Intergraph Smart™ 3D

Session 2155: Using SmartPlant Interop Publisher Smart Models in the Intergraph Smart™ 3D

SmartPlant Interop Publisher (SPIOP) can be used for managing, positioning, and translation of Smart Models generated from various sources such as Smart 3D, PDMS, PDS, CADWorx, and other systems. This allows common mapping and data processing in SPIOP and attaching results into Smart 3D directly as Reference 3D models, which eliminates the source-specific mapping.

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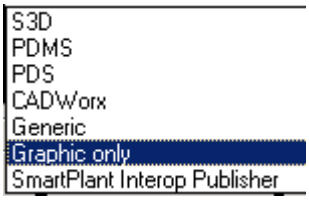
Overview

SmartPlant Interop Publisher

SmartPlant Interop Publisher is a replacement of the SmartPlant Review Publisher (SPRP) product. The graphical translation capability of SPRP was enhanced by the data mapping and importing functionality that was originally developed for external data for Smart 3D – known as Reference 3D. This data processing in SPIOP is extended, and from 6 data types it was practically doubled. It currently has implemented 13 mapping types.

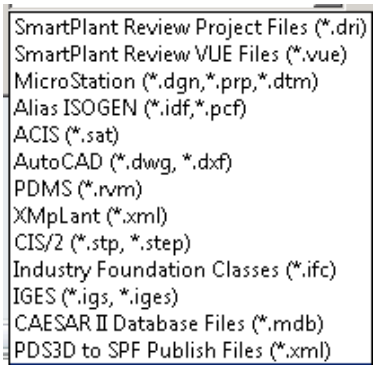
Smart 3D - Reference 3D

Types of R3D Models:



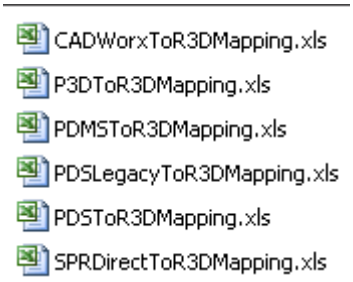
SmartPlant Interop Publisher

Types of supported formats:



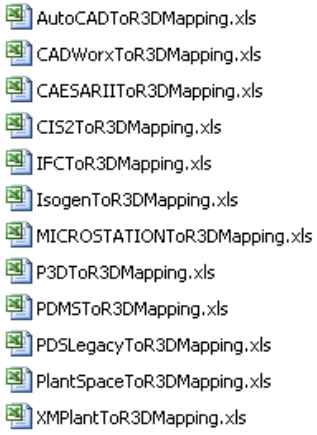
Smart 3D - Reference 3D

Mapping files:



SmartPlant Interop Publisher

Mapping files:



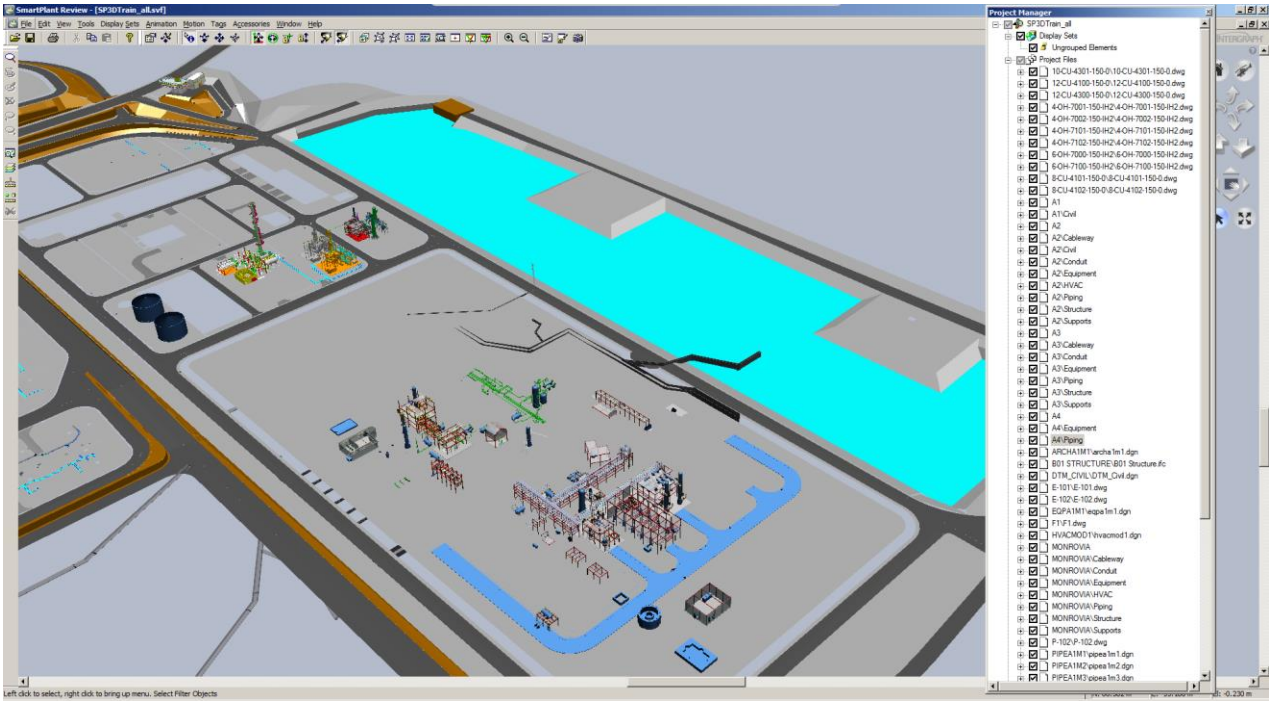
Because of enhanced data processing and more supported formats and data types, there is no need to do data processing again in Smart 3D just for Reference 3D. That data processing is done by SPIOP for all Target Applications (SmartPlant Review, SmartPlant Foundation, SmartPlant Construction and Smart 3D).

There is a new “universal” SmartPlant Interop Publisher type of Reference 3D model, which loads all R3D data directly from SPIOP database (mdb2). This improves the time required to create a R3D attachment and guarantees consistent data in Reference 3D, which are used for design, and in addition is used in SmartPlant Foundation for construction and/or operation.

Target Application

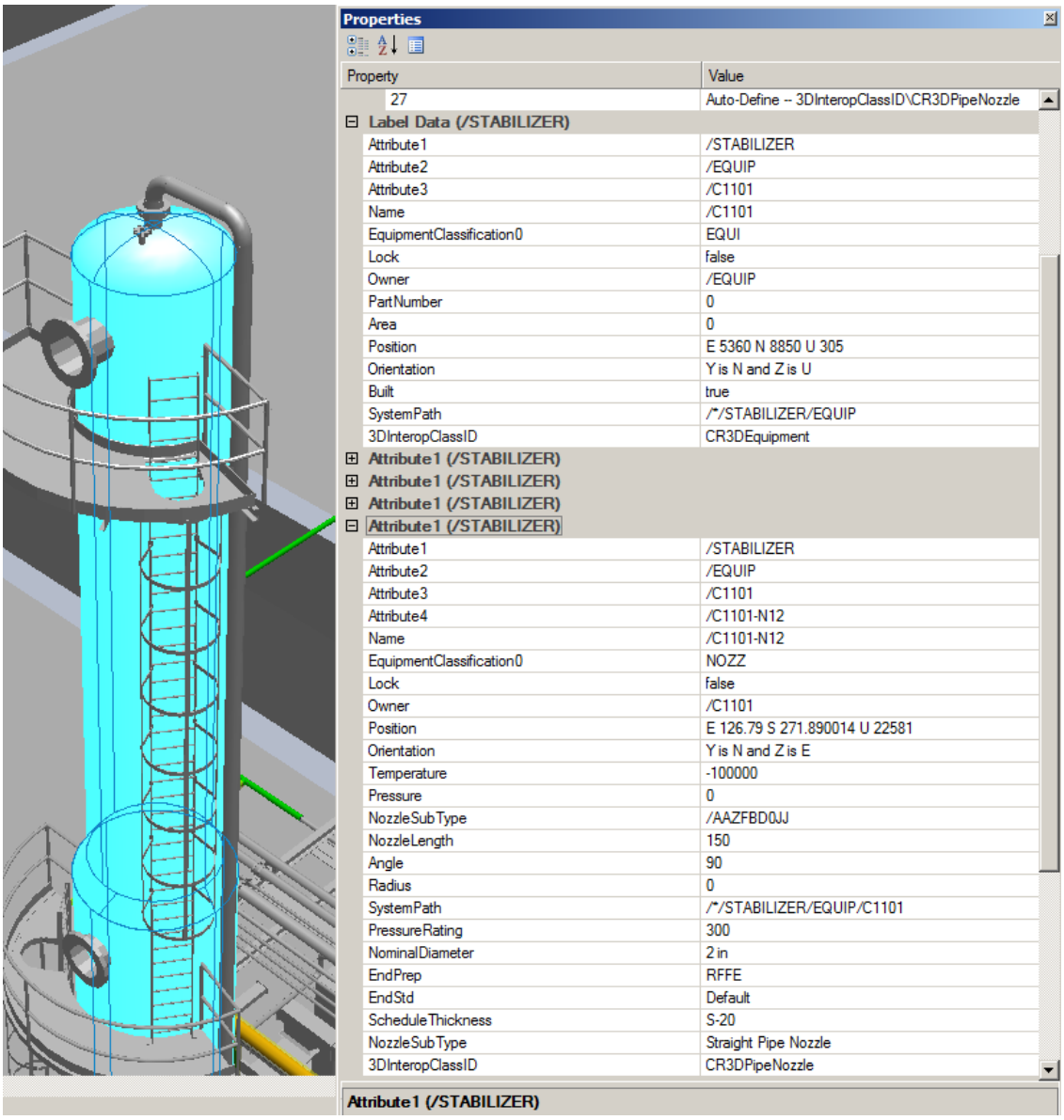
SmartPlant Review

File centric tool reading data from one level. Multiple **Smart Models** (vue/mdb2) can be grouped by **Composed Smart Models** (svf files).



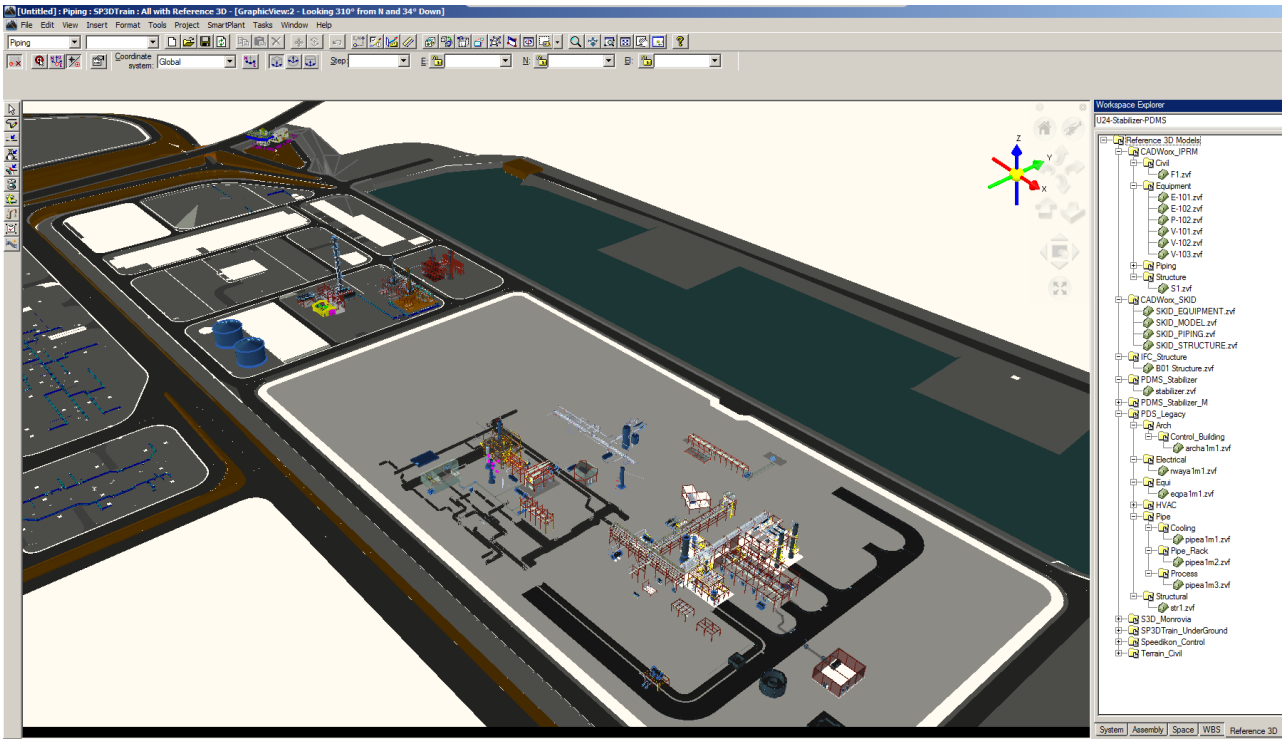
SmartPlant Foundation

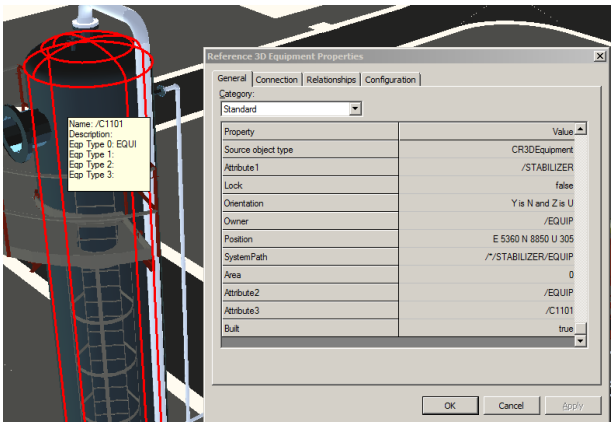
Data is published and loaded into SmartPlant Foundation (SPF / SPO) where it can be further utilized for Operation, Maintenance or Construction (together with SmartPlant Construction).

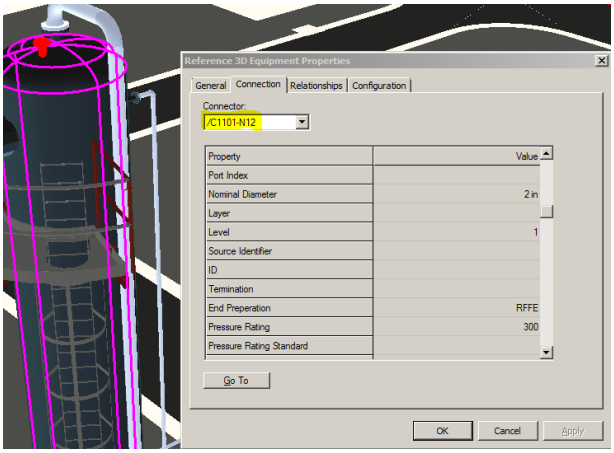


Smart 3D

The same data used for SmartPlant Review and SmartPlant Foundation can be attached as Reference 3D Models to Smart 3D. Reference 3D functionality was used as a basis for SmartPlant Interop Publisher; therefore, data already supports multi-level hierarchies and child parent relationships.







Pre-flight Check for Workshop

Log in as **S3DAdmin** user (password **HxGN.2014**).

Folders created, substitution of S: drive is accessible (`explorer S:`) and shared:

Folder organization:

On HxGN.2014 conference

`\\HEXw2k8\SPIOPdata`	physical	`D:\DATA\SPIOPdata`	substitute as `S:\SPIOPdata`
`\\HEXw2k8\S3Ddata`	physical	`D:\DATA\S3Ddata`	substitute as `S:\S3Ddata`
`\\HEXw2k8\S3Dsymbols`	physical	`D:\SYMBOLS\S3Dsymbols`	substitute as `S:\S3Dsymbols`
`\\HEXw2k8\S3Dbackups`	physical	`D:\BACKUPS\S3Dbackups`	substitute as `S:\S3Dbackups`
`\\HEXw2k8\R3D_Models`	physical	`D:\DATA\SPIOPdata\R3D_Models`	substitute as `S:\SPIOPdata\R3D_Models`

Smart Models were created in flat hierarchy to enable composition for SmartPlant Review

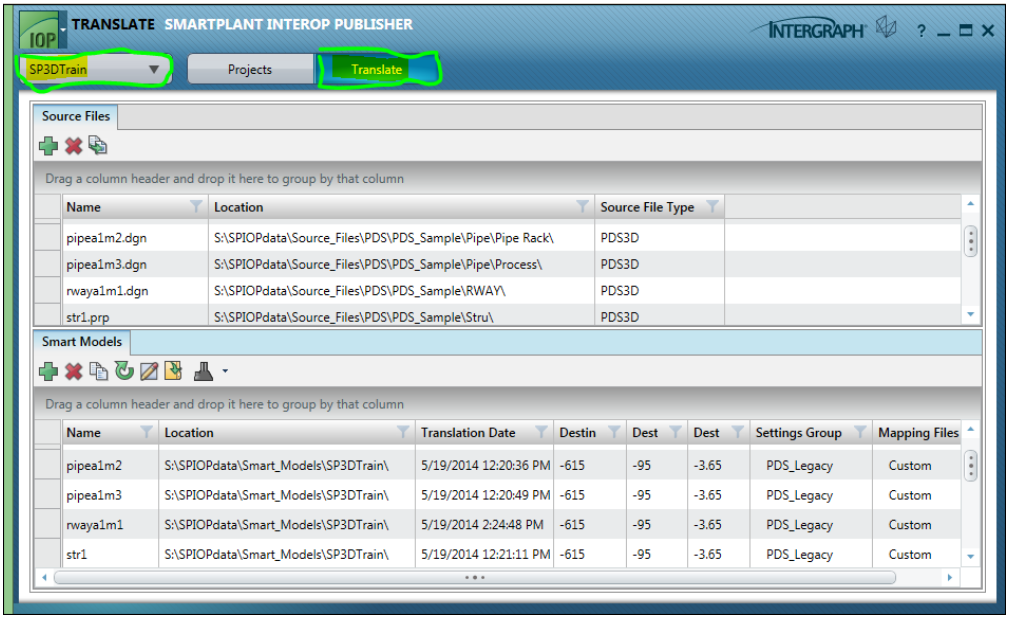
Reference 3D folder structure is hierarchical using scripted hard links.

Labs

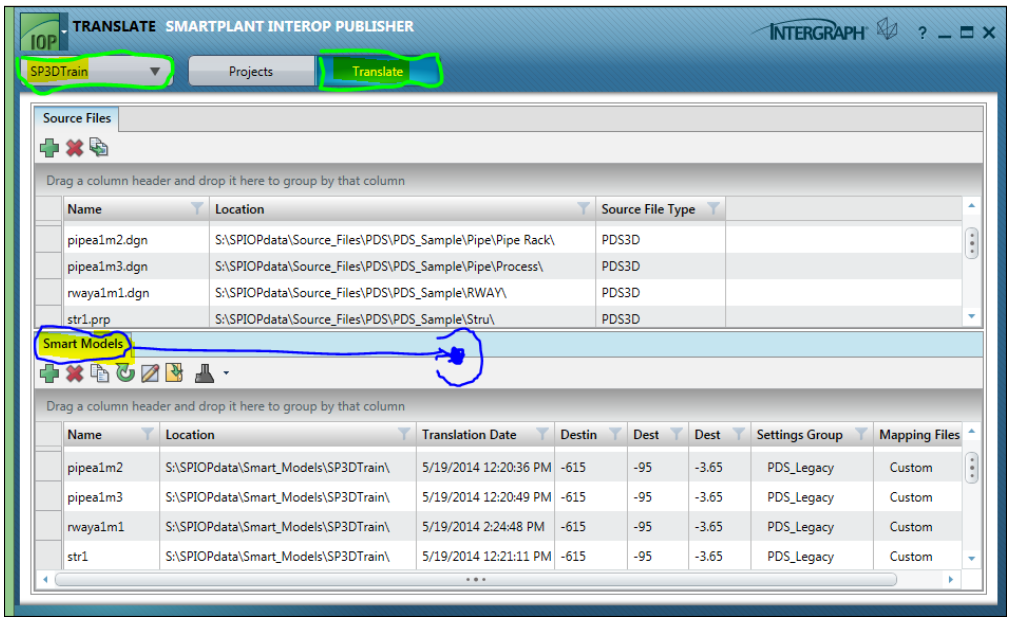
Review data used for Reference 3D

Lab 01 – SmartPlant Interop Publisher Overview

1. Open **SmartPlant Interop Publisher**. Ensure that the **SP3DTrain** project is active and the layout is in **Translate** mode.

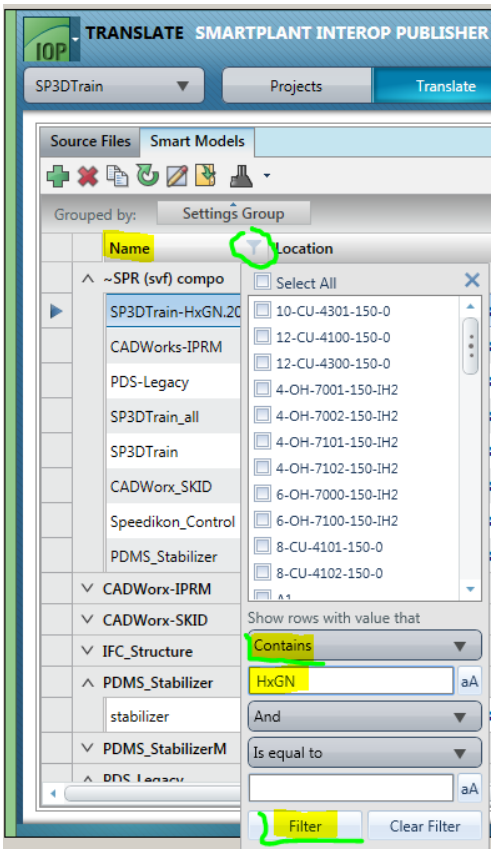


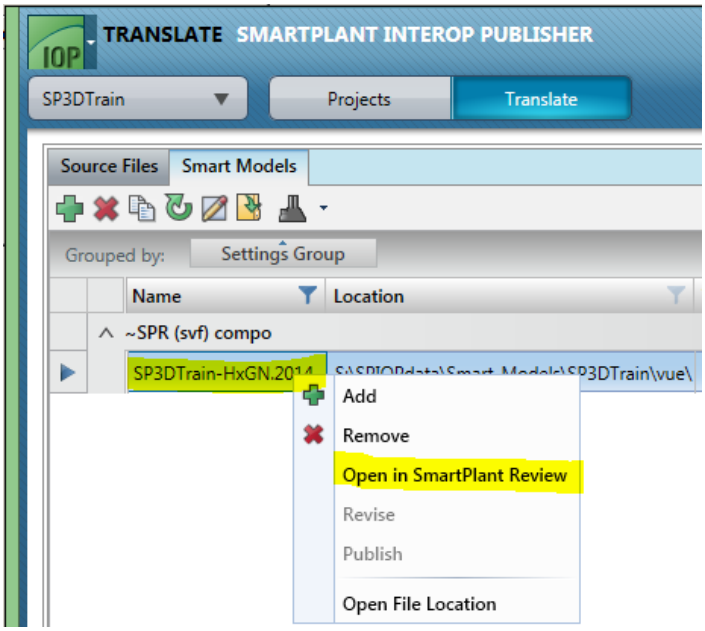
2. Rearrange the **Smart Models** grid over the Source Files (drag tab and drop on center of circle) and group (by dragging column header) the Smart Models using the **Settings Group** (used as Reference 3D identification for Smart 3D).



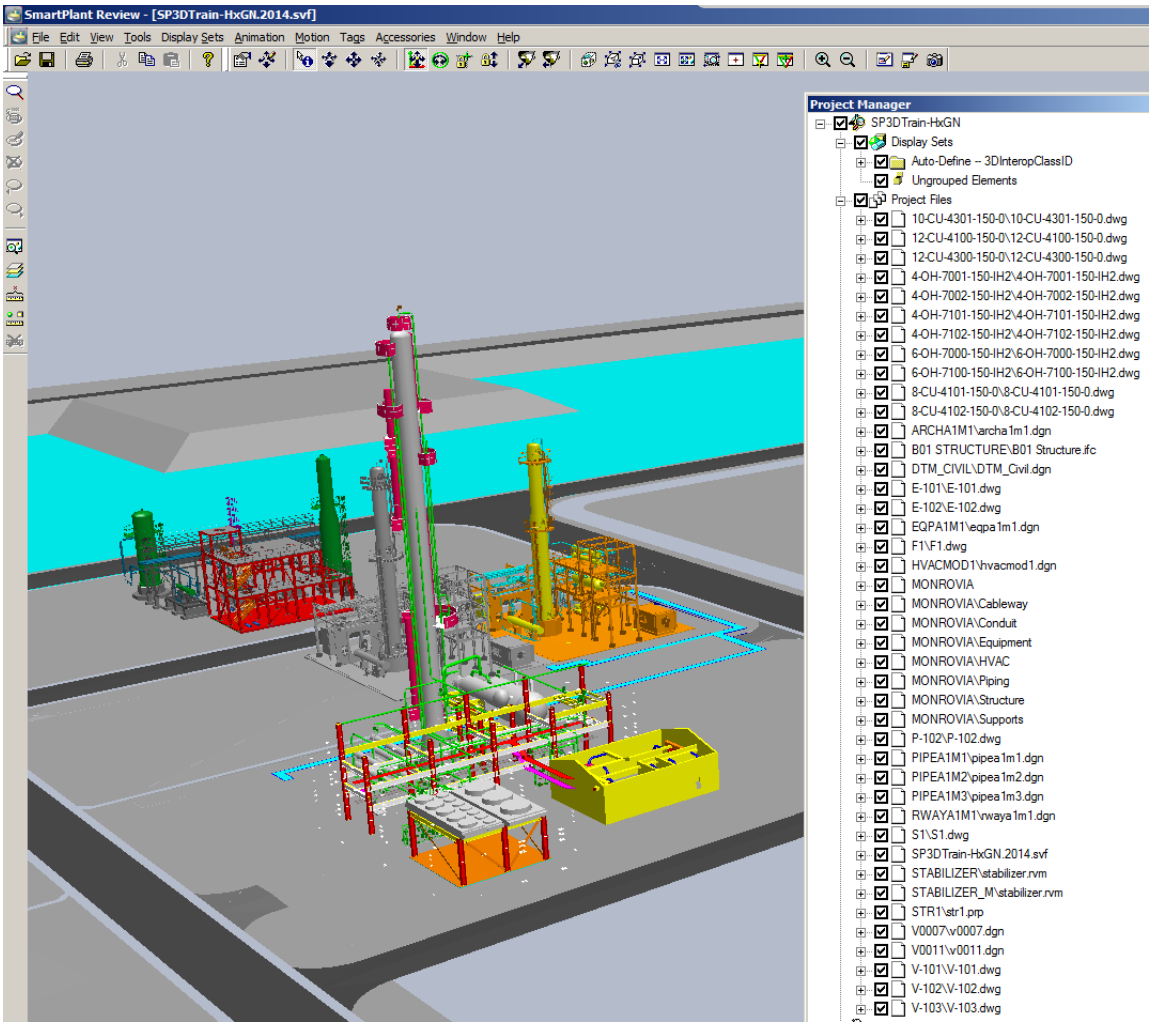
Lab 02 – SmartPlant Review Overview

1. Filter the Smart Model containing **HxGN** in its name and using the context menu **Open in SmartPlant Review**.





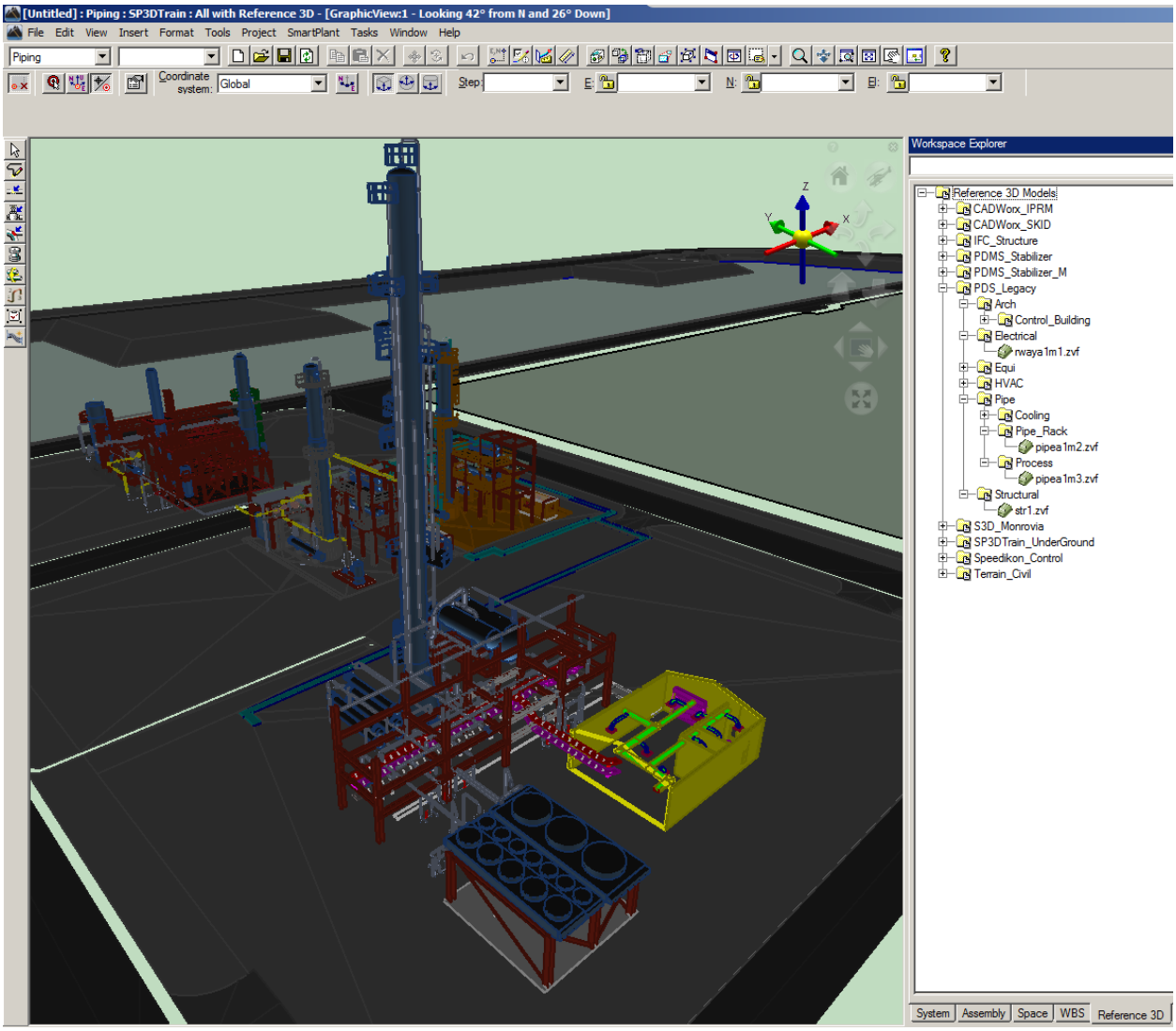
2. Load All files



Lab 03 – Smart 3D Overview

1. Start **Smart 3D** using the template **Piping** under the **2155-SPIOP** tab.

2. Ensure that the session is in the **Piping** Task, the Active Permission Group is **Piping,** and the Locate Filter is set to **All**.



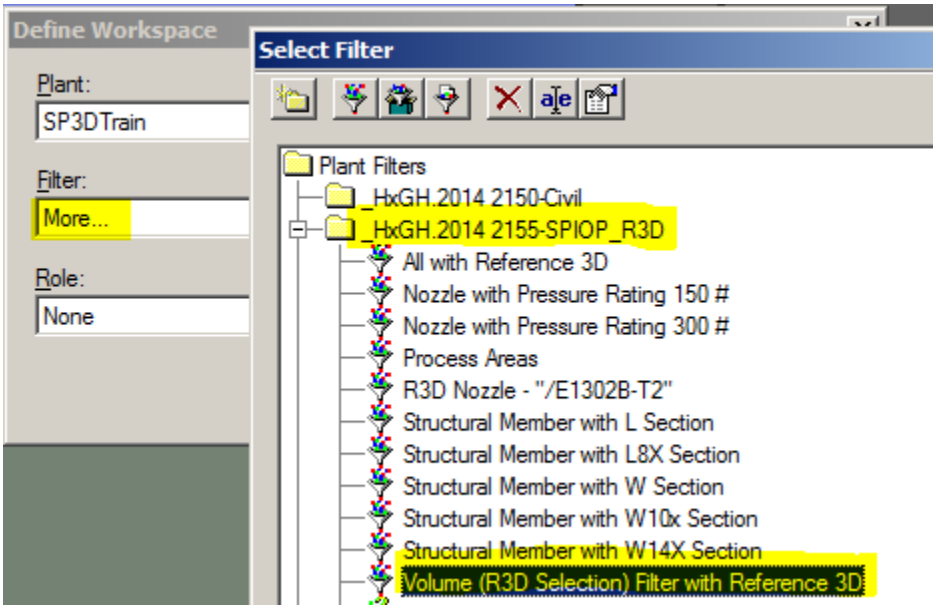
3. Switch to the Space tab in the Workspace Explorer (WSE) and (with locate filter All) examine hidden volumes under **A4/Process** space folder, check **R3D_Selection**.

Define Workspace

Lab 04 – Define Workspace by Volume Filter for Reference 3D Models

1. Open another Smart 3D session, this time using the Session Template **Layout** (with Named Spaces) indicating position of Smart 3D Systems and Reference 3D Models

2. Define the Workspace (Ctrl+W) using the predefined volume plant filter **Volume (R3D Selection) Filter with Reference 3D** defined using the R3D volume based (My_Workspace_Volume).

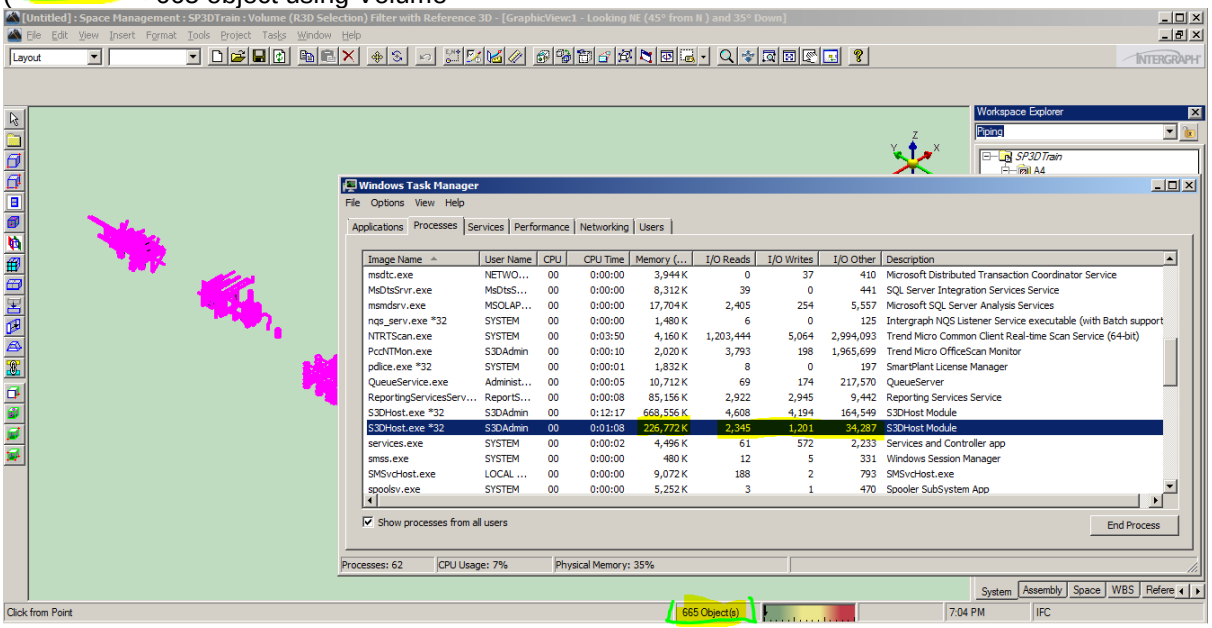


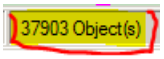
3. Select saved view **R3D Volume**.

4. Compare the two S3D sessions:

(

665 object using Volume





37903 with all objects)

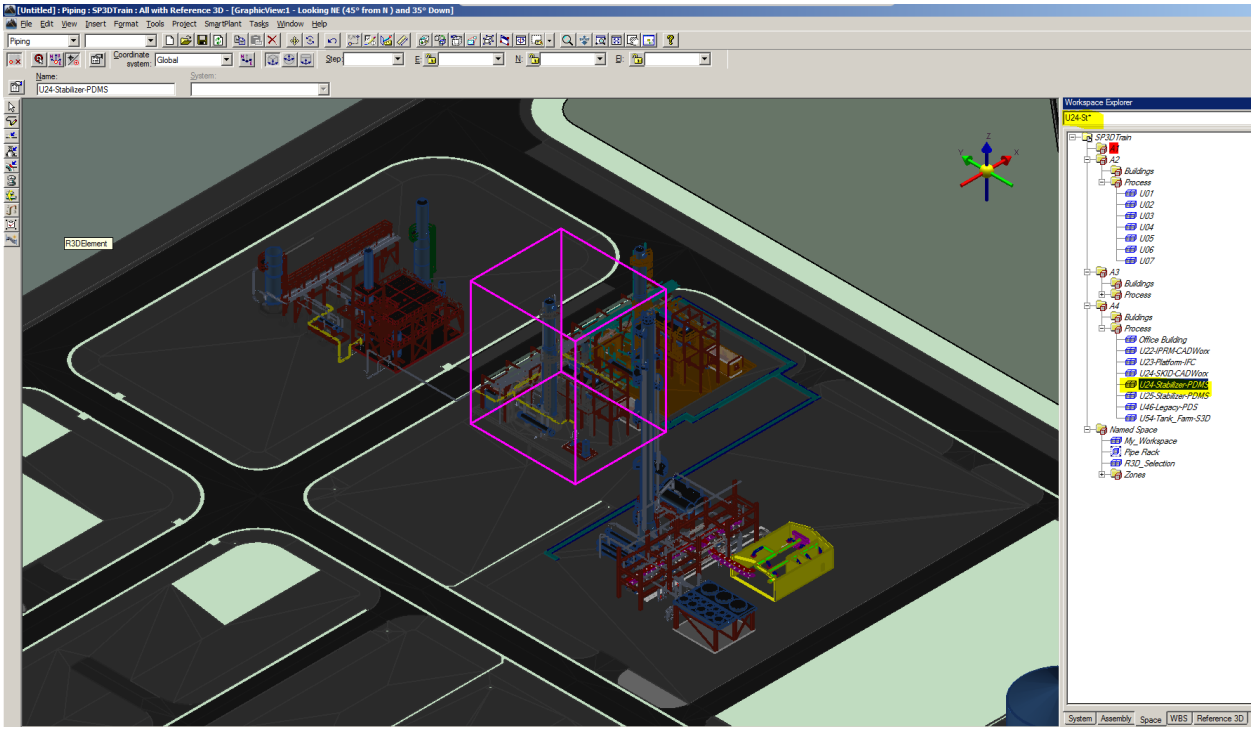
5. Close the smaller Layout template based session.

Navigation and data mining

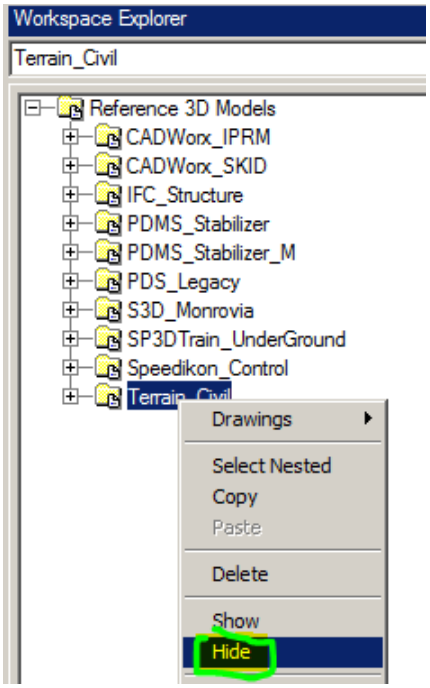
Lab 06 – Reference 3D Visibility Control

Volumes indicating S3D System Hierarchies and Reference 3D Models are used to help with navigation, workspace definition, and view manipulation (clipping).

1. Select area "**U24-Stabilizer PDMS**" on Space tab of WSE (hint if not simply visible in hierarchy type "**U24-St***" in the search box of WSE).

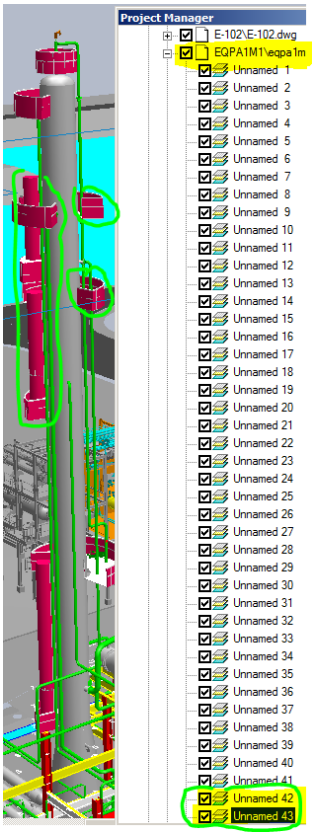


2. Hide the **Terrain_Civil** Reference 3D model (using context Menu Hide).

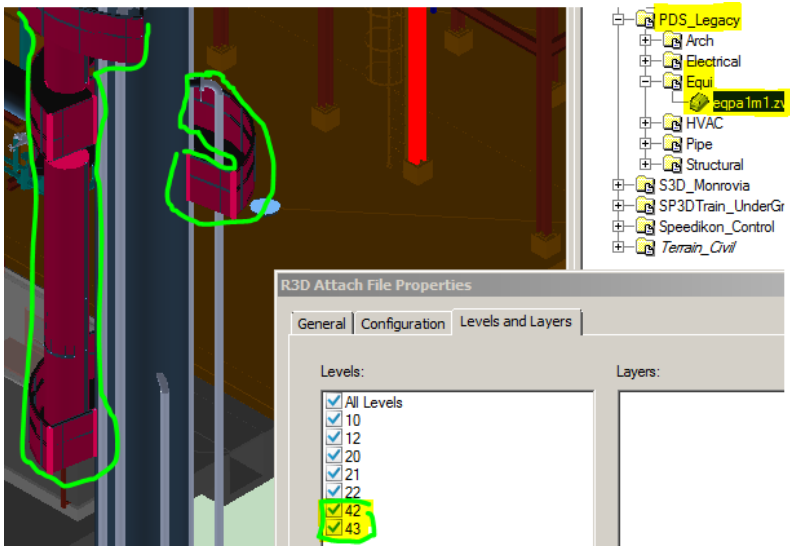


Layers / Levels

1. Turn on/off layers 42 and 43 (access envelopes) of PDS Equipment model **eqpa1m1** using the Levels and Layers properties for that R3D model. Use the same operation in SmartPlant Review through the project management form for that **eqpa1m1** Smart Model.



Note: The Level or Layer of the respective R3D Object can be found on the object's Property form (if correctly mapped).

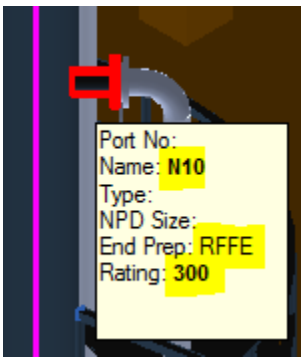


Selecting and Filtering

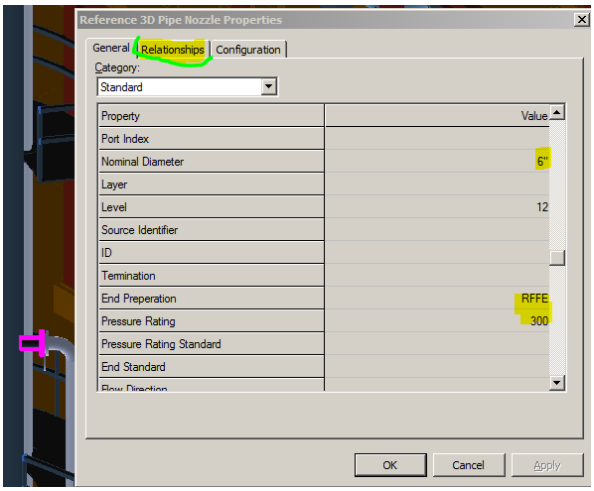
SmartPlant Interop Publisher has mapped data and Relationships of Source Applications and exposes them on R3D Object properties. These can be queried, used, and reported.

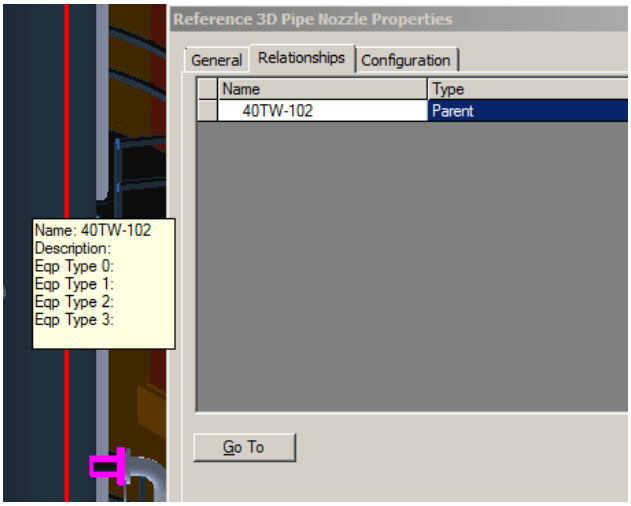
Lab 07 – Reference 3D Data – Properties and Relationships

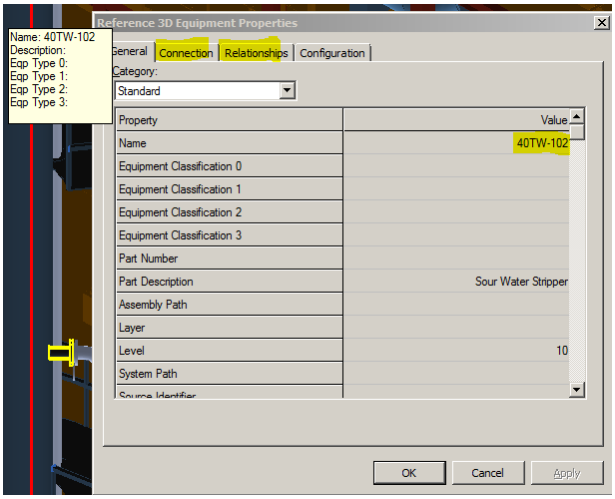
1. Activate the Select Mode (top left arrow on the top of vertical toolbar - VTB). Point with the cursor to the Equipment nozzle on PDS tower (**40TW-102**) and notice the toolbar displaying the Name, Rating, and End Preparation.

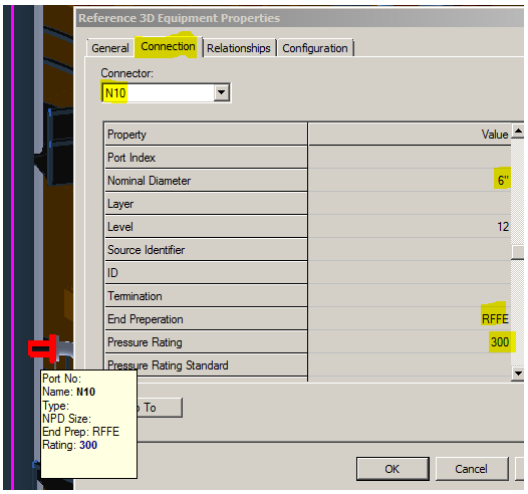


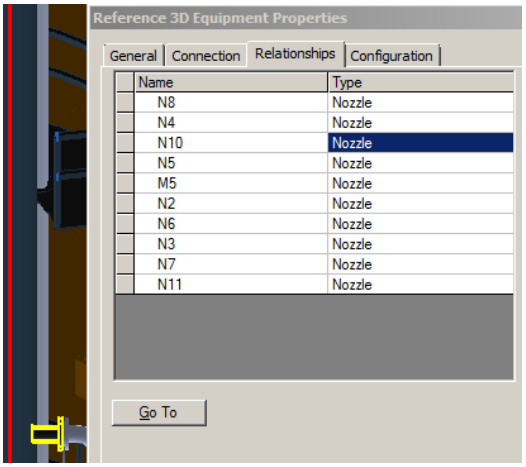
2. View the same data on Properties dialog.



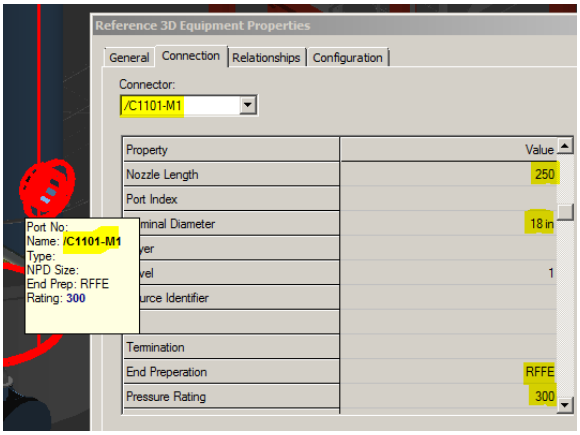


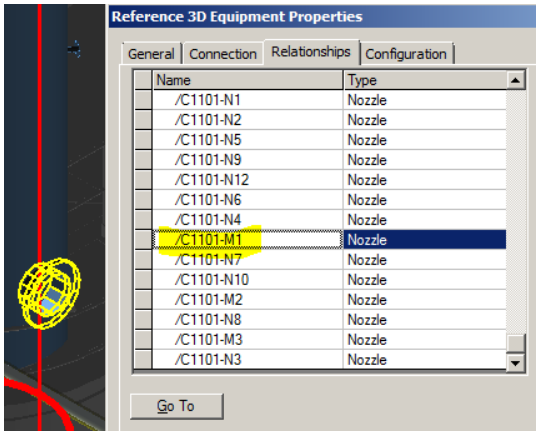






3. Similarly, relationships can be checked in PDMS Equipment and Piping.

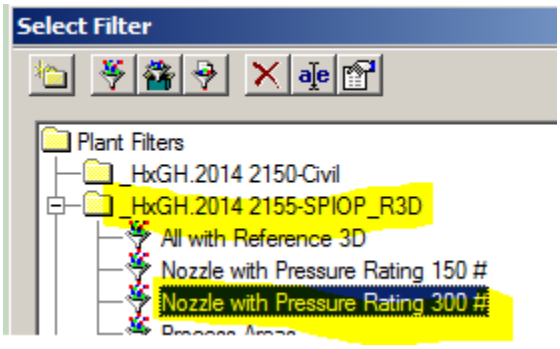




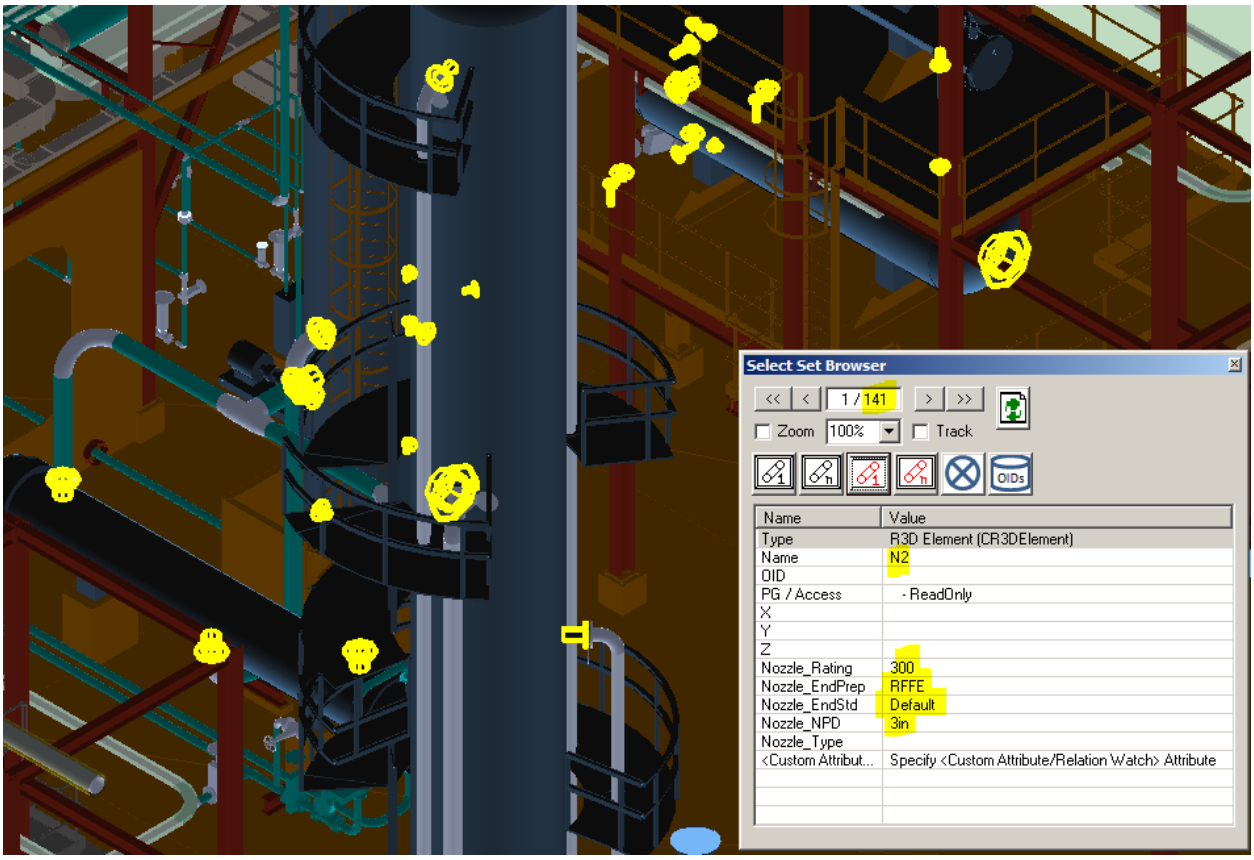
Lab 08 – Reference 3D Data – Filtering

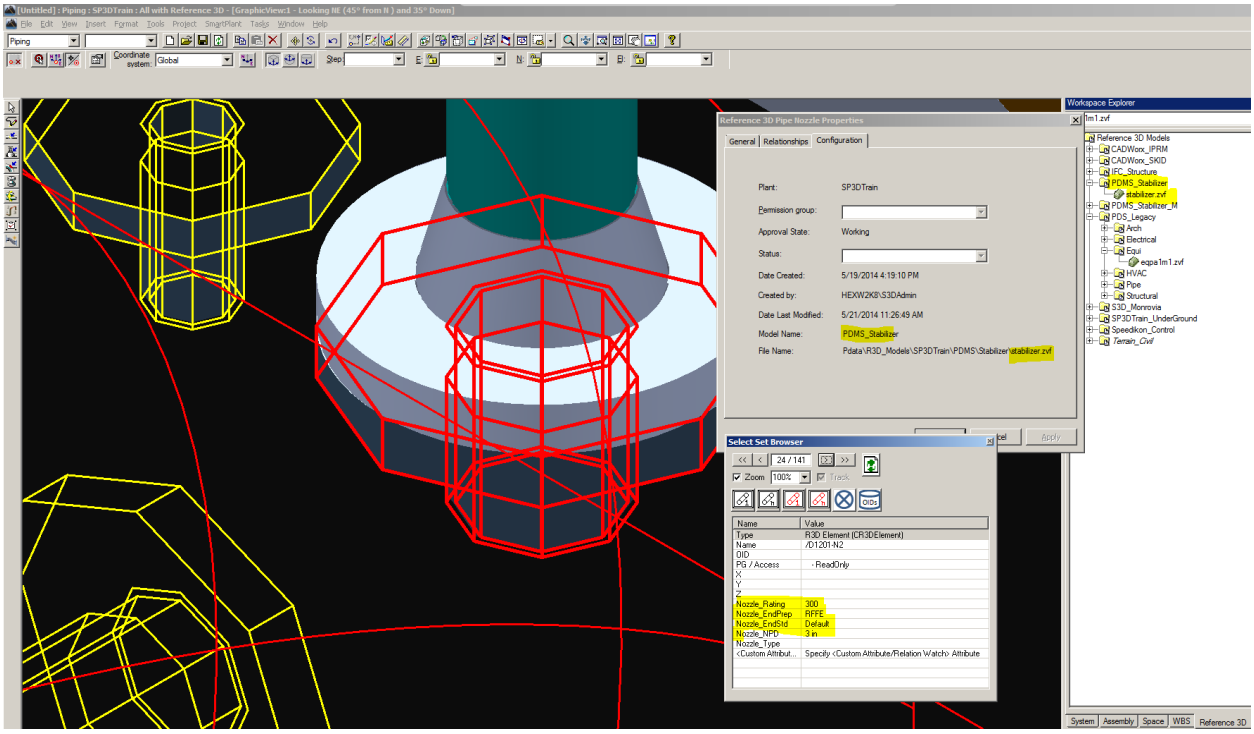
As Pipe Nozzle properties are mapped, they can be filtered using the **Select by Filter** command.

1. Use the predefined plant filter **Nozzle with Pressure Rating 300 #**.

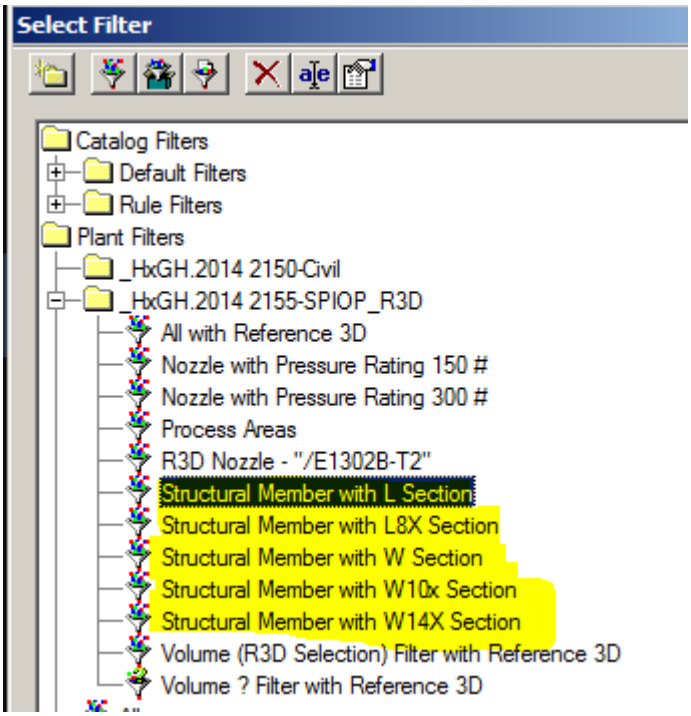


Note: When queried Equipment Pipe Nozzles are selected, you can activate them by clicking (by quick super shortcut sequence **Shift, Ctrl, Shift**) **Select Set Browser** (*ATK) .





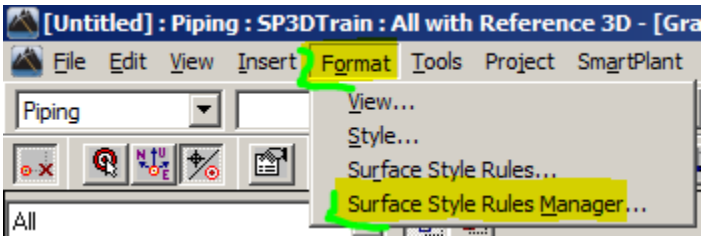
Similarly, 150# nozzles can be queried using the filter **Nozzle with Pressure Rating 150 #**. Structural members can also be queried using the filter **Structural Member with L Section,** or others.

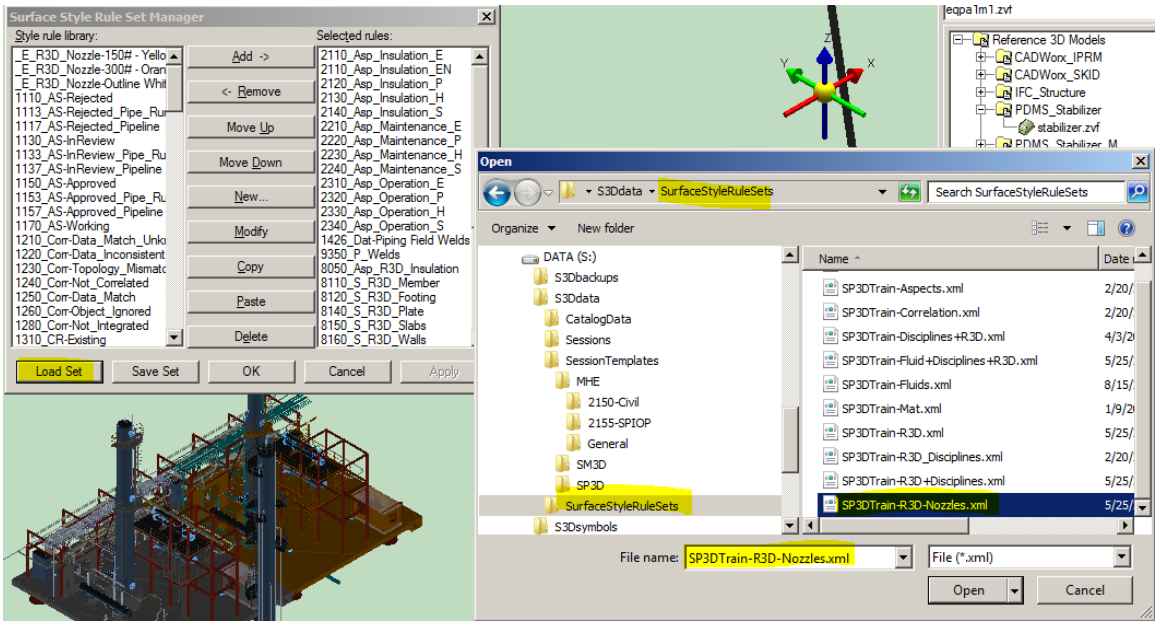


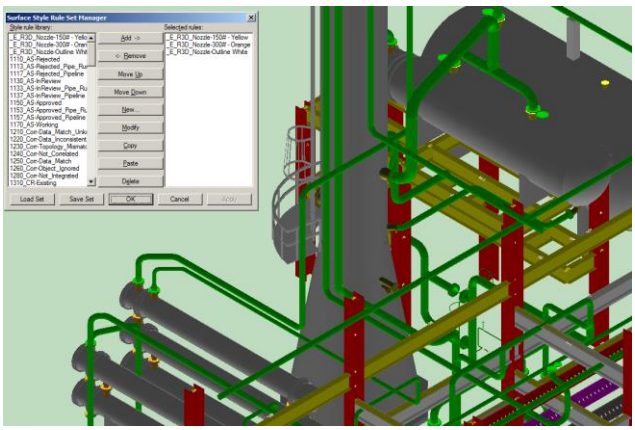
Lab 09 – Reference 3D Data – Surface Style Rules

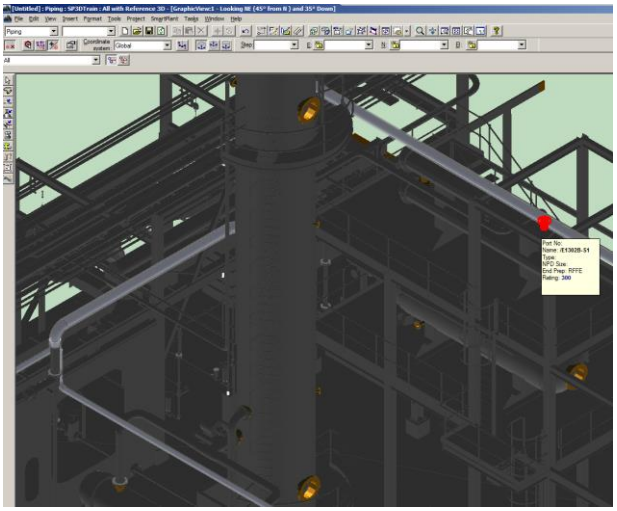
These filters can be used in Surface Style Rules

1. Load and apply the predefined **SP3DTrain-R3D-Nozzles.xml**”set using the **Surface Style Rules Manager** (*ATK).









2. Exit the Smart 3D session.

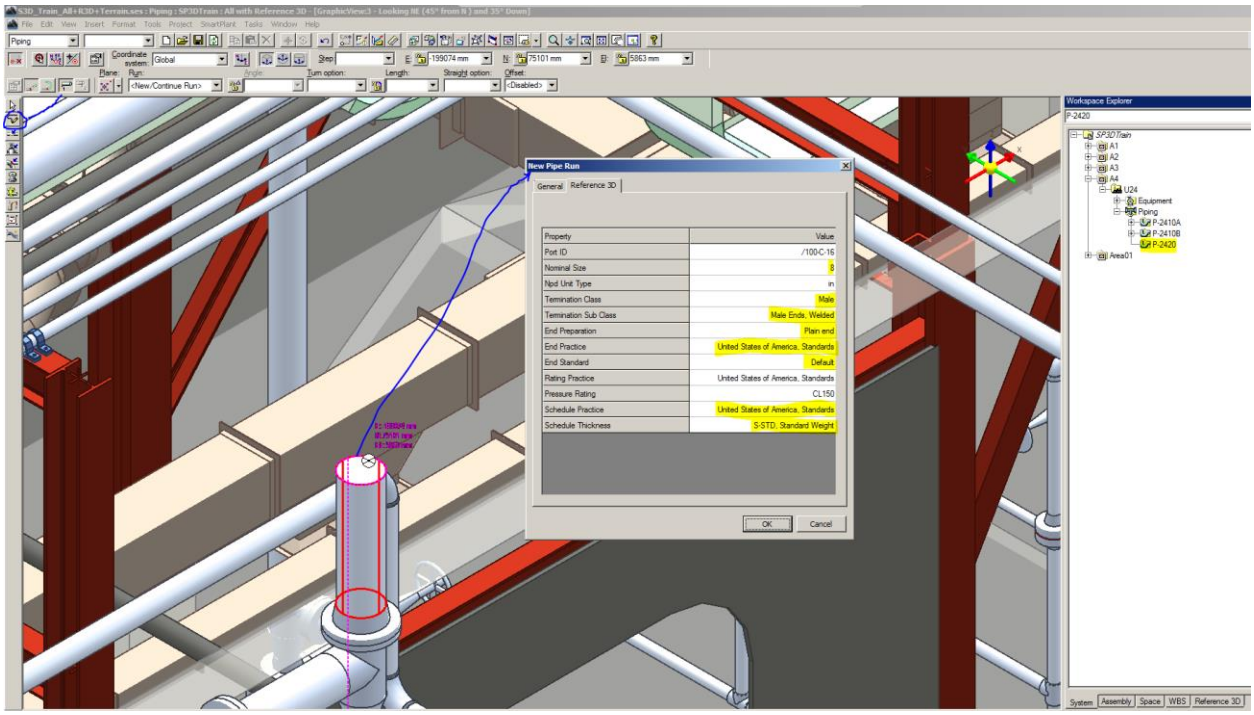
Routing from R3D Nozzles

Lab 09 – Reference 3D Data – Surface Style Rules

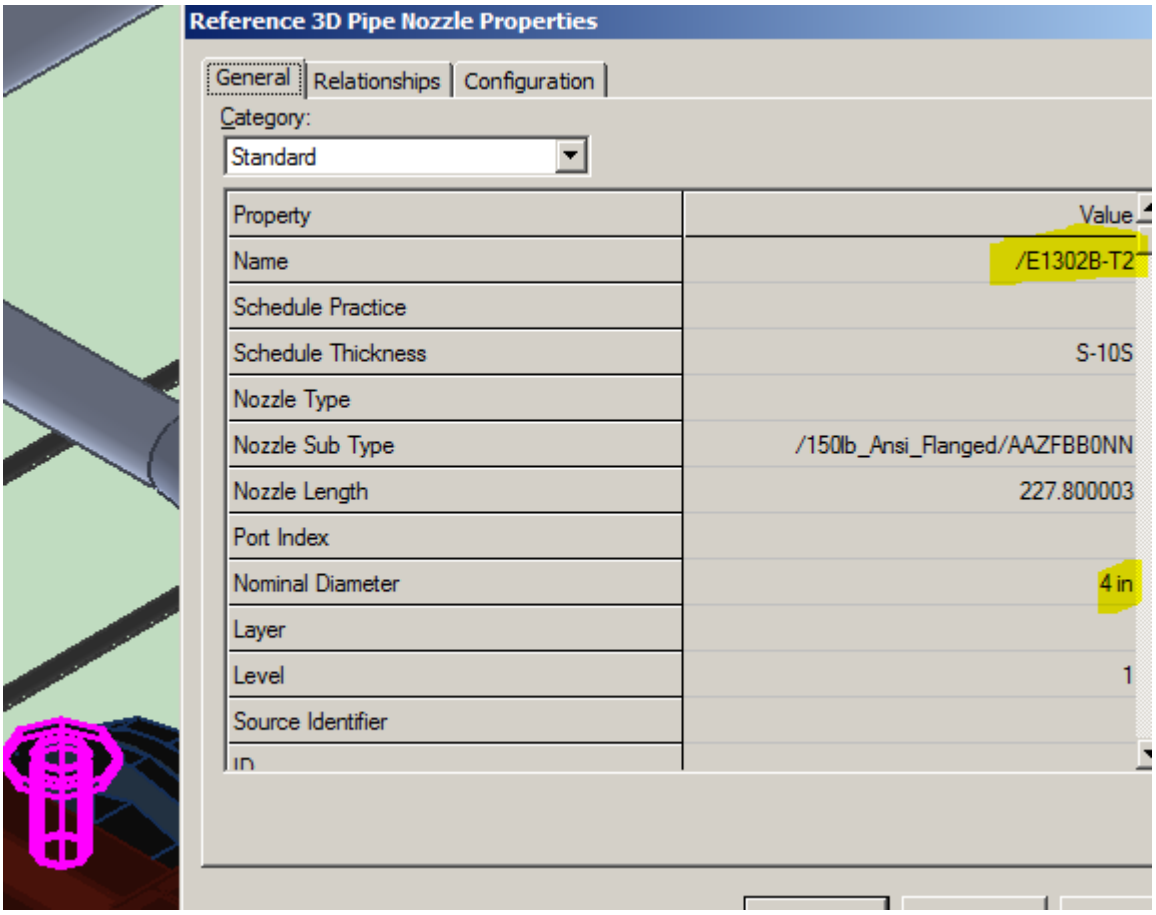
1. Start **Smart 3D** using the template **Piping** under the **2155-SPIOP** tab.

Ensure that the session is in the **Piping** Task, the Active Permission Group is **Piping,** and the Locate Filter is set to **Piping Features**. Turn the **PinPoint** on and switch to the **Relative Tracking**.

Note: There is already routed header line in Pipeline A4\U24\Piping**P-2420** from the PDMS Pipe.



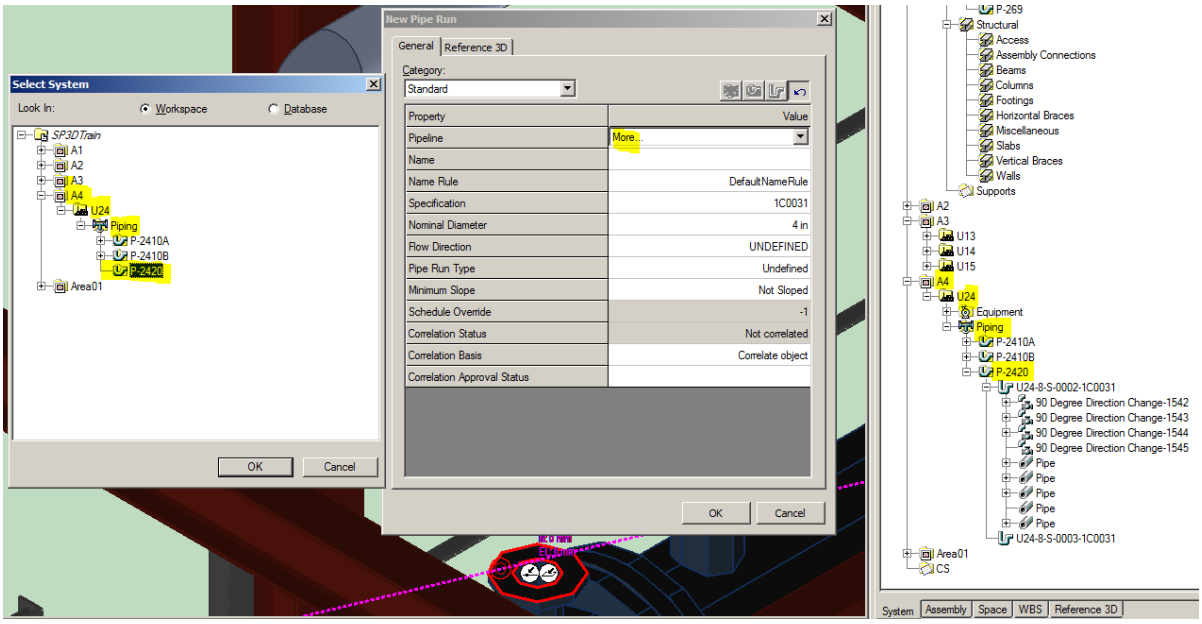
2. Use the Select by Filter command and choose predefined Plant Filter **R3D Nozzle – E/1302B-T2**. Check the properties and notice the **Name**.



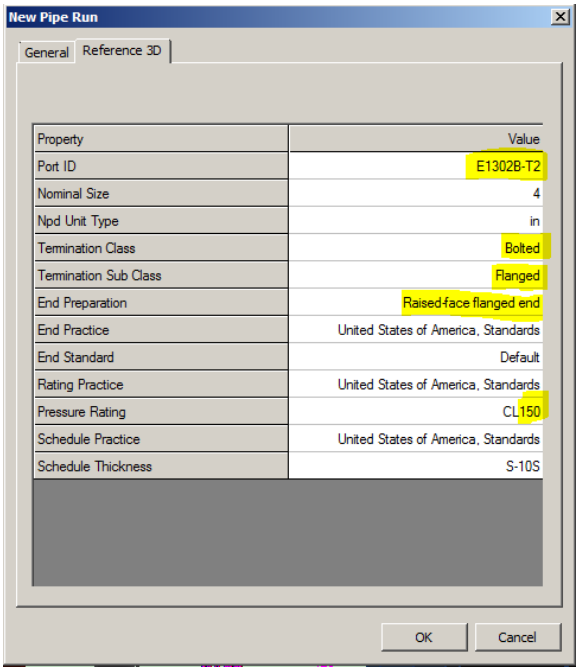
3. Use the saved view **Route from R3D** to get a clipped view with the origin at the nozzle and an insulated header above on the east side of the exchanger.

4. Route from the PDMS Nozzle by selecting the first point on the face plane of flange. The only necessary information is the elevation; the route solver will find the center

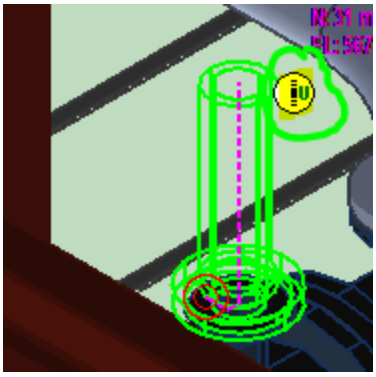
5. Ensure that on the New Pipe Run dialog form is added the **Reference 3D** tab. Assign the new run to the header Pipeline A4/U24/Piping/**P-2420.**

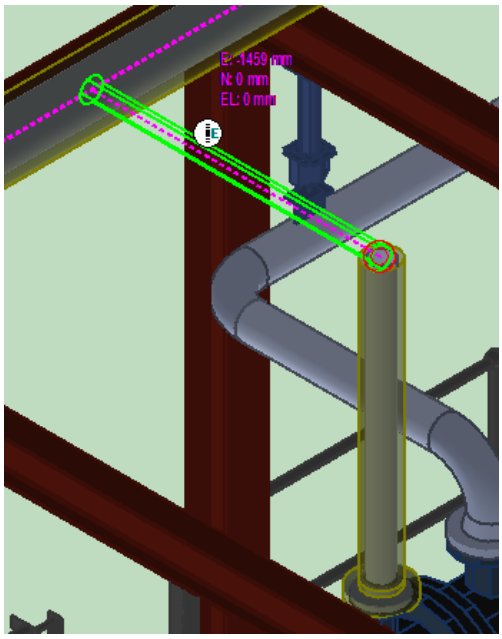


6. Optionally, modify the Tie-in information (will be on Isometrics).

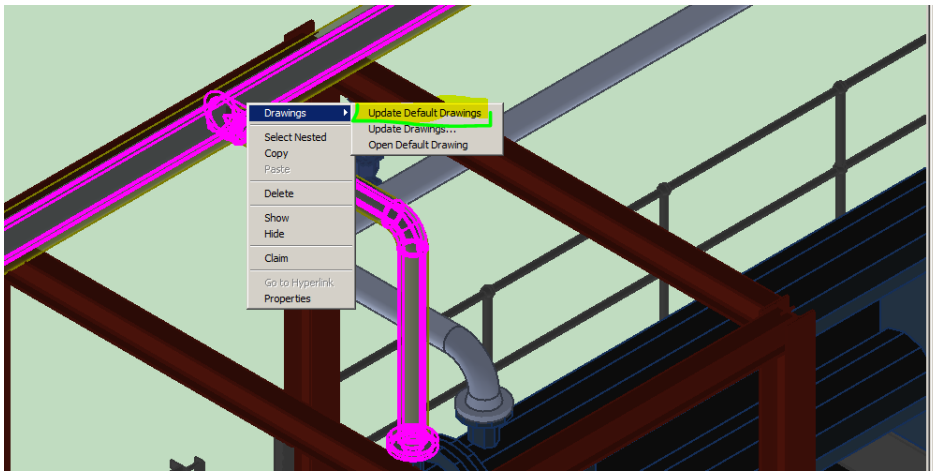


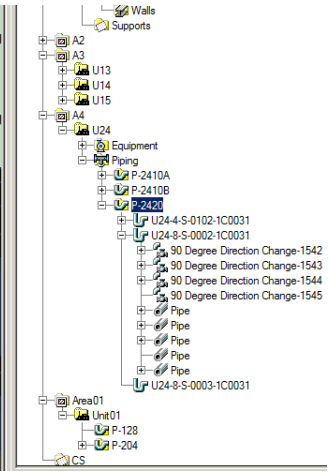
Note: If you get the warning about insulation and temperature, ignore it (pretending a basic Design phase) and route up to the header elevation. Lock on the centerline and create a perpendicular connection.



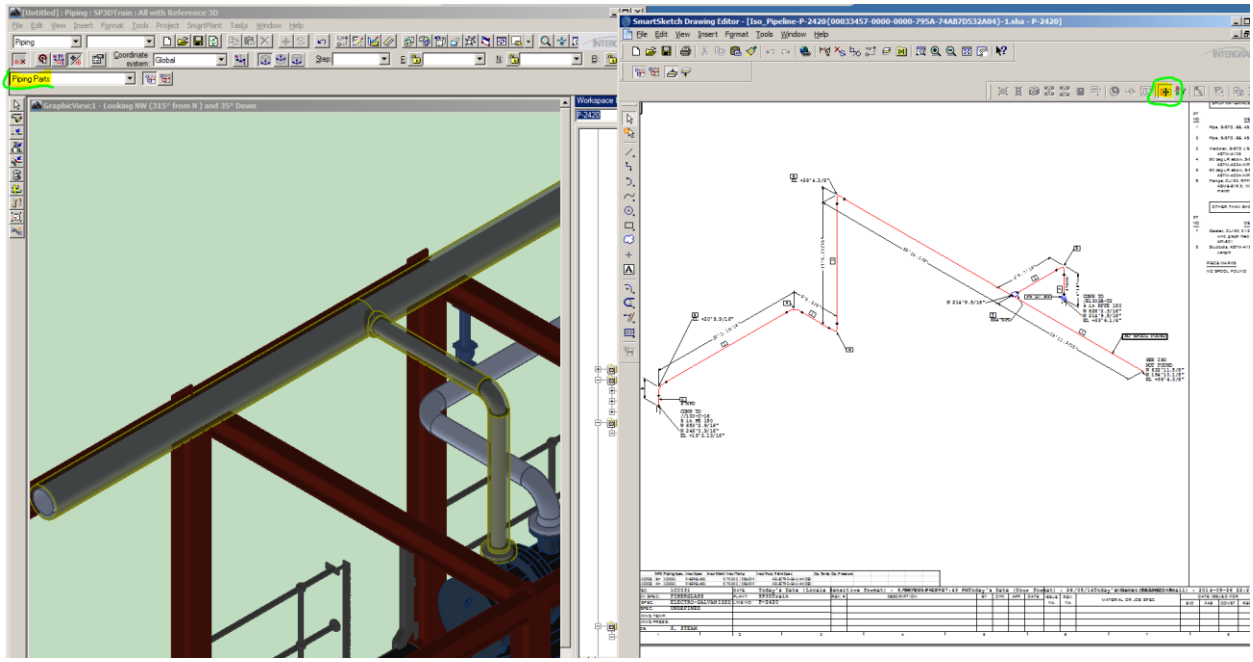


7. Change the Locate Filter to **Pipelines.** On the Context Menu activate the updating of Isometric Drawings.



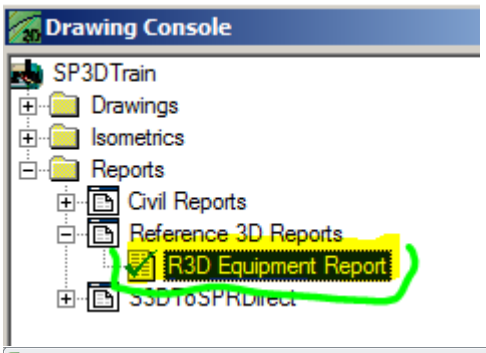


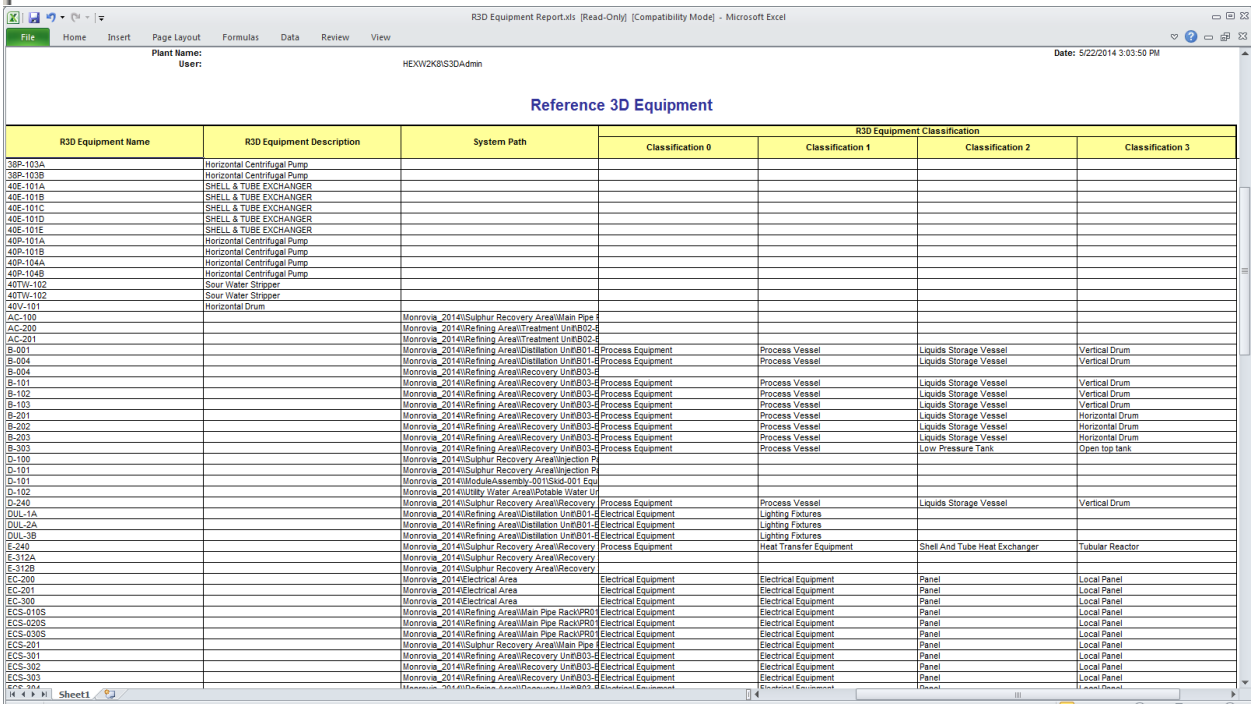
8. After the Isometric Drawing is completed and opened, change the Locate Filter in S3D to **Piping Parts**, and in 2D Drawing Editor activate the **2D/3D selection** command and examine your design and isometrics.



Lab 10 – Reference 3D Data – Reports

1. In the Drawing Console open **R3D Equipment Report** (under Reports/Reference 3D Reports snap-in)





R3D Equipment Report.xls [Read-Only] [Compatibility Mode] - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View

Plant Name:
User: HEXW2K8\S3DAdmin
Date: 5/22/2014 3:03:50 PM

Reference 3D Equipment

R3D Equipment Name	R3D Equipment Description	System Path	R3D Equipment Classification			
			Classification 0	Classification 1	Classification 2	Classification 3
38P-103A	Horizontal Centrifugal Pump					
38P-103B	Horizontal Centrifugal Pump					
40E-101A	SHELL & TUBE EXCHANGER					
40E-101B	SHELL & TUBE EXCHANGER					
40E-101C	SHELL & TUBE EXCHANGER					
40E-101D	SHELL & TUBE EXCHANGER					
40E-101E	SHELL & TUBE EXCHANGER					
40P-101A	Horizontal Centrifugal Pump					
40P-101B	Horizontal Centrifugal Pump					
40P-104A	Horizontal Centrifugal Pump					
40P-104B	Horizontal Centrifugal Pump					
40TW-102	Sour Water Stripper					
40TW-102	Sour Water Stripper					
40V-101	Horizontal Drum					
AC-100		Monrovia_2014\\Sulphur Recovery Area\\Main Pipe				
AC-200		Monrovia_2014\\Refining Area\\Treatment Unit\B02-E				
AC-201		Monrovia_2014\\Refining Area\\Treatment Unit\B02-E				
B-001		Monrovia_2014\\Refining Area\\Distillation Unit\B01-E	Process Equipment	Process Vessel	Liquids Storage Vessel	Vertical Drum
B-004		Monrovia_2014\\Refining Area\\Distillation Unit\B01-E	Process Equipment	Process Vessel	Liquids Storage Vessel	Vertical Drum
B-004		Monrovia_2014\\Refining Area\\Recovery Unit\B03-E				
B-101		Monrovia_2014\\Refining Area\\Recovery Unit\B03-E	Process Equipment	Process Vessel	Liquids Storage Vessel	Vertical Drum
B-102		Monrovia_2014\\Refining Area\\Recovery Unit\B03-E	Process Equipment	Process Vessel	Liquids Storage Vessel	Vertical Drum
B-103		Monrovia_2014\\Refining Area\\Recovery Unit\B03-E	Process Equipment	Process Vessel	Liquids Storage Vessel	Vertical Drum
B-201		Monrovia_2014\\Refining Area\\Recovery Unit\B03-E	Process Equipment	Process Vessel	Liquids Storage Vessel	Horizontal Drum
B-202		Monrovia_2014\\Refining Area\\Recovery Unit\B03-E	Process Equipment	Process Vessel	Liquids Storage Vessel	Horizontal Drum
B-203		Monrovia_2014\\Refining Area\\Recovery Unit\B03-E	Process Equipment	Process Vessel	Liquids Storage Vessel	Horizontal Drum
B-303		Monrovia_2014\\Refining Area\\Recovery Unit\B03-E	Process Equipment	Process Vessel	Low Pressure Tank	Open top tank
D-100		Monrovia_2014\\Sulphur Recovery Area\\Injection P				
D-101		Monrovia_2014\\Sulphur Recovery Area\\Injection P				
D-101		Monrovia_2014\\ModuleAssembly-001\Skid-001 Equ				
D-102		Monrovia_2014\\Utility Water Area\\Potable Water Un				
D-240		Monrovia_2014\\Sulphur Recovery Area\\Recovery	Process Equipment	Process Vessel	Liquids Storage Vessel	Vertical Drum
DUL-1A		Monrovia_2014\\Refining Area\\Distillation Unit\B01-E	Electrical Equipment	Lighting Fixtures		
DUL-2A		Monrovia_2014\\Refining Area\\Distillation Unit\B01-E	Electrical Equipment	Lighting Fixtures		
DUL-3B		Monrovia_2014\\Refining Area\\Distillation Unit\B01-E	Electrical Equipment	Lighting Fixtures		
E-240		Monrovia_2014\\Sulphur Recovery Area\\Recovery	Process Equipment	Heat Transfer Equipment	Shell And Tube Heat Exchanger	Tubular Reactor
E-312A		Monrovia_2014\\Sulphur Recovery Area\\Recovery				
E-312B		Monrovia_2014\\Sulphur Recovery Area\\Recovery				
EC-200		Monrovia_2014\Electrical Area	Electrical Equipment	Electrical Equipment	Panel	Local Panel
EC-201		Monrovia_2014\Electrical Area	Electrical Equipment	Electrical Equipment	Panel	Local Panel
EC-300		Monrovia_2014\Electrical Area	Electrical Equipment	Electrical Equipment	Panel	Local Panel
ECS-010S		Monrovia_2014\\Refining Area\\Main Pipe Rack\PR01	Electrical Equipment	Electrical Equipment	Panel	Local Panel
ECS-020S		Monrovia_2014\\Refining Area\\Main Pipe Rack\PR01	Electrical Equipment	Electrical Equipment	Panel	Local Panel
ECS-030S		Monrovia_2014\\Refining Area\\Main Pipe Rack\PR01	Electrical Equipment	Electrical Equipment	Panel	Local Panel
ECS-201		Monrovia_2014\\Sulphur Recovery Area\\Main Pipe	Electrical Equipment	Electrical Equipment	Panel	Local Panel
ECS-301		Monrovia_2014\\Refining Area\\Recovery Unit\B03-E	Electrical Equipment	Electrical Equipment	Panel	Local Panel
ECS-302		Monrovia_2014\\Refining Area\\Recovery Unit\B03-E	Electrical Equipment	Electrical Equipment	Panel	Local Panel
ECS-303		Monrovia_2014\\Refining Area\\Recovery Unit\B03-E	Electrical Equipment	Electrical Equipment	Panel	Local Panel

Sheet1

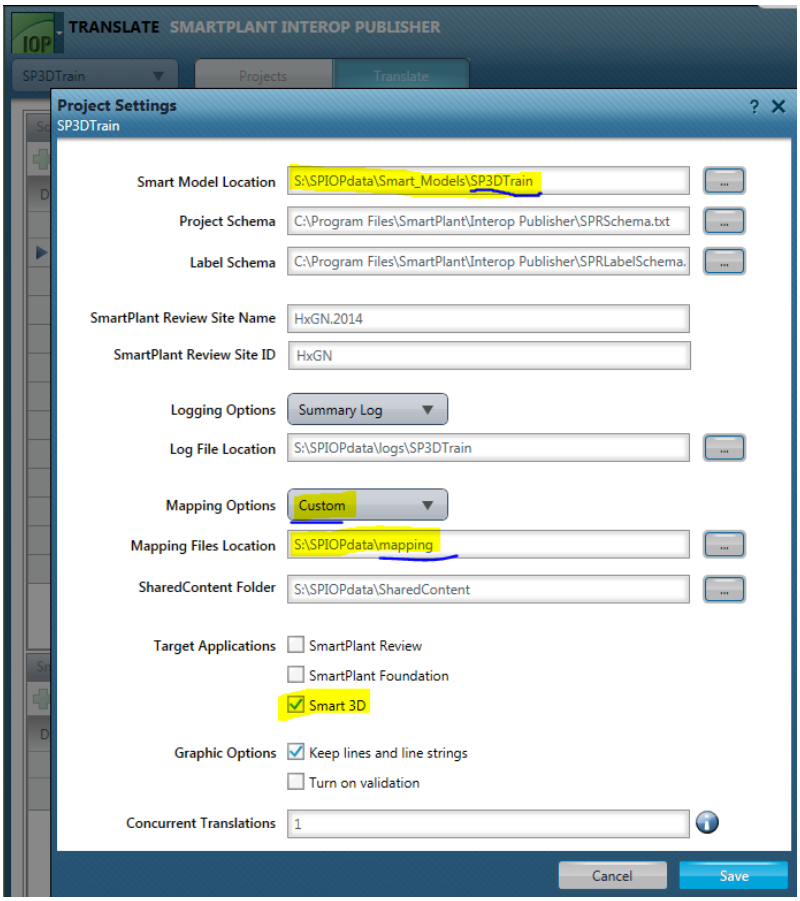
Preparation of SmartPlant Interop Publisher

Project Settings

Smart Models were created in a flat hierarchy to enable composition for SmartPlant Review

Reference 3D folder structure is hierarchical using scripted hard links.

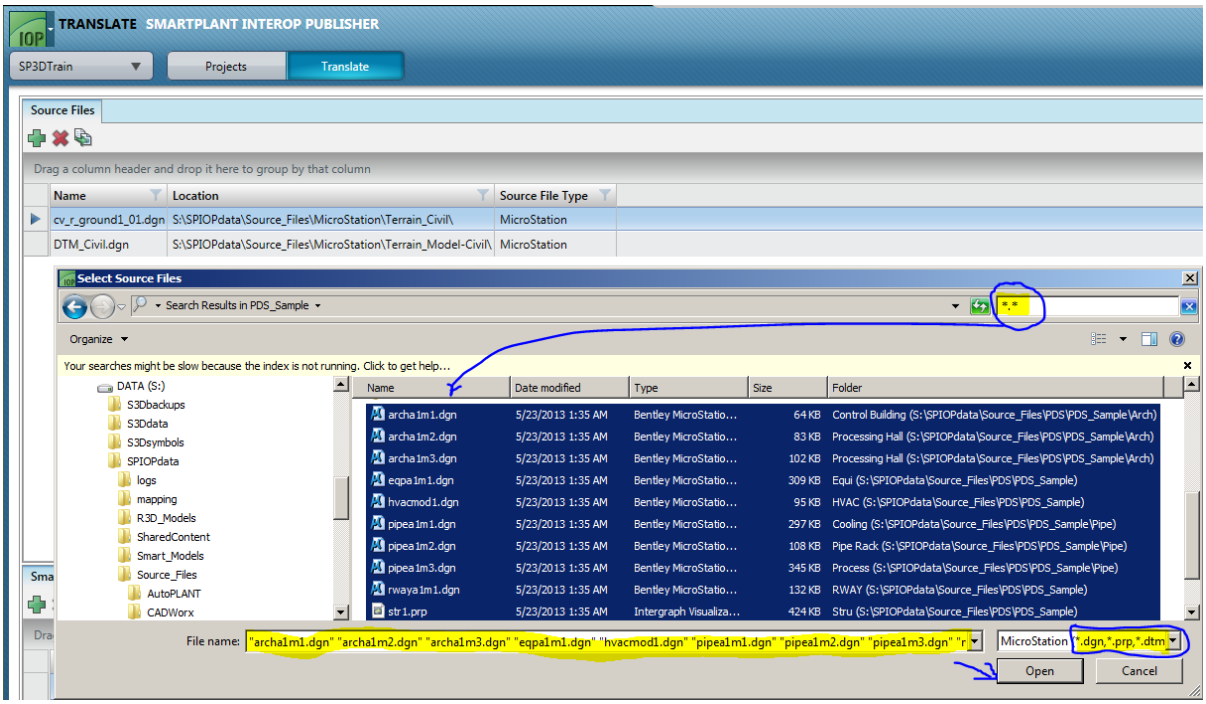
Translation settings are individually named like corresponding Reference 3D to help with grouping files.

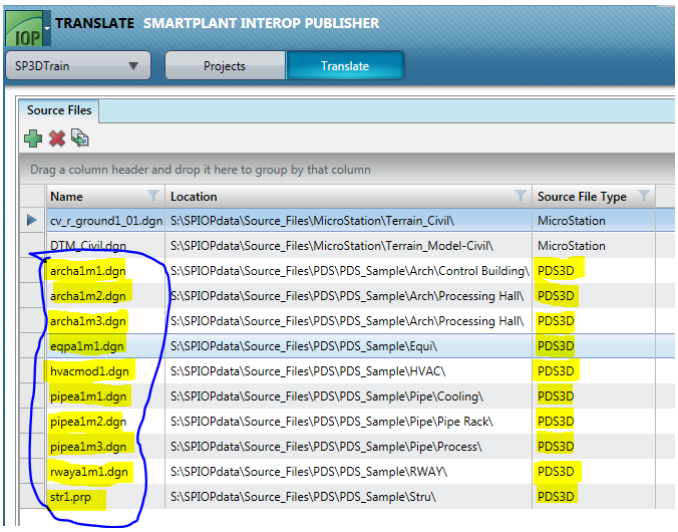


Source Files

PDS Legacy

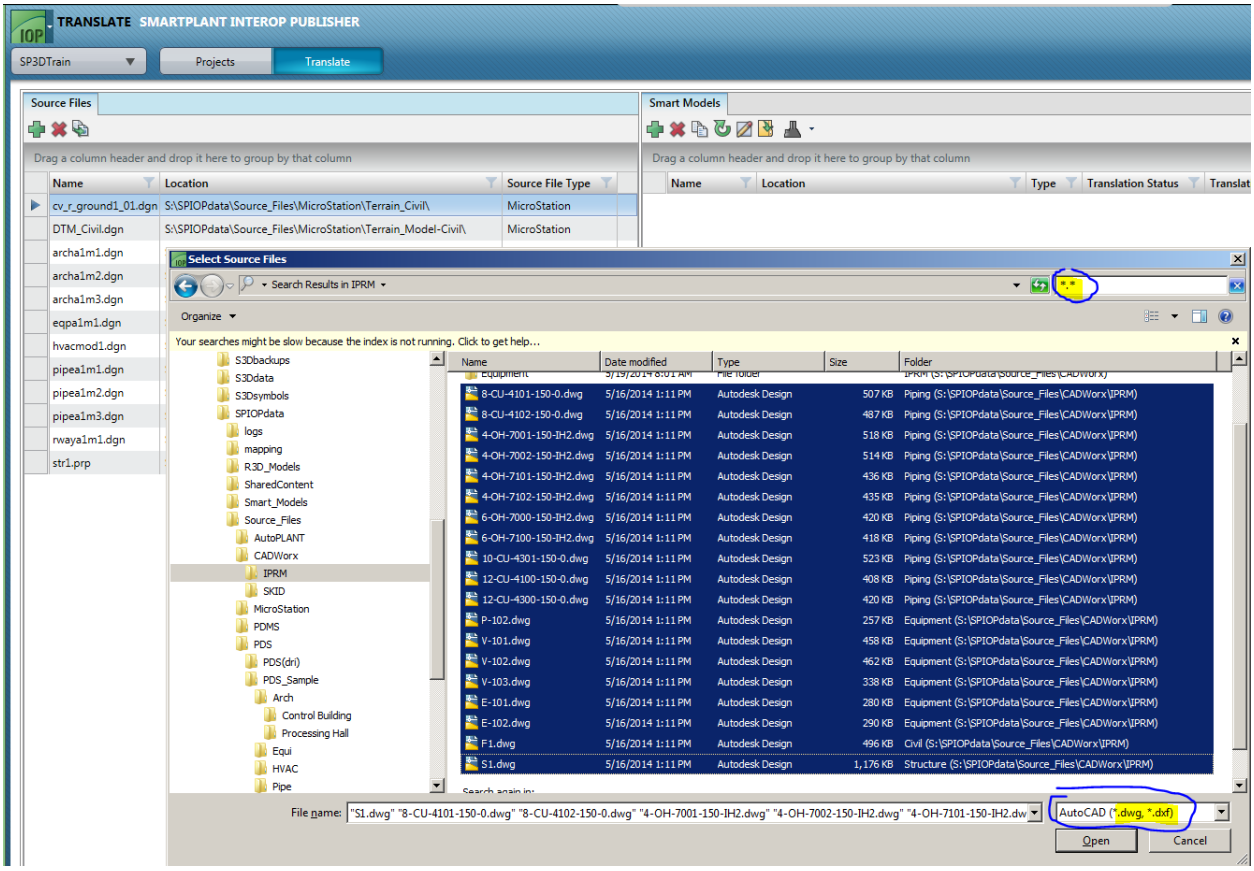
PDS Project (in Hierarchy with Subfolders)





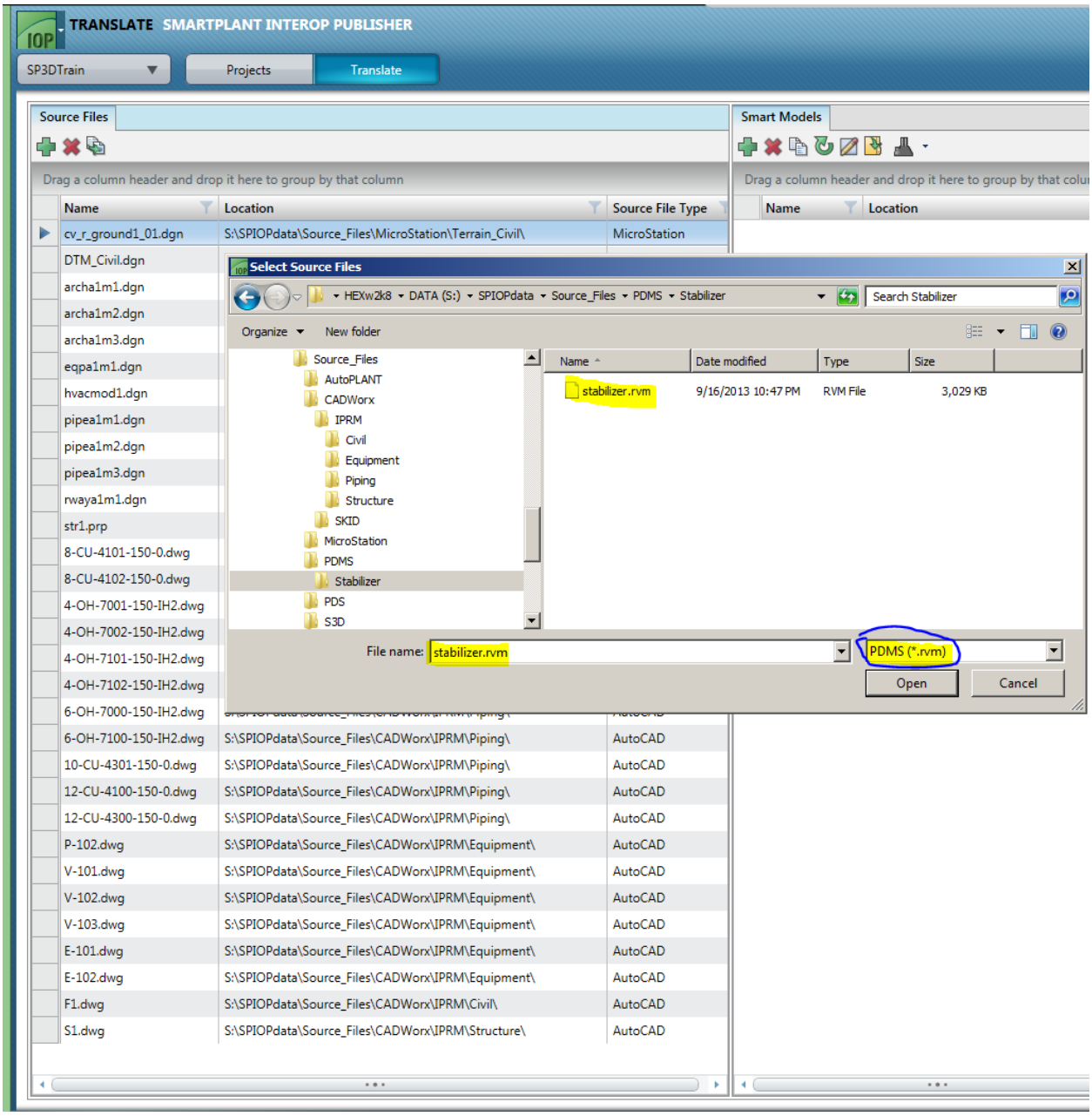
CADWorx

AutoCAD based CADWorx Project (in Hierarchy with Subfolders)



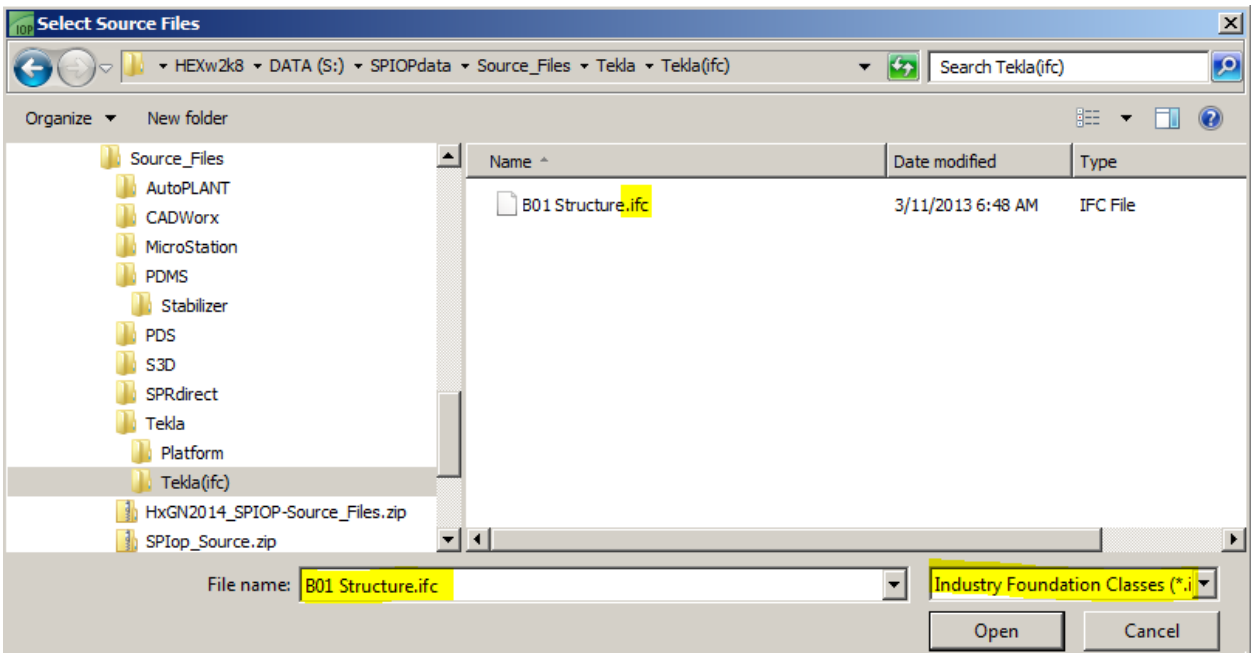
PDMS

Unit in a single file



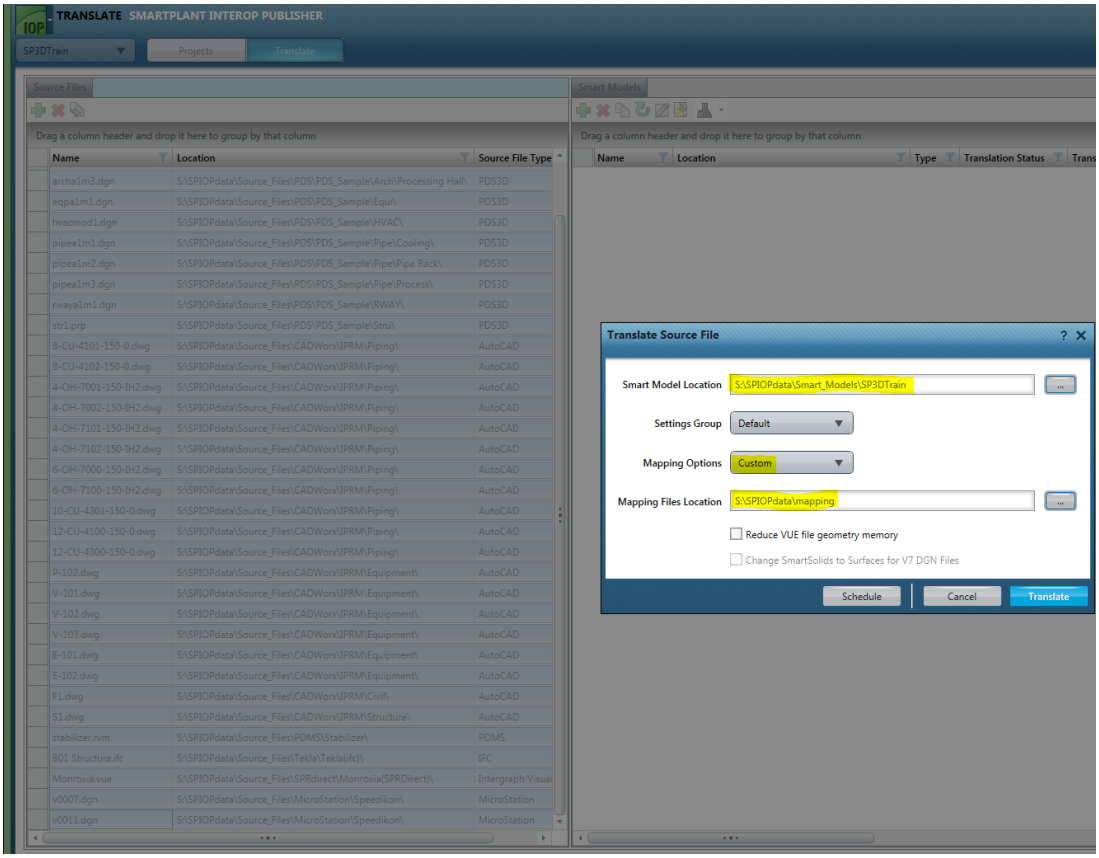
Structural IFC

Neutral file in the Industry Foundation Class format (ifc)

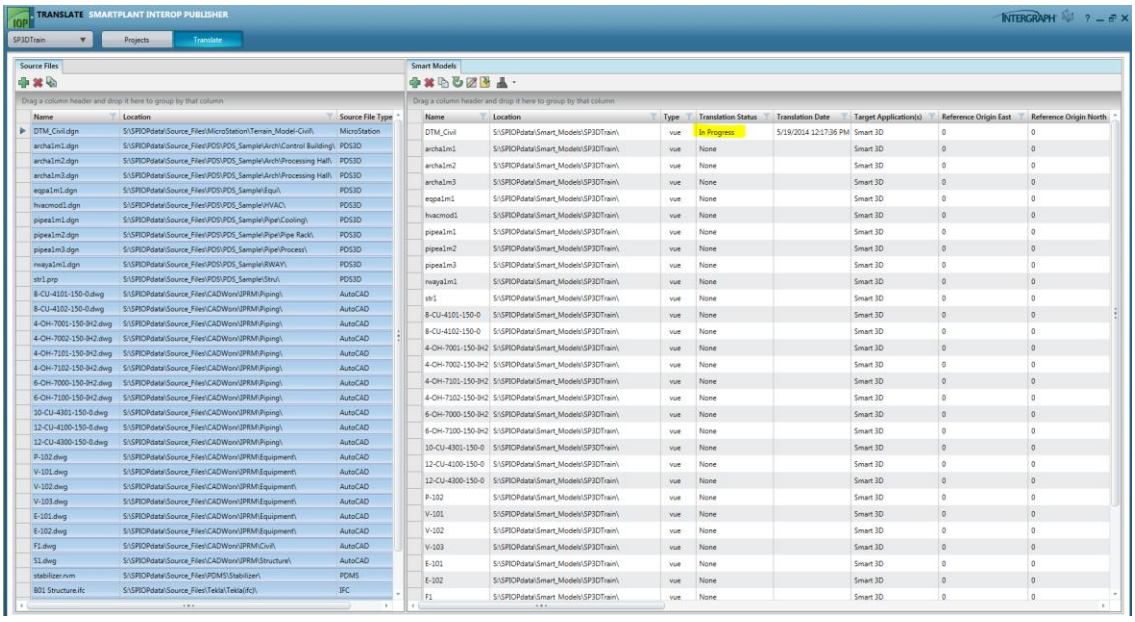


Translation

Default translation settings and Custom Mapping



If necessary Mapping and Translation Settings can be individually modified as needed – usually based on results of initial translation.



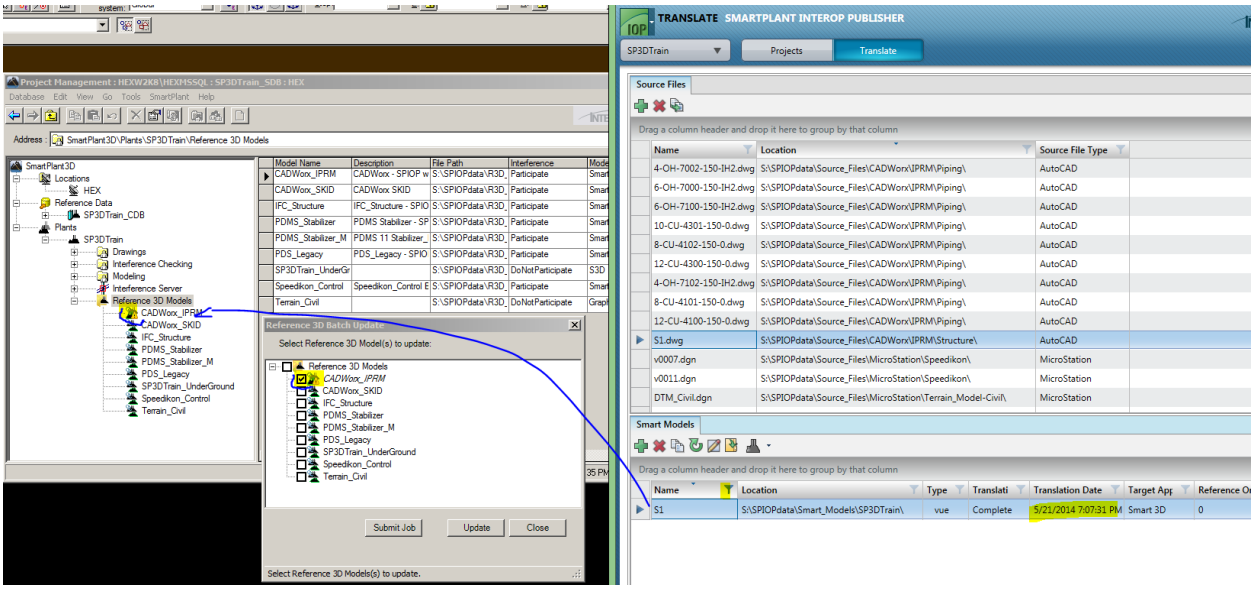
Preparation for Reference 3D of Intergraph Smart™ 3D

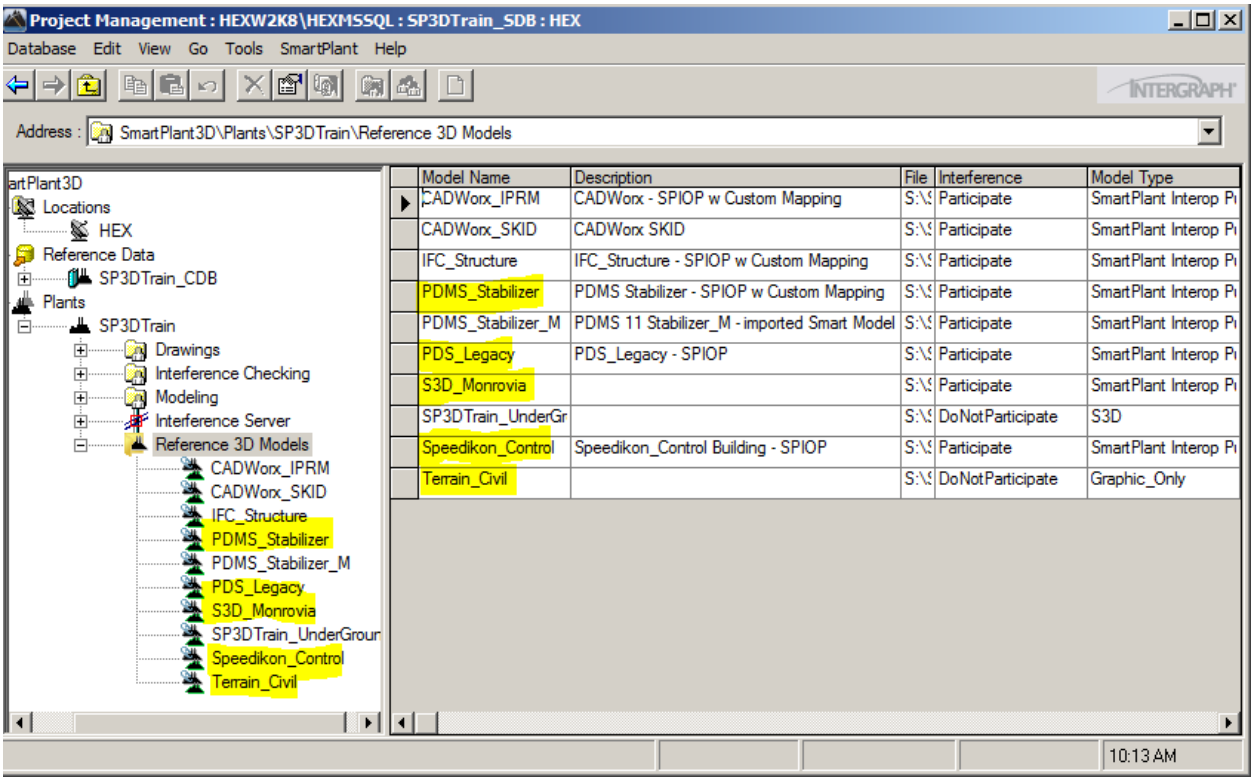
Reference 3D Model preparation

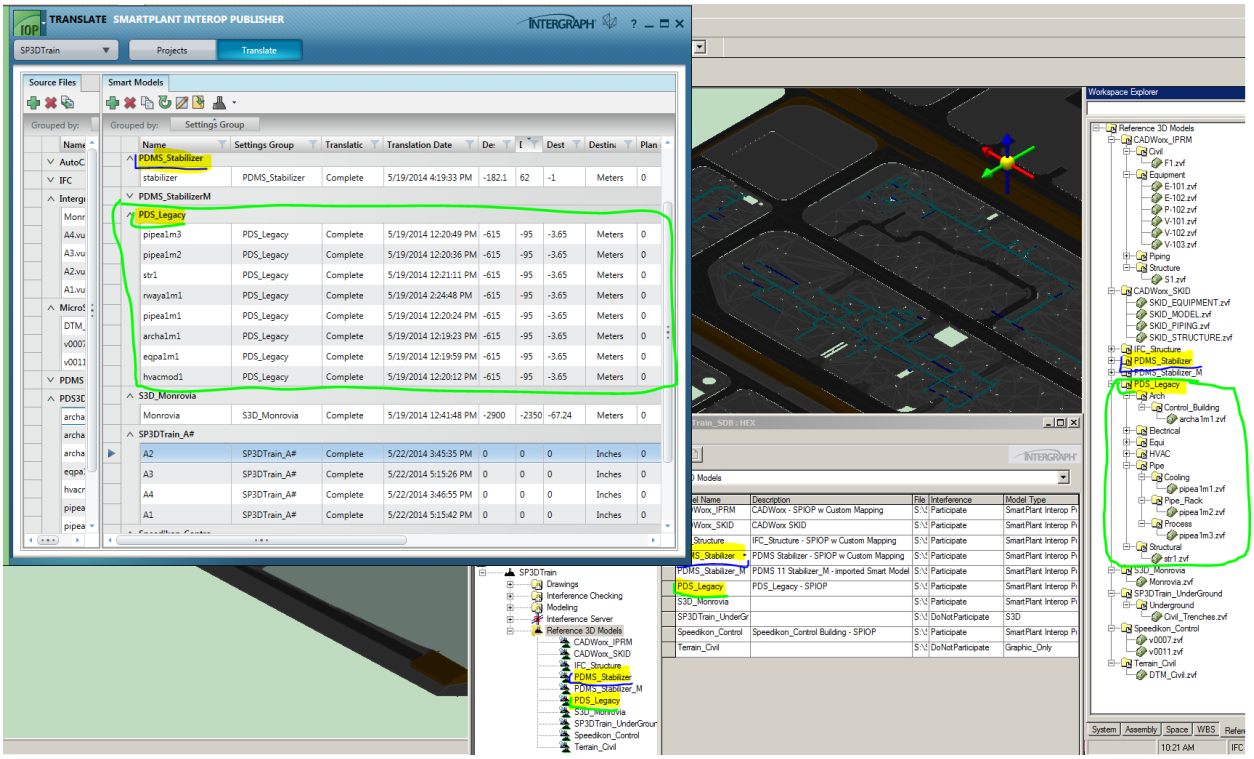
Currently done manually as a prototype, but requested for OOTB implementation by

RI-PB-140924 Create Smart3D Reference 3D models using Composed Smart Models

The intention is to be able automatically recreate Source Files Hierarchy for Reference 3D and group Smart Models to synchronize their transformations.




Project Management : HEXW2K8\HEXMSSQL : SP3DTrain_SDB : HEX
Database Edit View Go Tools SmartPlant Help
Address : SmartPlant3D\Plants\SP3DTrain\Reference 3D Models
artPlant3D
Locations
HEX
Reference Data
SP3DTrain_CDB
Plants
SP3DTrain
Drawings
Interference Checking
Modeling
Interference Server
Reference 3D Models
CADWorx_IPRM
CADWorx_SKID
IFC_Structure
PDMS_Stabilizer
PDMS_Stabilizer_M
PDS_Legacy
S3D_Monrovia
SP3DTrain_UnderGrour
Speedikon_Control
Terrain_Civil
Model Name | Description | File | Interference | Model Type
CADWorx_IPRM | CADWorx - SPIOP w Custom Mapping | S:\ | Participate | SmartPlant Interop Pi
CADWorx_SKID | CADWorx SKID | S:\ | Participate | SmartPlant Interop Pi
IFC_Structure | IFC_Structure - SPIOP w Custom Mapping | S:\ | Participate | SmartPlant Interop Pi
PDMS_Stabilizer | PDMS Stabilizer - SPIOP w Custom Mapping | S:\ | Participate | SmartPlant Interop Pi
PDMS_Stabilizer_M | PDMS 11 Stabilizer_M - imported Smart Model | S:\ | Participate | SmartPlant Interop Pi
PDS_Legacy | PDS_Legacy - SPIOP | S:\ | Participate | SmartPlant Interop Pi
S3D_Monrovia | | S:\ | Participate | SmartPlant Interop Pi
SP3DTrain_UnderGr | | S:\ | DoNotParticipate | S3D
Speedikon_Control | Speedikon_Control Building - SPIOP | S:\ | Participate | SmartPlant Interop Pi
Terrain_Civil | | S:\ | DoNotParticipate | Graphic_Only
10:13 AM


TRANSLATE SMARTPLANT INTEROP PUBLISHER
SP3DTrain
Projects
Translate
Source Files
Smart Models
Grouped by:
Settings Group
Name | Settings Group | Translatic | Translation Date | Dest | Destin | Plan
PDMS_Stabilizer
stabilizer | PDMS_Stabilizer | Complete | 5/19/2014 4:19:33 PM | Meters
PDMS_StabilizerM
PDS_Legacy
pipea1m3 | PDS_Legacy | Complete | 5/19/2014 12:20:49 PM | Meters
pipea1m2 | PDS_Legacy | Complete | 5/19/2014 12:20:36 PM | Meters
str1 | PDS_Legacy | Complete | 5/19/2014 12:21:11 PM | Meters
rwaya1m1 | PDS_Legacy | Complete | 5/19/2014 2:24:48 PM | Meters
pipea1m1 | PDS_Legacy | Complete | 5/19/2014 12:20:24 PM | Meters
archa1m1 | PDS_Legacy | Complete | 5/19/2014 12:19:23 PM | Meters
eqpa1m1 | PDS_Legacy | Complete | 5/19/2014 12:19:59 PM | Meters
hvacmod1 | PDS_Legacy | Complete | 5/19/2014 12:20:12 PM | Meters
S3D_Monrovia
Monrovia | S3D_Monrovia | Complete | 5/19/2014 12:41:48 PM | Meters
SP3DTrain_A#
A2 | SP3DTrain_A# | Complete | 5/22/2014 3:45:35 PM | Inches
A3 | SP3DTrain_A# | Complete | 5/22/2014 5:15:26 PM | Inches
A4 | SP3DTrain_A# | Complete | 5/22/2014 3:46:55 PM | Inches
A1 | SP3DTrain_A# | Complete | 5/22/2014 5:15:42 PM | Inches
Workspace Explorer
Reference 3D Models
CADWorx_IPRM
CADWorx_SKID
IFC_Structure
PDMS_Stabilizer
PDMS_Stabilizer_M
PDS_Legacy
S3D_Monrovia
SP3DTrain_UnderGround
Speedikon_Control
Terrain_Civil

Reference 3D model hierarchy is currently created outside SmartPlant Interop Publisher by script, but directly pointing to original data without copying them, therefore updates and transformations are in permanent synch. Hard links are used to point to required files (zvf, mdb2, iop) from the Reference 3D Model folder with hierarchy taken from the source file hierarchy.

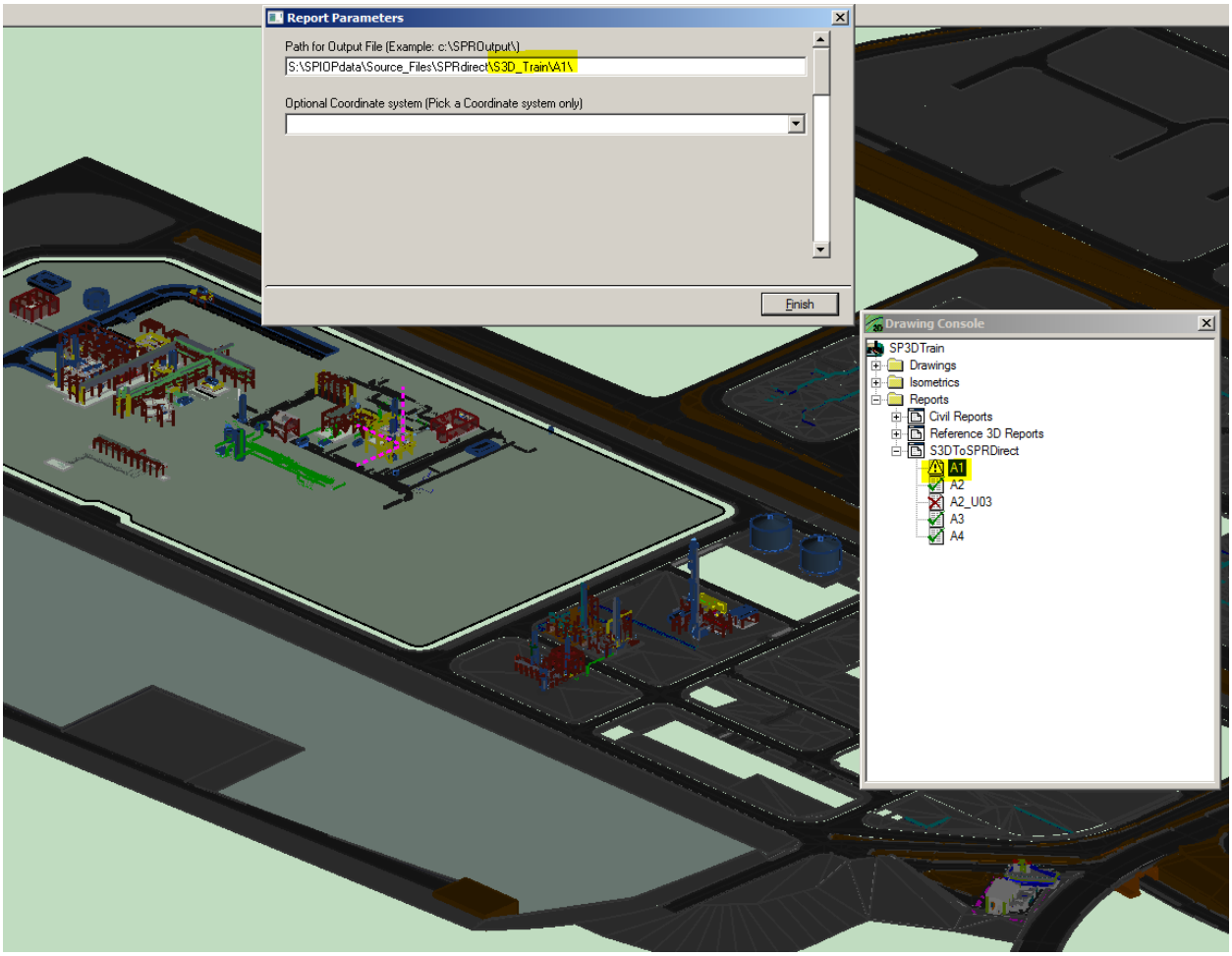
R3D_Models-PDS-Legacy.cmd

```
set ProjectName=SP3DTrain
set SPIOPFilesLoc=D:\DATA\SPIOPdata
set R3D_Models=%SPIOPFilesLoc%\R3D_Models\%ProjectName%
set SPIOPSmartModels=%SPIOPFilesLoc%\Smart_Models\%ProjectName%

if not exist %R3D_Models%  mkdir  %R3D_Models%
cd /D %R3D_Models%

rem PDS

set R3D_Model_Name=PDS_Legacy

set R3D_Model_Folder=Equi
mkdir %R3D_Models%\%R3D_Model_Name%\%R3D_Model_Folder%
cd /D %R3D_Models%\%R3D_Model_Name%\%R3D_Model_Folder%

set R3D_File=eqpa1m1
mklink /h %R3D_File%.zvf %SPIOPSmartModels%\ZVF\%R3D_File%.zvf
mklink /h %R3D_File%.mdb2 %SPIOPSmartModels%\ZVF\%R3D_File%.mdb2
mklink /h %R3D_File%.iop %SPIOPSmartModels%\ZVF\%R3D_File%.iop

set R3D_Model_Folder=HVAC
mkdir %R3D_Models%\%R3D_Model_Name%\%R3D_Model_Folder%
cd /D %R3D_Models%\%R3D_Model_Name%\%R3D_Model_Folder%

set R3D_File=hvacmod1
mklink /h %R3D_File%.zvf %SPIOPSmartModels%\ZVF\%R3D_File%.zvf
rem mklink /h %R3D_File%.mdb2 %SPIOPSmartModels%\ZVF\%R3D_File%.mdb2
mklink /h %R3D_File%.iop %SPIOPSmartModels%\ZVF\%R3D_File%.iop

set R3D_Model_Folder=Pipe\Cooling
mkdir %R3D_Models%\%R3D_Model_Name%\%R3D_Model_Folder%
cd /D %R3D_Models%\%R3D_Model_Name%\%R3D_Model_Folder%

set R3D_File=pipea1m1
mklink /h %R3D_File%.zvf %SPIOPSmartModels%\ZVF\%R3D_File%.zvf
mklink /h %R3D_File%.mdb2 %SPIOPSmartModels%\ZVF\%R3D_File%.mdb2
mklink /h %R3D_File%.iop %SPIOPSmartModels%\ZVF\%R3D_File%.iop

set R3D_Model_Folder=Pipe\Pipe_Rack
mkdir %R3D_Models%\%R3D_Model_Name%\%R3D_Model_Folder%
cd /D %R3D_Models%\%R3D_Model_Name%\%R3D_Model_Folder%
```

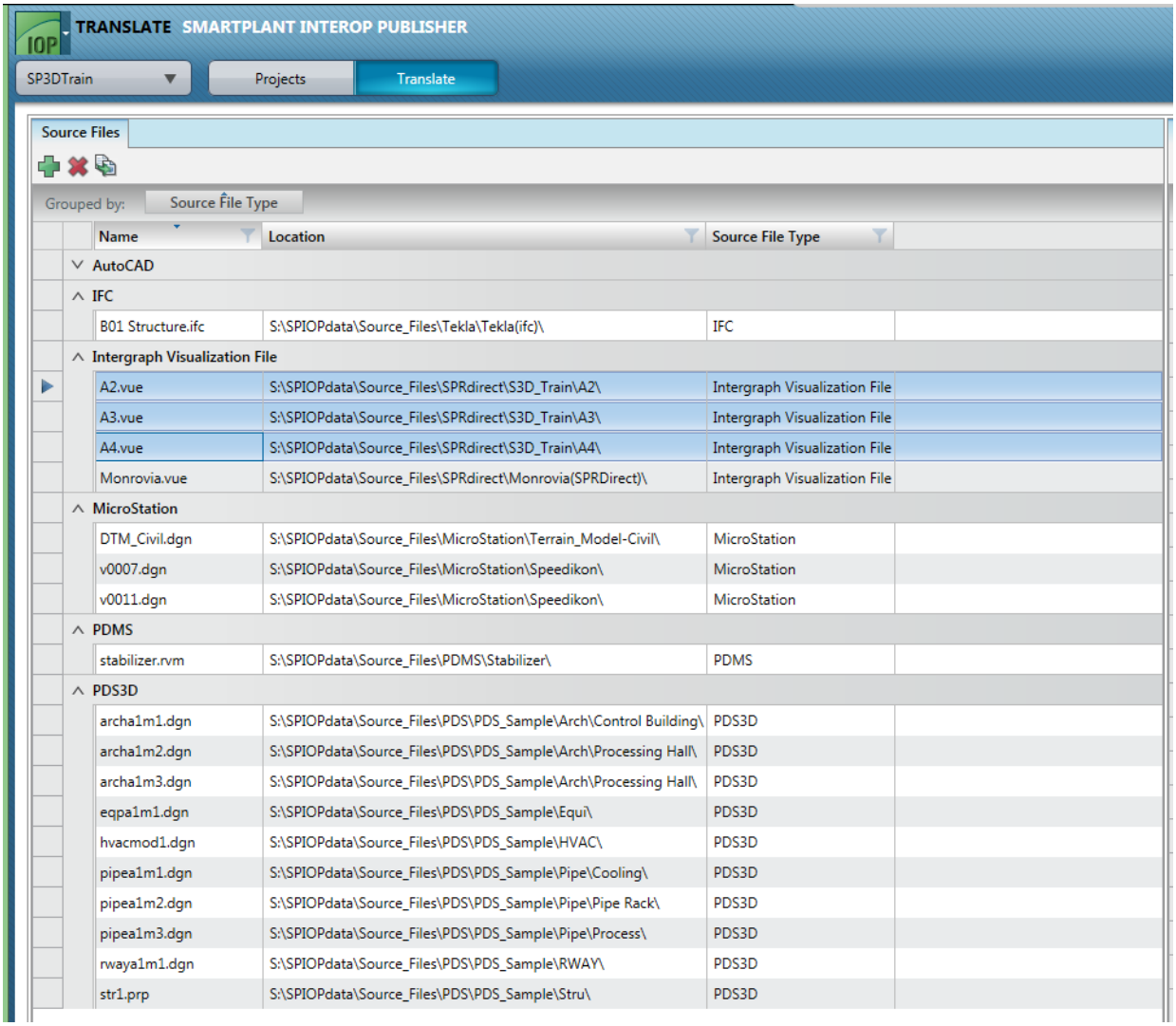
```
set ProjectName=SP3DTrain
set SPIOPFilesLoc=D:\DATA\SPIOPdata
set R3D_Models=%SPIOPFilesLoc%\R3D_Models\%ProjectName%
set SPIOPSmartModels=%SPIOPFilesLoc%\Smart_Models\%ProjectName%

if not exist %R3D_Models%  mkdir  %R3D_Models%
cd /D %R3D_Models%

rem PDS

set R3D_Model_Name=PDS_Legacy

set R3D_Model_Folder=Equi
mkdir %R3D_Models%\%R3D_Model_Name%\%R3D_Model_Folder%
cd /D %R3D_Models%\%R3D_Model_Name%\%R3D_Model_Folder%

set R3D_File=eqpa1m1
mklink /h %R3D_File%.zvf %SPIOPSmartModels%\ZVF\%R3D_File%.zvf
mklink /h %R3D_File%.mdb2 %SPIOPSmartModels%\ZVF\%R3D_File%.mdb2
mklink /h %R3D_File%.iop %SPIOPSmartModels%\ZVF\%R3D_File%.iop
```

Publishing SP3DTrain Plant for SmartPlant Review

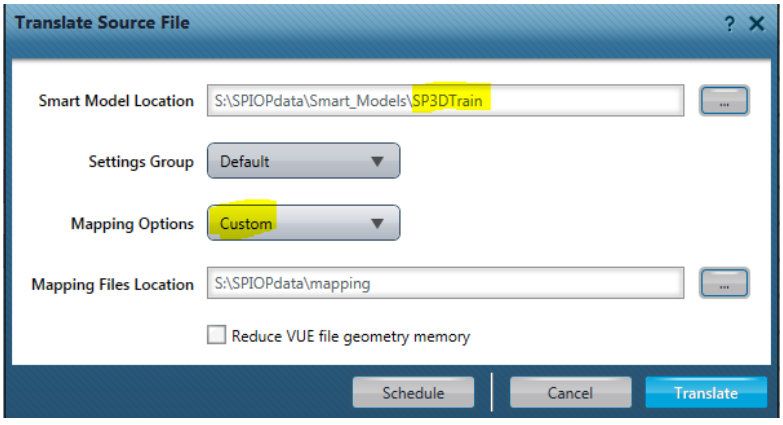
SPR Direct



SmartPlant Interop Publisher translation



Name	Location	Source File Type
AutoCAD		
IFC		
B01 Structure.ifc	S:\SPIOPdata\Source_Files\Tekla\Tekla(ifc)\	IFC
Intergraph Visualization File		
A2.vue	S:\SPIOPdata\Source_Files\SPRdirect\S3D_Train\A2\	Intergraph Visualization File
A3.vue	S:\SPIOPdata\Source_Files\SPRdirect\S3D_Train\A3\	Intergraph Visualization File
A4.vue	S:\SPIOPdata\Source_Files\SPRdirect\S3D_Train\A4\	Intergraph Visualization File
Monrovia.vue	S:\SPIOPdata\Source_Files\SPRdirect\Monrovia(SPRDirect)\	Intergraph Visualization File
MicroStation		
DTM_Civil.dgn	S:\SPIOPdata\Source_Files\MicroStation\Terrain_Model-Civil\	MicroStation
v0007.dgn	S:\SPIOPdata\Source_Files\MicroStation\Speedikon\	MicroStation
v0011.dgn	S:\SPIOPdata\Source_Files\MicroStation\Speedikon\	MicroStation
PDMS		
stabilizer.rvm	S:\SPIOPdata\Source_Files\PDMS\Stabilizer\	PDMS
PDS3D		
archa1m1.dgn	S:\SPIOPdata\Source_Files\PDS\PDS_Sample\Arch\Control Building\	PDS3D
archa1m2.dgn	S:\SPIOPdata\Source_Files\PDS\PDS_Sample\Arch\Processing Hall\	PDS3D
archa1m3.dgn	S:\SPIOPdata\Source_Files\PDS\PDS_Sample\Arch\Processing Hall\	PDS3D
eqpa1m1.dgn	S:\SPIOPdata\Source_Files\PDS\PDS_Sample\Equi\	PDS3D
hvacmod1.dgn	S:\SPIOPdata\Source_Files\PDS\PDS_Sample\HVAC\	PDS3D
pipea1m1.dgn	S:\SPIOPdata\Source_Files\PDS\PDS_Sample\Pipe\Cooling\	PDS3D
pipea1m2.dgn	S:\SPIOPdata\Source_Files\PDS\PDS_Sample\Pipe\Pipe Rack\	PDS3D
pipea1m3.dgn	S:\SPIOPdata\Source_Files\PDS\PDS_Sample\Pipe\Process\	PDS3D
rwaya1m1.dgn	S:\SPIOPdata\Source_Files\PDS\PDS_Sample\RWAY\	PDS3D
str1.prp	S:\SPIOPdata\Source_Files\PDS\PDS_Sample\Stru\	PDS3D



If scheduling of SPIOP Smart Model translation (Update) is required for translation of Smart Model or entire folder with many smart models there is temporary solution using Launcher

In upcoming SmartPlant Interop Publisher versions Job Scheduler will be implemented to integrate SPIOP with Intergraph Batch Services.

```
set SPIOPInstallDir=C:\Program Files\SmartPlant\Interop Publisher
set ProjectName=SP3DTrain
set SPIOPFilesLoc=D:\DATA\SPIOPdata
set SPIOPSmartModels=%SPIOPFilesLoc%\Smart_Models\%ProjectName%
set SmartModel=eqpa1m1

set PATH=%SPIOPInstallDir%;%PATH%

echo %SPIOPInstallDir%
echo %SPIOPSmartModels%
echo %SmartModel%

goto SINGLE
rem goto MULTI
rem goto HIERARCHY

:SINGLE
echo Single %SmartModel%.cfg
%SPIOPInstallDir%\SpiopBgLauncher.exe .\VUE\%SmartModel%.cfg
goto END

:MULTI
echo Multi from
rem dir /b .\VUE\*.cfg

for %%i in (.\VUE\*.cfg) do "%SPIOPInstallDir%\SpiopBgLauncher.exe" %%i
goto END

:HIERARCHY
echo Hierarchy from
rem dir /b /s *.cfg

for /R %SPIOPSmartModels% %%i in (*.cfg) do %SPIOPInstallDir%\SpiopBgLauncher.exe %%i
goto END

:END
```

Update_combi.cmd

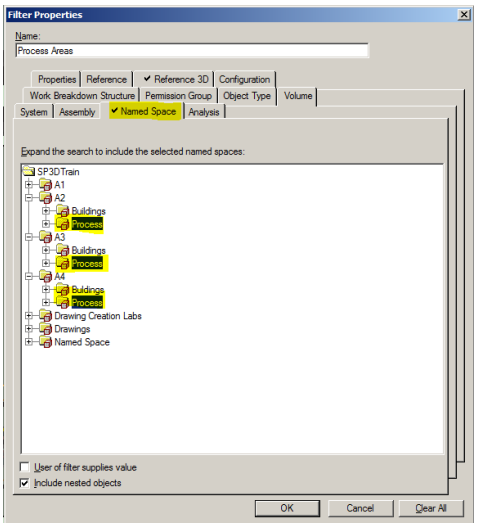
```
1  set SPIOPInstallDir=C:\Program Files\SmartPlant\Interop Publisher
2  set ProjectName=SP3DTrain
3  set SPIOPFilesLoc=D:\DATA\SPIOPdata
4  set SPIOPSmartModels=%SPIOPFilesLoc%\Smart_Models\%ProjectName%
5  set SmartModel=eqpa1m1
6
7  set PATH=%SPIOPInstallDir%;%PATH%
8
9  echo %SPIOPInstallDir%
10 echo %SPIOPSmartModels%
11 echo %SmartModel%
12
13 goto SINGLE
14 rem goto MULTI
15 rem goto HIERARCHY
16
17 :SINGLE
18 echo Single %SmartModel%.cfg
19 %SPIOPInstallDir%\SpiopBgLauncher.exe .\VUE\%SmartModel%.cfg
20 goto END
21
22 :MULTI
23 echo Multi from
24 rem dir /b .\VUE\*.cfg
25
26 for %%i in (.\VUE\*.cfg) do "%SPIOPInstallDir%\SpiopBgLauncher.exe" %%i
27 goto END
28
29 :HIERARCHY
30 echo Hierarchy from
31 rem dir /b /s *.cfg
32
33 for /R %SPIOPSmartModels% %%i in (*.cfg) do %SPIOPInstallDir%\SpiopBgLauncher.exe %%i
34 goto END
35
36 :END
```

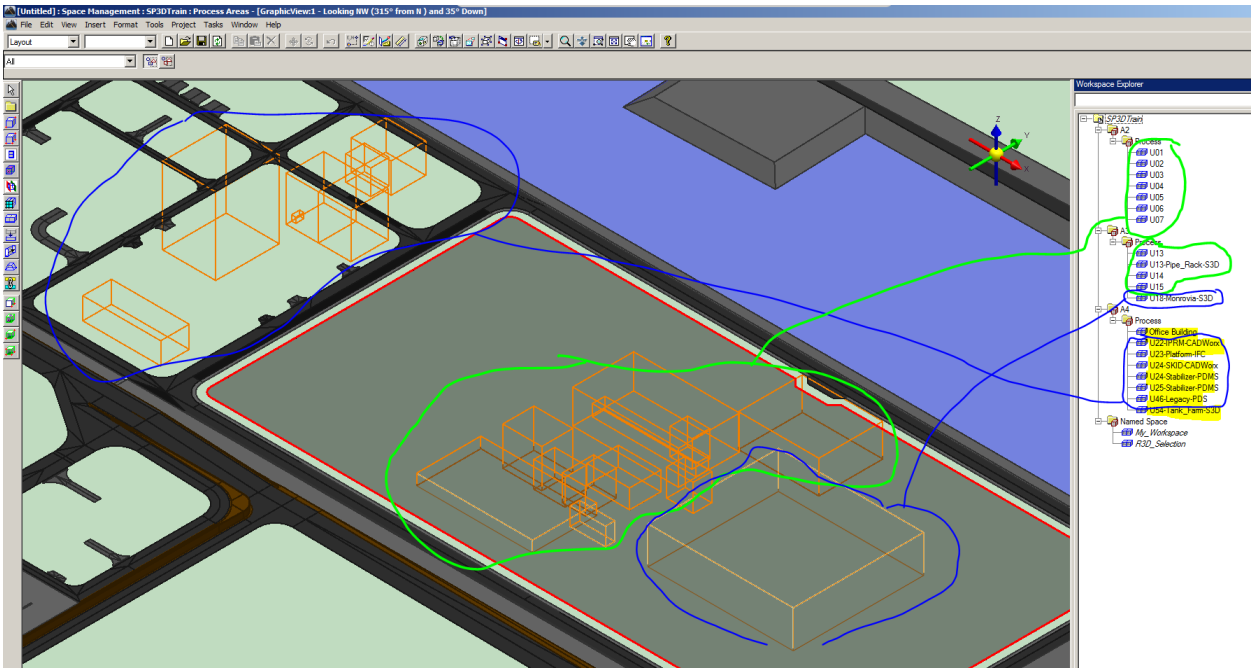
Smart 3D workflows

Define Workspace

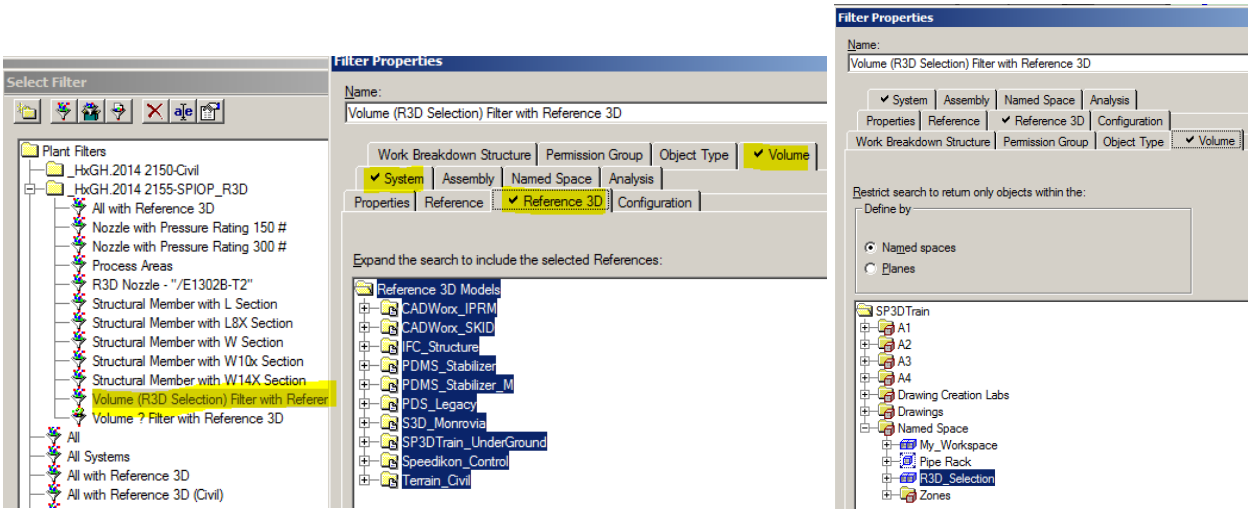
Session Templates for Volume filters

Session Template **Layout** (with Named Spaces) indicating position of Smart 3D Systems and Reference 3D Model with terrain model only





Predefined volume plant filter **Volume (R3D Selection) Filter with Reference 3D** combining required Smart 3D Systems and R3D Models in specific volume.



Similarly, this can be defined using the asking Volume filter **Volume ? Filter with Reference 3D**, using volumes and R3D objects defined by user, or use a specific filter in **My filter.** With a user's volume, the user can resize and position as necessary.

Isometric Drawings

OneClickDrawings

Automation Utility - see HxGN Session 2154

Reports

Custom report for Reference 3D Equipment were created using standard functionality

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