relect (examples):	
LAWRT-W10-17134\Admin	Check Names
Advanced	OK Cancel

4. Software Installation and configuration

4.1. Smart 3D Extractor

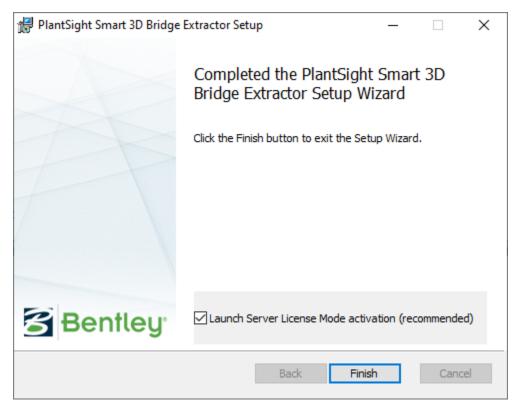
Prior to installing the Smart 3D Extractor, ensure that you have installed SQL Express or SQL Server. The detailed steps for this are outlined in "SQL Express Setup". Download and install Setup_PlantSightSmart3DBridgeExtractorx64_10.08.xx.yy.exe.

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

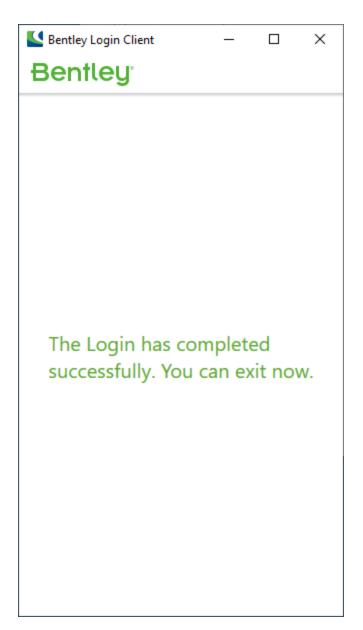
When the install finishes, you should configure the licensing. The licensing for Smart 3D Extractor now uses SES licensing.



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

Sentley Login Client	_		×
Bentley ⁻			
Sign In			
Access your Bentley Se	ervices		
Email			
Password			
		0	۲
Forgot password?			
Sign	In		

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.

Deptley: Activation Wiroud
Bentley Activation Wizard
3 (4)
Please Choose a Method of Activation From this screen, you may pre-activate a list of Bentley products, reserve a product for a specific period of time, or import one or more reserved policy files.
Activate One or More Products
Checkout a License
Register Server
Next

Select a country:

<u> </u>			_ ×				
	В	Bentley Activation Wizard					
1	2	3	4				
Register this mac	nine for Bentley Server Products						
Machine Name:	LAWRT-18363-657						
Country:	United States	~					
Allow users ou server	ts Brazil India United Kingdom United States						
Threshold alerting	Threshold alerting is not available in server mode. Any threshold alerting configured in Entitlement Management will be ignored.						
		Back	t				

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.

<u> </u>							
Bentley Activation Wizard							
1	23						
Add or Remove Products to Activate							
Product Name	Feature String						
	No products						
🕂 Add Product							
Server Mode: On							
Server Registered Successfully							
		Back Next					

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.

<u>v</u>	
Bentley A	ctivation Wizard
(1)(2)_(2)	3 (4)
Add or Remove Products to Activate	
Product Name	Feature String
Ne	p products
Smart 3D Bridge Extractor	Option 🗸 🗸
Server Mode: On	
Server Registered Successfully	
Ŷ	Back Next

You should then have this:

<u> </u>			_ ×			
Bentley Activation Wizard						
(1)(2)	3		4			
Add or Remove Products to Activate						
Product Name	Feature String					
Smart 3D Bridge Extractor			\times			
Add Product						
Server Mode: On Server Registered Successfully						
Q		Back	Next			

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

oduct Name pen 3D Model Connector nart 3D Bridge Extractor	2 Feature String	Expiration Date 12/1/2021 11:59:59 PM 12/1/2021 11:59:59 PM	License Type Commercial Commercial	Access Kind Allowed	4 Aler Disa
pen 3D Model Connector	Feature String	12/1/2021 11:59:59 PM	Commercial	Allowed	Disa
pen 3D Model Connector	Feature String	12/1/2021 11:59:59 PM	Commercial	Allowed	Disa
nart 3D Bridge Extractor		12/1/2021 11:59:59 PM	Commercial		
				Allowed	Disa
				Back	Back

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.

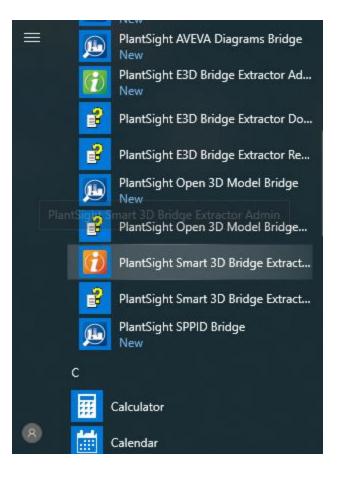
4.2. Installation of Open 3D Model Connector

Install Setup_PlantSightOpen3DModelBridgex64_10.08.xx.yy.exe.

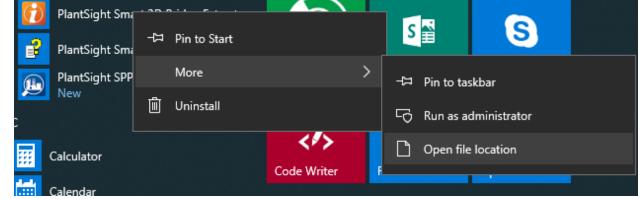
5. Configure Smart 3D Extractor Admin shortcut

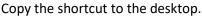
If you are using a database that has been restored just on SQL and not on a machine that has Smart 3D installed, you will need to create a different shortcut for Smart 3D Extractor Admin. If you are using the Smart 3D Extractor on a machine with Smart 3D installed, skip this section and the next section.

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



Right click on the shortcut and select Open file location





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.

Farget location: Server Farget: irt 3D Bridge Extractor\Server\SPxAdmin.exe" Start in:	Plant Sight Smart 3D Bridge Extractor Admin Target type: Application Target location: Server Target: Int 3D Bridge Extractor\Server\SPxAdmin.exe Start in: Shortcut key: None Run: Normal window Comment:	Security	De	tails	Pr	evious Versions		
Farget type: Application Farget location: Server Farget: Int 3D Bridge Extractor\Server\SPxAdmin.exe" Start in: Shortcut key: Shortcut key: None Run: Normal window Comment:	Target type: Application Target location: Server Target: Int 3D Bridge Extractor\Server\SPxAdmin.exe Start in: Shortcut key: None None Run: Normal window Comment: Image: Ima	General	S	hortcut		Compatibility		
Farget location: Server Farget: irt 3D Bridge Extractor\Server\SPxAdmin.exe" Start in:	Target location: Server Target: It 3D Bridge Extractor\Server\SPxAdmin.exe Start in: Shortcut key: None Run: Normal window Comment:	PlantSight Smart 3D Bridge Extractor Admin						
Farget: Int 3D Bridge Extractor\Server\SPxAdmin.exe" Start in:	Farget: int 3D Bridge Extractor\Server\SPxAdmin.exe Start in:	Target type:	Application					
Start in:Shortcut key: None	Start in:Shortcut key: NoneRun: Normal window	Target location:	Server			_		
Shortcut key: None Run: Normal window Comment:	Run: Normal window Comment:	Target:	ırt 3D Bridg	e Extractor	r\Server\?	SPxAdmin.exe"		
Shortcut key: None Run: Normal window Comment:	Shortcut key: None Run: Normal window Comment:							
Run: Normal window	Run: Normal window Comment:	Start in:						
Comment:	Comment:	Shortcut key:	None					
		Run:	Normal win	dow				
Open File Location Change Icon Advanced	Open File Location Change Icon Advanced	Comment:						
Open file Location Change Icon Advanced		Open File Lo	cation	Change I	con	Advanced.		

Click OK

Run the shortcut you just created.

Select the "Convert to OpenPlant EC Schema" and click Apply

	🚺 PlantSight Smart 3D Bridge Extractor Admin	- 🗆 X
	Options OP Conversion Standalone Projects Logs	Session Monitor
	Server configuration	
	Host (IP/Port): any	✓ / 32767 ÷
	Timeout (min): 10	
	Export	
	Verbosity: All Verbosity Jobs in pa	arallel: Auto ~
	Convert to OpenPlant EC Schema Compone	nts per job: 1000 🔶
	Dgn Export only	
	Aspects	
	Repository Path	
	C:\ProgramData\Bentley\PlantSight Smart 3D Bridge B	Evtractor
	e. w rogrambata bentiey w lancoignt oniait ob bildge t	
	ОК	Cancel Apply
	Service is running (Version 10.08.00.08)	
Clic	ck Yes	
	Warning!	×
	-	
	PlantSight Smart 3D Bridge Extractor service running. To get configuration changes in eff should be restarted. Be sure that the service does not make any e Would you like to restart it now?	ect, the service
	Yes No	Cancel

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:

🚺 PlantSight Smart 3D B	ridge Extractor Admin	-	□ ×	
Options OP Conversion	Standalone Projects Logs	Session Monitor		
Embed OP EC Sche	emas			
Delivered Data:	All		\sim	
Target Workspare:	Metric		\sim	
	ОК	Cancel	Apply	
Service is running (Versior	10.08.00.08)			

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.

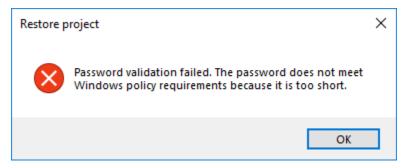
PlantS	ight Smart 3D E	Bridge Extractor Adm	in	-			×
Options	OP Conversion	Standalone Projects	Logs	Session Mo	nitor		
Projec	t Name 🔺 De	escription			Pr	efinition operties Delete Restore Tools ▼	
		ОК		Cancel		Apply	

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

😥 Restore project	×
Source	
Backup file:	C:\S3D_Train-Original-2018-11-13\S3D_Train.bcf
Project to restore:	S3D_Train (1417 MB, 11/13/2018 8:44:47 AM) ~
Destination	
Database Type:	MSSQL ~
Database Server:	LAWRT-W10-17763-805\SQLEXPRESS
Use Windows Authe	ntication 🔽
DBA Login: LAWR	T-W10-17763\Admin
Password:	
Project	
Project name:	S3D_Train
Project description:	
	Advanced Options
Test	Restore Close
Check settings and p	oress Restore button

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.

😥 Restore project	×
Source	
Backup file:	C:\S3D_Train-Original-2018-11-13\S3D_Train.bcf
Project to restore:	S3D_Train (1417 MB, 11/13/2018 8:44:47 AM) ~
Destination	
Database Type:	MSSQL ~
Database Server:	LAWRT-W10-17763-805\SQLEXPRESS ~
Use Windows Auther	ntication 🗹
DBA Login: LAWR	T-W10-17763\Admin
Password:	
Project	
Project name:	S3D_Train
Project description:	
	Advanced Options
Test	Restore Close
Check settings and p	ress Restore button

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.

힌 Restore	e project					>
Source						
Backup file	:	C:\S3D_Train-	Original-2018-11-1	3\S3D	_Train.bcf	
Project to r	estore:	S3D_Train (14	17 MB, 11/13/20	18 8:44	1:47 AM)	~
Destination	n					
Database Type: MSSQL						~
Database \$	Server:	LAWRT-W10-	17763-805\SQLE>	PRES	S	~
Use Windows Authentication						
DBA Login	: LAWRT	Γ-W10-17763∖A	dmin			
Password:						
Project						
Project name: S3D_Train						
Project des	cription:					
					Advanced Onlines	
					Advanced Options	
Туре	Databas	e Name	Data Files Directo	ory	Log Files Directory	
Catalog	SP3DTra	in_CDB	Server Default	~	Server Default	~
Schema	SP3DTra	in_CDB_SC	Server Default	~	Server Default	~
Model	S3D_Tra	in_MDB	Server Default	\sim	Server Default	\sim
Database Reader user (service will use the following credentials to access restored databases): Login: SPxReader						
Tes		ress Restore bu	Restor	e	Close	

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

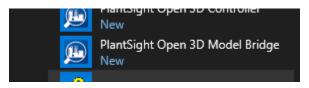
After the restore has completed, click Apply and you will get this message:

Warning!		×
	PlantSight Smart 3D Bridge Extractor service is currently running. To get configuration changes in effect, the service should be restarted. Be sure that the service does not make any export currently. Would you like to restart it now?	
	Yes No Cancel	

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:

💯 Open 3D Model Connector Controller Sign In	×
Bentley	
Email Address	
Next	
Don't have an account? Register now.	
© 2020 Bentley Systems, Incorporated	
Privacy Terms of Use	

Then accept the permission request:

Dopen 3D Model Connector Controller Sign In	_		×
T T T T PlantSight Open 3D Model Bridge is requesting	g acces	s to the	ł
following information on behalf of Ti	m:		
Your user identifier			
Your email address			
Access your iModels			
Offline access			
Feature tracking information			
ULAS Real-Time Log Posting API			
By clicking "Accept" you agree to Bentley System's terms of service Accept Decline	<u>></u> .		
© 2020 Bentley Systems, Incorporated			
Privacy Terms of Use			

Then the bridge will appear:

👰 PlantSig	ht Open 3D Model C	onnector (10.08.00.247)	_		\times
File					
Connection					
Server:	localhost		F	Port: 32767	-
Export					
Project:					\sim
Filter:					
-iModelHub \$	Settings				
Project:					
Model:					~
Comment:					
	Unmap filter	Reprocess all	(For Plant	Sight
			Export	Car	icel

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.