



Intergraph Smart® 3D

Setup and Administration Practice Labs

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LAB 1: Domain, Server, and Client Setup

Objectives

After completing this lab, you will be able to:

- Create Smart 3D users and groups in Windows

Before Starting

The practices performed in this guide will make changes to the training model that will leave it in a state not suitable for the continuation of other lab practices. It is strongly encouraged to discard databases used during this class and restore fresh copies for future practices.

Create Users and Groups in Windows

In class you will do this locally on the training workstation. At the office, users and groups are created at the Domain level.

1. Open Control Panel > Administrative Tools > Computer Management> Local Users and Groups.
2. Create the following users, set password to be same as username: pipe1, pipe2, struct1, struct2, elect1, hvac1, equip1 (uncheck option- "User must change password at next logon").

Note: If an error message regarding policy requirements for the password appears on screen, then use a password that matches settings of the local or domain policy.

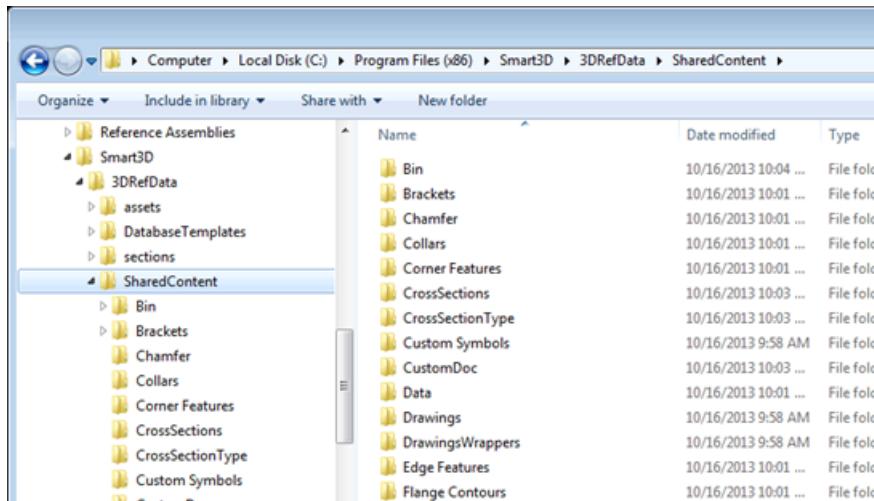
3. Create new groups named Pipe, Structure, S3Dusers, S3Dadmins, ProjectA.
4. Assign users to groups as follows:

Group	Users
Pipe	pipe1, pipe2
Structure	struct1, struct2
S3Dusers	pipe1, pipe2, struct1, struct2, equip1, hvac1, elect1
S3Dadmins	pipe1, struct1, administrator (or student)
ProjectA	pipe1, struct1

Assign permissions in the file system

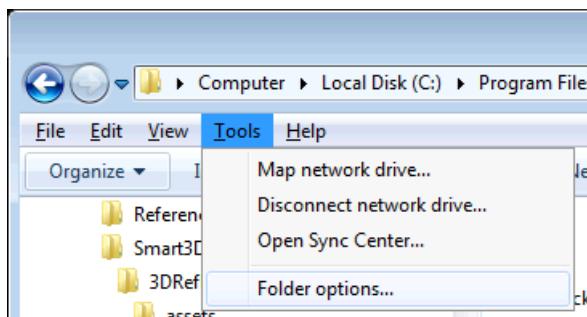
5. Using **Windows Explorer**, navigate to the directory where the **SharedContent** folder is located.

Example: C:\Program Files (x86)\Smart3D\3DRefData\SharedContent

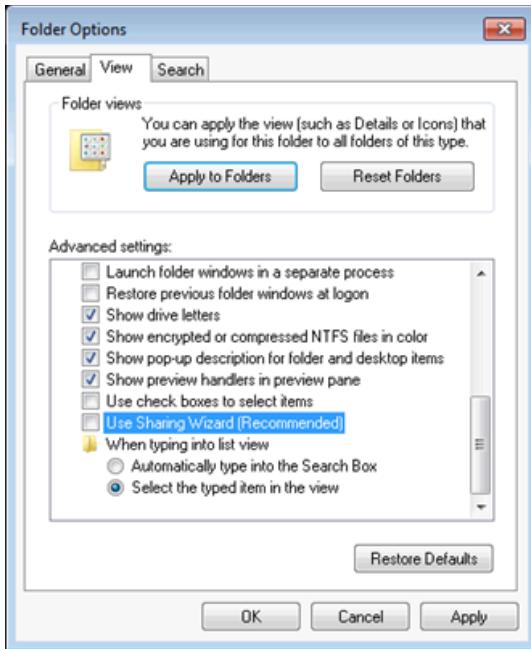


6. From the **Tools** menu in the Explorer window, select **Folder Options**.

Note: Press the ALT key to make the menu bar appear.



7. On the **View** tab, ensure **Use Sharing Wizard** option is **unchecked**.

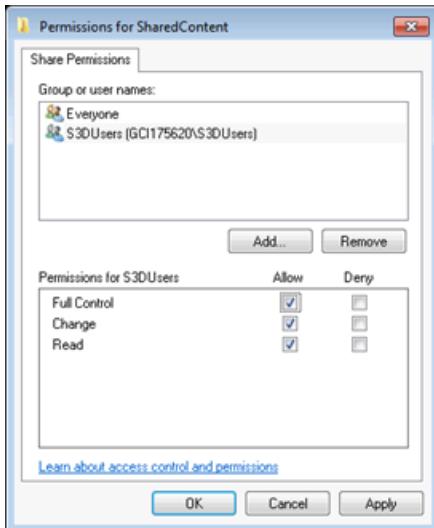


8. Click **OK**.

9. Right mouse click on the **SharedContent** folder, then select **Properties**.

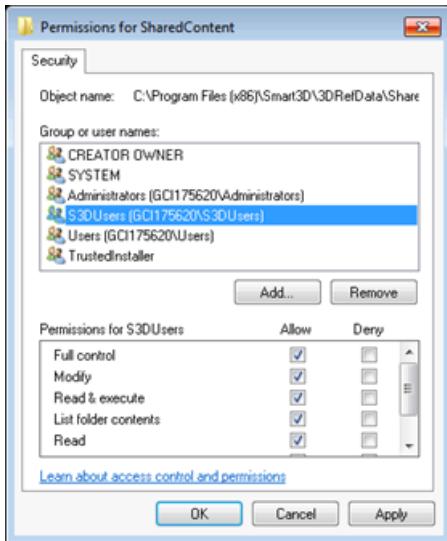
10. Select the **Sharing** tab, then click on **Advanced Sharing**. Click **Share this folder** option; then click **Permissions**.

11. Add permissions such that **S3DUsers** group (created on Lab1) have **Full Control** access.



12. Click **OK** until returned to the SharedContent folder **Properties** page.

13. Go to the **Security** tab and modify security permissions to add **S3DUsers** group with **Full Control**.



14. Click **OK** then **Close**.

LAB 2: DB Authentication

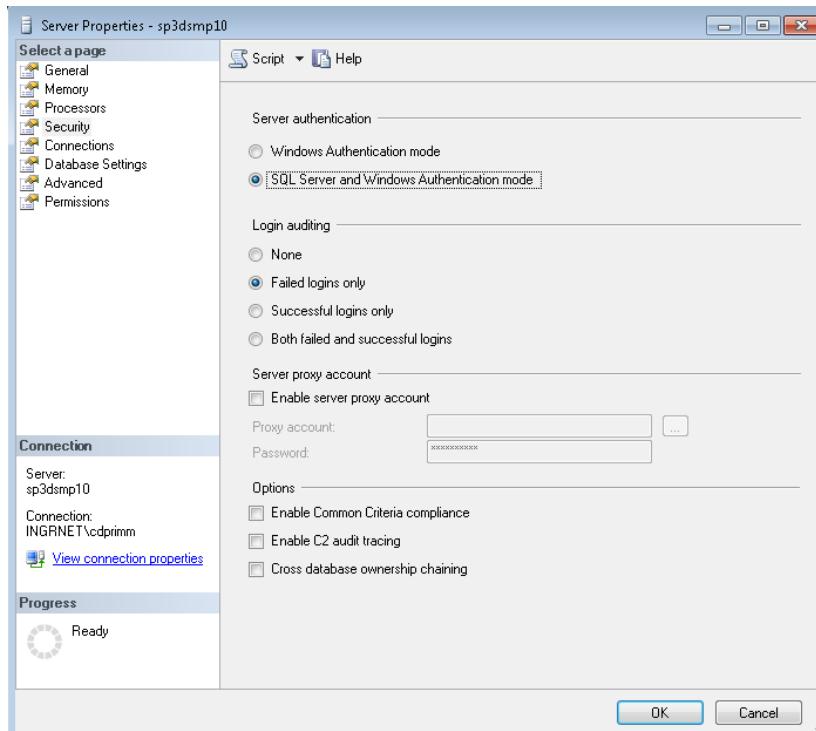
Objectives

After completing this lab, you will be able to:

- Create a DB Login file for DB authentication.
- Define the Database Authentication settings.

Create a SQL user

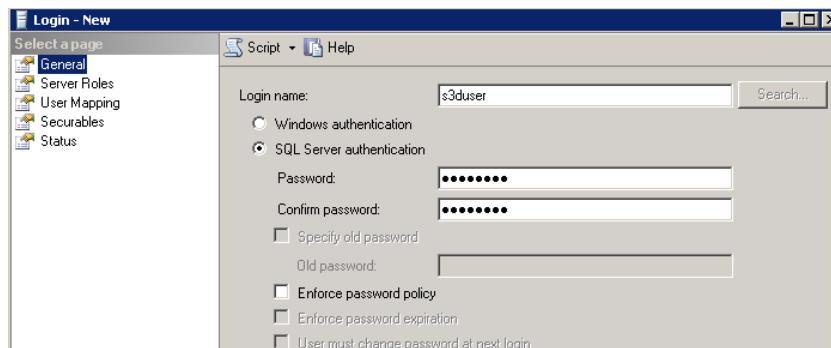
1. Open SQL Server Management Studio. Connect using Windows Authentication.
2. Right-click on the SQL Server instance name and select **Properties**.
3. Under **Select a page**, select Security. For Server authentication, select **SQL Server and Windows Authentication mode**. Select OK.



4. Close SQL Server Management Studio.
5. Open Services and restart SQL Server.
6. Reopen SQL Server Management Studio.
7. Expand **Security > Logins**.
8. Right-click on Logins and select **New Login...**

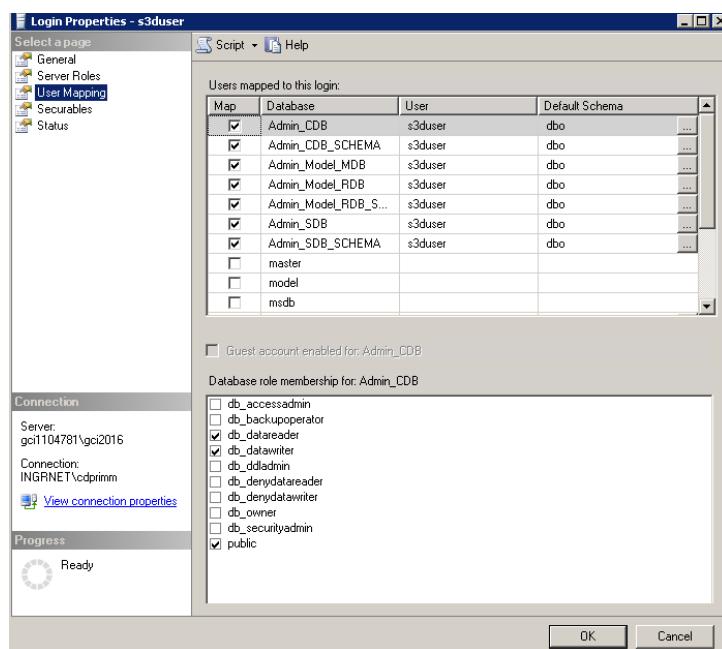


9. For Login Name, enter **s3duser**.
10. Select the radio button for **SQL Server authentication**.
11. For Password, enter **usertest**. Confirm the password.
12. Deselect **Enforce password policy**. This will deselect the other options.



13. Select OK.

NOTE Once the 7 databases for a S3D project are created, you will need to go to **User Mapping** and map this user to all 7 databases. Under **Database role membership for: [database name]** for each database, select the following user mappings: db_datareader, db_datawriter, public.



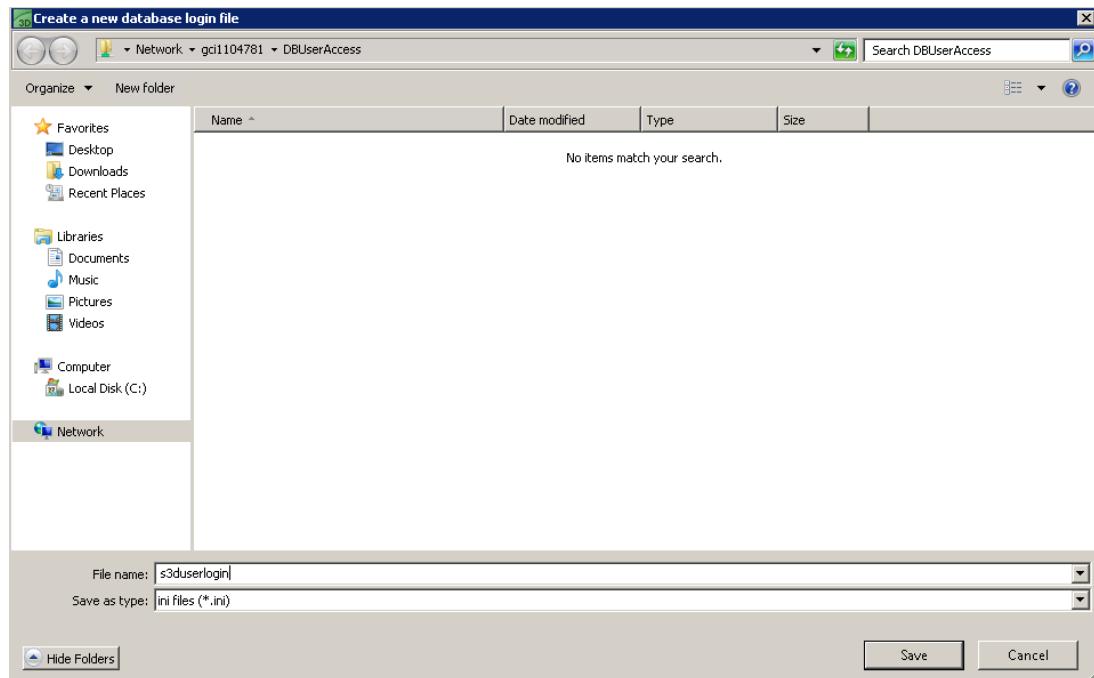
14. Add Execute permissions to each database.

Create Shared Folder for DB Authentication file

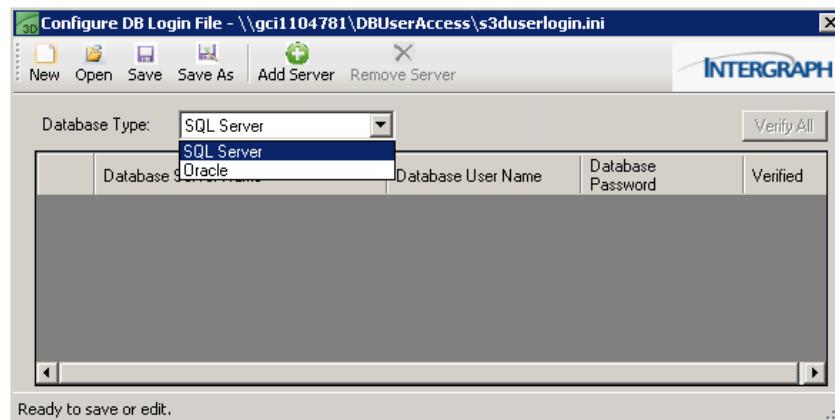
1. Create folder **DBAuthentication** under folder C:\.
2. Create folder **DBUserAccess** under folder C:\DBAuthentication.
3. Right-click on folder **DBUserAccess** and select **Properties**.
4. Select **Sharing** tab.
5. Select **Advance Sharing...**
6. Select **Share this folder**.
7. Select **Permissions**.
8. Under “Group or user names:”, select **Everyone**. Select **Remove**.
9. Select **Add**.
10. Add **S3Dusers** group. Select **Check Names**.
11. Click OK to close all windows.

Configure DB Login File

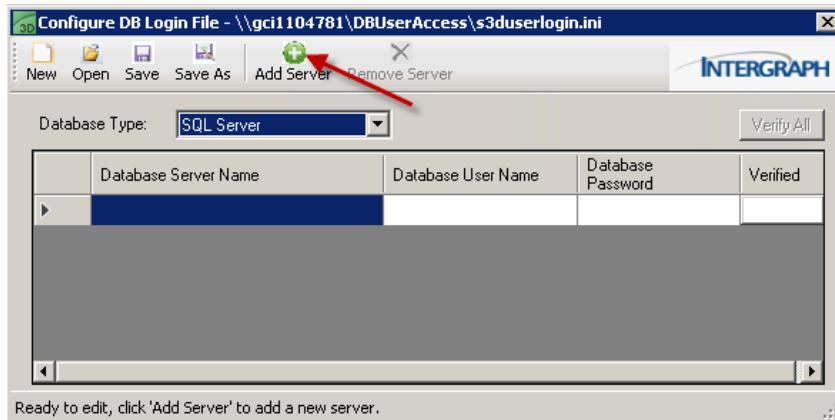
1. Open **Configure DB Login File** utility located under [Smart 3D Install Folder]\ProjectMgmt\Tools\bin. Select **New**.
2. Locate the shared path for **DBUserAccess** folder. In the File name field, type "s3duserlogin". Select **Save**.



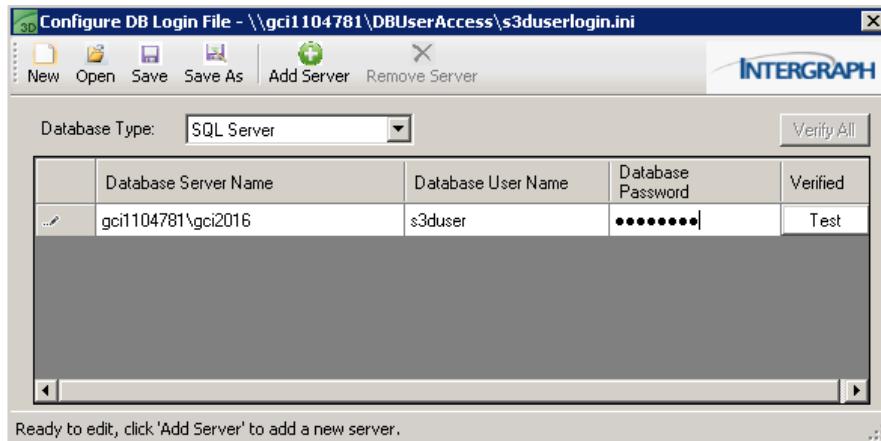
3. In the Database Type dropdown, select **SQL Server**.



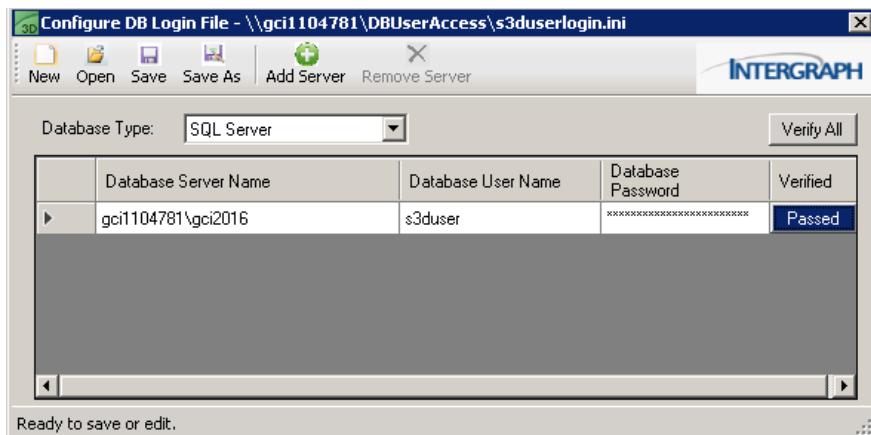
4. Select **Add Server**.



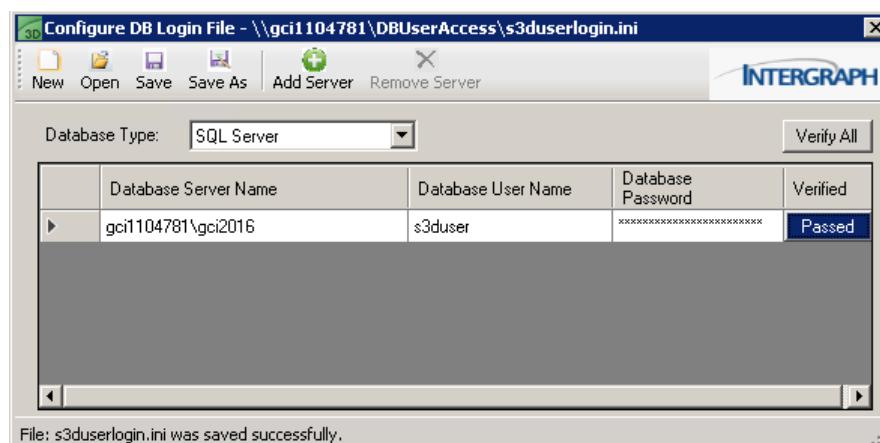
5. Type your SQL Server name for **Database Server Name**.
6. Type "s3duser" for Database User Name.
7. Type "usertest" for Database Password.



8. Select Test to verify connection to the Database server with message "Passed".



9. Select **Save**.



LAB 3: Create new site, catalog, and model

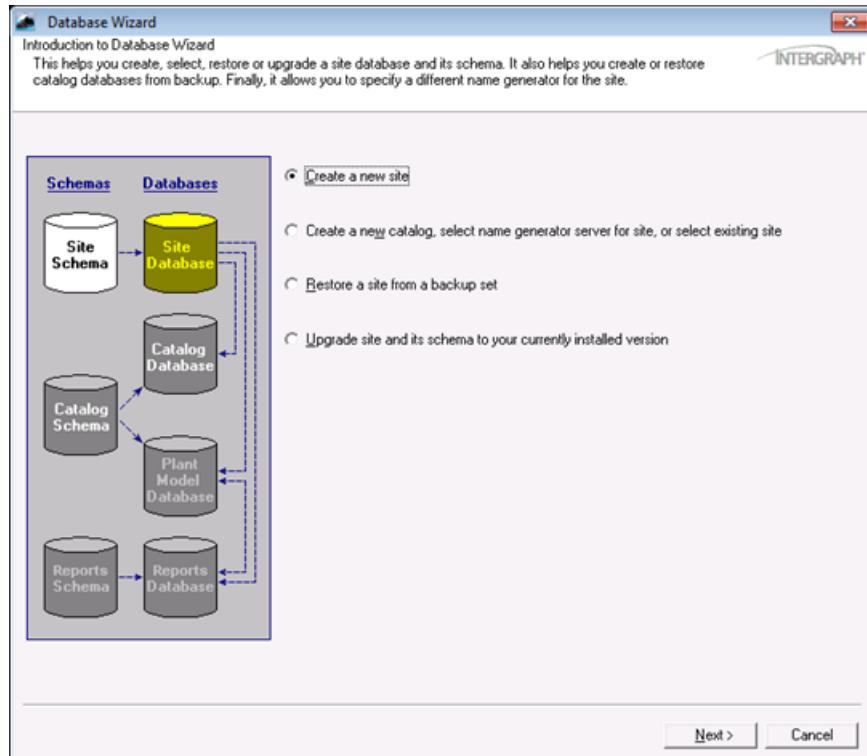
Objectives

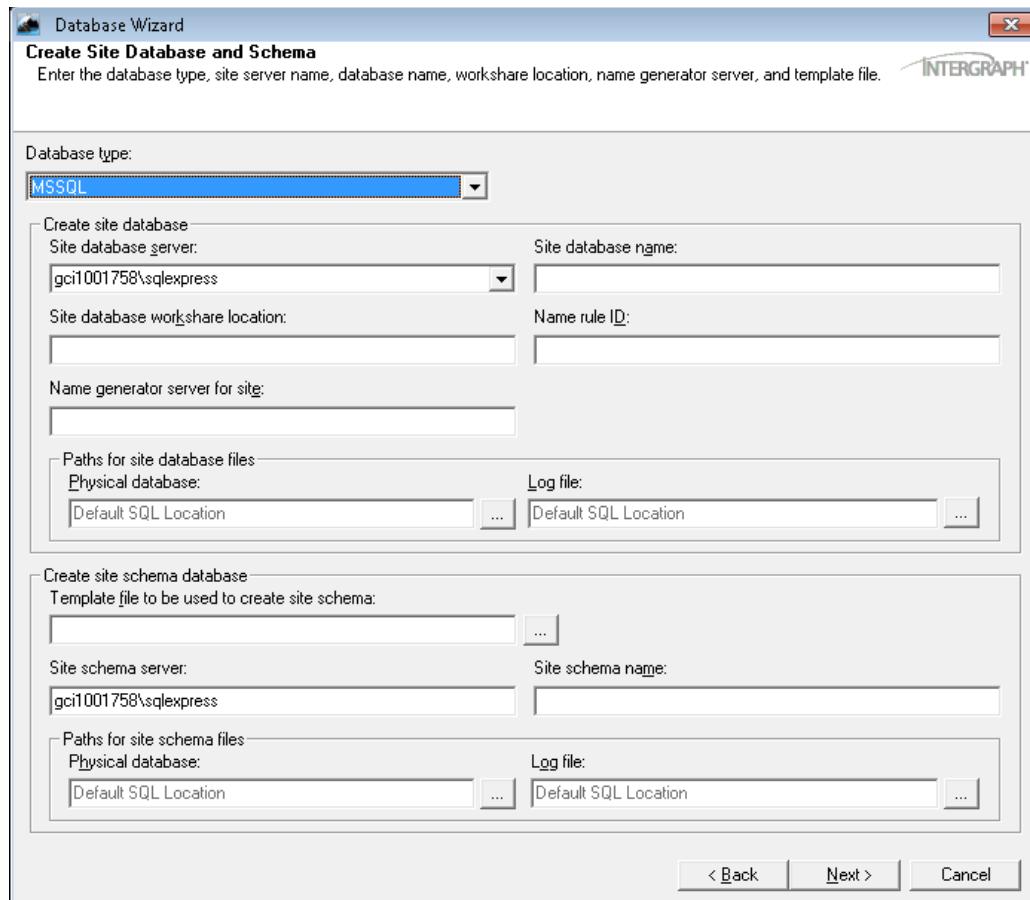
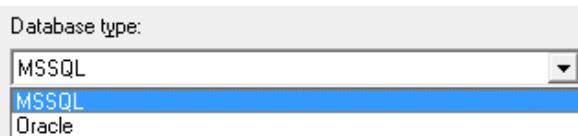
After completing this lab, you will be able to:

- Create a new site for a Smart 3D project
- Create a new Catalog inside the site created above using the delivered database template
- Create a new Model in the site created above from Project Management

Create New Site and Catalog Databases

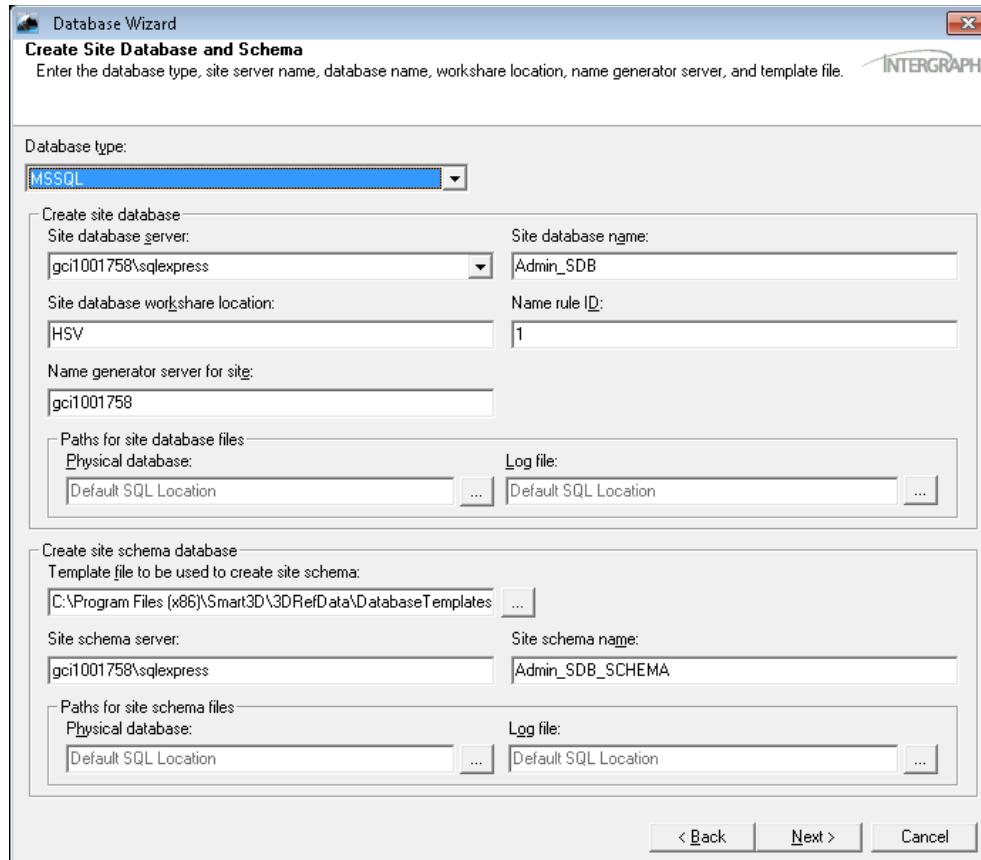
1. Select **Start > Intergraph Smart 3D > Database Wizard.**



2. Select **Create a new site**. Click **Next**.3. Select **Database type** as appropriate for your classroom setup (MSSQL/Oracle).

4. From the **Site database server** drop down list, select your server name (which will be your machine name when working in a stand-alone) for the site database server.
5. Enter **Admin_SDB** as the Site database name.
6. Enter **HSV** (or any other alphanumeric string) as the **Site database workshare location**.
7. Enter **1** as **Name rule ID**.
8. Type in a **Name generator server for site**. This identifies the machine where the Name Generator Service has been installed. In a stand-alone setup this will be the machine name of the computer you are working on.
9. Click "..." in the option **Template file to be used to create site schema**. Select [Smart 3D Install Folder]\Smart 3D\3DRefData\Database Templates\Site\apprepos.dat.

(apprepos.DMP if Oracle)



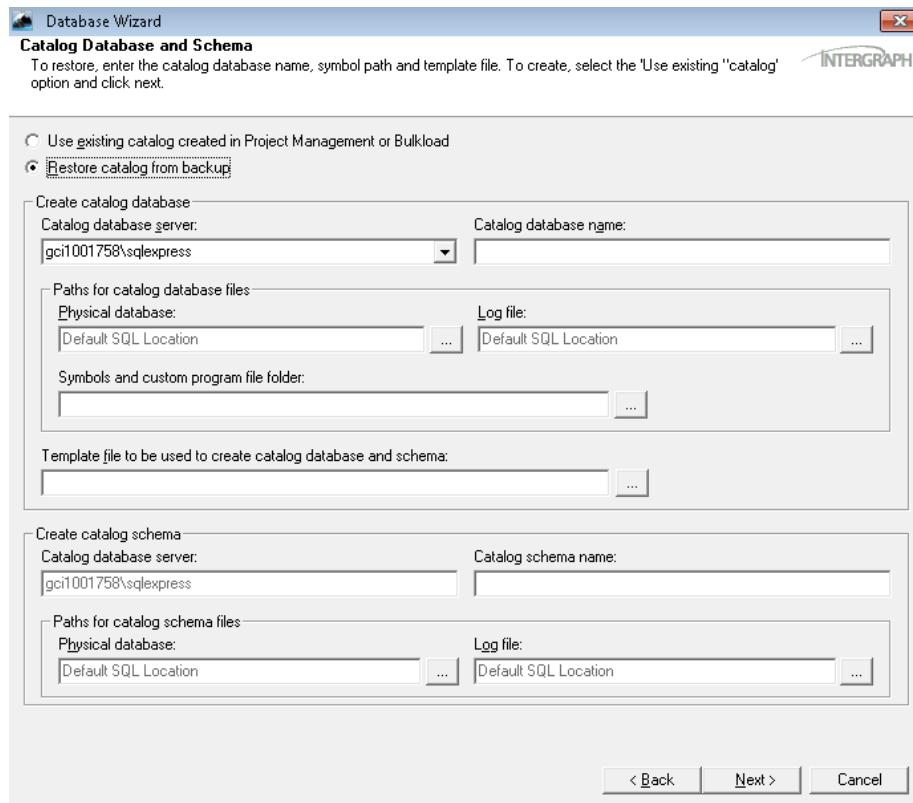
10. Click **Next**.

NOTE

Screenshot above is assuming an MSSQL configuration. The principal difference with an Oracle configuration is the "Template file to be used to create site schema" path. For an MSSQL project, the path for the apprepos.dat template is as it would be when read from the Server machine (direct path, not UNC). For Oracle, UNC path must be used.

11. Select **Restore catalog from backup**.

LAB 3: Create new site, catalog, and model



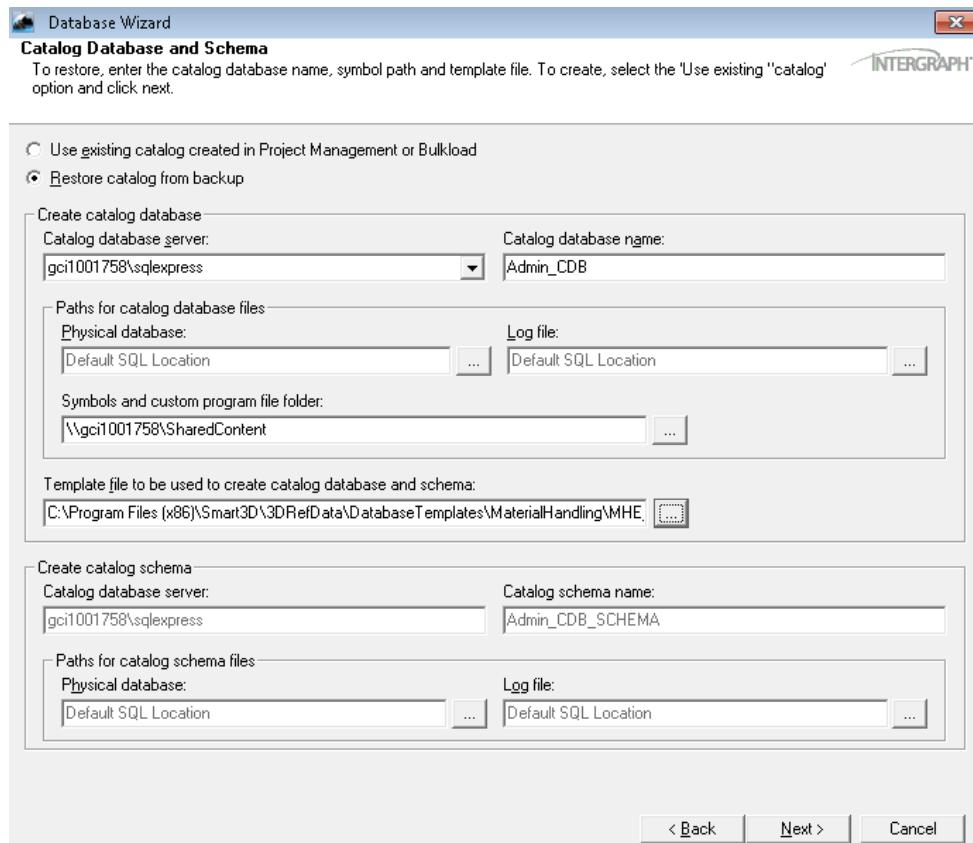
12. Select server name for **Catalog database server**.
13. Enter **Admin_CDB** for Catalog database name.
14. Provide the UNC path for the SharedContent folder.

Type in **\servername\SharedContent**. \servername is the name of the computer where the Smart 3D Reference Data software was installed. In a standalone configuration you may use the local path [Reference Data Install Directory] \SharedContent

15. Click "..." in the option **Template file to be used to create catalog database and schema**, select [Reference Data Install Directory]\DatabaseTemplates\MaterialHandling\mhe_catalogdb.dat

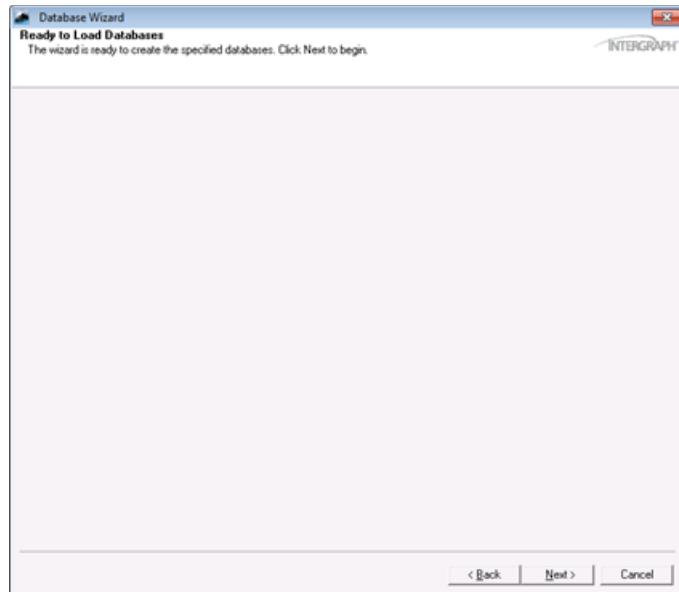
LAB 3: Create new site, catalog, and model

(mhe_catalogdb.dmp if Oracle)



NOTE Screenshot above is assuming an MSSQL configuration, principal difference with an Oracle configuration is the "Template file to be used to create catalog database and schema" path. For an MSSQL project, the path for the mhe_catalogDB.dat template is as it would be when read from the Server machine (direct path, not UNC). For Oracle, UNC path must be used.

16. Click **Next**.

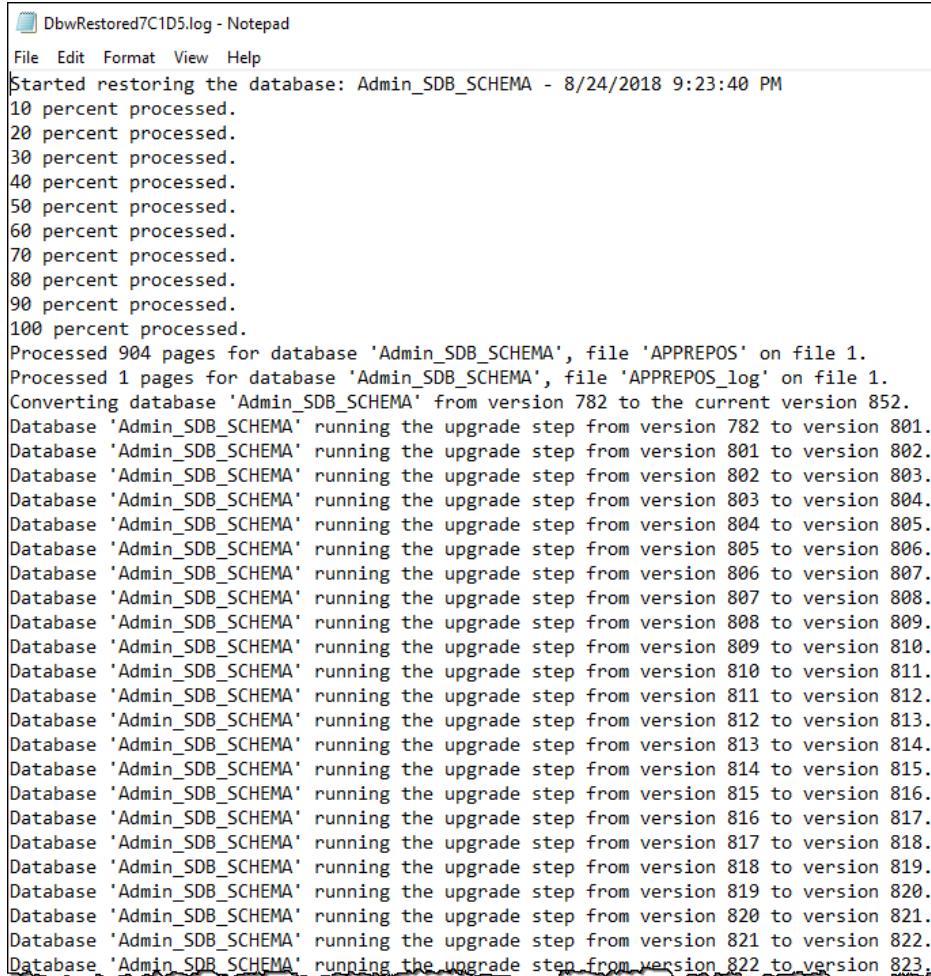


17. Click **Next**.



18. After process is complete, click **Finish**.

19. Review log file DbwRestoredXXXXX.log in your temp folder. You may type %temp% in the address bar of Windows Explorer for quick access.
20. Note: The last 5 characters of the restore log file name will change depending upon different databases being restored.



The screenshot shows a Notepad window titled "DbwRestored7C1D5.log - Notepad". The window contains a log of a database restore process for the "Admin_SDB_SCHEMA" database. The log starts with the message "Started restoring the database: Admin_SDB_SCHEMA - 8/24/2018 9:23:40 PM". It then shows the progress of the restore, with each line indicating a 10 percent increase from 10 percent to 100 percent processed. Following the processing, the log details the upgrade steps for the database, starting from version 782 and moving through various versions up to 823. Each upgrade step is preceded by the message "Database 'Admin_SDB_SCHEMA' running the upgrade step from version X to version Y".

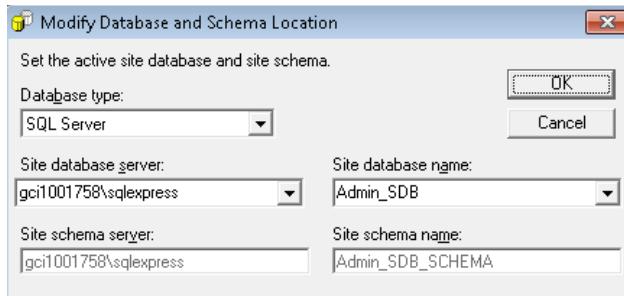
```
DbwRestored7C1D5.log - Notepad
File Edit Format View Help
Started restoring the database: Admin_SDB_SCHEMA - 8/24/2018 9:23:40 PM
10 percent processed.
20 percent processed.
30 percent processed.
40 percent processed.
50 percent processed.
60 percent processed.
70 percent processed.
80 percent processed.
90 percent processed.
100 percent processed.
Processed 904 pages for database 'Admin_SDB_SCHEMA', file 'APPREPOS' on file 1.
Processed 1 pages for database 'Admin_SDB_SCHEMA', file 'APPREPOS_log' on file 1.
Converting database 'Admin_SDB_SCHEMA' from version 782 to the current version 852.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 782 to version 801.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 801 to version 802.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 802 to version 803.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 803 to version 804.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 804 to version 805.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 805 to version 806.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 806 to version 807.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 807 to version 808.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 808 to version 809.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 809 to version 810.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 810 to version 811.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 811 to version 812.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 812 to version 813.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 813 to version 814.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 814 to version 815.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 815 to version 816.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 816 to version 817.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 817 to version 818.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 818 to version 819.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 819 to version 820.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 820 to version 821.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 821 to version 822.
Database 'Admin_SDB_SCHEMA' running the upgrade step from version 822 to version 823.
```

NOTE Shown log file will be different for Oracle database configurations.

Verify New Site Creation

21. Select **Start > Intergraph Smart 3D > Modify Database and Schema Location.**

22. The form will display the location of the Site and Site_Schema databases.

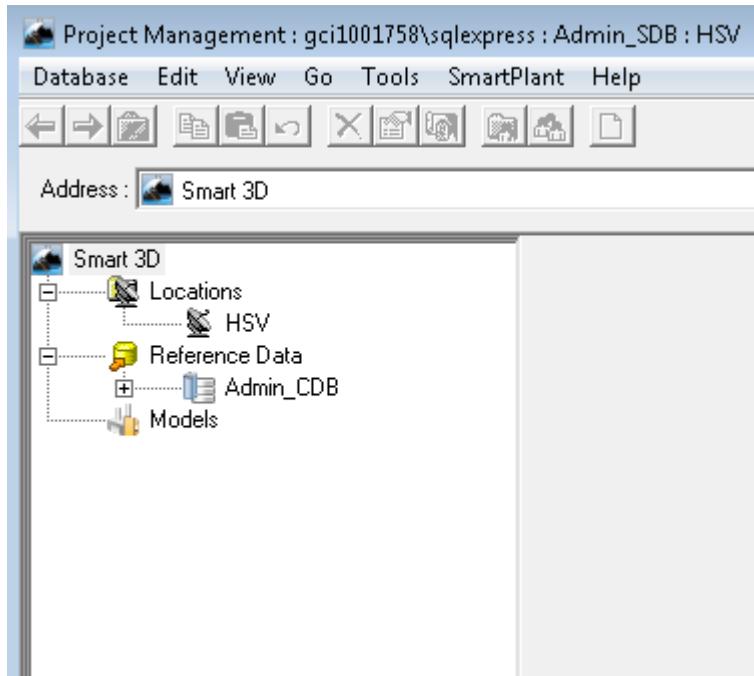


NOTE This connection information can be manually edited on Smart 3D workstations to allow for connection to this Site database and the Models that it will contain.

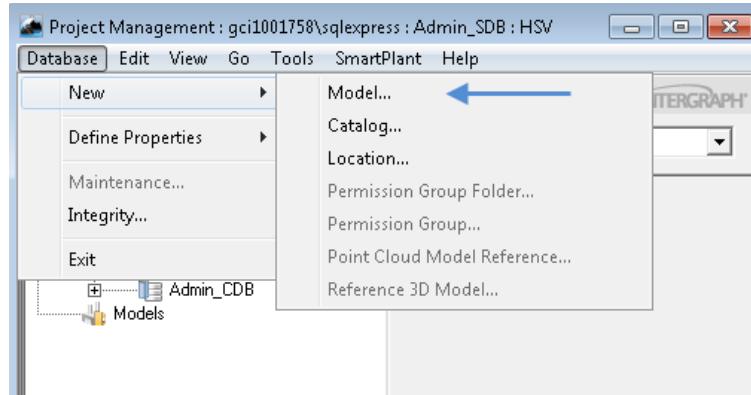
23. Click **OK**.

Create New Model

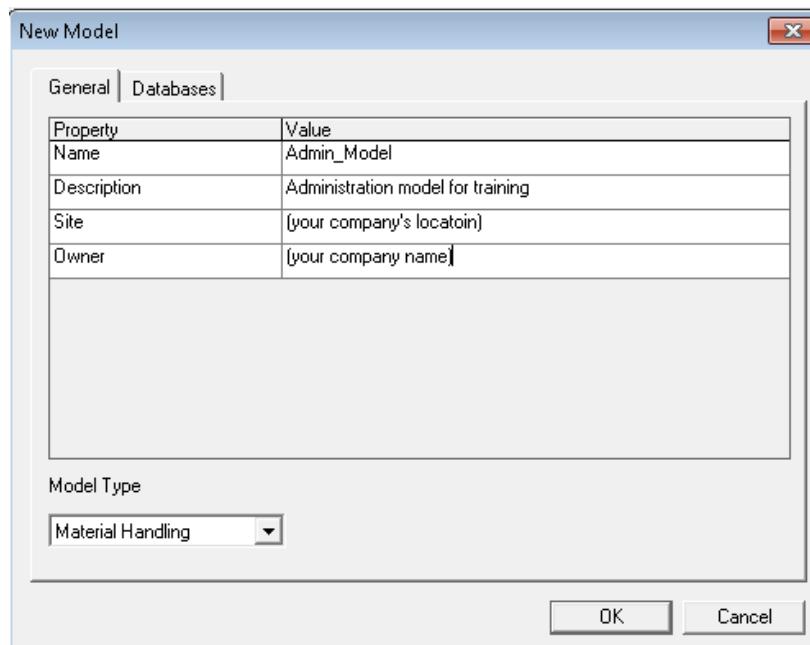
24. Select **Start > Intergraph Smart 3D > Project Management**.



25. From the **Database** menu, select **New > Model...**

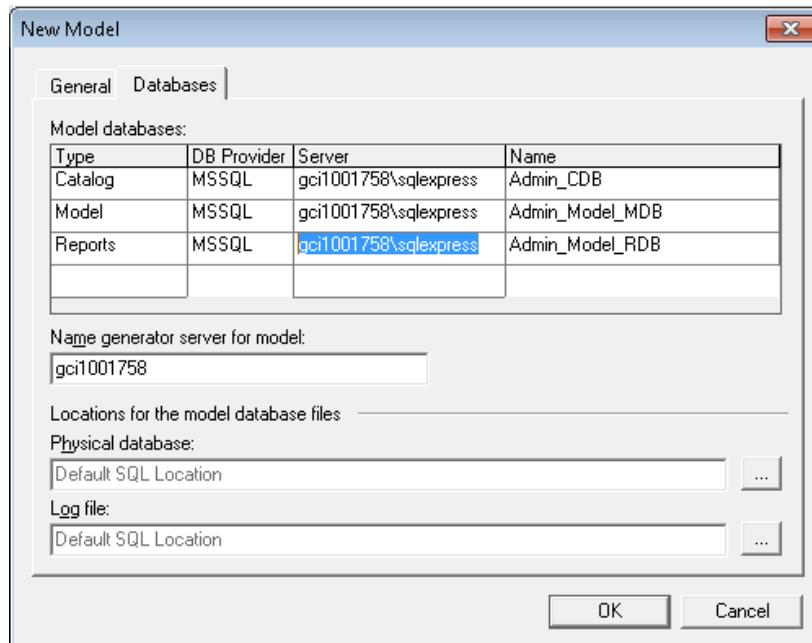


26. Fill in the **General** tab of the **New Model** dialog. Choose **Material Handling** from **Model Type** drop down.

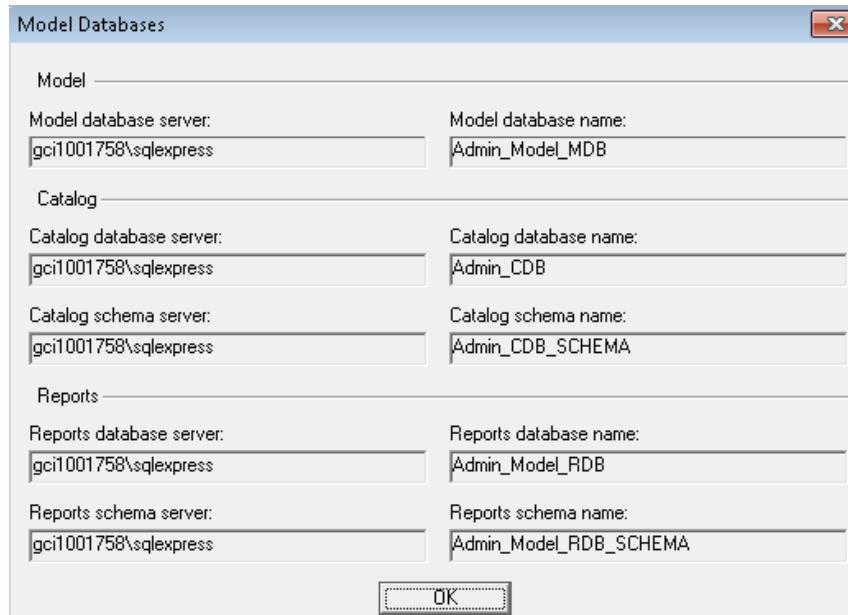


LAB 3: Create new site, catalog, and model

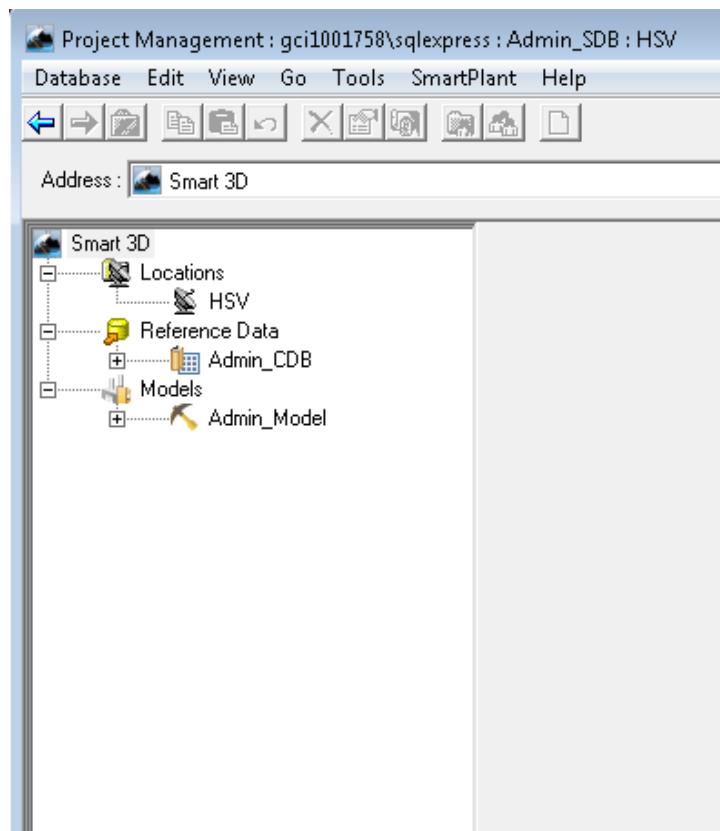
27. Complete the **Databases** tab as follows. Complete each row to provide information for Catalog, Model, and Reports databases. Remember to identify the **Name Generator** machine as it was previously done for the Site Database on the Database Wizard form.



28. Click **OK** to create the model and then review the results when completed.



29. Review the **Project Management** hierarchy and observe the change for the Catalog icon. This is the result of the Catalog being associated to at least one model. Before, it was unassigned.



LAB 4: Create permission groups and assign permissions

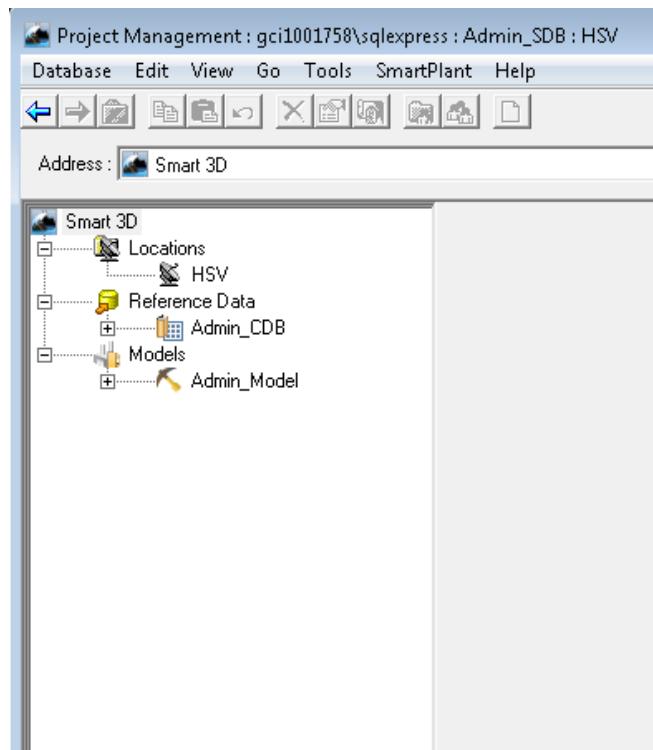
Objectives

After completing this lab, you will be able to:

- Create permission groups and assign permissions to Smart 3D Catalog and Model in Project Management
- Assign permissions to the Symbols folder for various S3D users

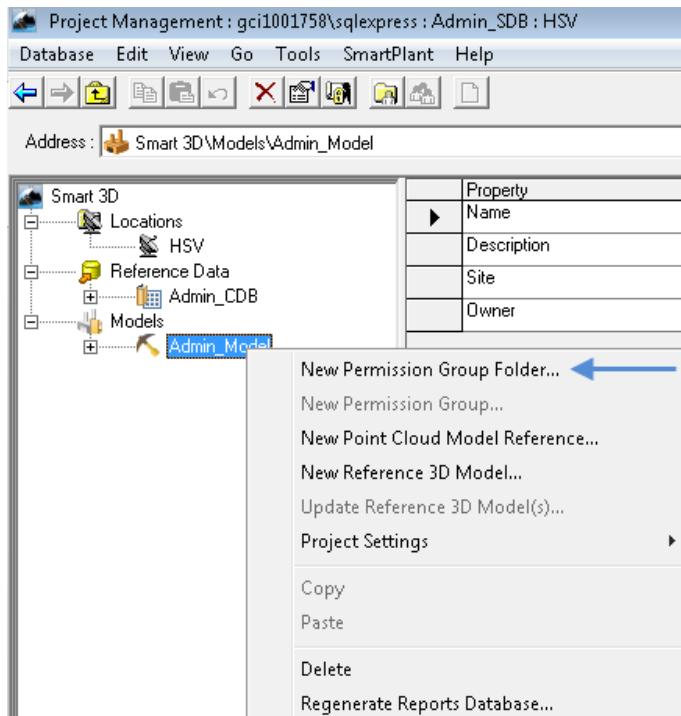
Create Permission Groups

1. If required, select **Start > Intergraph Smart 3D > Project Management.**



LAB 4: Create permission groups and assign permissions

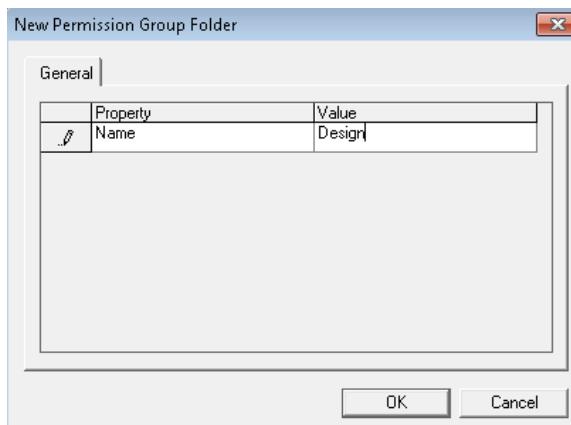
- Right-click on **Admin_Model** and select **New Permission Group Folder...**



NOTE You may also access this functionality by clicking on the "New permission group folder" icon, located on the ribbon bar.



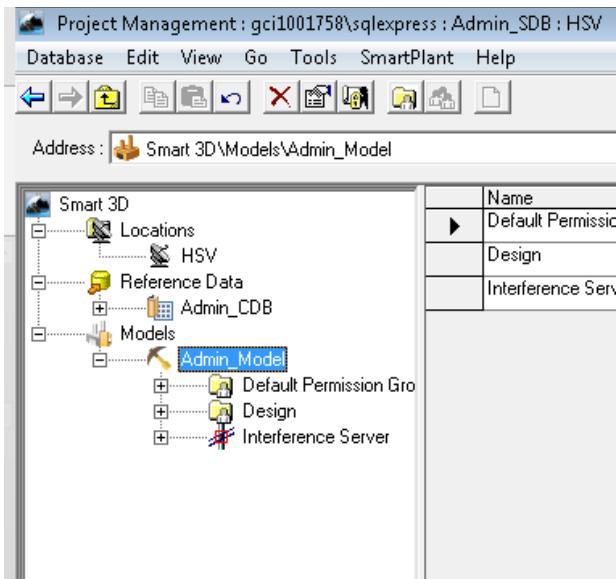
- Name the folder **Design**. Select **OK**.



- Expand the Model hierarchy by clicking on the + box to the left of **Admin_Model**.

LAB 4: Create permission groups and assign permissions

5. Select the folder **Design**.

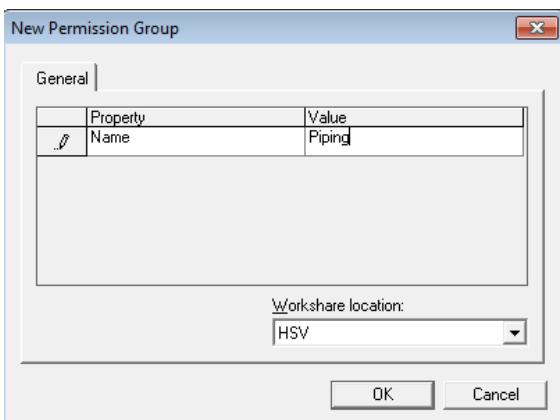


6. Right-click on **Design** and select **New Permission Group...**

NOTE You may also access this functionality by clicking on the "New permission group" icon, located on the ribbon bar.



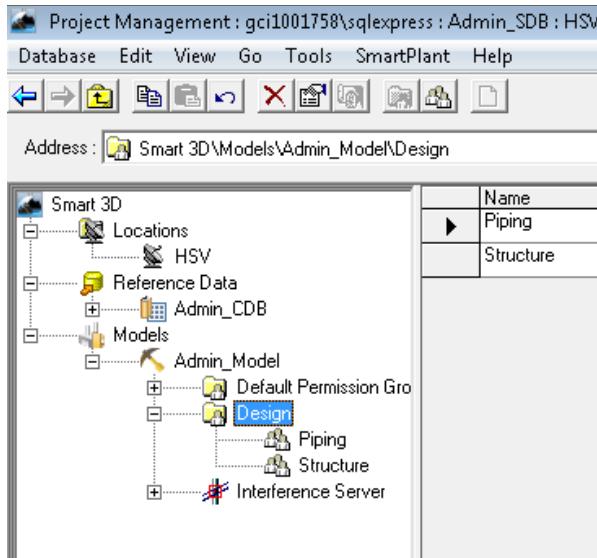
7. Name the group **Piping**.



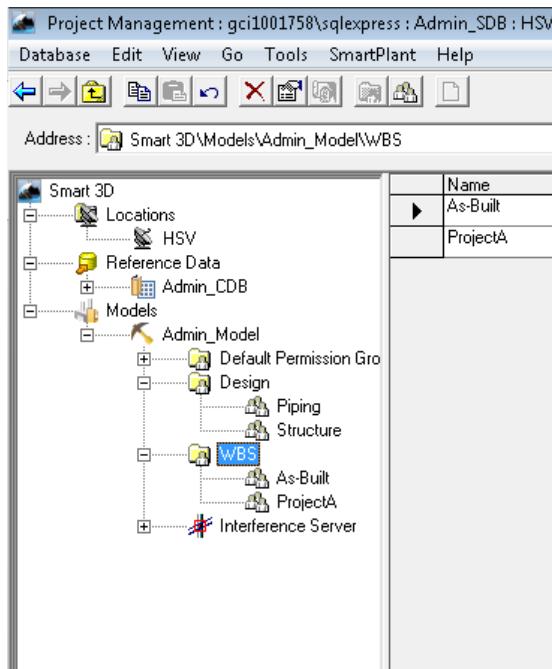
8. Click **OK**.

LAB 4: Create permission groups and assign permissions

9. Create another permission group and name it **Structure**.



10. Similarly, create the following hierarchy of permission group folder **WBS** and permission groups **As-Built** and **ProjectA**.

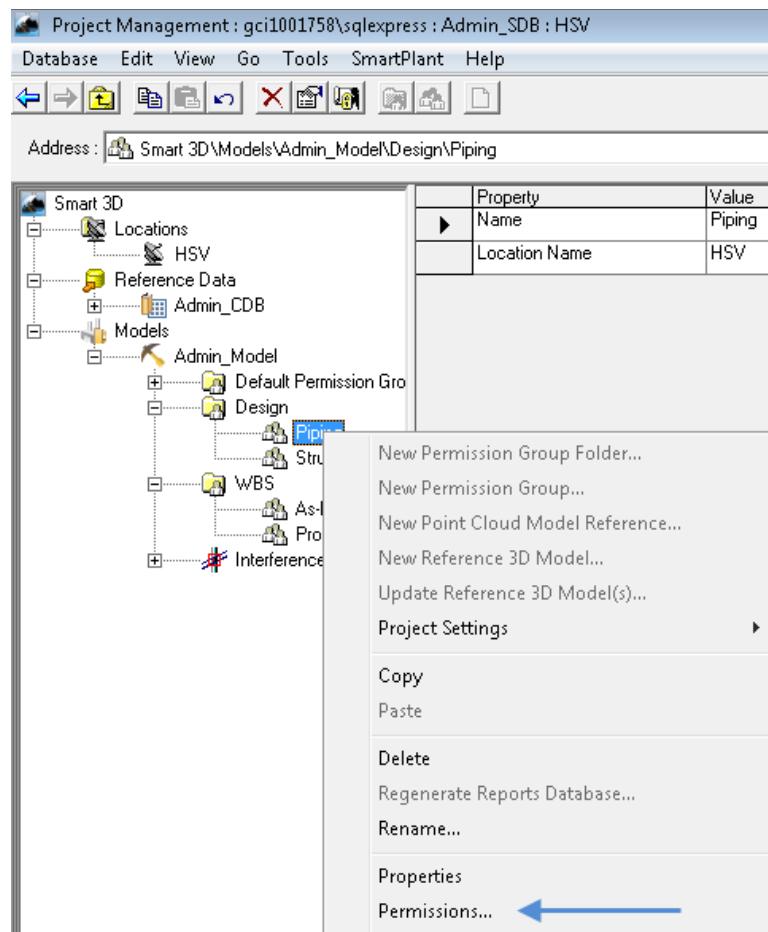


Assign Permission in Project Management

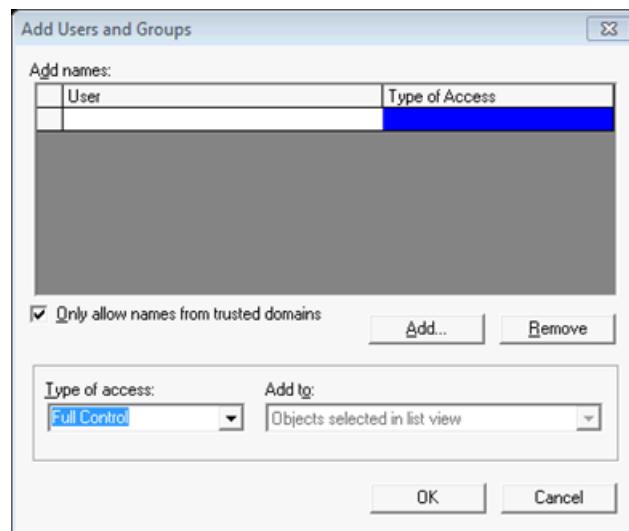
11. Select permission group **Piping**.

LAB 4: Create permission groups and assign permissions

12. Right-click and select **Permissions**.



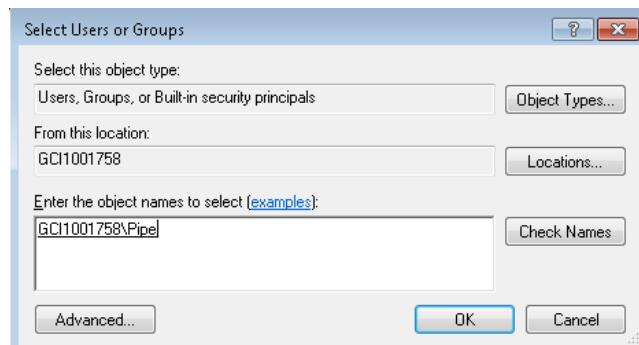
13. Click **Add...** button.



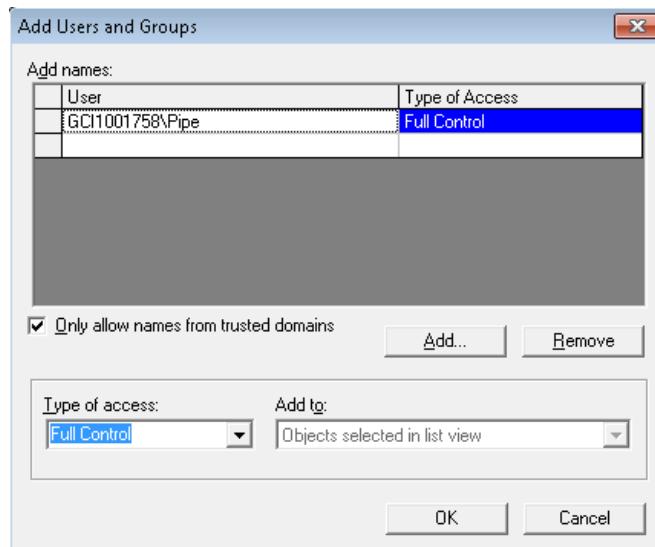
LAB 4: Create permission groups and assign permissions

[NOTE] This form can be operated in two modes determined by the checkbox "Only allow names from trusted domains". If you want the form to verify the existence of the user or group on Active Directory, leave the check box selected. If you want to add the user or group without domain verification, leave the box unchecked. Make this decision before keying in user names in the User block. An example of when to uncheck this box while working in a non Global Workshare Configuration would be to pre-assign permissions to users of a contractor company to which the project will be given and where there is no communication or trust with the contractor's company Active Directory.

14. Click **Add...** button.
15. Use the standard user/group form for Windows to identify by domain\name the user or group you wish to add. In our case we will be selecting the group **Pipe** from the local computer.

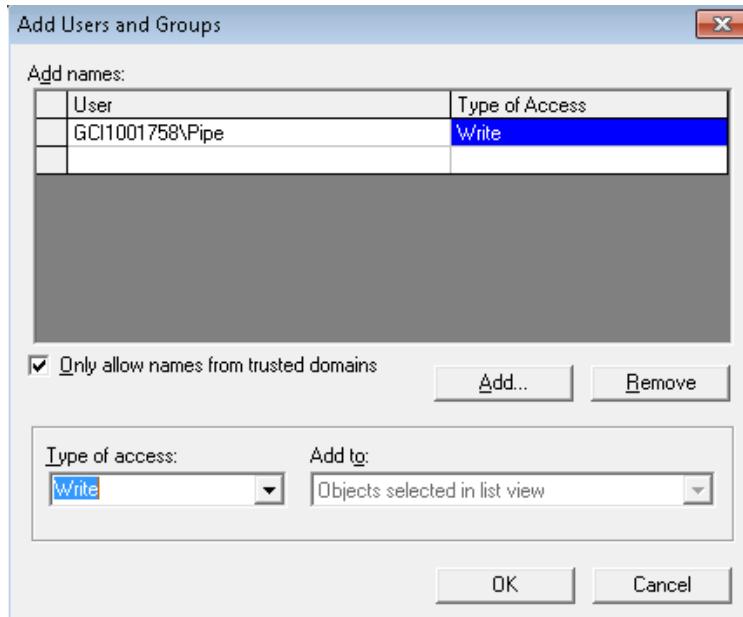


16. Click **OK**.

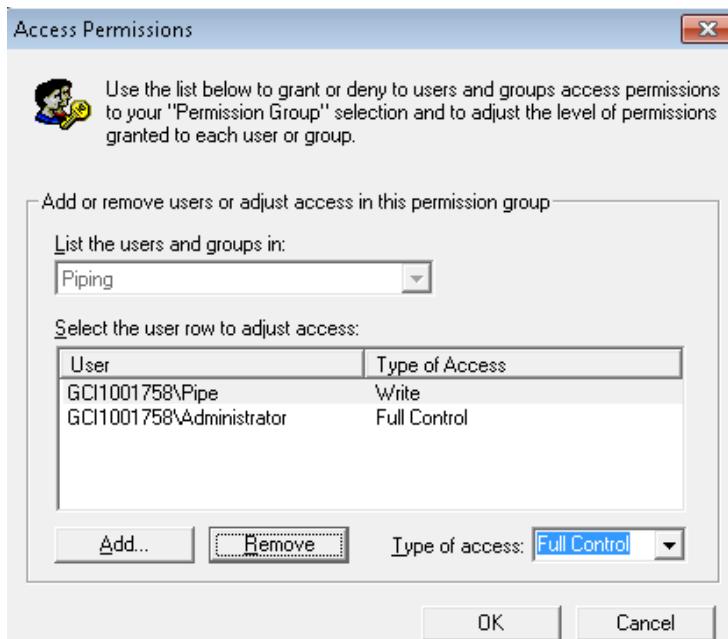


LAB 4: Create permission groups and assign permissions

17. Expand **Type of access** drop down list to change permission as **Write** access.



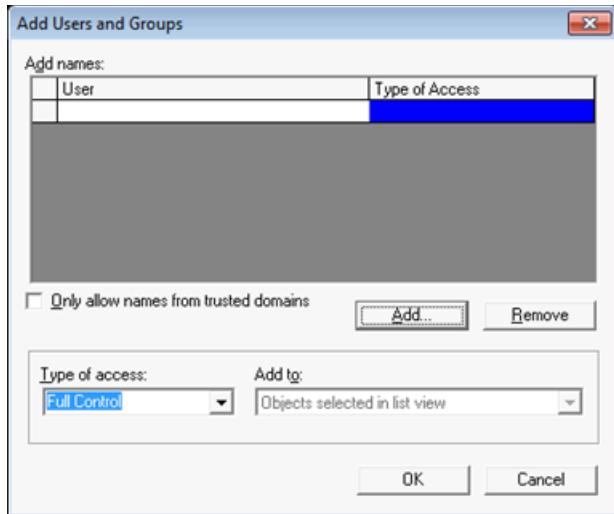
18. Click **OK** and review the Access Permissions form.



19. Click **Add...** button to return to the **Add Users and Groups** form. This time a user will be added without verifying its existence on the domain or Active Directory.

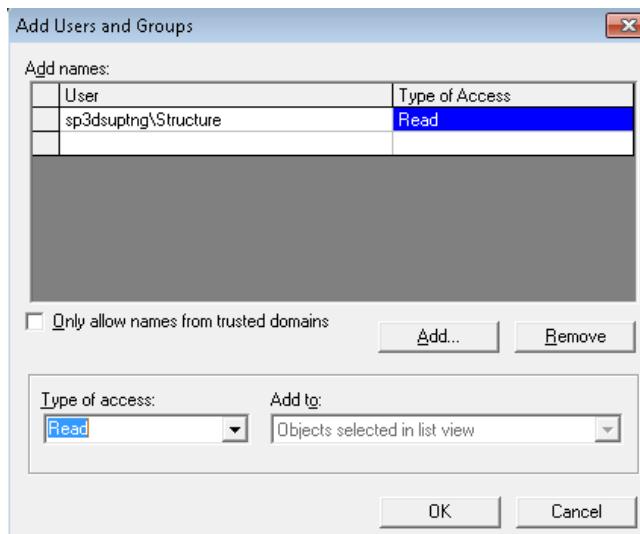
LAB 4: Create permission groups and assign permissions

20. Uncheck the box **Only allow names from trusted domains**.



21. In the **User** field, type in the **Structure** Windows local group in the form of Domain\User. For this example, that would be **sp3dsuptng\Structure**, adjust accordingly for your case.

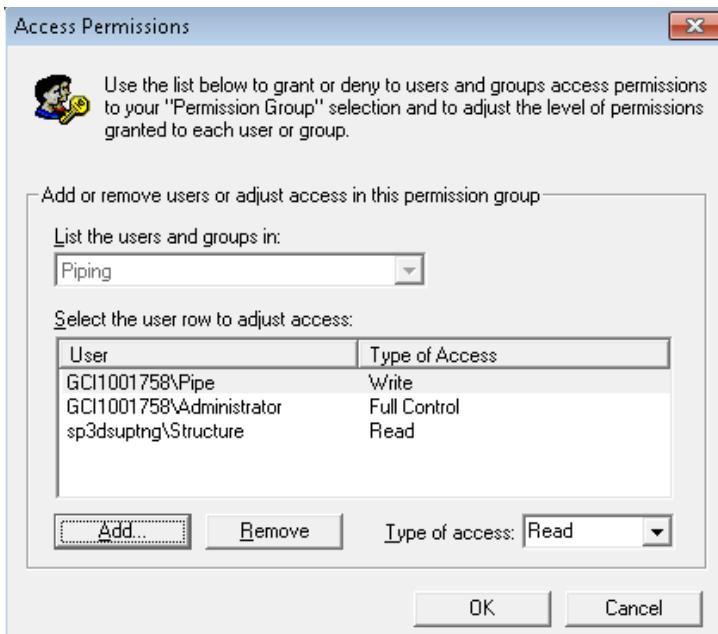
22. Set Type of Access to **Read**.



23. Click **OK**.

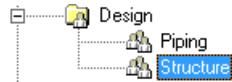
LAB 4: Create permission groups and assign permissions

24. Review Access Permissions form.



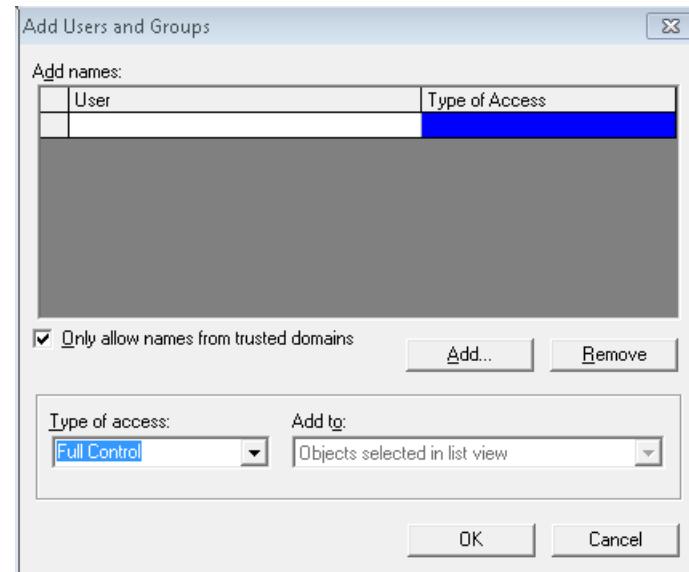
25. Click **OK**.

26. Select the Permission Group **Structure**.



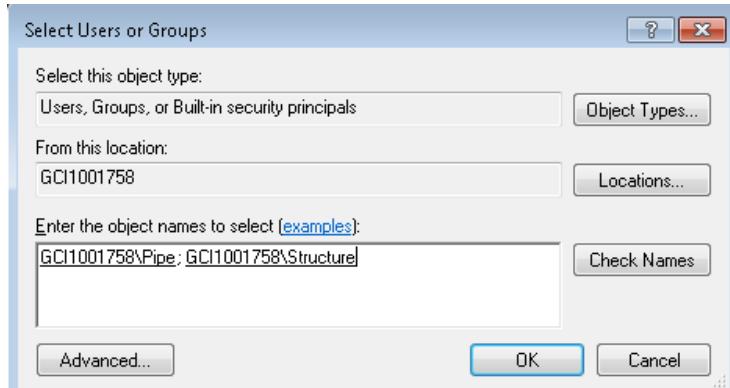
27. Right click and select **Permissions**.

28. Select **Add** and choose the option you prefer (domain verification on/off).

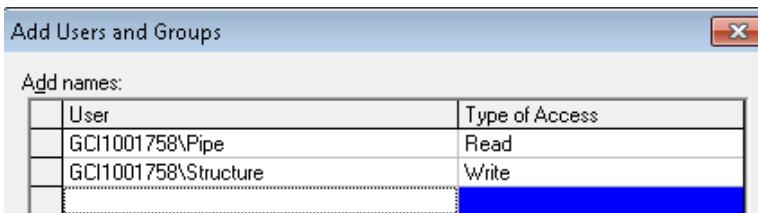


29. Select **Add** to add Windows groups Pipe and Structure.

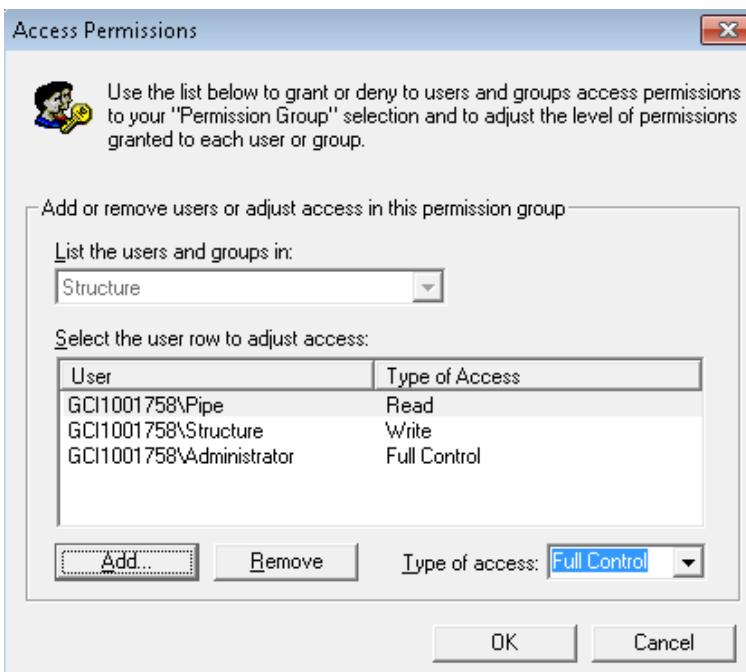
LAB 4: Create permission groups and assign permissions



30. Assign **Write** permissions to 'Structure' and **Read** permissions to 'Pipe' Windows groups.



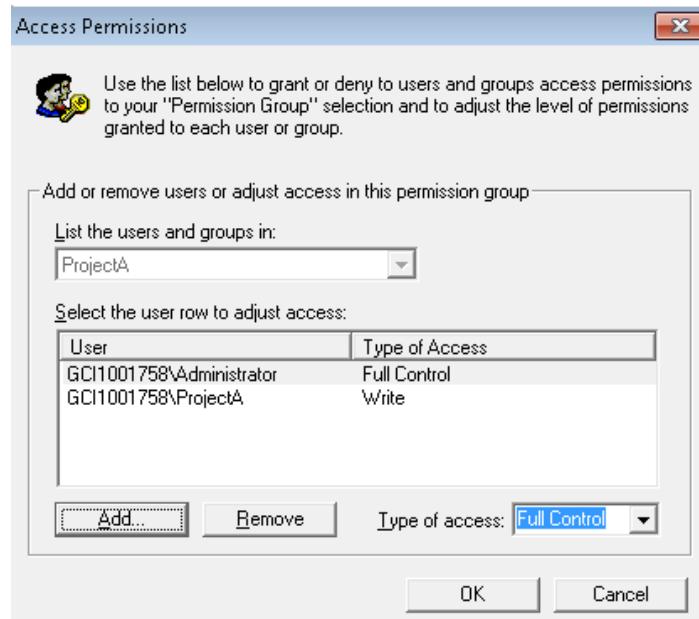
31. Click **OK**.



32. Click **OK**.

LAB 4: Create permission groups and assign permissions

33. Select permission group **ProjectA** and assign **Write** permissions to the windows user group **ProjectA**.



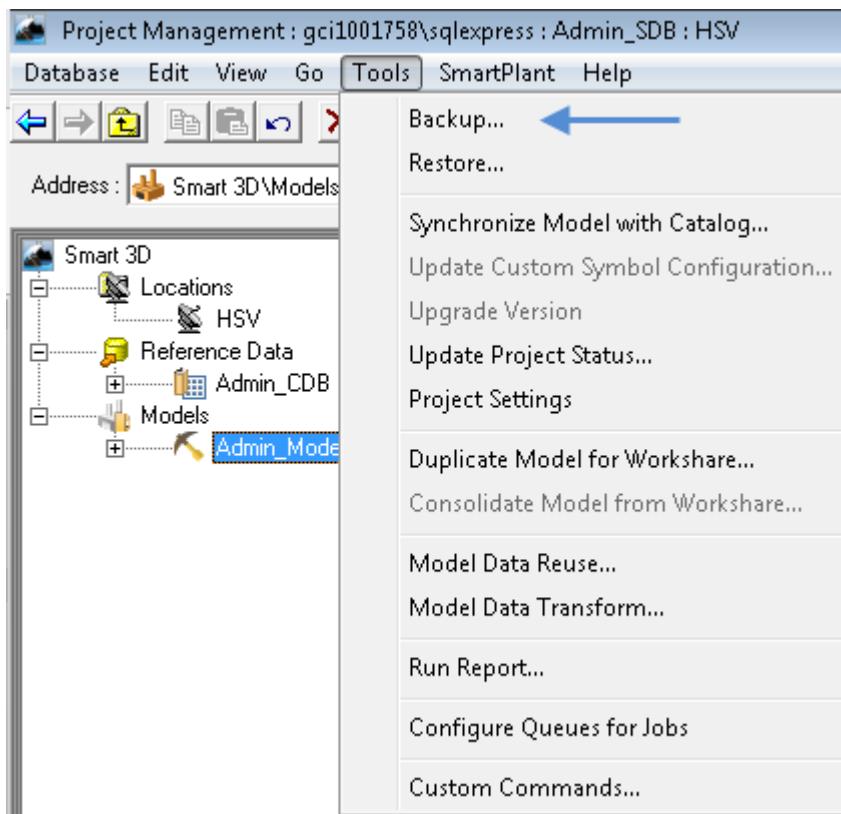
34. Click **OK**.

LAB 5: Simple Backup

Objectives

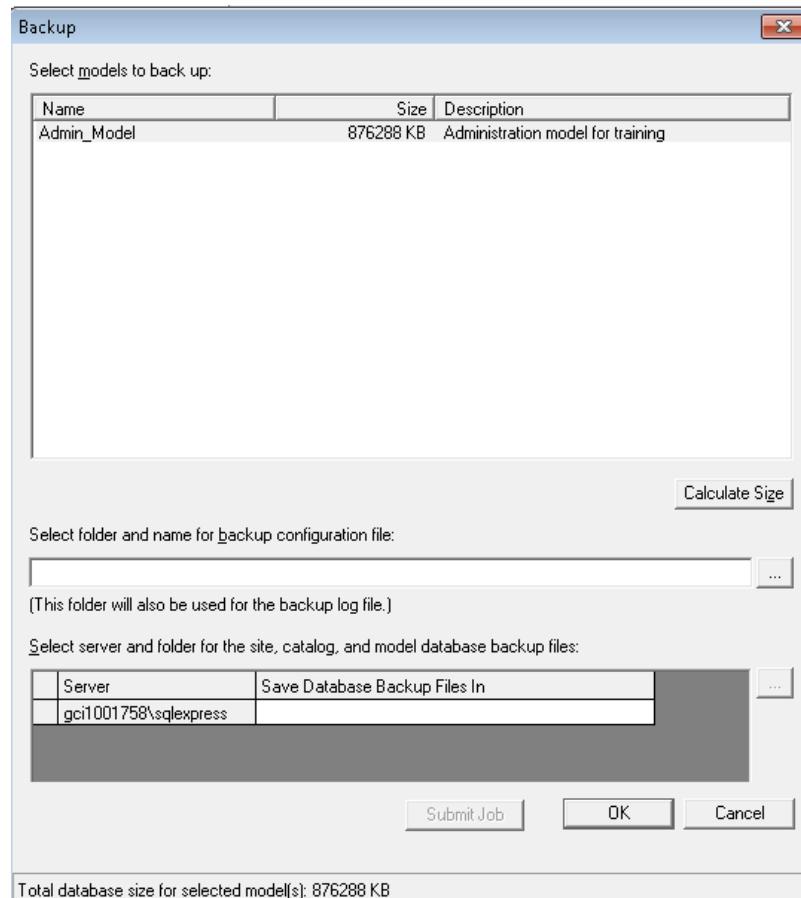
After completing this lab, you will be able to:

- Create a backup of the Site, Catalog and Model from Project Management
- 1. Start **Project Management** if not already open.
- 2. From the **Tools** menu, select **Backup**.

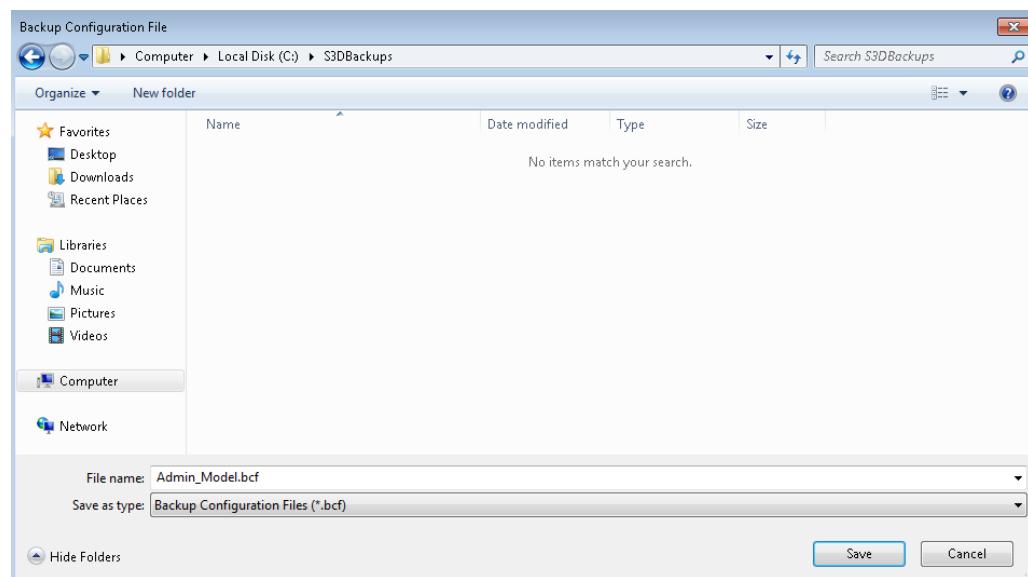


3. In the Backup form, use **Calculate Size** button to determine the size of the backup.

NOTE For Oracle based projects, this calculation can take several minutes.

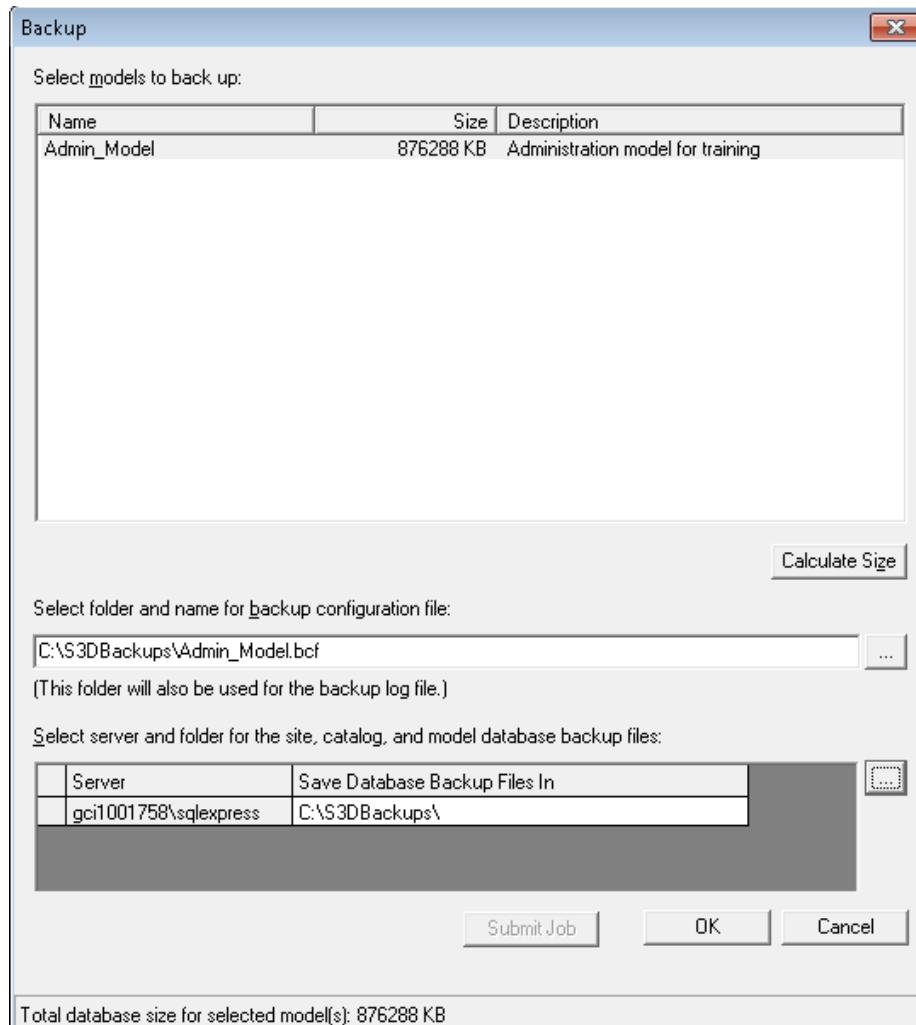


4. Click button '...' on **Select folder and name for backup configuration file** field. Create a folder on a drive that has sufficient space to hold the backup. Name the folder **S3DBackups**.



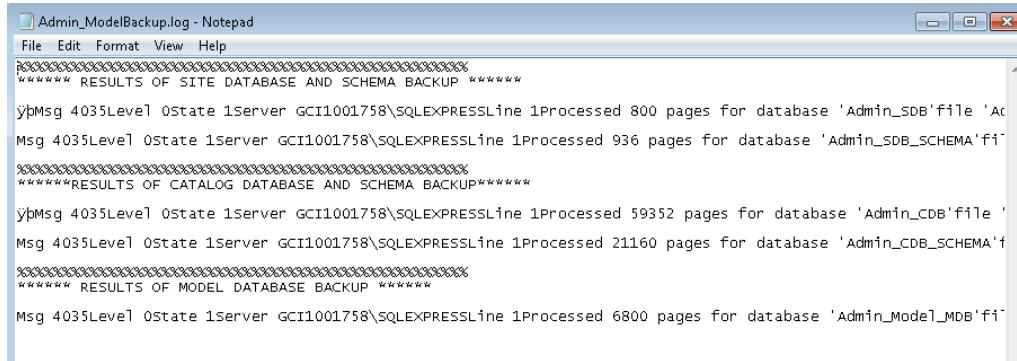
5. Click **Save**.
6. Return to the **Backup** form and use the browse button on **Select server and folder for the site, catalog and model...** option to determine a location to store database file backups. If possible, try to place the .bcf and the database files together during the backup procedure.

NOTE For Oracle based projects you must specify a folder that is shared (UNC path).



7. Click **OK** and allow the backup to complete.

8. Review **Backup log report** (errors will appear in the backup log file if there is insufficient disk space).



The screenshot shows a Windows Notepad window with the title "Admin_ModelBackup.log - Notepad". The menu bar includes File, Edit, Format, View, and Help. The content of the window is a log of database backup operations:

```
File Edit Format View Help
*****
RESULTS OF SITE DATABASE AND SCHEMA BACKUP *****
ybMsg 4035Level 0State 1Server GCI1001758\SQLEXPRESSLine 1Processed 800 pages for database 'Admin_SDB'file 'Ac
Msg 4035Level 0State 1Server GCI1001758\SQLEXPRESSLine 1Processed 936 pages for database 'Admin_SDB_SCHEMA'fi'
*****
RESULTS OF CATALOG DATABASE AND SCHEMA BACKUP *****
ybMsg 4035Level 0State 1Server GCI1001758\SQLEXPRESSLine 1Processed 59352 pages for database 'Admin_CDB'file '
Msg 4035Level 0State 1Server GCI1001758\SQLEXPRESSLine 1Processed 21160 pages for database 'Admin_CDB_SCHEMA'f
*****
RESULTS OF MODEL DATABASE BACKUP *****
Msg 4035Level 0State 1Server GCI1001758\SQLEXPRESSLine 1Processed 6800 pages for database 'Admin_Model_MDB'fi
```

9. Close log file.
10. Click **X** button on the top right or the **Cancel** button on the Backup form to return to **Project Management**.

NOTE For Oracle based projects, the Backup log file will look different than the screenshot above.

LAB 6: Restoring a Model Database (Option 1)

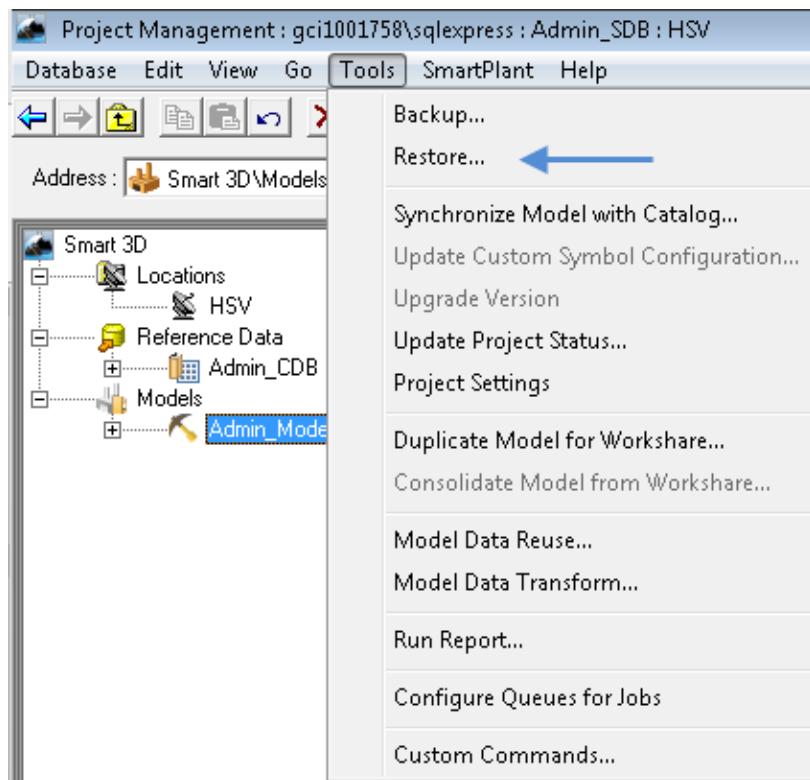
Objectives

After completing this lab, you will be able to:

- Restore a model from backup using "Restore one or more model databases from backup" option from Project Management

NOTE Option 1 is "**Restore one or more model databases from backup**". The intent of this is to restore a Model that already exists (or has pointers) in the current Site Database. This would generally happen when the production model has a need to be rolled back to a previous date or immediately after restoring a backup of the Site Database onto a new server. In the latter case, only the pointer in the Site would be present and we would want to follow that action by restoring the Model and Catalog onto that server as well.

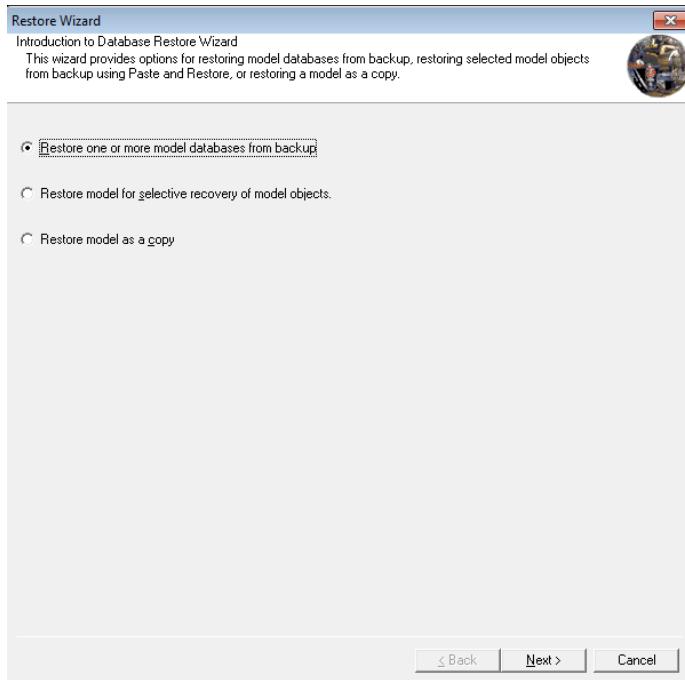
- Start **Project Management**, if not already open.
- From the **Tools** menu, select **Restore...**



- Choose the option **Restore one or more model databases from backup**. This will restore OVER THE EXISTING model database and it will only work if the model already exists in the

LAB 6: Restoring a Model Database (Option 1)

Site and Site_Schema databases (model must be listed under the Models node in Project Management hierarchy).

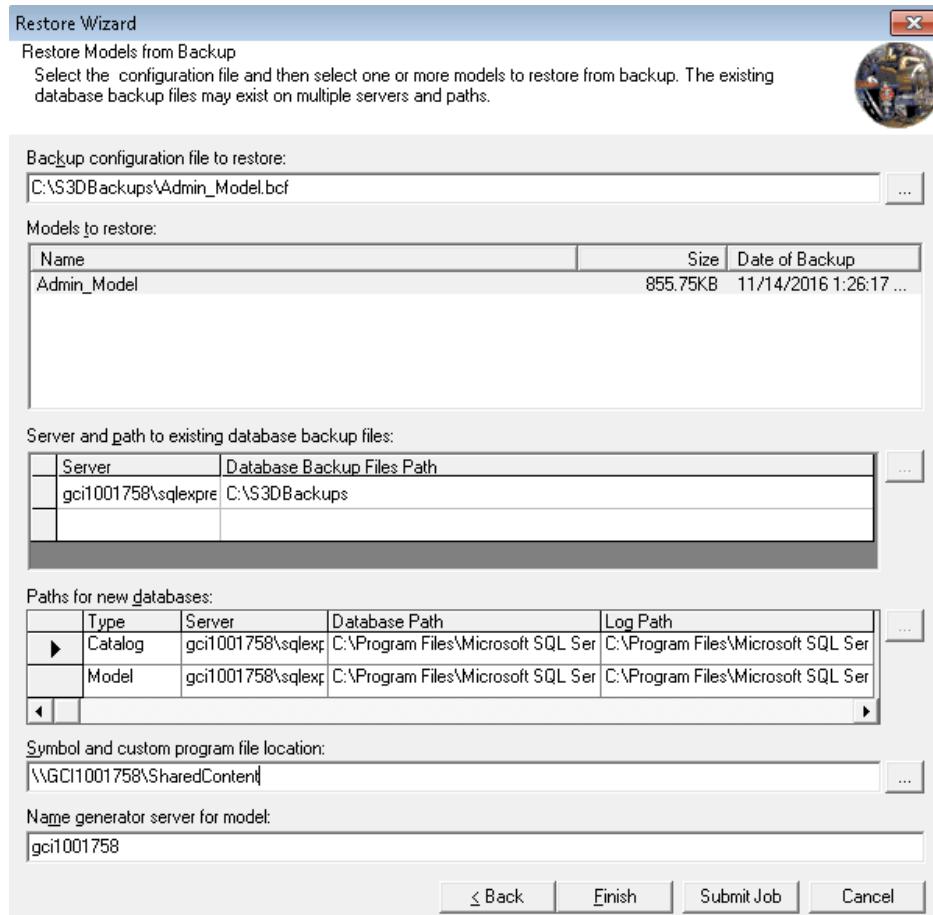


4. Click **Next**.

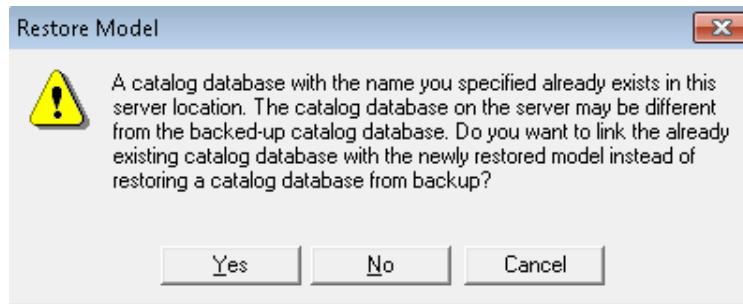
5. Complete the form as depicted below by identifying the backup configuration file (*.bcf), Backup file path, Catalog and Model names/locations, and Symbols share path:

LAB 6: Restoring a Model Database (Option 1)

NOTE For Oracle based projects, 'Database Backup Files Path' must be a shared location.



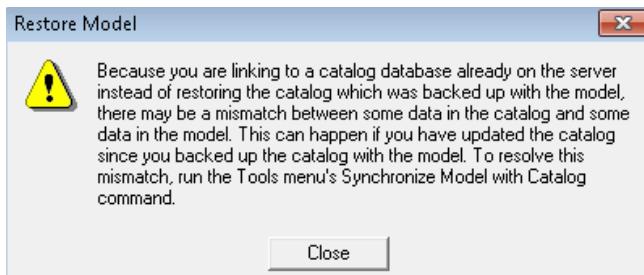
6. Click **Finish**.
7. Because the Catalog database already exists on the server, you have two options in this restore mode. You can either leave the existing Catalog in place (linking it) or overwrite it from the backup. Because there have not been any changes to the Catalog, the logical choice would be to select yes and leave the existing Catalog intact.



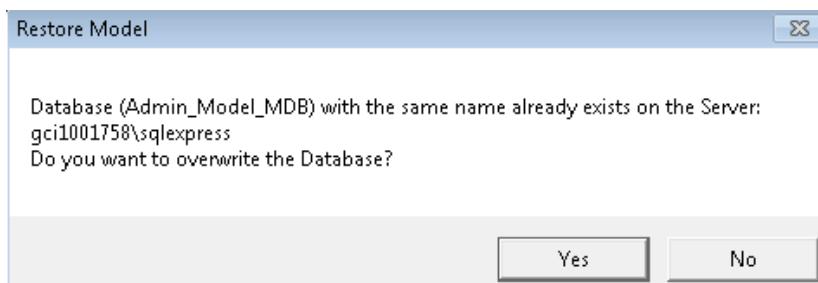
8. Click **Yes**.

LAB 6: Restoring a Model Database (Option 1)

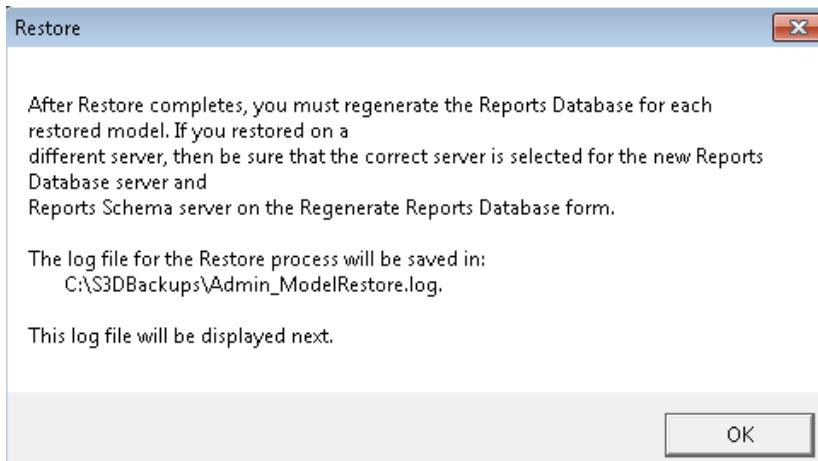
9. An additional warning message will be displayed.



10. Click the **Close** button (we will not be required to run Synchronization at this time because the Catalog has not changed).
11. An Additional confirmation form will be displayed because you are overwriting the Model Database.



12. Click **Yes**.
13. When the restore is complete, click **OK** and review the log file. Because we only restored the model, the log file will only contain information regarding the model restoration and not the catalog. Click **Close** on the Restore form to return to **Project Management**.



14. Repeat the process described in steps 1-13 but this time, choose to restore over the Catalog Database.

LAB 7: Restoring a Model Database (Option 2)

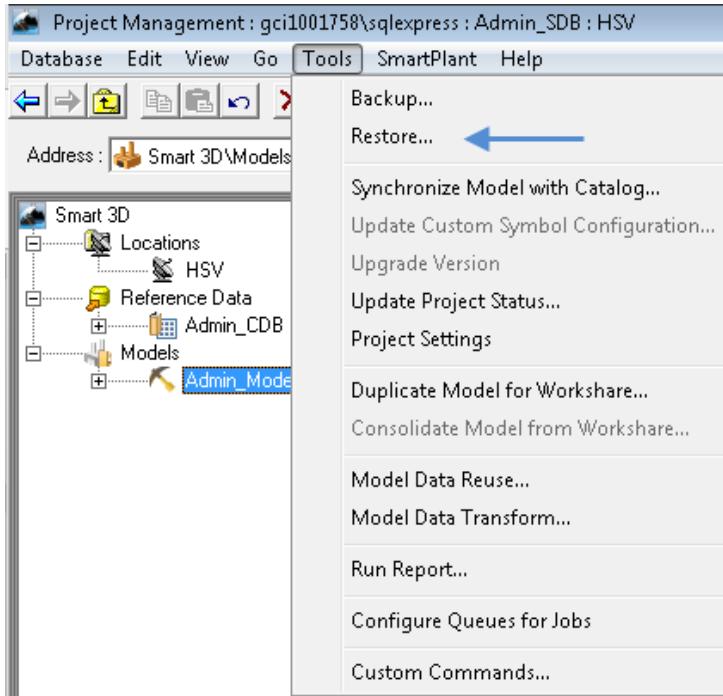
Objectives

After completing this lab, you will be able to:

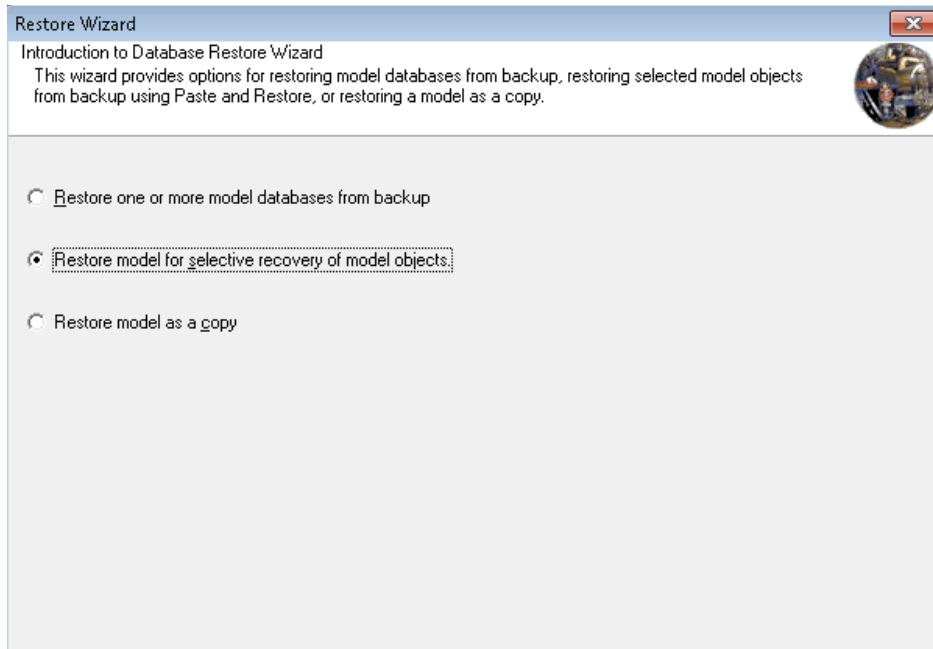
- Restore a model from backup using **Restore model for selective recovery of model objects** option from Project Management

NOTE Restore Option 2 is **Restore model for selective recovery of model objects**. The intent with this option is to restore a Model database into a Site database where a current version of the model already exists. The restored Model (which would represent old data) would exist in the Site database in parallel to the current Model and would share the same Catalog. Users could then open two sessions, one pointed to the restored Model and one pointed to the current Model, and select items from the restored model to Copy and then "Paste/Restore" into the current model. Doing this type of workflow allows for selective recovery of work from previous versions of **the same** model.

1. Start **Project Management**, if not already open.
2. From the **Tools** menu select **Restore...**



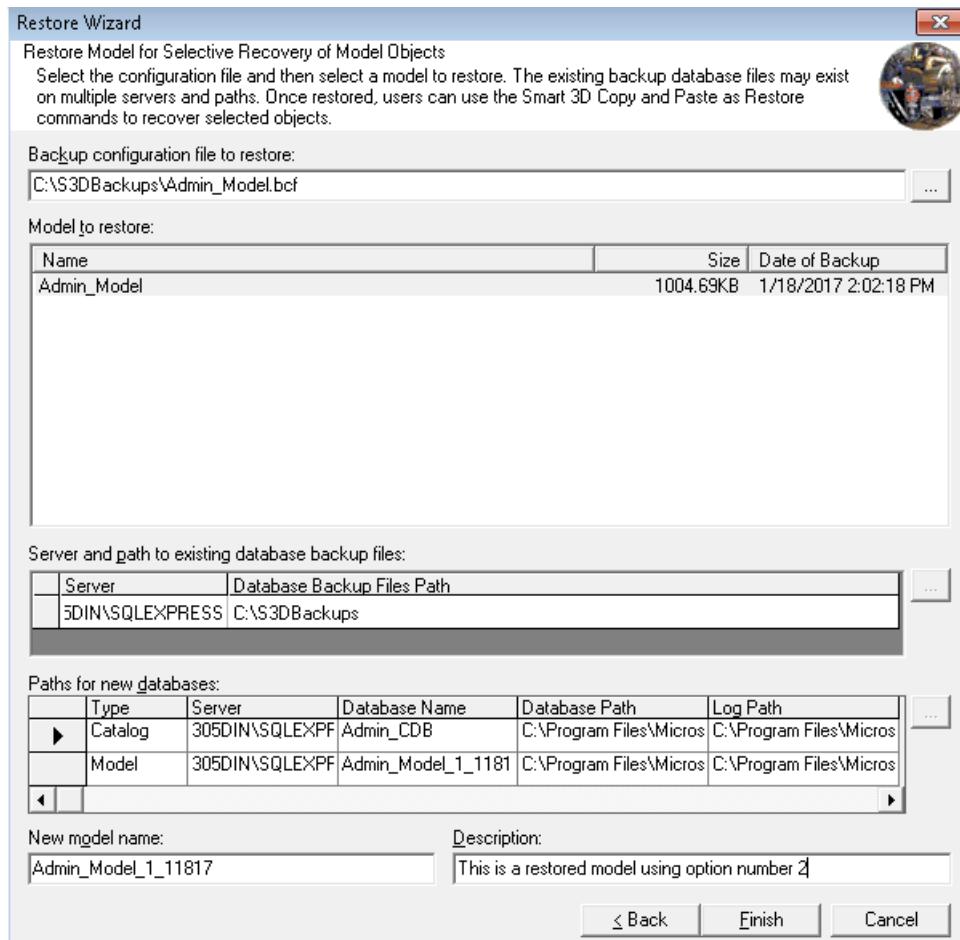
3. Select the second option **Restore model for selective recovery of model objects**.



4. Click **Next**.

LAB 7: Restoring a Model Database (Option 2)

5. Complete the form as depicted below by identifying the backup configuration file (*.bcf), Backup Files Path, and Catalog and Model names/location.



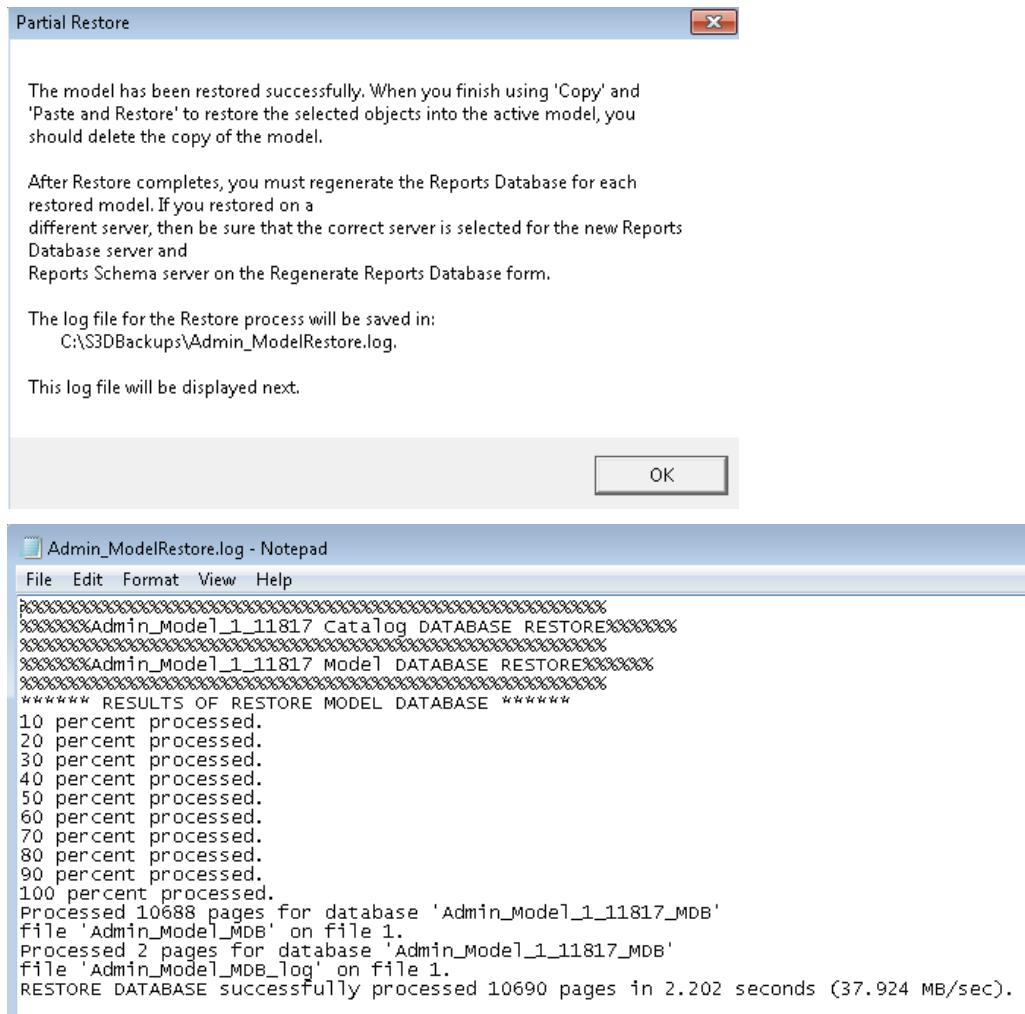
Note: The New model name contains the current date. Provide a description that is meaningful to you.

6. Click **Finish**.
7. Indicate that you would like to link to the existing Catalog by selecting **Yes**.



LAB 7: Restoring a Model Database (Option 2)

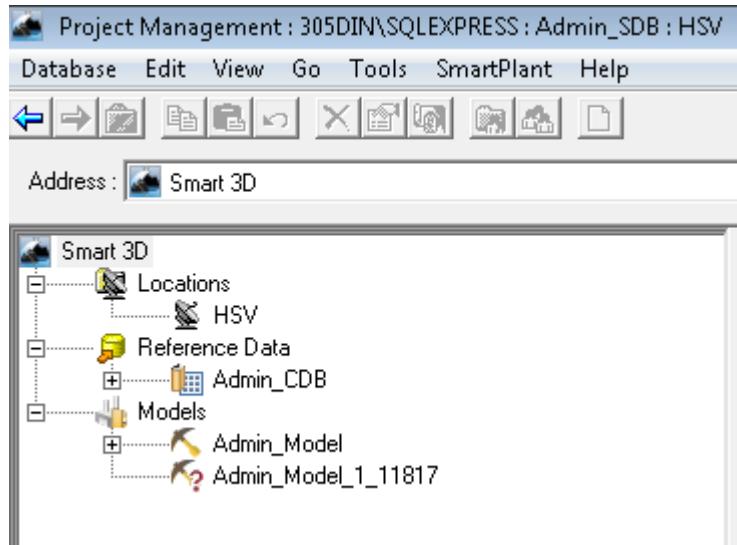
- Click **OK**. Once again, you may want to review the restore log file:



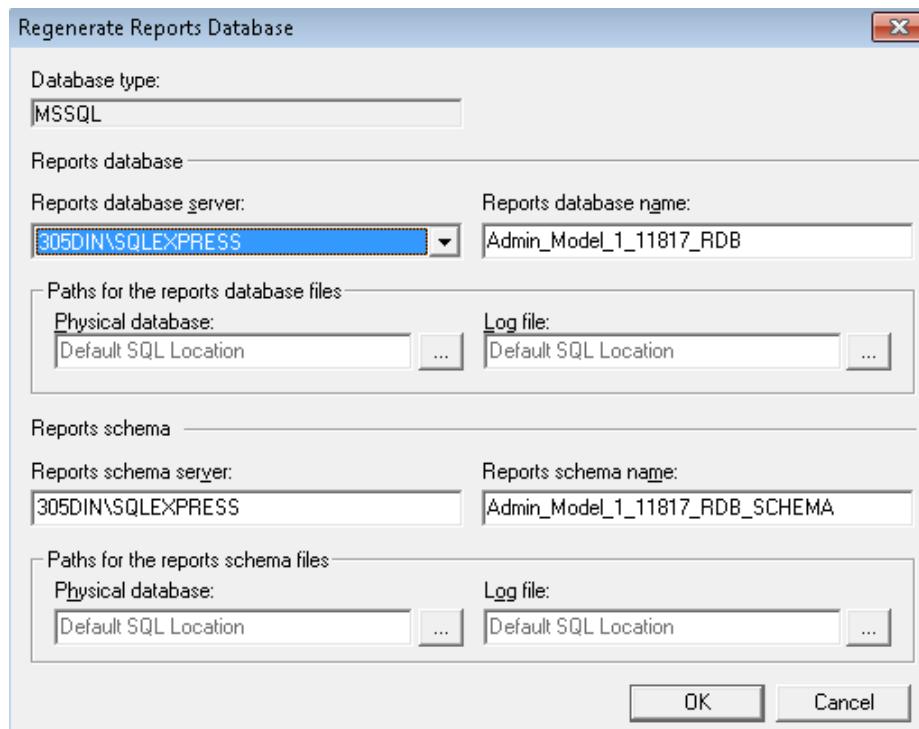
NOTE For Oracle based projects, the restore log file will look different than the screenshot above.

- Close Restore Wizard form.

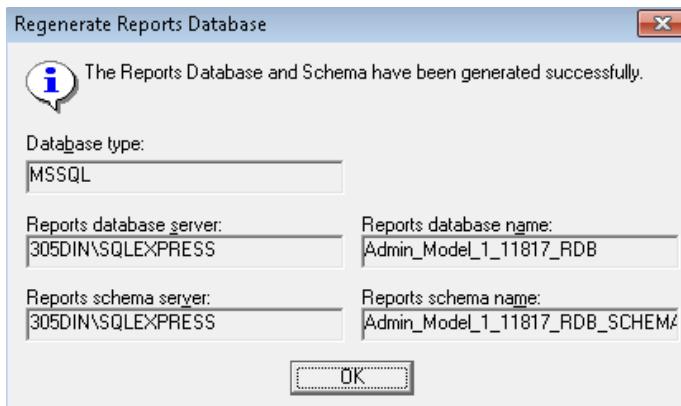
10. Review **Project Management** Tree and observe that there now exists two models that share the same Catalog.



11. Right mouse click on the newly restored model and select Regenerate Report database.



12. Click **OK** and allow reports databases to be re-created.



13. Click **OK** to dismiss dialog box.
14. Typically, you would follow this type of operation by restricting access to permission groups in the restored Model. As an exercise, use the skills you have learned to set user access to read for all groups and users except yourself on the Restored Model.
15. The database can now be used for recovery of objects operations, had this been a live project.

NOTE The workflow to recover objects from a previous backup of the model may involve one of two methods; first there is "Copy/Paste Restore" procedure between two sessions, or the use of Model Data Reuse command found in Project Management.

LAB 8: Restoring a Model Database (Option 3)

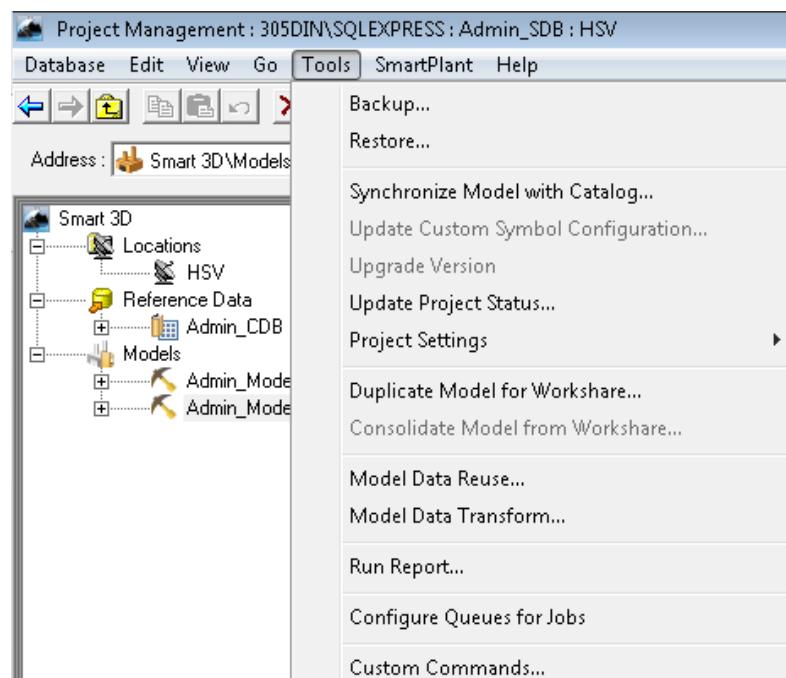
Objectives

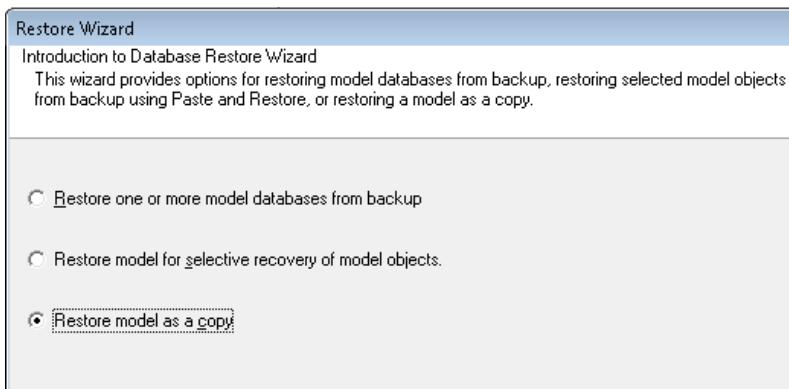
After completing this lab, you will be able to:

- Restore a model from backup using "Restore model as a copy" option from Project Management

NOTE Option 3 is represented by the restore option **Restore model as a copy**. This option is generally used to restore a model that does not exist in the current Site database set or to duplicate a Model (by use of a backup) in the same Site database set. Unlike restore option 1, Option 3 does not require an instance of the same Model to exist in the Site database.

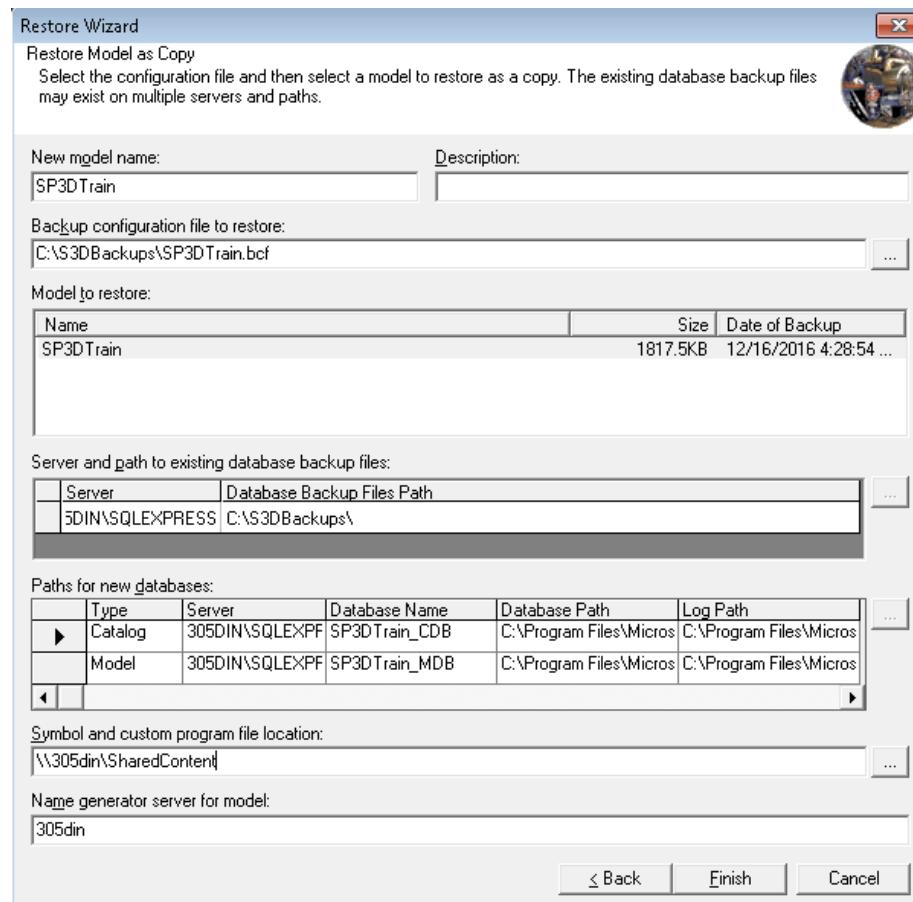
1. Start **Project Management**, if not already open.
2. From the **Tools** menu, select **Restore**.



3. Select the option to **Restore model as a copy**.4. Click **Next**.

NOTE Your instructor will provide the location of the training model that includes the *.bcf file and backup files before you continue on to step 5.

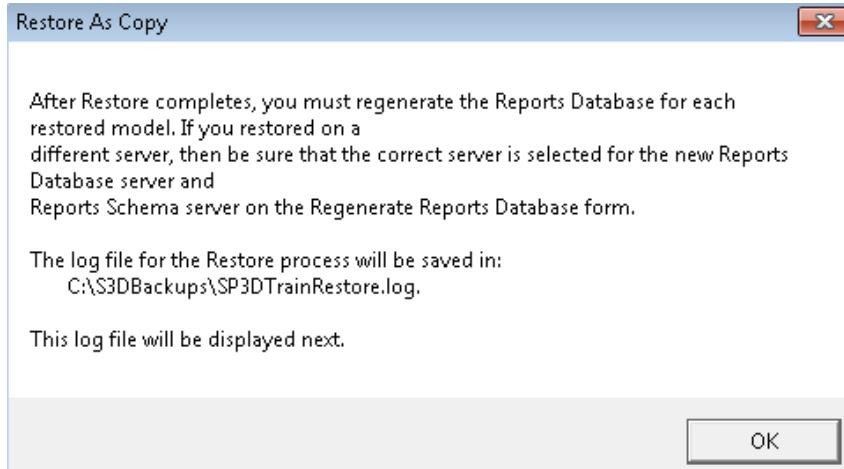
5. The selections in this form are similar to restore options 1 and 2. Complete the form as shown below by keying in a New Model name, locating the .bcf and backup files, choosing the Catalog name, and the Model name.



6. Click **Finish**.

NOTE You will not be prompted to link to the existing catalog database (as this is a separate unique catalog) and you will not be prompted to restore over an existing model (as one does not yet exist on the server).

7. When databases have been restored, click **OK**.



8. Review the log file to verify the restore operation's integrity.

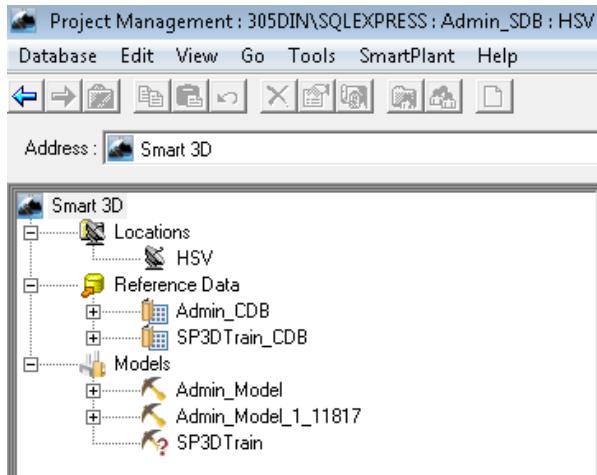
```
SP3DTrainRestore.log - Notepad
File Edit Format View Help
XXXXXXXXX S3DTrain Catalog DATABASE RESTOREXXXXXX
XXXXXXXXX RESULTS OF RESTORE CATALOG DATABASE AND SCHEMA XXXXXX
10 percent processed.
20 percent processed.
30 percent processed.
40 percent processed.
50 percent processed.
60 percent processed.
70 percent processed.
80 percent processed.
90 percent processed.
100 percent processed.
Processed 63664 pages for database 'S3DTrain_CDB'
file 'catalogdb' on file 1.
Processed 4 pages for database 'S3DTrain_CDB'
file 'catalogdb_log' on file 1.
RESTORE DATABASE successfully processed 63668 pages in 10.683 seconds (46.560 MB/sec).
10 percent processed.
20 percent processed.
30 percent processed.
40 percent processed.
50 percent processed.
60 percent processed.
70 percent processed.
80 percent processed.
90 percent processed.
100 percent processed.
Processed 18008 pages for database 'S3DTrain_CDB_SCHEMA'
file 'APPREPOS' on file 2.
Processed 2 pages for database 'S3DTrain_CDB_SCHEMA'
file 'APPREPOS_log' on file 2.
RESTORE DATABASE successfully processed 18010 pages in 5.996 seconds (23.465 MB/sec).

XXXXXXXXX S3DTrain Model DATABASE RESTOREXXXXX
XXXXXXXXX RESULTS OF RESTORE MODEL DATABASE XXXXXX
10 percent processed.
20 percent processed.
30 percent processed.
40 percent processed.
50 percent processed.
```

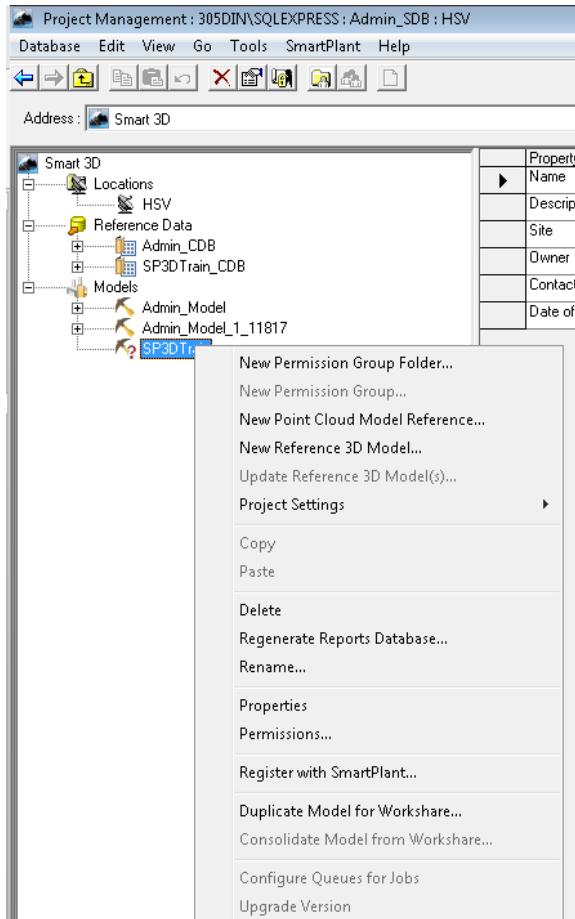
9. Close the restore form when completed.

LAB 8: Restoring a Model Database (Option 3)

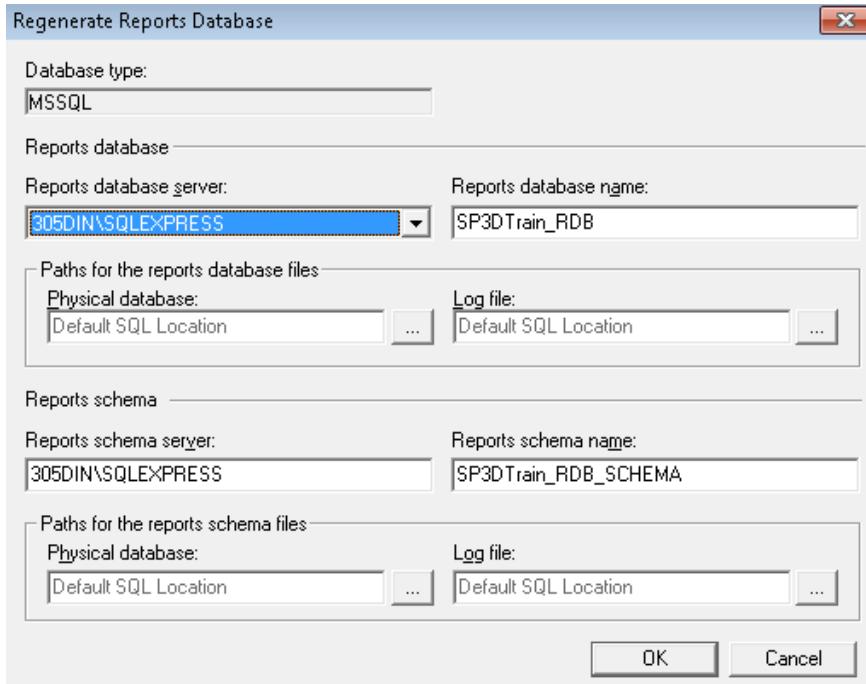
10. Note there are two catalogs and three models. The question mark next to SP3DTrain model is an indication that the Reports databases have not been regenerated.



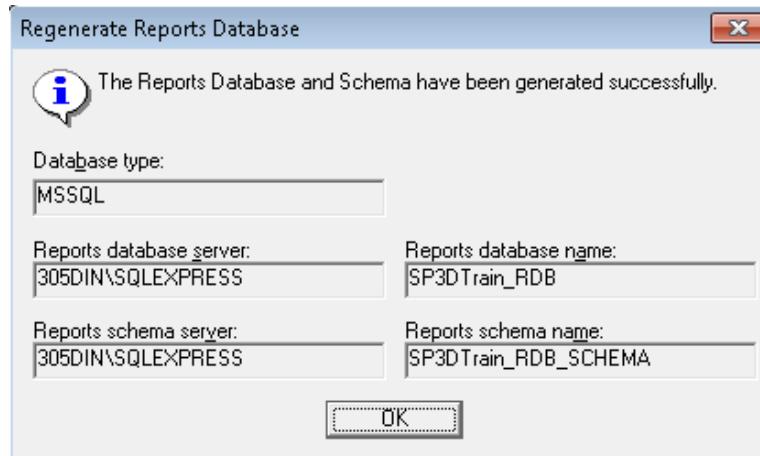
11. Right mouse click on the SP3DTrain model and select **Regenerate Reports Databases**.



12. Click **OK**.



13. Click **OK**.

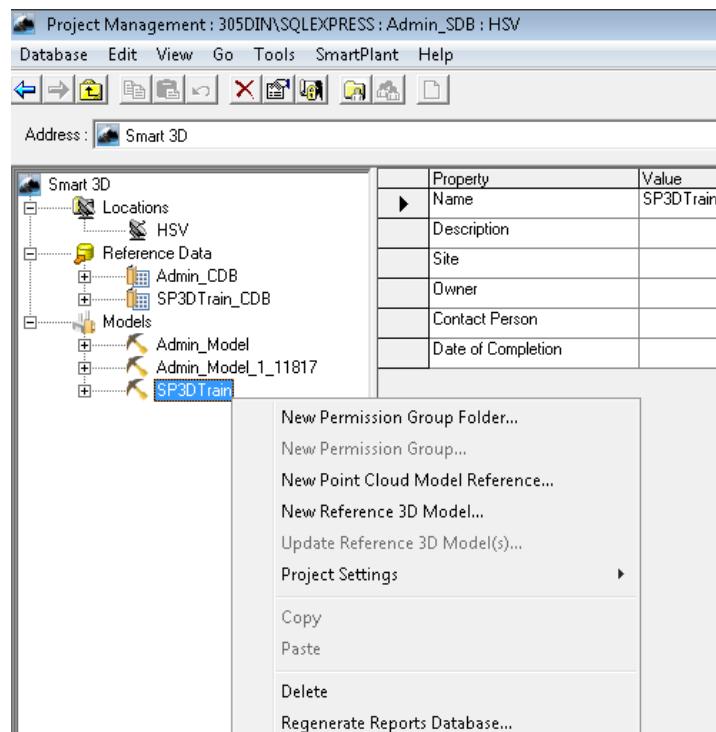


LAB 9: Deleting a Model

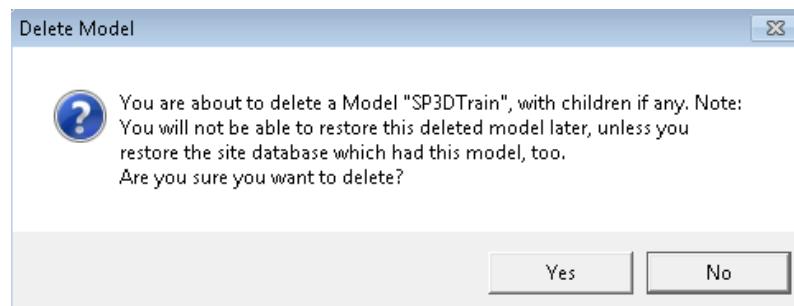
Objectives

After completing this lab, you will be able to:

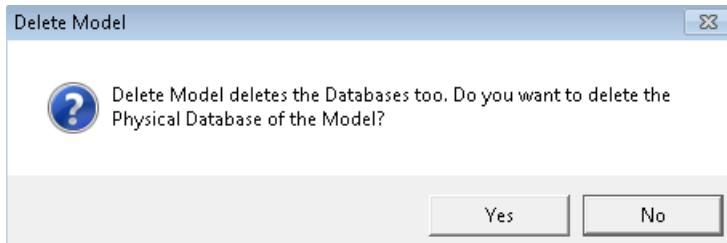
- Delete an existing model from Project Management
1. Start **Project Management** if not already open.
 2. Right mouse click on the **SP3DTrain** model and select **Delete**.



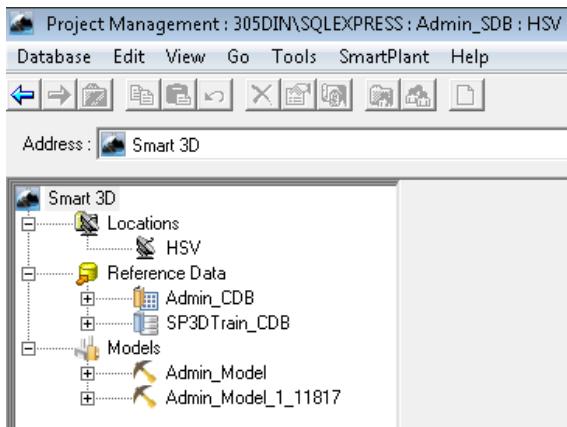
3. Deleting the model will effectively remove its pointer from the Site database. Click **Yes**.



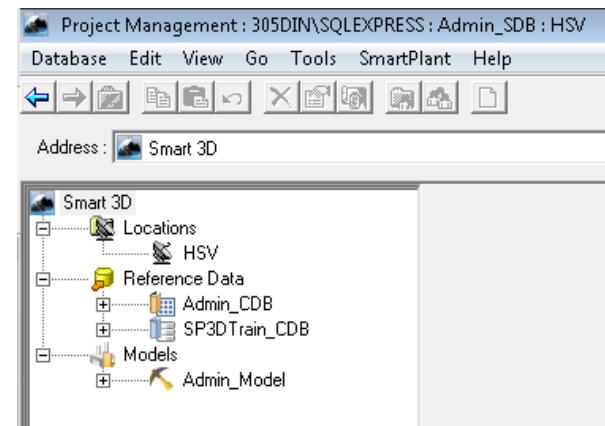
4. Select **Yes** on next form to delete physical database files. This allows release of hard drive space on the database server.



5. Note the Model has been removed from the hierarchy but the Catalog still remains.



6. Delete the model that was restored using option **Restore model for selective recovery of model objects**.



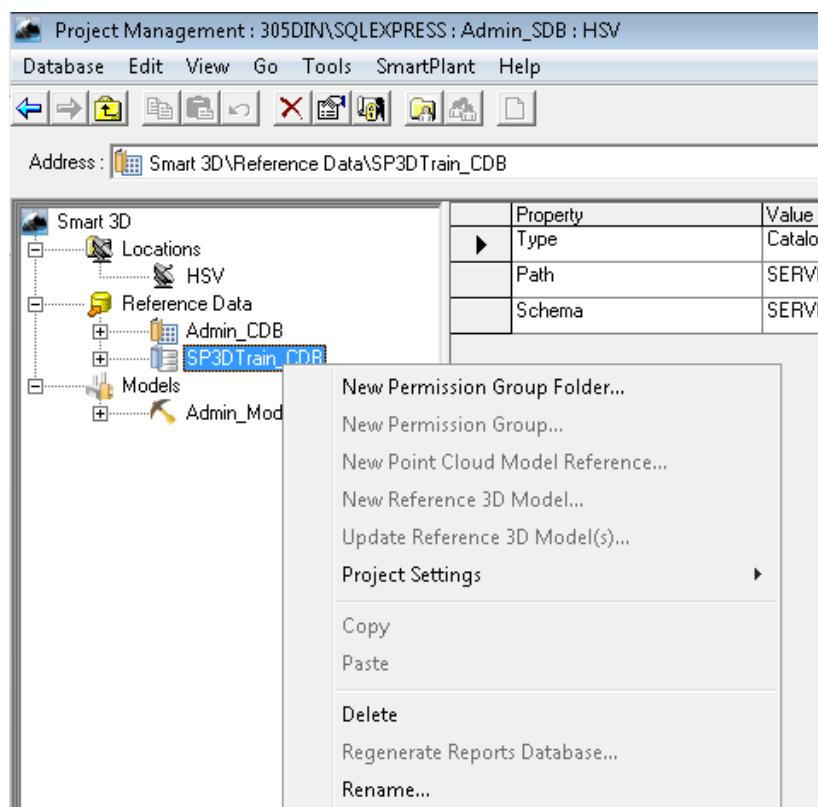
NOTE S3DTrain_CDB database still remains. Possible actions for it include deletion as it is no longer associated to any model, or it can be reused with a new model by running **Database > New > Model...** command.

LAB 10: Deleting a Catalog

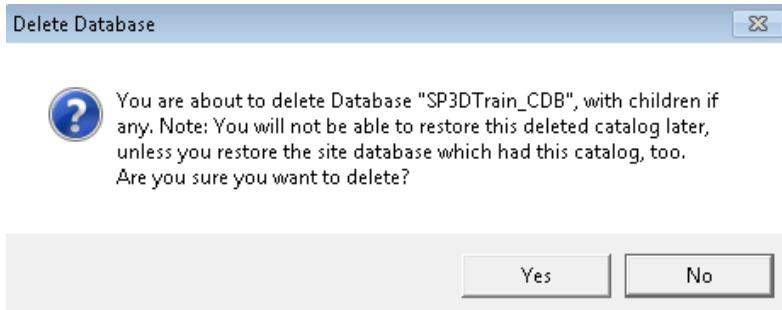
Objectives

After completing this lab, you will be able to:

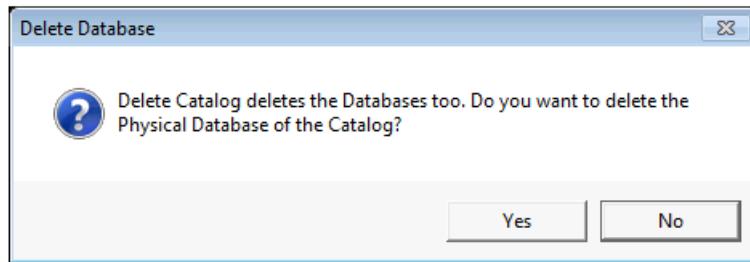
- Delete an existing catalog from Project Management
1. Catalog databases can only be deleted if there are no models associated with them. Catalogs ready for deletion can be recognized by a yellow mini book icon in the Project Management hierarchy.
 2. Right click on **SP3DTrain_CDB** Catalog and select **Delete**.



3. As with deleting models, the software will prompt for confirmation. Select Yes.



4. Select **Yes**.



5. Try to delete the Catalog database named **Admin_CDB** and note the results.

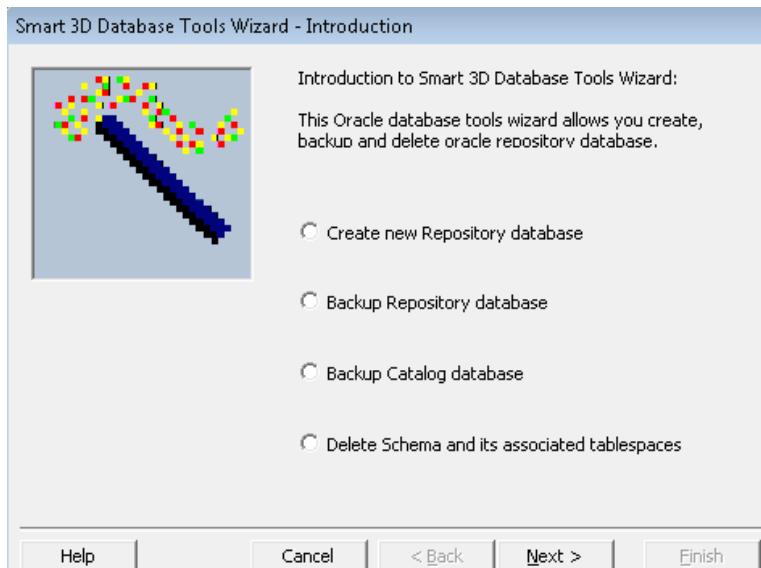
NOTE For Oracle based projects:

When you delete an Oracle model in Project Management task, the software may not delete all of the associated database objects (user, tablespace and schema). To delete schema information after deleting an Oracle model, you must use the **Oracle Database Tools Wizard for Smart 3D**.

The Oracle Database Tools Wizard for Smart 3D is delivered to [*Product Directory*]\ProjectMgmt\Tools\bin\SP3DOracleDBToolsWizard.exe.

- Open the **Oracle Database Tools Wizard for Smart 3D**.

- On the Introduction page, select **Delete Schema and its associated tablespaces**, and then click **Next**.



- Select the schemas to delete and click Finish.

NOTE This process may take some time to complete (approximately from 5 to 10 minutes per database), depending on the quantity of databases to process and performance/load factors of the server. The Wizard window may at times look like it is hung, but do not kill it. Wait for it to complete. It will return to normal with a message announcing completion.

LAB 11: New Catalog Command

Objectives

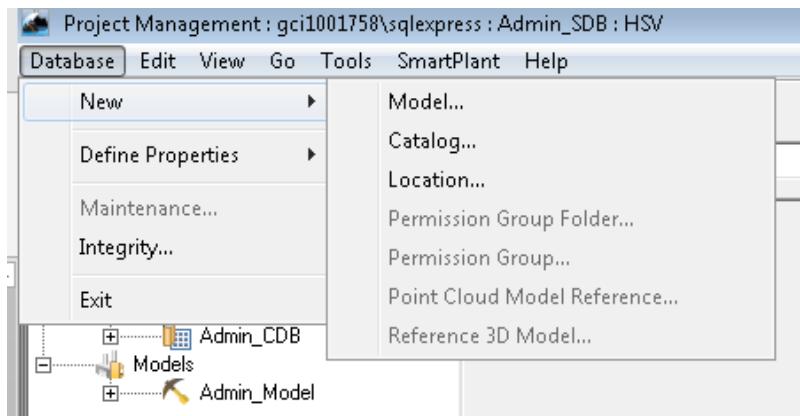
After completing this lab, you will be able to:

- Create a new Catalog from within Project Management

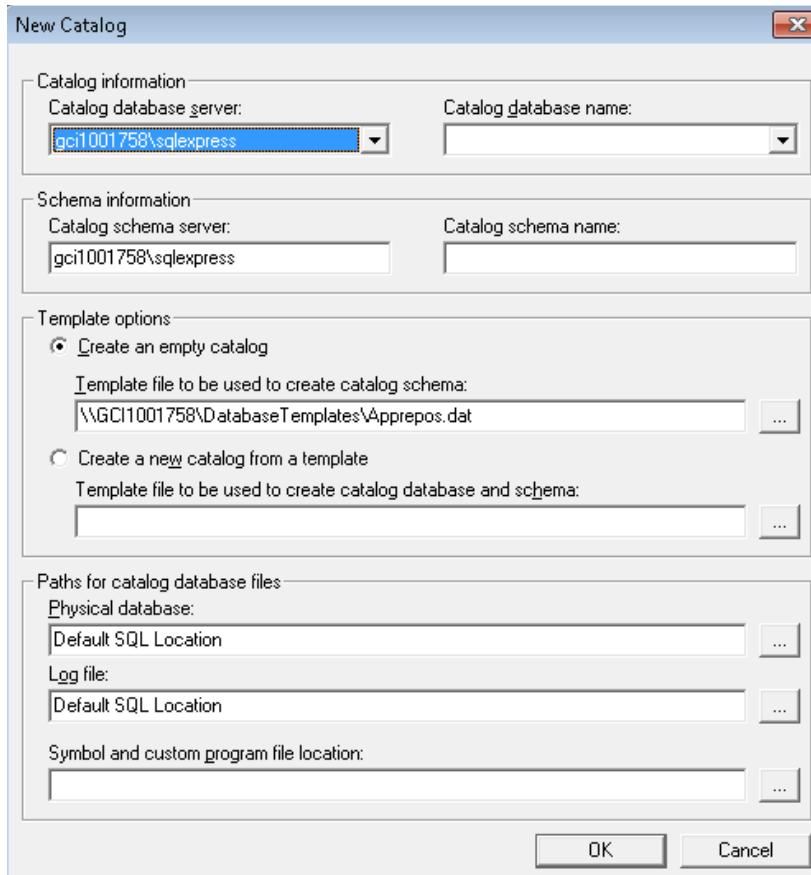
NOTES

- The new catalog command allows you to create a new empty catalog without performing a restore command. You will then be able to bulkload to this database at will, but you cannot use the catalog task to change anything in it unless you also make a Model based off of the newly created catalog.
- In a Global Workshare configuration, this command is only available for use at the Host location.

1. Open **Project Management**. Select **Database > New > Catalog** command.



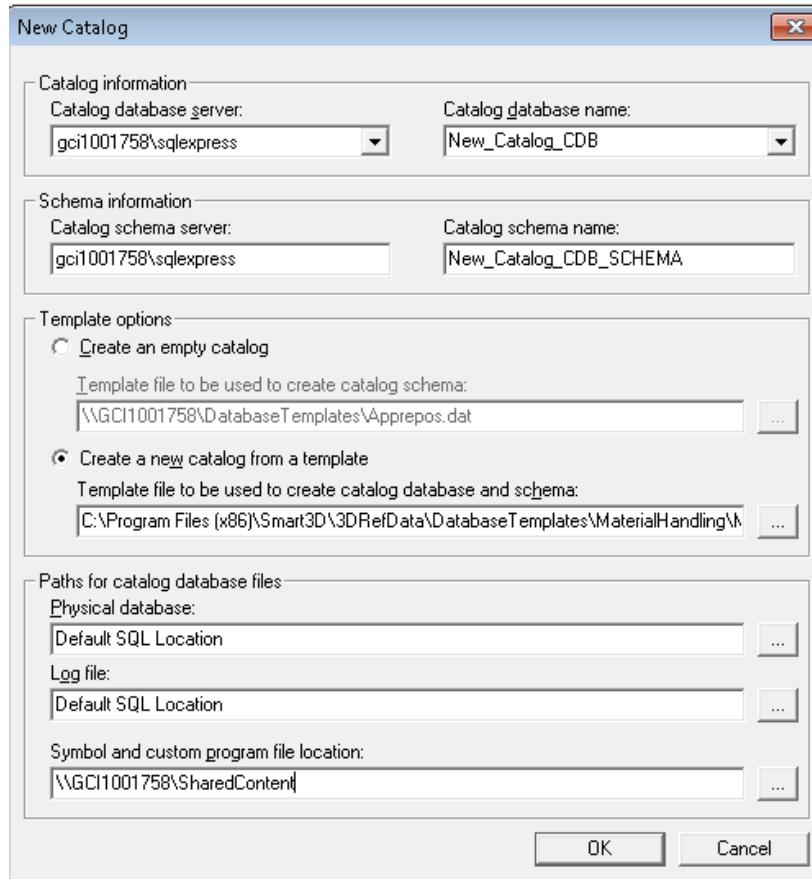
2. The new catalog form will appear. Select the server where the catalog will be restored on.



Note that some information may be filled in for you, if possible. If Apprepos.dat template is not at the suggested location, or you wish to use another custom starting template, you can specify it in the template options section.

3. From **Catalog database server** list, select or make sure the proper database server is selected.
4. From **Catalog database name** drop-down list, select <new database>, and then type over as new name **New_Catalog_CDB**. You can also just place the cursor in the field and start typing the new name.

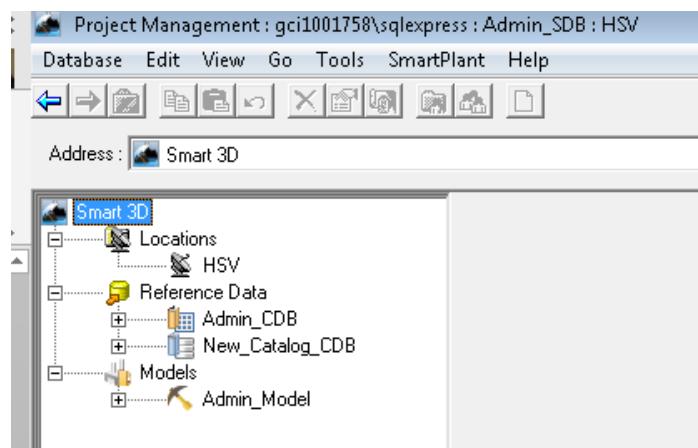
5. Select option **Create a new catalog from a template** and locate MHE_CatalogDB.dat (CatalogDB.dmp if Oracle) template, also type in the symbols folder path.



6. When the form has been completed, click **OK**.

NOTE Apprepos.dat is the template you would use to create an empty Catalog. An empty Catalog is defined as a catalog database that contains all of the necessary tables, stored procedures, views, objects and so on, but does not contain any modeling data, such as part data or specifications. Only use this template with the first option.

7. Project Management hierarchy should resemble the following:

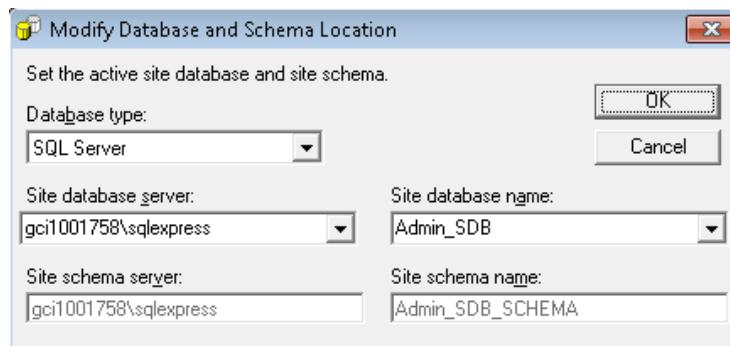


LAB 12: Manual Creation of System Hierarchy

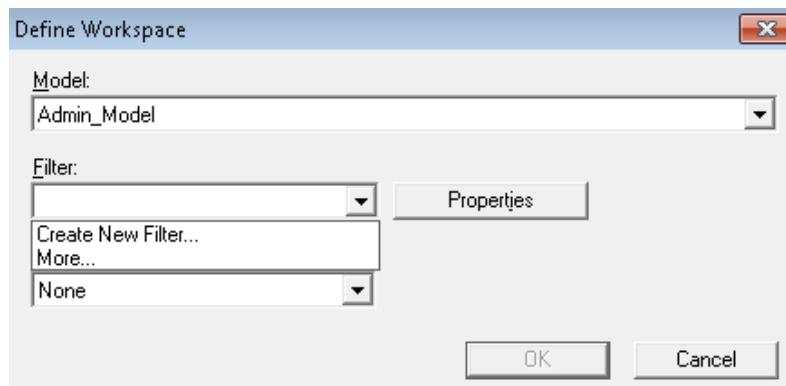
Objectives

After completing this lab, you will be able to:

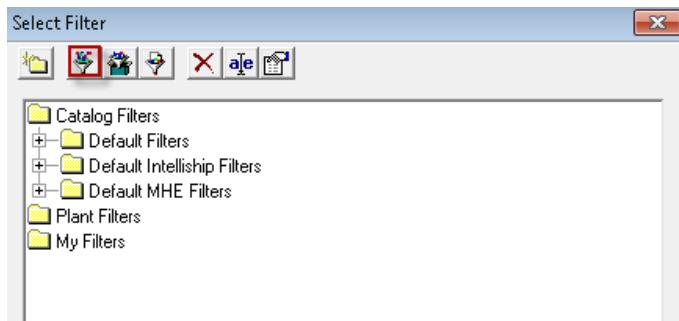
- Create a systems hierarchy in a new model from the Systems and Specifications task
- 1. Go to **Start > Intergraph Smart 3D > Modify Database And Schema Location** to set the Site database to **Admin_SDB**.



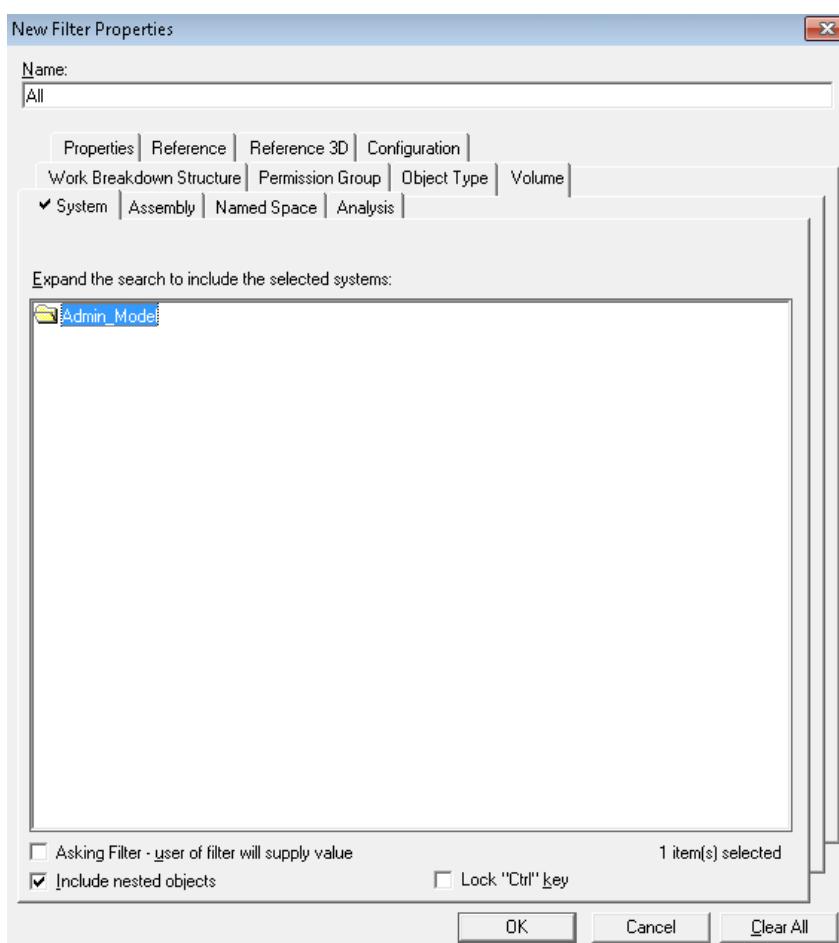
2. Open **Smart 3D**. When prompted, select **Plant** tab and select either English or Metric Units template.
3. Go to **File > Define Workspace**.
4. From the model drop down list, select **Admin_Model** and on the filter drop down list click **More...** to create a filter.



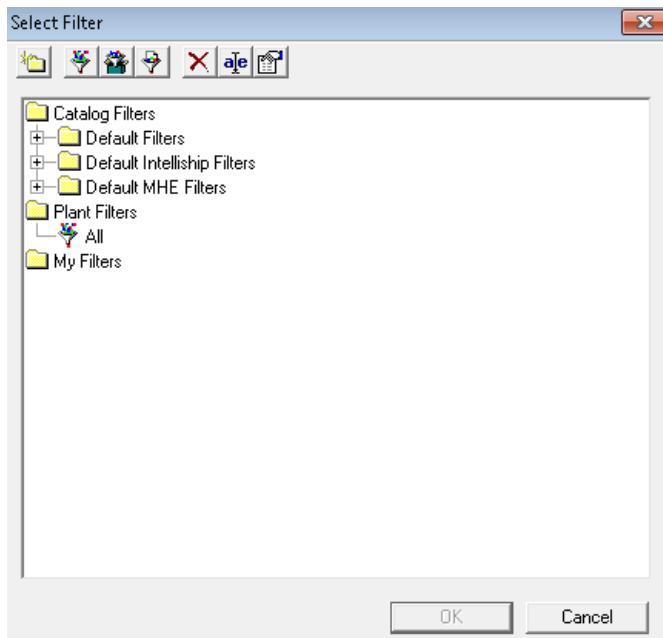
5. Highlight **Plant Filters** node and click **New Filter** button at the top of the form.



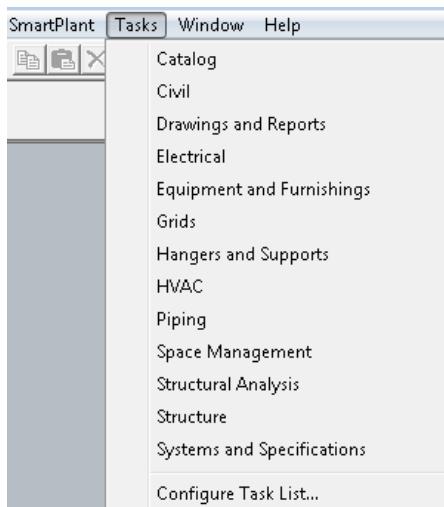
6. In the form that opens up, type **All** as filter name.
7. In **System** tab, highlight **Admin_Model**, and click **OK** to the form.



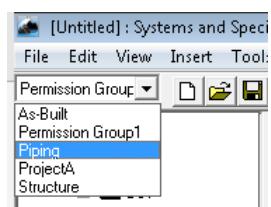
8. Select the newly created filter **All** and click **OK**.



9. Click **OK** on **Define Workspace** form.
10. Go to menu **Tasks > Systems and Specifications**.



11. Change the Active Permission Group to **Permission Group1**.

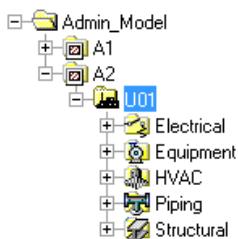


12. Right click on **Admin_Model** root level and select **New System >New Area System**.

13. Name the new area **A1**. Click **OK**.
14. Right click **Admin_Model** root level and select **New System > New Area System**.
15. Name the new area **A2**. Click **OK** on the form.
16. Right click on area **A2** and select **New System > New Unit System** to create unit **U01**. Click **OK** on the form.

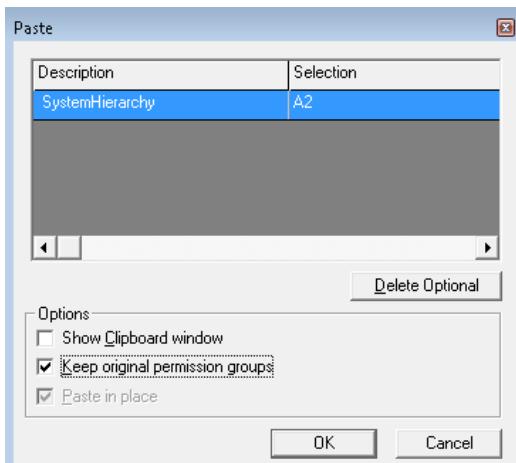


17. Right click on unit **U01** and select **New System > New Electrical System**. Use properties page dialog to name the new system to **Electrical**. Click **OK** on the form.
18. Likewise create the following systems in **U01**:



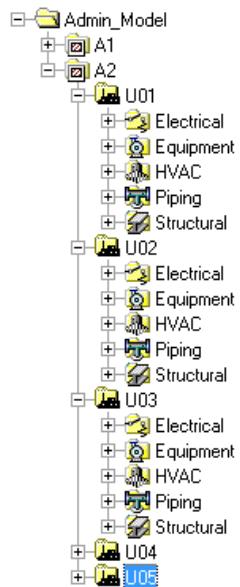
NOTE For “Piping”, create a new **Piping System**.

19. Right click on **Structural** system and select **Properties**.
20. On the Configuration tab, set Permission Group = Structure, click **OK**.
21. Assign **Piping** system to its own permission group.
22. Right click on unit **U01** and select **Select Nested**.
23. From the main menu select **Edit > Copy** (not from right click).
24. Right click on **A2** and select **Paste**. Ensure Paste dialog shows A2 under Selection.



25. Select option **Keep original permission groups** and click **OK**.
26. Rename the new unit from **U01(2)** to **U02** by going to the Properties.

27. Repeat the unit Paste and rename procedure to create **units U03-U05**.



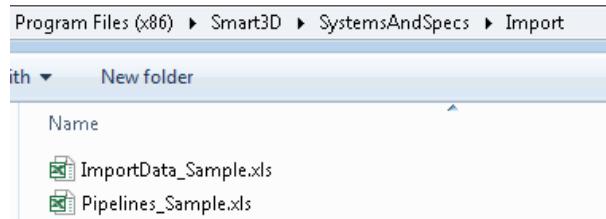
LAB 13: Import Creation of System Hierarchy

Objectives

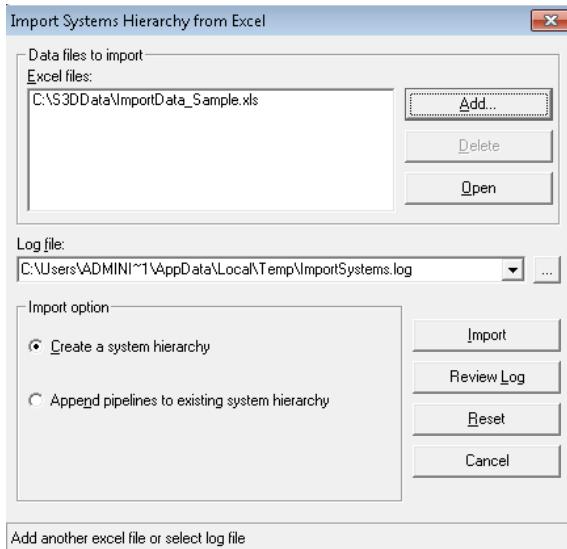
After completing this lab, you will be able to:

- Create a systems hierarchy in a new model using an Excel spreadsheet
- 1. Copy the sample system import workbook "**ImportData_Sample.xls**" from the delivery location to a different folder.

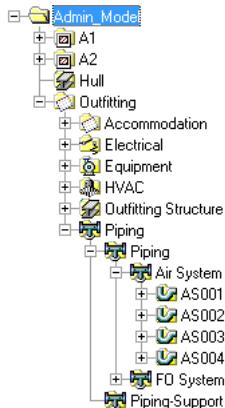
NOTE The software delivers two sample Excel files, ImportData_Sample.xls and Pipelines_Sample.xls to [Product Directory]\SystemsAndSpecs\Import as part of default client setup.



2. Open workbook ImportData_Sample.xls then go to worksheet **SYSTEM_HIERARCHY**.
 3. Edit system names in this workbook to values that might better meet needs at your company. At a minimum, delete systems that may not apply to your industry.
 4. In Air System worksheet note the pipeline systems already defined (AS001, AS002...).
 5. Save the workbook and close Excel.
- NOTE** This is not a **Bulkload** workbook, so there's no need for A/M/D modifier on column A.
6. Open **Smart 3D** if not already open.
 7. Define a workspace and select the **All** filter created in a previous lab practice.
 8. Go to the Systems and Specifications task and select **Tools > Import Systems Hierarchy from Excel...**
 9. Click **Add** and locate the folder where **ImportData_Sample.xls** workbook was saved.
 10. Accept default option **Create a system hierarchy** option and proceed to click **Import**.



11. Click **Finish** to close the Import dialog box when the command has finished (see status bar of the form).
12. Review the system hierarchy. The new systems should appear in their assigned position. The piping system named Air System should be populated with 4 pipelines ready to use.



13. Use system properties dialog to review system ownership (permission group) and correct as needed. This ownership was defined by the active permission group in use during the import command execution (drop down in the top left corner).

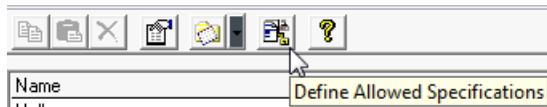
NOTE The example hierarchy included in ImportData_Sample.xls workbook was created for a Marine type of project. Hull and Outfitting are marine terms, but this should not affect applicability with Smart 3D in Materials Handling mode.

LAB 14: Assign Specifications to Systems

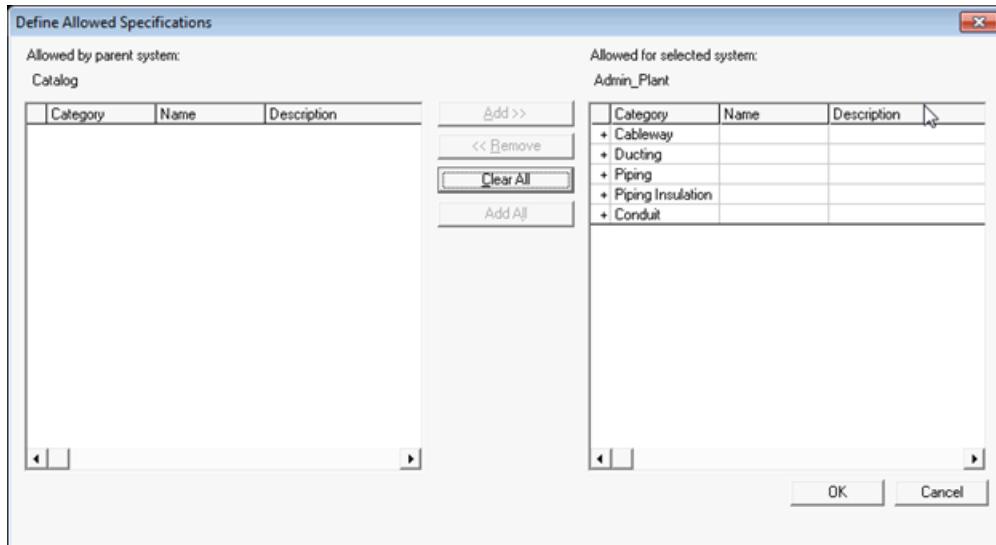
Objectives

After completing this lab, you will be able to:

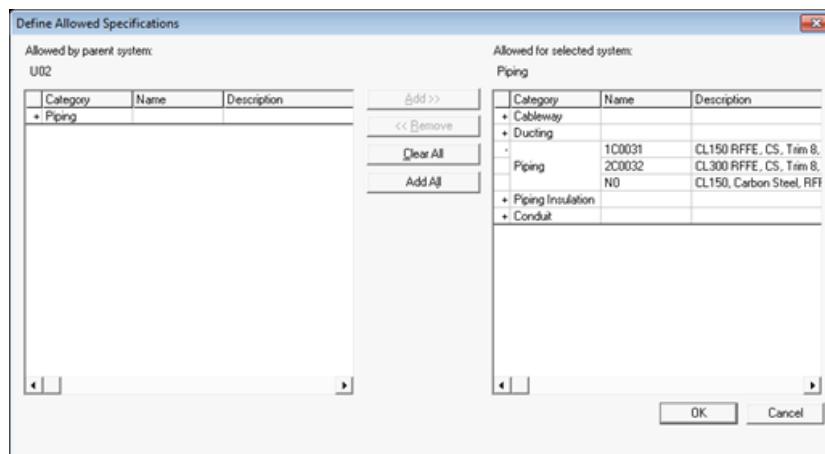
- Designate allowed specifications for multiple disciplines in the model
1. Open **Smart 3D** if not already open.
 2. Define a workspace and select the **All** filter created in a previous lab practice.
 3. Go to **Systems and Specifications** task.
 4. Click on the root level of the model, e.g. **Admin_Model**.
 5. Select **Define Allowed Specifications** button to the left of the **Help** button (question mark).



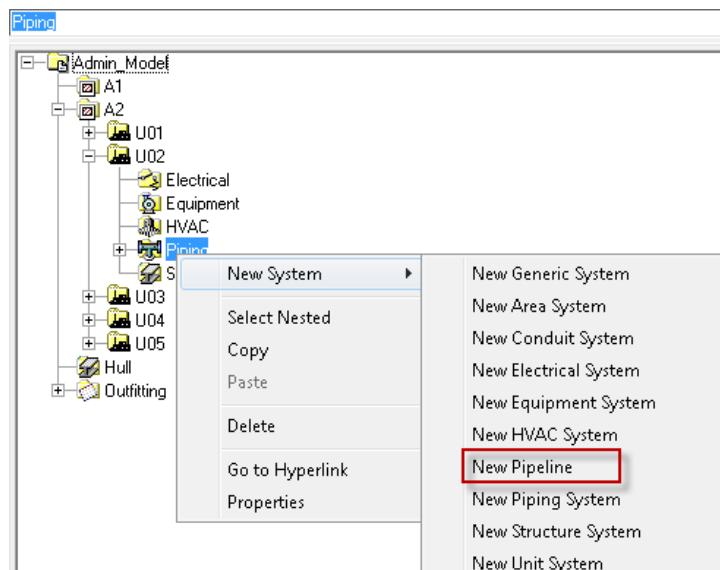
6. Select **Add All** to allow all specifications/All disciplines at the root level and click **OK**.



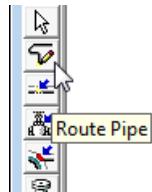
7. Expand **A2 > U02 >** and select the **Piping** system, use **Define Allowed Specifications** command to restrict (**<<Remove**) the use of piping specifications to only show N0, 1C0031 and 2C0032 for this piping system folder. Click **OK**.



8. Go to unit **U01 > Piping** and use the same command to restrict (**<<Remove**) the use of piping specs to only show 1C0101, 1S3984 and 4C0033 for this piping system.
9. Perform this procedure on the **Electrical** system on **U03** and leave only CB-S1-L6-12B and Cws-0 Cableway specs.
10. Go to one of the Pipeline systems created by import from Excel (AS001, AS002, AS003, etc) and attempt to restrict the usage to piping specs 1C0031 and 2C0032, note what happens.
11. From the Menu bar, select **Tasks > Piping** and set the **locate filter** to **ALL**. Create a new **pipeline system** from the workspace explorer under **Piping** system of unit **U02** as shown in the figure below.

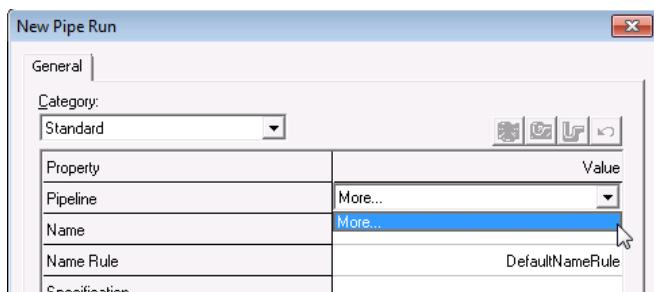


12. Start route pipe command from the task toolbar on the left and wait for the new pipe run form.

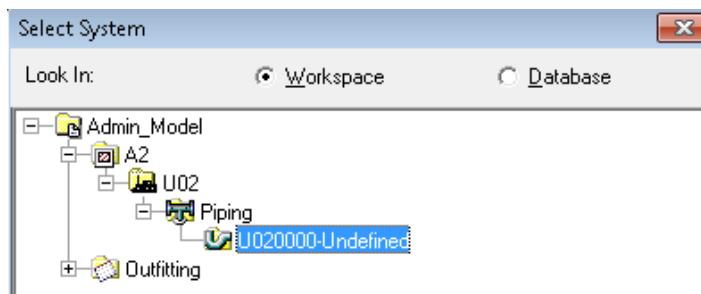


13. Click on any point in the screen. The **New Pipe Run** form will display.

14. Click in the **Pipeline** field. It will turn into a drop down list. Select **More...**.



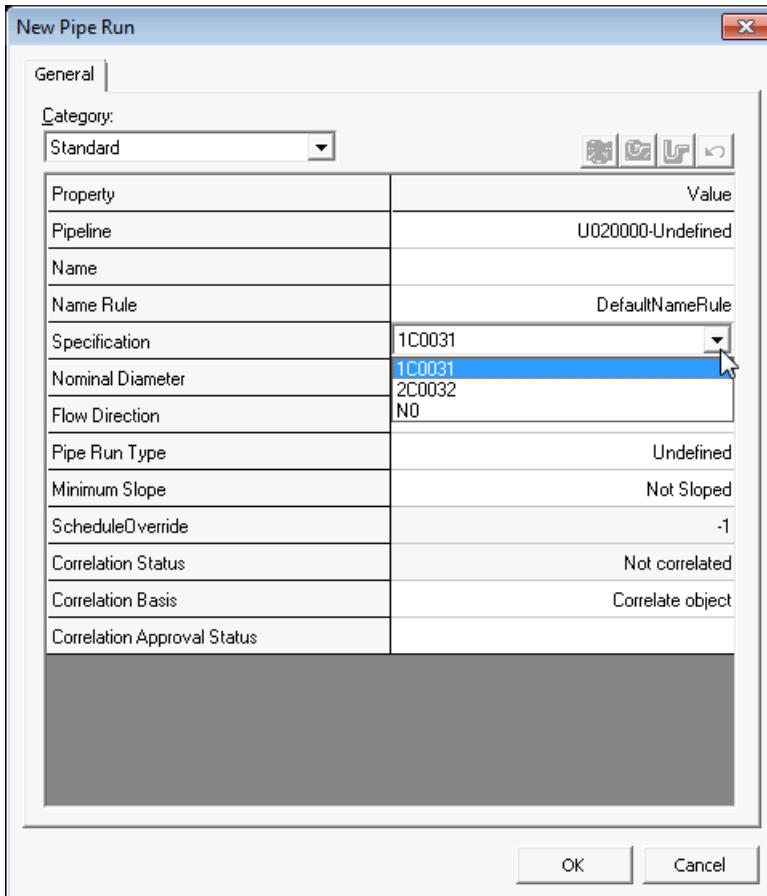
15. In the Select System dialog that opens, expand the hierarchy to select the recently created Pipeline. It should be located under **Admin_Model > A2 > U02 > Piping**.



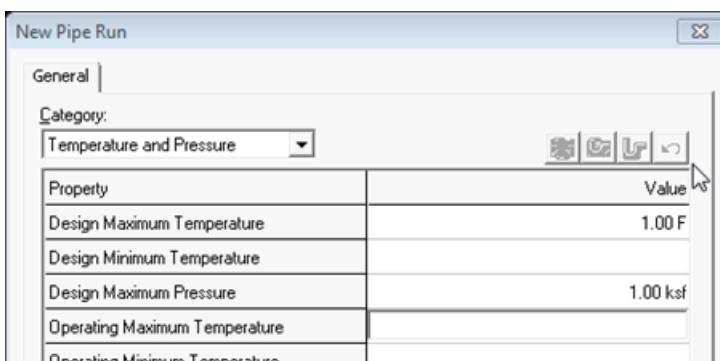
16. Click **OK**.

LAB 14: Assign Specifications to Systems

17. Back in the **New Pipe Run** form, notice that you should only have available for use the three specifications previously allowed in the Systems and Specifications task.

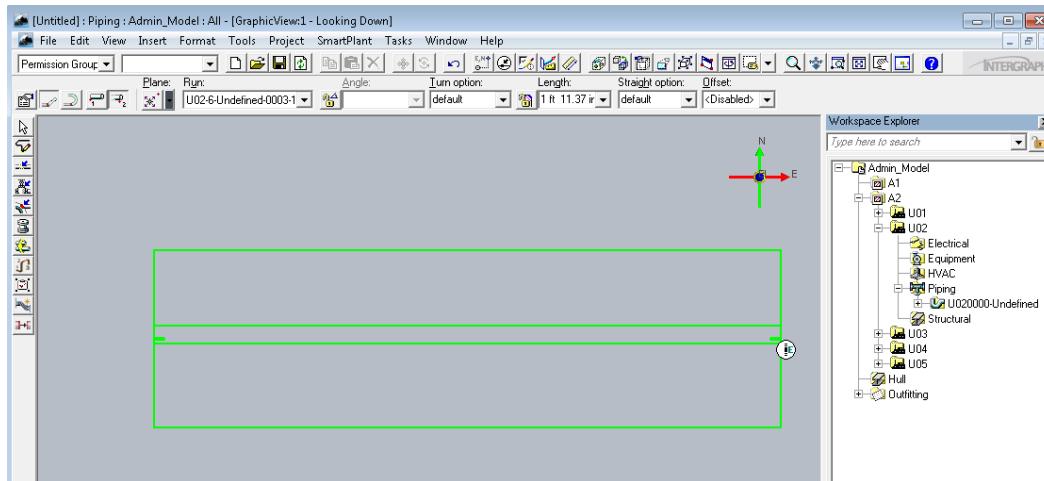


18. To route the pipe, select specification **1C0031, 6** in Nominal Diameter, switch to the **Temperature and Pressure** option in the **Category** drop down list and type value **1** for **Design Maximum Temperature** and **1** for **Design Maximum Pressure**. Click **OK** in the form.



LAB 14: Assign Specifications to Systems

19. Wait for the preview of the pipe to display, then click a second time after it has been stretched over the screen when ready to place it.



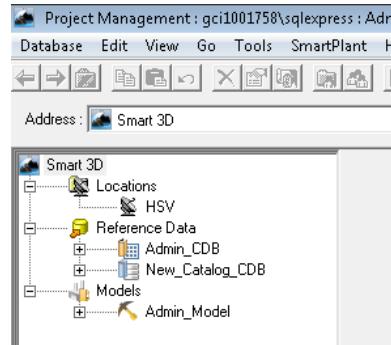
20. Right click terminates the command.

LAB 15: Restore as copy Training Model

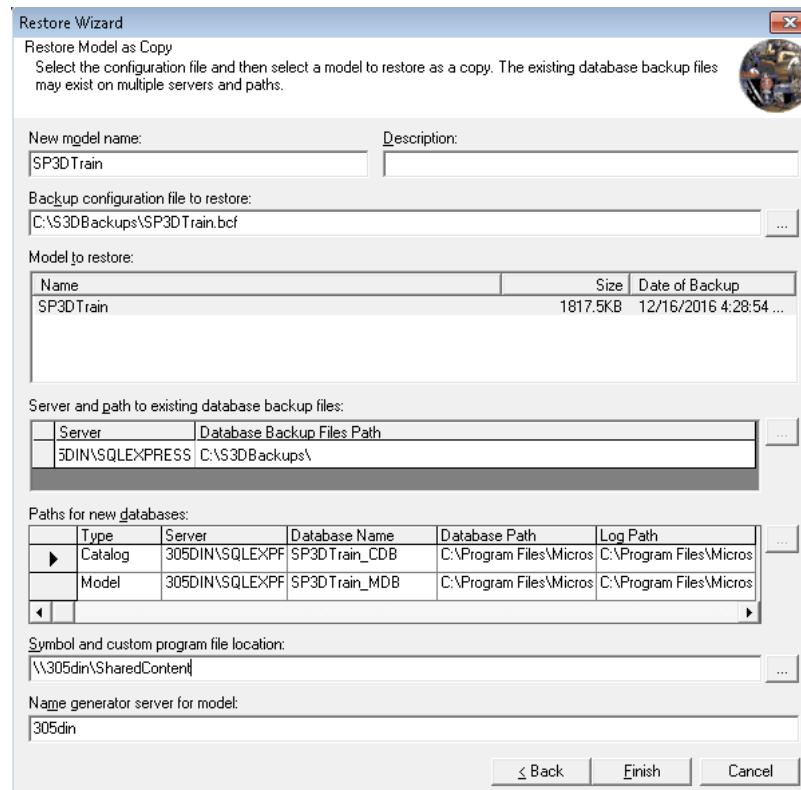
Objectives

After completing this lab, you will be able to:

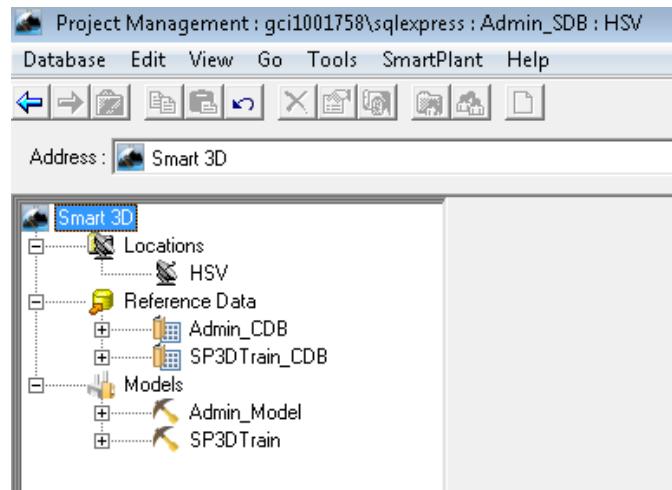
- Restore a copy of the training model that will be used for Model Data Reuse practice
- 1. Start Project Management.



2. Use **Restore model as a copy** command (restore option 3) that was covered earlier. Locate the training model backup and fill the form to complete the restore process. When the restore finishes, regenerate reports databases.



3. When done, Project Management should resemble the following:



NOTE You may delete catalog database named **New_Catalog_CDB** if desired as it will not be needed anymore.

LAB 16: Workspace Simplification by Role

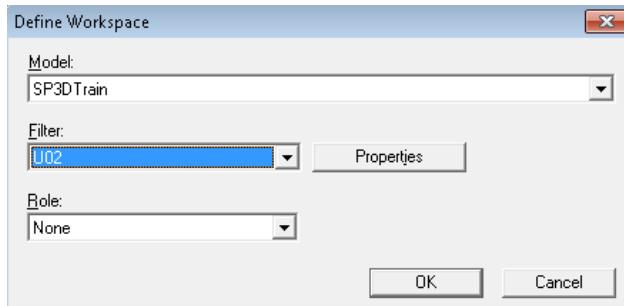
Objective

By the end of this session, you will be able to:

- Exclude certain object types based on a user's role

Overview

Define Workspace supports the use of user-defined roles to further refine the filtering of objects displayed in the workspace. In the model, this will help to simplify the workspace by excluding objects that are not related to your role.



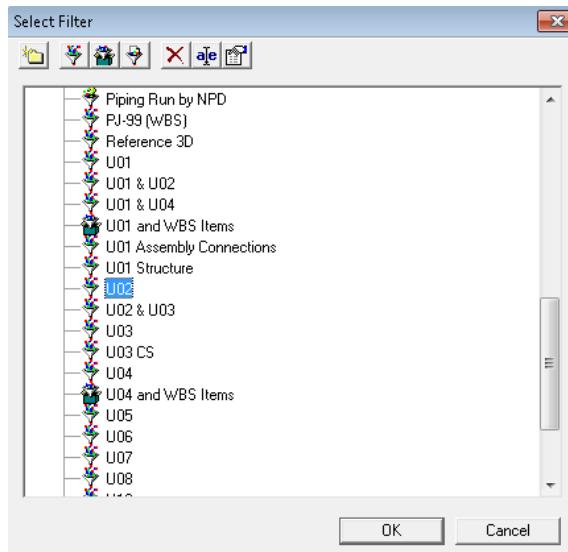
With the option of user-defined roles, you will see a new field labeled **Role**. This new option allows users to exclude objects that are not important to their task. For example, if I am a piping designer and I select the **Piping Designer (Aboveground)** role, it will exclude structural objects other than parts. If I'm a structural designer, selecting the **Structural Designer** role will exclude piping objects other than parts. By excluding these objects from the workspace, a user will see a noticeable reduction in the number of objects brought into the session and the time it takes to complete workspace definition.

Steps

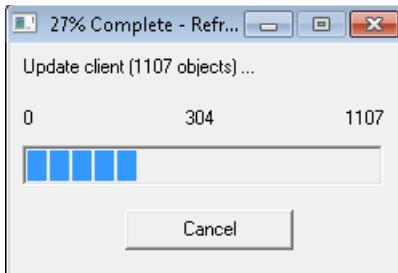
- Open a Smart 3D session.
- Click the **File** menu and select the **Define Workspace...** command. In the Model field, select **SP3DTrain**.
- In the **Filter**, select the **More...** option.



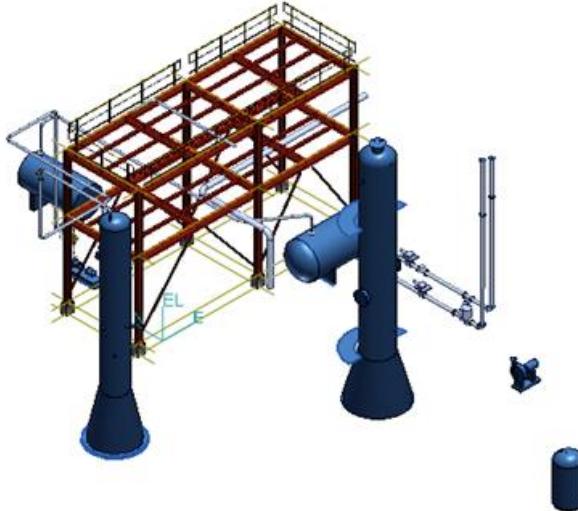
4. From the **Training Filters**, select **U02** and click **OK** on both dialog boxes to start the workspace definition.



5. This filter will add about 1100 objects to the workspace.

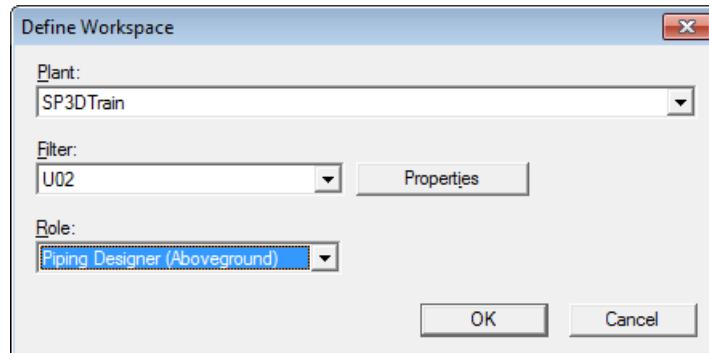


6.

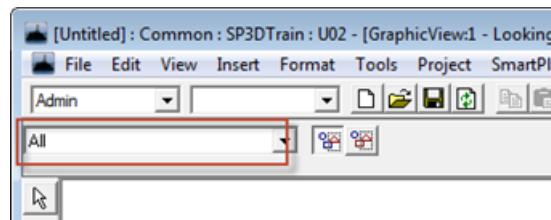


7. From a Windows Explorer window, go to **[\\server\SharedContent]\Xml** directory.
8. Locate the file name **OptimizationForRole.xml**.
9. By default, the sample file for model has been used. If you want to use the Marine sample, just rename it as **OptimizationForRole.xml**.
10. Within **Smart 3D**, go back to **File > Define Workspace...**

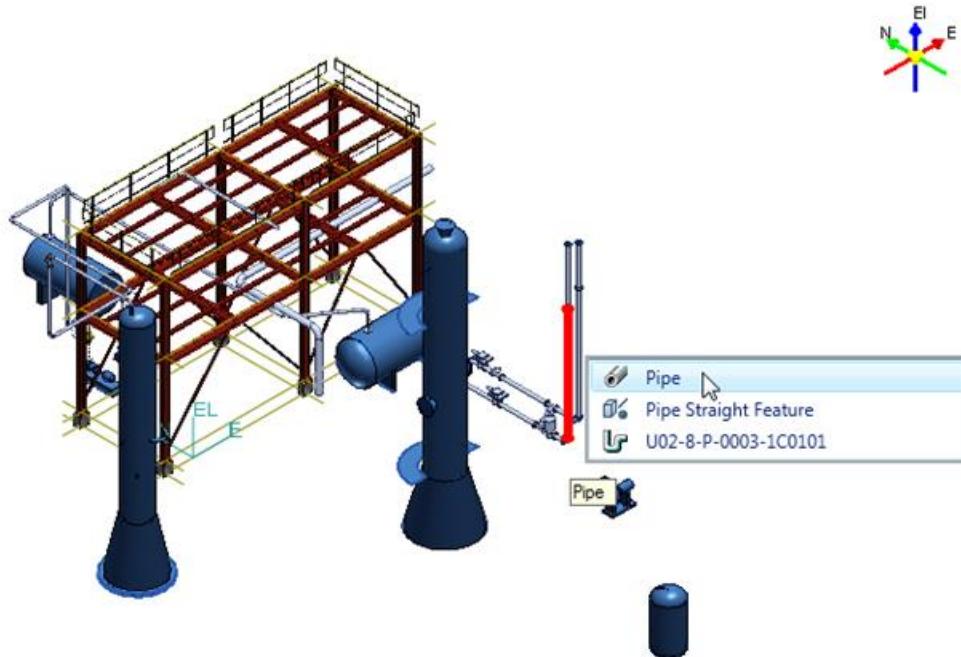
In the **Role** field, select **Piping Designer (Aboveground)** and click **OK**.



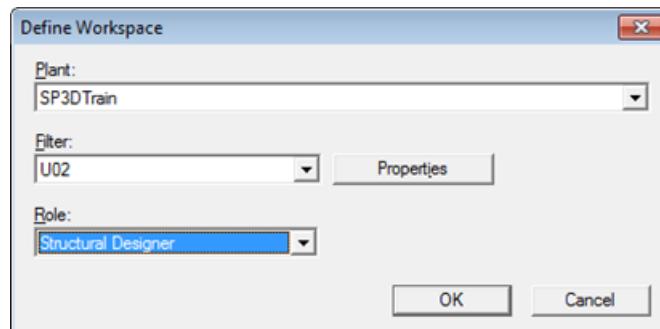
11. Set the locate Filter to **All**.



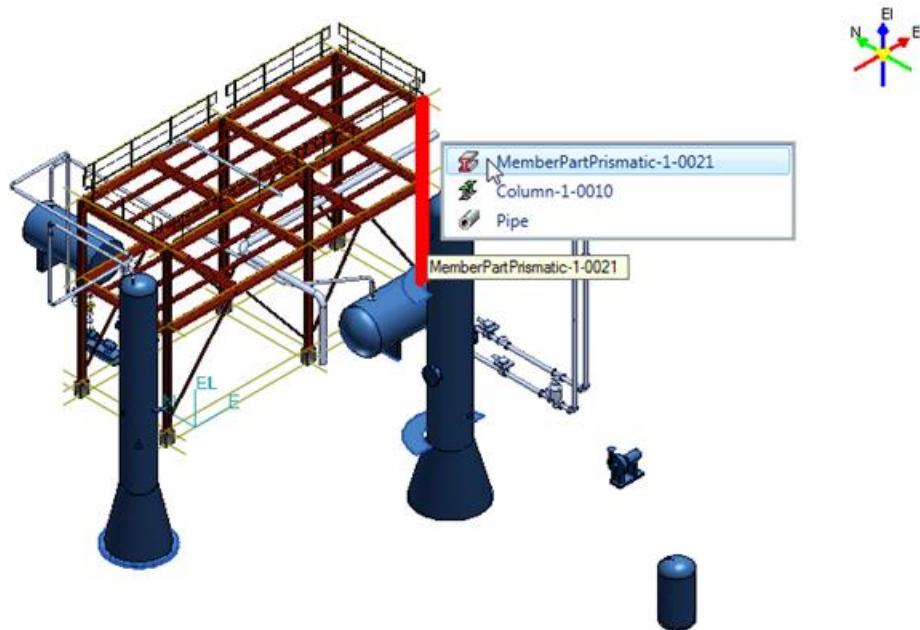
12. Hover your mouse over a piping object and wait for the quick pick to appear which appears as a question mark. Click on the object. Notice that different piping objects, such as parts, features, runs, etc are available for selection.



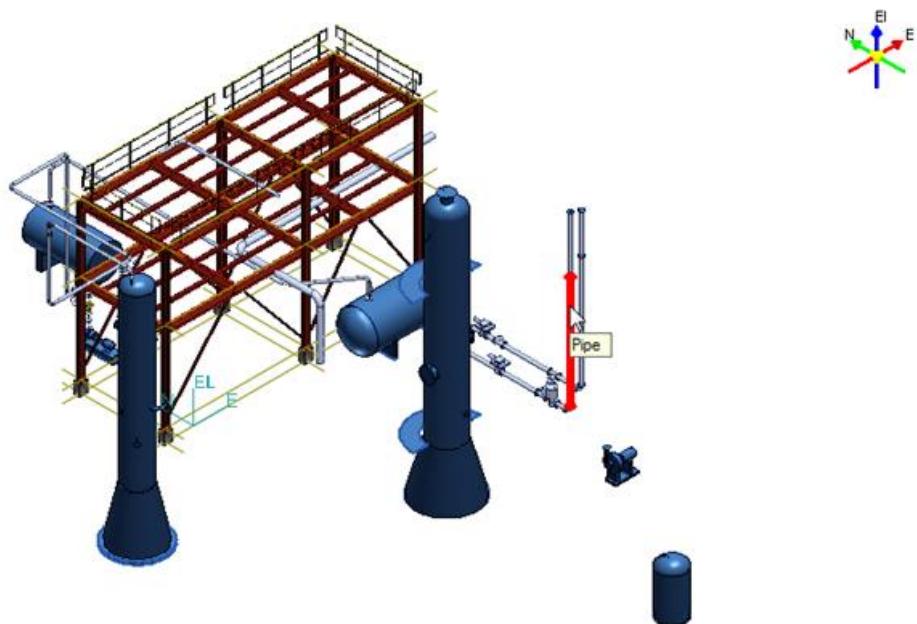
13. Go back to **File > Define Workspace...** Change role to **Structural Designer** to load the objects into the workspace. There are about 703 objects that are loaded.



14. Hover the mouse over a structural beam and notice the **Quick Pick** list for that structural object is available.



15. Select a piping feature and notice that the only object available is a piping part.



16. Exit Smart 3D.

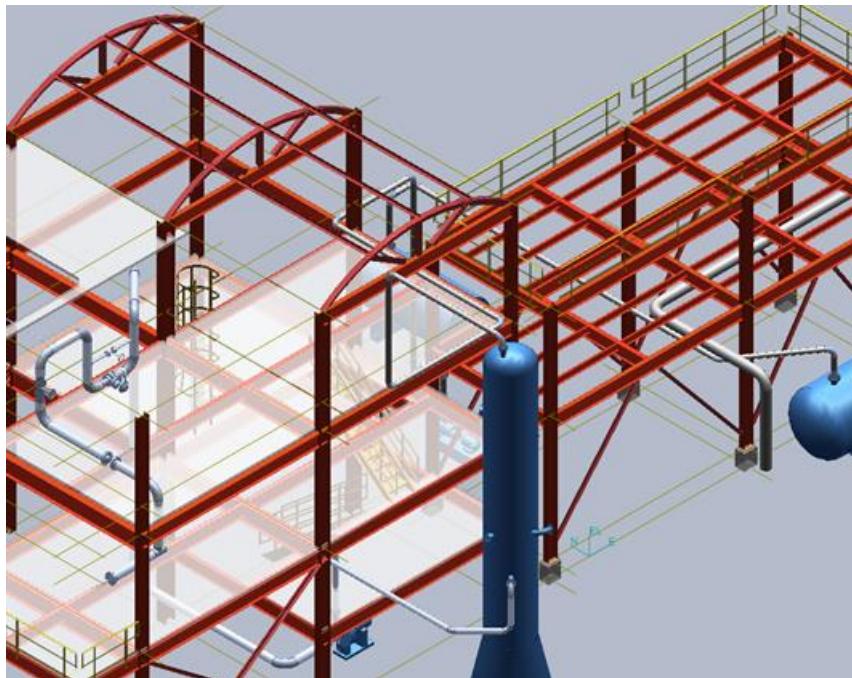
LAB 17: Set Default Color Configuration for Fluid Code

Objective:

By the end of the session you will be able to:

- Import Default Color configuration
- Set Default Color Configuration for Piping Objects based on Fluid Code
- Export Default Color Configuration

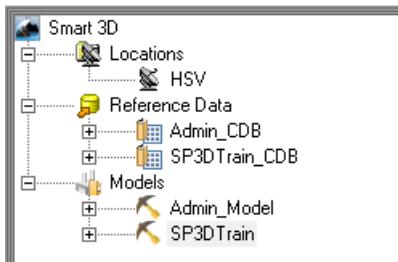
1. Open a new **Smart 3D** session and define your workspace with objects from **Plant Filters > Training Filters > U02 & U03**.
2. Check the color of Piping objects.



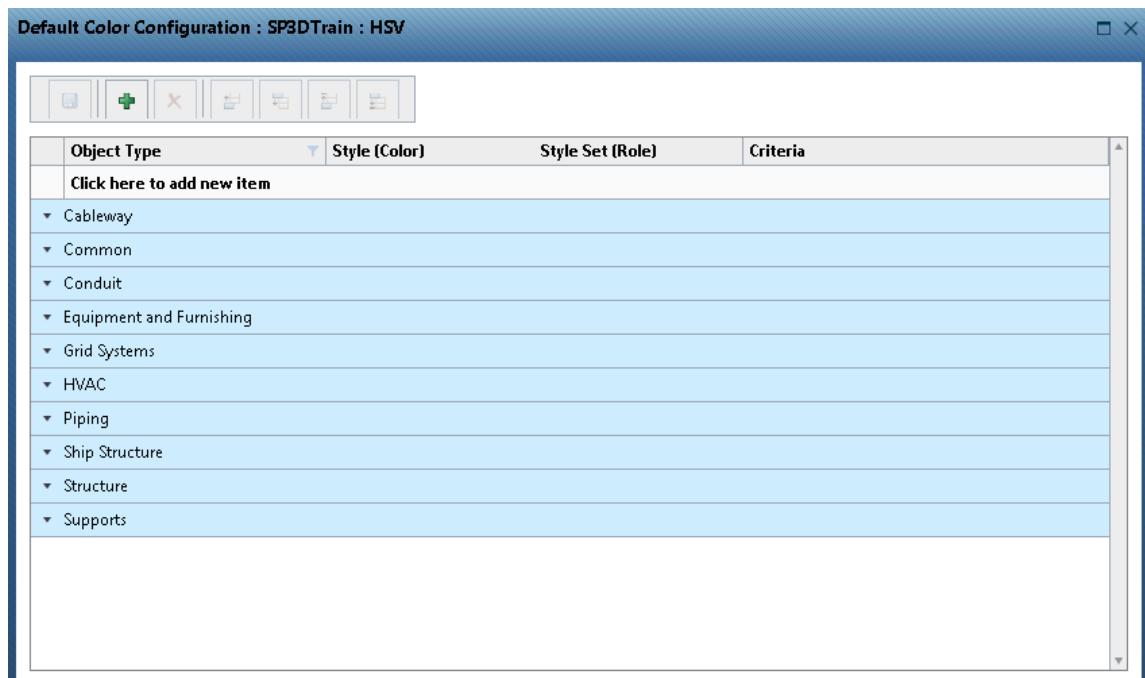
3. Open Project Management.

LAB 17: Set Default Color Configuration for Fluid Code

4. Select the root of **SP3DTrain** from Models hierarchy.



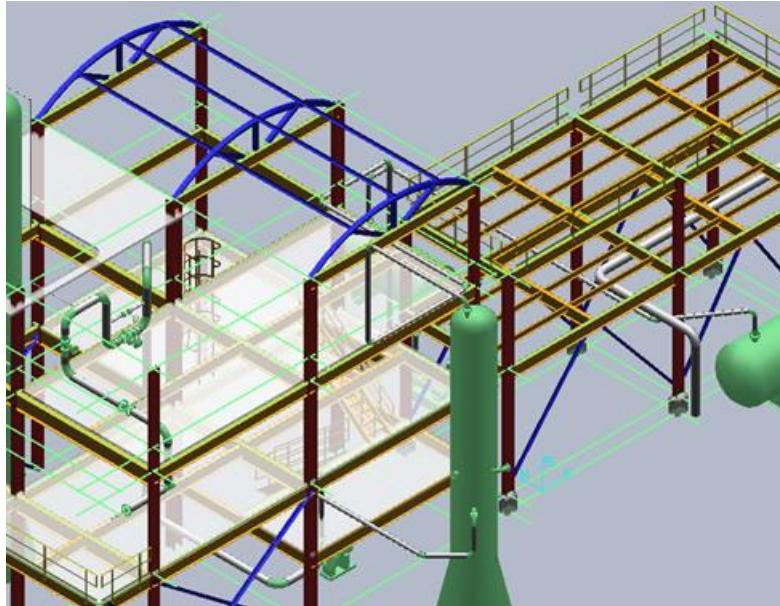
5. Go to **Tools > Project Settings > Configure Default Colors**.



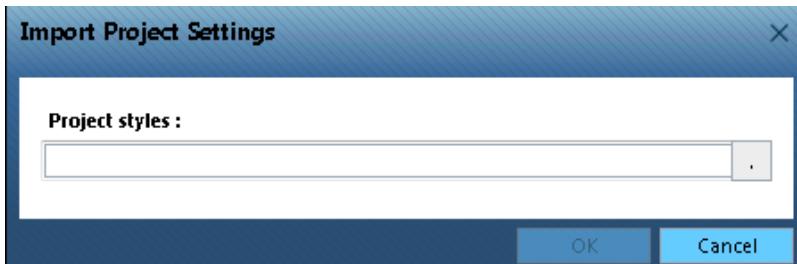
6. In **Default Color Configuration** window click on the first row and press **Ctrl+A** to select all rows.
7. Click on **Delete** command to delete all the colors used on SP3DTrain model.
8. Click on the **Save** command to save the changes done on the model and close the window.



9. Open a new **Smart 3D** session and define your workspace with objects from **Plant Filters > Training Filters > U02 & U03**.
10. Check the color represented by all objects.



11. Open **Project Management** if not already opened.
12. Select **SP3DTrain** model and go to **Tools > Project Settings > Import...**

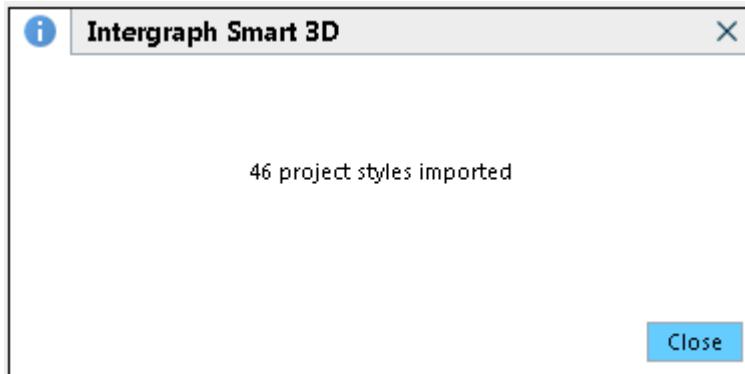


13. Select **DefaultSymbologyRules.xml** file from \\ServerName\\SharedContent\\Xml using Browse on **Import Project Settings** dialog and click **OK**.

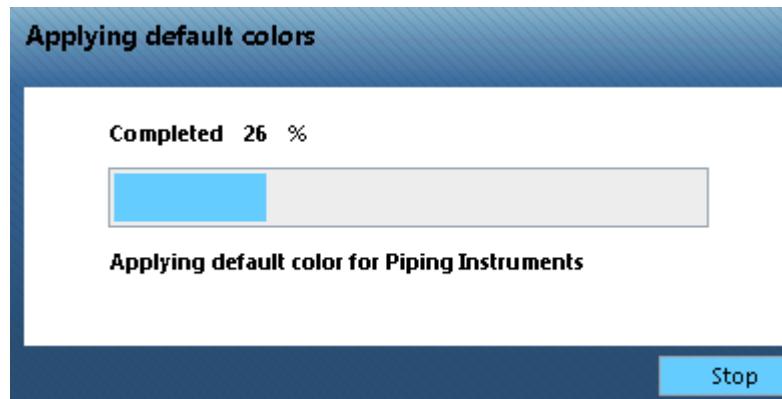
Note: The command is expecting the text and XML file to be present at the same path. Review imported rules under the Configure Default Colors section. Default Colors XML

LAB 17: Set Default Color Configuration for Fluid Code

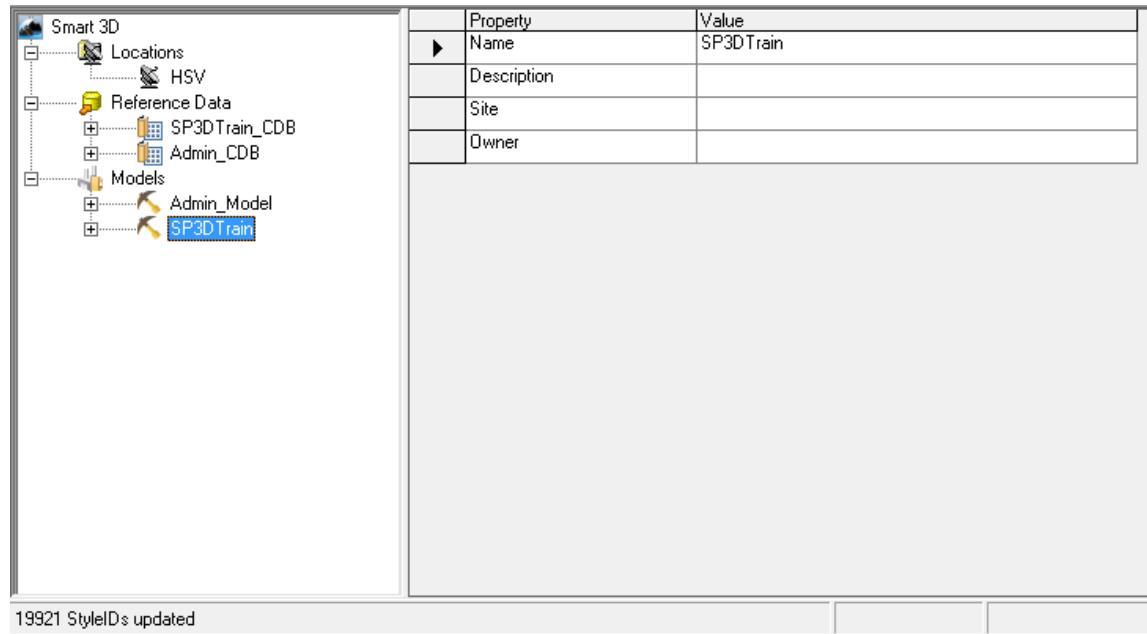
and TXT files are delivered in the SharedContent folder.
(\\ServerName\\SharedContent\\Xml\\DefaultSymbologyRules.XML)



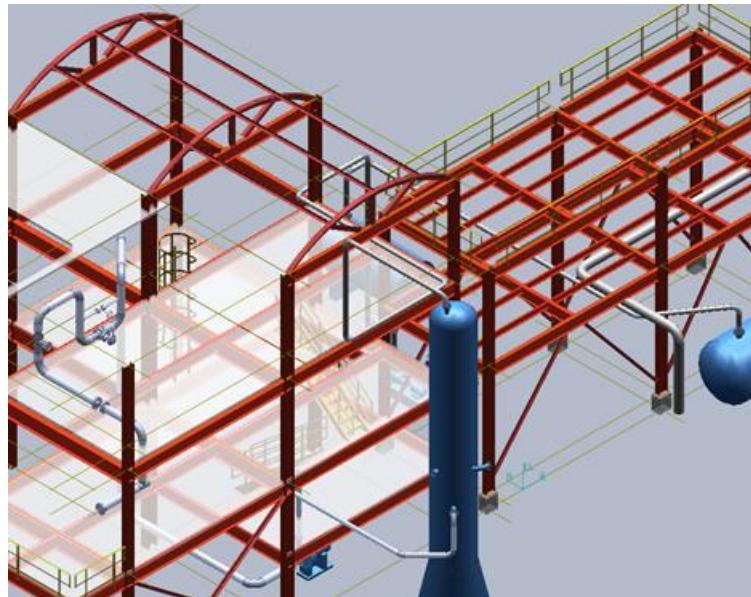
14. Select SP3DTrain model root and go to **Tools > Project Settings > Apply Default Colors**.



15. **Project Management** shows confirmation at the bottom as show below:

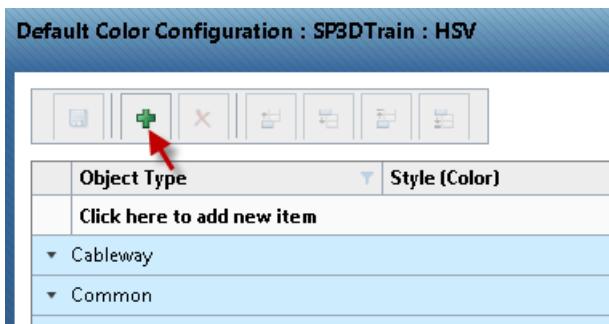


16. Open a new **Smart 3D** session and define your workspace with objects from **Plant Filters > Training Filters > U02 & U03**. Check the color changes on objects after Import.

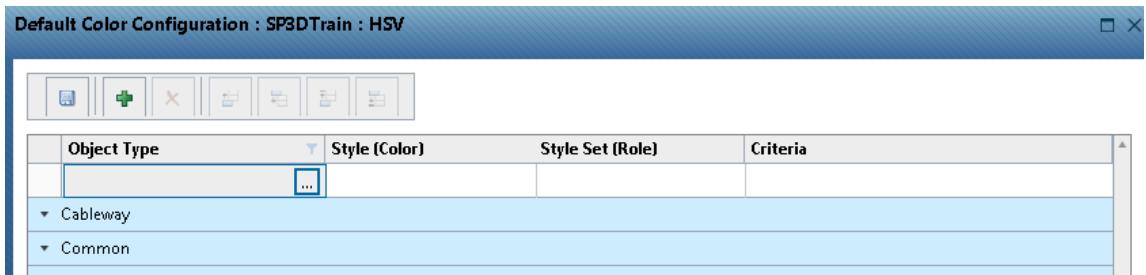


Set Default Color for Fluid Code:

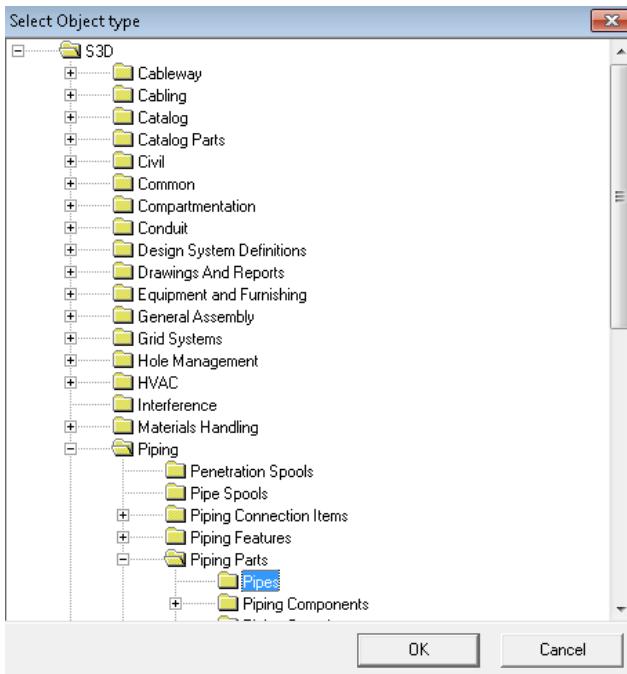
- In the **Default Color Configuration** window found in Project Management, click on the **Insert Row** command to add a new rule.



- Click the **Object Type** field to obtain access to the object type hierarchy.



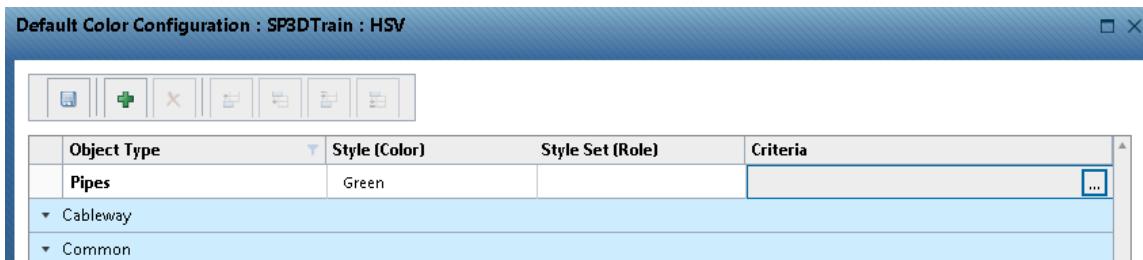
- Select **Piping > Piping Parts > Pipes** as object type.



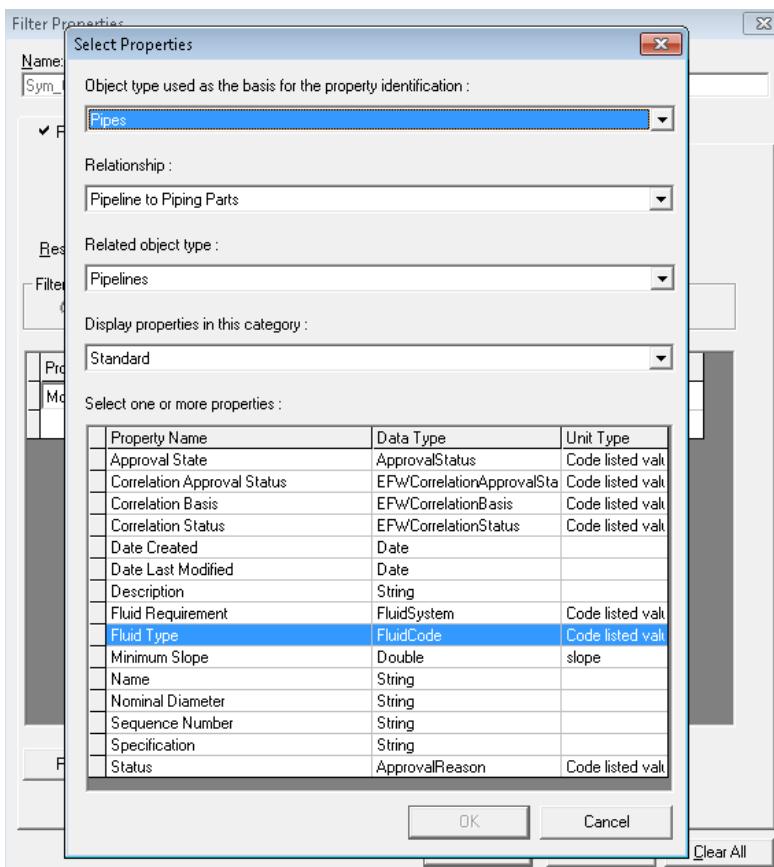
- Select **Green** color using Drop down list under **Style (Color)**.

LAB 17: Set Default Color Configuration for Fluid Code

5. Click on the **Criteria** field. Criteria allows the user to define a filter to select certain objects. In this case we will use the 'Fluid Code' as the criteria. In the next few steps you will create a filter based on the Fluid Code.

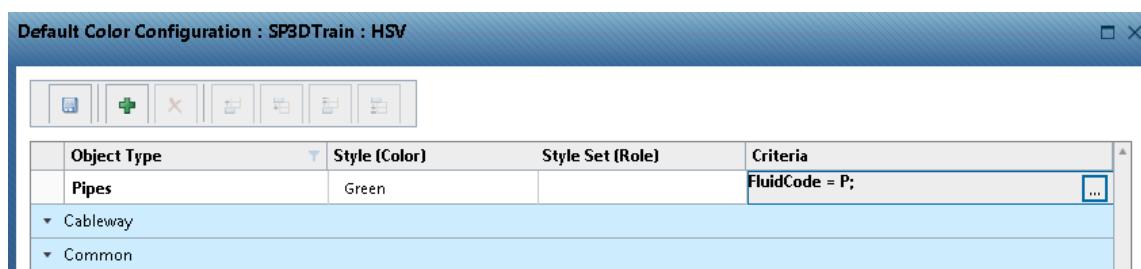
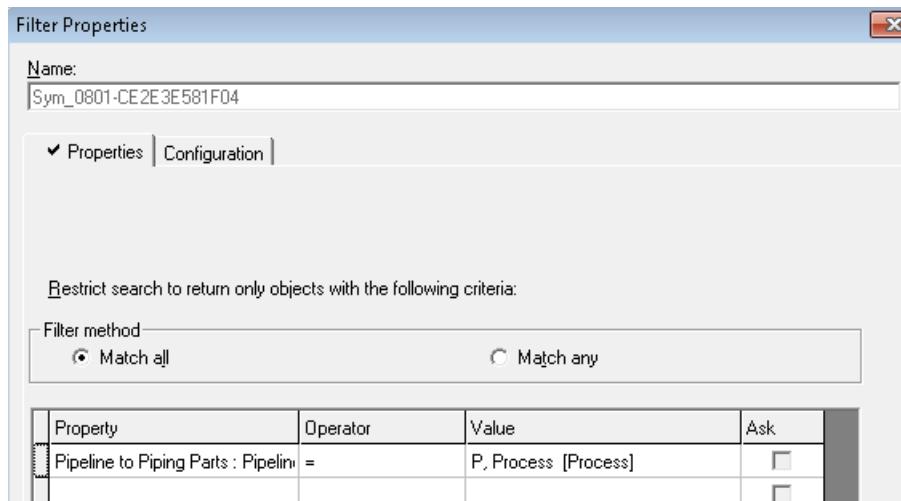


6. Use the following criteria as guidance to define the property filter:
- Object Type used as the basis for property identification = **Piping > Piping Parts > Pipes**
 - Relationship = **Pipeline to Piping parts**
 - Related object type = **Systems > Pipelines**
 - Display properties in this category = **Standard**
 - Fluid Type

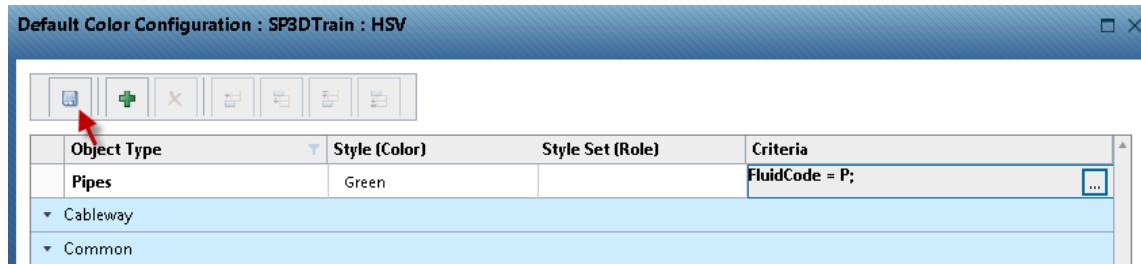


LAB 17: Set Default Color Configuration for Fluid Code

7. Click **OK**, select the **=** operator and **P, Process** as the value, click **OK**.



8. Save the changes in the Default Color Configuration window.



9. To see the new rule added in the proper section re-open **Default Color Configuration** window selecting **Tools > Project Settings > Configure Default Colors** on the root level of the **SP3DTrain** model.

10. Expand the Piping section and observe that there are two rules for Pipes.

+ Piping Specialty Items	CLR_Piping_Components	Default	
+ Pipes	CLR_Pipes	Default	
+ Piping Welds	CLR_Piping_Welds	Default	
+ Piping Clamps	CLR_Piping_Components	Default	
+ Piping Generic	CLR_Piping_Generics	Default	
+ Pipes	Green	Default	FluidCode = P;

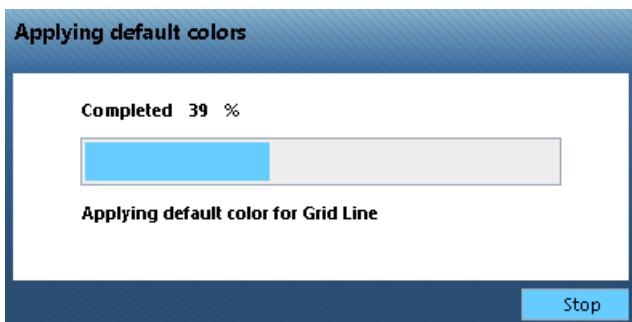
11. Highlight the new rule created for **FluidCode=P**.

LAB 17: Set Default Color Configuration for Fluid Code

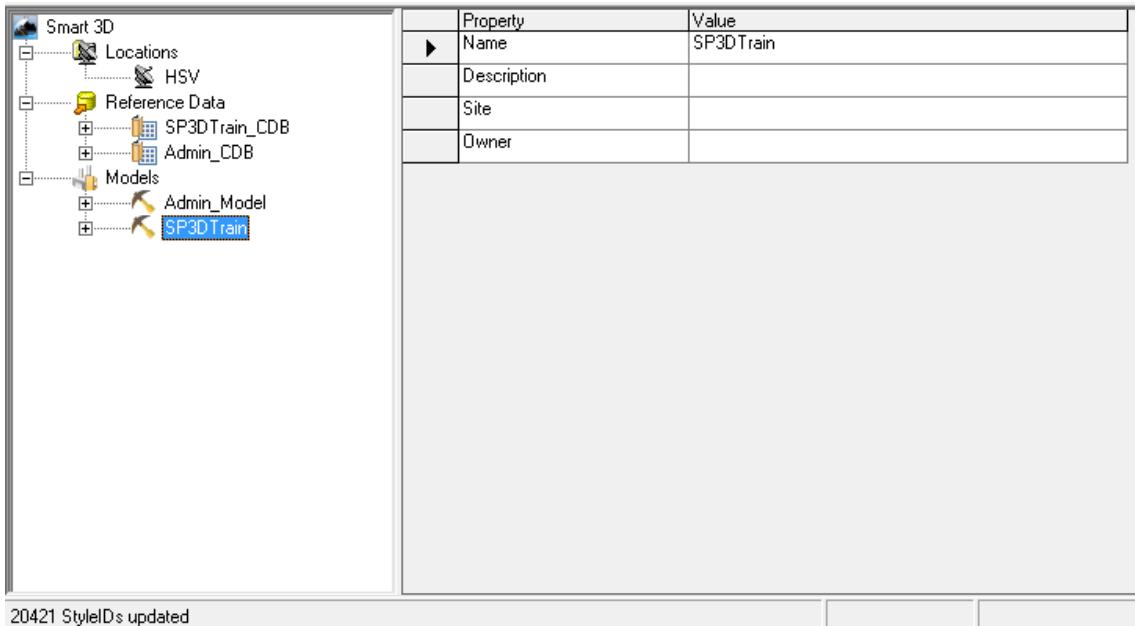
12. Click on the **Move up** command until the new rule moves one row above the Default Pipes rule and click on the **Save** command to save changes.

+ Piping Instruments	CLR_Piping_Instruments	Default	
+ Piping Specialty Items	CLR_Piping_Components	Default	
+ Pipes	Green	Default	FluidCode = P;
+ Pipes	CLR_Pipes	Default	
+ Piping Welds	CLR_Piping_Welds	Default	
+ Piping Clamps	CLR_Piping_Components	Default	
+ Piping Generic	CLR_Piping_Generics	Default	

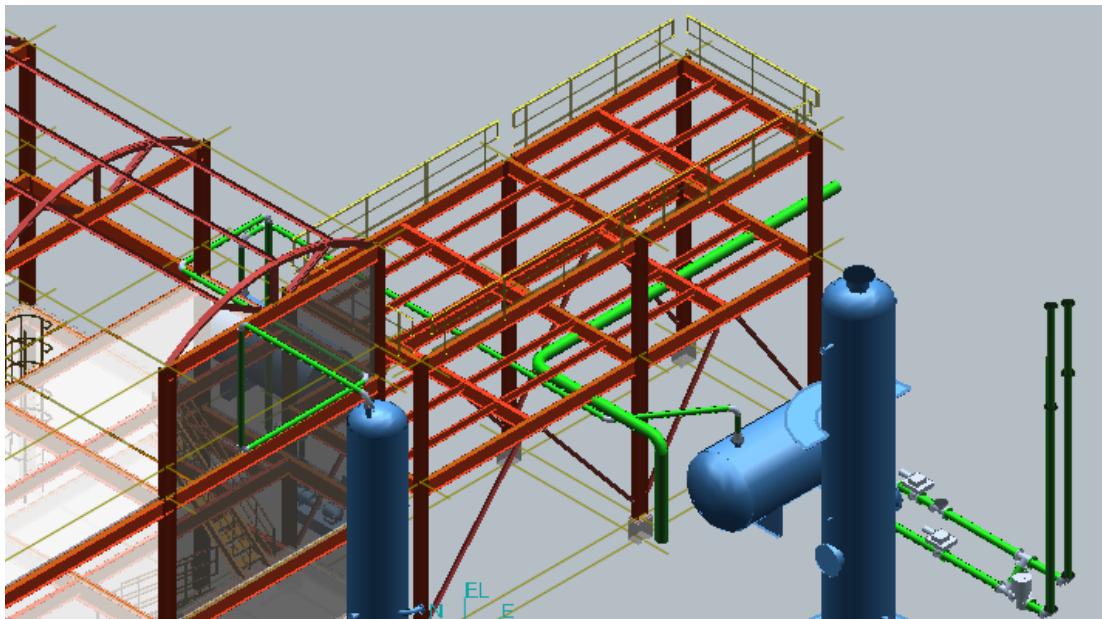
13. Select SP3DTrain model root and go to **Tools > Project Settings > Apply Default Colors**.



14. **Project Management** shows confirmation at the bottom as shown below:

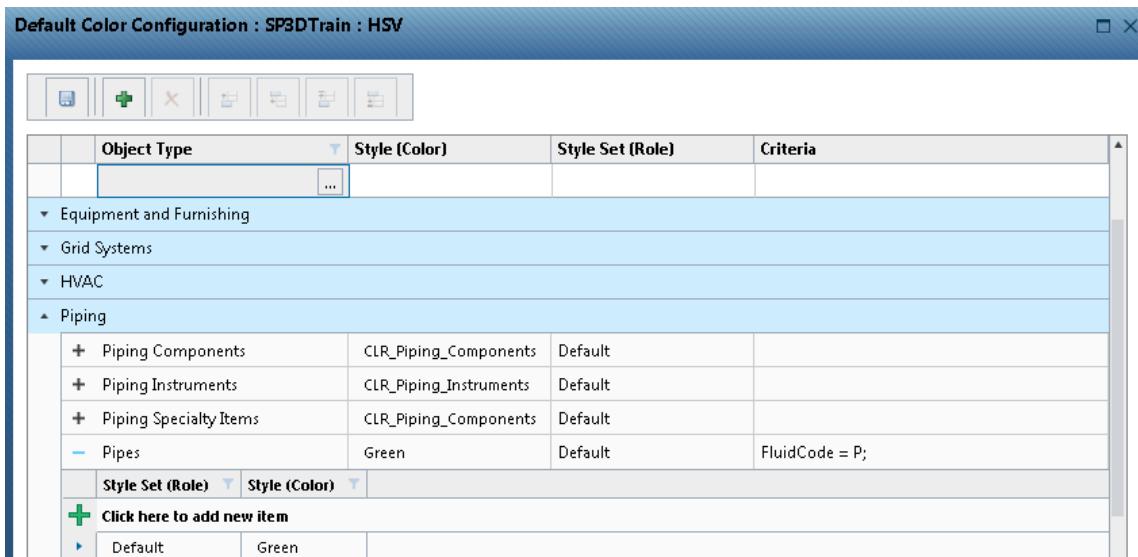


15. Open a new **Smart 3D** session and define your workspace with objects from **Plant Filters > Training Filters > U02 & U03**. Check the color they are represented with.



Set Default Color based on specific Role:

1. Open Project Management, if not already open.
2. Go to **Tools > Project Settings > Configure Default Colors**.
3. Expand the **Piping** discipline and expand the **Pipes** rule created in earlier section.



4. Select the option **Click here to add new item**.

LAB 17: Set Default Color Configuration for Fluid Code

5. From the dropdown list, choose **Piping** and color **Yellow**.

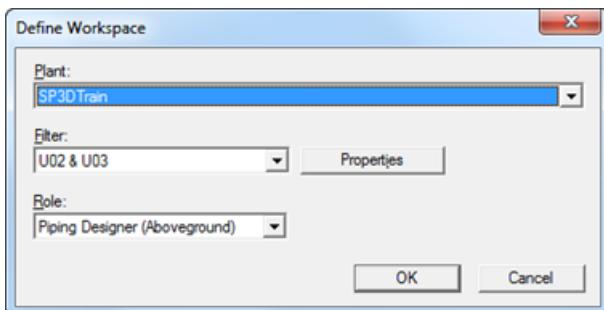
Pipes		Green	Default	FluidCode = P;
Style Set (Role)	Style (Color)			
Piping	Yellow			
Default	Green			

6. Click on the next field or hit the **Enter** key to finish creating the role assignment.

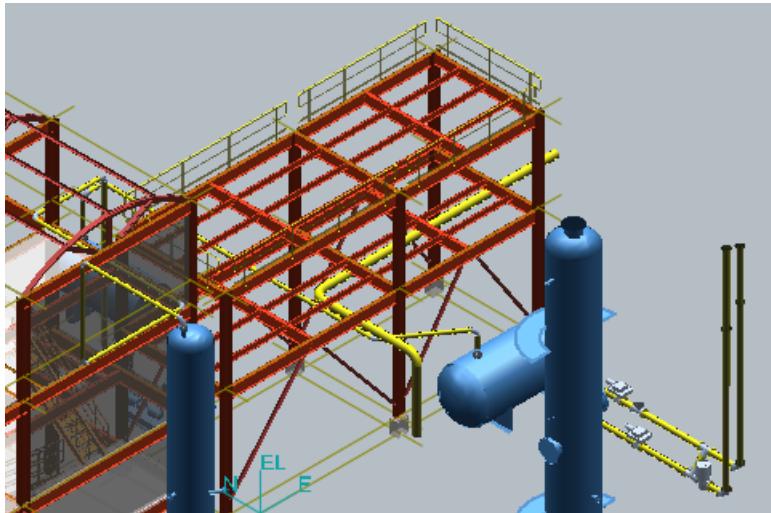
Pipes		Green	Default	FluidCode = P;
Style Set (Role)	Style (Color)			
+ Click here to add new item				
Default	Green			
Piping	Yellow			

7. Click on **Save** command to save the changes.

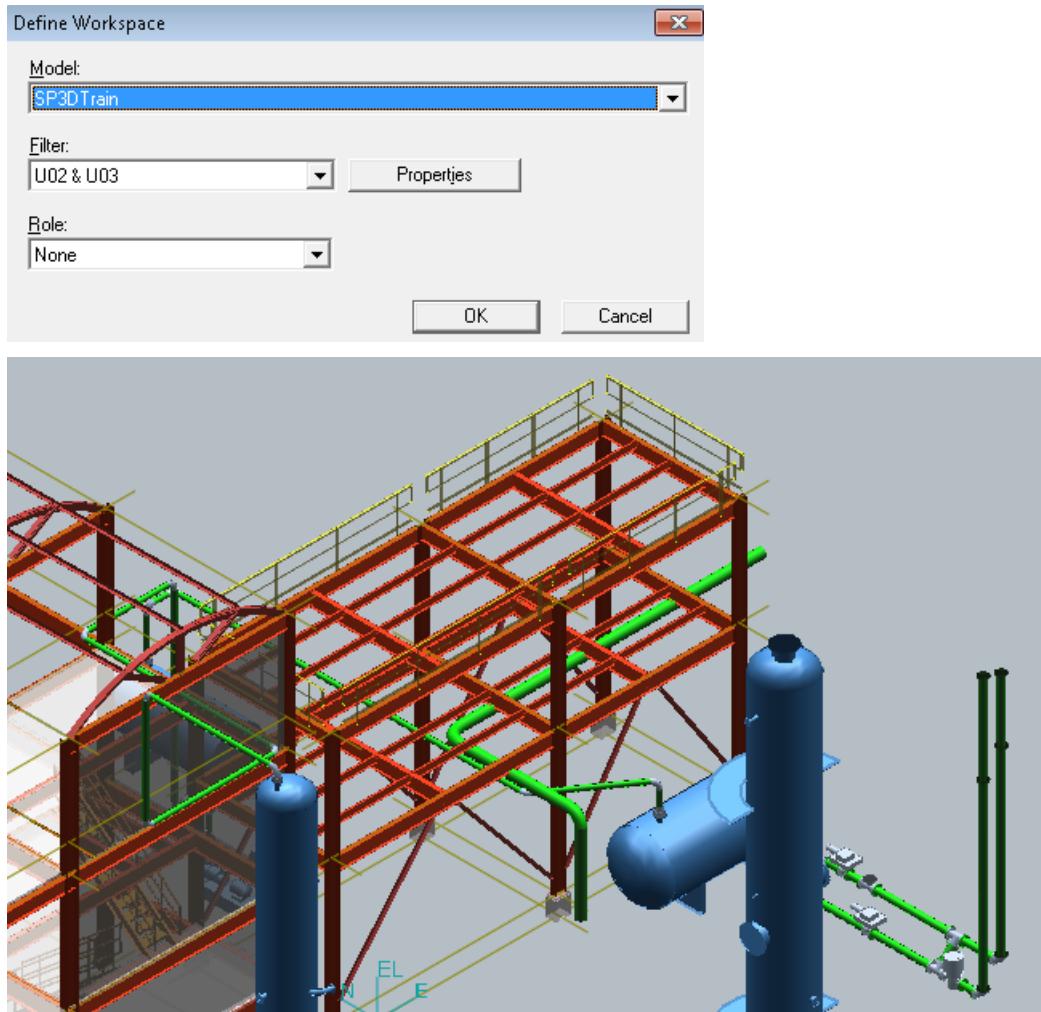
8. Open a new session, use the filter from **Plant Filters > Training Filters > U02 & U03** and role as **Piping Designer (Aboveground)**.



9. Check the color of Piping parts with Process.

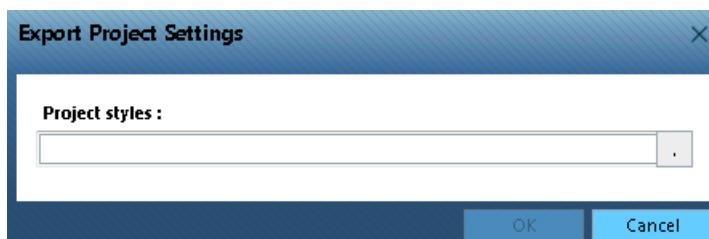


10. Open a new session, use the filter from **Training Filters > U02 & U03** and role as **None**.



Export Default Color Settings:

1. Open Project Management.
2. Select **SP3DTrain** model.
3. Go to **Tools > Project Settings > Export**.
4. Provide a path and name for the output of the files, then click **OK**.



LAB 17: Set Default Color Configuration for Fluid Code

5. The generated files are comprised of a text and an XML file. Both files are required during the import operation.

 SP3D_DefaultColor.txt
 SP3D_DefaultColor.xml

Note: The software expects the files to be in the same folder during the **Import Project Settings** operation.

LAB 18: Prepare the session for Model Data Reuse command

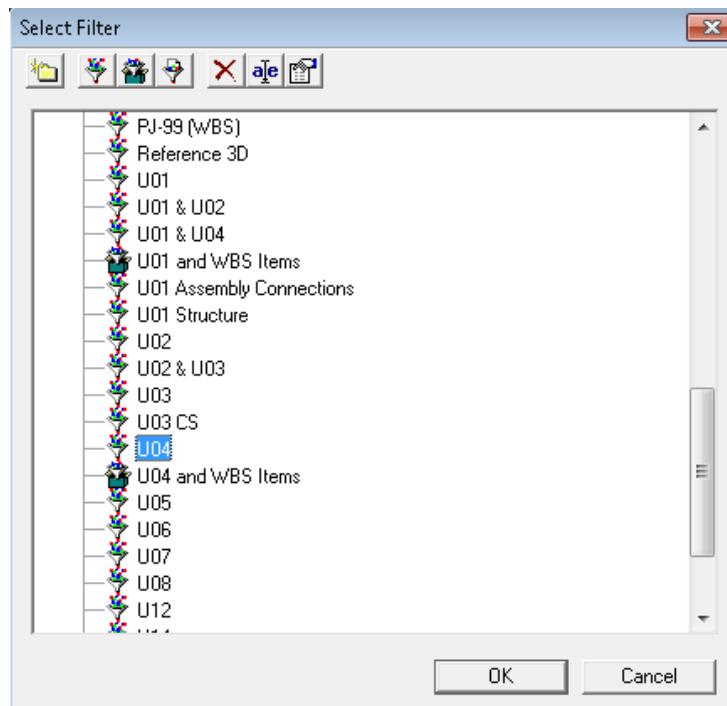
Objectives

After completing this lab, you will be able to:

- Create session files and prepare the environment with system nodes that will be used with Model Data Reuse command

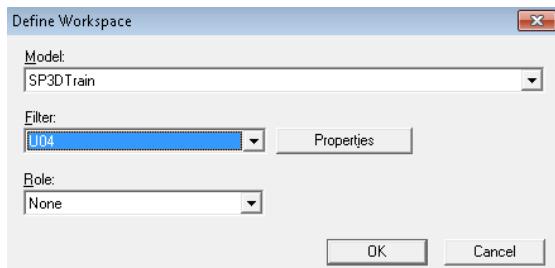
Create Session Files for Admin_Model and SP3DTrain

1. Open **Smart 3D** if not already open.
2. Select **English** or **Metric** units template in the “Plant” tab.
3. **Define a Workspace** on model **SP3DTrain**. Under **Plant Filters** node, expand the folder “Training Filters” and use **U04** filter.

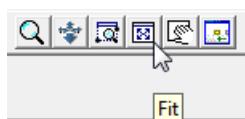


LAB 18: Prepare the session for Model Data Reuse command

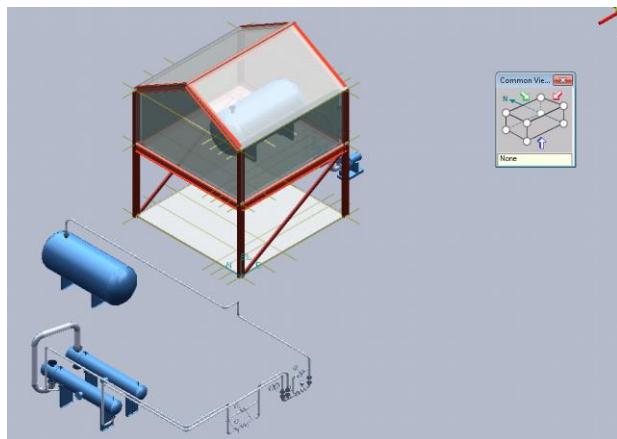
4. Click **OK** to define workspace.



5. Use the **Fit** command to bring all objects into the view. This will be the data copied with MDR.

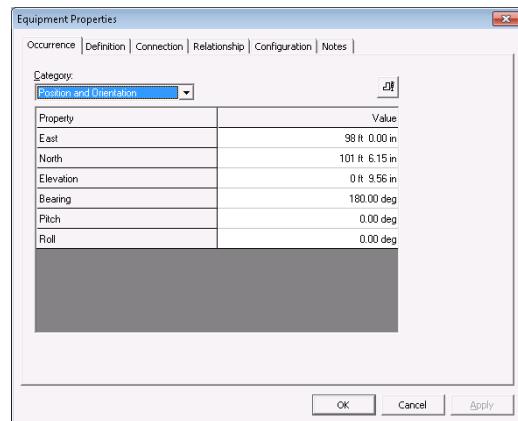


6. Select the Common Views  command from the ribbon bar (top right) to see the unit in Isometric view.



LAB 18: Prepare the session for Model Data Reuse command

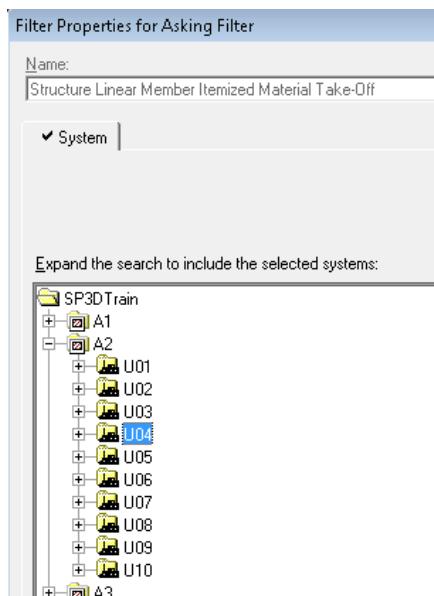
7. Select **Isometric view** (select dot w/mouse) and re-fit the view.
8. Graphically or from the Workspace Explorer, select Equipment **40V-101**.
9. Open its Properties Page .
10. Change the category from “Standard” to “Position and Orientation”. Note the original values as reference for the copy.



11. Click Cancel.
12. Go to **Tools > Run Report** and select the “Catalog Reports” tab.
13. Run the following reports from the Structure and Piping folders in **Reports >Types of Reports:**

Structure Linear Member Itemized Material Take-off (found under **Reports >Types of Reports>Structure**):

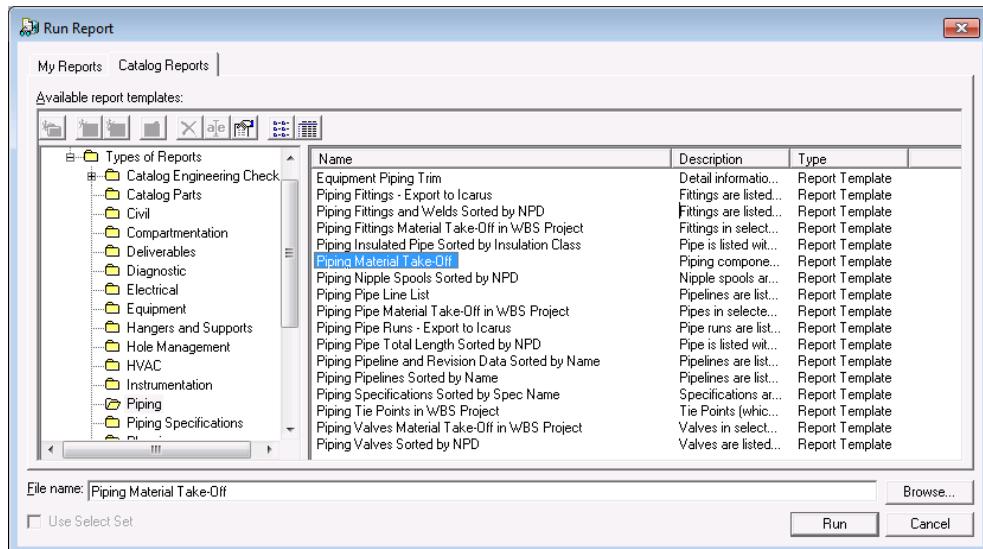
- i. In the Filter Properties for Asking Filter select unit **A2 >U04** and click **OK**.



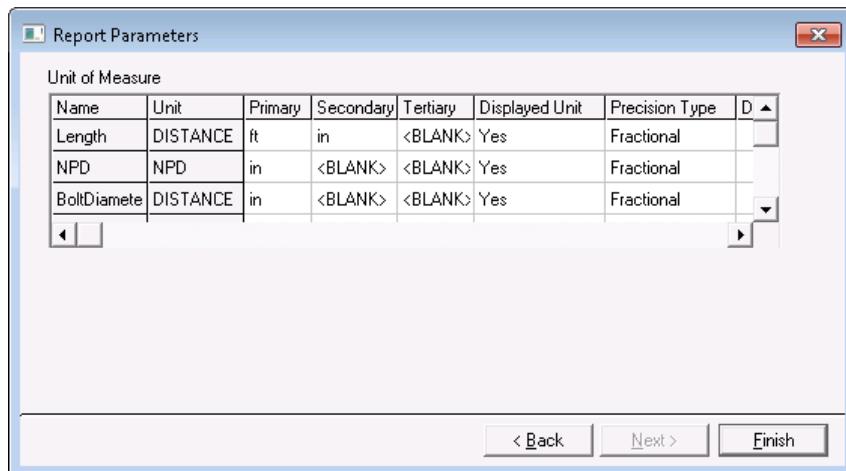
- ii. Click **Finish**

LAB 18: Prepare the session for Model Data Reuse command

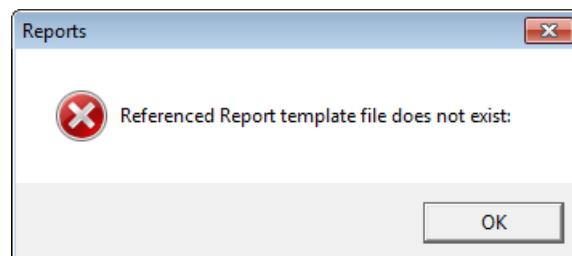
Piping Material Take-Off (found under Reports >Types of Reports>Piping)



- iii. Select the same unit, U04
- iv. Do not specify a Baseline Report. Click Next.
- v. Leave the Default Report Parameters. Click Finish.



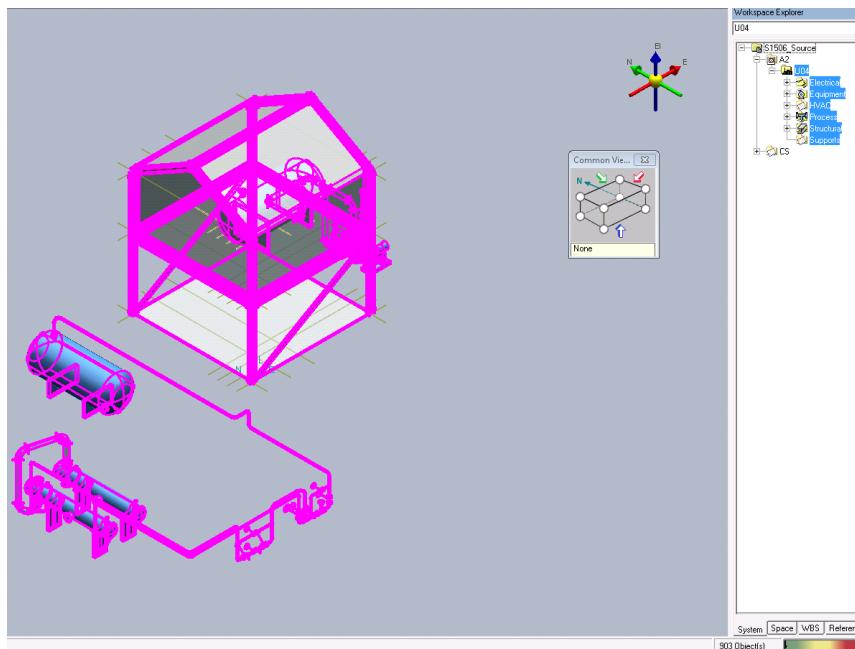
Note: You may see the following dialog box if the security settings for Visual Basic projects have not been set in Excel (they are not by default).



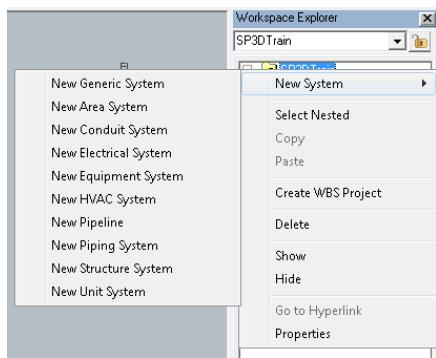
LAB 18: Prepare the session for Model Data Reuse command

Follow these instructions to set Excel security settings for **Office 2010**.

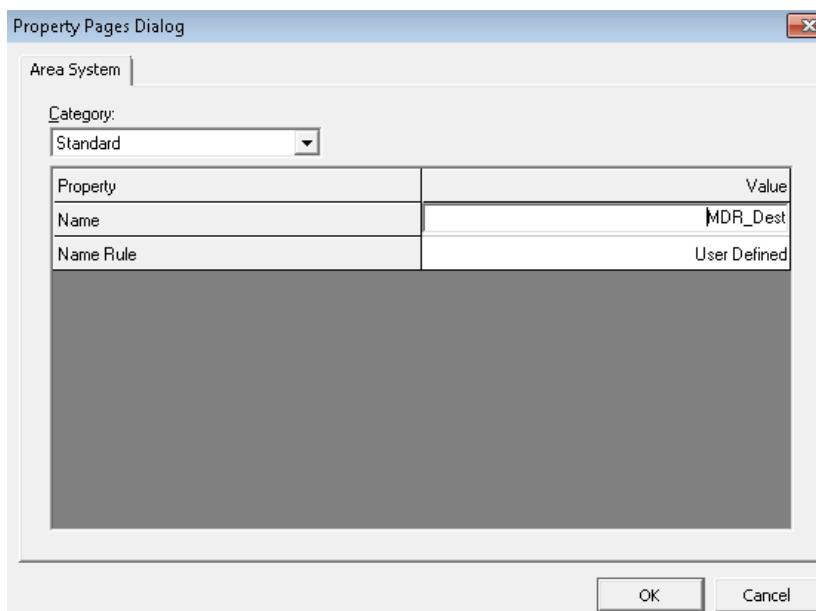
- Open Excel
 - Click the **Office button** at the top left margin of the window.
 - Select **Excel Options** from the bottom.
 - Choose **TrustCenter** from the left menu, then **TrustCenter Settings...**
 - Go to **Macro Settings** on the left, then check radio button **Enable all macros...**
 - Check Trust access to the VBA project object model checkbox.
 - Click **OK** on the two forms to dismiss and close Excel.
14. Review the reports.
15. On the Desktop, create folder **MDR** and save the reports as “Structure_PreMDR” and “Piping_PreMDR”. Close the reports.
16. With the Locate Filter set to “All”, select the unit system **U04** from the Workspace Explorer.
17. Right click on this system and select “Select Nested”. Note the object count of the highlighted objects.



18. Right click to deselect the unit.
19. In the Workspace Explorer, select and right-click on the model node **SP3DTTrain**.
20. Select **New System > New Area System**.

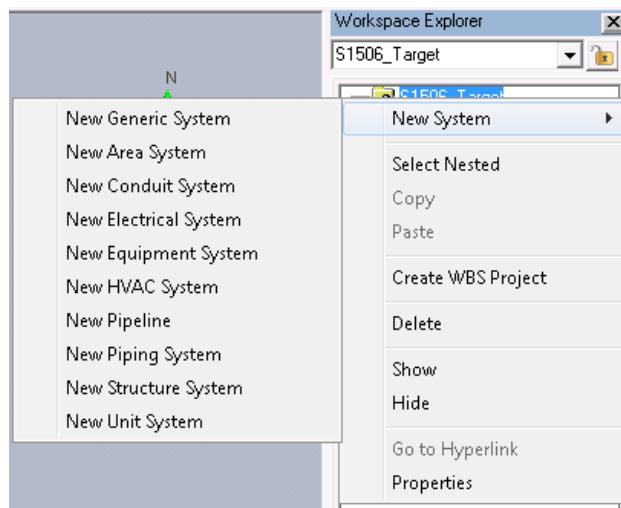


21. Name the new system **MDR_Dest**.

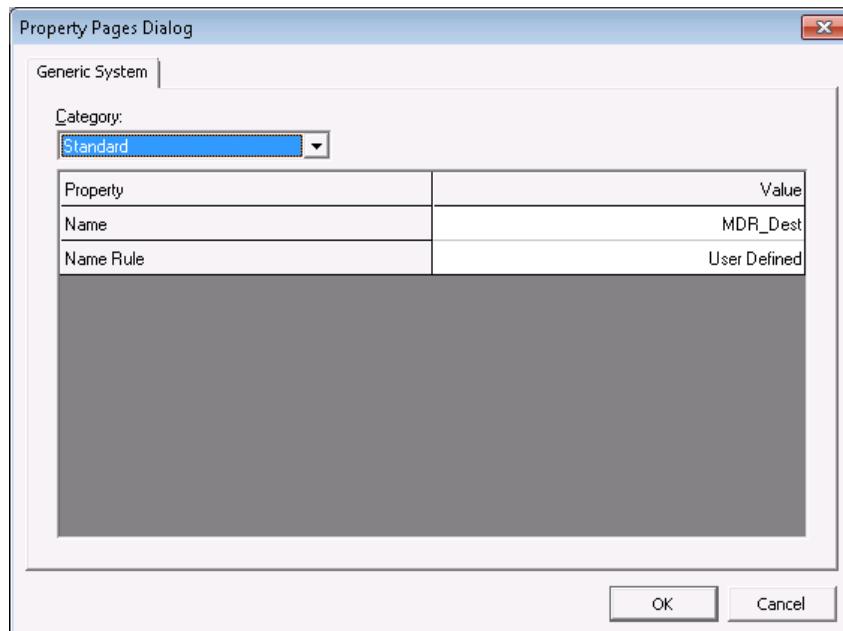


22. Click **OK**.
23. Select **File > Save** to save the Smart 3D session as **MDR_Copy** in the **Desktop > MDR** folder.
24. Go to **File > New**. Select **No** if asked to save the previous session file.
25. Select the **English Units** template in the "Plant" tab.
26. Select **File > Define Workspace...**
27. Set the model selection to **Admin_Model**.
28. In the Filter dropdown, select **More...**
29. Under Plant Filters folder, select **All** filter.
30. Click **OK**. Click **OK**.
31. In the Workspace Explorer, right-click on the model node "Admin_Model".
32. Select **New System > New Generic System**.

LAB 18: Prepare the session for Model Data Reuse command



33. Enter the name "MDR_Dest". Click OK.



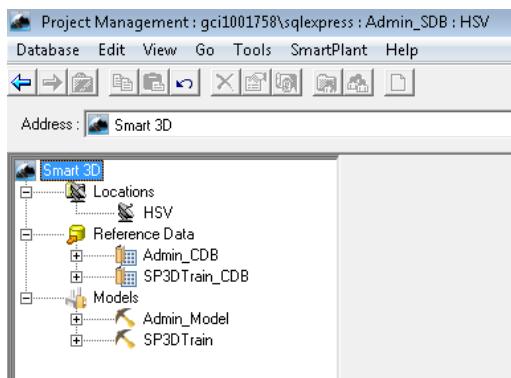
34. Save the session as **MDR_Admin** in the **Desktop > MDR** folder.
35. Close Smart 3D.

LAB 19: Model Data Reuse – Copy in Existing Model

Objective

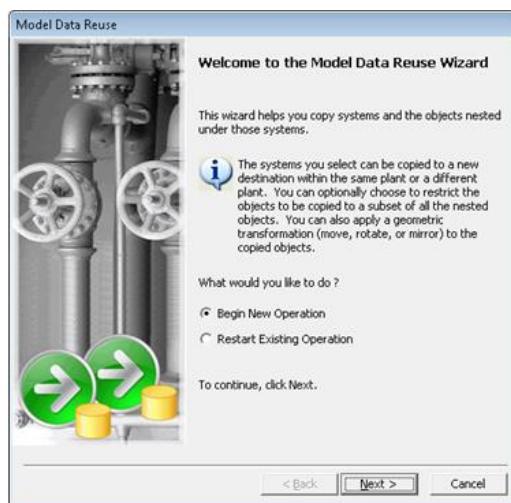
After completing this lab, you will be able to:

- Use Model Data Reuse command from Project Management to copy objects by using the predefined filter within the model.
 - Map permissions between the original and copied objects in the model.
1. Open **Project Management** if not already open.

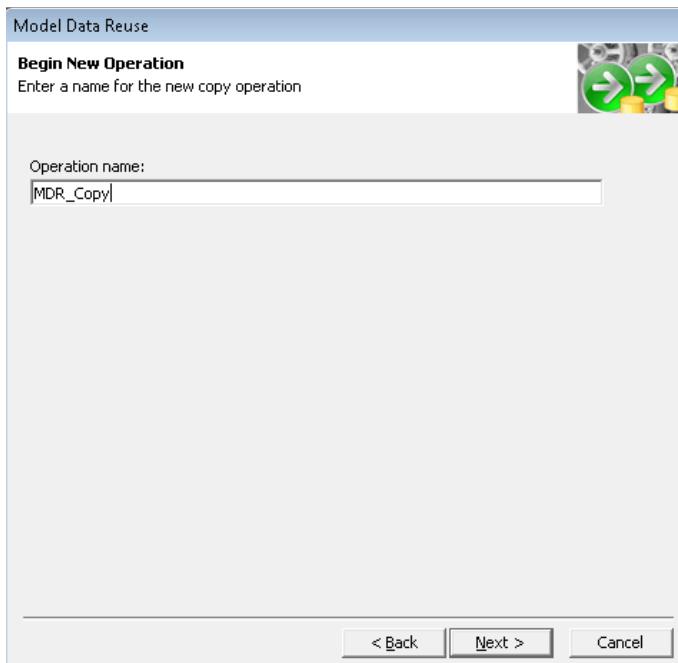


NOTE There are two models in the Site. SP3DTTrain contains the model objects that will be used for this practice. Admin_Model is an empty model that will be used to copy objects across models.

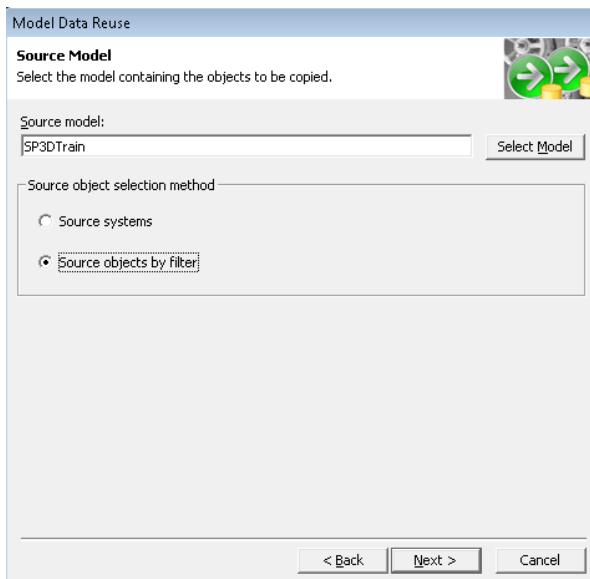
2. Start **Model Data Reuse** command from menu **Tools > Model Data Reuse...**.
3. Select Begin New Operation and click **Next**.



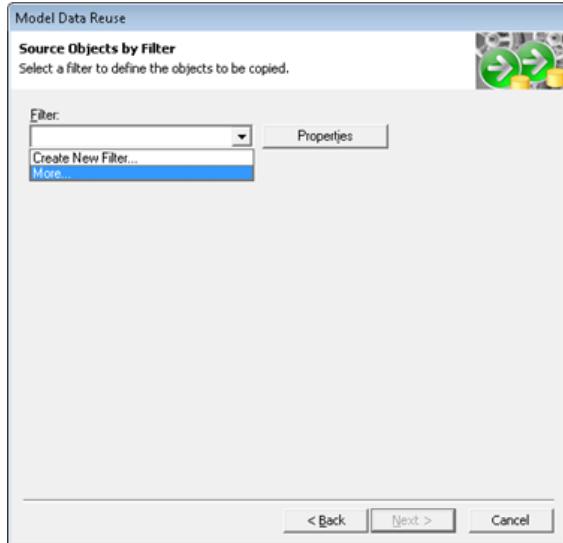
4. Name the operation **MDR_Copy** and click **Next**.



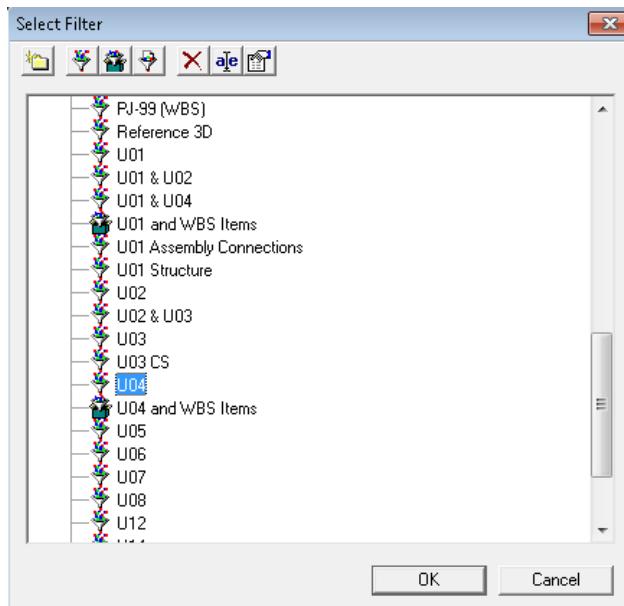
5. In the **Source Model** window, click **Select Model**, and choose **SP3DTrain**. This will be the source, or 'from' model. Set the "Source object selection method" to **Source objects by filter**. Click **Next**.



6. In the Source Objects by Filter page, expand the drop down list, and select **More**.

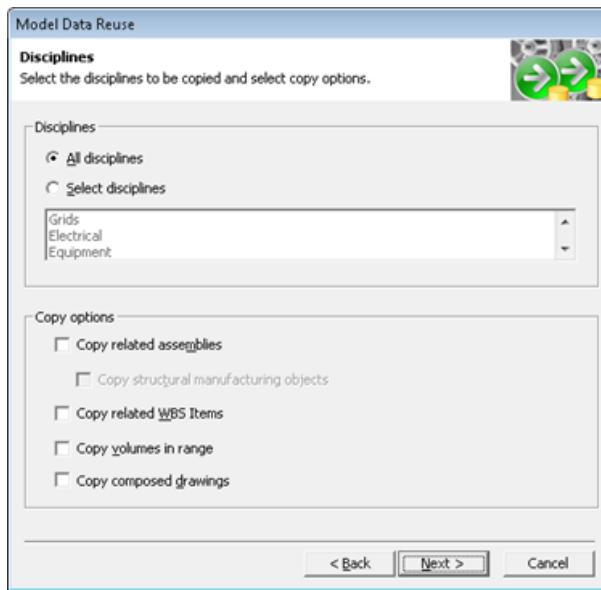


7. Select **U04** filter from **Training Filters** node.



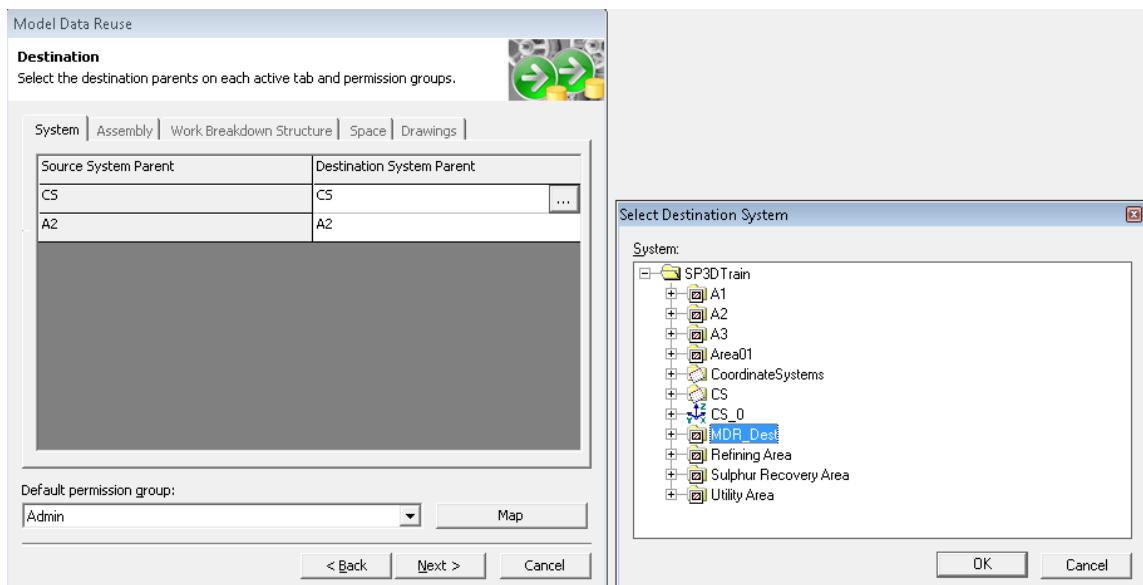
8. Click **OK**, then **Next**.

9. On the Disciplines page, you may select either all disciplines or select disciplines for object data to be copied as required. Toggle the radio button from **All disciplines** to **Select disciplines**, reselect **All disciplines** radio button. Click **Next**.

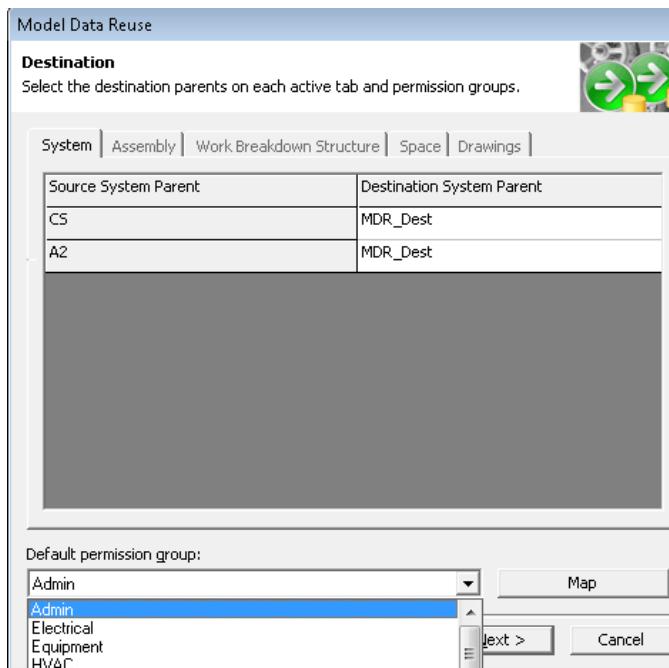


10. Next page displays the destination or 'to' model and system(s) where the objects will be copied under. If chosen filter in previous step contains a common grandparent system, then mapping has to be done for one or few systems only in contrast to the mapping that has to be done for several objects that do not belong to a common parent system. Sub-nodes of source system(s) will be automatically created under new mapped system. Make sure destination model is set as **SP3DTrain** then click **Next**.

11. Click the **browse** button in **Destination System Parent** field from source system **CS** to assign a new destination system. On Select Destination System form, select **MDR_Dest** system and click **OK**.



12. Repeat procedure to map **MDR_Dest** to source system **A2**.
13. Back on the **Destination** systems page, expand **Default Permission Group** drop down list. The system performs a check and only allows the user to assign copied items to an existing Permission Group where privileges are sufficient. Maintain Admin group selection.

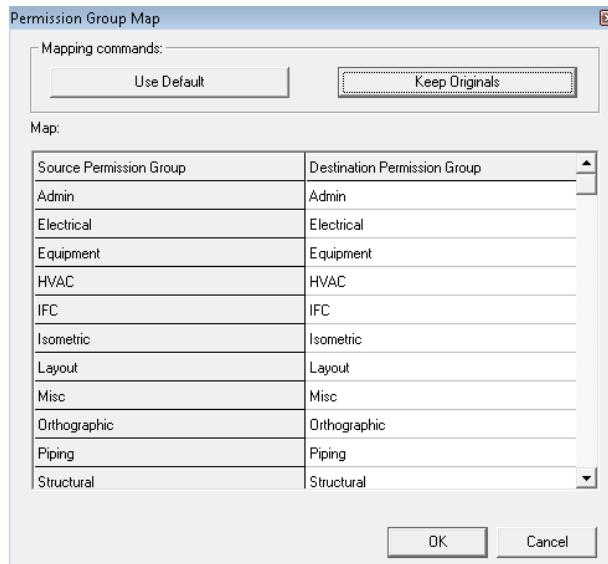


14. Select **Map** button. This form allows the user to map same or new permissions to copied objects based on availability of permission groups in destination model. By

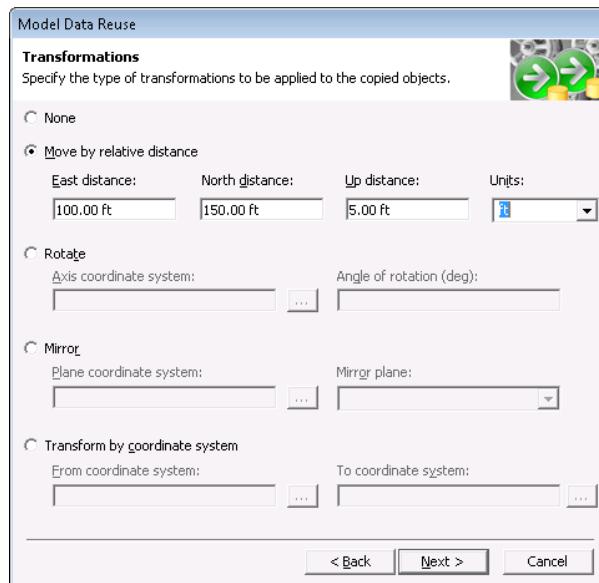
LAB 19: Model Data Reuse – Copy in Existing Model

default all objects will be assigned to default permission group which was ‘Admin’ per previous window selection.

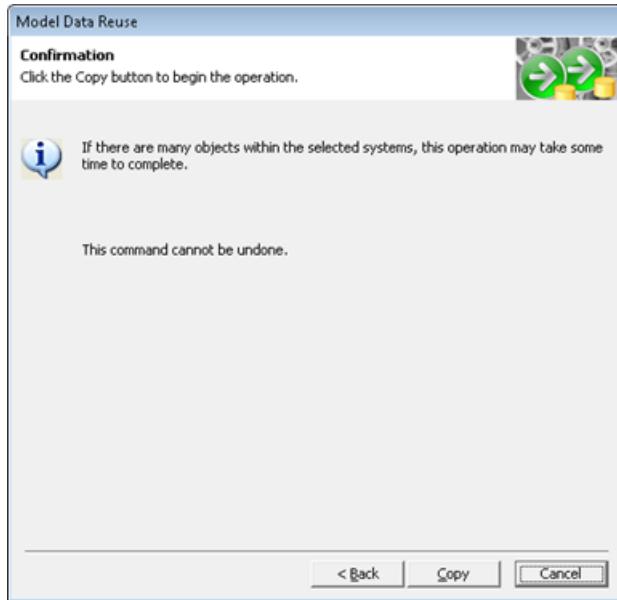
Since the copy operation is being performed within the model, selecting **Keep Originals** option will let the software try automatic mapping of permission groups.



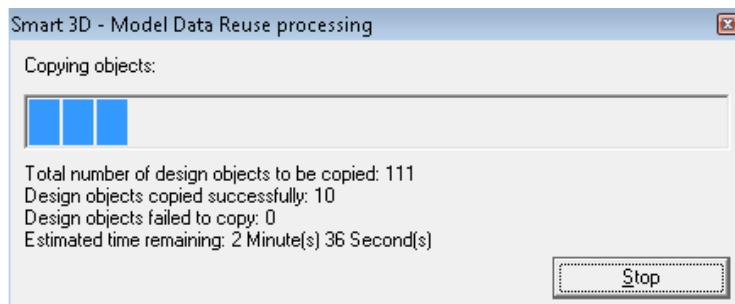
15. Click **OK** to dismiss **Permissions Group Map** form.
16. Select **Next** on the **Destination** page.
17. Select **Move by relative distance** radio button (if not selected by default). Expand **Units** drop down list and select **ft** as default unit. Type in **100ft** for **East** distance, **150ft** for **North** distance and **5ft** for **Up** distance (equivalent to 100ft X, 150ft Y, 5ft Z).



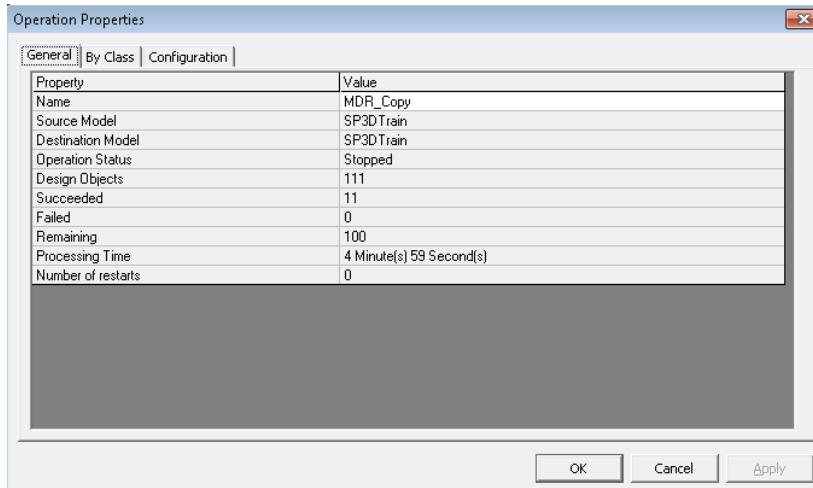
18. Click **Next**.
19. Click **Copy** on the confirmation screen.



20. The system processes the command.



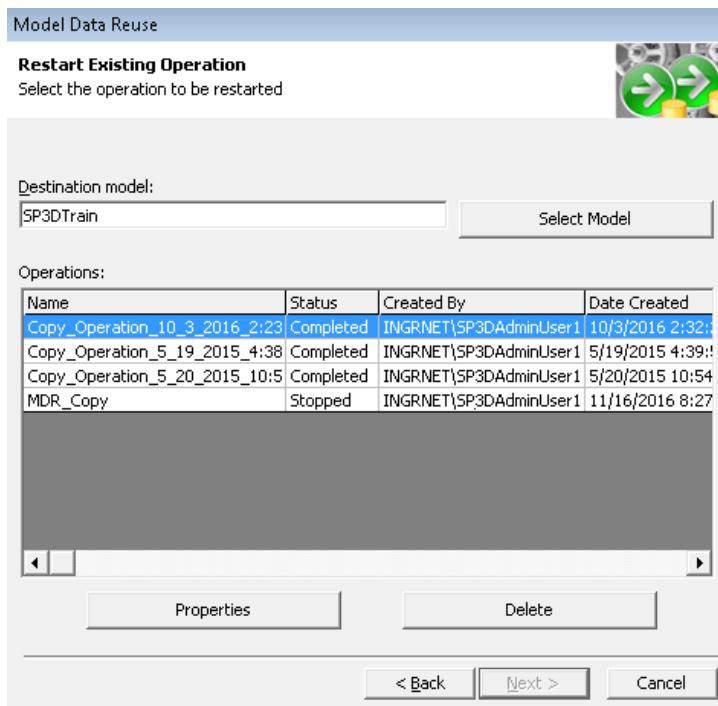
21. Notice now there is a **stop** radio button on the Model data reuse processing form. This allows the user to stop the operation if needed. **Stop the operation.** It does not matter when the operation is stopped just stop it before it completes.
22. Once the operation is stopped the **Operation Properties** dialog box appears. Review the information then Click **OK**.



23. Start Model Data Reuse command again from **Tools > Model Data Reuse**.
24. Select **Restart Existing Operation** and click **Next**.

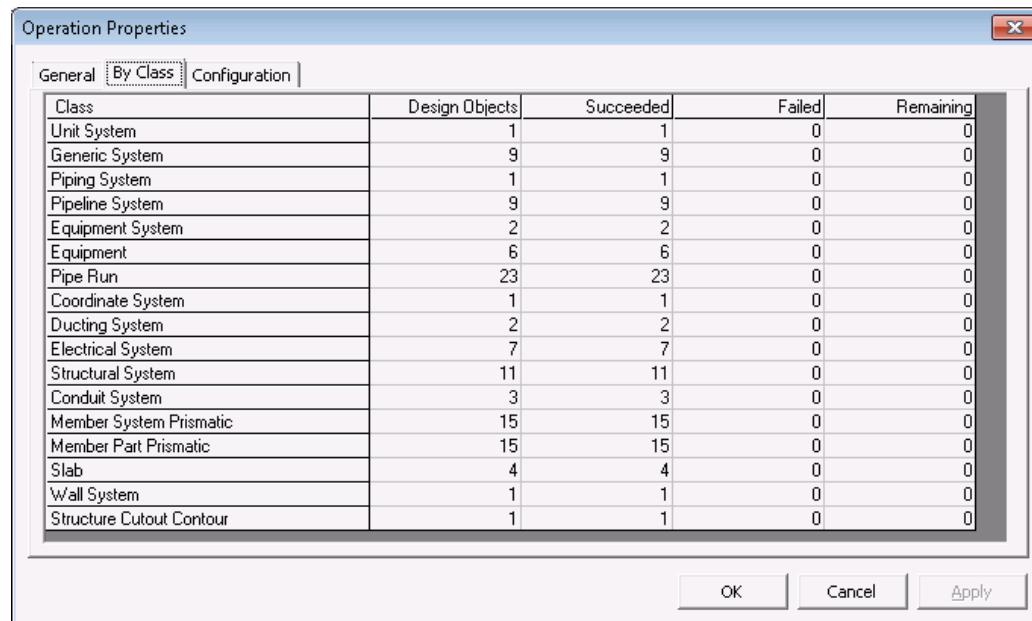
NOTE Notice the operation MDR_Move status is stopped because the user clicked stop on the progress button. There are four possible statuses: Stopped which indicates the process was terminated in an orderly way, Incomplete which indicates the process was terminated abnormally, In Progress which indicates the operation is in progress, and Completed which indicates the operation was completed successfully.

25. Select **MDR_Copy** and click **Next**.

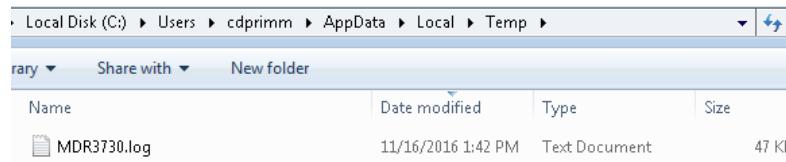


26. Click **Copy** on the confirmation page.

27. The operation should continue from where it left. Upon completion, the operation properties dialog box displays again with the results of the copy. Notice the status changes to **Completed**.



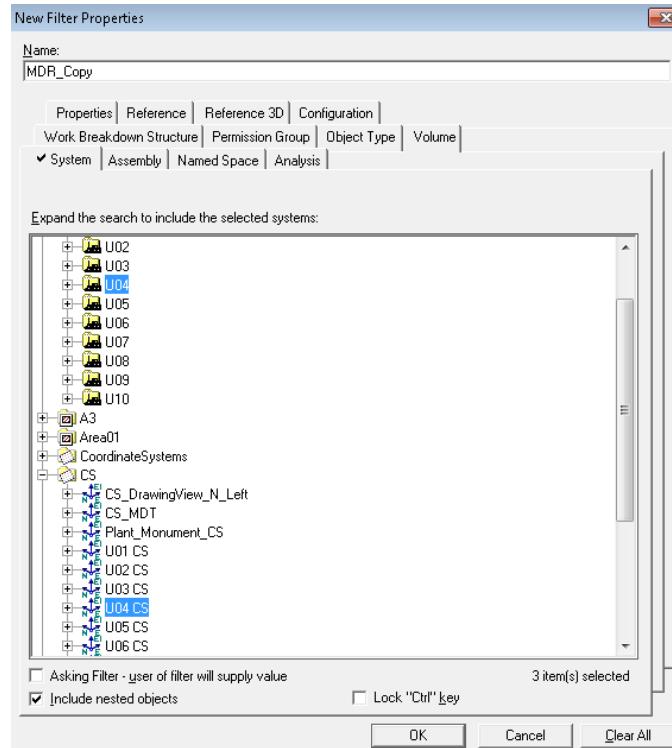
28. Review and click **OK**.
 29. Close **Project Management**.
 30. Open a Windows Explorer window.
 31. Enter %temp% in the address field.
 32. Locate the recently created “MDR#” text file.



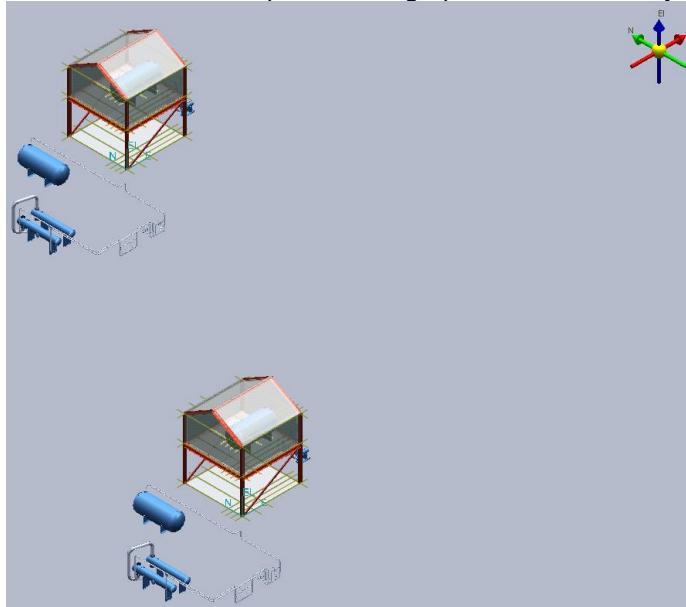
33. Open this file and inspect the entries at the bottom. The “Results by Class” should match the summary reported in the Project Management results GUI.
 34. Copy and paste this log file in the **Desktop > MDR** folder. Close the log file.
 35. Open the saved Smart 3D session **MDR_Copy**.
 36. Go to **File > Define Workspace**.
 37. Make sure the model selection is **SP3DTrain**. In the Filter dropdown, select “Create New Filter...”. Enter the following:

Name: MDR_Copy

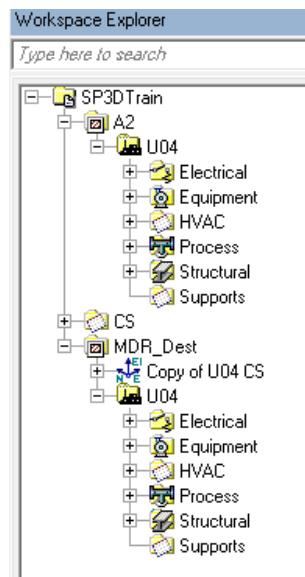
System Tab: Select A2 > U04, CS > U04 CS and MDR_Dest



38. Click OK and Define Workspace with this new filter.
39. Fit the new workspace in the graphic view to visually verify the copy.



40. Expand the “MDR_Dest” folder in the Workspace Explorer.
41. Compare this with the original hierarchy.

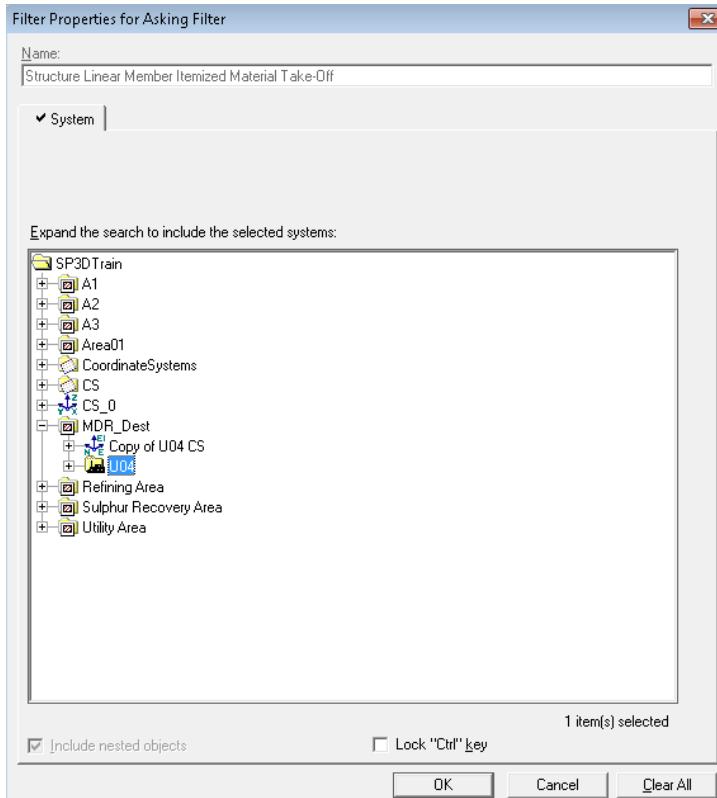


42. Right click on the U04 Unit system underneath the “MDR_Dest” folder. Choose “Select Nested” and verify that the object count is equal to the object count from Lab 17.
43. Select **Tools > Run Report...** and select the Catalog Reports tab.
44. Run the following reports from the Structure and Piping folders once again.

Structure Linear Member Itemized Material Take-off.

[NOTE] In the Filter Properties for Asking Filter select “U04” under the “MDR_Dest” folder. Click OK.

[NOTE] Leave the default report parameters and click Finish. If asked to overwrite a previous report, select Yes.



Piping Material Takeoff

- a. Make the same filter selection as in the previous report.
 - b. Do not select a Baseline report, click Next.
 - c. Leave the default report parameters and click Finish. If asked to overwrite a previous report, select Yes.
45. Briefly verify that the values reported from the copies are equal to the reports generated from the original objects.
46. Close the reports.

LAB 20: Model Data Reuse - Troubleshooting

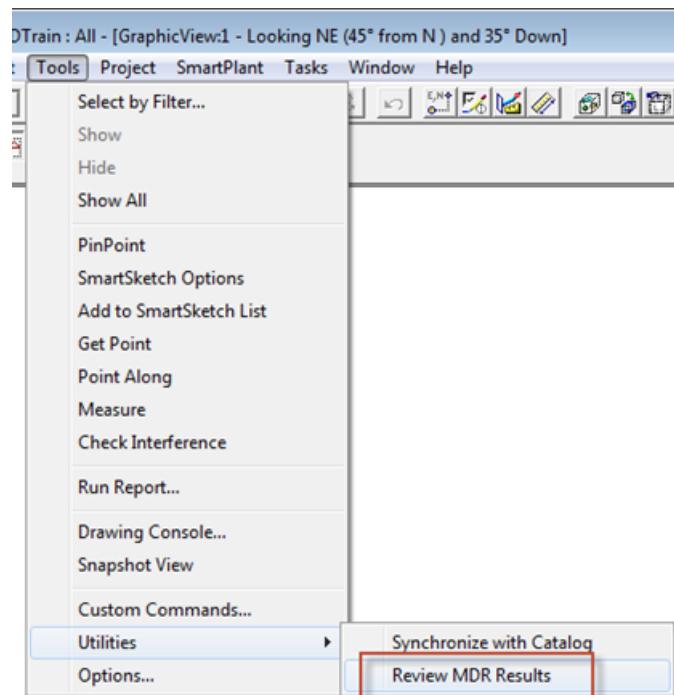
Objectives

After completing this lab, you will be able to:

- Review results of the Model Data Reuse command for additional troubleshooting if certain objects failed to be copied

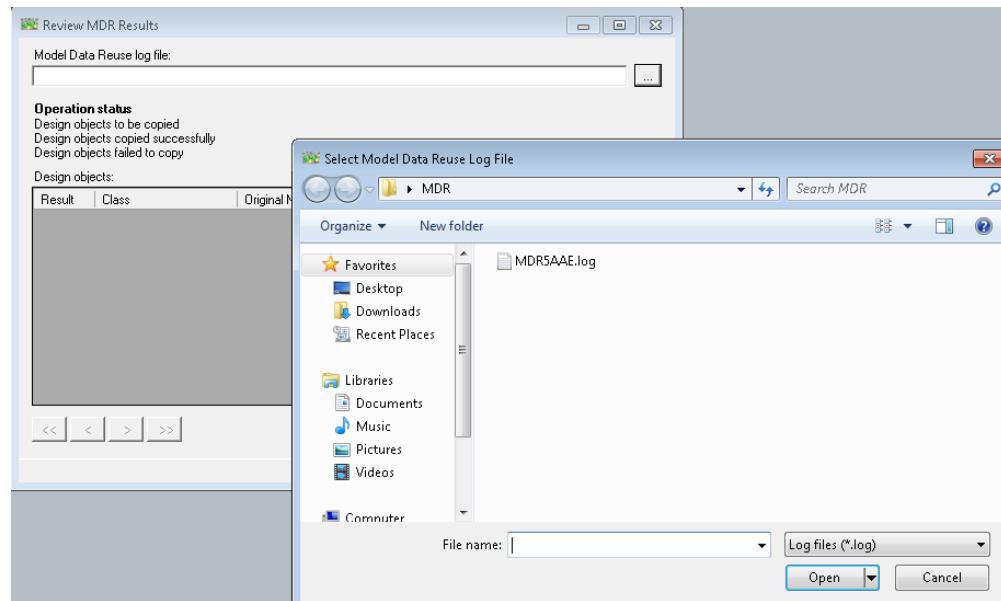
Review MDR Results Utility

1. Select **Tools > Utilities > Review MDR Results.**

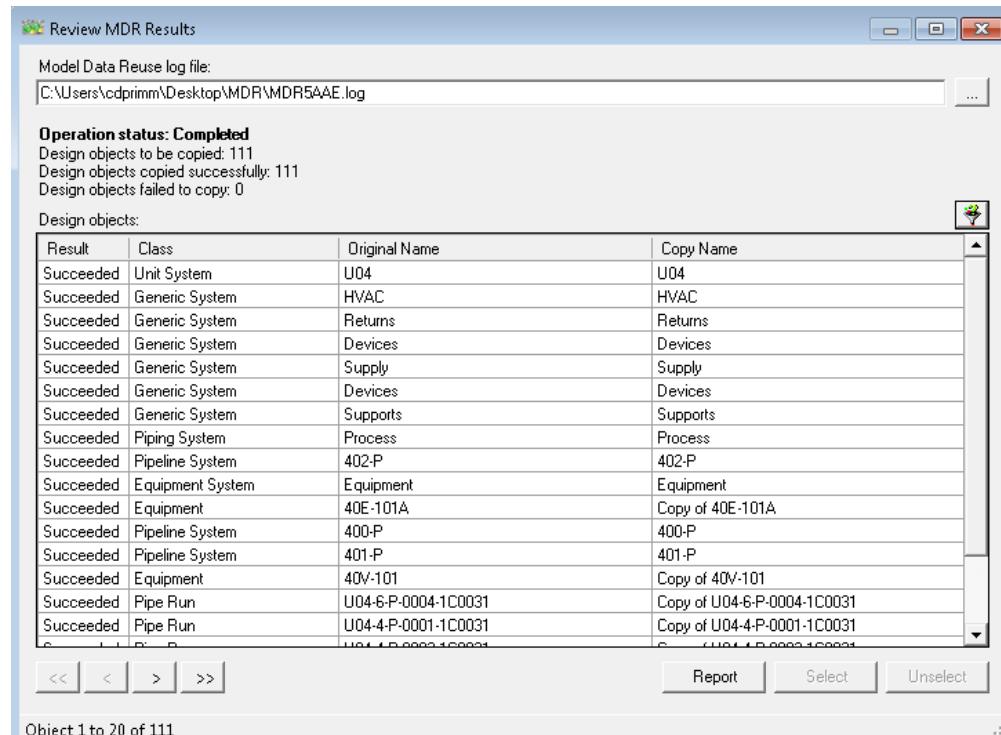


2. In the Review MDR Results dialog, expand the ellipses and browse for the "MDR###.txt" file copied to the **Desktop > MDR** folder.

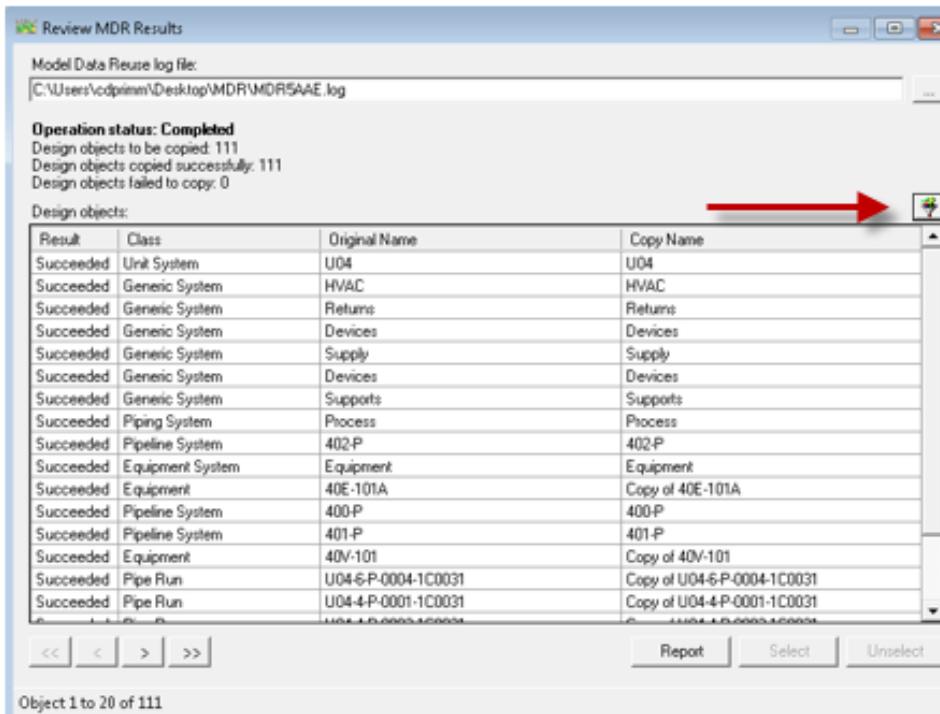
LAB 20: Model Data Reuse -Troubleshooting



3. Open this file into the application. The “Design objects” list will be populated.



4. Select **Report** command at the bottom of the window.
 5. Review and save the generated document in the **Desktop > MDR** folder.
 6. Select the Filter  command in the window.



7. Uncheck **Design objects successfully copied** and **Design objects not attempted to be copied**. Click **OK**.

NOTE In this exercise, the failed object list will be empty, but this will be a powerful tool for pin pointing failed objects in complex copy operations.

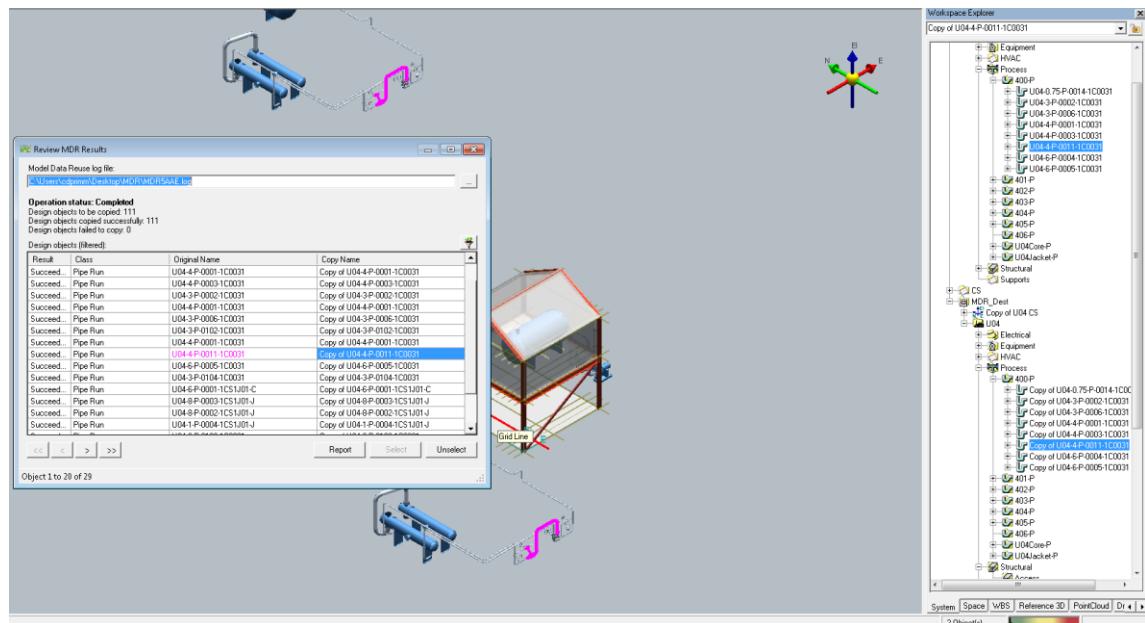
8. Select the Filter  command in the window once again. Filter to display only the following:
 - **Results:** Design objects successfully copied
 - **Classes:** Equipment system, Pipe run, Slab
9. Click **OK**. Run a report for this selection.

Original Path	Copy Name	Copy Object ID	Copy Path
SP3DTrain\A2\U04\Equipment	Equipment	{0003454-0000-0000-D000-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Equipment
SP3DTrain\A2\U04\Process\400-P\U04-6-P-0004-1C0031	Copy of U04-6-P-0004-1C0031	{0001388D-0000-0000-2801-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Process\400-P\Copy of U04-6-P-0004-1C0031
SP3DTrain\A2\U04\Process\401-P\U04-4-P-0001-1C0031	Copy of U04-4-P-0001-1C0031	{0001388D-0000-0000-2A01-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Process\401-P\Copy of U04-4-P-0001-1C0031
SP3DTrain\A2\U04\Process\400-P\U04-4-P-0003-1C0031	Copy of U04-4-P-0003-1C0031	{0001388D-0000-0000-2B01-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Process\400-P\Copy of U04-4-P-0003-1C0031
SP3DTrain\A2\U04\Process\400-P\U04-3-P-0002-1C0031	Copy of U04-3-P-0002-1C0031	{0001388D-0000-0000-2C01-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Process\400-P\Copy of U04-3-P-0002-1C0031
SP3DTrain\A2\U04\Process\400-P\U04-4-P-0001-1C0031	Copy of U04-4-P-0001-1C0031	{0001388D-0000-0000-2D01-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Process\400-P\Copy of U04-4-P-0001-1C0031
SP3DTrain\A2\U04\Process\400-P\U04-3-P-0006-1C0031	Copy of U04-3-P-0006-1C0031	{0001388D-0000-0000-2E01-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Process\400-P\Copy of U04-3-P-0006-1C0031
SP3DTrain\A2\U04\Process\402-P\U04-3-P-0102-1C0031	Copy of U04-3-P-0102-1C0031	{0001388D-0000-0000-2F01-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Process\402-P\Copy of U04-3-P-0102-1C0031
SP3DTrain\A2\U04\Process\402-P\U04-4-P-0001-1C0031	Copy of U04-4-P-0001-1C0031	{0001388D-0000-0000-2E03-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Process\402-P\Copy of U04-4-P-0001-1C0031
SP3DTrain\A2\U04\Process\400-P\U04-4-P-0011-1C0031	Copy of U04-4-P-0011-1C0031	{0001388D-0000-0000-2F03-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Process\400-P\Copy of U04-4-P-0011-1C0031
SP3DTrain\A2\U04\Process\400-P\U04-4-P-0005-1C0031	Copy of U04-6-P-0005-1C0031	{0001388D-0000-0000-9003-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Process\400-P\Copy of U04-6-P-0005-1C0031
SP3DTrain\A2\U04\Process\402-P\U04-4-P-0005-1C0031	Copy of U04-6-P-0005-1C0031	{0001388D-0000-0000-9F03-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Process\402-P\Copy of U04-6-P-0005-1C0031
SP3DTrain\A2\U04\Process\402-P\U04-4-P-0014-1C0031	Copy of U04-3-P-0104-1C0031	{0001388D-0000-0000-4705-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Process\402-P\Copy of U04-3-P-0104-1C0031
SP3DTrain\A2\U04\Process\404Core-P\U04-6-P-0001-1CS1J01-C	Copy of U04-6-P-0001-1CS1J01-C	{0001388D-0000-0000-1106-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Process\404Core-P\Copy of U04-6-P-0001-1CS1J01-C
SP3DTrain\A2\U04\Jacket-P\U04-8-P-0003-1CS1J01-J	Copy of U04-8-P-0003-1CS1J01-J	{0001388D-0000-0000-1206-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Process\404Jacket-P\Copy of U04-8-P-0003-1CS1J01-J
SP3DTrain\A2\U04\Process\U04Jacket-P\U04-8-P-0002-1CS1J01-J	Copy of U04-8-P-0002-1CS1J01-J	{0001388D-0000-0000-1306-64FE2E581D04}	SP3DTrain\MDR_Dest\U04\Process\404Jacket-P\Copy of U04-8-P-0002-1CS1J01-J

10. Close the reports.
11. Back in the Review MDR Results dialog, click on one of the entries in the **Original Name** column and then click on the **Select** command.
12. Click on its respective **Copy Name** and click the **Select** command
13. Verify that:

LAB 20: Model Data Reuse -Troubleshooting

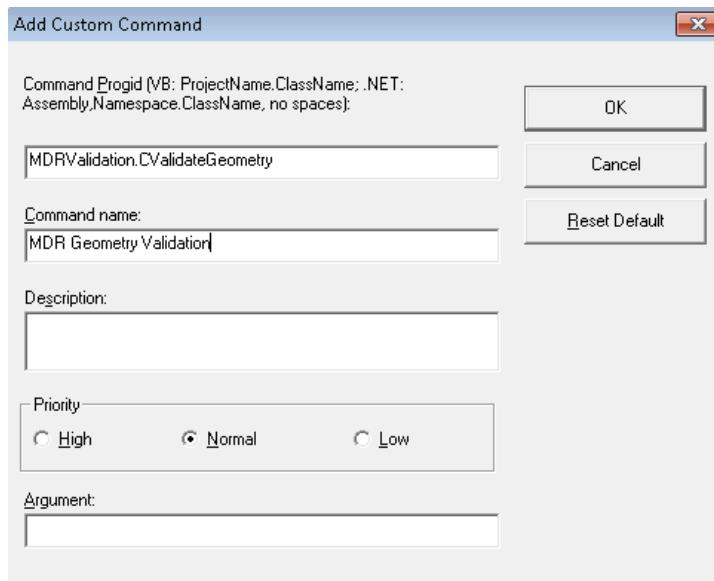
- The entries are highlighted in the **Review MDR Results** window.
- The objects are highlighted in the Workspace Explorer.
- The objects can be brought into view with the **Fit** command.



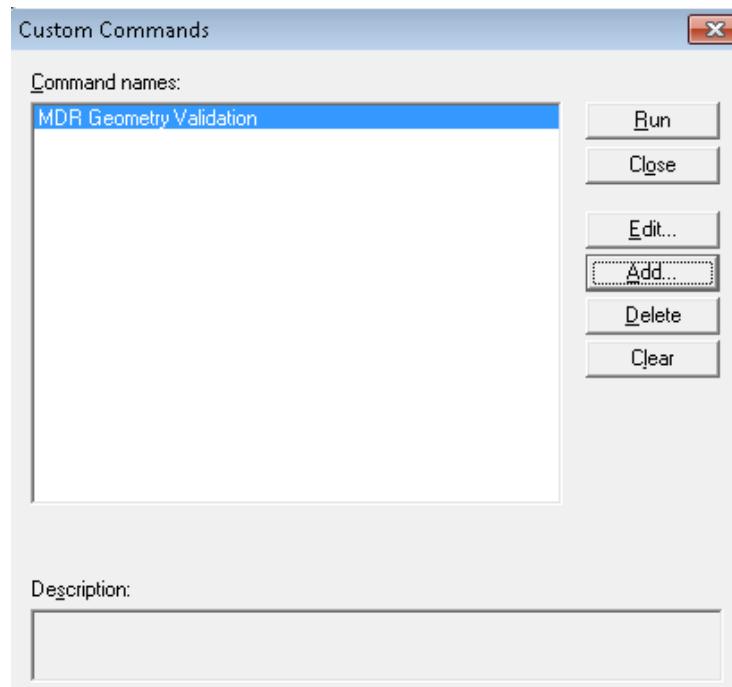
14. Click on the **Unselect** command for each of these Names and close the **Review MDR Results** window.

MDR Validation Custom Command

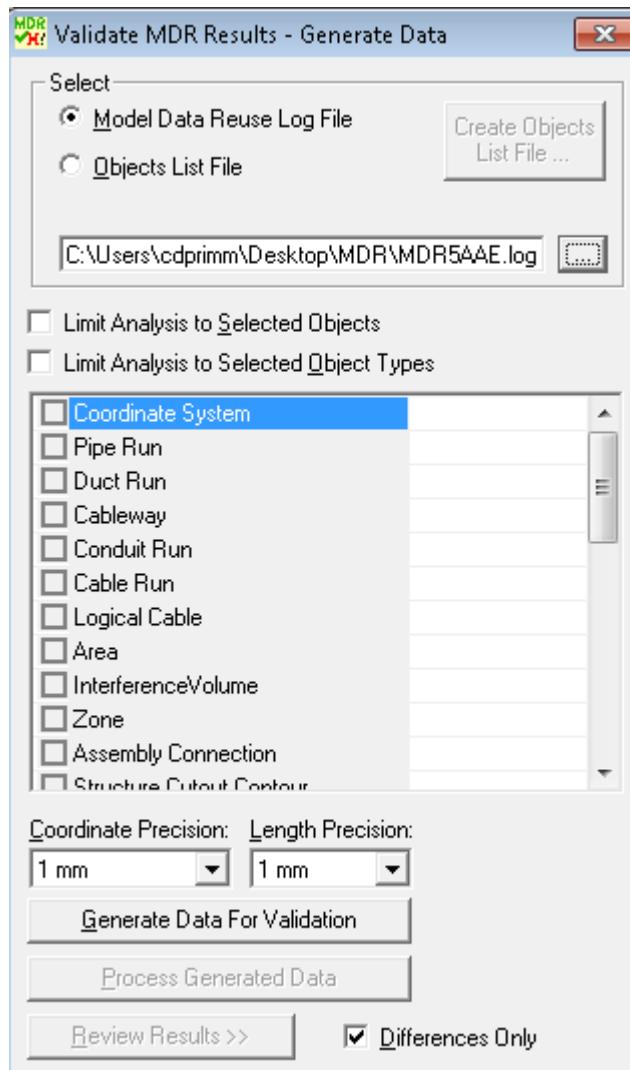
15. Go to **Tools > Custom Commands...**
16. Click on the **Add** command, and enter the following:
 - **Command Progid:** MDRValidation.CValidateGeometry
 - **Command name:** MDR Geometry Validation



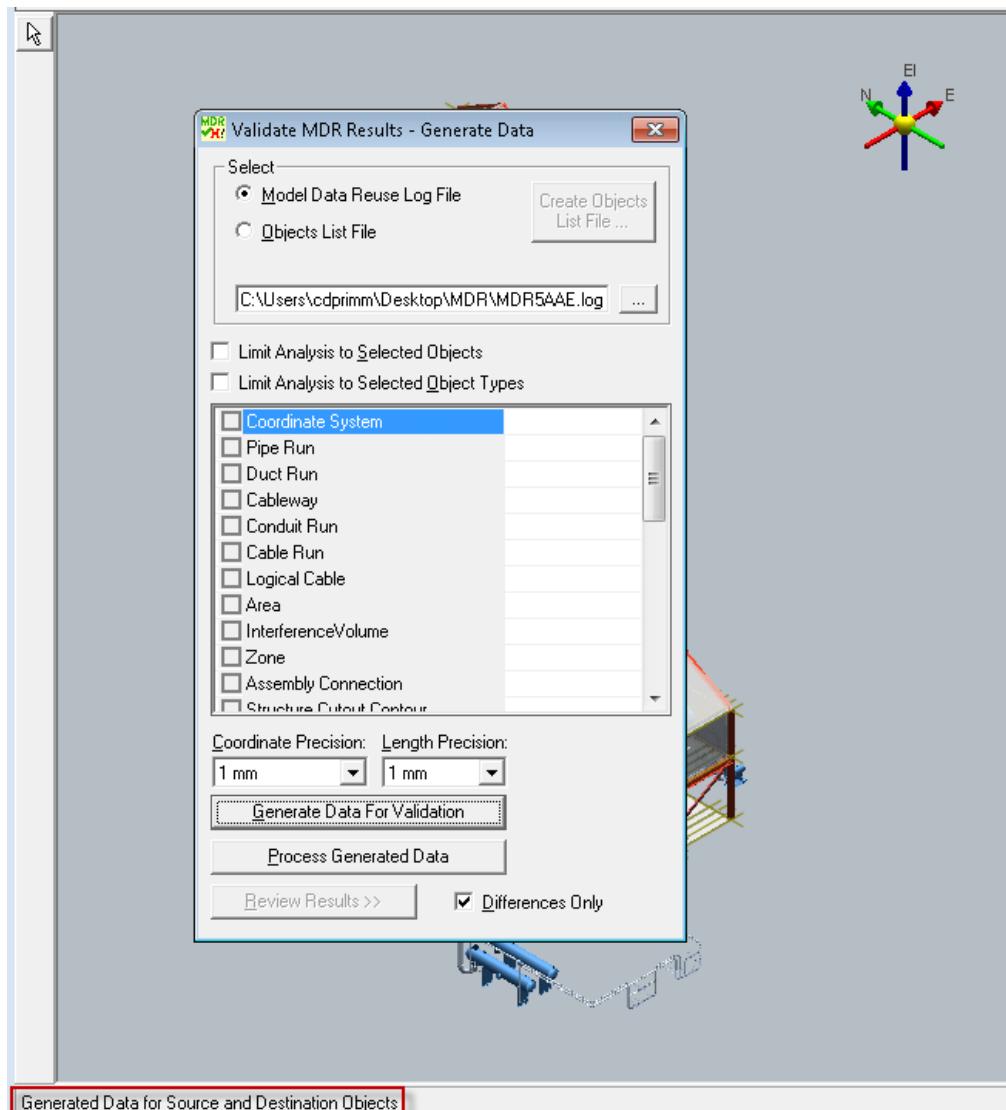
17. Click **OK**.



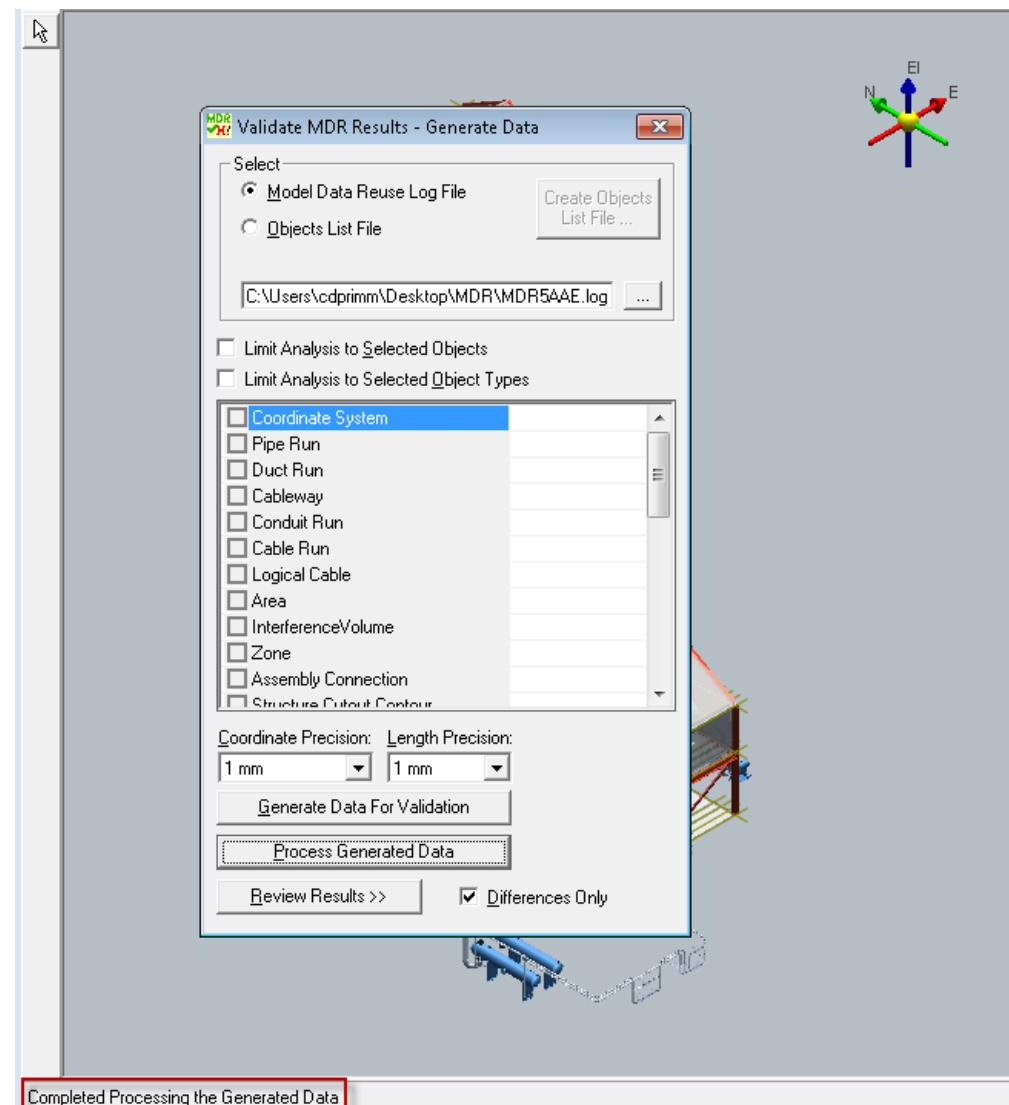
18. Select **Run**.
19. Select the **Model Data Reuse Log File** method and browse for the MDR log file saved in the **Desktop > MDR** folder.



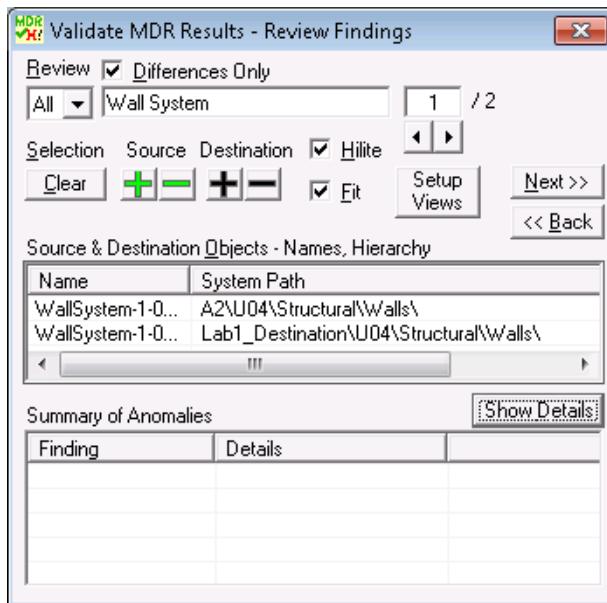
20. Press the **Generate Data for Validation** button. Leave the **Differences Only** checkbox selected.
21. When the notification **Generated Data for Source and Destination Objects** appears in the main window's message bar, press the **Process Generated Data** button.



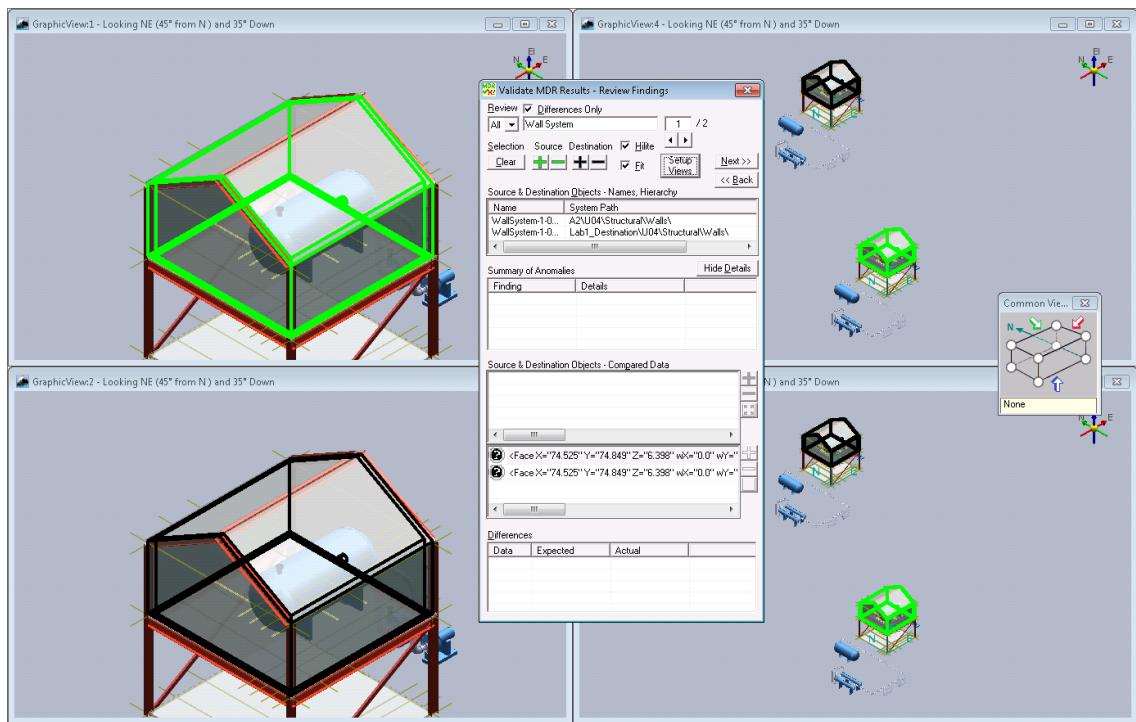
22. When the notification **Completed Processing the Generated Data** appears in the main window's message bar, select the **Review Results** button.



23. Expand the **Summary of Anomalies** by selecting the **Show Details** button.



24. Select **Setup Views** button. The following views will be created.

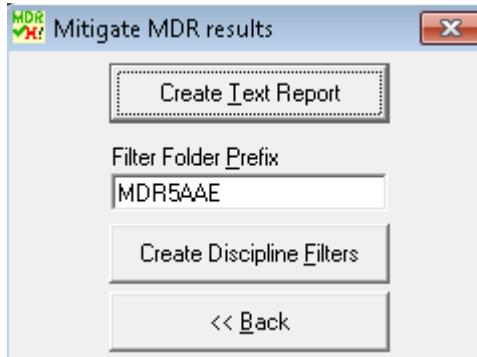


25. Navigate between the found differences.

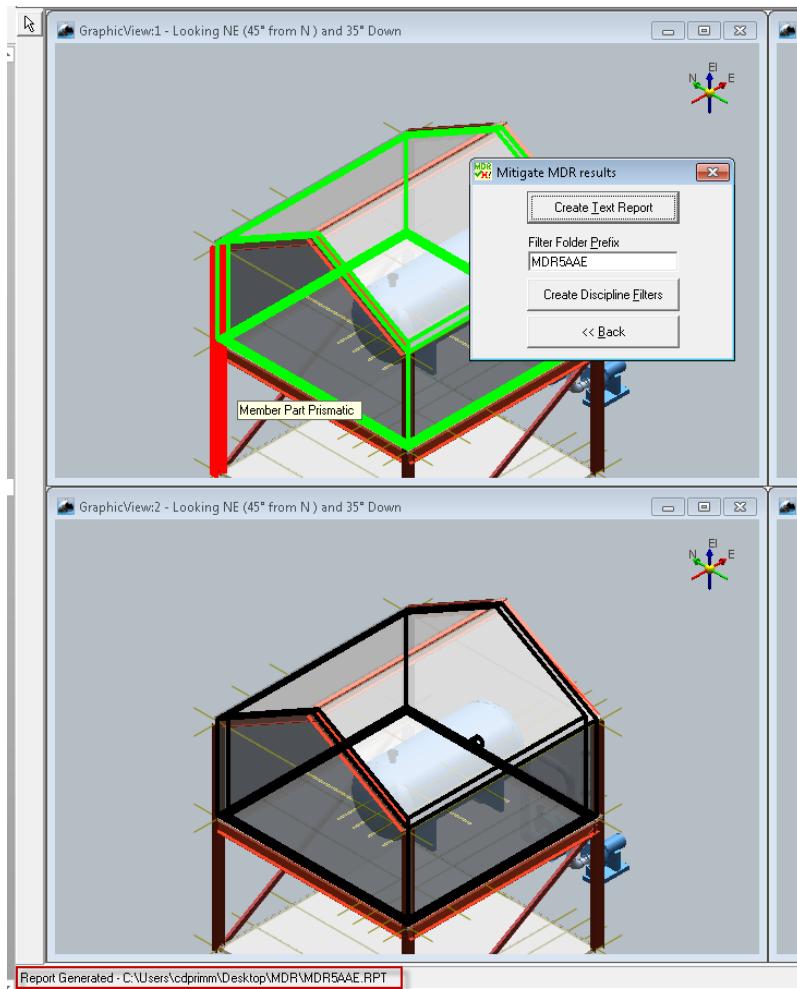
NOTE The differences reported through this custom command cover minute inconsistencies several levels down in the primary object. It is up to the user to

evaluate the impact of the shown differences in accordance to the project's tolerance.

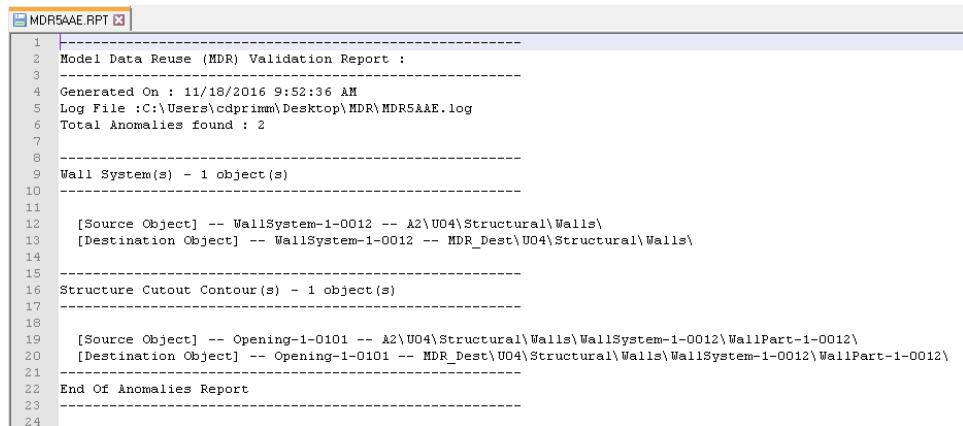
26. Select **Next>>** in the dialog box.
27. Select **Create Text Report**.



28. Open Windows Explorer and navigate to the path shown in the message bar.



29. Open in Notepad the .RPT file created with the same name as the MDR log file. This report can serve as a reference in future modelling integrity investigations.



```
MDR5AAE.RPT
1 -----
2 Model Data Reuse (MDR) Validation Report :
3 -----
4 Generated On : 11/18/2016 9:52:36 AM
5 Log File : C:\Users\cdprimm\Desktop\MDR\MDR5AAE.log
6 Total Anomalies found : 2
7 -----
8 -----
9 Wall System(s) - 1 object(s)
10 -----
11 [Source Object] -- WallSystem-1-0012 -- A2\U04\Structural\Walls\
12 [Destination Object] -- WallSystem-1-0012 -- MDR_Dest\U04\Structural\Walls\
13 -----
14 -----
15 Structure Cutout Contour(s) - 1 object(s)
16 -----
17 -----
18 [Source Object] -- Opening-1-0101 -- A2\U04\Structural\Walls\WallSystem-1-0012\WallPart-1-0012\
19 [Destination Object] -- Opening-1-0101 -- MDR_Dest\U04\Structural\Walls\WallSystem-1-0012\WallPart-1-0012\
20 -----
21 -----
22 End Of Anomalies Report
23 -----
24
```

30. Close the report and Windows Explorer.
31. Once objects that failed to copy have been identified, the user can evaluate their condition and integrity (Verify they are not in the ToDo list or reported by Database Integrity). It can also be determined if it would be faster to use traditional method to copy/paste between sessions or remodeling of the destination model.

NOTE In cases where issues are identified with the data in the select set before or after the copy operation, the following Smart 3D tools/commands may help identify and address these issues:

- Database Integrity command
- Database Clean command
- To Do List
- Synchronize Model with Catalog
- Catalog Comparison in MDR Wizard

32. Close Smart 3D and save your changes to the session.

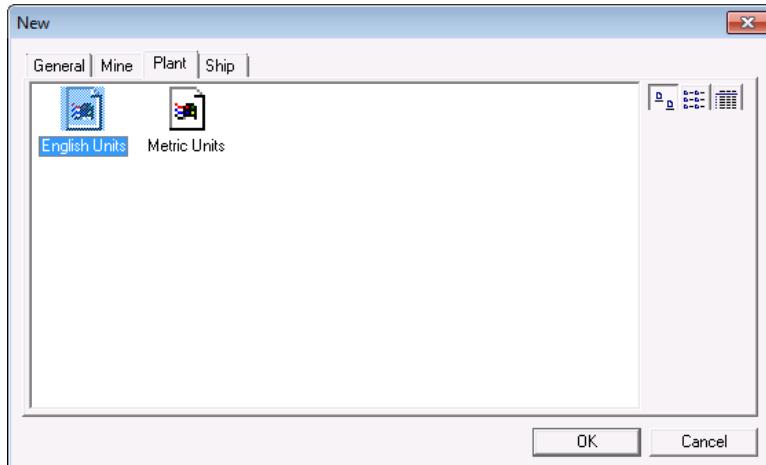
LAB 21: Model Data Reuse – Copy to New Model

Objectives

After completing this lab, you will be able to:

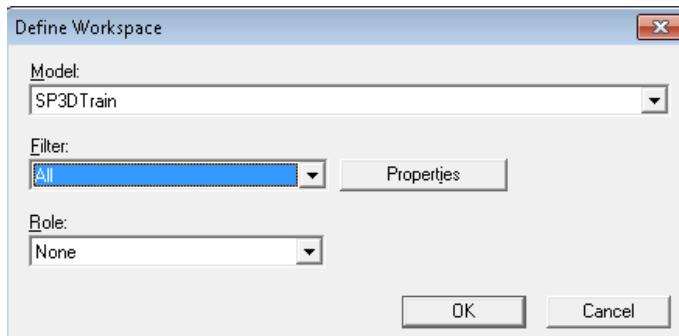
- Use Model Data Reuse command from Project management to copy objects between models in the same site
- Use one of the copy options in the Model Data Reuse command to copy volumes in range
- Use Model Data Reuse command to copy models with different catalogs

1. Launch Smart 3D.
2. Select the **English Units** template in the “Plant” tab.

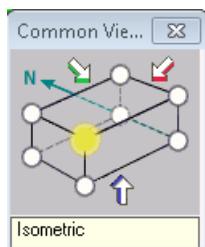


3. Go to **File > Define Workspace**.
4. Select model **SP3DTrain**.
5. From the Filter dropdown, select **More...**
6. Underneath the Plant Filters folder, select the filter **All**. Click **OK**.

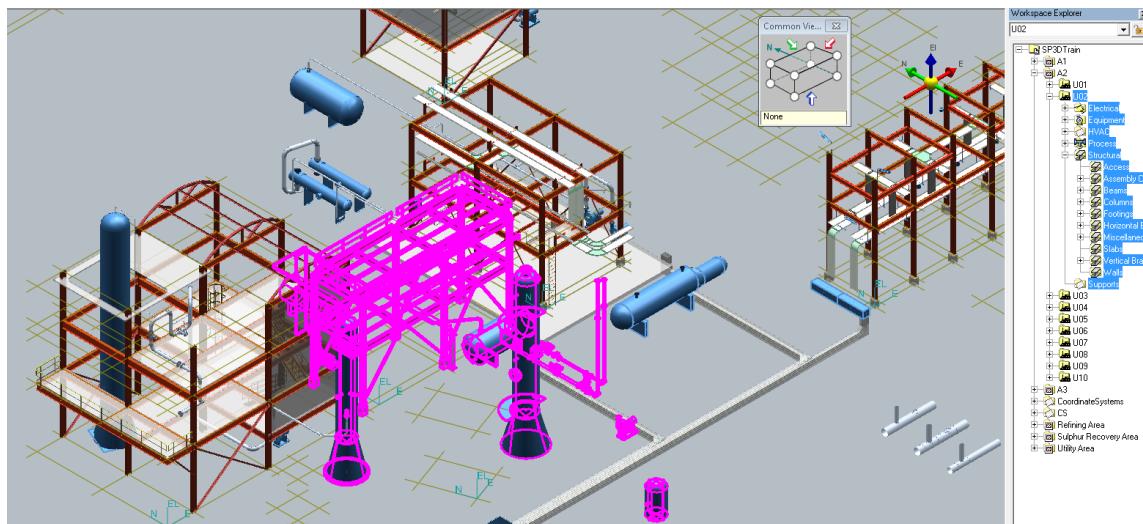
- Define the Workspace with these selections.



- Once the workspace is loaded, open the Common Views window. Select the frontal Isometric view.



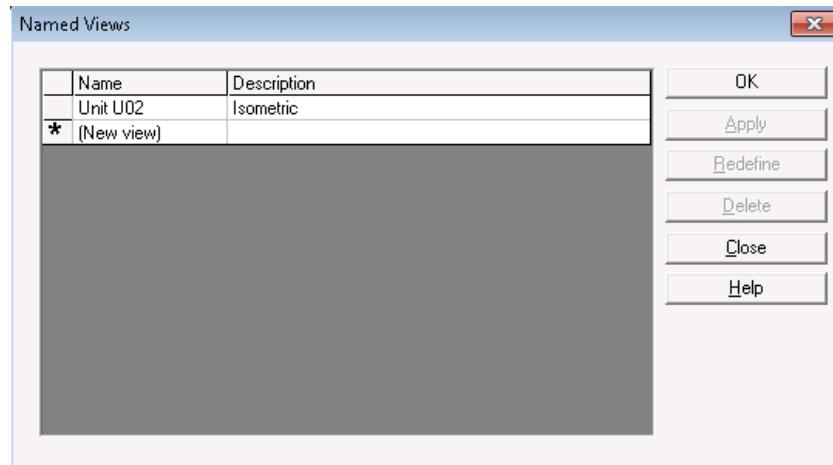
- In the Workspace Explorer, expand node A2 and right-click on system "U02".
- Click on "Select Nested".
- Fit the selection into the graphic area.



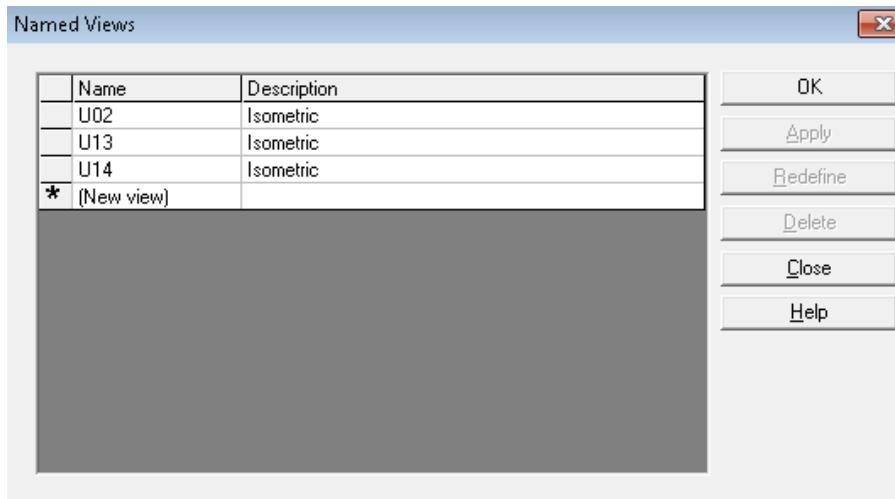
- Right click anywhere to unselect.
- Go to **View > Named Views...**
- Enter the following:

Name: Unit U02

Description: Isometric



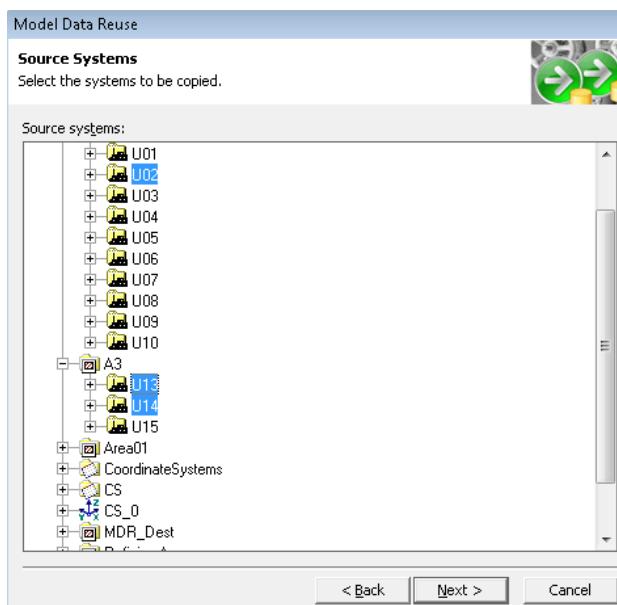
15. Click **OK**.
16. Follow steps 9-15 for the following units:
A3 > U13
A3 > U14
17. In the Named Views window, you should have the following three views:



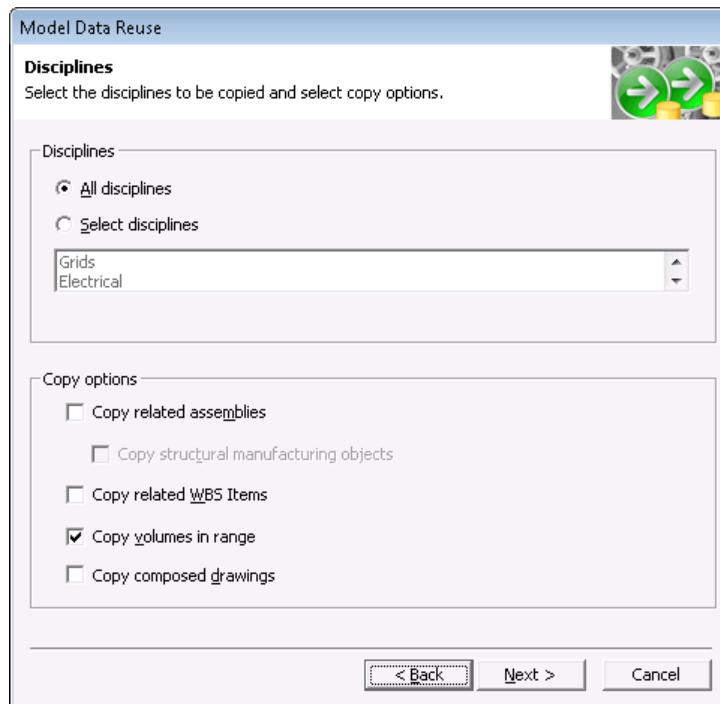
18. Close the Named Views window.
19. In the ribbon toolbar, expand the dropdown from the Named Views command.
20. Verify that each of the named views displays one of the three different units. These units contain the data to be copied by the MDR operation.



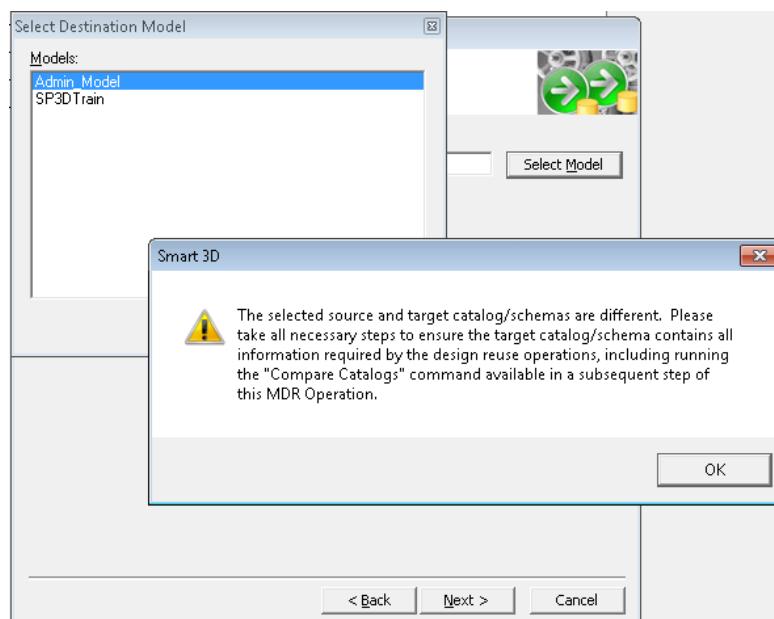
21. Save the Smart 3D session as “MDR_SRC” in the **Desktop > MDR**.
22. Close Smart 3D.
23. Open **Project Management** if not already open.
24. Open the **Model Data Reuse** wizard. Begin a new operation, provide as name “MDR from SP3DTrain to Admin Model/Catalog”. Click **Next**.
25. This time the source objects will be selected via **Source Systems**. Select **SP3DTrain** as source model. Click **Next**.
26. In the Source Systems window, select the following parent systems by holding down the **Ctrl** key:
 - A2 > U02
 - A3 > U13
 - A3 > U14



27. Click **Next**.
28. Select **All disciplines**. Under Copy options, select **Copy volumes in range**.

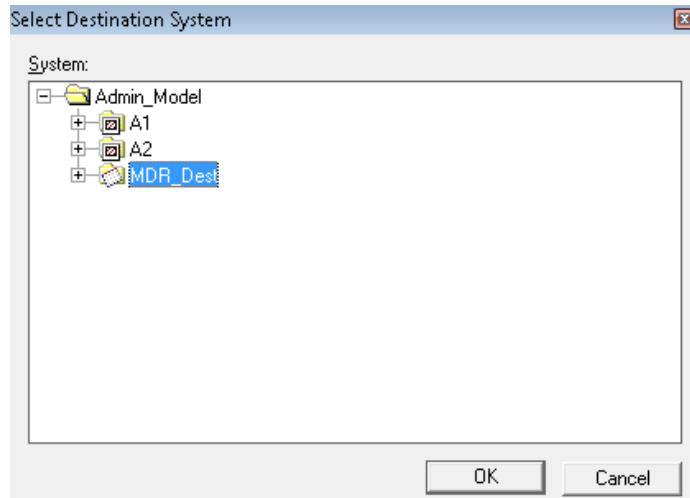


29. Click **Next**.
30. On Destination System page, select **Admin_Model**. The software warns about the possibility of Schemas not having the same information. Click **OK**.

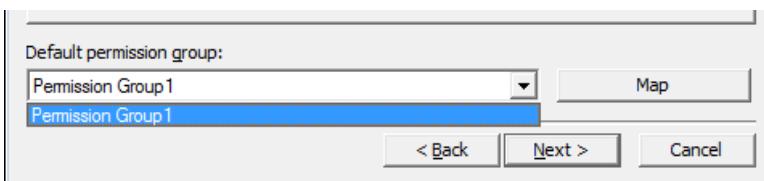


31. Click **Next**.

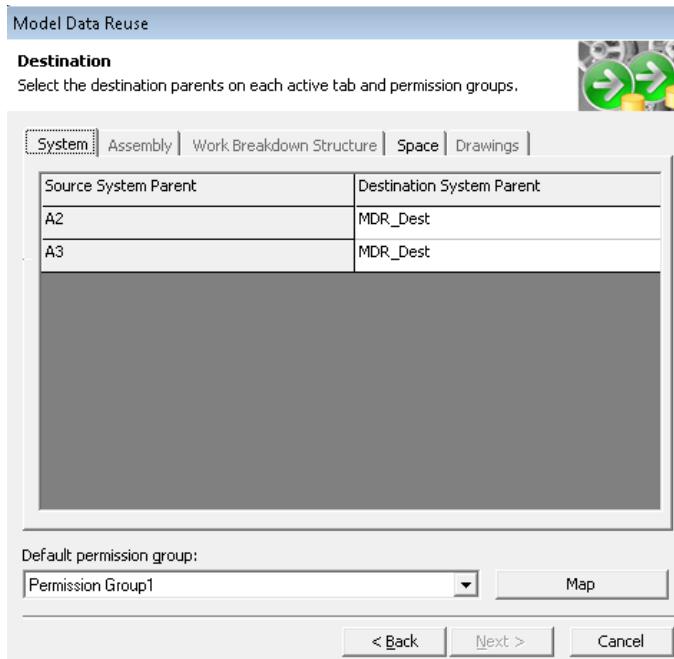
32. Click the browse button to select “MDR_Dest” as the Destination System Parent for both Source System Parents.



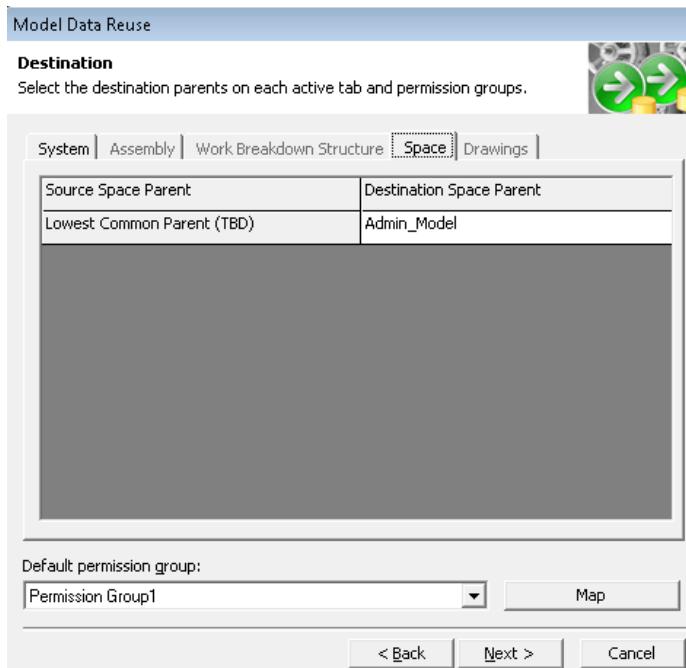
33. Set default permission group to Permission Group 1.



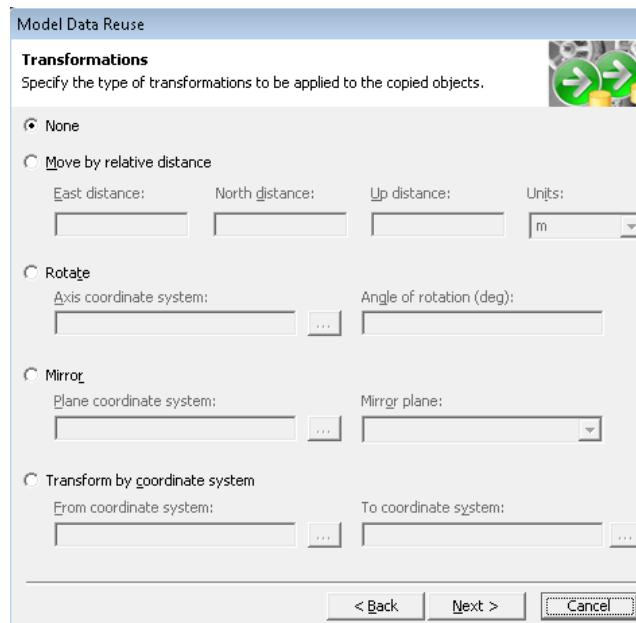
NOTE The values in the "Default permission group:" drop down list has changed. The groups are defined per Model.



34. Go to the “Space” tab, and in the **Destination Space Parent** column, expand the ellipses to select the **Admin Model** node.
35. Click **OK**.

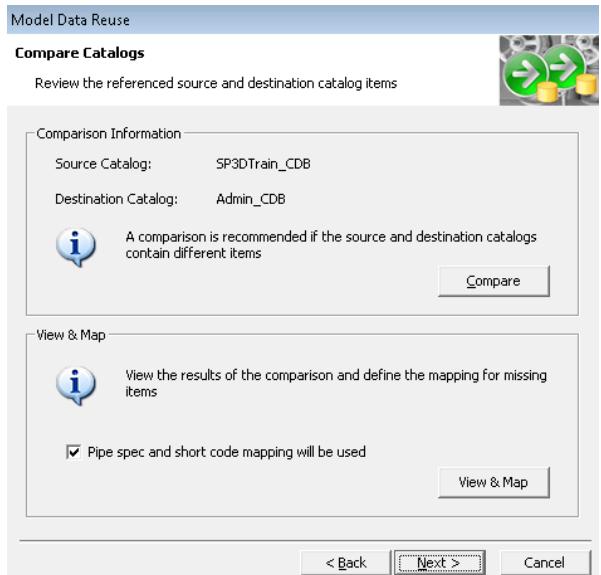


36. Click **Next**.
37. Select **None** if not already selected.

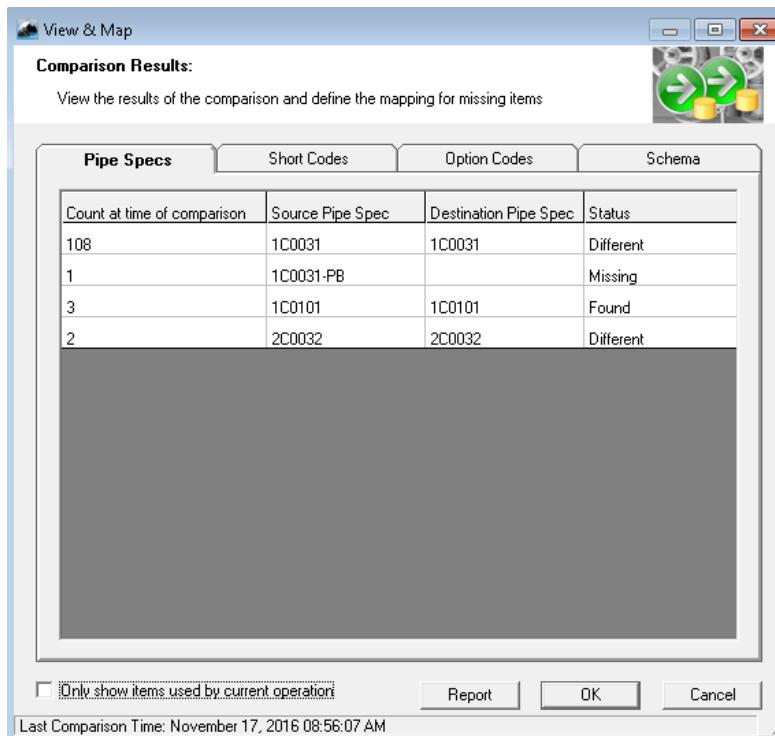


38. Click **Next**.

39. The **Compare Catalogs** page appears. This will only be present when user is performing a copy across models that have different catalogs. It will compare the catalog schemas and the pipe specs in the select set chosen. Verify the source and destination catalog information.



40. Click the **Compare** button. A progress window will appear.
 41. Once the comparison has been completed, the **View & Map** window will be displayed with the results.



42. Select Report.

43. Open the generated Excel spreadsheet, and review the contents of each sheet.

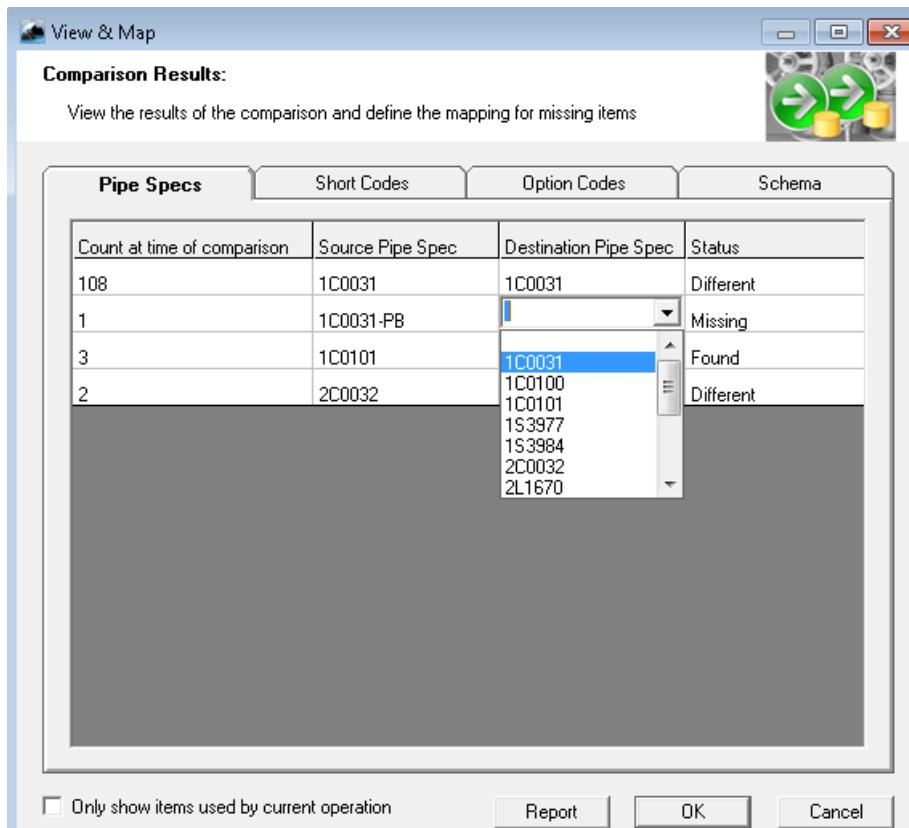
Schema Report					
Source Server: gci1001758\sqlexpress Source Schema: SP3DTrain_CDB_SOH Destination server: gci1001758\sqlexpress Destination schema: Admin_CDB Report Generated: 11/17/2016 10:12					
Errors found during schema comparison					
Warnings found during schema comparison					
Destination Class Not Found	Count at time of comparison	Package	Class		
	3 UDP 6 UDP 2 UDP 2 UDP 2 UDP 2 UDP 2 UDP	CURTEOnfirePlatesO CURTEOnfireFlangeTwoTapO CUEQPsimpVerCYNestedEndsAsmO CUEQPsimpVerCYNestedEndsAsm CURTEBasketStrainerP082879O CURTESRV1D CURTESRV1			
Destination Interface Is Missing From Schema	Count at time of comparison	Package	Class	Interface	
	1796 UDP	CUEQPCESVessel2PlatAsmO		IURoomNo	

44. Save this report as “MDR_NoMapping” in the Desktop > MDR folder. Close the report.

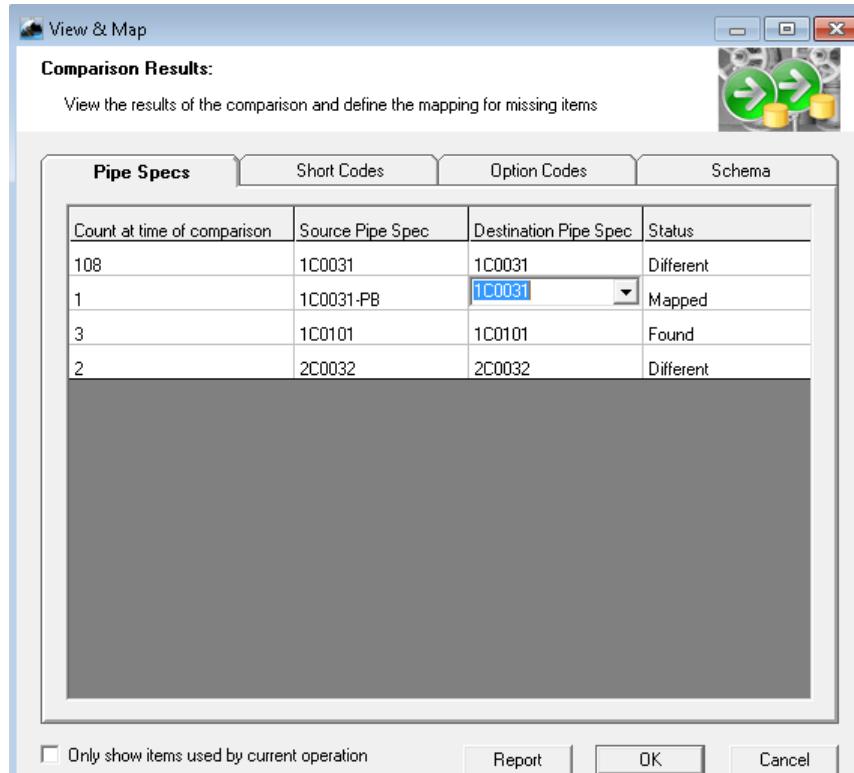
NOTE In cases with substantial catalog differences, it is recommended that this initial report is used by the catalog administrators to evaluate and address reference data differences prior to continuing with the MDR operation.

45. Click on the empty “Destination Pipe Spec” cell to map Source pipe spec 1C0031-PB.

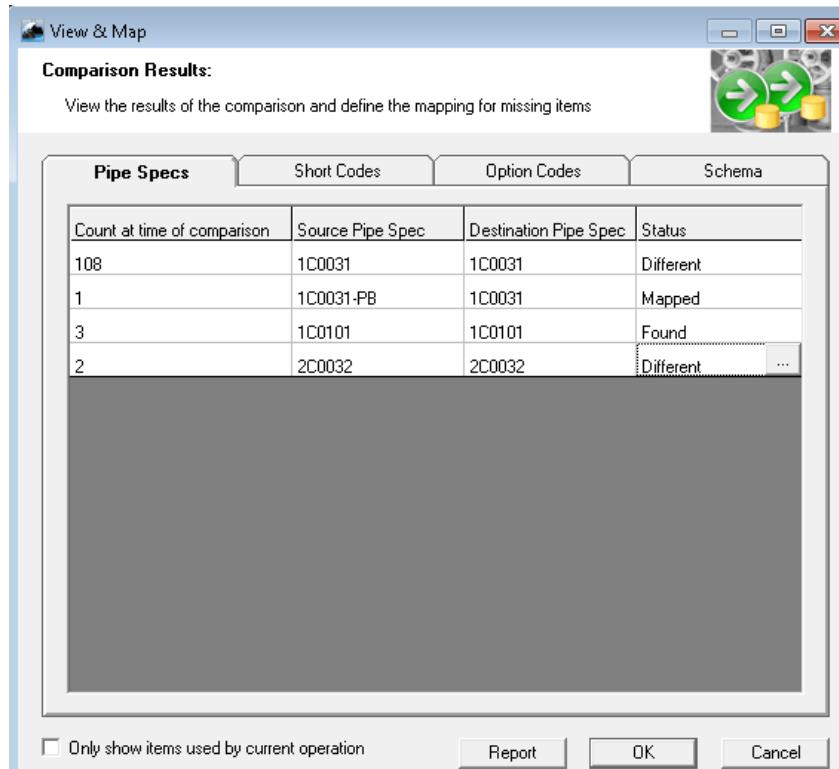
46. Expand the dropdown and select pipe spec “1C0031”.



47. The status in this row should change.



48. Expand the ellipses in the Status cell of Source Pipe Spec **2C0032**.



Input Information

INPUTS	SOURCE	TARGET
Catalog Database	SP3DTrain_CDB	Admin_CDB
Server	gci1001758\sqlexpress	gci1001758\sqlexpress
Pipe Spec Compared	2C0032	2C0032

Piping Materials Class Data Differences

Property Name	Source Value	Destination Value
---------------	--------------	-------------------

Components Missing From Pipe Spec (2C0032) in Target Catalog

Short Code	Option Code	FirstSizeFrom	FirstSizeTo	FirstSizeUnits	SecondSizeFrom	SecondSizeTo	SecondSizeUnits	MultiSizeOption
Butterfly Valve	11	8	10	in	-	-	-	-

49. Review the report and Close it.
50. Back in the **View & Map** window, check the box **Only show items used by current operation.**
51. Go to the Short Codes tab and maximize the **View & Map** window.
52. Expand the **Inline Fittings** folder.
53. Select the **Valves** folder.
54. Verify that the Butterfly Valve missing for spec 2C0032 in the Target catalog is not employed in the select data set.

Pipe Specs **Short Codes** **Option Codes** **Schema**

Count at time of comparison	Source Short Code	Destination Short Code	Status
50	Gate Valve	Gate Valve	Found
14	Vent-Drain Valve	Vent-Drain Valve	Found
8	Check Valve	Check Valve	Found
3	Globe Valve	Globe Valve	Found

55. Open the **Other Inline Fittings** folder.

Pipe Specs **Short Codes** **Option Codes** **Schema**

Count at time of comparison	Source Short Code	Destination Short Code	Status
42	Nipple	Nipple	Found
12	Spectacle Blind	Spectacle Blind	Found
1	Coupling	Coupling	Found
1	Paddle Spacer	Paddle Spacer	Found

56. Expand the dropdown in the Destination Short Codes field for the Coupling row.
57. Scroll down and select **All Short Codes...**
58. Re-expand the dropdown list and select the short code **Endolet**.

Count at time of comparison	Source Short Code	Destination Short C	Status
42	Nipple	Nipple	Found
12	Spectacle Blind	Spectacle Blind	Found
1	Coupling	Endolet	Mapped
1	Paddle Spacer	Paddle Spacer	Found

59. Go to the Option Codes tab.

NOTE Only Option Codes created in addition to the delivered catalog content are displayed and made available for mapping.

60. Run a new report. Check that the previous mapping is reflected.

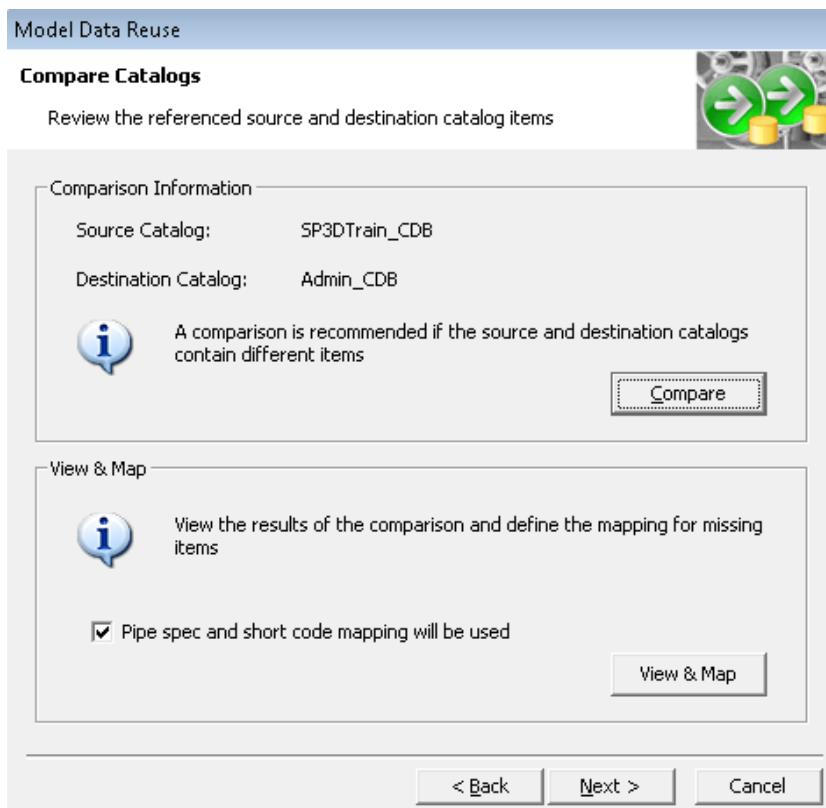
- Pipe Spec 1C0031-PB to 1C0031
- Short Code “Coupling” to “Endolet”

61. Save this Report as **MDR_WithMapping**.

NOTE Iterations of the mapping process across catalogs are useful references in cases where multiple MDR operations are expected to be performed across the same two models, since the mapping between two catalogs will be saved by Project Management.

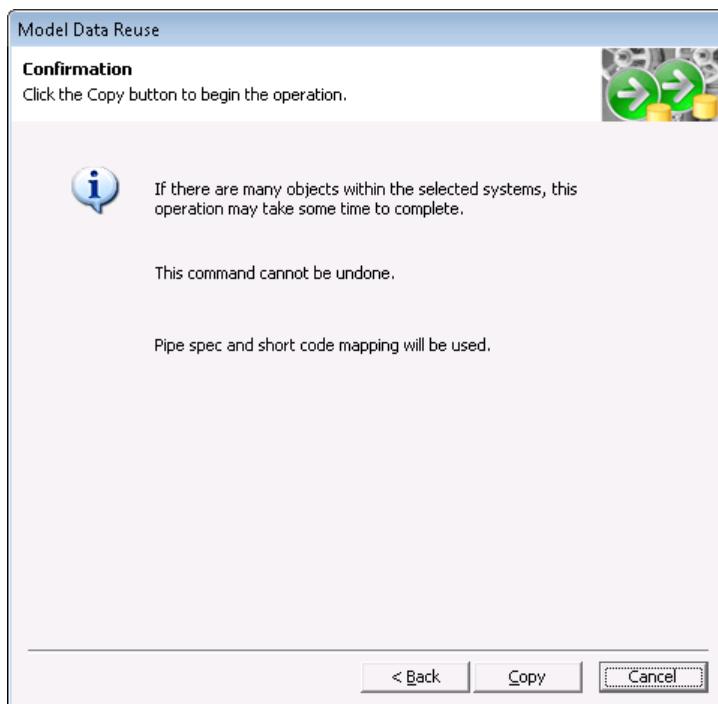
62. Click OK on the **View & Map** window.

63. From the **Compare Catalogs** window, select the **Pipe spec and short code mapping will be used** box.

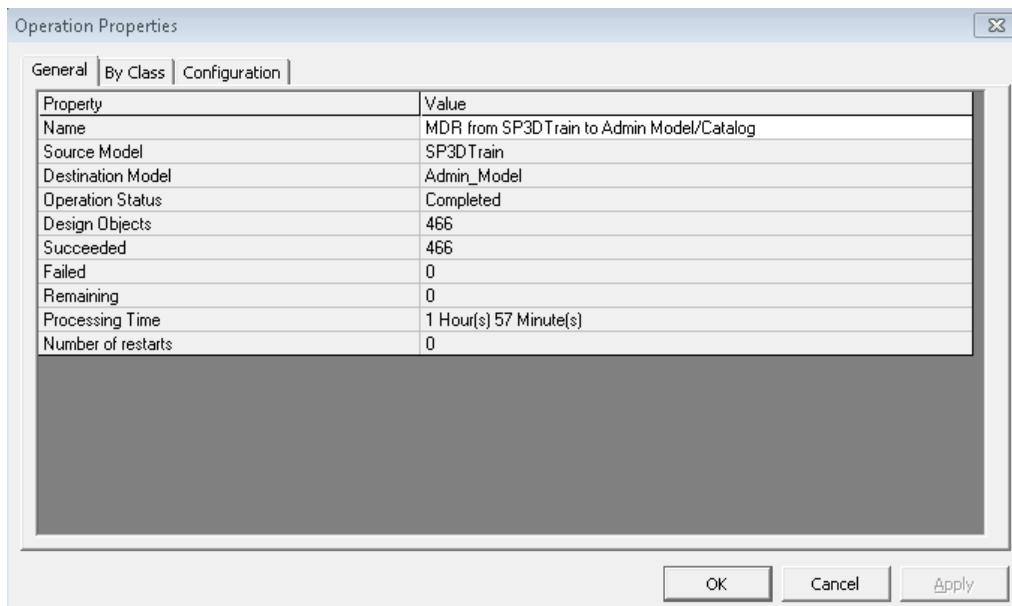


64. Select **Next**.

65. Review the **Confirmation** window. Select **Copy**.



66. Once the copy operation is complete, inspect the tabs in the Operation Properties dialog.

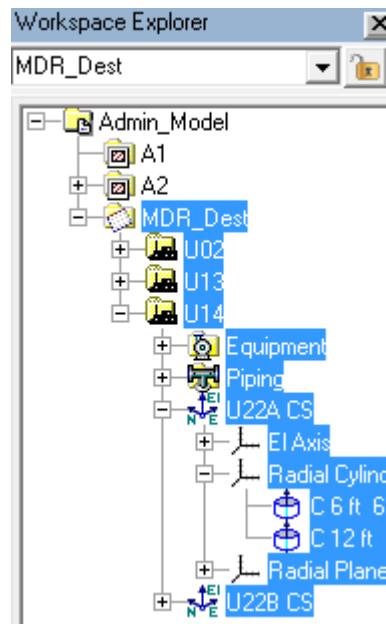


67. Click **OK**.

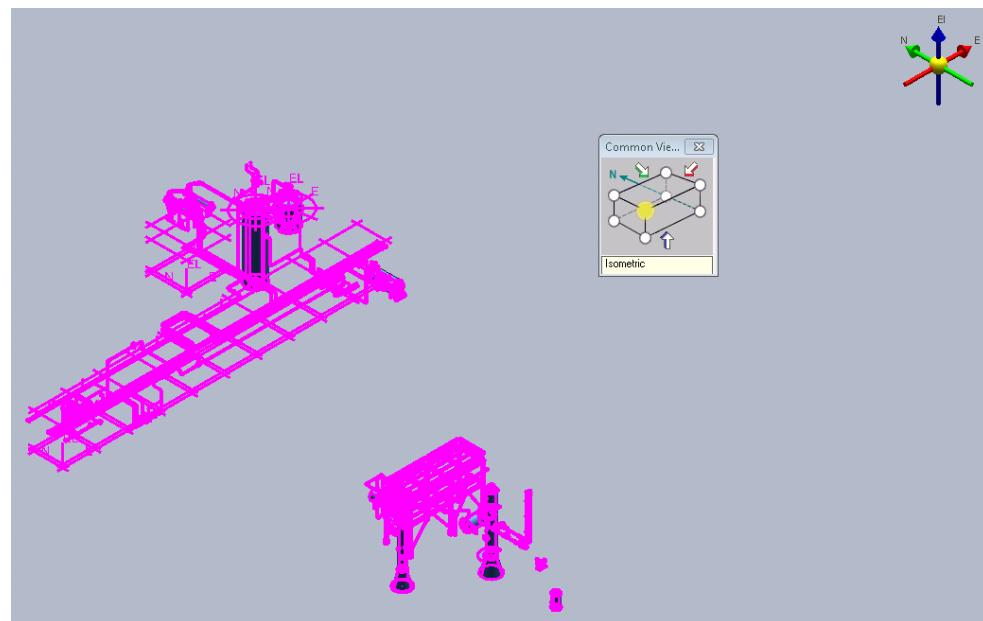
68. Close Project Management.

Review MDR Results

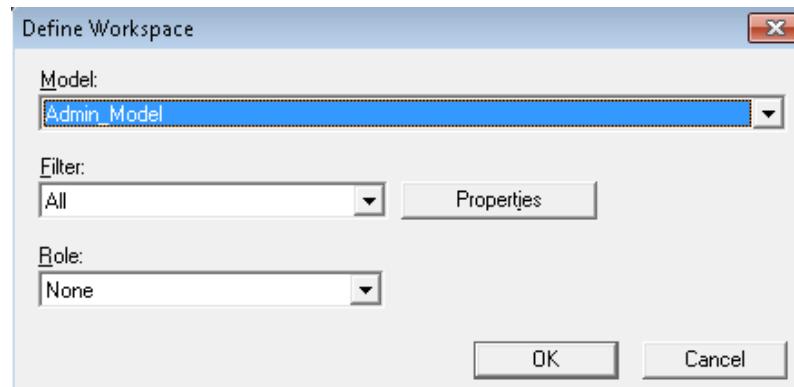
1. Open the saved session **MDR_Admin**.
2. Run the **Refresh Workspace** command.
3. In the Workspace Explorer, right-click on the **MDR_Dest** folder and select **Select Nested**.



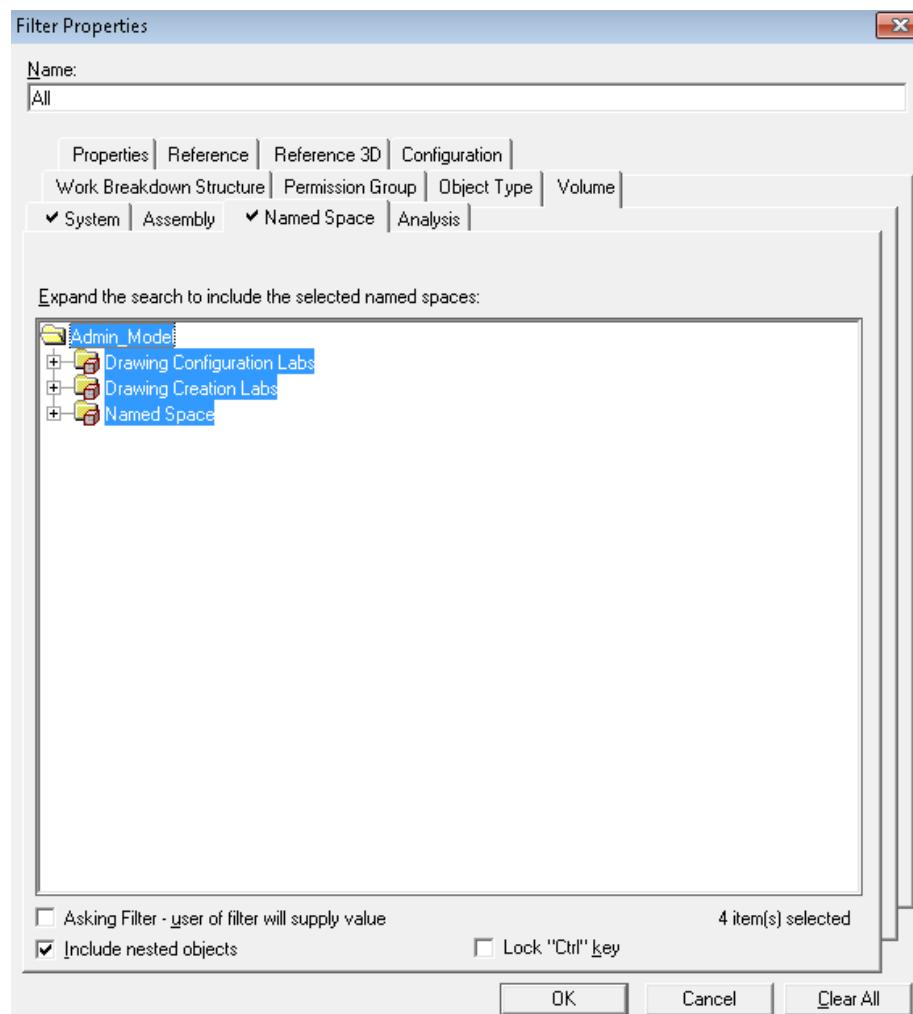
4. Fit the graphic view to these objects.
5. Open the Common Views window and select the Isometric View.



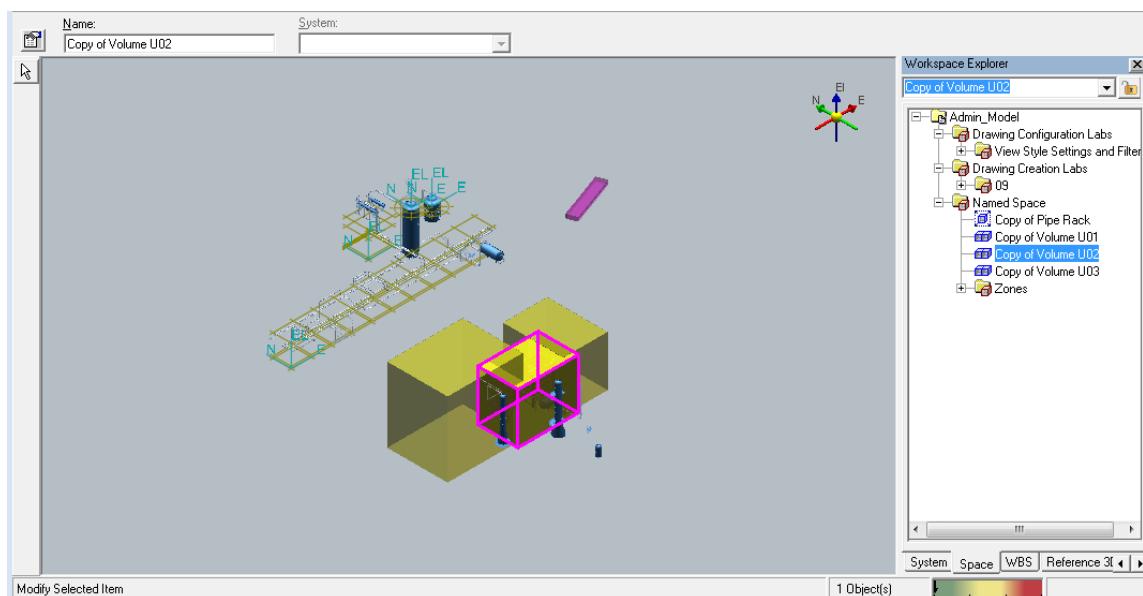
6. Right-click anywhere to de-select.
7. Go to **File > Define Workspace**.
8. Click on **Properties**.



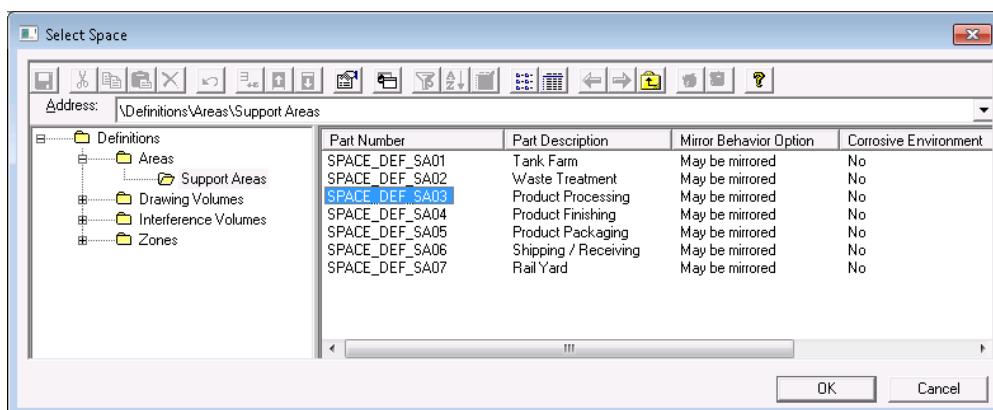
9. Edit the filter by selecting the root node for the model in the **Named Space** tab.



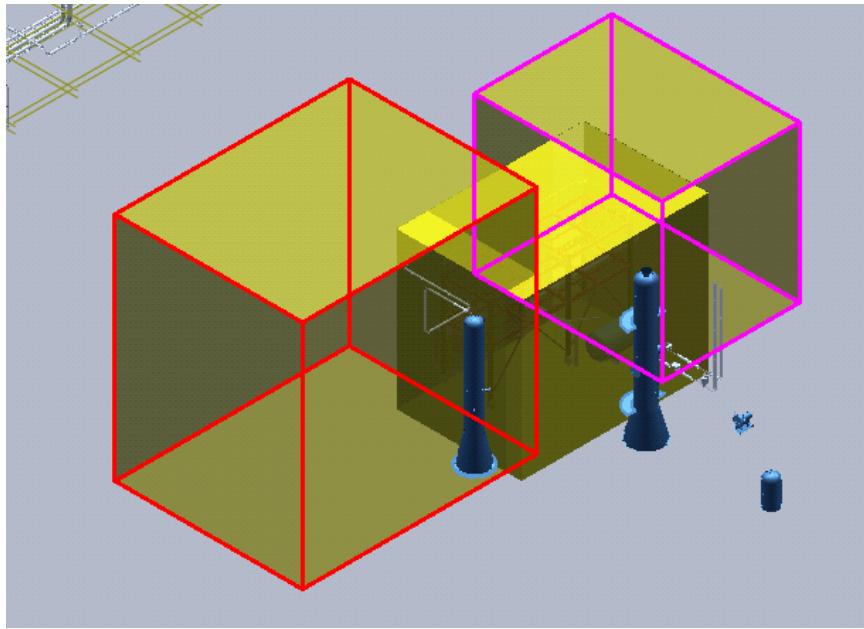
10. Click **OK**.
11. Define the Workspace with this selection to verify the execution of the “Copy volumes in range” setting.
12. From the Workspace Explorer, select the Space tab at the bottom. Locate and select **Copy of Volume U02** under **Admin_Model > Name Space**.



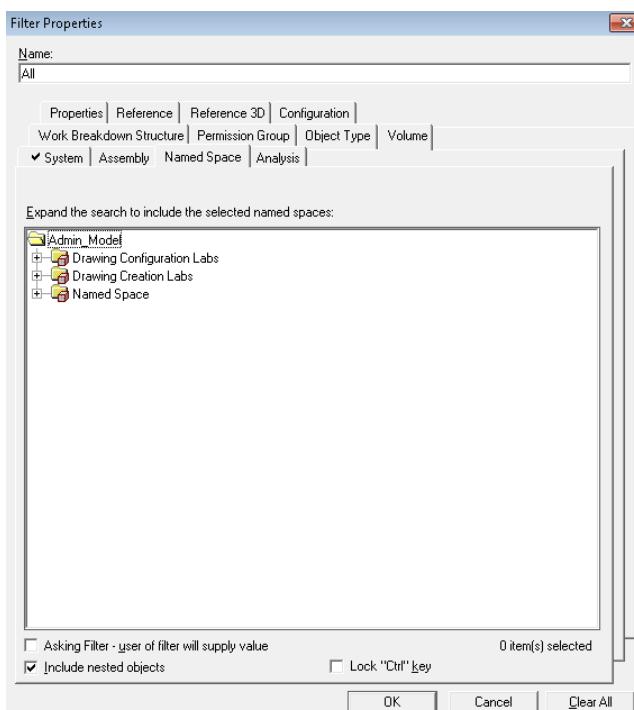
13. Open its Properties Page and modify the copied volume:
 - Name: VolumeU02_Target
 - Type: Areas\Support Areas\ Product Processing



14. Click **OK**.
15. Select volumes “Copy of Volume U03” and “Copy of Volume U01”.



16. Delete them.
17. Press **CTRL+W** to open **Define Workspace**.
18. Click on **Properties**.
19. Go to the **Named Spaces** tab and de-select the root node for the model with **CTRL+CLICK**.



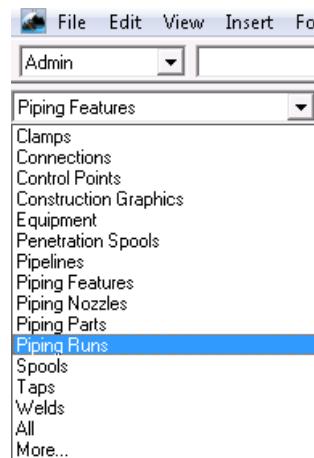
20. Click **OK**.

21. Define the Workspace with this selection.
22. Without closing the current session, open the saved session “MDR_SRC” to view the source model **SP3DTrain**.
23. Go through each of the Named Views  in the source model session while bringing the respective unit into view in the destination model session.

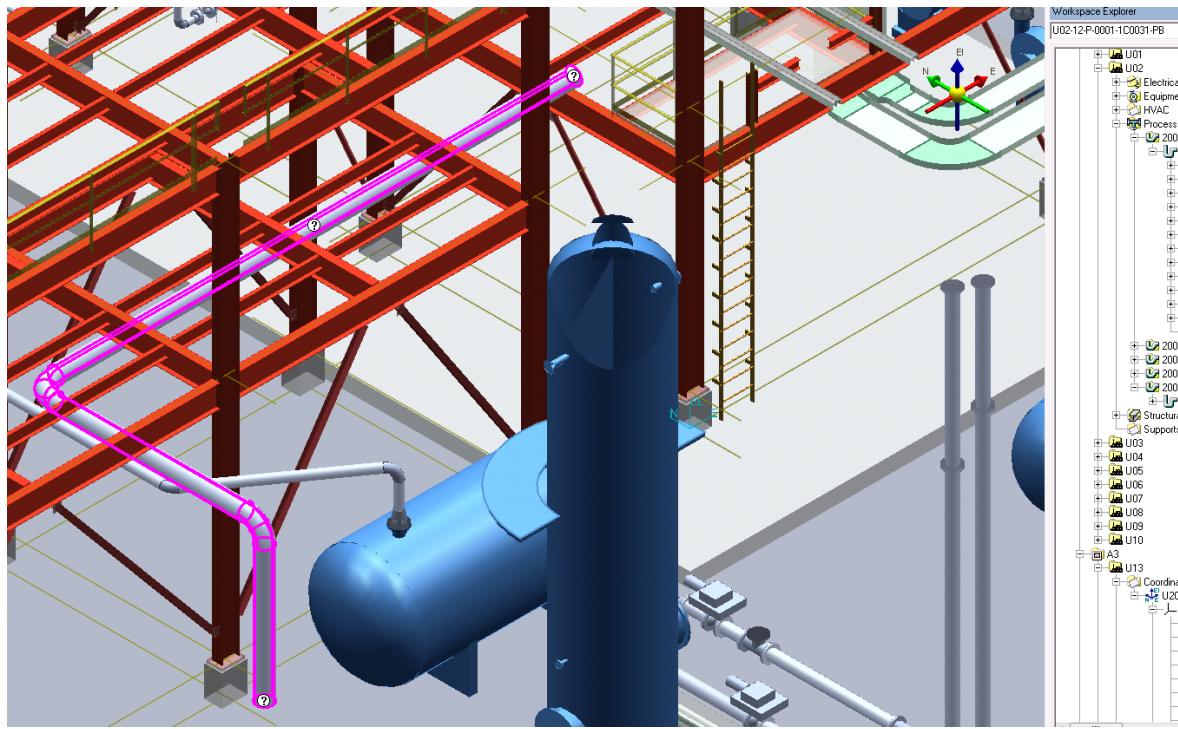


(Optional) Manipulate the Common Views to inspect the objects in each copied unit.

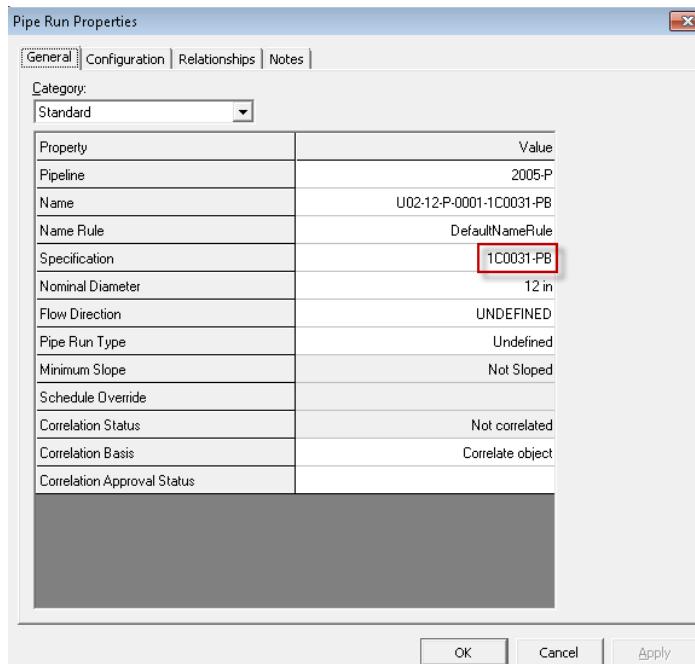
24. Go to **Tasks > Piping**.
25. Set the Locate Filter to “Pipe runs”



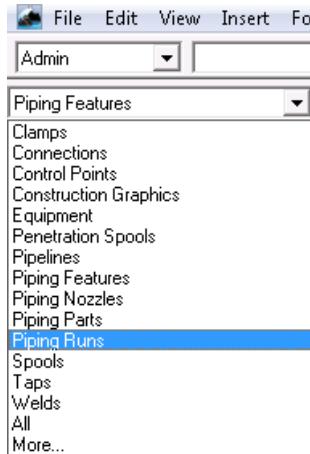
26. Enter “U02-12-P-0001-1C0031-PB” in the “Systems” tab of the Workspace Explorer
27. Hit Enter
28. Fit the graphic view to this selection



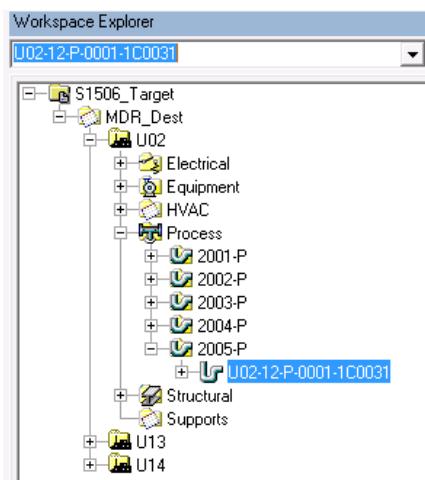
29. Open its Properties Page to check the original Specification in this pipe run



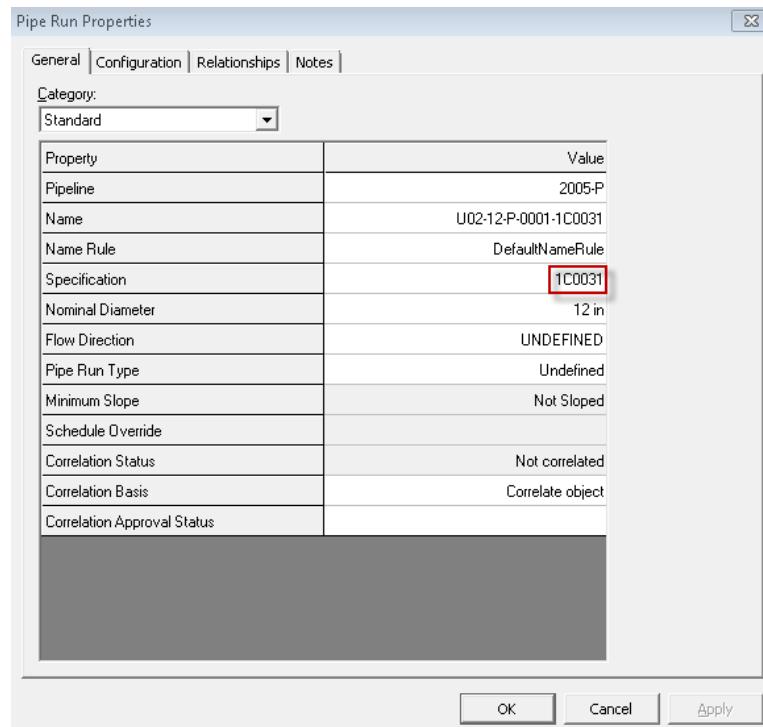
30. Press **Cancel**.
 31. Open session file **MDR_Admin**, go to **Tasks > Piping**.
 32. Set the Locate Filter to **Piping runs**.



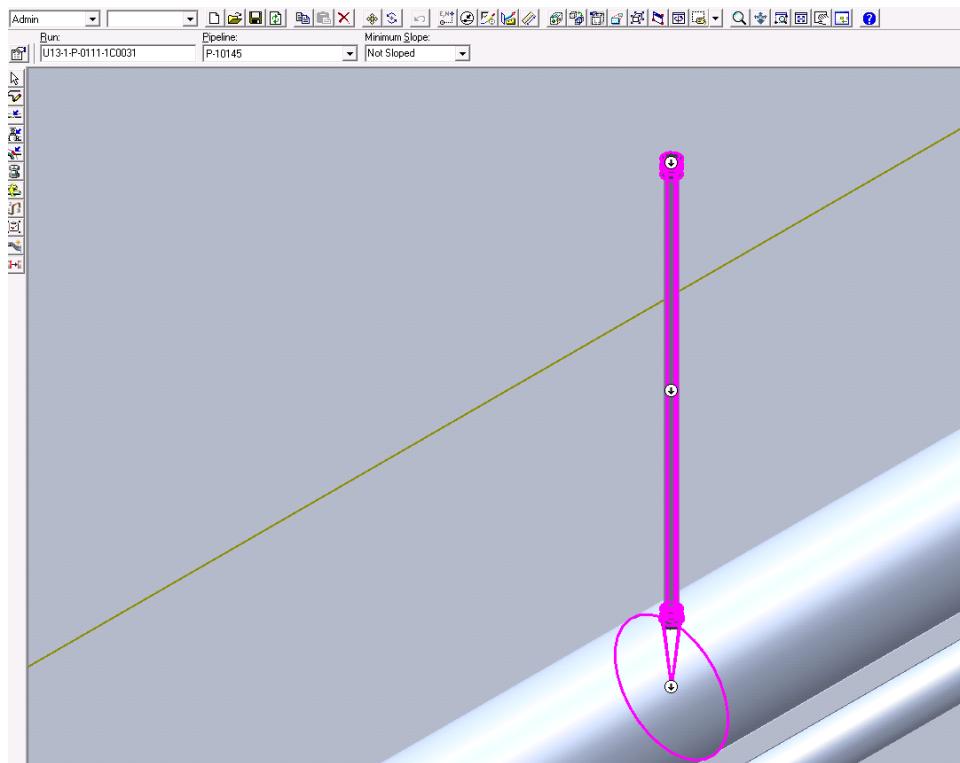
33. In the “Systems” tab of the Workspace Explorer, navigate to MDR_Dest>U02>Process>2005-P
34. Select the Pipe run under this Pipeline System
35. Fit the graphic view to this selection



36. Open its Properties Page to see the mapping effect on the Specification



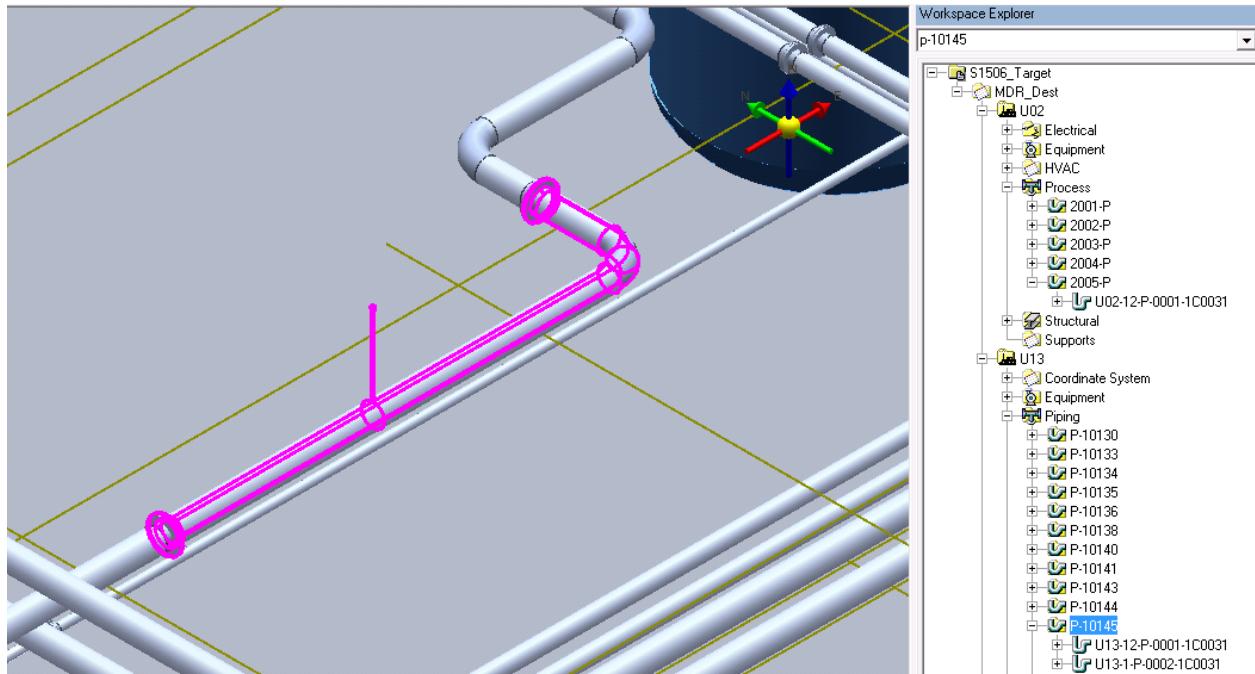
37. Press **Cancel**.
38. Go back to the Source model session **MDR_SRC**.
39. With the Locate filter still set to Piping Runs, enter **U13-1-P-0101-1C0031** into the Systems tab of the Workspace Explorer.
40. Select and fit this pipe run into the graphic view.



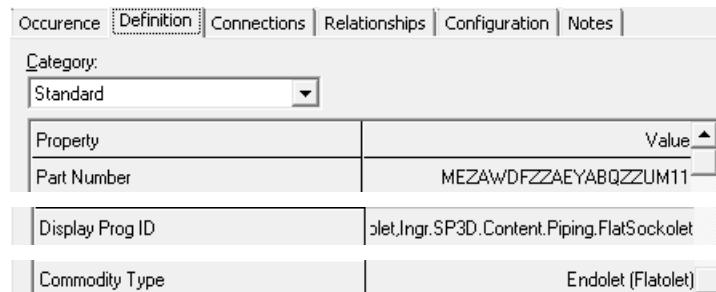
41. Open its **Properties** Page.
42. Go to the **Relationships** tab.
43. Click on the **Coupling** entry and select **Go To**.
44. In the **Pipe Component Properties** window, go to the **Definition** tab and note the Part Number, Display Prog ID, and Commodity Type.

Occurrence		Definition	Connections	Relationships	Configuration	Notes
Category:						
Standard						
Property				Value		
Part Number				MAKAWBVZZAAGABQZZUS11		
Part Description						
Mirror Behavior Option				Component may be mirrored		
Display Prog ID				SP3DCoupling.CCoupling		
Commodity Type				Coupling/connector		

45. Press **Cancel**.
46. Go to the Target model session.
47. Change the Locate Filter to All.
48. Identify pipeline **P-10145** using the Workspace Explorer. Fit this pipeline into view.



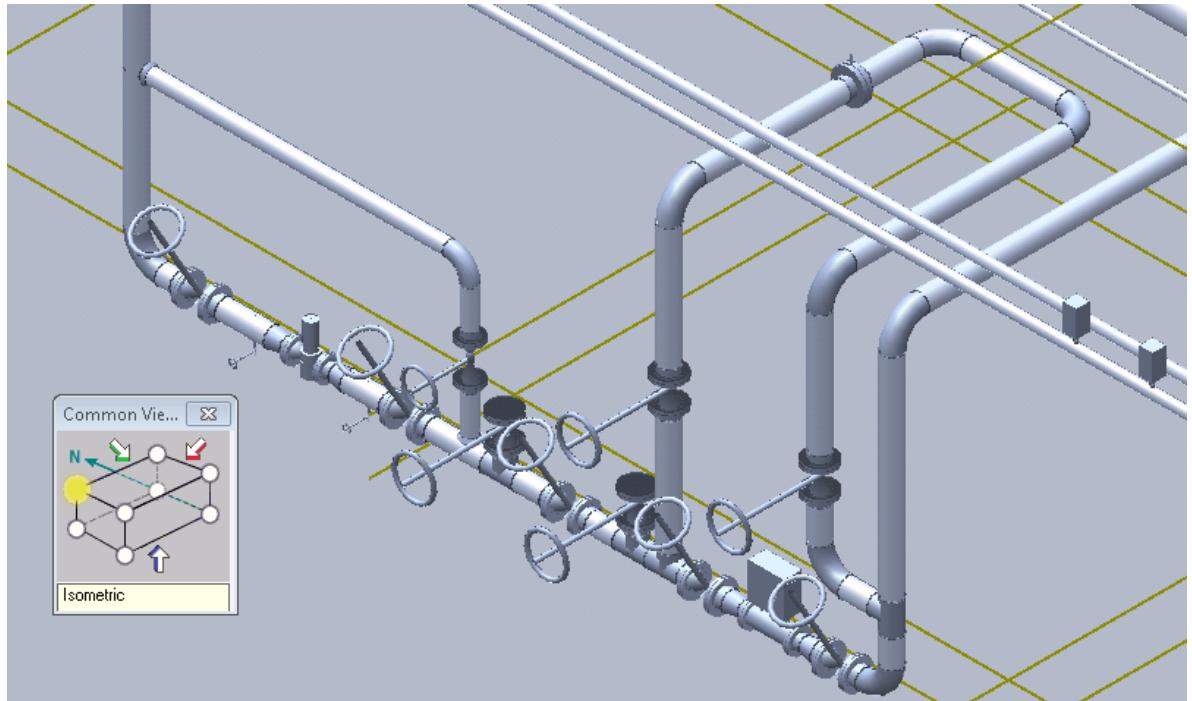
49. Select the branching piping run (equivalent to U13-1-P-0101-1C0031) and open its **Properties** Page.
50. Go to the **Relationships** tab.
51. Select the **Endolet** entry (the substitution of the Coupling in the source) and select **Go To**.
52. In the **Pipe Component** Properties window, go to the **Definition** tab and note the mapping effect on the Part Number, Display Prog ID, and Commodity Type.



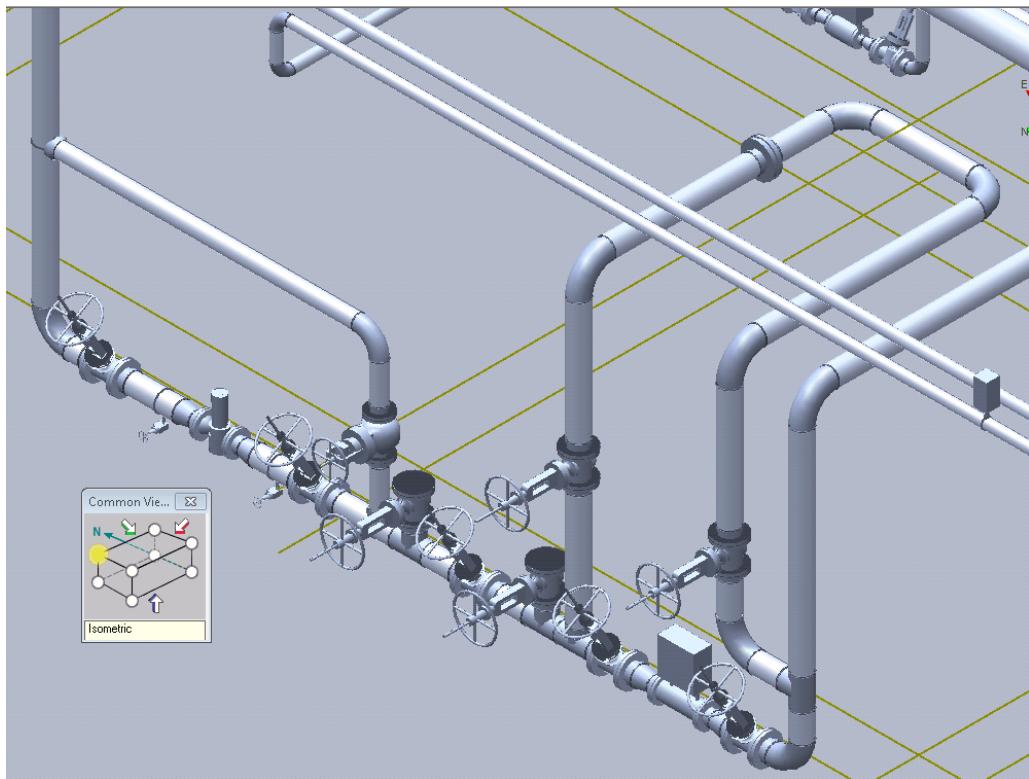
53. Press **Cancel**.

Symbol Replacement

1. In the Source model session, locate pipeline **P-10148**.
2. Fit this pipeline into view with the shown Isometric Common View.



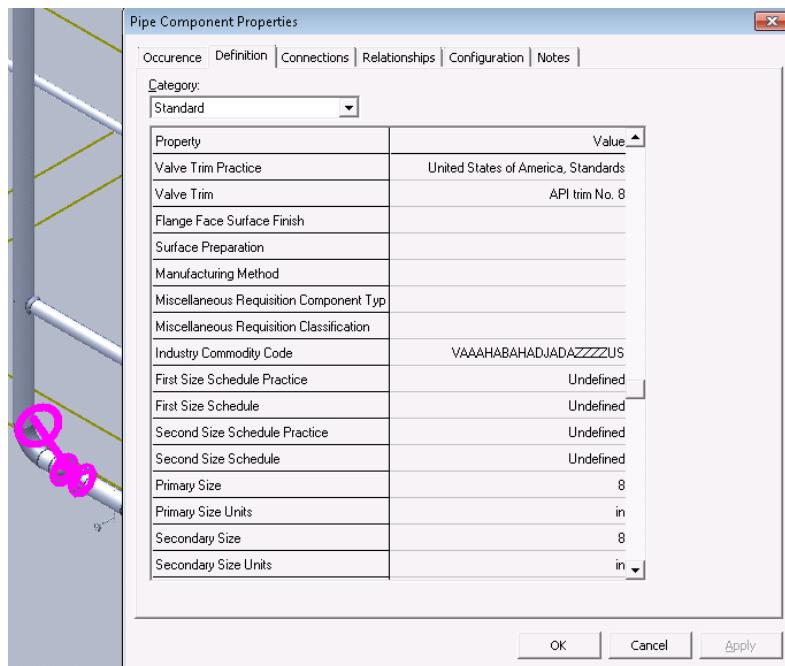
3. In the Target model session, locate the same pipeline **P-10148** and fit it into view with the same Isometric Common View



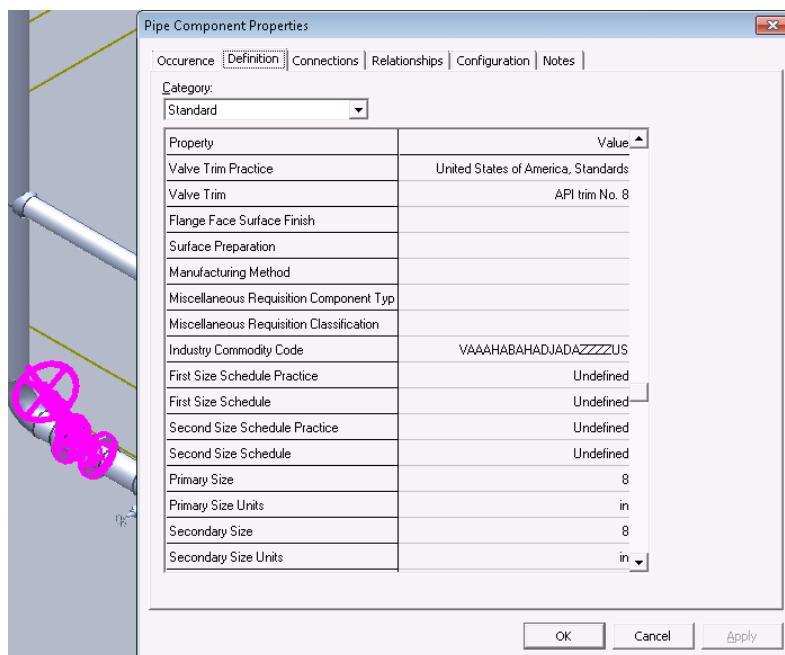
4. Change the Locate Filter to Pipe Parts in both model sessions

LAB 21: Model Data Reuse – Copy to New Model

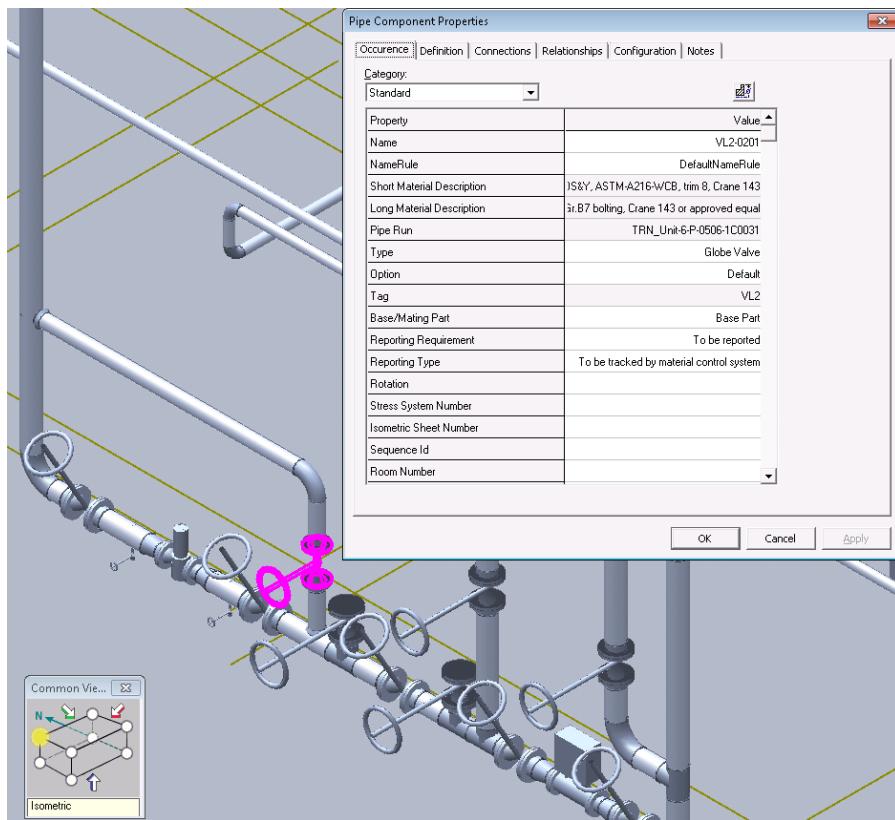
5. Select a Gate Valve in the source model session and open its Properties Page.
6. Go the Definition tab. Note its Display Prog ID among other properties, such as part number, valve trim, Primary Size, and Commodity Sub Class



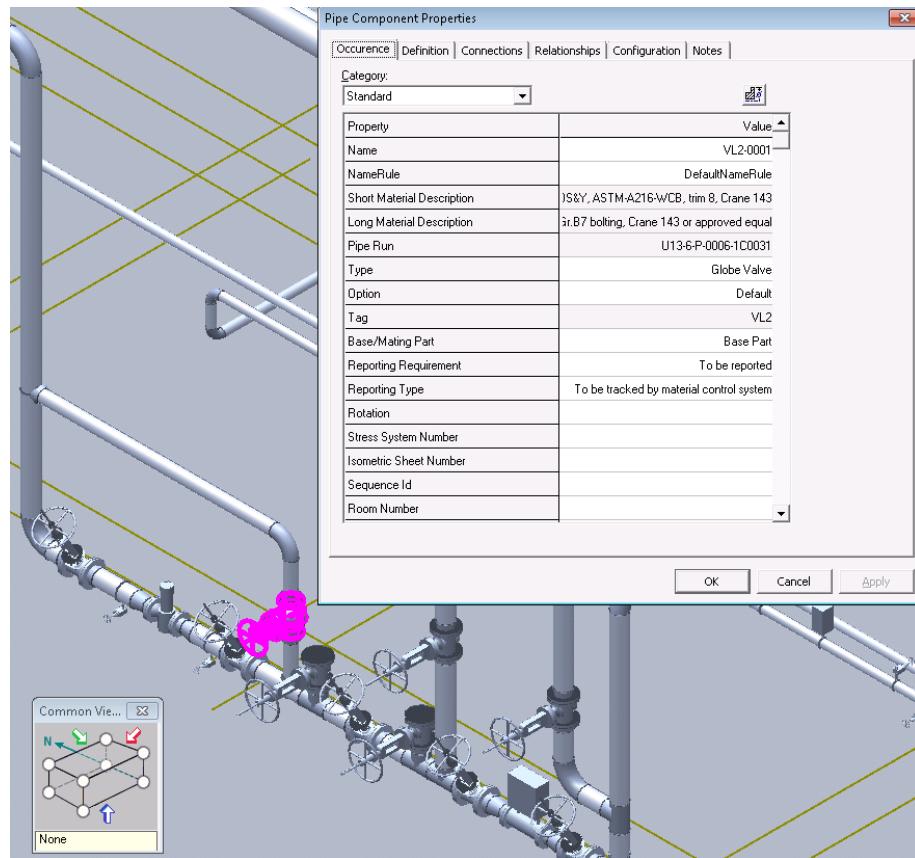
7. Identify the equivalent part in the target model session and open its Properties Page.
8. Go the Definition tab. Note the Display Prog ID has changed, while all other properties, such as part number, valve trim, Primary Size, and Commodity Sub Class have remained the same.



9. Press Cancel on each Pipe Component Properties pages.
10. Perform a similar comparison between globe valve **VL2-0201** in the source model session...



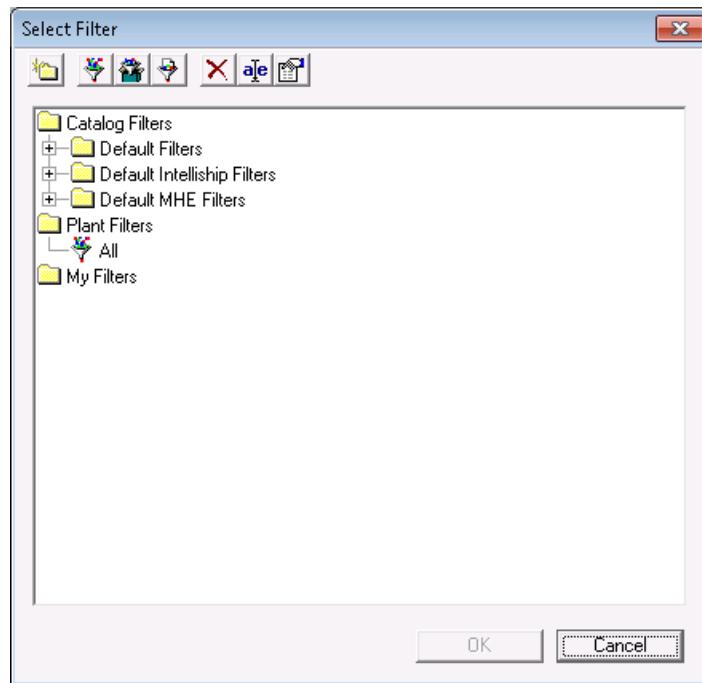
11. ...and its equivalent in the target model session



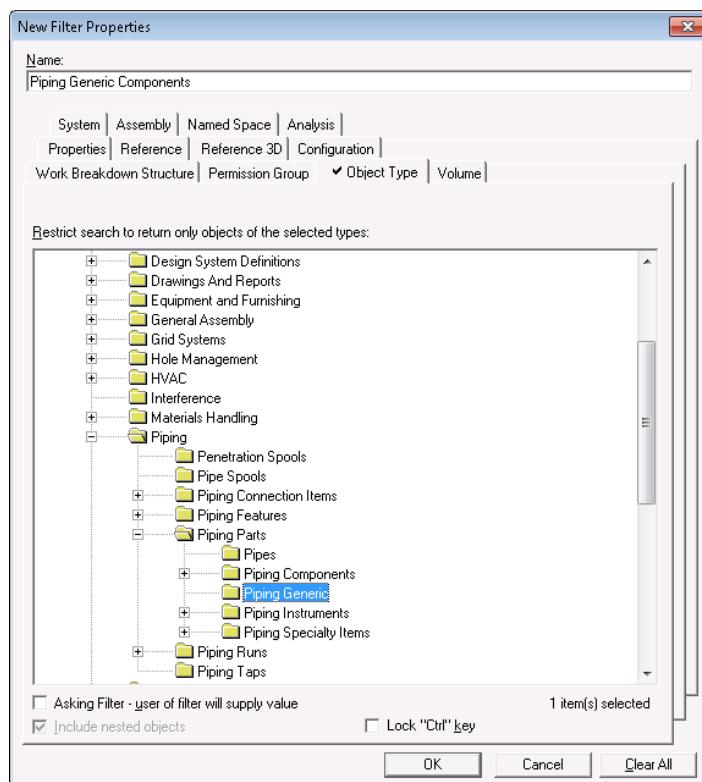
12. Close all Properties pages.

Replacing Piping Generic Components

1. Go to the target model session
2. Navigate to **Tools > Select by Filter...**
3. Click on the **New Filter**  command.



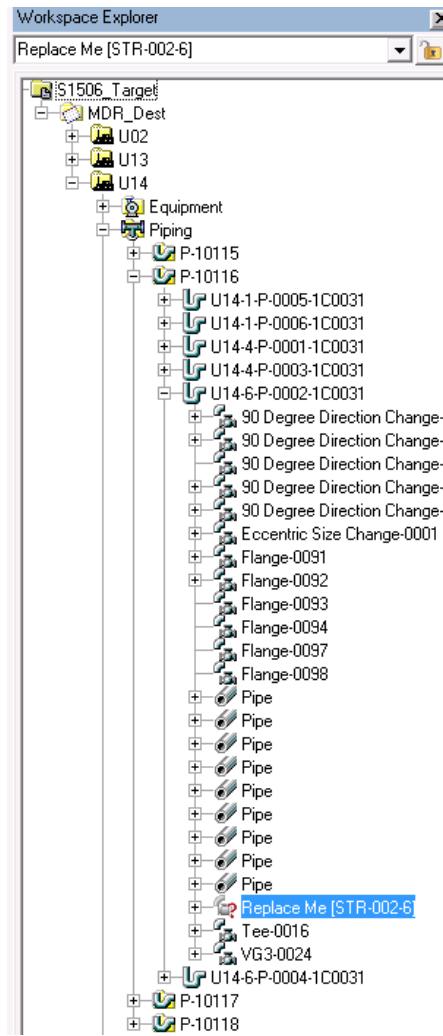
4. Enter the name **Piping Generic Components**.
5. Go to the **Object Type** tab.
6. Under the S3D folder, expand **Piping > Piping Parts > Piping Generic**.



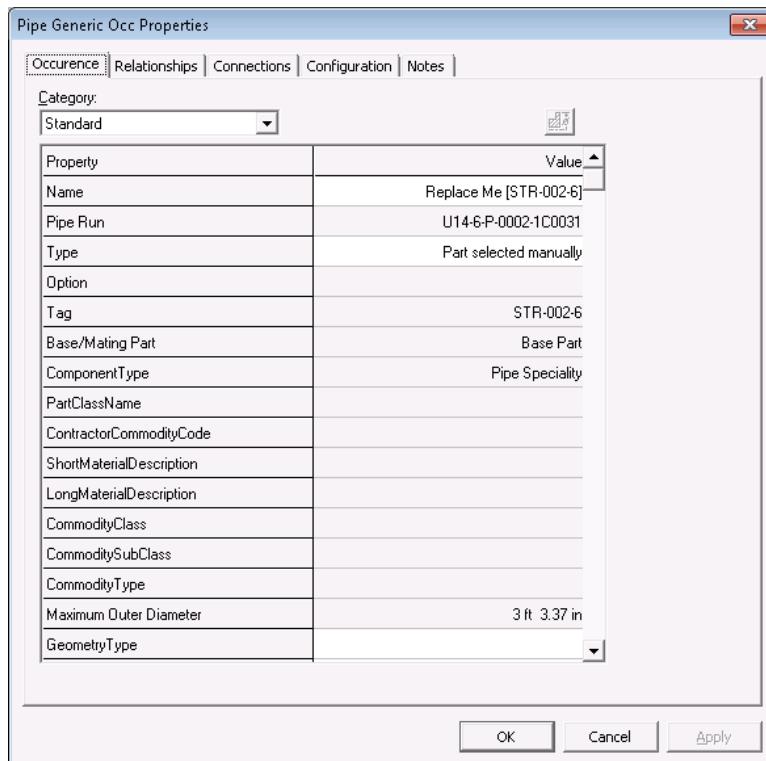
7. Click **OK**.
8. Back in the Select Filter window, choose the newly created filter and click OK
9. Fit  the Workspace to the selected items.



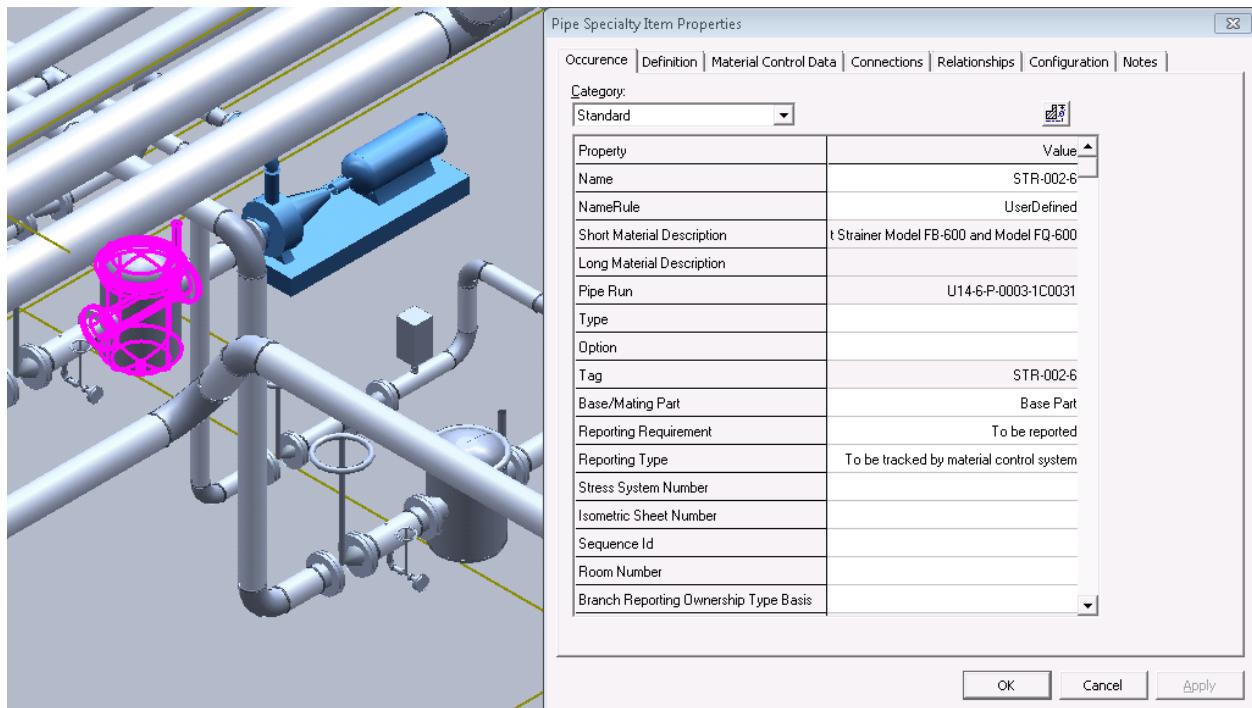
10. Resize the Workspace Explorer and navigate it to locate Generic components created during the MDR operation, shown as “Replace Me” children in the hierarchy.
11. Right-click in the graphic space to deselect all the generic components.
12. Change the Locate Filter to “All” if not set to this
13. Expand the following in the Systems hierarchy: **MDR_Dest > U14 > Piping > P-10116**.
14. Select the generic component.



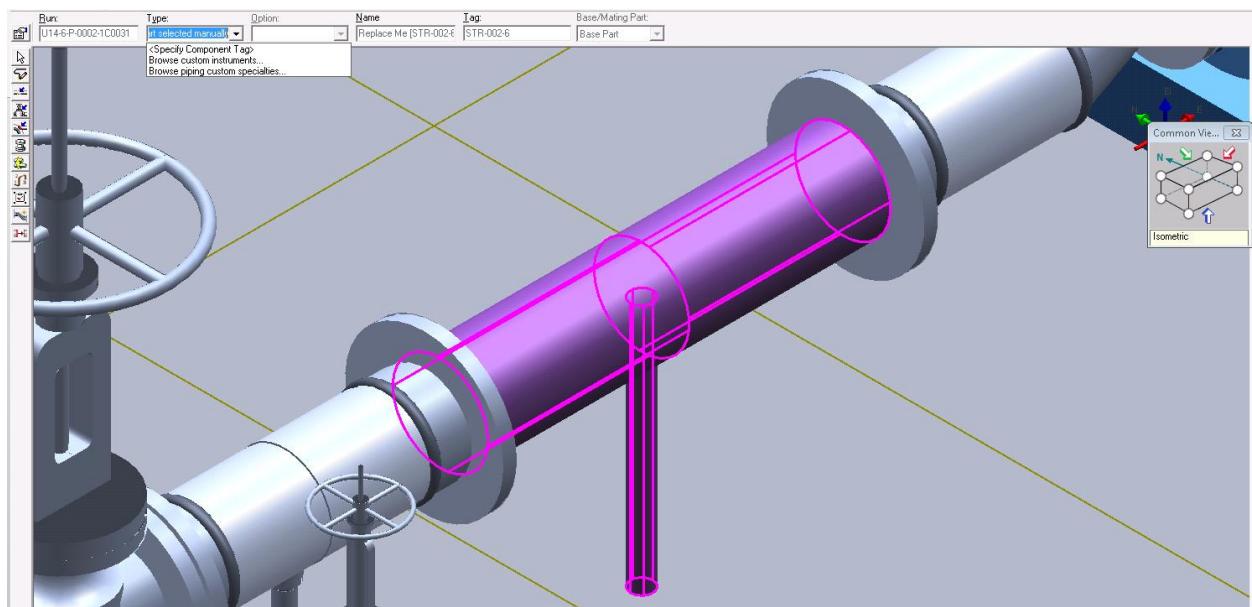
15. Fit the workspace to this selection.
16. Open its Properties Page, locate the value for Pipe Specialty's Tag



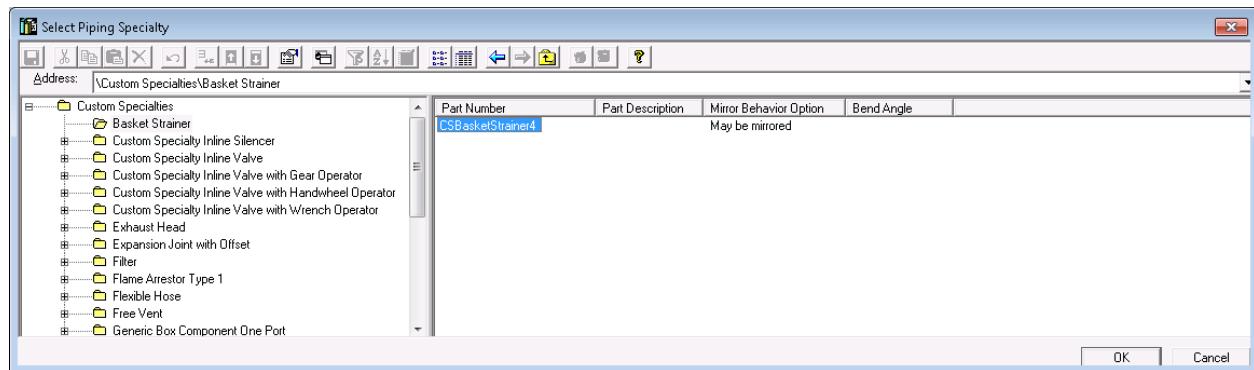
17. Close the Properties Page and right-click anywhere to de-select
18. Tag STR-002-6 corresponds to the Pipe Specialty Item “Jamison Model FQ Single Basket Strainer Model FB/FQ-600”. Verify this by going to the source model session and examining **U14 > Piping > P-10116 > U14-6-P-0003-1C0031 > STR-002-6**.



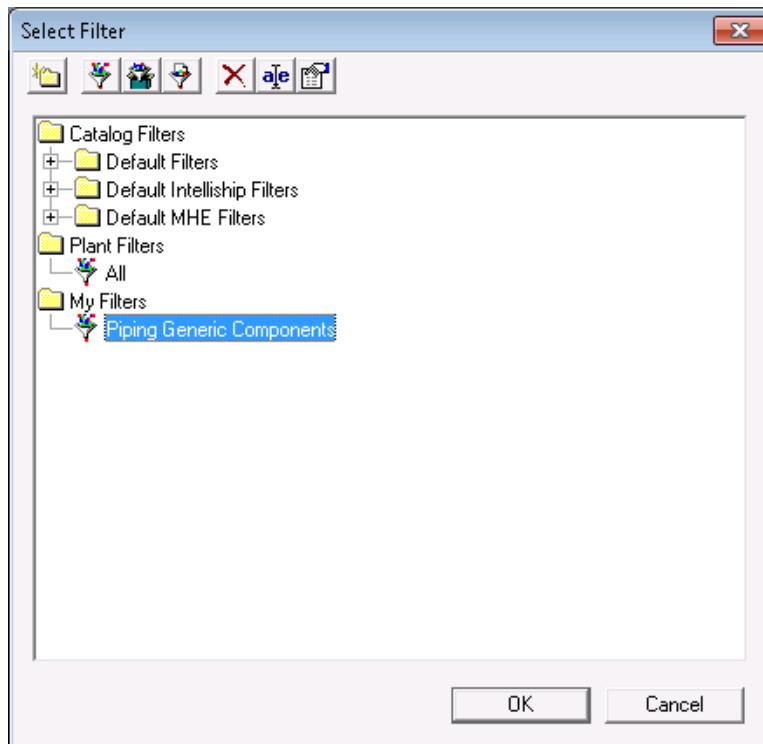
19. Return to the target model session and change the Locate Filter to “Piping Features”
20. Select the generic component graphically from the **Active View**.
21. In the ribbon bar, expand the “Type” dropdown list



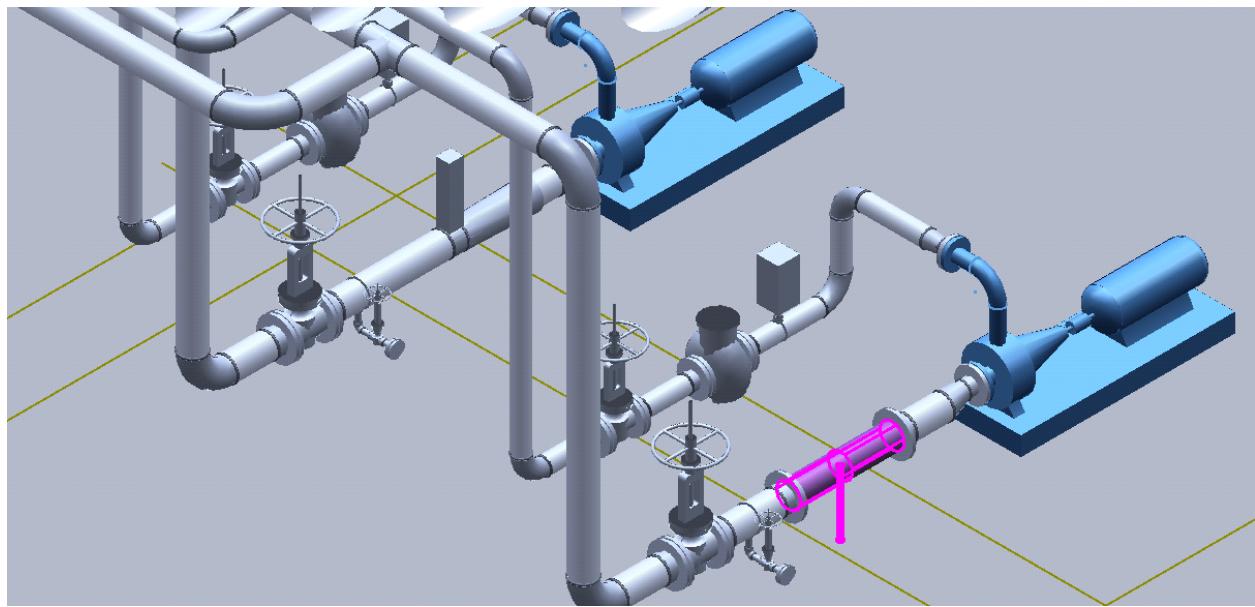
22. Select “Browse piping custom specialties...”
23. In the “Browse piping custom specialties” dialog box, select “More ...” from the Specialties dropdown
24. Navigate to **Custom Specialties > Basket Strainer > CSBasketStrainer4.**



25. Select this Part Number and click OK.
26. Once the part is computed, right-click anywhere to exit selection.
27. Go to **Tools > Select By Filter...**
28. Select the **Piping Generic Components** filter.



29. Click **OK**.
30. Without exiting the selection, locate the replaced piping specialty to verify it's no longer identified and highlighted as a Piping Generic Component.



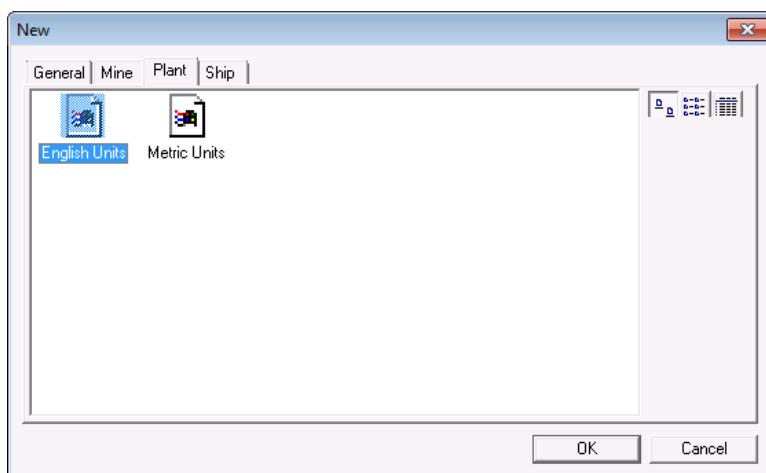
31. Save changes and close both Smart 3D sessions.

LAB 22: Model Data Transform

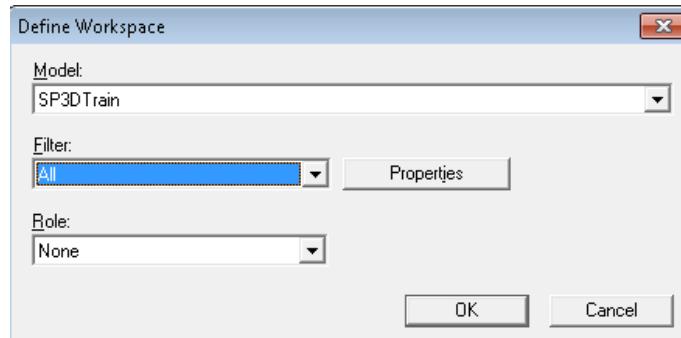
Objectives

After completing this lab you will be able to:

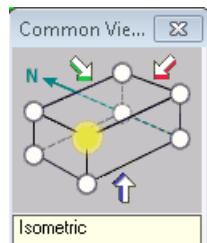
- Complete a transform operation of an entire unit that must be repositioned according to a newly defined coordinate system.
1. Launch Smart 3D.
 2. Select the **English Units** template in the “Plant” tab.



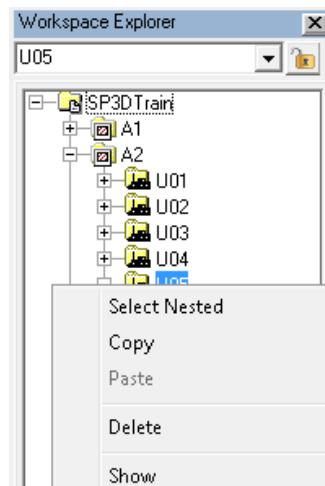
3. Go to **File > Define Workspace**.
4. Select model **SP3DTrain**.
5. From the Filter dropdown, select **More...**
6. Underneath the Plant Filters folder, select the filter **All**. Click **OK**.
7. Define the Workspace with these selections.



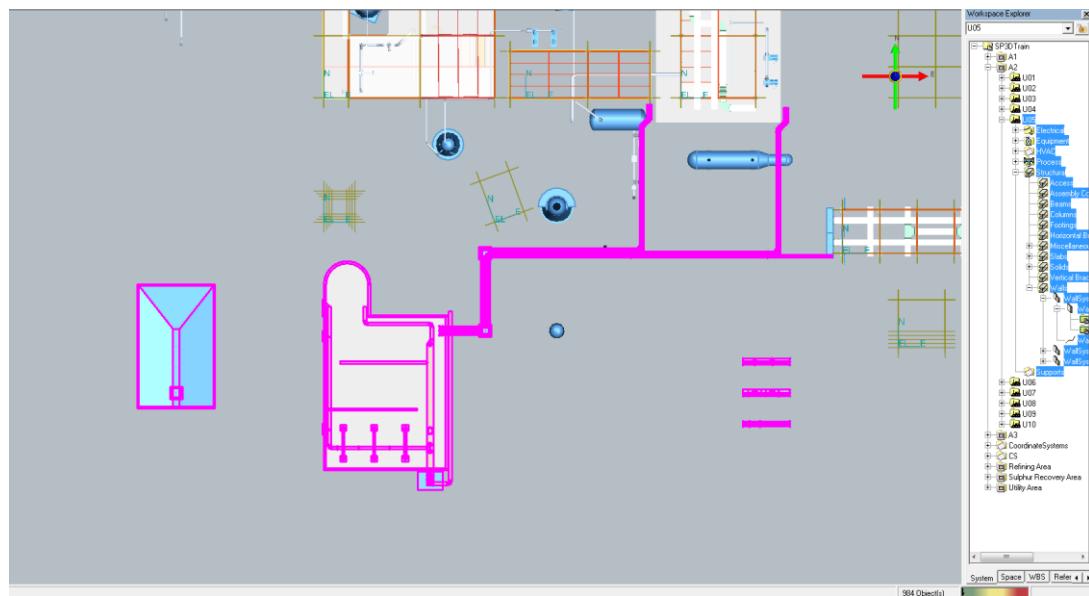
8. Once the workspace is loaded, open the Common Views window. Select the frontal Isometric view.



9. Expand folder A2 and right-click on U05. Select **Select Nested**.

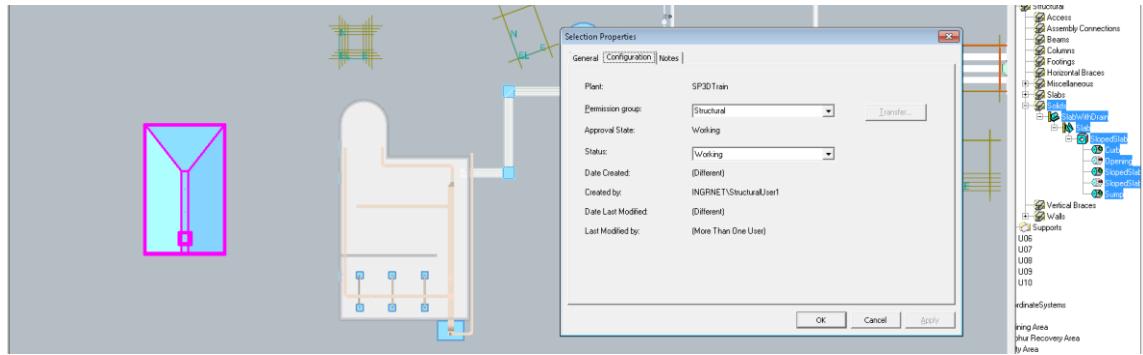


10. Fit the selection into View. This will be the select set for the Transformation operation.

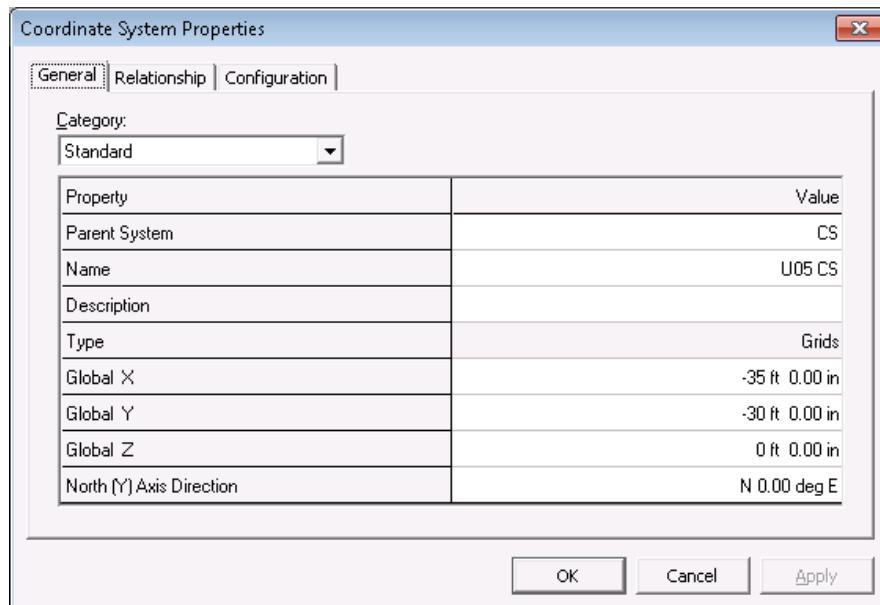


11. Right click anywhere to de-select.

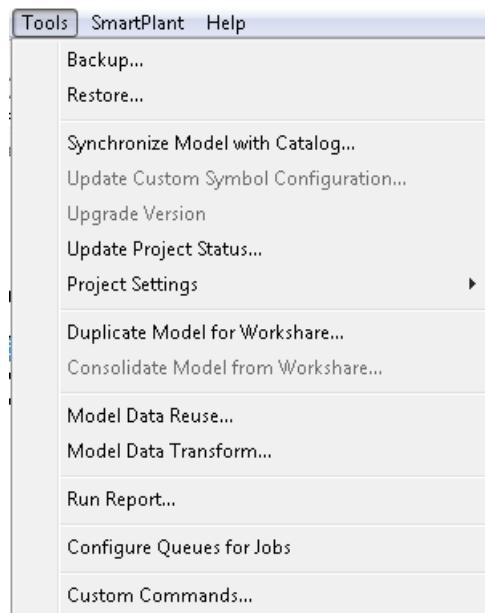
12. With the **Locate Filter** set to "All", select the Structural System "Solids" in the **A2 > U05 > Structural** folder.
 13. Right-click and **Select Nested**.
 14. Open the Properties Page and go to its **Configuration** tab.



15. Change the status from “Working” to “Approved”.
 16. Click **Apply** and close the Properties Page.
 17. Right click anywhere to de-select.
 18. In the Workspace Explorer, expand the “Equipment” folder under U05. Select equipment **E-PP-A2**.
 19. Open its Properties Page and go to the “Occurrence” tab.
 20. Change the Category from “Standard” to “Position and Orientation”. This will be a marker for the transformation operation.
 21. Go to the **Configuration** tab and change the status from “Working” to “Approved”.
 22. Click Apply and close the Properties Page.
 23. Right click anywhere to de-select.
 24. In the Workspace Explorer, expand the “CS” folder. Select “U05 CS” and open its Properties Page. Note the global coordinates from the **General** tab and close.



25. Select **File > Save** to save the session as “MDR_Transform” in the **Desktop > MDR** and close it.
26. Open **Project Management** if not already open.
27. Go to **Tools > Model Data Transform...**

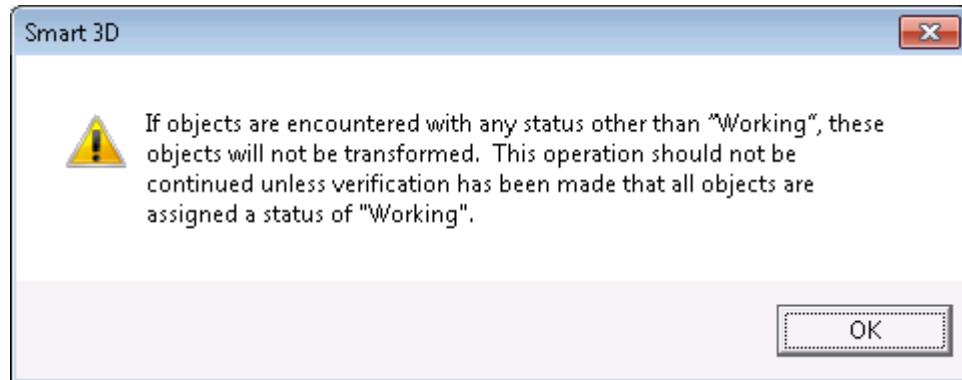


28. Select **Begin New Operation** and click **Next**.
29. Name the operation **MDR_Coordinate System Change** and click **Next**.
30. In the **Model** window.

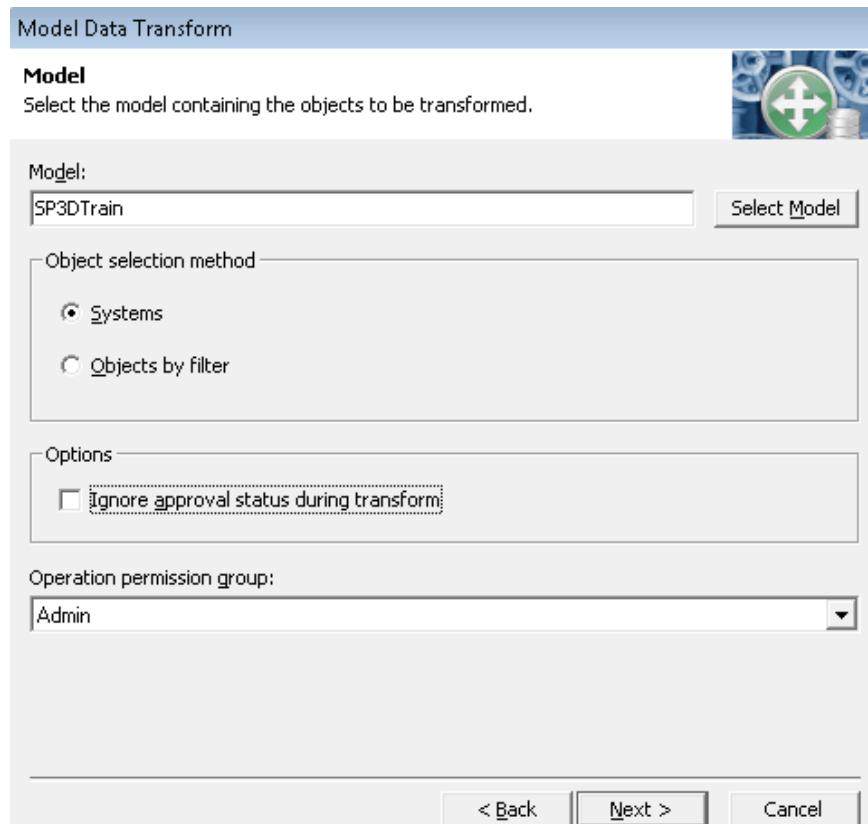
Press "Select Model" and choose **SP3DTrain**.

Object selection method: **Systems**

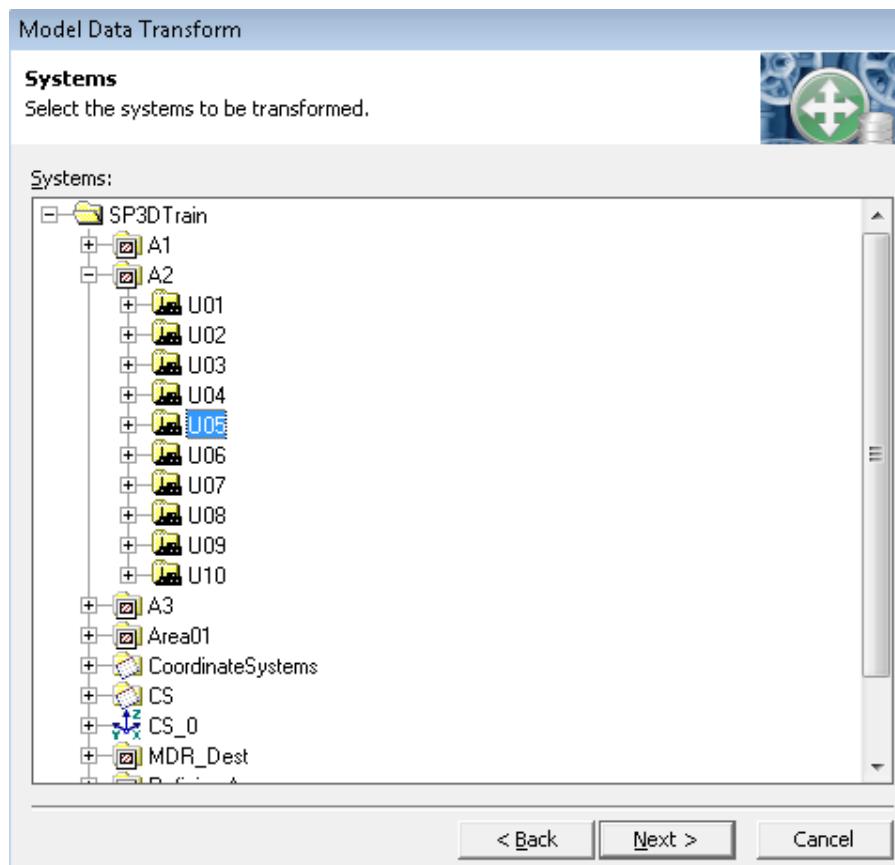
Options: Uncheck "Ignore approval status during transform". Accept the following warning:



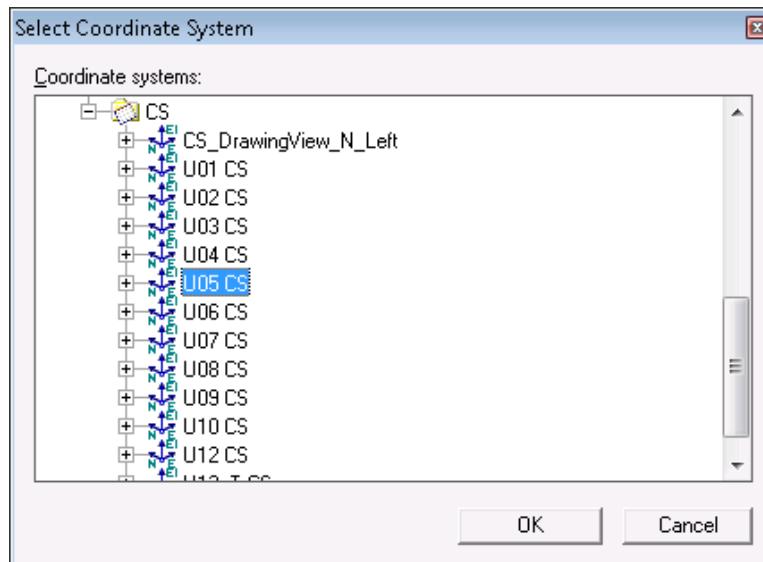
Operation permission group: **Admin**.



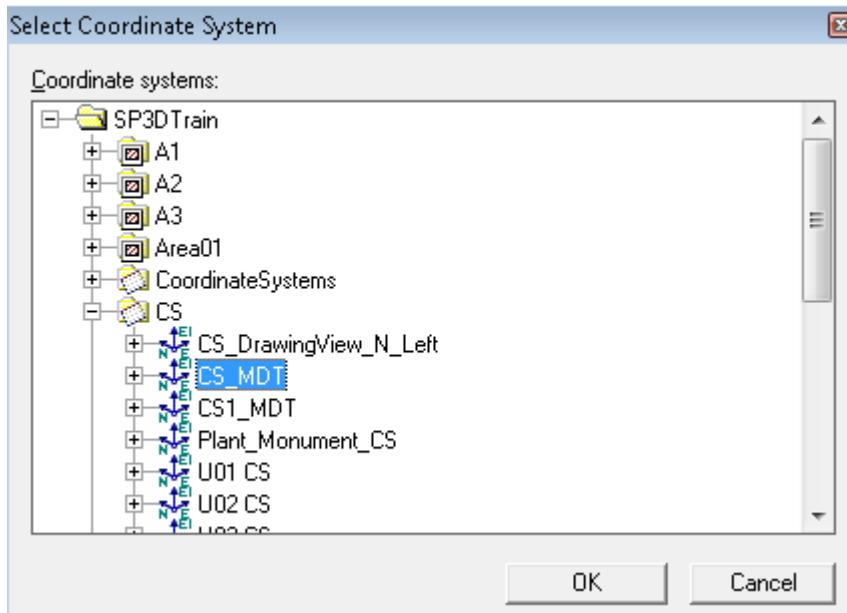
31. Select **Next**.
32. In the **Systems** window, expand the **A2** folder to select **U05**.



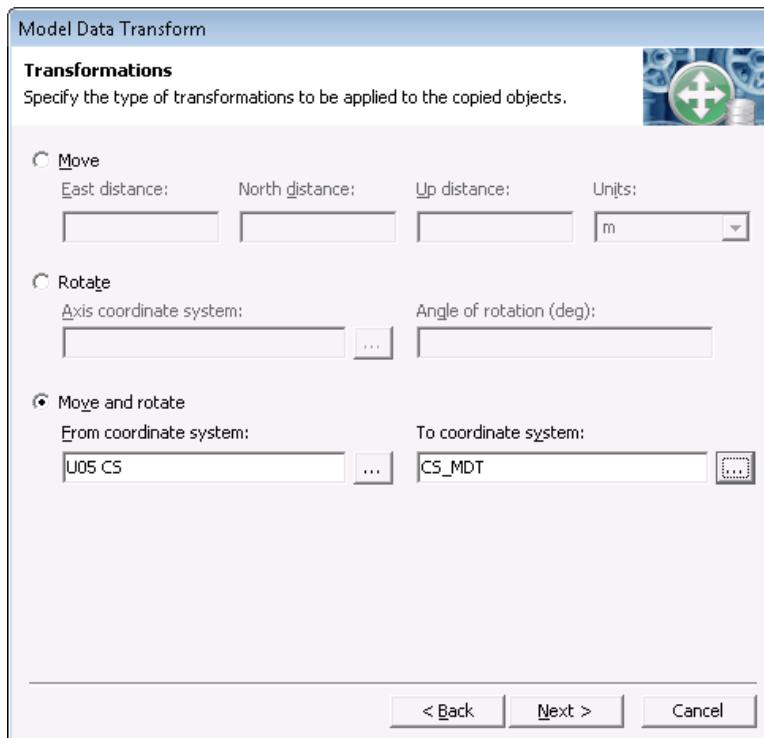
33. Select **Next**.
34. In the **Transformations** window, select the **Move and rotate** mode.
35. Expand the ellipses in the **From coordinate system:** field. Expand the CS folder to select **U05 CS**.



36. Click **OK**.
37. Expand the ellipses in the **To coordinate system** field. Expand the **CS** folder to select **CS_MDT**.

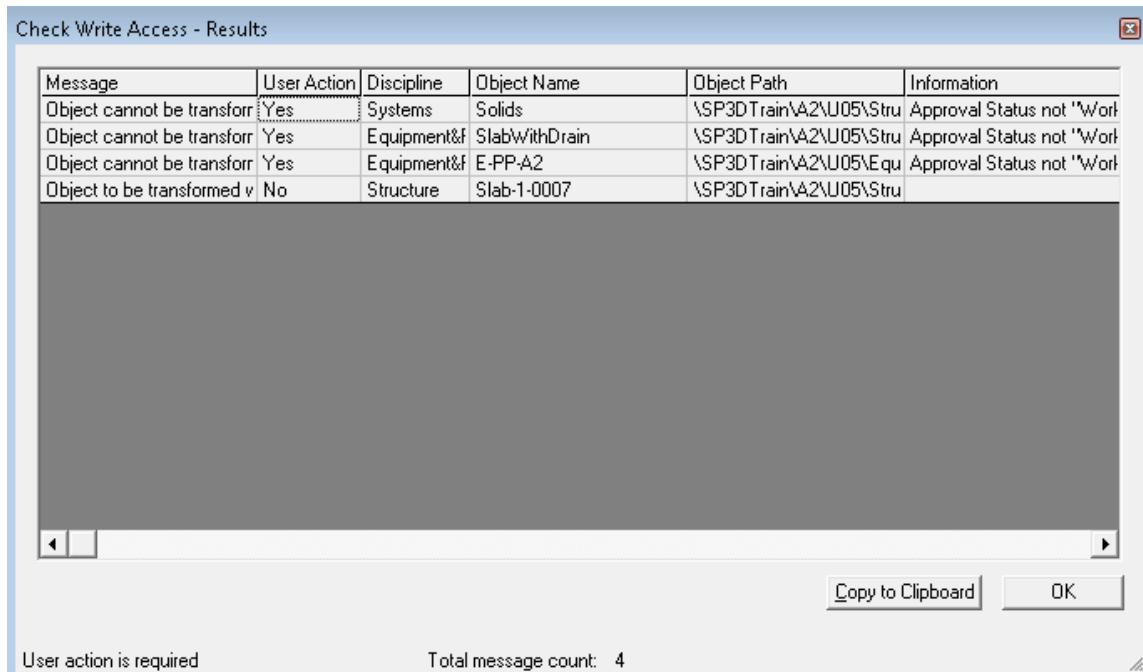


38. Check the coordinate system inputs.



39. Click **Next**.

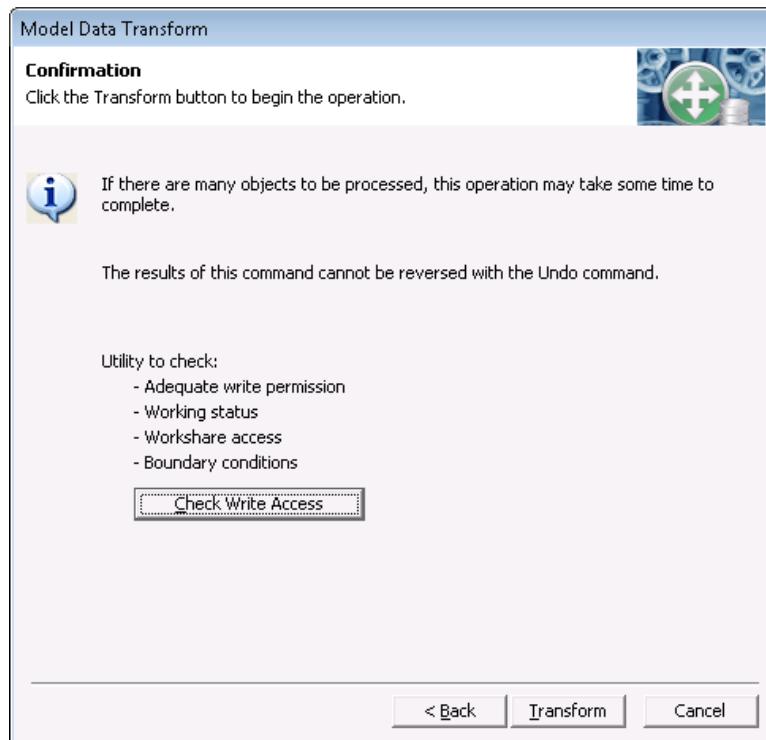
40. In the **Confirmation** window, press **Check Write Access**.
41. Once the status window disappears, press the **Copy to Clipboard** button in the **Check Write Access-Results** window.



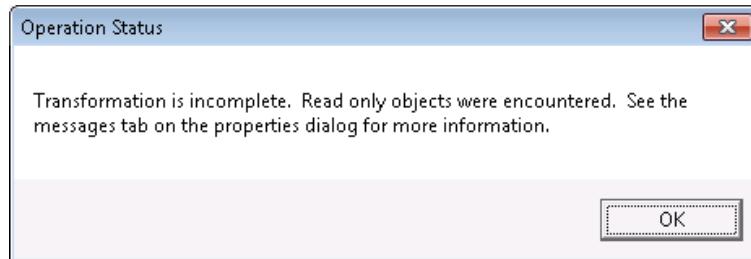
42. Open a new Excel spreadsheet.
43. Paste the contents of the clipboard.
44. Review that the objects set to an **Approved** status are mentioned in the messages.

A	B	C	D	E	F	G
Message	User Action	Discipline	Object Name	Object Path	Information	OID
Object cannot be transformed	Yes	Systems	Solids	\SP3DTrain\A2\U05\Structural	Approval Status not "Working"	{0003456-0000-0000-DB02-66AE80495204}
Object cannot be transformed	Yes	Equipment&Furnishing	SlabWithDrain	\SP3DTrain\A2\U05\Structural\Solids	Approval Status not "Working"	{00004E2E-0000-0000-C103-66AE80495204}
Object cannot be transformed	Yes	Equipment&Furnishing	E-PP-A2	\SP3DTrain\A2\U05\Equipment	Approval Status not "Working"	{00004E2E-0000-0000-7B02-BCDC79495804}
Object to be transformed will be disconnected	No	Structure	Slab-1-0007	\SP3DTrain\A2\U05\Structural\Slabs		{0003A998-0000-0000-F66D-235777496304}

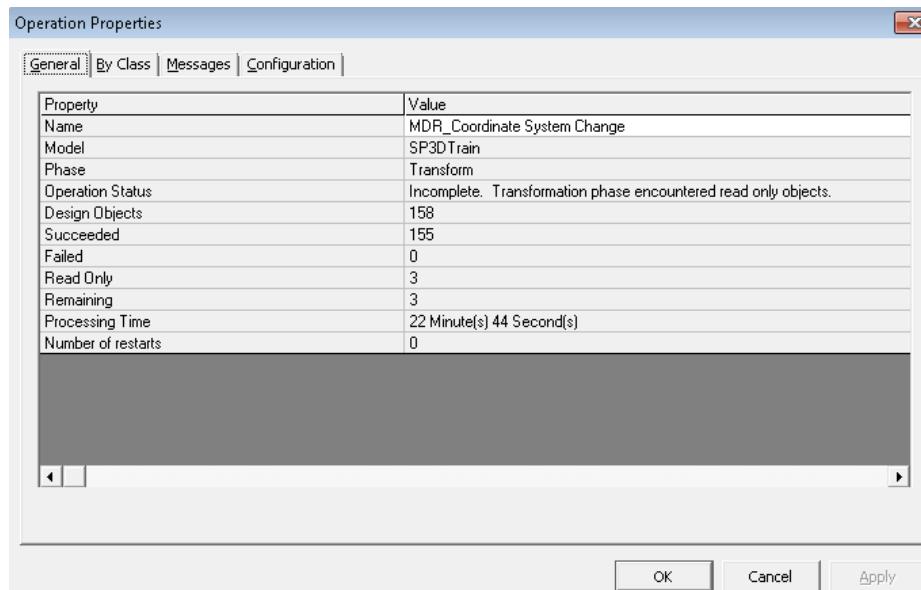
45. Save this workbook as **MDR_CheckWriteAccess** in the **Desktop > MDR** folder.
46. Close the workbook.
47. Back in the Check Write Access- Results window, click **OK**.
48. Back in the Confirmation window, press **Transform**.



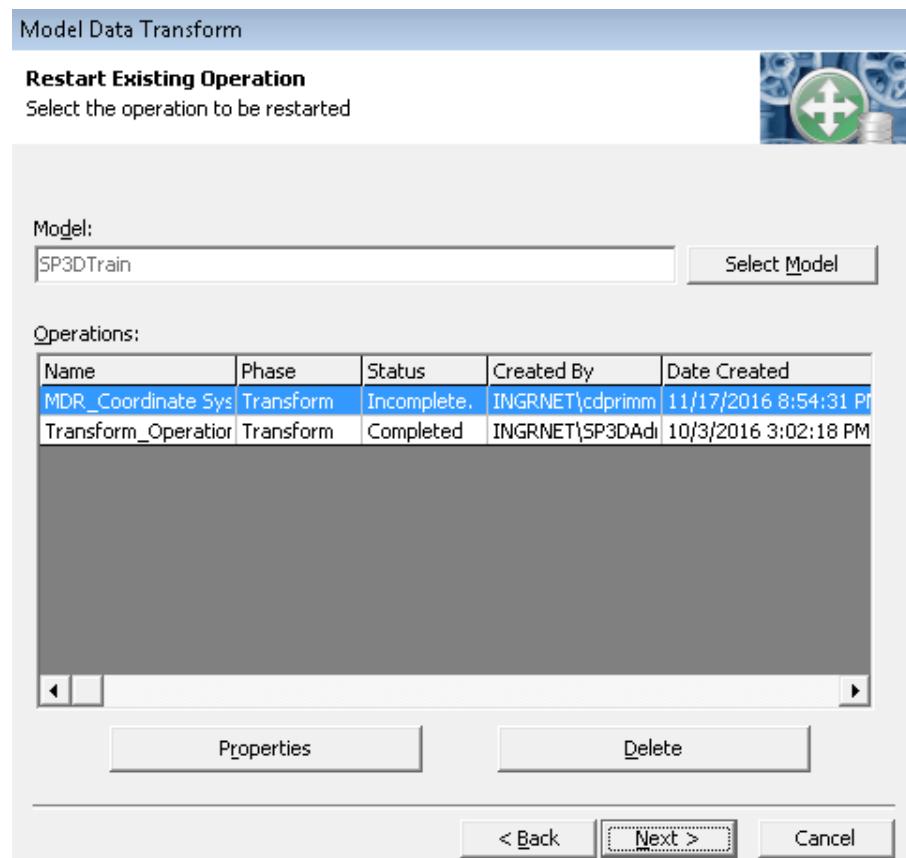
49. A progress bar will appear, wait until both the disconnection and transformation phases are complete.
50. The following dialog will appear. Click **OK**.



51. An Operation Properties window will appear with a results summary.



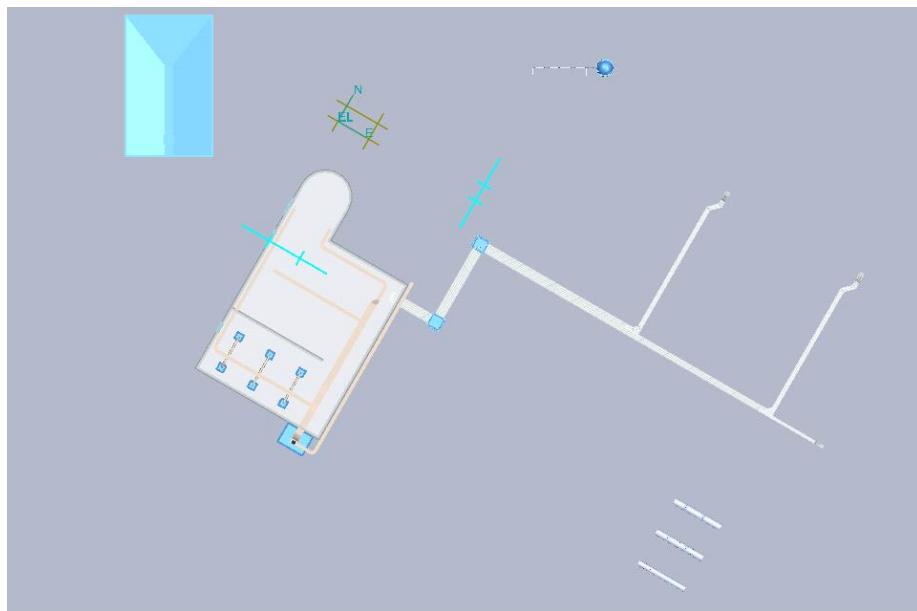
52. Explore its contents and close the window to exit the **Model Data Transform** wizard.
53. Go to **Tools > Model Data Transform**
54. In the Welcome page, select **Restart Existing Operation**.
55. Locate operation **MDR_Coordinate System Change** and review its status.



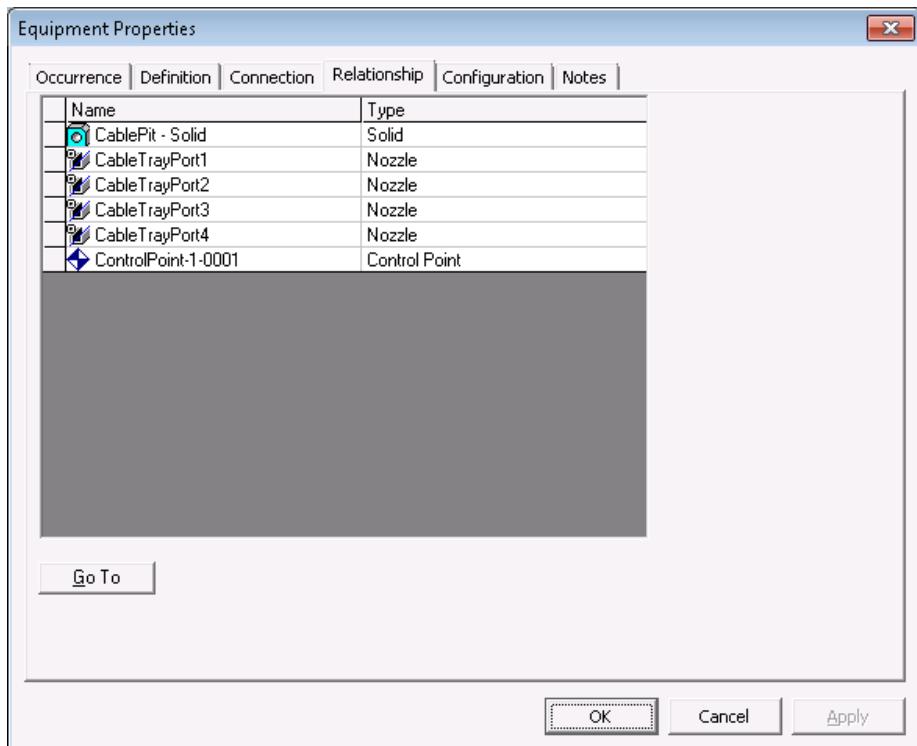
56. Click **Cancel**.
57. Exit Project Management.

Evaluating MDT Results

58. Open the saved session file **MDR_Transform.ses** in Smart 3D.
59. Run the **Refresh Workspace** command.
60. Verify the new alignment of the non-**Read Only** objects. Compare the view with the screenshot from step #10.



61. Change to an isometric view in the Common Views window.
62. Open the Properties Page for Equipment E-PP-A1 in A2 > U05>Equipment, select the **Relationship Tab** to check that all relationships were preserved.



63. Click **Cancel**.

Close Smart 3D

LAB 23: Synchronize Model with Catalog and View Generation

Objectives

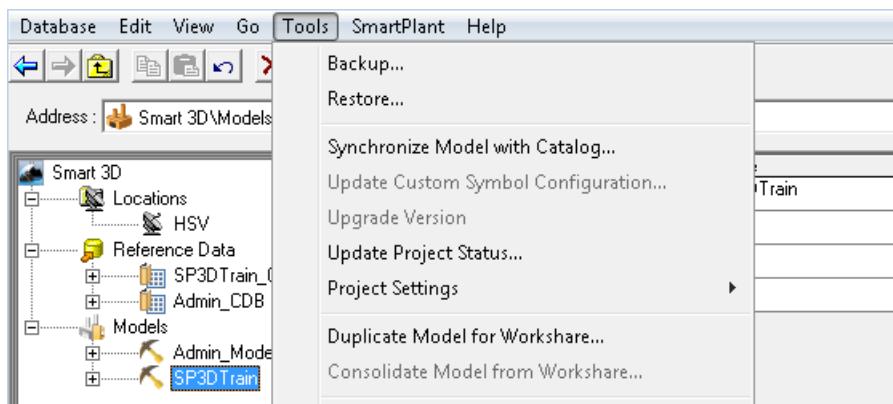
After completing this lab, you will be able to:

- Actively choose whether to synchronize the model with catalog or run the view generator on the model command, or both from within Project Management

NOTES

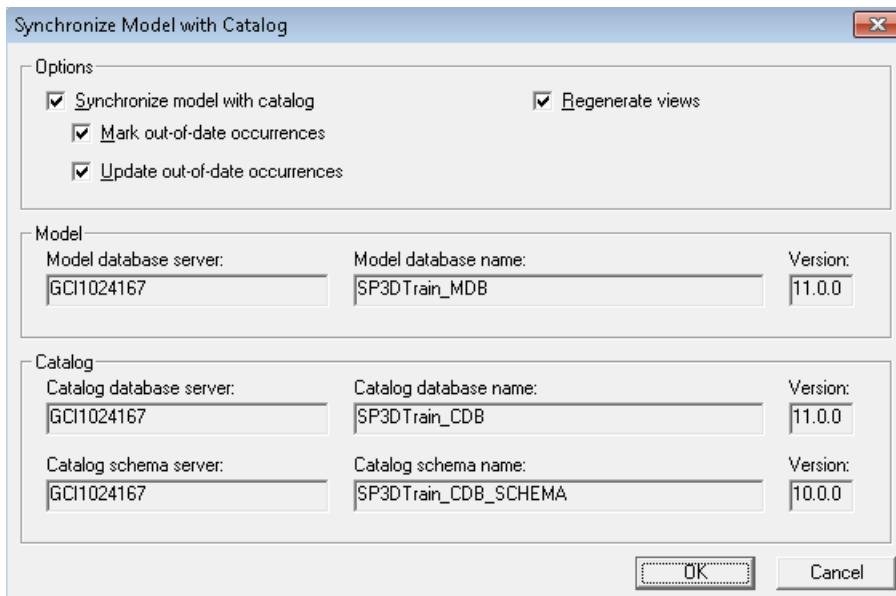
- Let us play out the scenario that there are two models (model A and model B) sharing the same catalog. This catalog has changed significantly since the last backup was taken for model B. In this scenario we would perhaps run the synchronize model with catalog command on model B in the event it gets restored with the old backup. Synchronization will try to push down changes on the catalog and bring part definitions in line with the live/current database.
- Likely, after the restore of this outdated model, you would then regenerate reports databases and would be presented with a message saying that some views failed to generate, this is one indication of where you would use the view generator feature in this command.

1. Start **Project Management**.
2. Select the model in the tree that you wish to Synchronize (**SP3DTrain**). Then, from the **Tools** menu select **Synchronize Model with Catalog**.



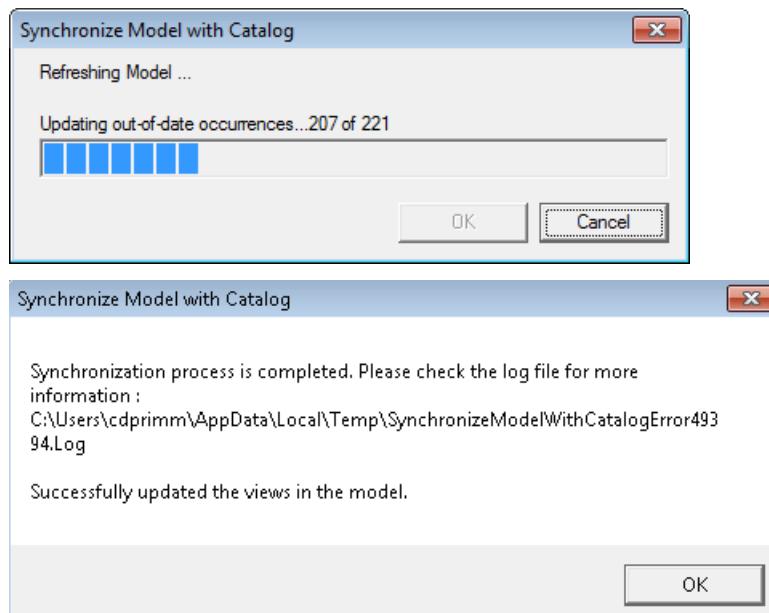
LAB 23: Synchronize Model with Catalog and View Generation

3. Note the existence of two check boxes:



Not all Catalog changes require a true Synchronization of the data but the following instances are an example of when to run it: perhaps an entirely new part class has been added to the Catalog that did not previously exist, or even a new Interface that was not there. The views associated with this data would probably be absent from this restored model, or perhaps columns on prior views would be different.

4. Leave all checkboxes checked on the Synchronize Model with Catalog form and allow the command to run to completion by clicking **OK**.
5. Click **OK**.



6. Click **OK**, then **OK** to dismiss the second dialog box.

LAB 23: Synchronize Model with Catalog and View Generation

7. Open and review generated log file.

The screenshot shows a Windows Notepad window titled "SynchronizeModelWithCatalogError49394.Log - Notepad". The content of the log file is as follows:

```
*****MODEL INFORMATION*****
DATE & TIME : 11/29/2016, 8:30:19 PM
MODEL NAME : SP3DTrain
MODEL DATABASE NAME : SP3DTrain_MDB
MODEL DATABASE SERVER : GCI1024167
CATALOG DATABASE NAME : SP3DTrain_CDB
CATALOG DATABASE SERVER : GCI1024167
CATALOG SCHEMA DATABASE NAME : SP3DTrain_CDB_SCHEMA
CATALOG SCHEMA DATABASE SERVER : GCI1024167
*****  

*****  

Refreshing Catalog... 11/29/2016 8:30:19 PM  

*****
```

8. Go to the end of the file for a summary of the errors reported.

The screenshot shows a command-line interface window displaying synchronization statistics. The output includes:

```
Exiting the command.  

=====
Error Summary  

=====  

Synchronize statistics:  

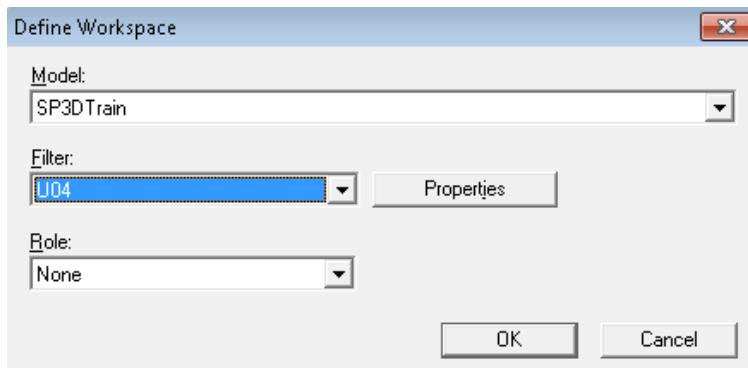
=====
Item Name | Count
Initial   Approved Processed/Out-of-date Failed Remaining Deleted
-----|-----
Site Proxies 695    -        12      0       -       0
Symbol Definitions 558  -        53      0       -       -
Proxy Stoppers 221    0        221     0       0       -
Symbol updaters 28     0        28      0       0       -
```

Note: In a production or test environment you would then follow this action by regenerating reports databases.

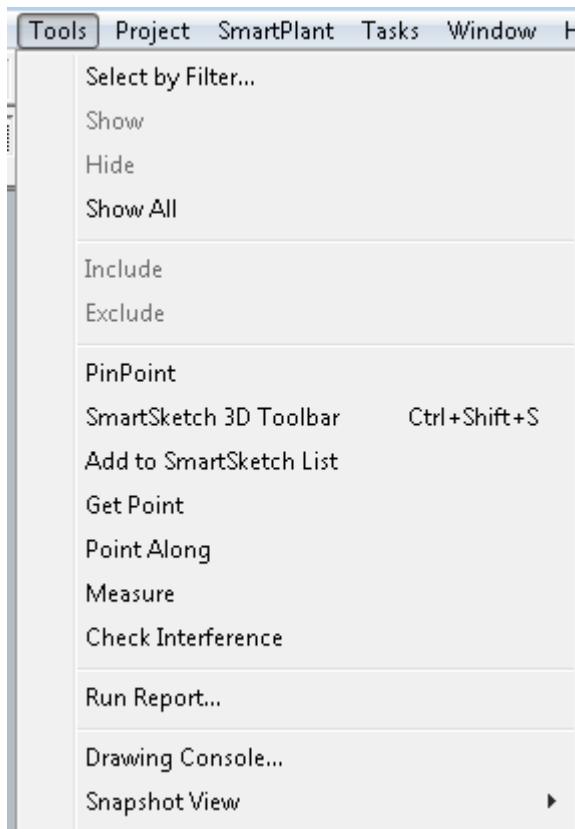
If the user did not have permissions to update objects or only chose the option **Mark out-of-date occurrences**, objects can be flagged for interactive updates in the model workspace by running the report **Diagnostic Synch Workspace Report**.

9. Launch Smart 3D.
10. Go to **File > Define Workspace**.
11. Select model **SP3DTrain**.

12. From the Filter dropdown, select **More...**
13. Underneath the **Plant Filters > Training Filters** folder, select the filter **U04**. Click **OK**.
14. Define the Workspace with these selections.



15. Click **OK** on Define Workspace form and allow Refresh to complete.
16. From the **Tools** menu select **Run Report**.



LAB 23: Synchronize Model with Catalog and View Generation

17. From the **Catalog Reports** tab, select Diagnostic under Types of Reports and **Diagnostic Synch Workspace Report**.
 18. Select Run.
 19. From the **Select Filter** window, select **Plant Filters > All**.
 20. Review results. Close report.

LAB 24: Database Maintenance

Objectives

After completing this lab, you will be able to:

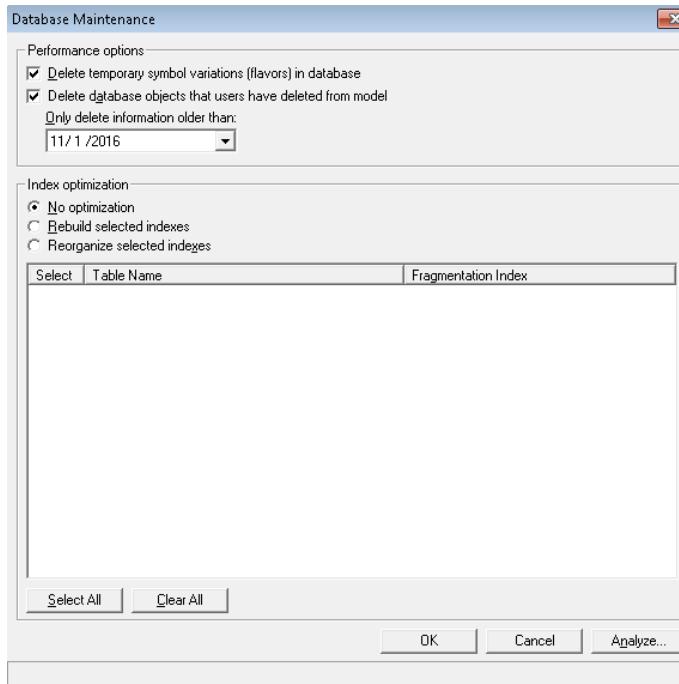
- Access Maintenance form to perform optimization tasks in the database

NOTE This is an enhancement to the delivered software that allows users to purge temporary data and perform tasks such as optimizing indexes.

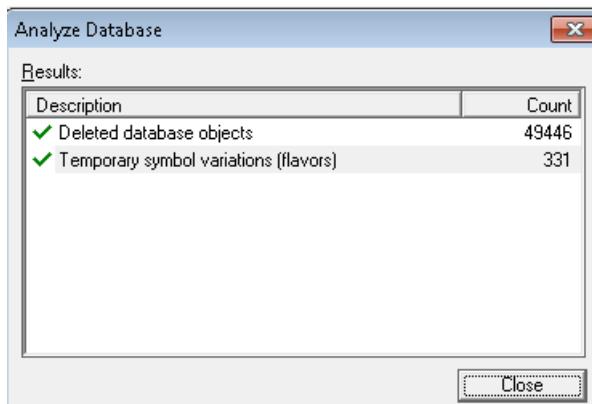
- Start **Project Management**. Select the model or catalog you want to perform maintenance for, then select **Database > Maintenance**.



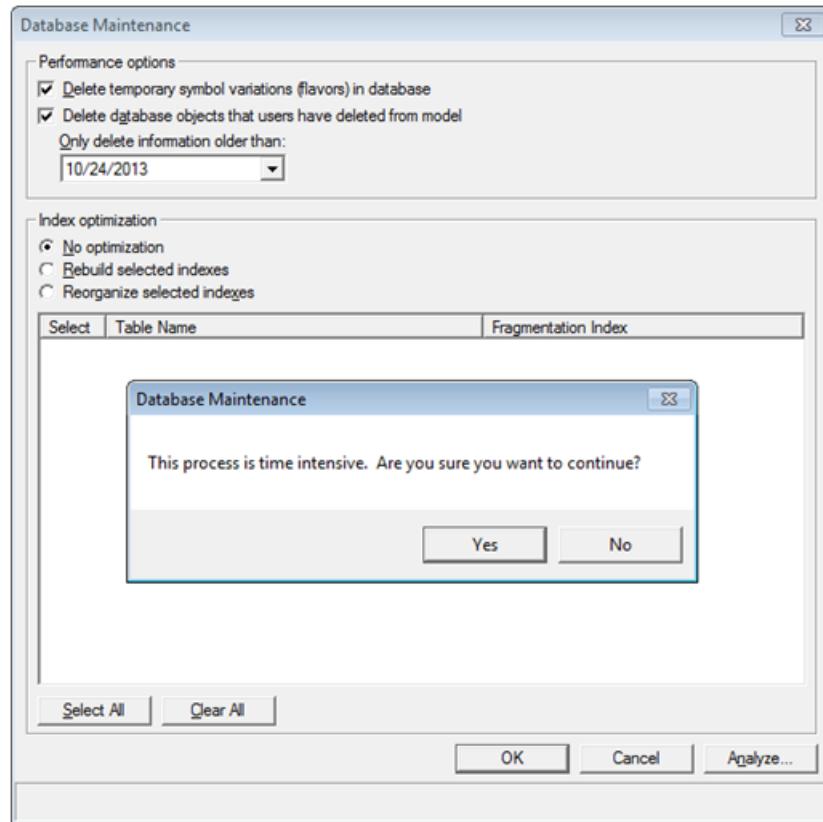
2. Place **checkboxes** in the first two options and then click the **Analyze** button to understand the current need for the maintenance.



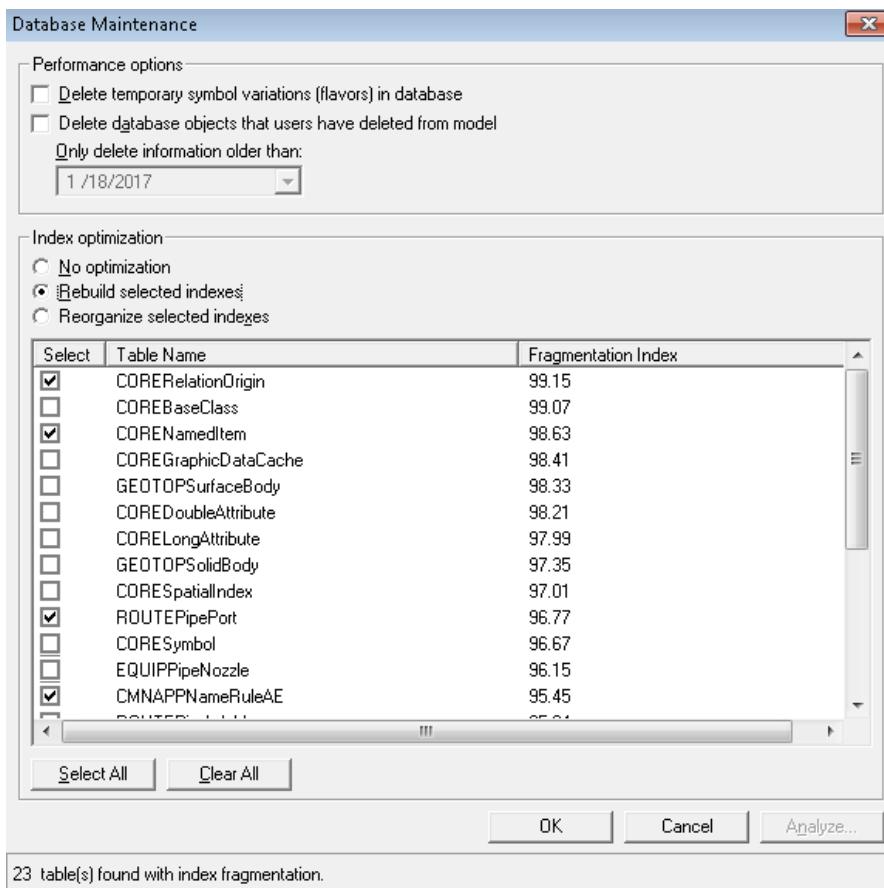
3. To perform these actions, **close** the Analyze form and then click **OK** on the database maintenance form.



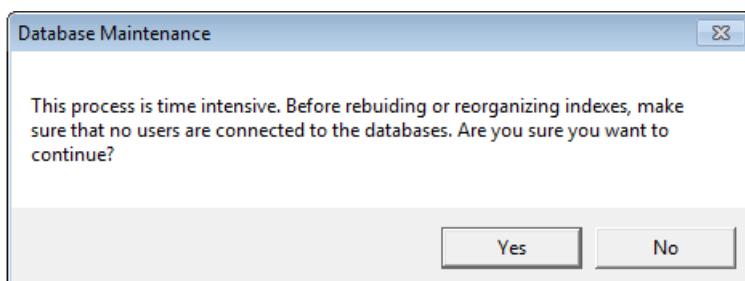
4. Click **Yes**, acknowledging that the process may take some time.



5. After this process has finished, go back to the **Database Maintenance** form and select the **Rebuild selected indexes** option from the Index optimization section. It may take a few seconds to populate the list.



6. Select any four tables. Click **OK**.
 7. Note the warning message and then review the server to ensure that all users followed directions and disconnected.
 8. Click **Yes** to let the command work.



9. Once the command has completed, you can close the form by using X or Cancel button.

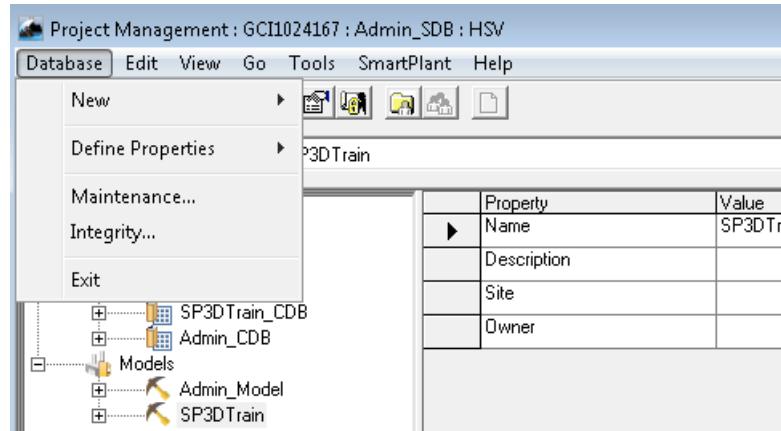
LAB 25: Database Integrity

Objectives

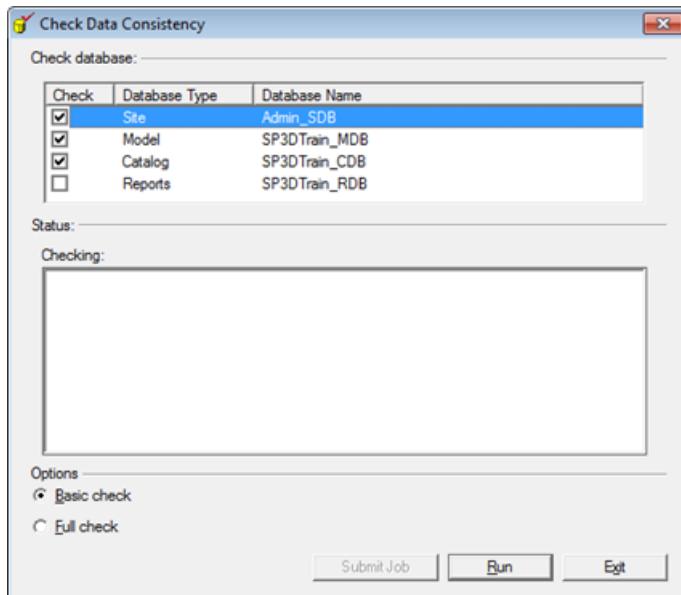
After completing this lab, you will be able to:

- Run Database Integrity command to verify consistency of model objects and perform the clean action
- Run a report to find objects with Integrity issues
- Clean inconsistent objects detected by DBI by using a custom command delivered out of the box

1. Open **Project Management** if not already open.
2. Select **Database > Integrity...**

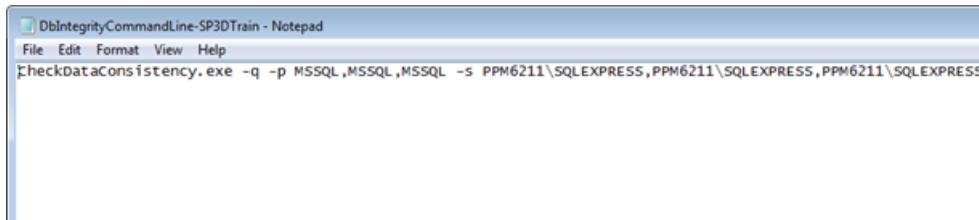


3. Select the database you wish to check (check all three databases for this lab). Choose **Basic** check and then click **Run**.

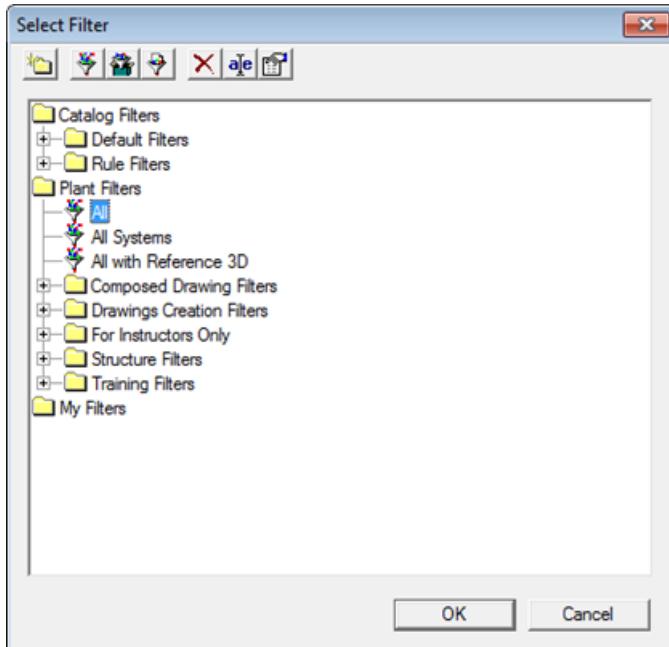


4. **Exit** the form when finished.
5. Open the temp folder by typing in the address bar of windows explorer %temp% and review the three error logs created for database integrity check. Make sure there were no catastrophic failures by looking for the word **error** or making sure the command completed successfully on each database.

6. A file called DbIntegrityCommandLine-*PlantName*.txt will be created on this same directory. It will contain the command line you would need to use if you wish to run Database Integrity on a batch script.

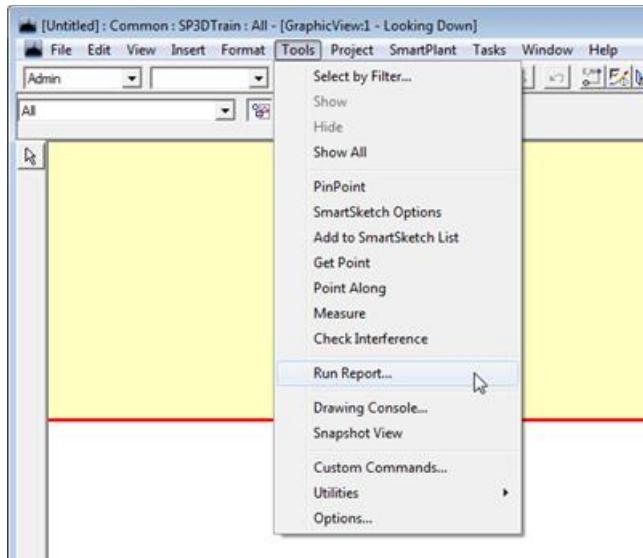


7. We will now run a report for Database Integrity entries. This report could be executed both before and after the Clean Custom Command is executed.
8. Start a new **Smart 3D** session.
9. Click **OK**.
10. Use **File > Define Workspace** to select **SP3DTrain** model:
11. From the Filter drop down select **More** and then select **ALL** filter.

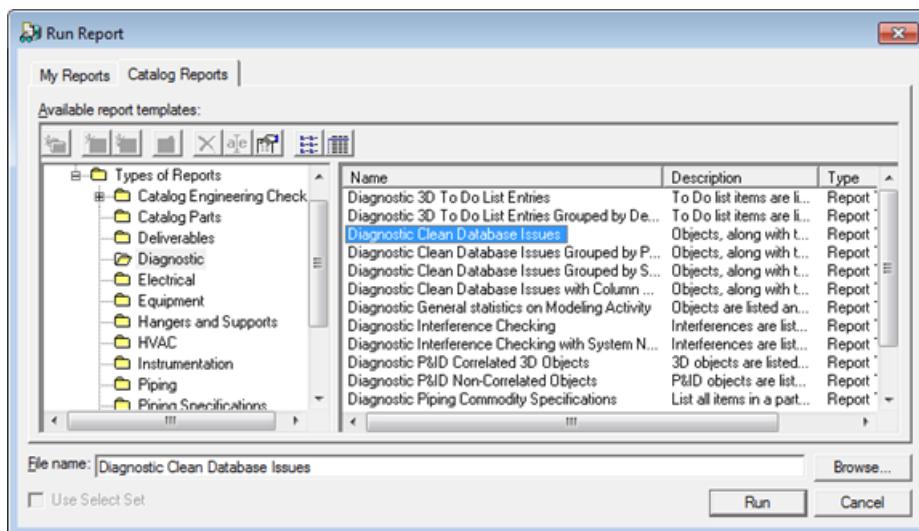


12. Click **OK**.
13. Click **OK** on Define Workspace form and allow Refresh to complete.

14. From the **Tools** menu select **Run Report**.

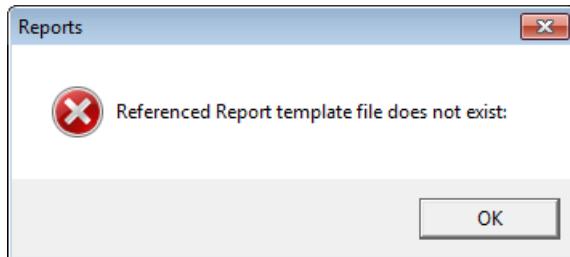


15. From the **Catalog Reports** tab, select Diagnostic under Types of Reports and **Diagnostic Clean Database Issues** report as depicted below and execute it. If there had been any problems found or fixed by the Integrity script then this report would reflect it.



16. Click the **Run** button and an Excel workbook will appear containing results of the report.

Note: You may see the following dialog box if the security settings for Visual Basic projects have not been set in Excel (they are not by default).



Follow these instructions to set Excel security settings for **Office 2010**.

- Open Excel
- Click the **Office button** at the top left margin of the window.
- Select **Excel Options** from the bottom.
- Choose **TrustCenter** from the left menu, then **TrustCenter Settings...**
- Go to **Macro Settings** on the left, then check radio button **Enable all macros...**
- Check Trust access to the VBA project object model checkbox.
- Click **OK** on the two forms to dismiss and close Excel.

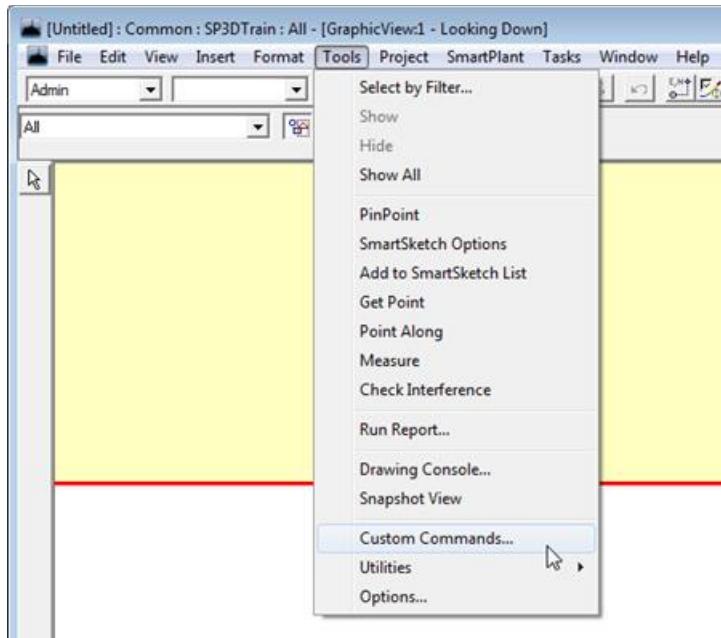
Diagnostic Clean Database Issues								
Note: In normal operation, this report should not return any value.								
Object								
Name (Or Class Name)	Data Store	State	OID	Date Created	Date Deleted	Application	Status	
First Relations	In Todo List	Approval	Permission Group	Date Modified	Deleted by	Owner	Severity	
Coordinate System		Not found	[00044636-0000-0000-E00]			CommonStruct	New	
No						CommonStruct	Crucial	
REFDATGasketSelectionFilter	Catalog	Active	[0000EA78-0000-0000-0D0]	1/1/2010 1:11:57 PM		Core	Resolve Fixed	
No	Working	Catalog		1/1/2010 1:11:57 PM			Crucial	
REFDATBoltSelectionFilter	Catalog	Active	[0000EA76-0000-0000-9900]	1/1/2010 1:11:57 PM		Core	Resolve Fixed	
No	Working	Catalog		1/1/2010 1:11:57 PM			Crucial	

17. Close Excel after revision of reported objects.

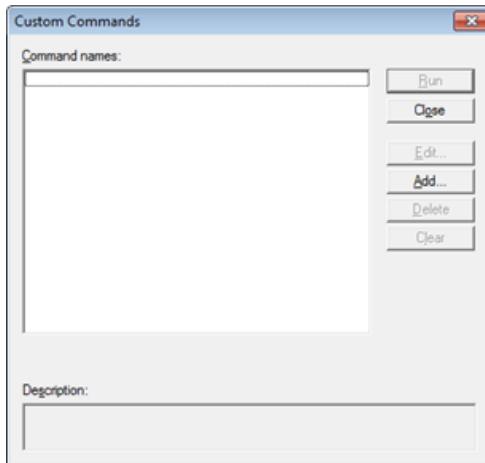
Note: Once Database Integrity has finished, next action is to clean the database for issues that were found. The Clean Database command is not yet integrated in the GUI environment, you will need to use a special custom command with ProgID

SP3DCleanDatabaseCmd.CCheckObj to perform the clean procedure. This command needs to be executed from a Smart 3D session as there may be objects that need to be modified in the graphical environment. An example of how to access this from a Smart 3D session in the event that there were items to be cleaned is as follows.

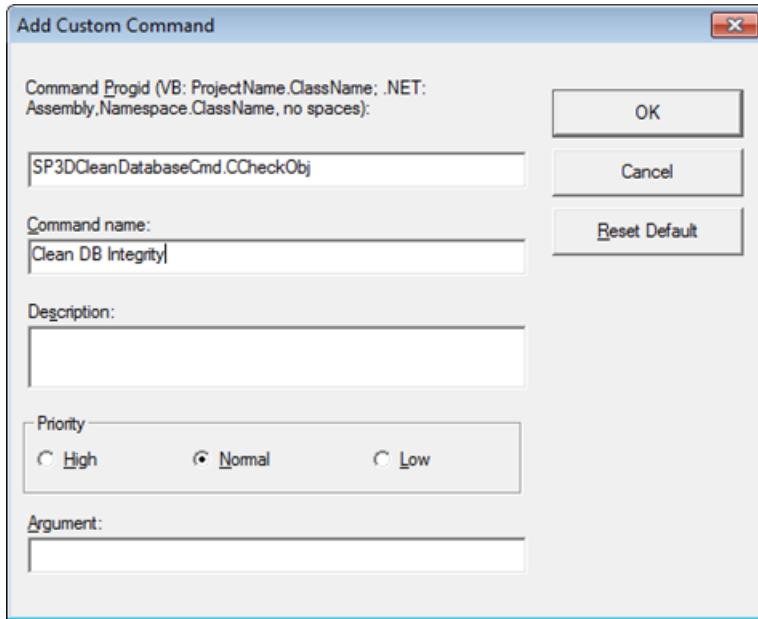
18. From the **Tools** menu select Custom Command.



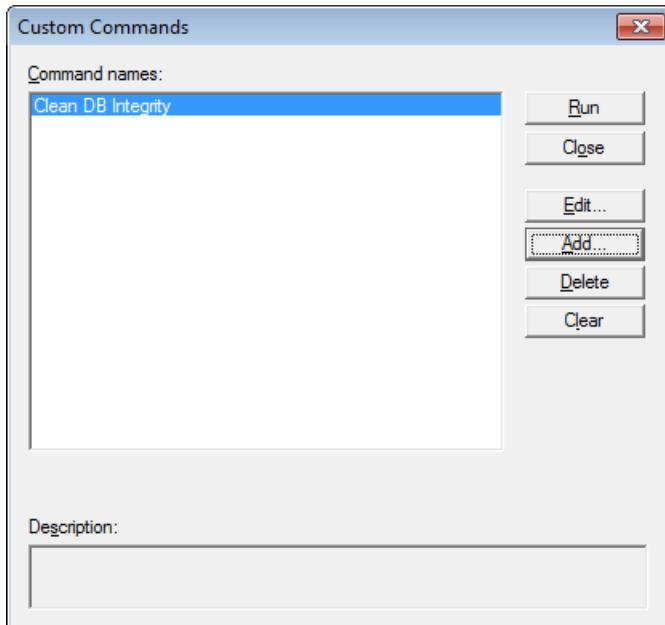
19. Click the **Add** button on the following form.



20. Click **OK** after completing the form as shown below.

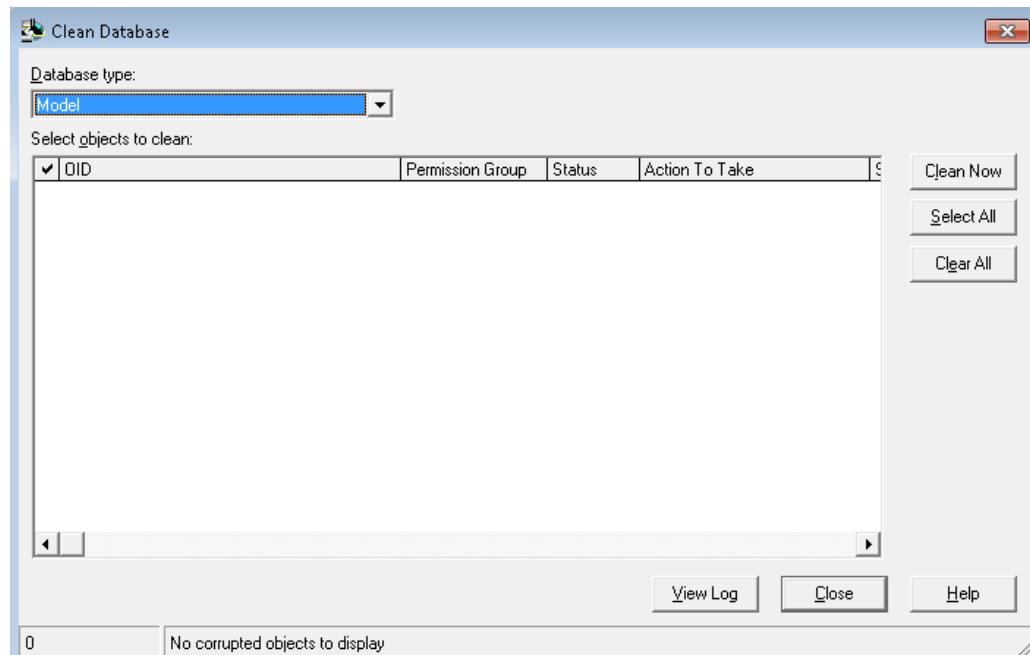


21. Click the **Run** command.



22. In general, you will use this form to select any items appearing on the list and then perform a **Clean Now** operation. Refer to the DBIntegrity.pdf help file (located in C:\Program Files(x86)\Common Files\Intergraph\Smart3D\Help) for more detailed information on specific issues.

23. **Close** the command and custom commands window.



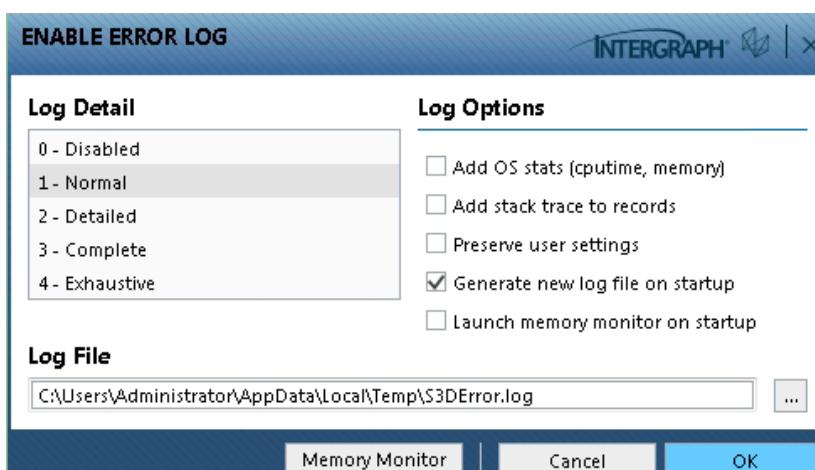
24. Close the Smart 3D session.

LAB 26: Error log files

Objectives

After completing this lab, you will be able to:

- Configure and save options for Smart 3D error log reporting
- 1. During execution of the software, several log files are created that will help to perform troubleshooting procedures if needed. The majority of these log files are written to the temp folder of the current user profile. This location can be quickly accessed by using the windows environment variable %temp% on the address bar of Windows Explorer.
By default, Smart 3D error logs are created when a session is opened, but the log file will be deleted if it has not been set to be permanent.
- 2. Navigate to **[Smart 3D install folder]\Core\Tools\Administrator\Bin** and execute program **ErrorLogEnable.exe**.
- 3. Set options according to the following values.



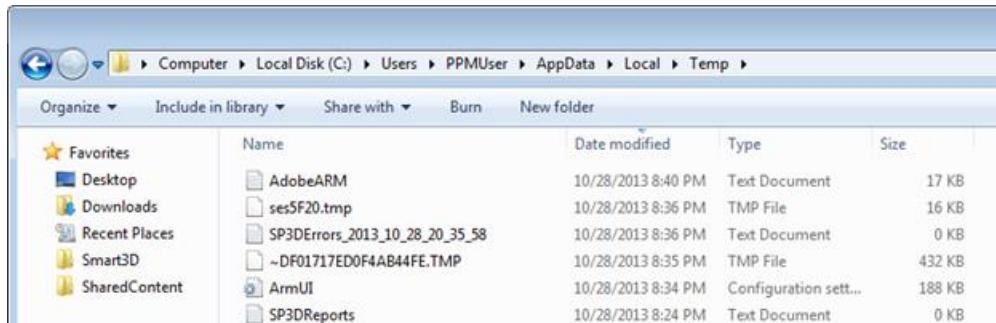
NOTE Ensure the path that is provided on the form is writable by all local users (if it is not, then it will not be written for other users that log in because it will not be able to write to specified location).

In General, severity level "1-Normal" will usually be sufficient, but there may be times when a support analyst working a problem you have reported, will have you adjust this value.

You will need to close Smart 3D and start it again (potentially from an already saved session file) before these settings take effect.

4. Click **OK**.
5. From now on, an error log file will remain in the temp directory every time a session is opened and closed. A different error log is going to be created for each instance of Smart 3D opened.
6. Open **Smart 3D** to generate a new log file.

7. Navigate to the temp folder (you can type in the address bar of a Windows Explorer window %temp% then enter).



8. Open the most recent Smart 3D log file (sort by date modified column for quick revision), it will have a name that is compounded of the words SP3DErrors_TIMESTAMP where TIMESTAMP is the date and time when the log file was created.

```

SP3DErrors_2016_11_29_22_39_42.log - Notepad
File Edit Format View Help

ps : Microsoft windows 7 Professional service Pack 1 (build 7601), 64-bit
os : This process is large address aware (/3GB)
os : The calling process has total virtual address space ,4095, MB.
os : The client machine has total physical address space ,8187, MB.
os : The client machine has available physical address space ,5921, MB.
os : The client machine has total pagefile space ,8185, MB.
os : The client machine has available pagefile space ,5767, MB.

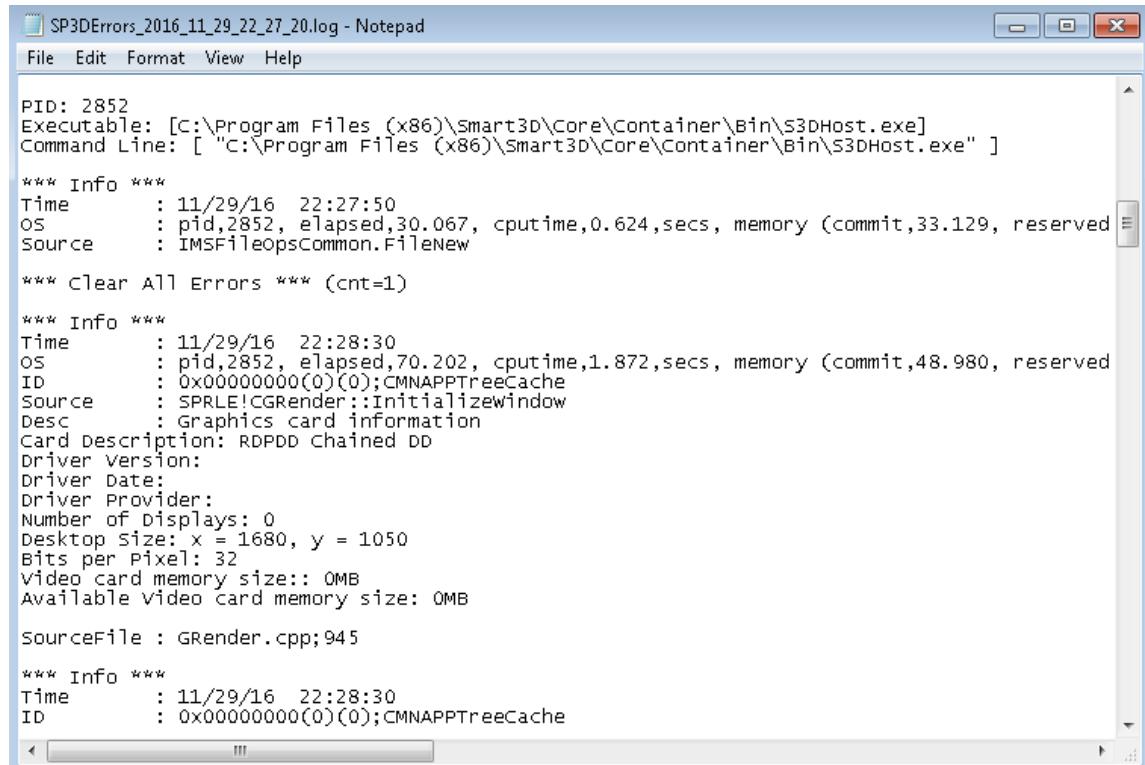
Product version 11.00.84.0099

Task           Version
-----
Cable          11.00.84.0099
Cableway       11.00.84.0099
CatalogData    11.00.84.0099
Civil          11.00.84.0099
Common2D        11.00.84.0099
CommonApp       11.00.84.0099
CommonRoute     11.00.84.0099
CommonSchema    11.00.84.0099
CommonShip      11.00.84.0099
CommonSpace     11.00.84.0099
CommonStruct    11.00.84.0099
Compartmentation 11.00.84.0099
CopyByFamily   11.00.84.0099
Core           11.00.84.0099
Drawing Editor 11.00.84.0099
Drawings        11.00.84.0099
Equipment      11.00.84.0099
FoulCheck      11.00.84.0099

```

9. The information reported initially will help to identify the kind of operating system, total addressable memory and product version (very helpful when troubleshooting setup issues).

10. Further down, information about process ID and path to executable file that generated the log file can be seen, continued by display rendering settings.



```
PID: 2852
Executable: [C:\Program Files (x86)\Smart3D\Core\Container\Bin\S3DHost.exe]
Command Line: [ "C:\Program Files (x86)\Smart3D\Core\Container\Bin\S3DHost.exe" ]

*** Info ***
Time      : 11/29/16 22:27:50
OS        : pid,2852, elapsed,30.067, cputime,0.624,secs, memory (commit,33.129, reserved
Source    : IMSFileopsCommon.FileNew

*** Clear All Errors *** (cnt=1)

*** Info ***
Time      : 11/29/16 22:28:30
OS        : pid,2852, elapsed,70.202, cputime,1.872,secs, memory (commit,48.980, reserved
ID       : 0x00000000(0)(0);CMNAPPTreeCache
Source    : SPRLE!CGRender::InitializeWindow
Desc     : Graphics card information
Card Description: RDPDD Chained DD
Driver Version:
Driver Date:
Driver Provider:
Number of Displays: 0
Desktop Size: x = 1680, y = 1050
Bits per Pixel: 32
Video card memory size:: 0MB
Available Video card memory size: 0MB

SourceFile : GRender.cpp;945

*** Info ***
Time      : 11/29/16 22:28:30
ID       : 0x00000000(0)(0);CMNAPPTreeCache
```

11. Knowledge of the location and information on the error log files is important when performing troubleshooting procedures. An Intergraph support analyst may also require you to generate and send this error log file as a regular methodology to track down and find additional data when performing troubleshooting.
12. **Close** the log file and **Smart 3D** session.

LAB 27: Interference Checking

Objectives

After completing this lab, you will be able to:

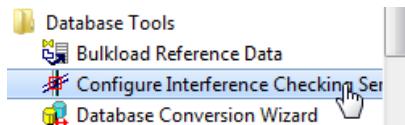
- Configure an Interference Checking Server for a particular project
- Enable and use Local interference checking
- Review interference objects using the List view
- Modify and configure Interference clearance rules

Database Detection

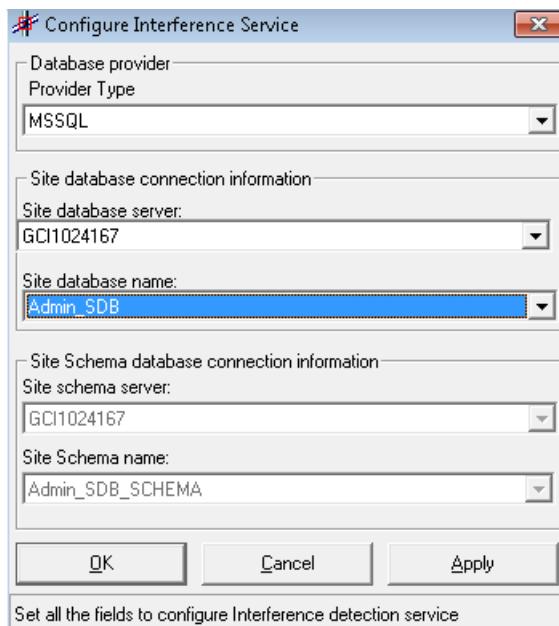
Upon software installation, the option "Database Interference Detection Service" can be selected from the list of available features. This is what enables the workstation to become a potential IFC Server.

During this lab practice, the word **IFC** will be used to refer to **Interference Checking**.

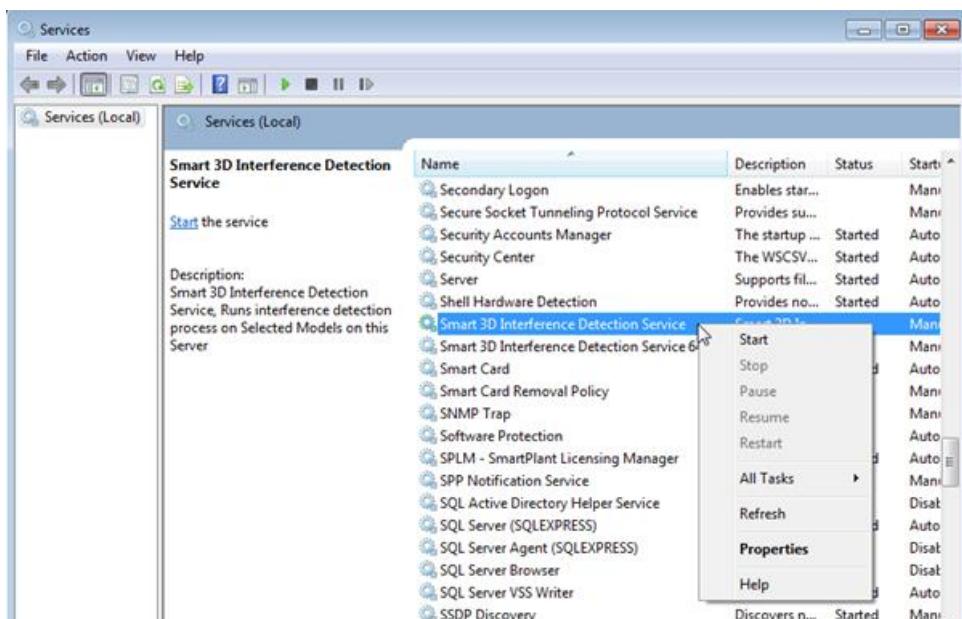
1. Click on **Configure Interference Checking Service** utility found in **Start > Intergraph Smart 3D > Configure Interference Checking Service**.



2. Complete the form as shown below identifying **Admin_SDB** and **Admin_SDB_SCHEMA**. By completing this form in this manner you are indicating that this IFC Server can process any Model that belongs to Admin_SDB site database.

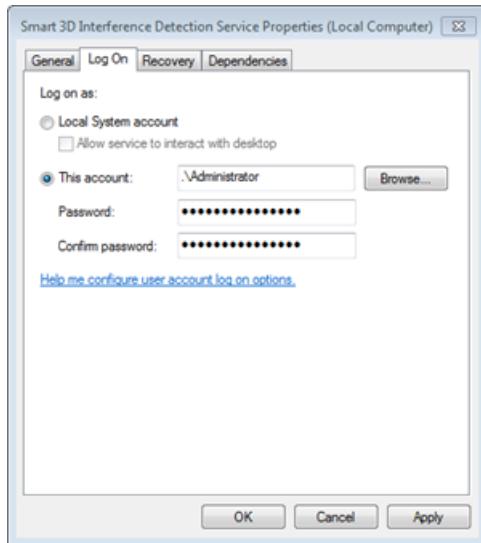


3. Click **OK** to close the Configure Interference Service form.
 4. Open a windows **Services console** by going to **Start > Run**. Then, type **command services.msc**. Locate the service named **Smart 3D Interference Detection Service**. Right click on it and select **Properties**.



5. Switch to the **Log On** tab and select **This account** option. Specify a login account that meets permission requirements to act as the identity for the Interference Checking

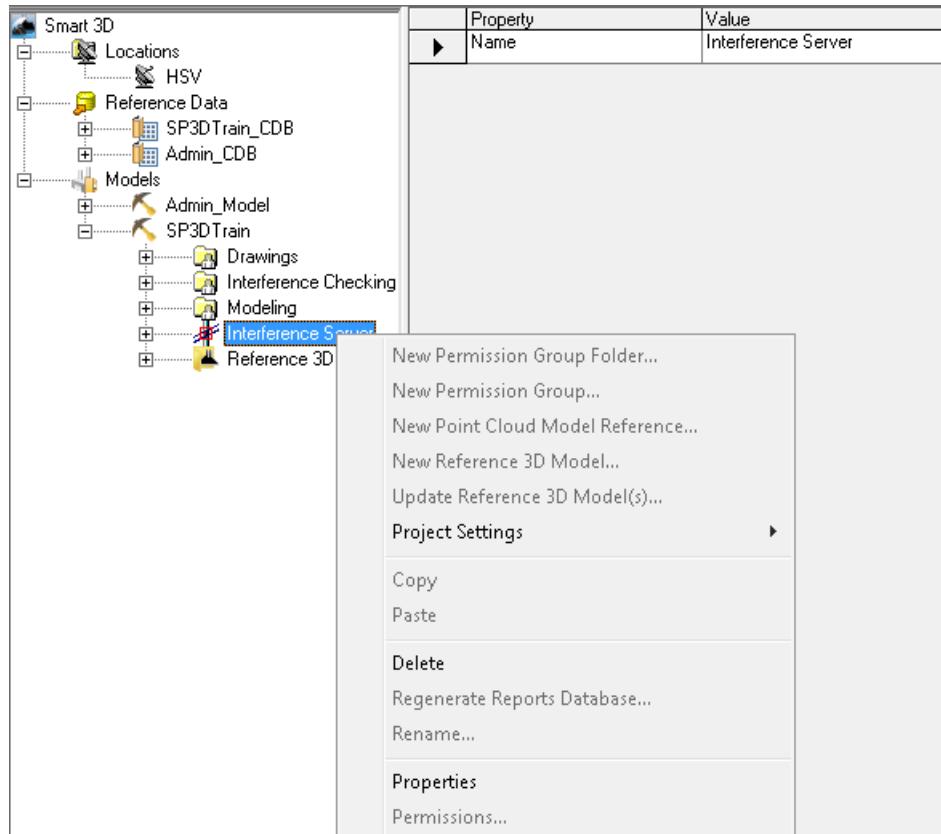
service. For the purpose of this lab practice, type in the local administrator account credentials, then click **OK**.



NOTE In a production project, this identity is a domain account that meets the following permission requirements.

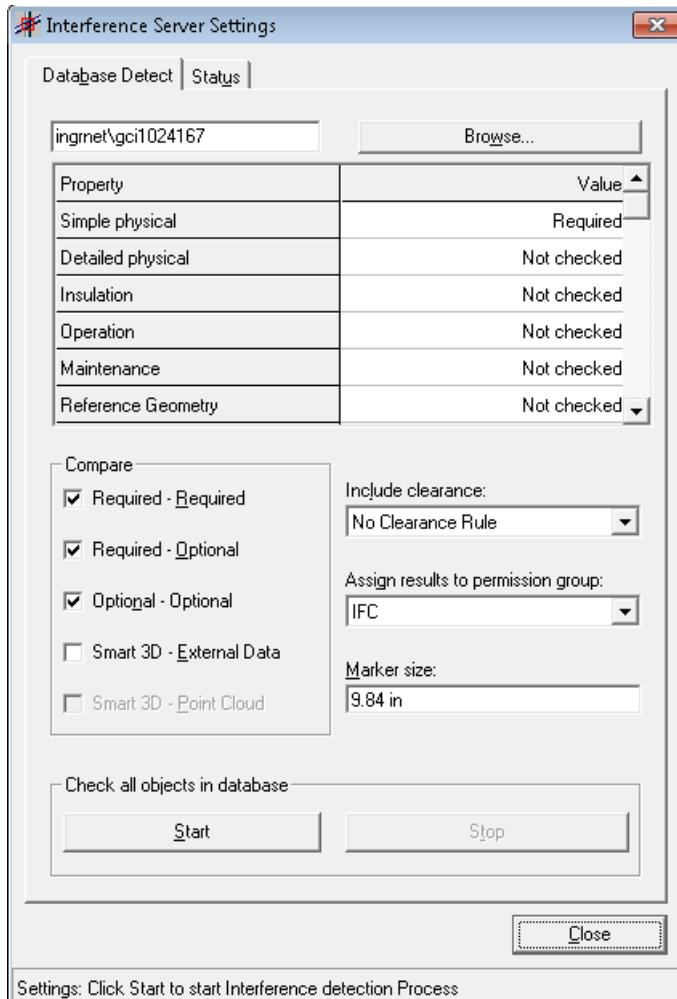
- Account is included in local administrators group
 - Has database access and permissions as a regular user to SQL or Oracle database
 - Has write or higher level of access to at least one permission group
6. Start windows service Smart 3D Interference Detection Service.

7. Open **Project Management** and expand **SP3DTrain** model. Right mouse click on the **Interference Server** icon and select **Properties**.



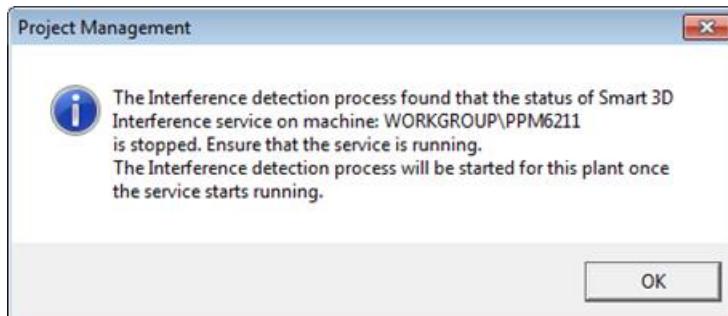
8. Complete the form as shown below taking care to identify the machine name where the practice is being performed as domain\computer. This field identifies the computer where the IFC service has been started. In a production environment, this form could

be completed from any computer with Project Management loaded and does not need to be completed from the IFC machine.

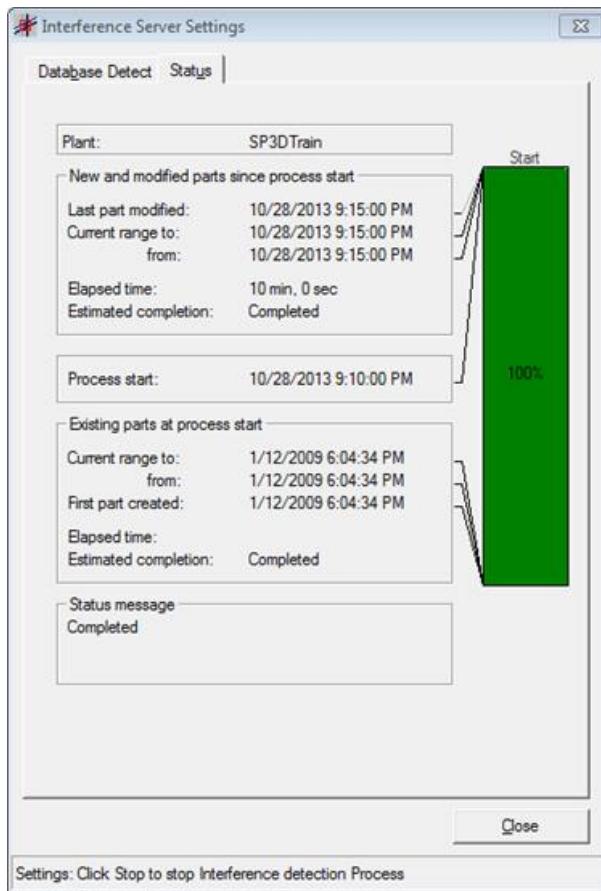


- Click the **Start** Button.

NOTE If the Service was not started in the previous steps, you may be presented with the following message:

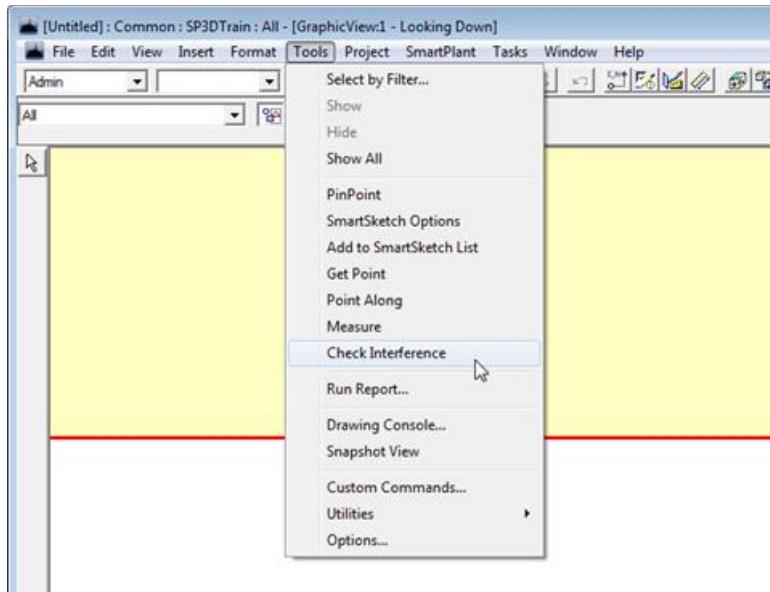


10. It may take up to 4 minutes for the processing to start and when it does, you can review progress on the status tab.



11. Start a **Smart 3D** session. Define a workspace on model **SP3DTrain** with the **All** filter.

12. From the **Tools** menu select **Check Interference**.



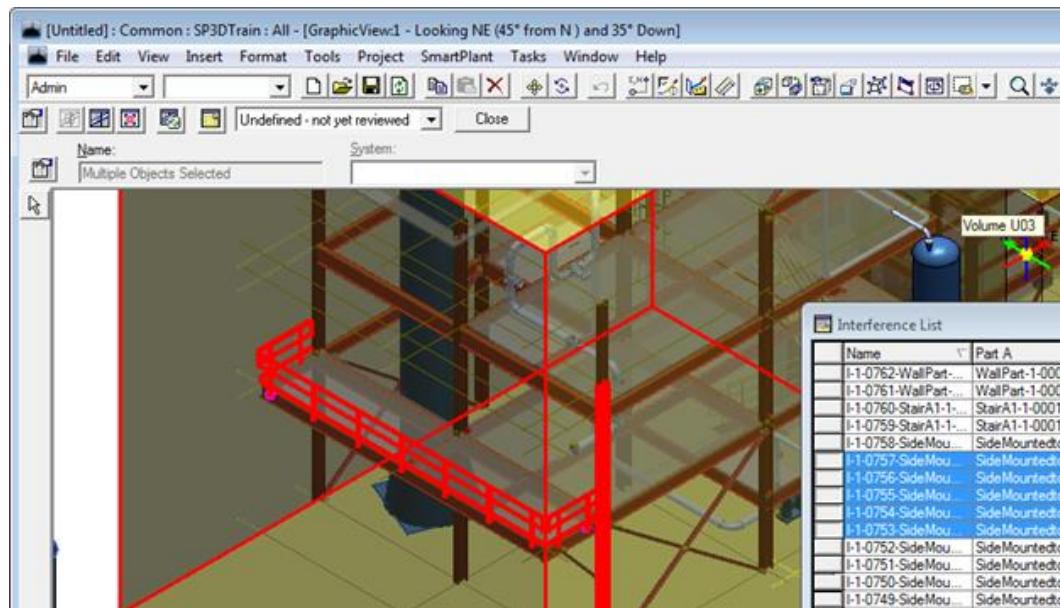
13. A new toolbar will be displayed. Click on the yellow icon to open the Interference List.

Name	Part A	Part B	Type	Required Action	Last Modified
I-1-0762-WallPart...	WallPart-1-0003	Duct Part	Severe	Edit - must resol...	2013-10-28 21:15:30
I-1-0761-WallPart...	WallPart-1-0003	WallPart-1-0001	Severe	Edit - must resol...	2013-10-28 21:15:30
I-1-0760-StairA1-1...	StairA1-1-0001	MemberPartPrisma...	Severe	Edit - must resol...	2013-10-28 21:15:29
I-1-0759-StairA1-1...	StairA1-1-0001	Beam_BlockExpos...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0758-SideMou...	SideMountedtoMe...	SideMountedtoMe...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0757-SideMou...	SideMountedtoMe...	MemberPartPrisma...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0756-SideMou...	SideMountedtoMe...	Column_BlockEnc...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0755-SideMou...	SideMountedtoMe...	Beam_BlockExpos...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0754-SideMou...	SideMountedtoMe...	SideMountedtoMe...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0753-SideMou...	SideMountedtoMe...	Beam_BlockExpos...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0752-SideMou...	SideMountedtoMe...	MemberPartPrisma...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0751-SideMou...	SideMountedtoMe...	Brace_Custom_2L...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0750-SideMou...	SideMountedtoMe...	Slab-1-0201	Severe	Edit - must resol...	2013-10-28 21:15:29
I-1-0749-SideMou...	SideMountedtoMe...	Beam_BlockExpos...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0748-SideMou...	SideMountedtoMe...	Column_BlockEnc...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0747-SideMou...	SideMountedtoMe...	SideMountedtoMe...	Optional	Undefined - not ...	2013-10-28 21:15:28
I-1-0746-SideMou...	SideMountedtoMe...	Beam_BlockEnca...	Optional	Undefined - not ...	2013-10-28 21:15:28

14. Hold the **Ctrl** key and select multiple rows from this list. The IFC object and its corresponding clashing objects will be highlighted.

Name	Part A	Part B	Type	Required Action	Last Modified
I-1-0762-WallPart...	WallPart-1-0003	Duct Part	Severe	Edit - must resol...	2013-10-28 21:15:30
I-1-0761-WallPart...	WallPart-1-0003	WallPart-1-0001	Severe	Edit - must resol...	2013-10-28 21:15:30
I-1-0760-StairA1-1...	StairA1-1-0001	MemberPartPrisma...	Severe	Edit - must resol...	2013-10-28 21:15:29
I-1-0759-StairA1-1...	StairA1-1-0001	Beam_BlockExpos...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0758-SideMou...	SideMountedtoMe...	SideMountedtoMe...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0757-SideMou...	SideMountedtoMe...	MemberPartPrisma...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0756-SideMou...	SideMountedtoMe...	Column_BlockEnc...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0755-SideMou...	SideMountedtoMe...	Beam_BlockExpos...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0754-SideMou...	SideMountedtoMe...	SideMountedtoMe...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0753-SideMou...	SideMountedtoMe...	Beam_BlockExpos...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0752-SideMou...	SideMountedtoMe...	MemberPartPrisma...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0751-SideMou...	SideMountedtoMe...	Brace_Custom_2L...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0750-SideMou...	SideMountedtoMe...	Slab-1-0201	Severe	Edit - must resol...	2013-10-28 21:15:29
I-1-0749-SideMou...	SideMountedtoMe...	Beam_BlockExpos...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0748-SideMou...	SideMountedtoMe...	Column_BlockEnc...	Optional	Undefined - not ...	2013-10-28 21:15:29
I-1-0747-SideMou...	SideMountedtoMe...	SideMountedtoMe...	Optional	Undefined - not ...	2013-10-28 21:15:28
I-1-0746-SideMou...	SideMountedtoMe...	Beam_BlockEnca...	Optional	Undefined - not ...	2013-10-28 21:15:28

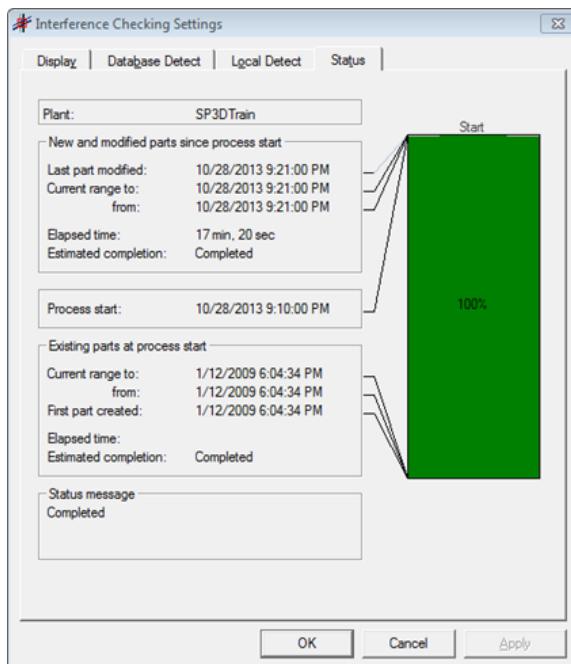
15. Click on **Fit Interferences** button  located on the Interference checking toolbar.
 16. The graphic window will zoom you to that interference and the objects involved.
 Change to an isometric view for better viewing.



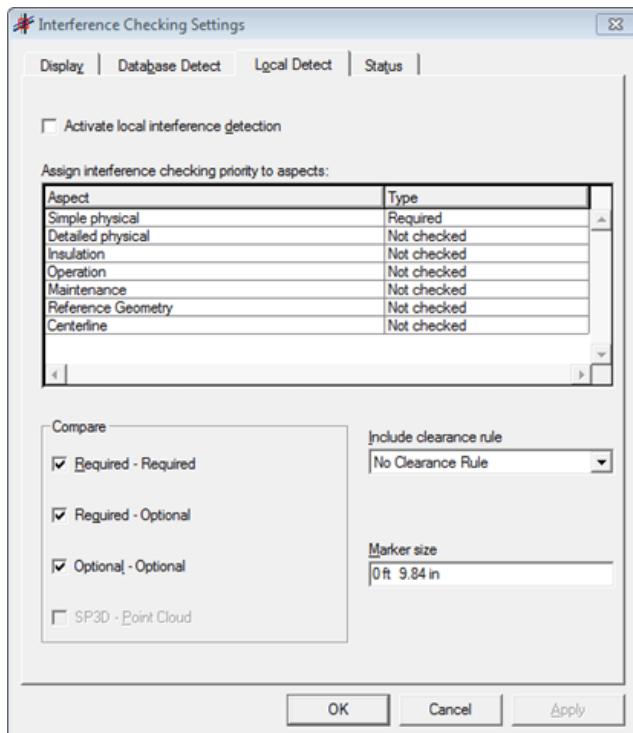
17. Any user can turn on/off the IFC markers that are displayed graphically on a session by using the  Settings button to access following form.



18. De-selecting the checkboxes from **Type** or **Required Action** sections will hide IFC markers from the current view (though they will still exist in the database).
19. The status tab shows progress of database interference detection in workstations where Project Management is not installed.



20. On the **Local Detect** tab you will find options to set and start local interference checking. Note the options that can be set are basically the same as settings for database detection. However, the user is free to modify them according to his/her needs. Local IFC will not interfere with Database IFC results.



21. **Close** the interference checking settings form.
22. Enable **Interference list** from the toolbar or bring it to focus. **Expand** it to see the **Notes** column.
23. Click the **Notes** field of any IFC entry and start typing. Hit enter to accept the input. Try to find this interference in the Model and review its properties. The note should be there as well.

Type	Required Action	Last Modified	Notes
Optional	Undefined - not ...	2013-10-28 21:13:06	Marked for revision
Optional	Undefined - not ...	2013-10-28 21:15:14	
Optional	Undefined - not ...	2013-10-28 21:12:52	
Optional	Undefined - not ...	2013-10-28 21:15:15	
Severe	Edit - must resol...	2013-10-28 21:14:07	
Optional	Undefined - not ...	2013-10-28 21:11:26	
Optional	Undefined - not ...	2013-10-28 21:13:06	
Optional	Undefined - not ...	2013-10-28 21:13:29	

24. Right click any Interference under the **Name** column. The properties page for that interference will appear.
25. Close the list and review overall IFC markers. Examine one that may catch your attention and determine if it is of the correct type (hard, soft, or clearance) according to the options set in Project Management on the IFC form.

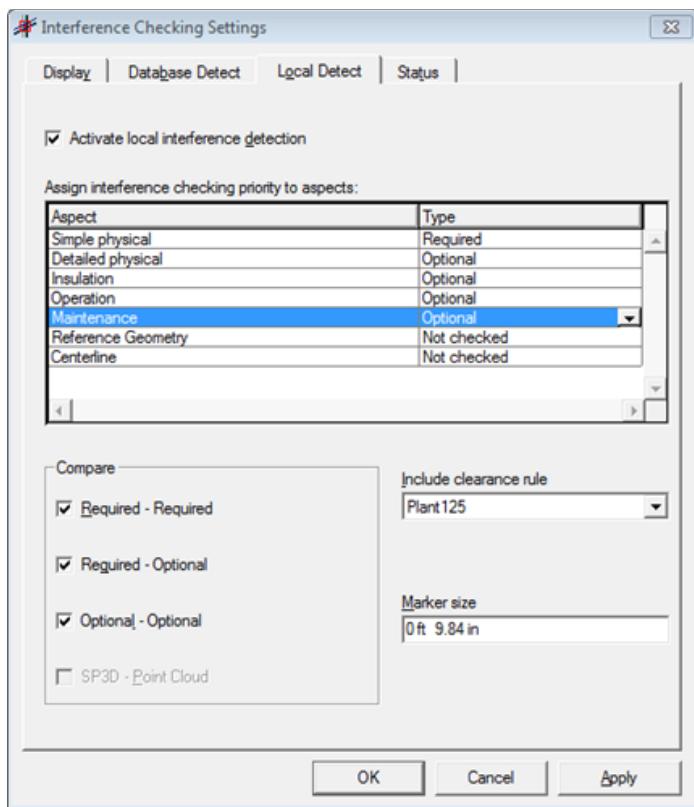
Local Detection

27. Start **Smart 3D** (Start > Intergraph Smart 3D > Smart 3D), if not already open.

28. Define a workspace using the **All** filter or refresh the session.
29. If the IFC toolbar is not already enabled, from the **Tools** menu, select **Check Interference**.
30. Click the left most button for IFC Settings , the following form will be displayed.

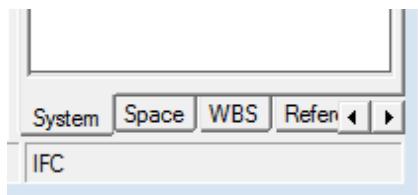


31. On **Local Detect** tab, complete the form as follows:



32. Click **OK**.

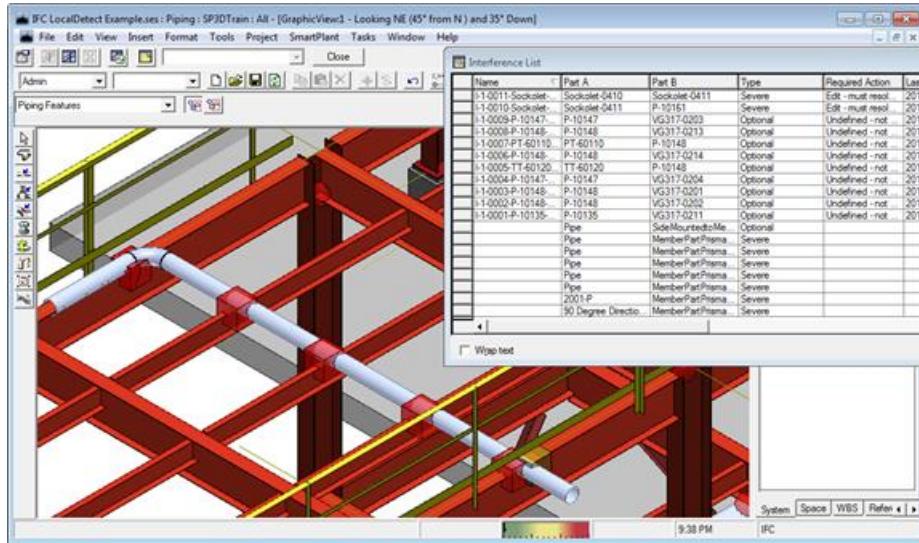
33. Note that IFC word appears at the bottom left of the Smart 3D window as acknowledgment of local IFC execution for the session:



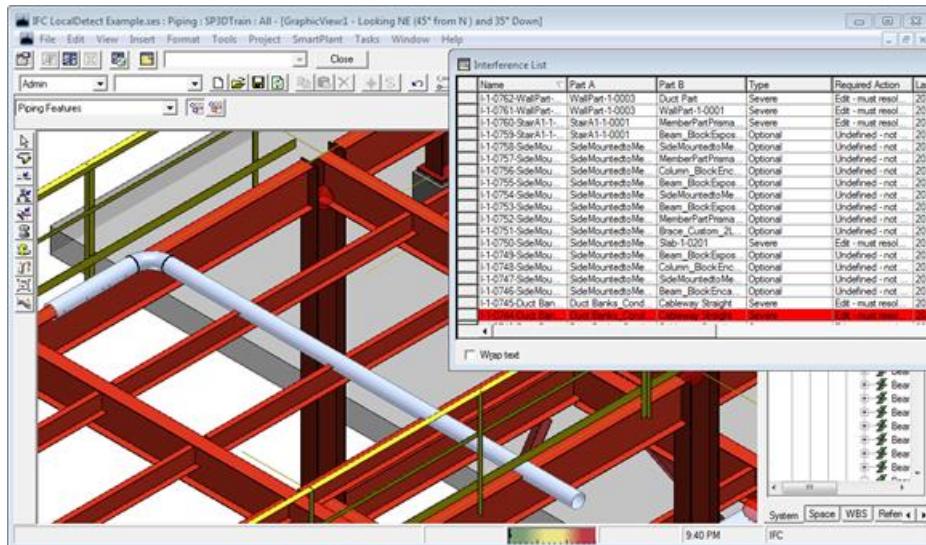
34. **Save** session file as "IFC LocalDetect Example.ses".

35. Because this class is presumed to be taken before the Equipment or Piping classes, the instructor may guide you through some ad hoc simple examples to show that the Local Detect is now working. You may also try to generate some clashes by doing base move of objects so as to make them collide to move objects, use the commands from the main toolbar).

36. Bring up the IFC List. Note that Local Detect Entries do not have a name and there is no additional information different than the two colliding parts.



37. Do a **Refresh** to the workspace and note that local detect markers disappear, while database detect IFC markers (if any) remain.



38. Try to create one of each clash type (hard, soft and clearance) depending on the rules previously set when enabling local detect.

39. To finish the practice at this point, stop Database Interference Checking from Project Management, then stop the windows service Smart 3D Interference Detection Service.

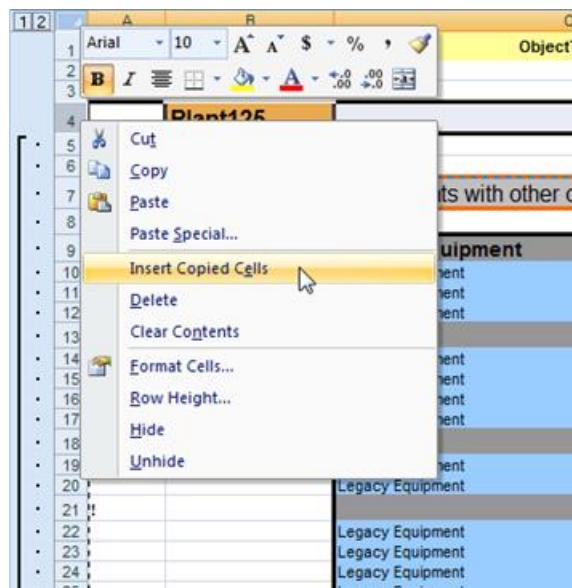
40. **Close** any open Smart 3D Sessions.

Configuring IFC Clearance Rules (Optional)

Clearance rules are used to mark two objects that are closer than a specified distance. Interferences created as clearances can be identified by the color green. This lab practice will

help you review existing clearance rules and create a new one based from existing Plant125 rule.

41. Open Excel workbook **IFCRule.xls** delivered to [Smart 3D install folder]\CatalogData\BulkLoad\Datafiles\.
42. In **IFCClearanceRule** worksheet, highlight all rows pertaining to "Equipment with other objects types" section from **Plant125** rule. This is approximately row 7 thru 116.
43. Copy selected rows.
44. Select row header where **Plant125** name is located.
45. Right click the row header and select **Insert copied cells**.



46. Insert one additional blank row at that same location so that you can create a name for the new Clearance Rule. In the case of the screen shot below, that cell is B4. Provide the name **EquipOnlyClearance** for the new Clearance rule.

	A	B	C
1	HEAD	RuleName	ObjectType1
2			
3	START		
4		EquipOnlyClearance	
5	!	p	
6	!		
7	!		
8			
9			
10			
11	!		
12			
13			
14			
15			

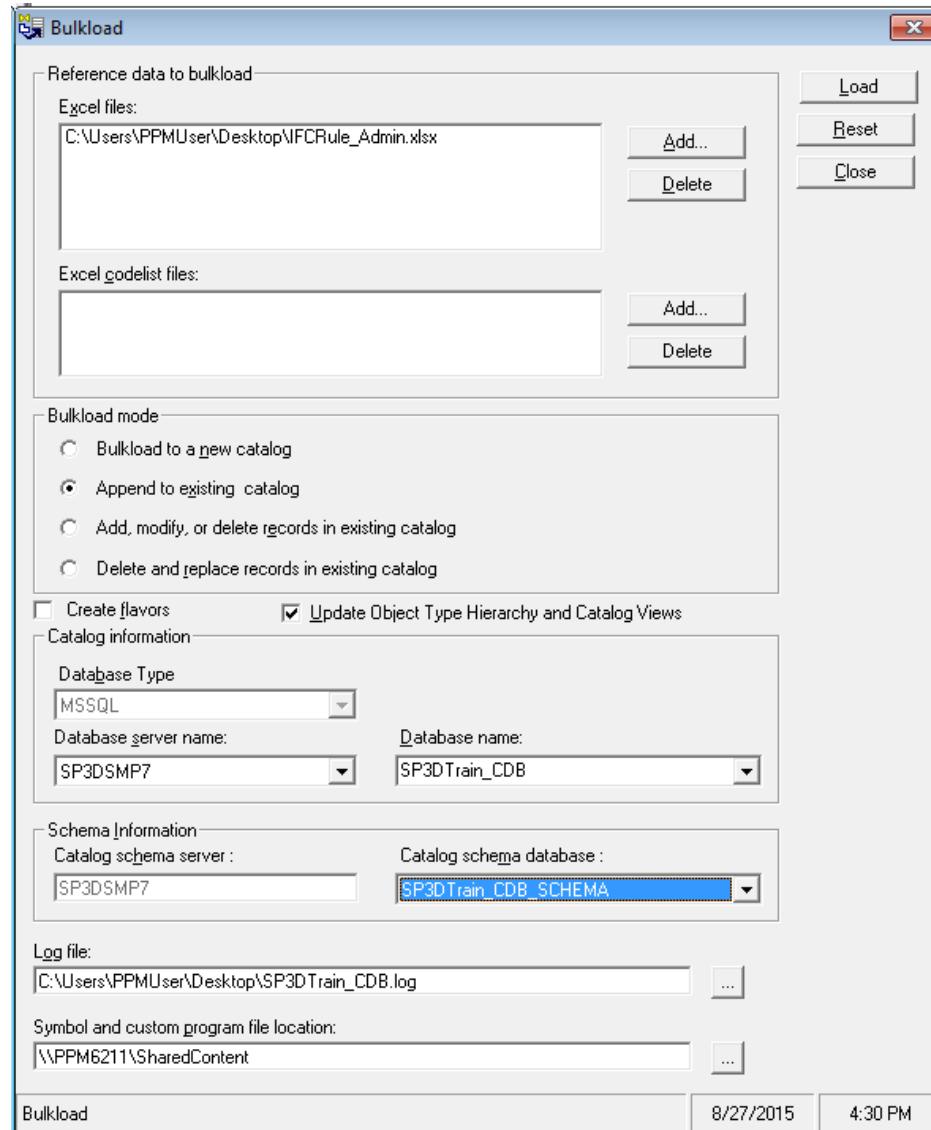
47. Scroll to column **G**, which is labeled **Clearance**.

48. Replace all values with "152" (~6 in) for all EquipOnlyClearance Rule entries that have just been copied. This will now create a clearance rule of 152mm between equipment against all other S3D object types (except R3D objects).

E	F	G
ObjectType2	Aspect2	Clearance
Equipment(s)		
Legacy Equipment	Simple physical	152
Legacy Designed Equipment	Simple physical	152
Equipment	Simple physical	152
Cableways(S)		
Cableway Turn	Simple physical	152
Cableway Straight	Simple physical	152
Cable Trays	Simple physical	152
Cable Tray Components	Simple physical	152
HVAC(S)		
HVAC Components	Simple physical	152
Ducts	Simple physical	152
Piping(S)		
Piping Welds	Simple physical	152
Piping Components	Simple physical	152
Piping Instruments	Simple physical	152
Piping Specialty Items	Simple physical	152
Pipes	Simple physical	152
Volume(S)		
Interference Volumes	Simple physical	152
Structure(S)		
Member Part Linear	Detailed physical	152
Member Part Curve	Detailed physical	152

49. Save the Excel Workbook as **IFCRule_Admin.xls**.
50. Start the Bulkload Utility by going to **Start > Intergraph Smart 3D > Bulkload Reference Data**.

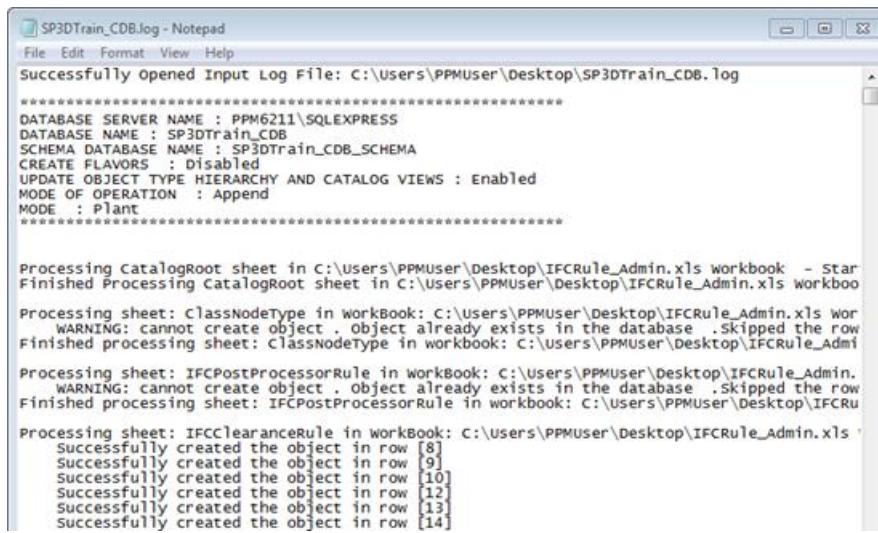
51. Complete the bulkload form providing the path to the Excel file "IFCRule_Admin.xls" and options as shown below:



NOTE Make sure the Catalog and Catalog schema databases are properly selected.

52. Click **Load**.

53. **Review** bulkload log file for any errors. Correct and retry the bulkload as necessary. There will be a large number of warnings due to records already existing in the database, this is ok, but errors have to be reviewed.



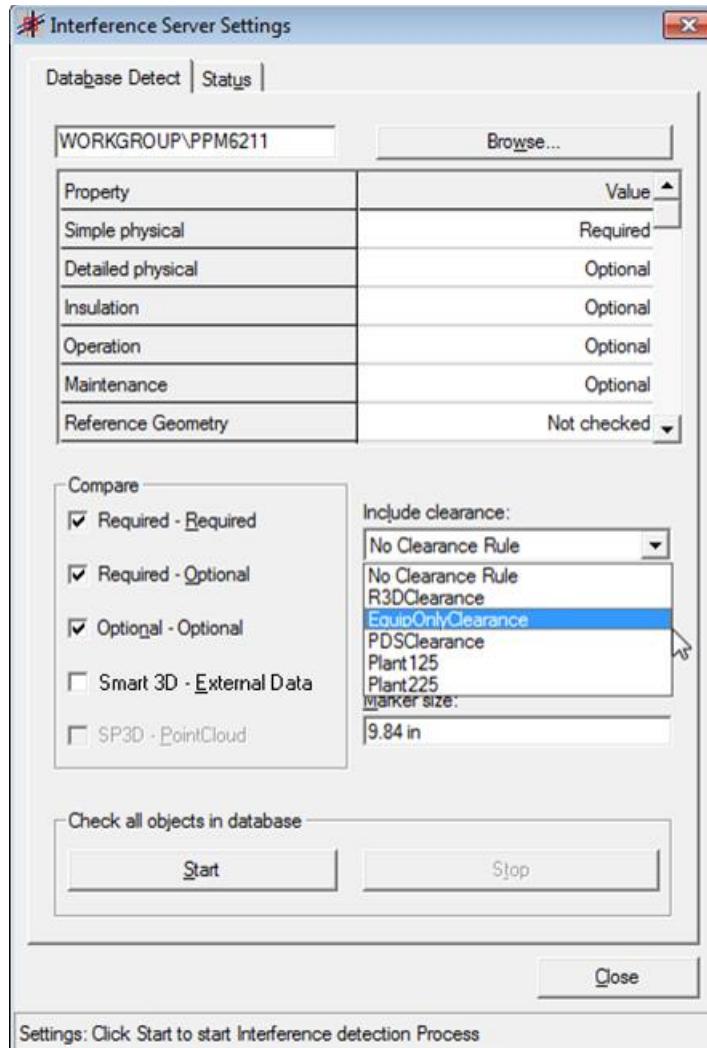
The screenshot shows a Notepad window titled "SP3DTrain_CDB.log - Notepad". The window displays a log file with the following content:

```
File Edit Format View Help
Successfully opened Input Log File: C:\Users\PPMUser\Desktop\SP3DTrain_CDB.log
*****
DATABASE SERVER NAME : PPM6211\SQLEXPRESS
DATABASE NAME : SP3DTrain_CDB
SCHEMA DATABASE NAME : SP3DTrain_CDB_SCHEMA
CREATE FLAVORS : Disabled
UPDATE OBJECT TYPE HIERARCHY AND CATALOG VIEWS : Enabled
MODE OF OPERATION : Append
MODE : Plant
*****

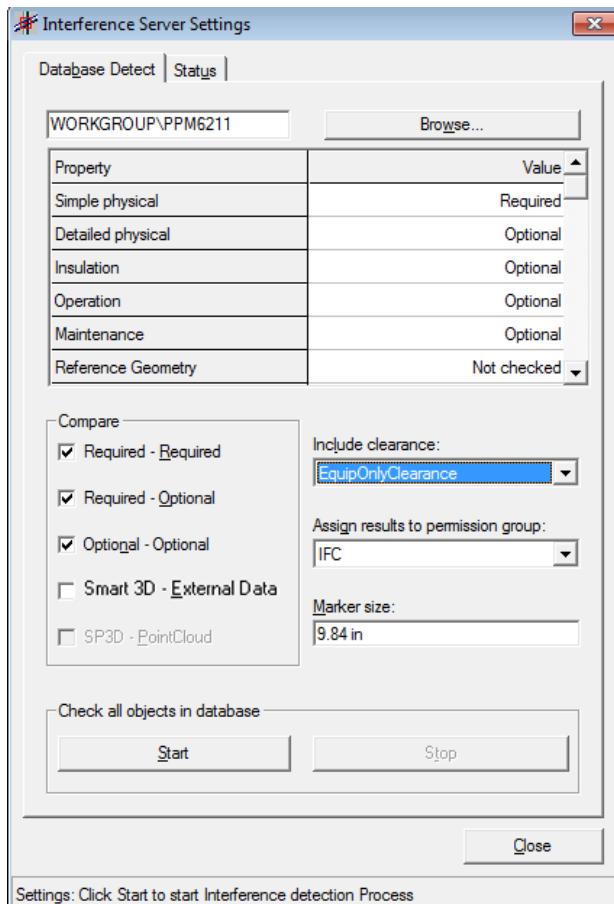
Processing CatalogRoot sheet in C:\Users\PPMUser\Desktop\IFCRule_Admin.xls workbook - Star
Finished Processing CatalogRoot sheet in C:\Users\PPMUser\Desktop\IFCRule_Admin.xls workbo
Processing sheet: classNodeType in workbook: C:\Users\PPMUser\Desktop\IFCRule_Admin.xls wor
    WARNING: cannot create object . object already exists in the database .Skipped the row
Finished processing sheet: classNodeType in workbook: C:\Users\PPMUser\Desktop\IFCRule_Admi
Processing sheet: IFCPostProcessorRule in workbook: C:\Users\PPMUser\Desktop\IFCRule_Admin.
    WARNING: cannot create object . object already exists in the database .Skipped the row
Finished processing sheet: IFCPostProcessorRule in workbook: C:\Users\PPMUser\Desktop\IFCRU
Processing sheet: IFCClearanceRule in workbook: C:\Users\PPMUser\Desktop\IFCRule_Admin.xls .
    Successfully created the object in row [8]
    Successfully created the object in row [9]
    Successfully created the object in row [10]
    Successfully created the object in row [12]
    Successfully created the object in row [13]
    Successfully created the object in row [14]
```

54. Start a new Project Management session.
55. Open Interference checking properties form by going to **SP3DTrain > Interference Server**.
56. Stop Interference checking if it is running.

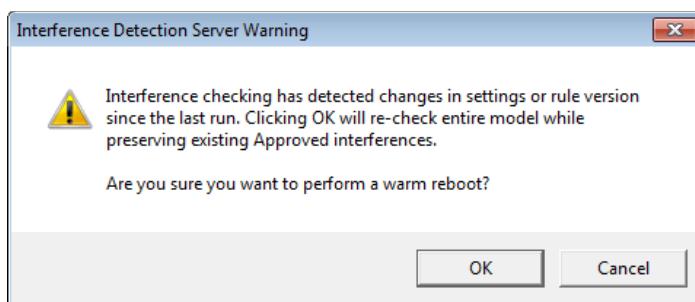
57. Observe existence of recently bulkloaded rule **EquipOnlyClearance**.



58. Complete the form similar to what was done in previous practice for local detection, except this time select the newly created **EquipOnlyClearance** rule.



59. Start the Smart 3D Interference Detection windows service, then click **Start**.
60. The following message will be displayed advising that the model will be rechecked due to changes in the IFC settings. Click **OK**.



61. You may now go into a modeling session and test the newly added rule.

NOTE If this is the last Interference Checking practice performed, stop the Windows Service **Smart 3D Interference Detection Service**.

LAB 28: Export ZVF and XML files to be used in R3D referencing

Objectives

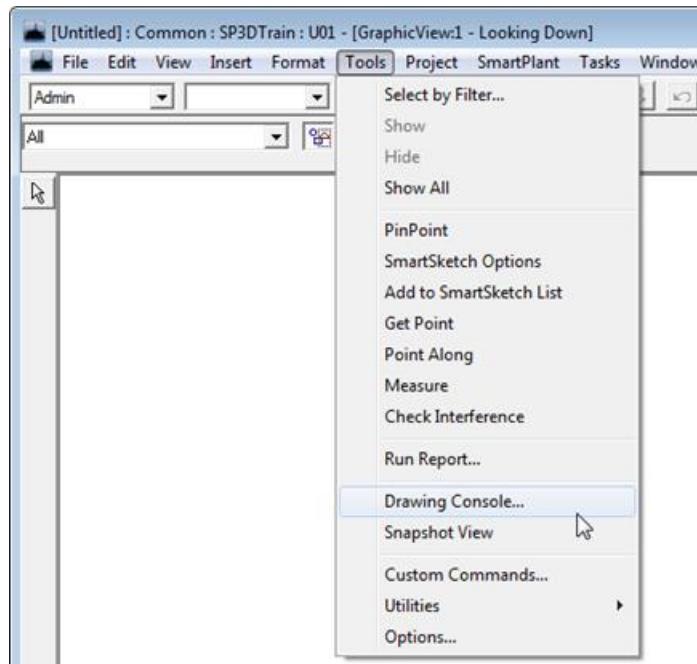
After completing this lab, you will be able to:

- Export zvf and xml files from a Smart 3D project that can be used for attachment as R3D references

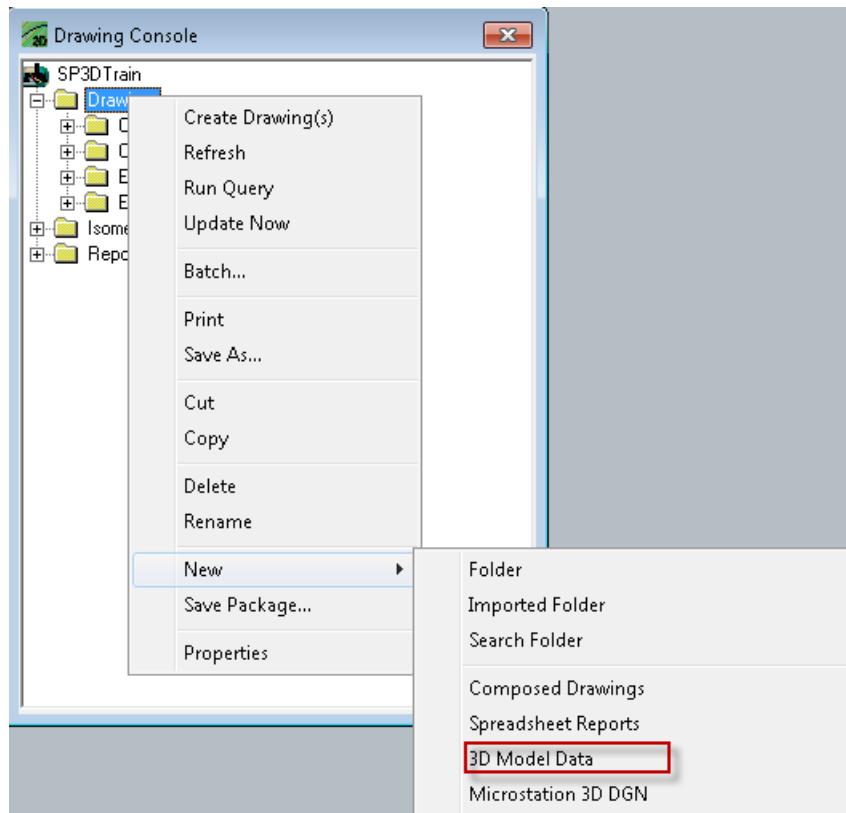
NOTE

- If the project is currently registered with SmartPlant Foundation, the user generating these files must be able to make a successful connection onto SPF server.
- SmartPlant Schema Component is a prerequisite software that cannot be omitted. Make sure it is loaded on the system before proceeding.

1. On any graphical task, go to **Tools > Drawing Console**.

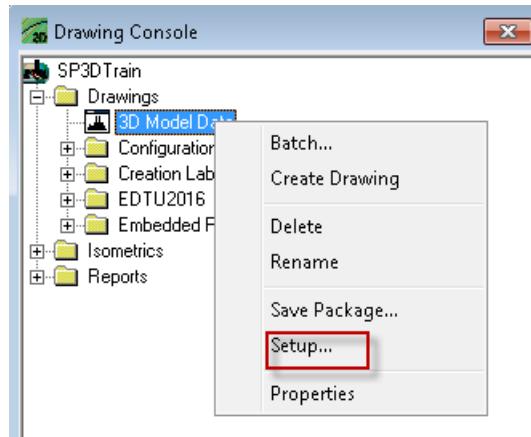


- Right click on **Drawings** or any other folder in drawings hierarchy, select **New > 3D Model Data**.



NOTE The 3D Model Data object can be located on any folder in the drawings hierarchy, but not under the root.

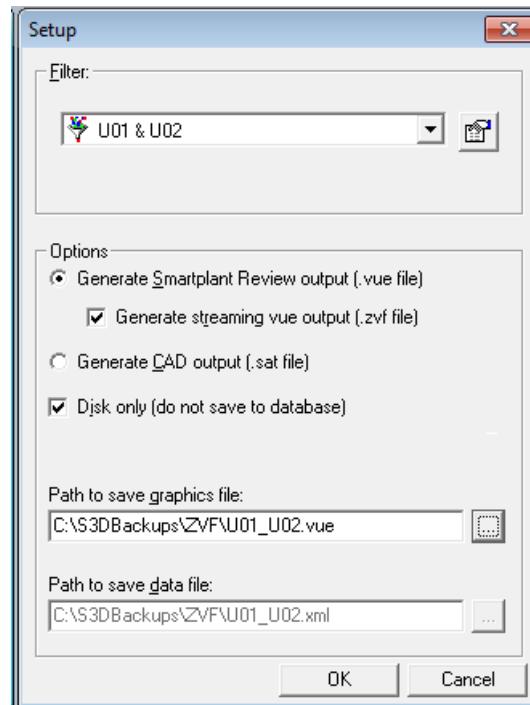
- Right click recently created **3D Model Data** object and select **Setup...**



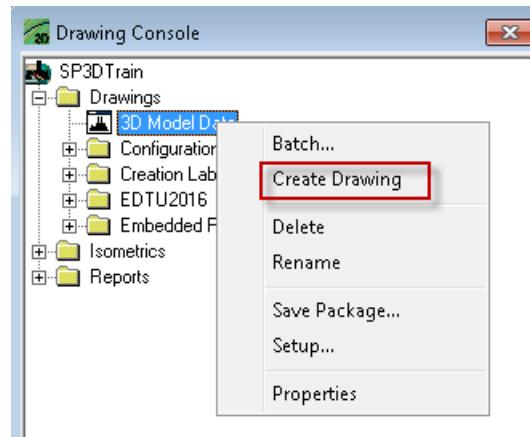
- In the setup form, select the filter containing objects to be exported. Choose filter **U01 & U02** from Plant filters >Training filters node.
- Select the option **Generate SmartPlant Review output (.vue file)**, check **Generate streaming vue ouput (.zvf file)** checkbox if not selected.

LAB 28: Export ZVF and XML files to be used in R3D referencing

6. Check **Disk only (do not save to database)** checkbox if not selected.
7. Define a path that can be accessed later and give as name for graphics file **U01_U02.vue**. The path for data file should be automatically populated with same location.

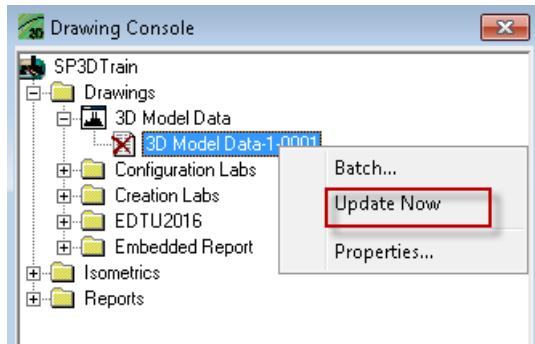


8. Click **OK**.
9. Back on the **Drawings Console**, right click recently modified **3D Model Data** object and select **Create Drawing**.

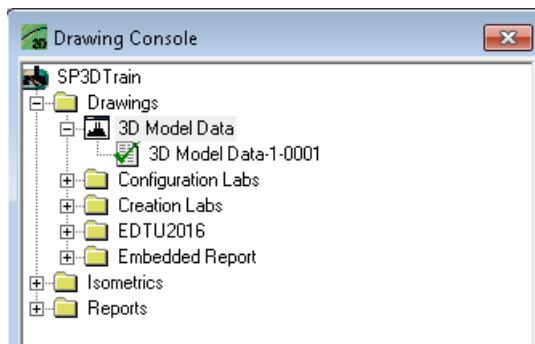


LAB 28: Export ZVF and XML files to be used in R3D referencing

- When a drawing object has been created, right click on it and select **Update Now**.



NOTE The drawing object must update successfully.



- Once the drawing has been properly updated as shown by the green check mark, go to the specified location and retrieve*.zvf and *.xml files to be used in R3D referencing.

NOTE Following errors may appear in the drawing log file if SmartPlant Schema component is not loaded in the system:

Error Number: 1

Process Virtual Memory: 183 MB

Description: Schema Component installation not found.

Source: CThreeDViewGenerator::Run

Method: CThreeDViewGenerator::Run

Source File: ThreeDViewGenerator.cpp

Source Line: 644

- Close the Smart 3D session.

LAB 29: Attach external 3D data as a reference (R3D)

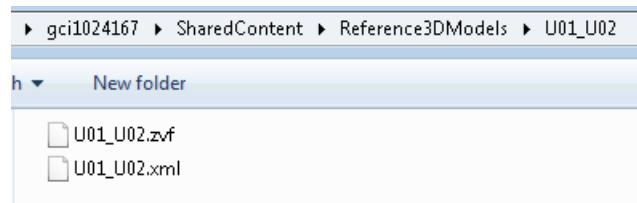
Objectives

After completing this lab, you will be able to:

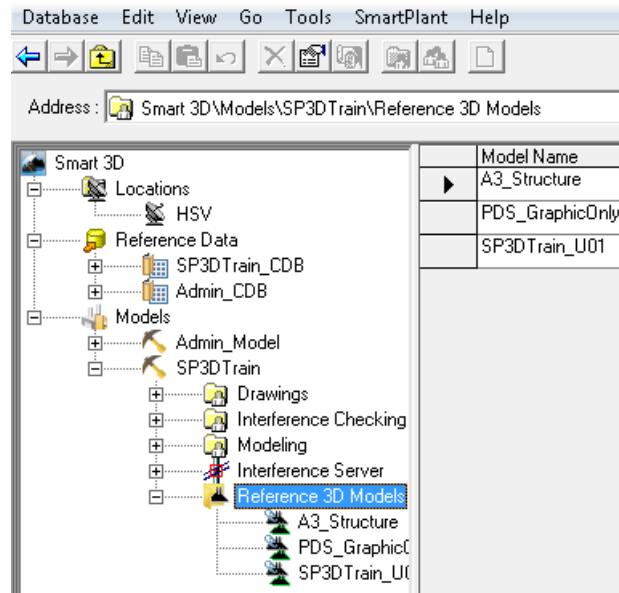
- Attach external 3D data (R3D reference)

This practice will demonstrate the steps to attach external 3D data into the model with the option to perform basic transformations (rotation, scaling and translation).

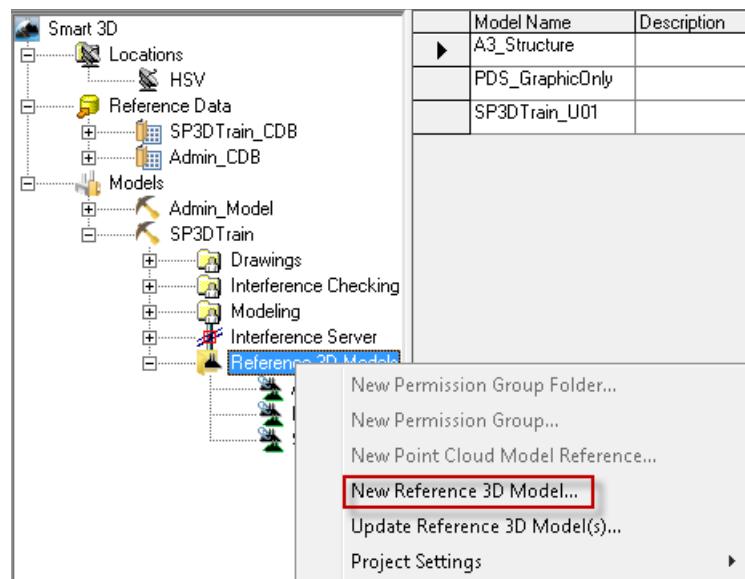
1. Locate files needed for R3D reference, these are the zvf and xml files previously exported from Smart 3D. Place them into a directory where they must remain and be accessible at all times. The symbols folder is the preferred location.
Example..\\SharedContent\\Reference3D\\.



2. Open Project Management.
 3. Expand **SP3DTrain** model hierarchy. Note the existence of a **Reference 3D Models** node. This node will only exist on models that already have a R3D referenced object.

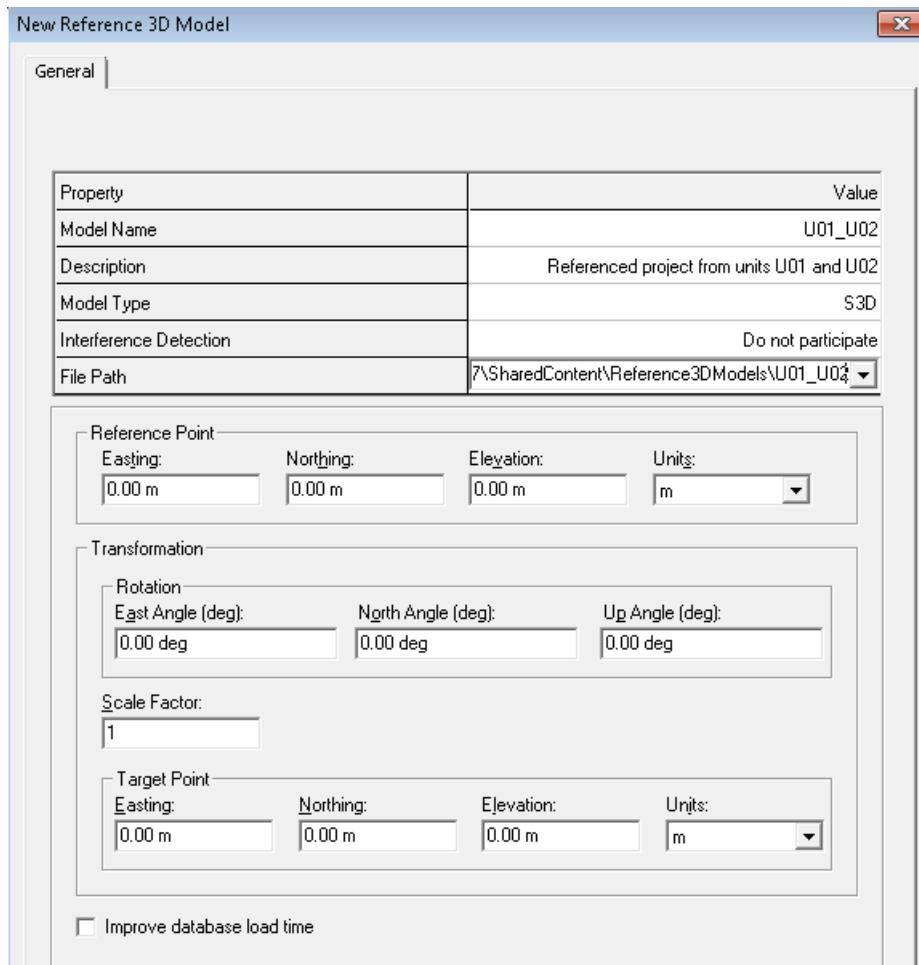


4. Right click the Reference 3D Models node and select **New Reference 3D Model...**

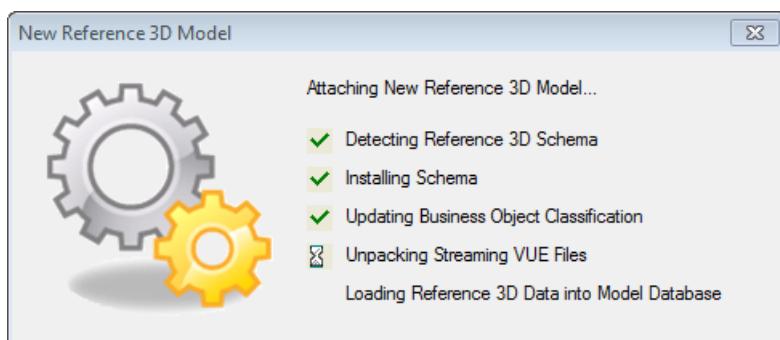


LAB 29: Attach external 3D data as a reference (R3D)

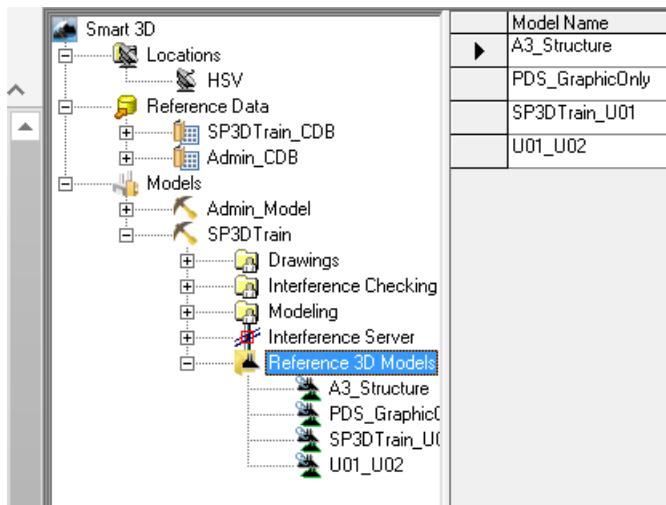
5. Set the values on the form as shown below. Use a name that is related to the files to be referenced. Make sure to use a UNC path when browsing for the files.



6. Click **OK**.
7. The referencing process will start and a new dialog will be shown indicating the actions that are currently being performed.



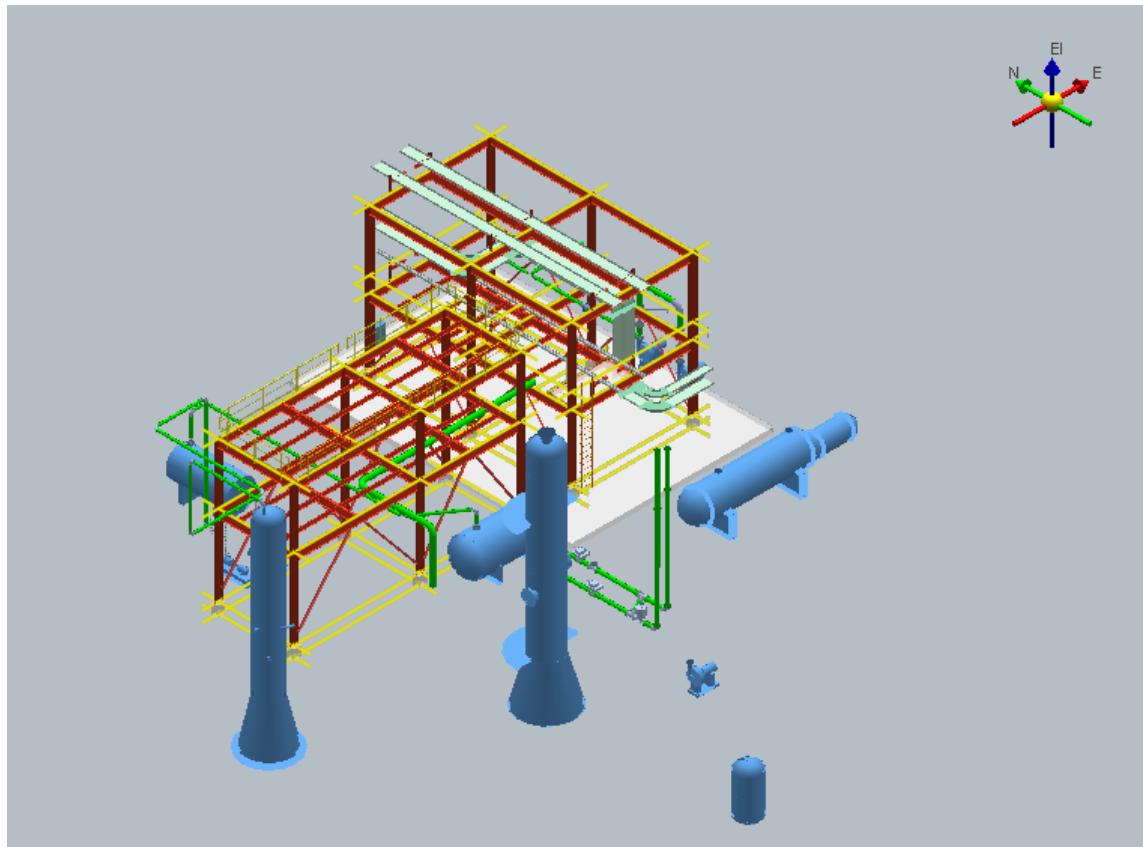
8. When the process finishes, the referenced project will appear as a new item under the Reference 3D Models node.



9. Review the import log file created for the referencing. It can be located in the %temp% folder.
10. Open a session file or create a new one and define a workspace to bring the inserted Reference 3D objects.

NOTE Referenced objects have their own classification in the objects hierarchy. You may use predefined filters found in the **Catalog filters node > Default Filters > Reference 3D**

Object Filters > Object Types or you can create a filter based on Object types. A new tab for Reference3D objects is available as well.

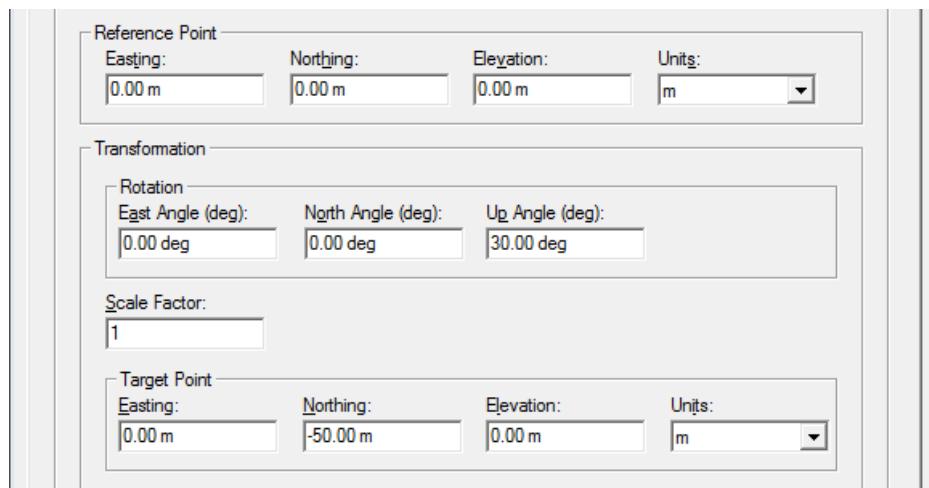


LAB 30: Perform transformation (rotation, scaling, and translation) to R3D models.

Objectives

After completing this lab, you will be able to:

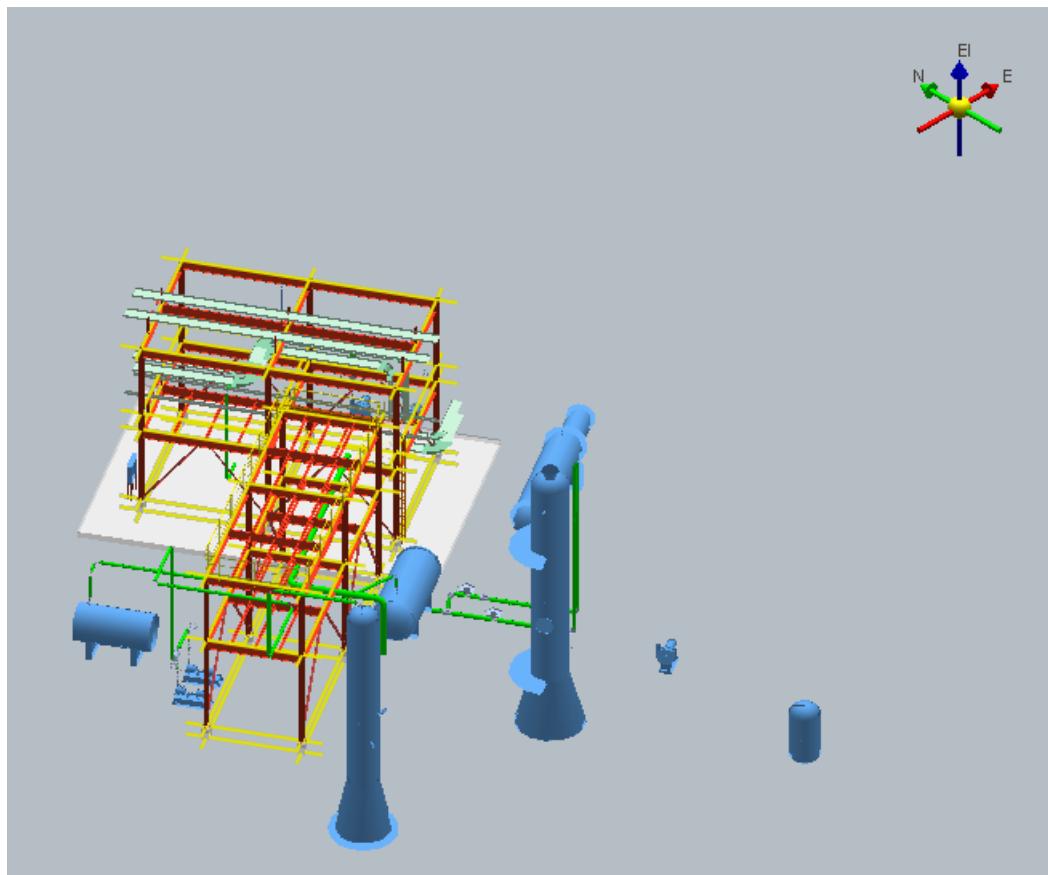
- Perform different transformations to currently attached R3D projects
1. Open a session file or define one and bring the referenced model that will be transformed into the workspace.
 2. Open **Project Management** if not already open.
 3. Open the **properties** dialog for **U01_U02** referenced model.
 4. Set values as follow:
 - Target Point - Northing: -50 m
 - Rotation – Up angle: 30 deg



5. Click **Apply**.
6. Return to **Smart 3D** session and do a **refresh**.

LAB 30: Perform transformation (rotation, scaling, and translation) to R3D models.

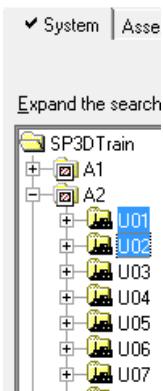
NOTE You might need to fit the view in order to locate the objects.



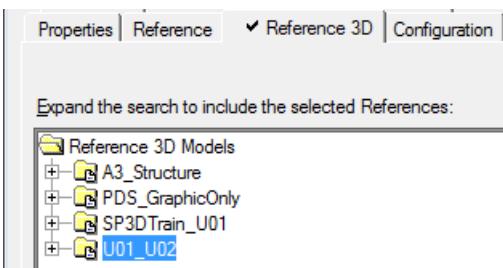
7. Return to **Project Management** and try other transformation values. Compare results by going back to the session file keeping in mind to do a refresh every time there is a change.
8. **Define a workspace** that will return objects from **U02** and **U01** units as well as the attached reference 3D model **U01_U02**. You may create a filter with following criteria for this purpose:

LAB 30: Perform transformation (rotation, scaling, and translation) to R3D models.

- System tab:

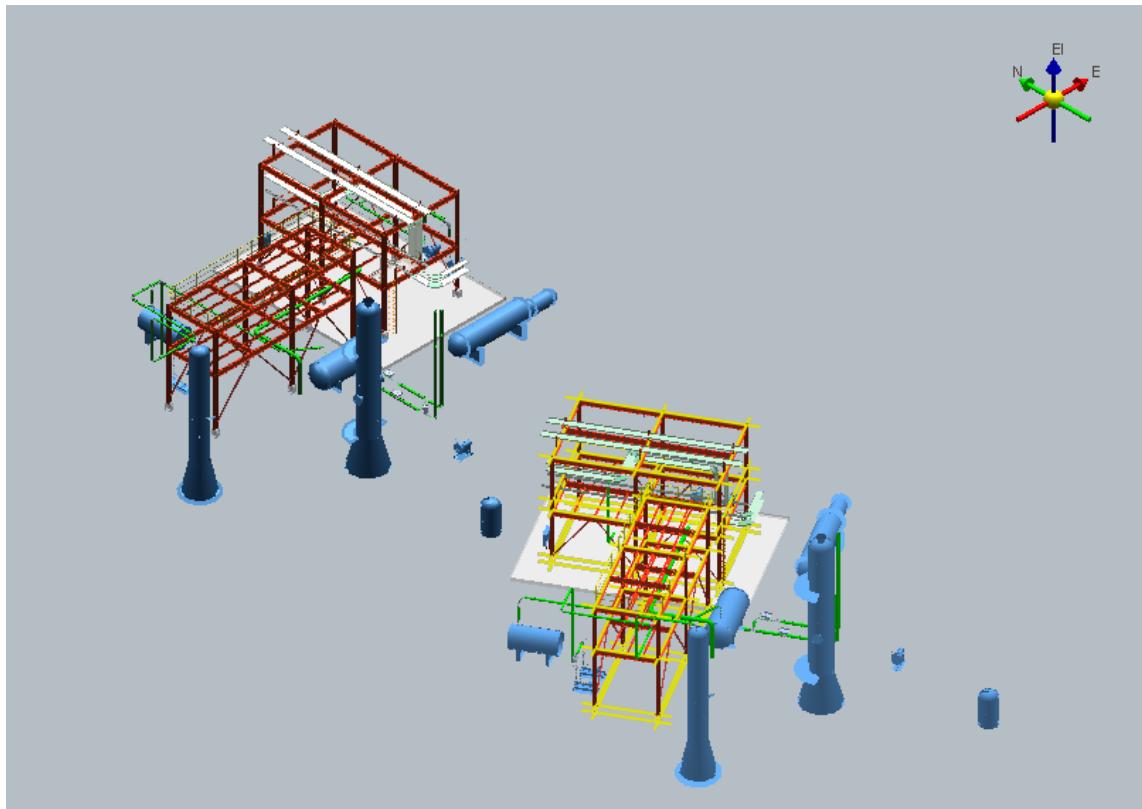


- Reference3D tab:



LAB 30: Perform transformation (rotation, scaling, and translation) to R3D models.

9. Compare results. Try other transformation values now that there is a visual reference of the original position.



LAB 31: Update attached R3D models

Objectives

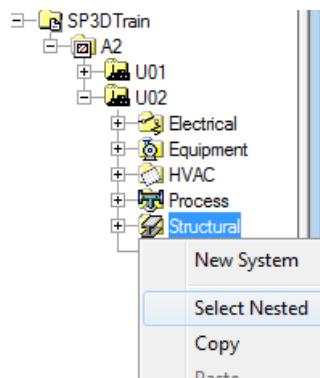
After completing this lab, you will be able to:

- Perform updates to attached R3D models. Such updates can be modifications performed to modeled objects such as new designs, change in styles (color of the objects) or removal of content due to revisions.

NOTE To simulate an update performed to initially published objects, it would be necessary to perform a change that will allow visible comparison of the results. The next series of steps will guide you through the process of deletion for some objects in unit U02 of the training model.

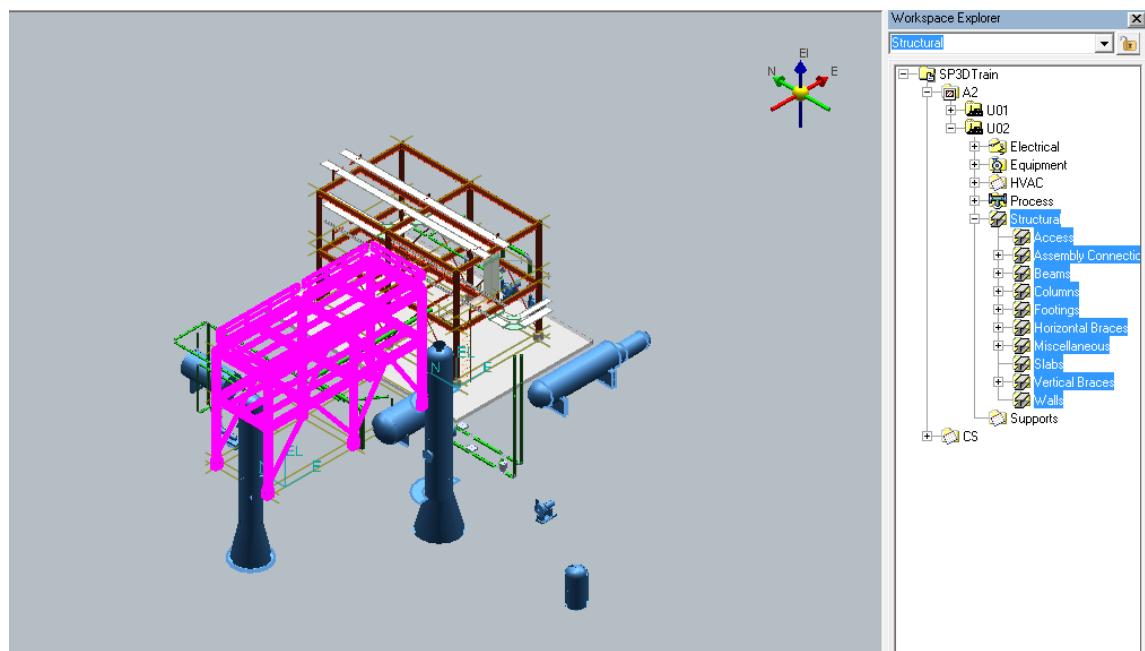
Prepare Objects to be Republished

1. Open a **session file** or define a new workspace with the filter **U01 & U02** located under **Plant filters > Training filters**.
2. From the workspace explorer, right click the **Structural** system under **U02** and choose **Select Nested**.

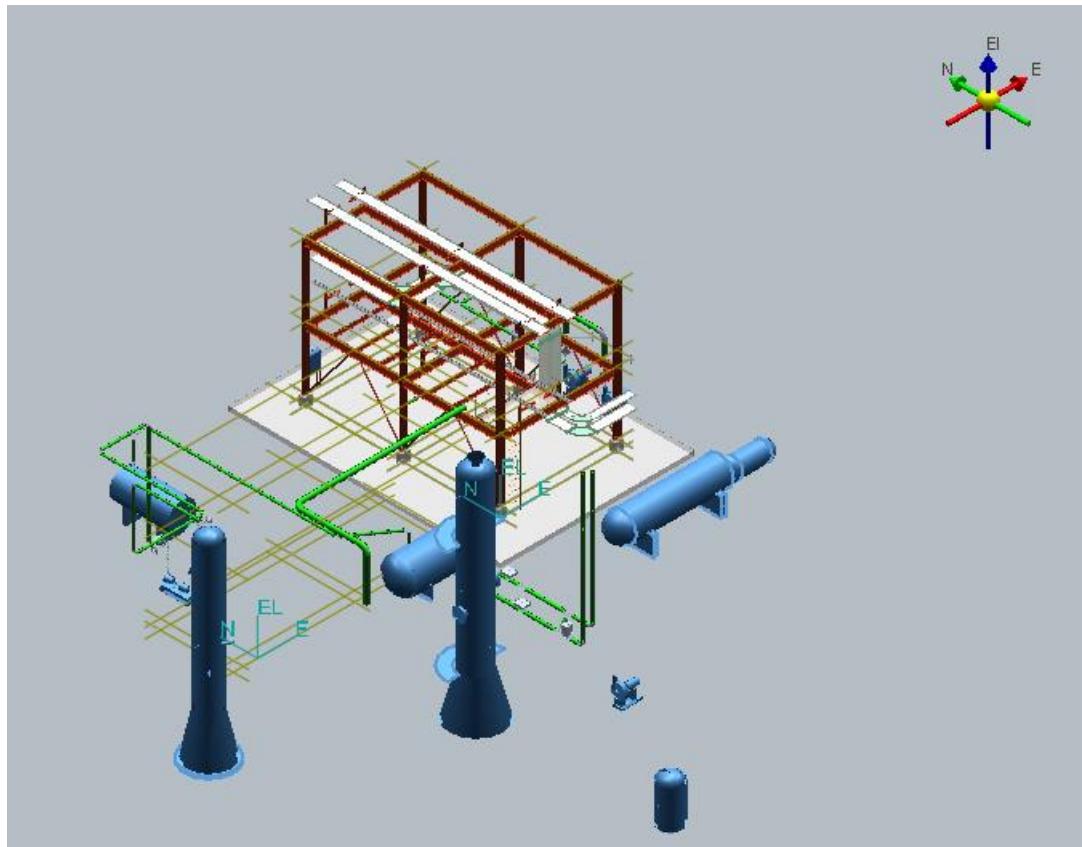


LAB 31: Update attached R3D models

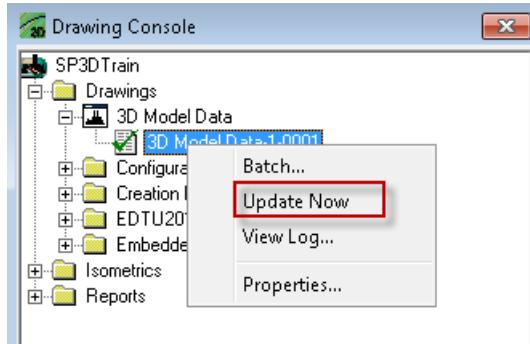
3. You may be able to see all structural objects under the Structural system being highlighted in the active view.



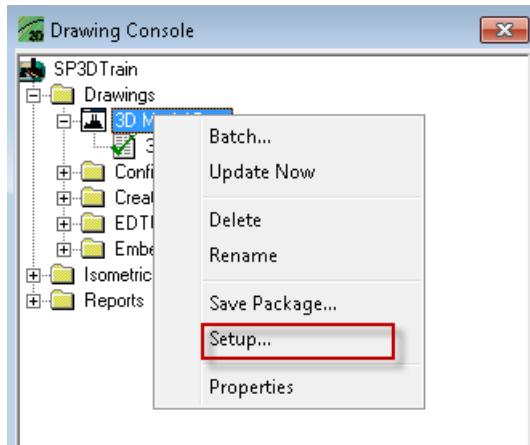
4. With the objects selected, select the **delete** key, or go to **Edit > Delete...** don't worry, you can recover using MDR or S3D Backups.



5. Open the **Drawings Console** from **Tools > Drawing console** and update the **3D Model data** object created in the previous lab.

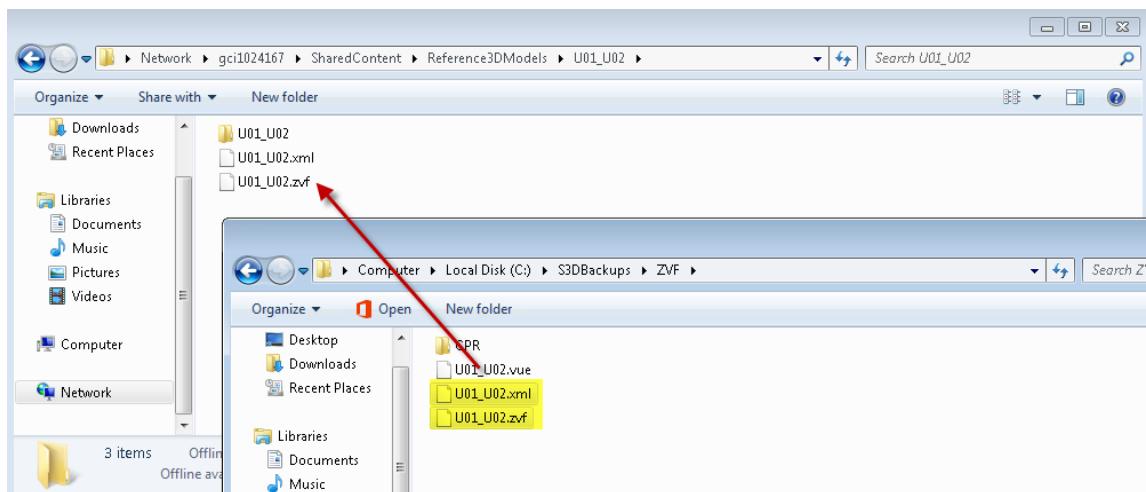


6. Locate exported zvf and xml files. Recall their location by opening the setup properties of the 3D Model Data object.



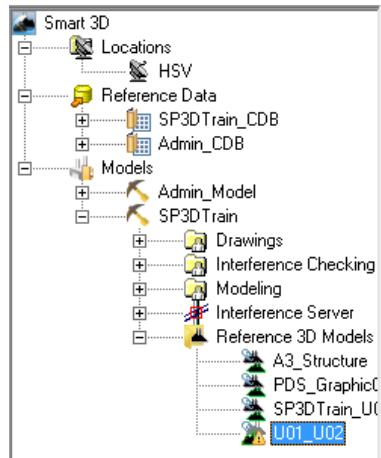
Update Reference 3D Models

7. Replace existing zvf and xml files of exported objects from U01 & U02 filter into their referenced location from Project Management. This place could be the symbols folder.

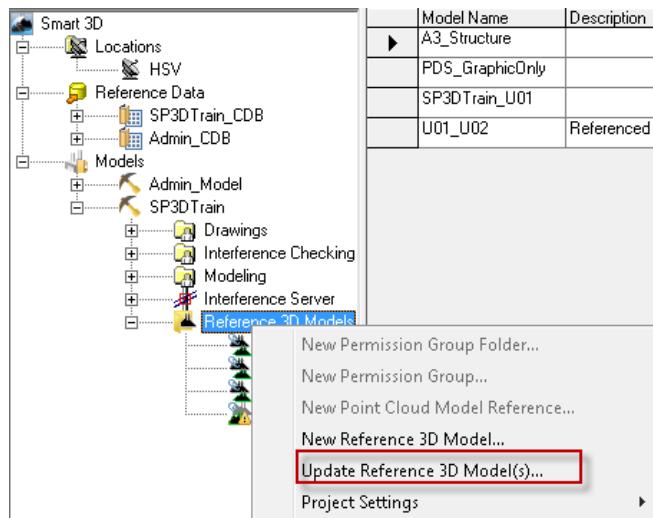


8. Open **Project Management**. If there is a session already open, do a refresh by hitting the **F5** key or go to **View > Refresh**.

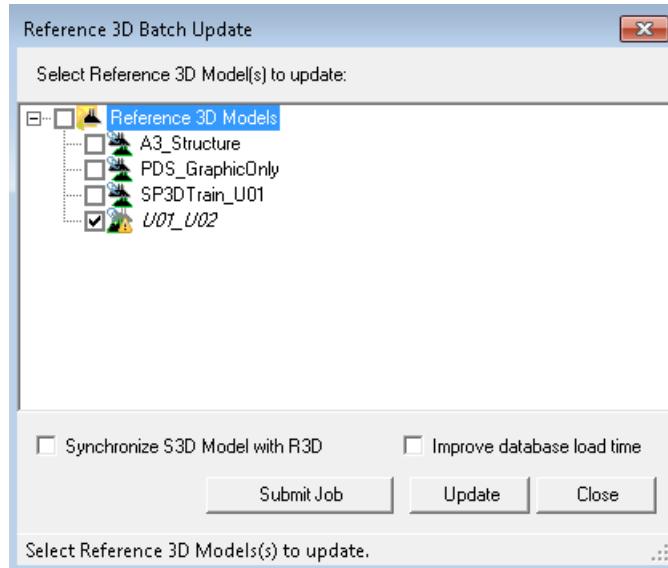
9. The referenced 3D model should now look out of date as an indication that the files have been added, removed, or modified.



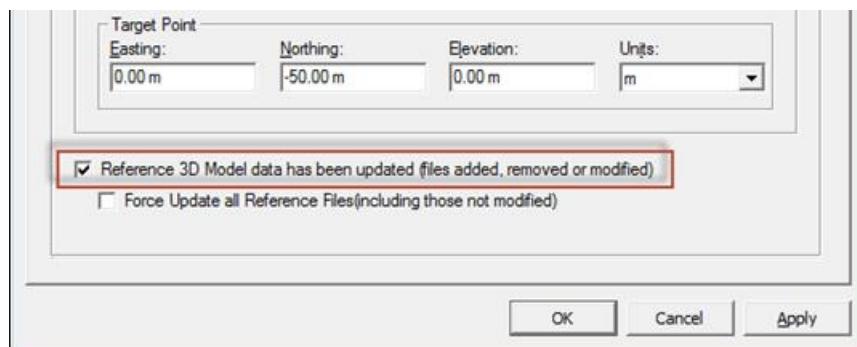
10. Right-click on **Reference 3D Models** root node and select **Update Reference 3D Model(s)...**



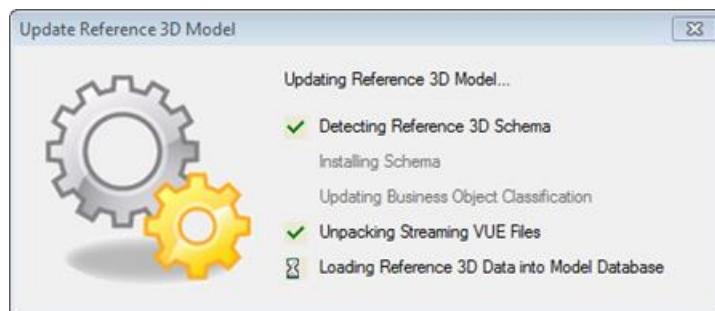
Select **U01_U02** and select **Update**.



You can also open the **properties** dialog for **U01_U02** referenced model and check the box at the bottom **Reference 3D Model data has been updated ... Click OK.**

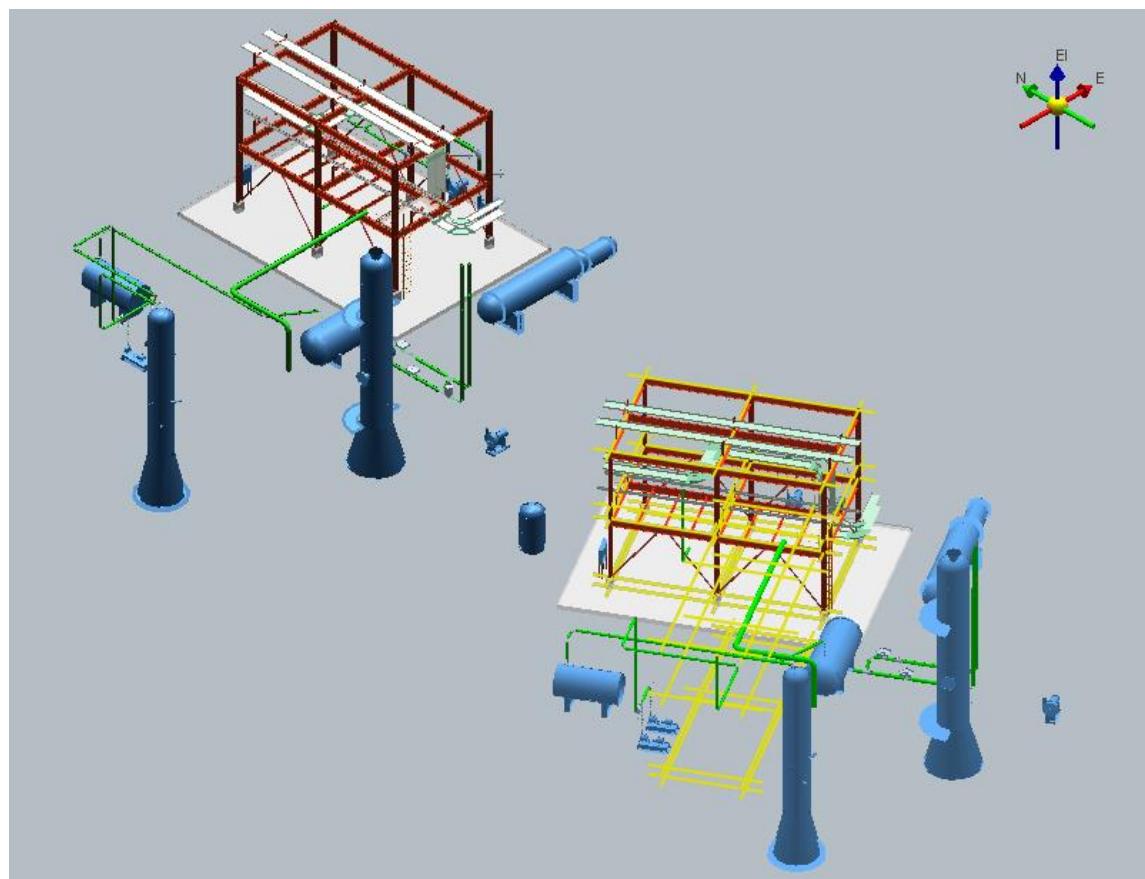


12. Status dialog will appear:



13. Once the update has finished, open an existing session or create a new one to evaluate the results.

14. Refresh the workspace if needed for the changes to be reflected.

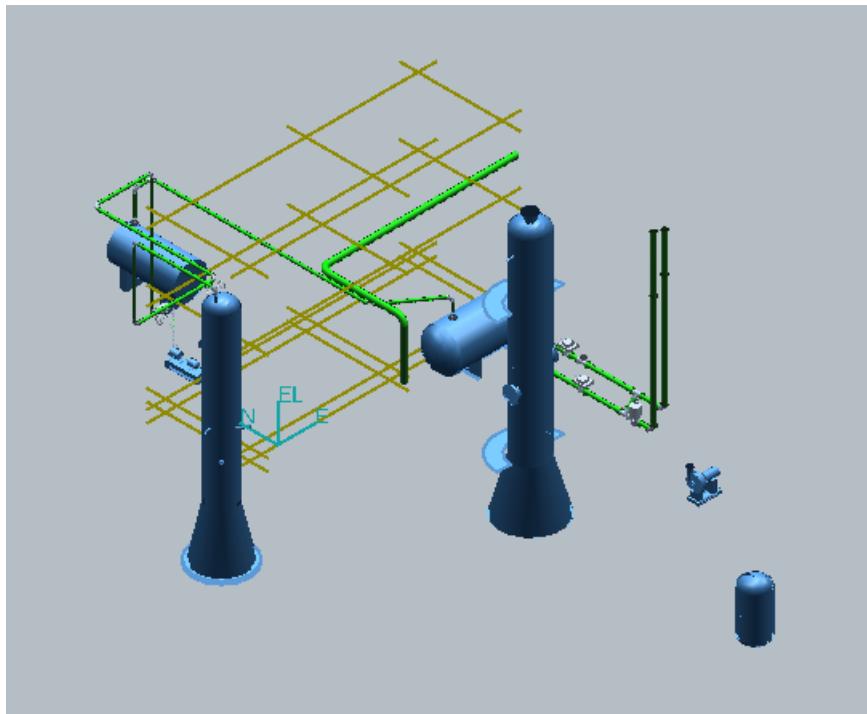


LAB 32: Export VUE and MDB2 files to be used for R3D Referencing

Objectives

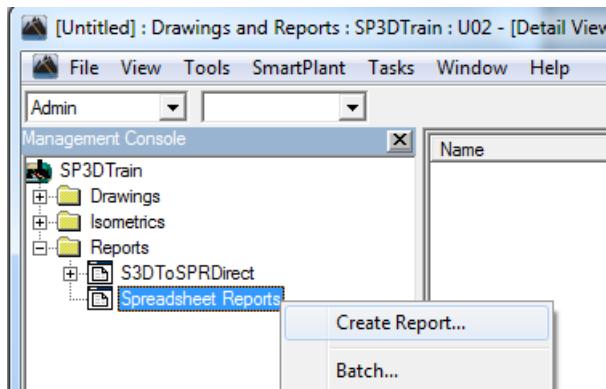
After completing this lab, you will be able to:

- Create VUE and MDB2 files using SPRDirect in a S3D project
 - Convert VUE to ZVF using the ConvertToZVF utility
 - Attach new R3D model using the ZVF and MDB2 files in S3D
1. Open a **Smart 3D** session or create a new session.
 2. Define your workspace to view **Unit U02** from **SP3DTrain** model using the filter named **U02** located under **Plant Filters > Training Filters > U02**.
 3. Switch your graphic view to **Isometric** and do a **Fit**. Your workspace should resemble the view shown below.

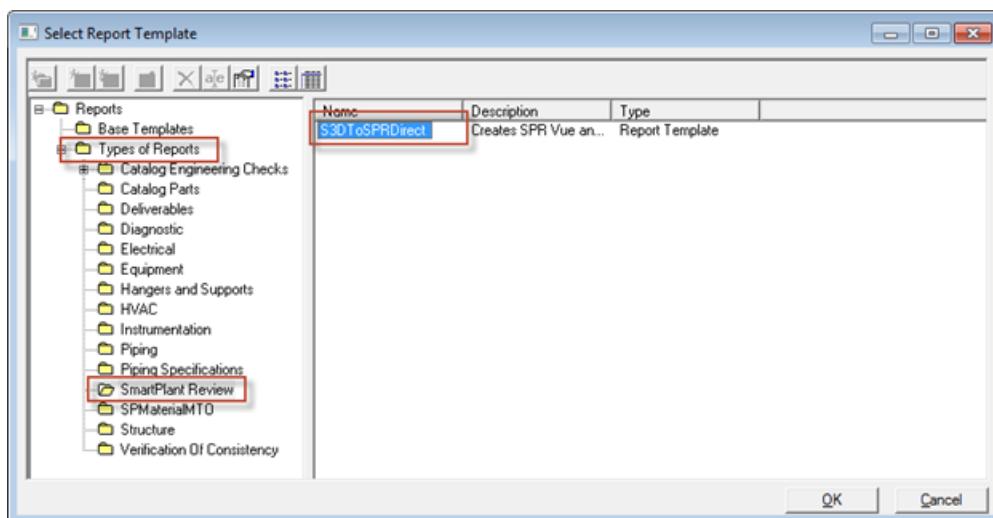


4. Switch to the Drawings and Reports task by selecting **Tasks > Drawings and Reports...**
5. Expand the **Reports** folder in the Management Console.
6. Select the **Spreadsheet Reports** in the Management Console and right click and select **Create Report...**

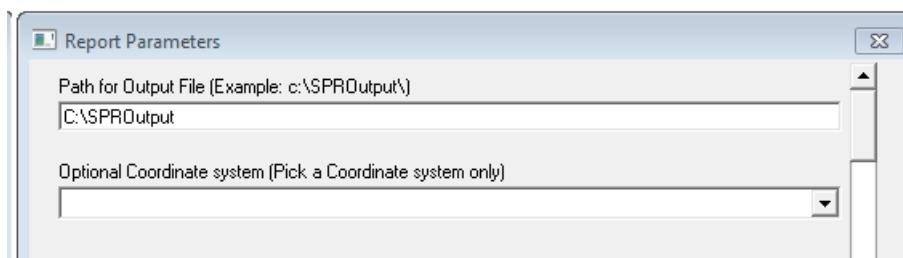
LAB 32: Export VUE and MDB2 files to be used for R3D Referencing



7. On the Select Report Template dialog select the **S3DToSPRDirect** report from **Types of Reports > SmartPlant Review > S3DToSPRDirect** and click **OK**.

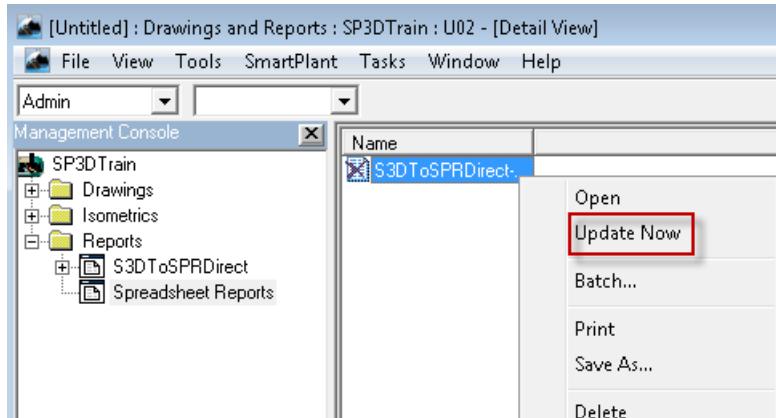


8. On the **Select filter** dialog select the filter named **U02** located under **Plant Filters > Training Filters > U02** and click **OK**.
9. On the Report Parameters dialog specify the output location for the files as **c:\SPROutput** and click **Finish**. Do not provide the optional coordinate system information.

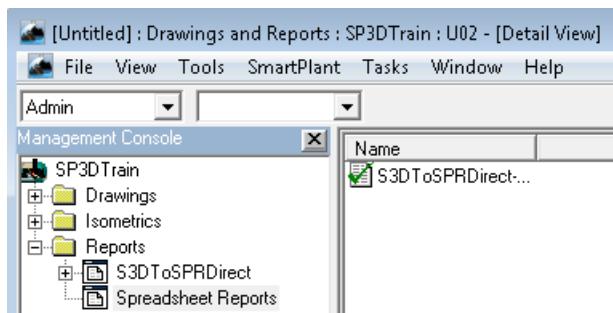


10. A new SPRDirect report will be created. Select the report, right click, and choose **Update Now**.

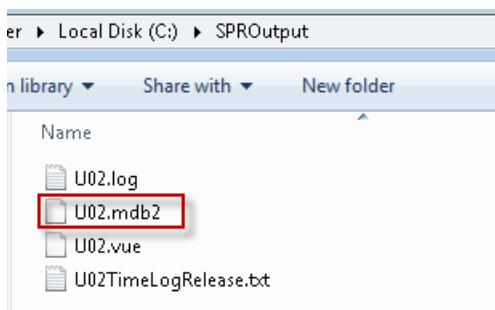
LAB 32: Export VUE and MDB2 files to be used for R3D Referencing



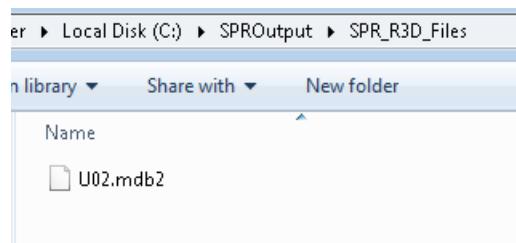
11. After the update is complete, a green check will be placed on the report.



12. Open Windows Explorer and navigate to the output folder location specified on the Report Parameters dialog in step 9.

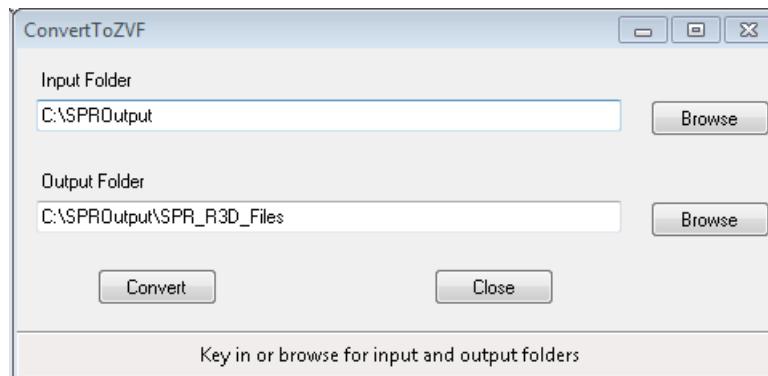


13. Create a new folder in the SPROoutput folder, name it **SPR_R3D_Files** and copy the **U02.mdb2** file from **SPROoutput** folder to **SPR_R3D_Files** folder.

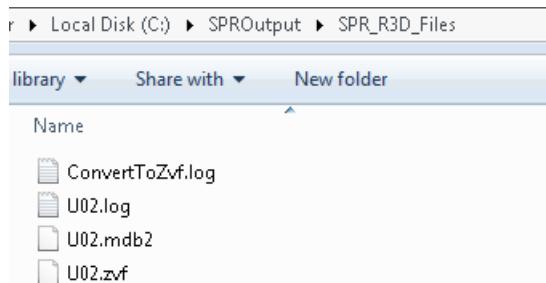


Convert to ZVF

14. Open Windows Explorer and navigate to the following location to get to the **ConvertToZVF.exe** utility.
[Smart 3D install folder]\Core\Tools\Administrator\Bin\
15. Start the utility by double clicking on the **ConvertToZVF.exe**.
16. Specify the **Input** and **Output** folder path on the ConvertToZVF window and click **Convert**.
Input Folder: C:\SPROutput
Output Folder: C:\SPROutput\SPR_R3D_Files



17. After the conversion is complete, open the **SPR_R3D_Files** folder and you should see the converted ZVF file.

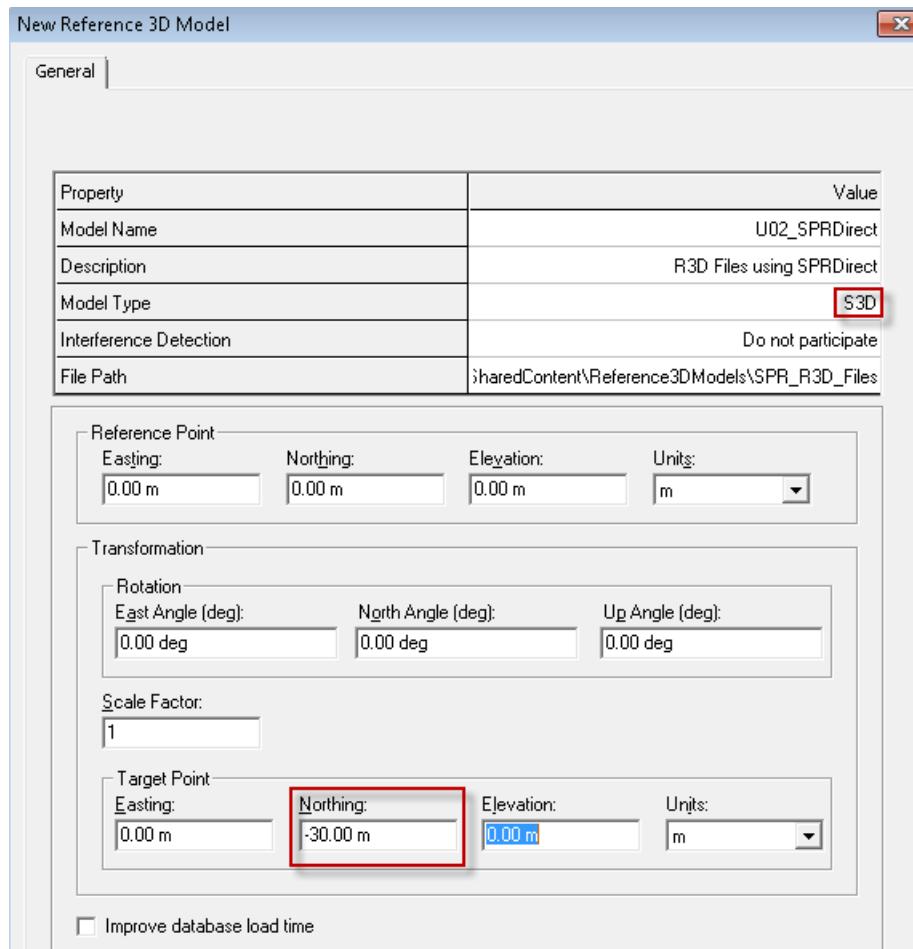


18. Copy the **SPR_R3D_Files** folder to your **SharedContent** folder.

Attach a new R3D Model

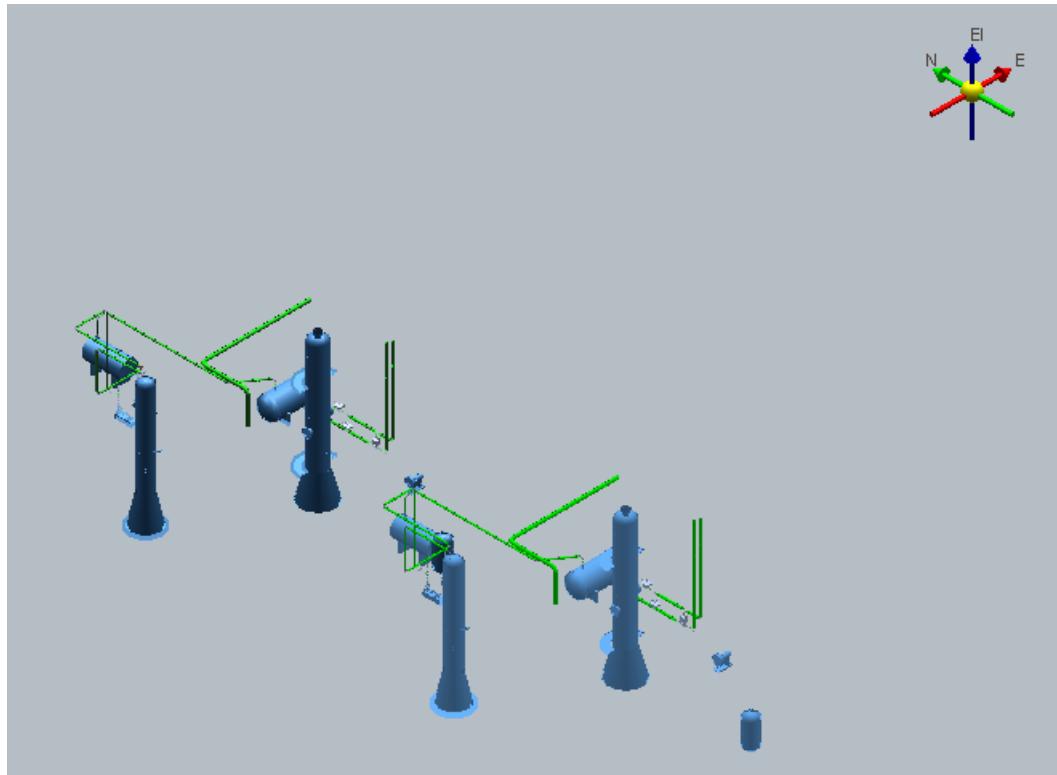
19. Open **Project Management**.
20. Expand **SP3DTrain** model hierarchy.
21. Right click **Reference 3D Models** node and select **New Reference 3D Model...**
22. Set the values on the form as shown below. Use a name that is related to the files to be referenced. Make sure to use a UNC path when browsing for the files.

LAB 32: Export VUE and MDB2 files to be used for R3D Referencing



23. Click **OK**.
24. The referencing process will start and a new dialog will be shown indicating the actions that are currently being performed. When the process finishes, the reference project will appear as a new item under the Reference 3D Models node.
25. **Review** the log file created for the referencing. It can be located in the %temp% folder.
26. Exit Project Management.
27. Open a new **Smart 3D** session and define your workspace. Modify the properties for **U02**. Select the Reference 3D tab and select **U02_SPRDirect**. Click OK to save changes.

LAB 32: Export VUE and MDB2 files to be used for R3D Referencing



LAB 33: Convert DGN to ZVF and Create Folder Hierarchy for R3D Models (Optional)

Objectives

After completing this lab you will be able to:

- Convert DGN file to ZVF using the ConvertToZVF utility
- Create folder hierarchy for R3D models which will be reflected in the workspace explorer (WSE)
- Attach multiple R3D models in Smart 3D under a single parent folder

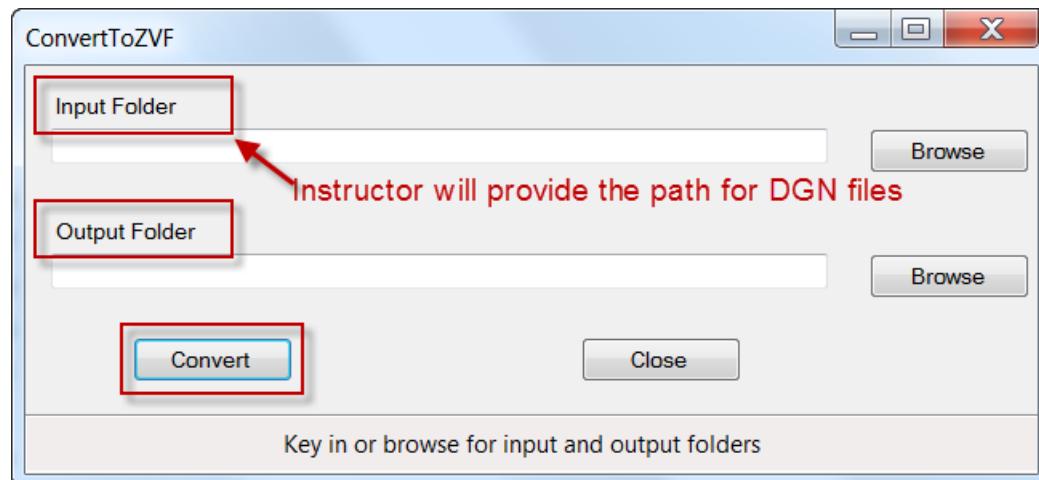
During this session we will go over the workflow to convert DGN files to ZVF using the ConvertToZVF utility delivered with the software. The ZVF files will be used to attach new R3D models in Smart 3D. The DGN files used in this lab practice have different object types defined on different levels.

When the user creates a folder hierarchy on disk below the root folder of the R3D attachment, the folder hierarchy is automatically reflected in the WSE without having to do anything extra in Smart 3D.

NOTE Instructor will provide the location of the DGN files.

Convert to ZVF

1. Open Windows Explorer and navigate to the following location to get to the **ConvertToZVF.exe** utility; [Smart 3D install folder]\Core\Tools\Administrator\Bin\
2. Start the utility by double clicking on the **ConvertToZVF.exe**.



LAB 33: Convert DGN to ZVF and Create Folder Hierarchy for R3D Models (Optional)

3. Specify the Input and Output folder path on the ConvertToZVF window. Instructor will provide the location for two DGN files (**Piping_Equipment.dgn** and **Structure_HVAC.dgn**) that will be converted to ZVF.

NOTE It is recommended that the Input and the Output folder should not be the same.

Input Folder			
library	Share with	New folder	
Name	Size	Type	
ZVF		File folder	
Piping_Equipment.dgn	269 KB	DGN File	
Structure_HVAC.dgn	630 KB	DGN File	

4. Click on the **Convert** button after specifying the correct paths for the input and outputs folders.
5. Close the ConvertToZVF window after the DGN files are converted. At this point you will have two ZVF's converted from DGN files.

Name	Size	Type
ConvertToZvf.log	1 KB	Text Document
Structure_HVAC.log	5 KB	Text Document
Structure_HVAC.zvf	150 KB	ZVF File
Piping_Equipment.log	4 KB	Text Document
Piping_Equipment.zvf	65 KB	ZVF File

Create Folder Hierarchy

6. Open windows explorer and navigate to the Shared Content folder; **\ComputerName\SharedContent**.
7. Create a new folder under the SharedContent folder and name it **DGN_Reference3D**.
8. Create two new folders under the **DGN_Reference3D** folder and name them **Piping_Equipment** and **Structure_HVAC**.

gci1024167	SharedContent	DGN_Reference3D	▶
	▼	New folder	
		Name	
		Piping_Equipment	
		Structure_HVAC	

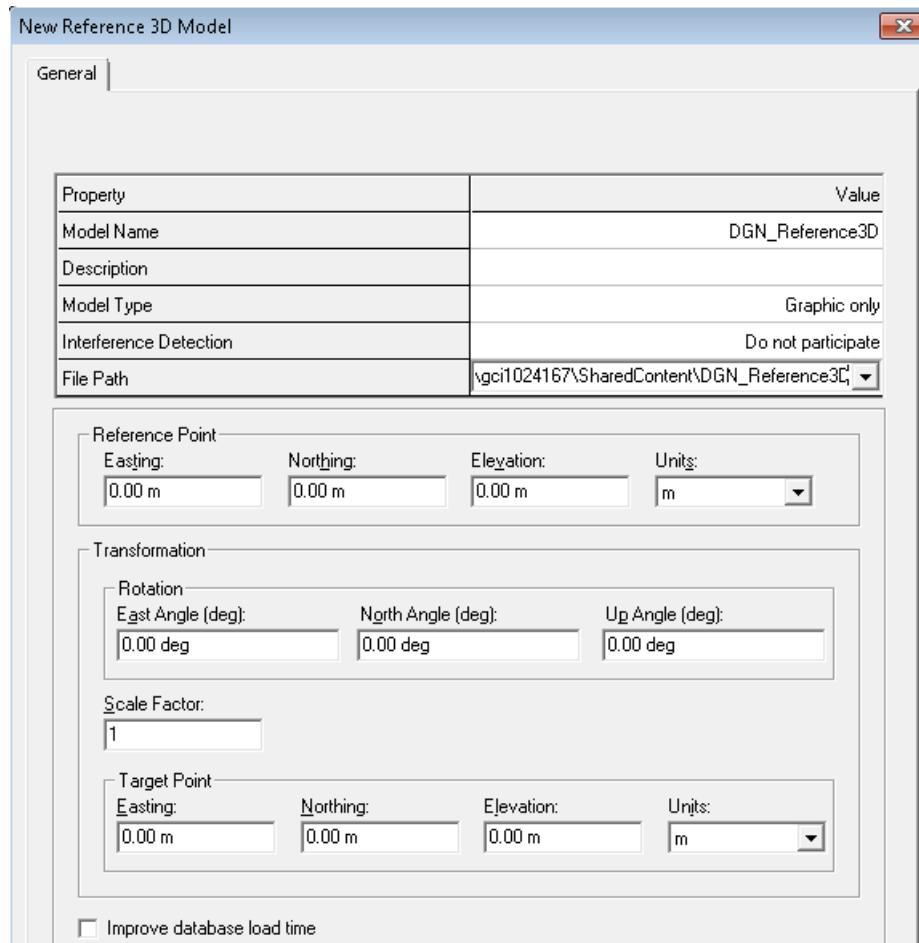
9. Copy the **Piping_Equipment.zvf** and **Structure_HVAC.zvf** to the **Piping_Equipment** and **Structure_HVAC** folders, which were created in step 8.

Attach Reference 3D Model

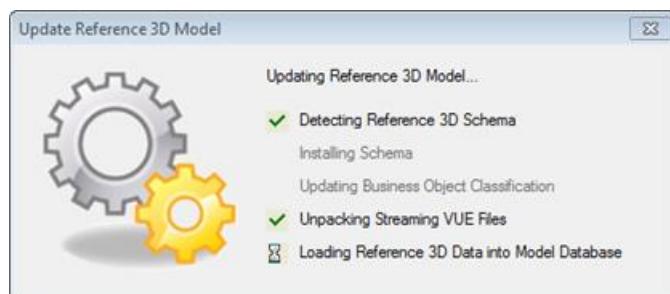
10. Open **Project Management**.
11. Expand the **SP3DTrain** model hierarchy.

LAB 33: Convert DGN to ZVF and Create Folder Hierarchy for R3D Models (Optional)

12. Right click **Reference 3D Models** node and select **New Reference 3D Model...**
13. Set the values on the form as shown below. Use a name that is related to the files to be referenced. Make sure to use a UNC path when browsing for the files.

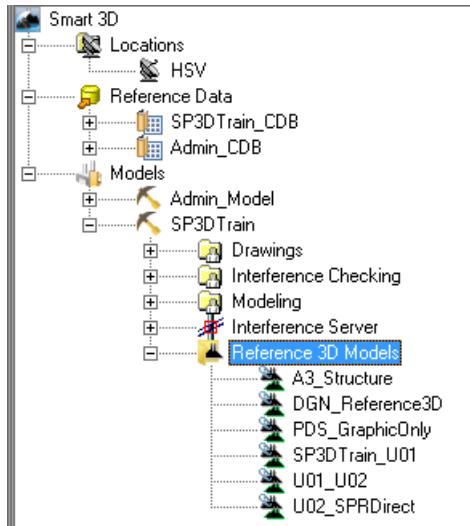


14. Click **OK**.
15. The referencing process will start and a new dialog will be shown indicating the actions that are currently being performed.



LAB 33: Convert DGN to ZVF and Create Folder Hierarchy for R3D Models (Optional)

16. When the process finishes, the referenced project will appear as a new item under **Reference 3D Models** node.



17. Review the log file created for the referencing. It can be located in the %temp% folder.
18. Exit **Project Management**.

LAB 34: Use R3D referenced models for Parallel Design (Optional)

Objectives

After completing this lab, you will be able to:

- Reference multiple times the same model to achieve initial phase of parallel design workflow

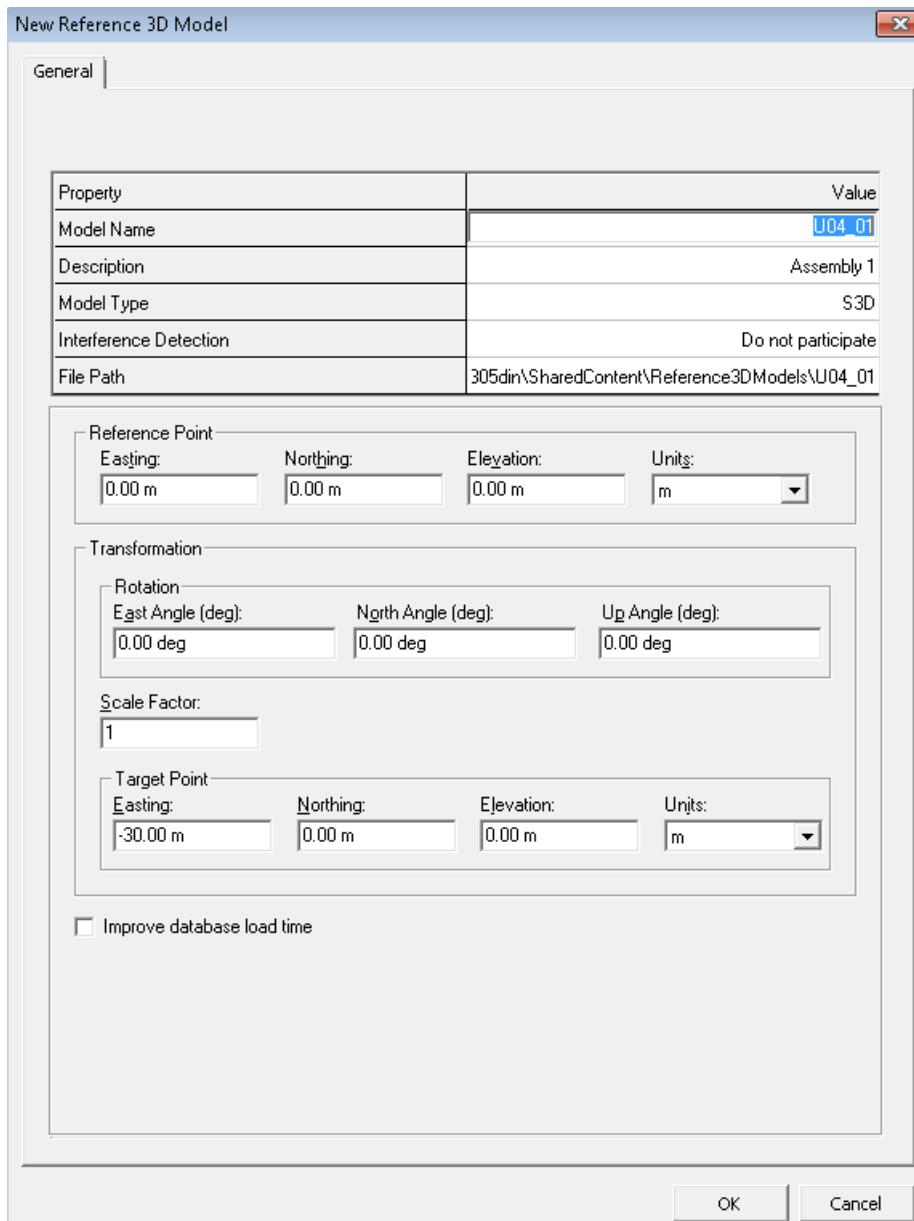
It is sometimes a requirement to work in parallel on areas that will need to be replicated later in the project. In the meantime, work may need to be performed around the areas where the objects will be finally positioned. To achieve parallel design of a unit that will be replicated, the base unit will first be exported as a zvf and xml files, and then referenced as an R3D model as many times as needed.

After work on the initial unit is completed, the referenced models will be deleted and MDR will be used to replicate the actual objects.

1. **Export** zvf and xml files of unit U04 from **SP3DTrain** model. Use previous labs as guidance on how to achieve this. U04 objects can be found on the filters hierarchy under **Plant Filters > Training Filters > U04**.

LAB 34: Use R3D referenced models for Parallel Design (Optional)

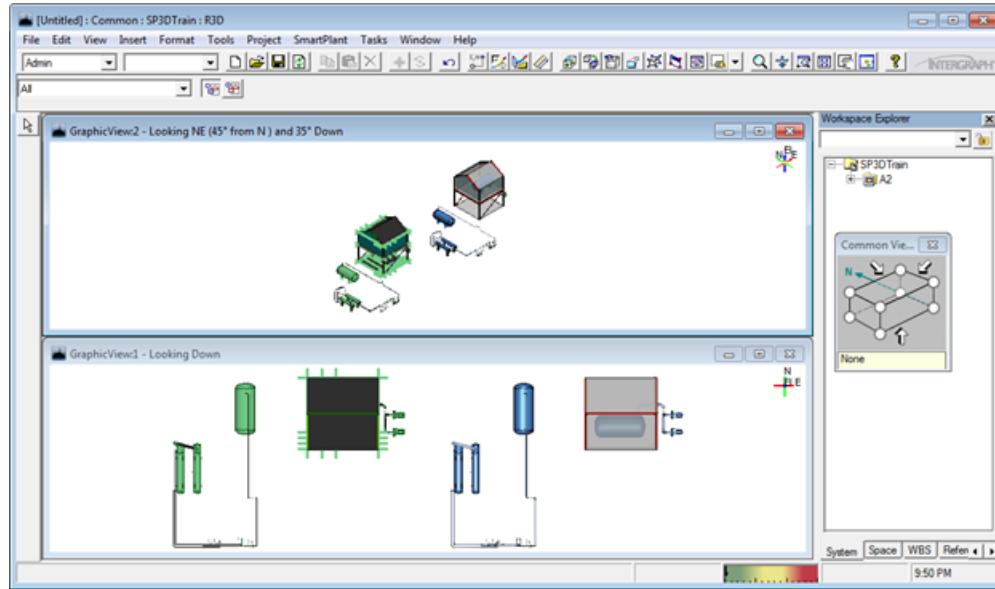
2. **Attach** as R3D reference U04 objects on **SP3DTrain** model; name it **U04_1**, set as target point **-30 m E, 0 m N** and **0 m EL**.



NOTE It is recommended to create a hierarchy of folders to avoid double referencing of files in the model. Project Management will attach and assign all zvf and xml files existing in provided file path to same R3D model.

LAB 34: Use R3D referenced models for Parallel Design (Optional)

3. Open a new session and define a workspace to bring objects from U04 unit alongside recently attached R3D model U04_1.

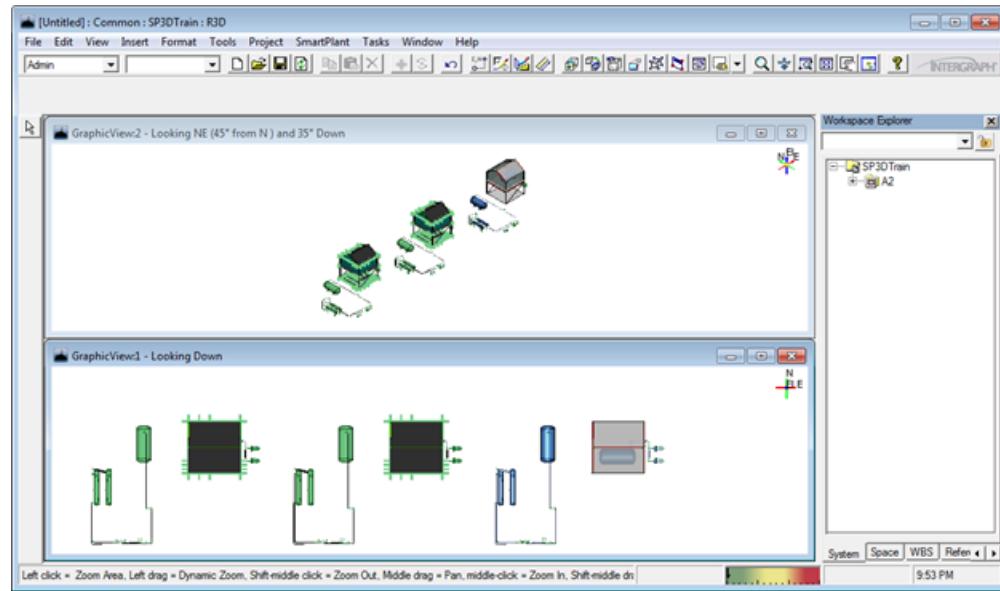


4. Attach same zvf and xml files of U04 objects to the model **SP3DTrain**, name it as **U04_2** and set as target point **-60 m E, 0 m N, 0 m EL**.
5. Open a session and review new R3D objects.

NOTE If you are working on a previous session file which was open at the moment the attachment was made in Project Management, you are required to re-open the session in order to get the new connection objects to see the recently attached R3D model. Until that is done, refresh will not return any additional referenced objects. To re-open the session, you can either close it, save changes if preferred, then open it from its saved location, or you can leave the session file up, then go to File > Close then File > Open, or select it from the list of recent files.

LAB 34: Use R3D referenced models for Parallel Design (Optional)

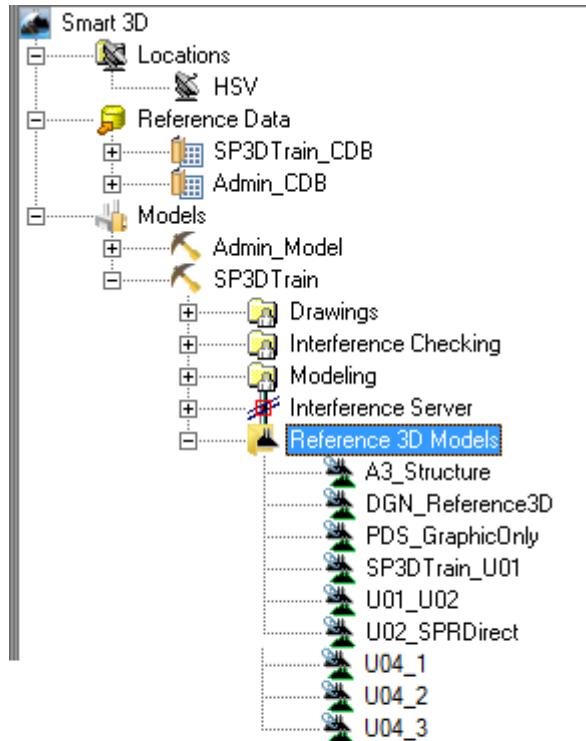
You may also need to modify the filter definition in order to include recently attached R3D model.



6. Repeat the attachment procedure of U04 model one more time, name it as **U04_3** and set as target point **-90 m, 0 m N, 0 m EL**.

LAB 34: Use R3D referenced models for Parallel Design (Optional)

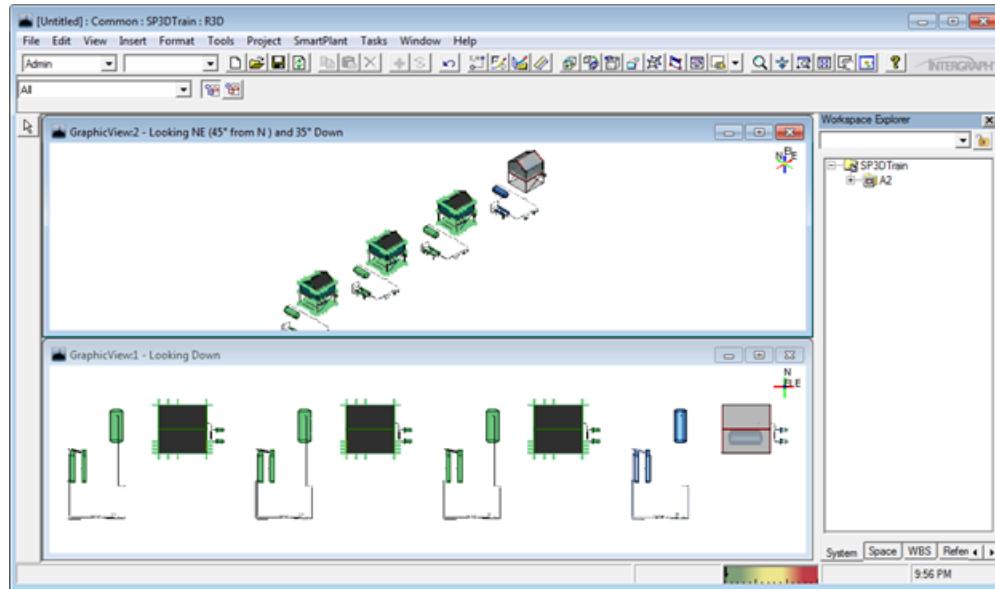
7. The list of referenced models in Project Management hierarchy may resemble something like this:



8. **Open** a session to review changes and the new R3D objects.

LAB 34: Use R3D referenced models for Parallel Design (Optional)

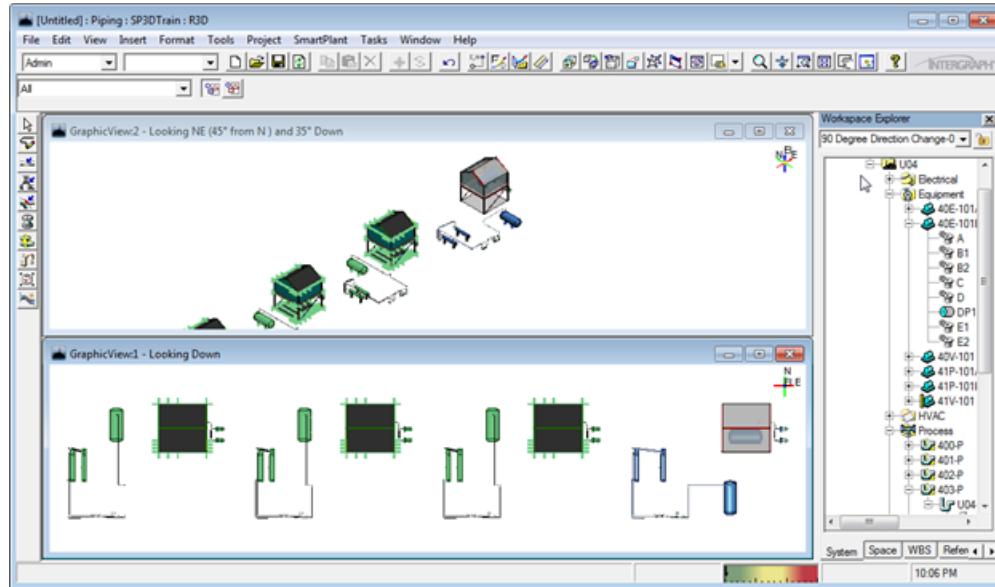
NOTE The session file needs to be re-opened if it was active when doing the reference. Filter may also need to be modified for the attached objects to be returned.



Work can now be performed against or around the referenced models. If IFC is configured appropriately, interferences with R3D modeled objects will be detected and properly reported.

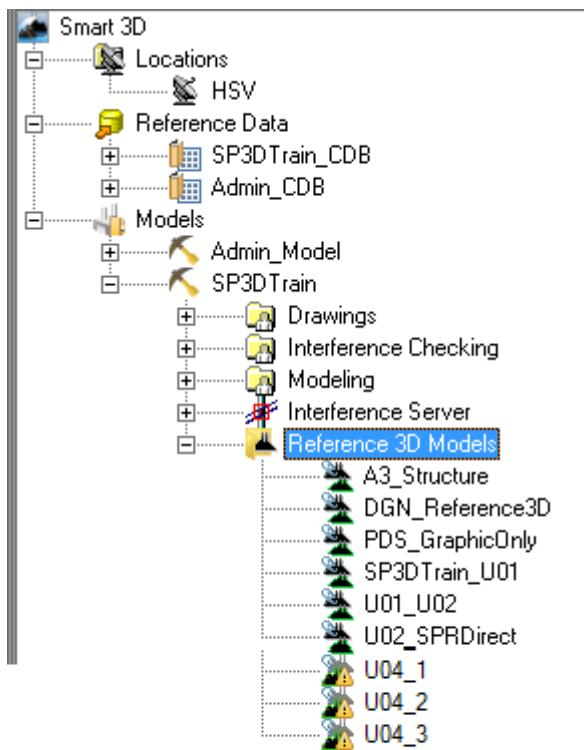
To simulate parallel design, changes need to be performed in the original unit. These changes will then need to be reflected in referenced models.

9. Perform a **change** in the design to objects in unit **U04** of **SP3DTrain** model. It could be adding or removing content. If necessary, refer to previous lab practices for assistance on how to remove objects.



LAB 34: Use R3D referenced models for Parallel Design (Optional)

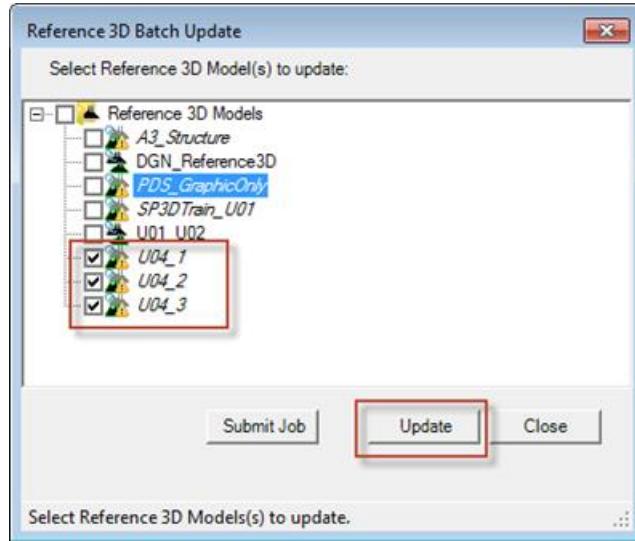
10. Once the modifications have been performed, republish xml and zvf files of unit **U04**, then replace existing files in referenced location file path for all three R3D models. This would make the referenced objects to be out of date as reflected in the Project Management hierarchy.



NOTE You may need to refresh Project Management session for the icons to change.

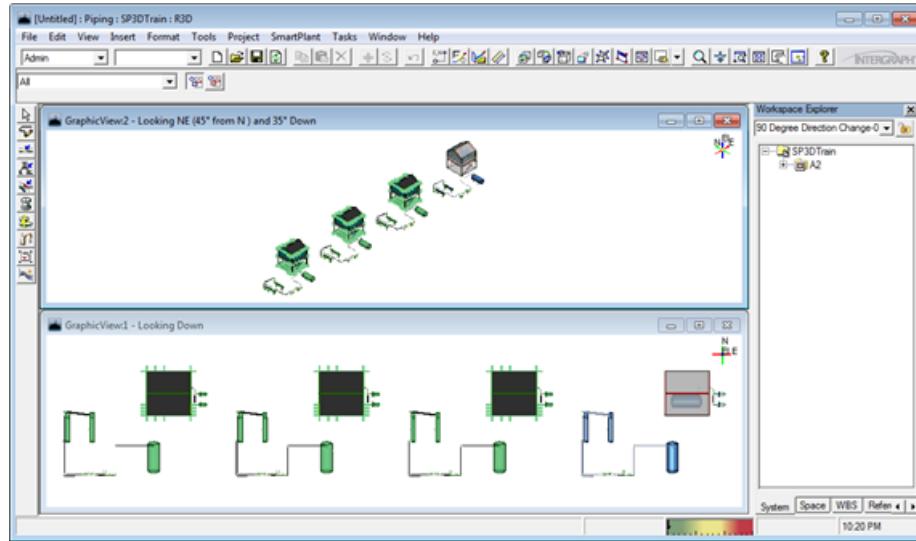
11. Update each one of the referenced models. Remember that referenced models are updated by using the check box provided in properties form. Alternately, they can be updated

simultaneously by using option **Update Reference 3D Model(s)** found under the **right click** menu of the **Reference 3D Models** node.



12. Refresh the **Smart 3D** session and review changes.

NOTE This time closing and opening the session is not necessary as there are no new connections to the database. R3D models were not referenced in previous step, they were only updated.



LAB 35: Install Intergraph Batch Services

Objectives

After completing this lab, you will be able to:

- Install Intergraph Batch Services and configure it with the purpose to act as a Batch server for Smart 3D related tasks

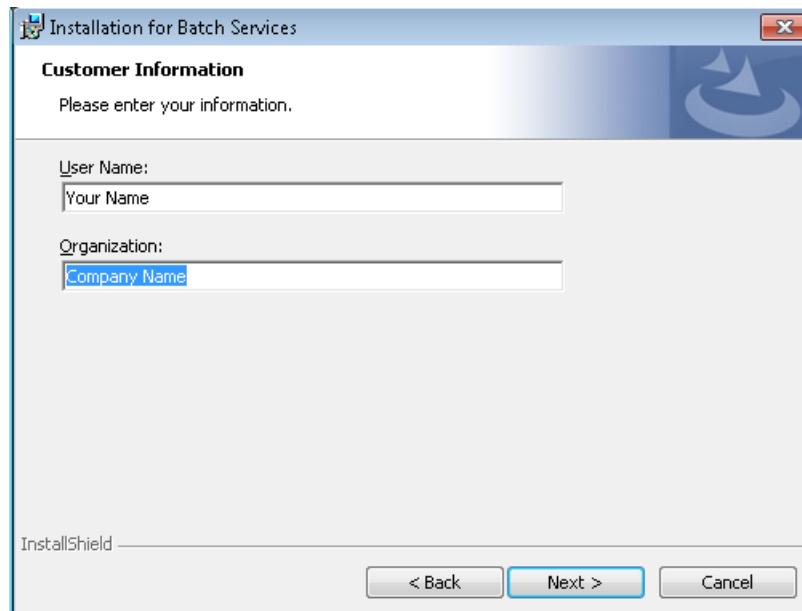
1. Locate and **execute** Intergraph **Batch Services** installer file (**setup.exe**) .

NOTE Intergraph Batch Services software can be downloaded from the Smart Support website (<https://smartsupport.intergraph.com/>) located under View Downloads > BATCH SERVICES > Service Packs and Fixes > Current Version Updates or it may be provided by the instructor.

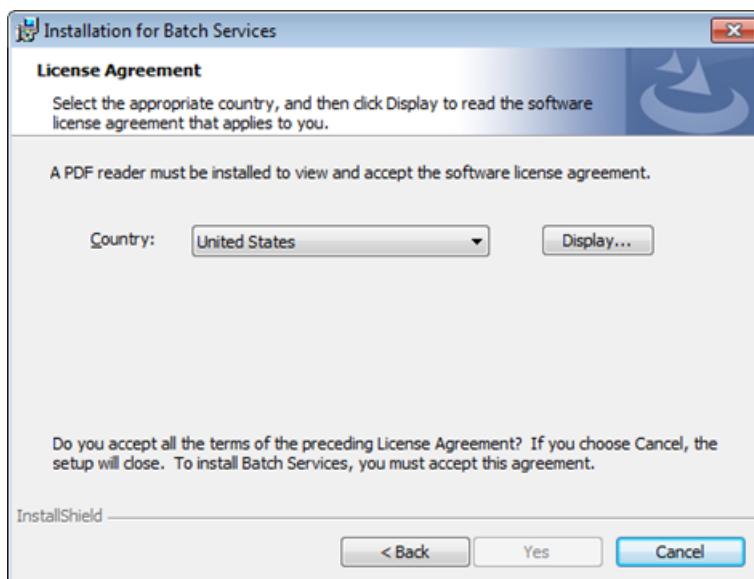
2. Select Batch Services Installation.



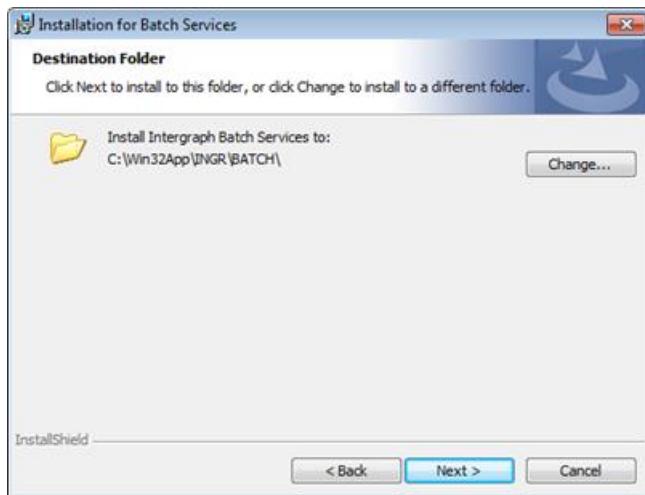
3. Provide registration information.



4. Acknowledge license agreement by clicking **Display**, then **Yes**.



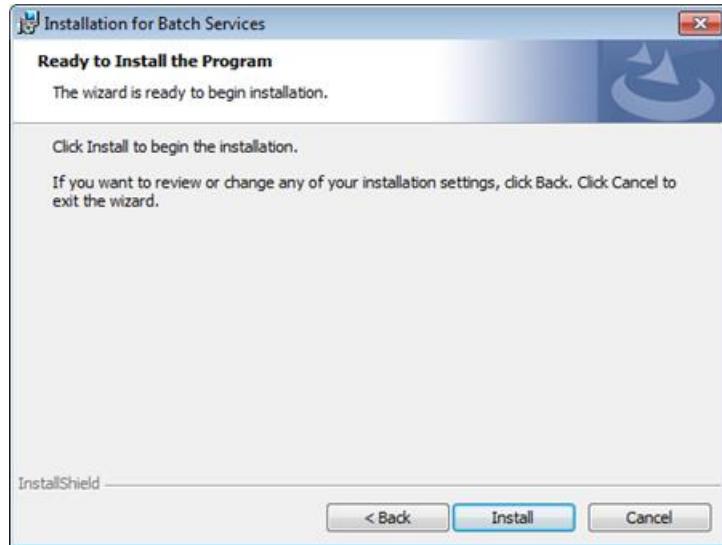
5. Confirm the path where to install Intergraph Batch Services. This path can be anywhere in the system, however, if this installation of batch services is to be used with the PDS software, then it must be a path containing no spaces.



6. Select **Yes** to run all jobs as the same user account. This account must be a domain account that meets the same permission requirements as any other Smart 3D user in order to be able to access the model and perform the required batch actions. For this practice you will use the local administrator account to run all the jobs.



7. Finish the product installation.



LAB 36: Configure Intergraph Batch Services

Objectives

After completing this lab, you will be able to:

- Configure an Intergraph Batch Services server to be used with Smart 3D scheduled jobs

After Intergraph Batch Services software is installed on the system, there are additional configurations that must be done in order to create the queues and to configure the machine to act as a Batch server for a Smart 3D project.

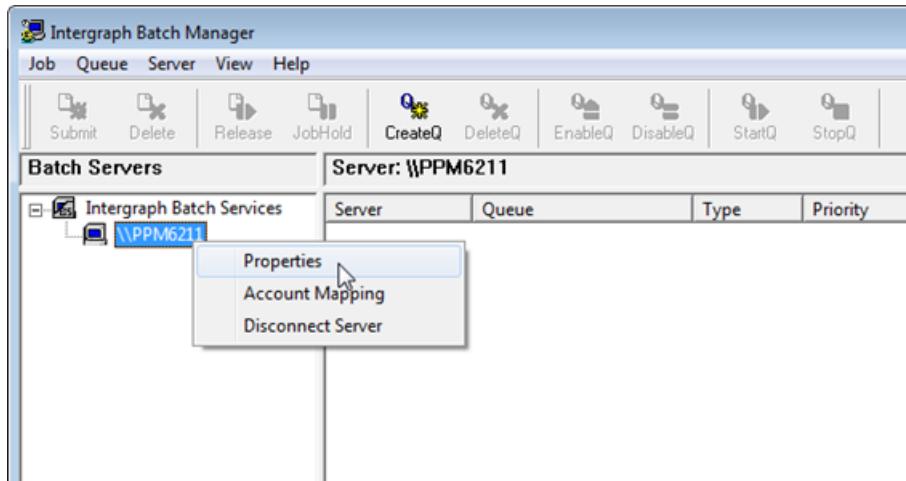
Verify Intergraph Batch Services Status

- When you install Intergraph Batch Services software, the batch server service is configured to start automatically each time you restart your computer. No further configuration is required. The windows service for the Batch server can be found in the list of Windows Services with name **Intergraph Batch Server**.
- Open the properties page of the **Intergraph Batch Server** service and verify that the startup type is set to **Automatic**.

Grant Access Privileges and Enable Error Logging to Batch server

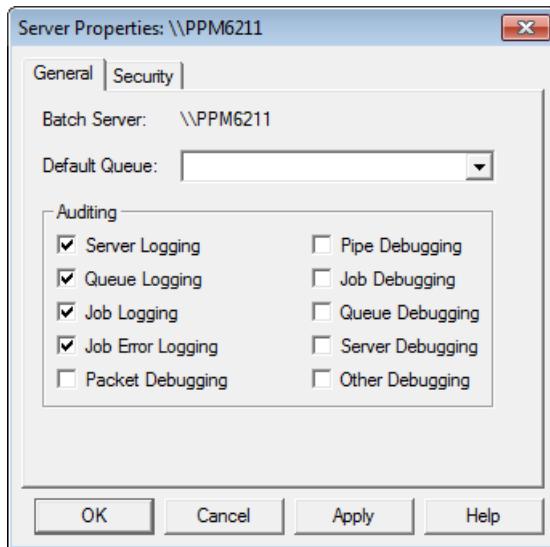
- Before you begin using Intergraph Batch Services, you should use Intergraph Batch Manager to ensure that users on your system (and users on other systems if appropriate) are granted the proper privileges for access to Batch Services.
- Open the Batch manager by going to **Start > All Programs > Intergraph Batch Services > Intergraph Batch Manager**.
- You may get prompted to create a queue, select **No**.

6. Select the current **batch server** from the tree on the left, **right click**, and then choose **Properties**.



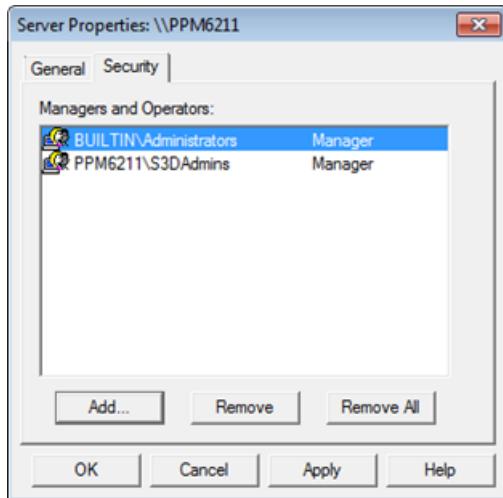
7. Logging information for the operations carried out by Batch server will be located in the Application Event Viewer. Under the **General** tab, enable the following auditing options:

Server logging, Queue logging, Job logging, Job error logging.



8. Switch to the **Security** tab and add users that will act as managers or operators of the batch server. Users with manager privileges can use all the commands that affect batch server configuration and operation. A user with operator privileges can manage jobs, including those belonging to other users, and can start/stop batch server queues. For this exercise, add the

S3DAdmins local group as a **manager** to this server. S3DAdmins local user group was created in lab practice number one.



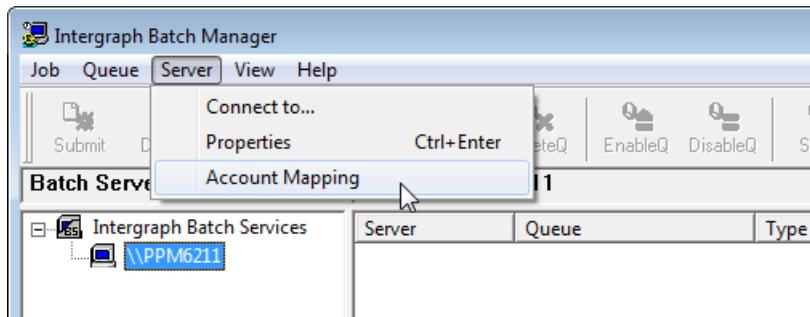
NOTE Users or groups without privileges can only submit requests to queues to which they have been granted access. Most users or user groups are non-privileged users.

9. Click **OK**

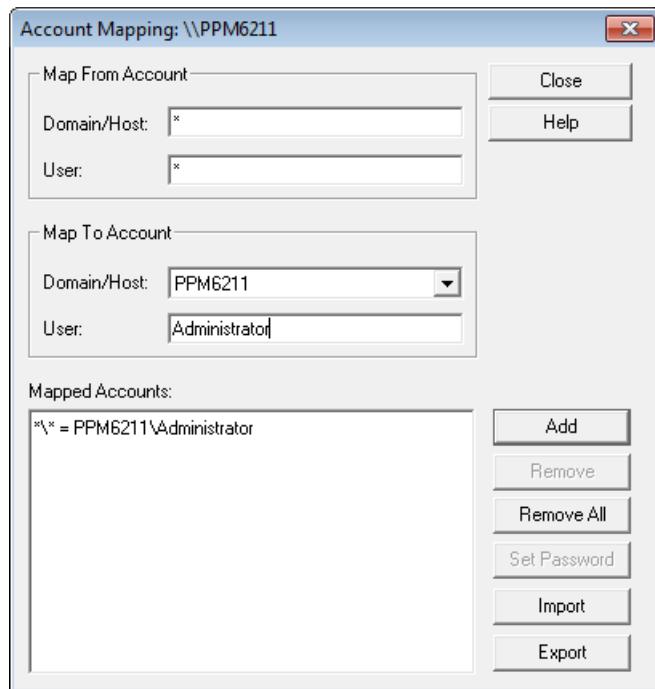
Configure Account Mappings

10. After manager and operator users have been defined, it is recommended to verify that account mapping has been properly set for Smart 3D users. The mapped account must meet the permission requirements as a Smart 3D user to perform the tasks of each one of the scheduled jobs (i.e. enough privileges to perform backups, run database integrity, update drawings, etc.).

11. In the Intergraph Batch Services window, go to **Server > Account Mapping**.



12. Type * in the domain/host and user field as shown below to indicate that all users connecting to the server will be mapped to the same account. For the purposes of this practice, map the local administrator account to all accounts connecting to the Batch server.



NOTE Account mapping configuration depends on the security needs and configuration of your models. For more information on configuring account mapping, see the Intergraph Batch Services help. Other mapping options are possible. For instance, jobs submitted by some users can be mapped to one account while jobs from other users can be mapped to a second account. It is not a requirement for the mapped account to be a local administrator.

13. When finished, click **Close**.

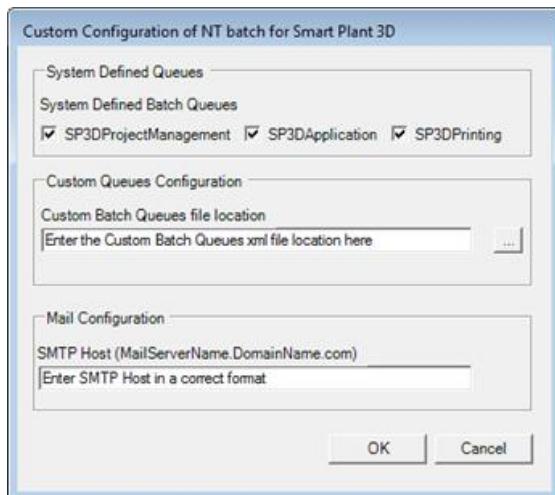
Create Smart 3D Related Queues

The queues to be used with Smart 3D must be created before submitting jobs. To create the queues you can use the **ConfigureSP3DBatchQueue.exe** utility provided by the software. This utility will also create an additional environment variable needed for proper functioning of the batch server.

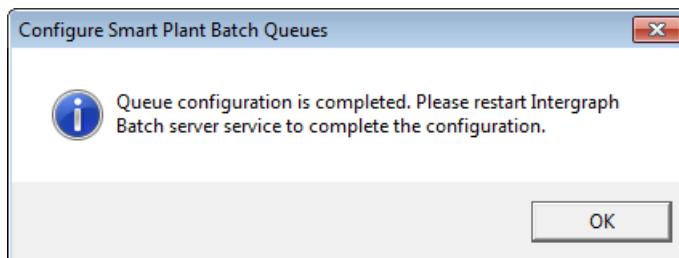
14. Open **Windows Explorer** on the computer in which Intergraph Batch Services is installed.
15. Locate and execute the utility **ConfigureSP3DBatchQueue.exe** found in the following path of the Smart 3D installation folder:

..\ProjectMgmt\Tools\bin\ConfigureSP3DBatchQueue.exe

16. Select the system defined queues **SP3DProjectManagement**, **SP3DApplication**, and **SP3DPrinting**. The name of an SMTP server can be provided for emails to be sent to submitters after jobs are processed (including error logs of the operation).

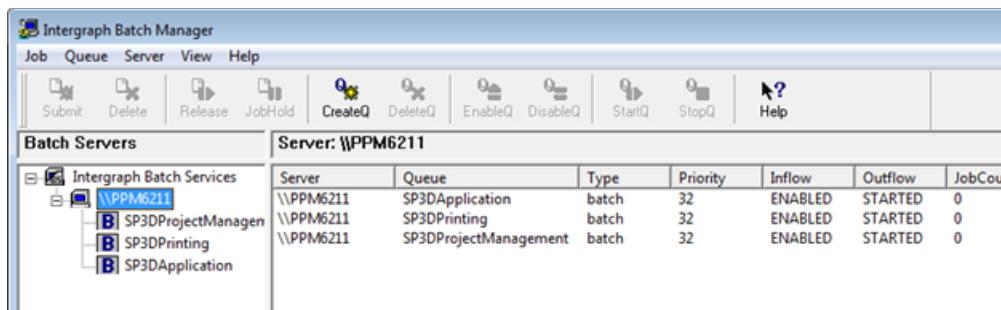


17. After queues are created successfully, the following message will appear.



18. Click **OK**. The queues will not be reflected in the Batch server interface until the services are restarted. To do this, open the Windows **services console** and **restart** the service **Intergraph Batch Server**.

19. Open the Batch manager to verify the queues were created.



Configuring the Batch Services Server for Drawings Tasks

20. In the folder [Smart 3D Installation folder]\Core\Container\Bin\Assemblies\Release, run **ConfigureDrawingsBatch.exe**.

21. Click **Yes** and then click **OK**.

22. Append the following entries to the system **PATH** environment variable for **3D model data documents** to update:

- [Smart 3D Installation folder]\Core\Runtime
- [Smart 3D Installation folder]\Common2D\Rad2d\Bin
- [Smart 3D Installation folder]\GeometryTopology\Runtime

Excel Configurations

These configurations are required for the successful update of reports in Excel format.

23. Microsoft Excel must have the same security settings that are necessary for interactive updates. Excel must be configured correctly for every mapped account on the batch server, so that it can be accessed by the batch processes (Excel security settings to allow access to VB Projects).

24. Microsoft Excel must be opened on the batch server machine at least once by each mapped user.

Configure Queues for Jobs

You must have Smart 3D project administrator privileges to access this tool. When you are logged in as an administrator, this tool is available under the **Tools** menu from **Project Management**.

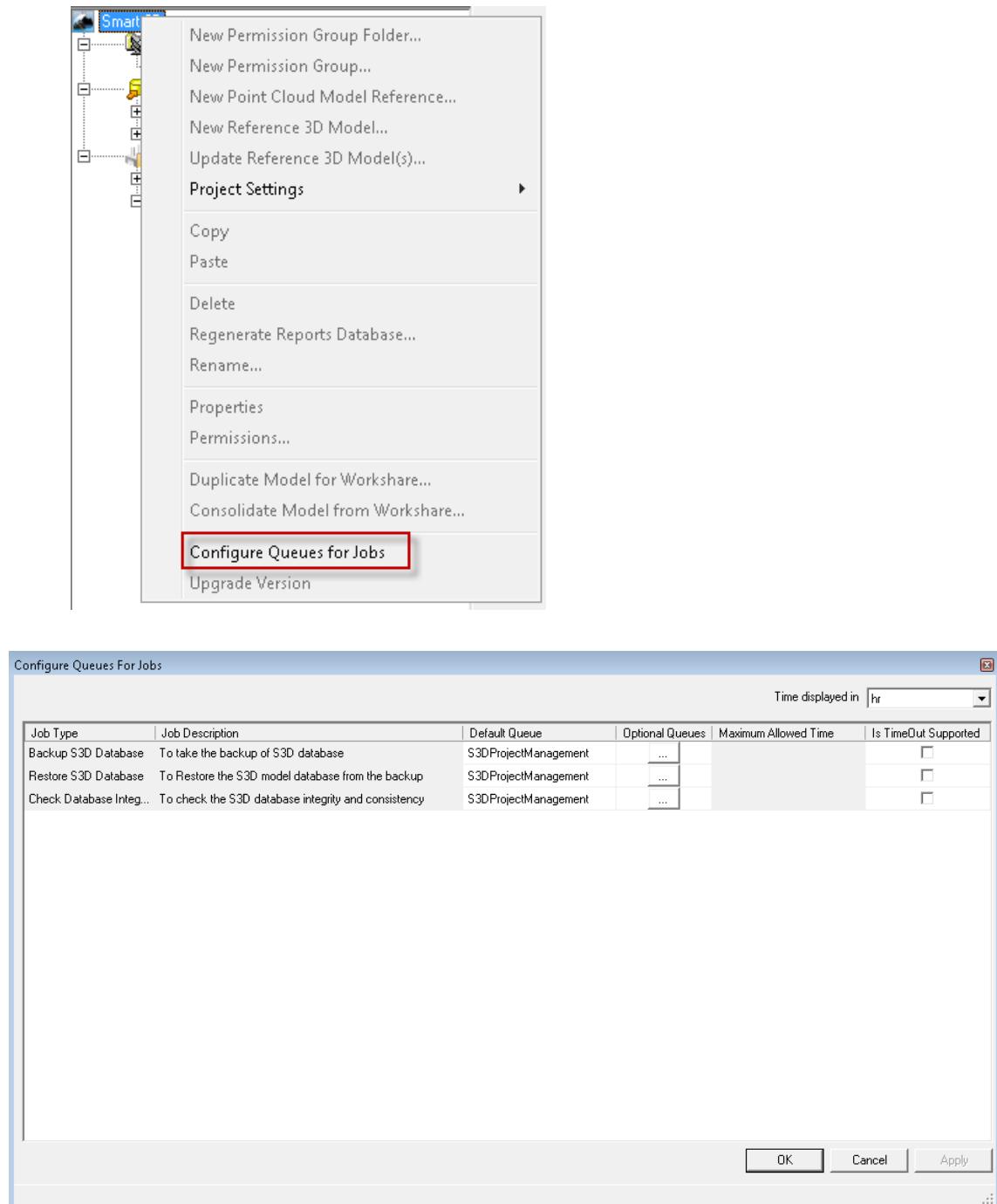
For sites, you must have the following privileges:

- In Oracle, you must have the SP3DProjectAdministrator role.
- In SQL, you must be a sysadmin on the server.

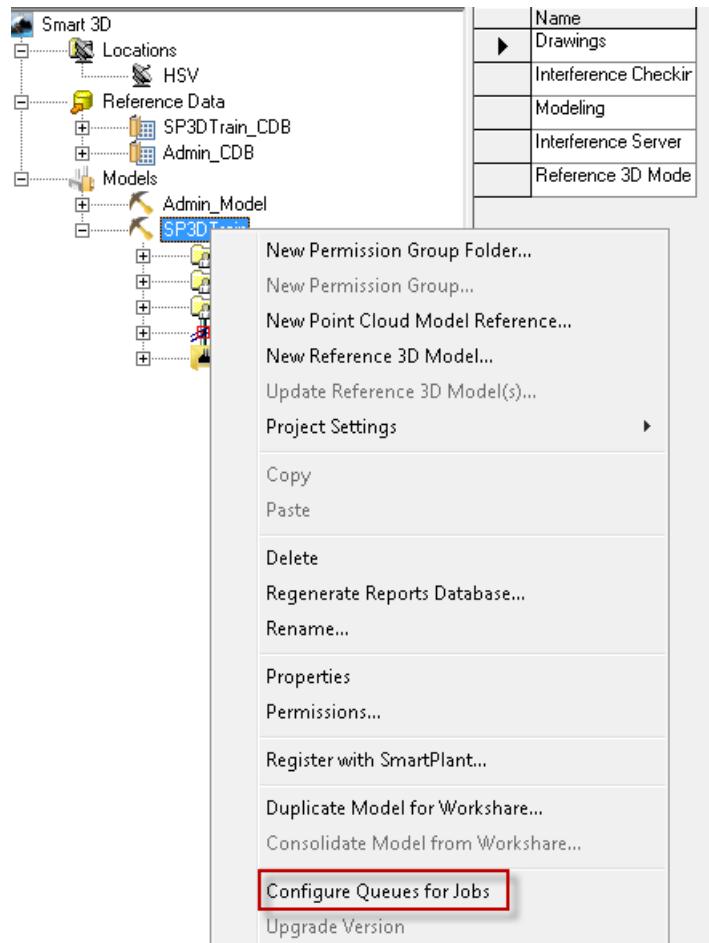
For models, you must have full access or write permissions on the selected model database.

25. Open Project Management.

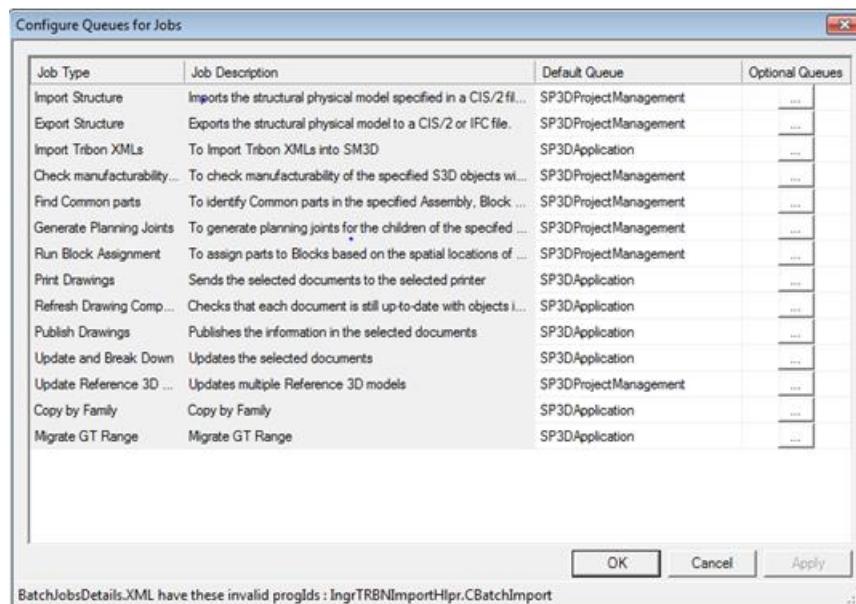
26. Right click the **Smart 3D** node in the hierarchy root, then select the option **Configure Queues for Jobs**.



27. Click **OK**.
28. Right click the model to be configured, then select option **Configure Queues for Jobs**.



29. Review the different job types and map them to queues as appropriate, then click **OK**.



Additional considerations

- Log files produced during a batch process are saved in a folder called "SP3DBatchSvcTemp". The folder is created under the location defined by the system variable %SYSTEMDRIVE%. Example "C:\SP3DBatchSvcTemp".
- Print jobs require printer access on both the client where the job is created and on the server where the job will be performed. The server and the client machines must have exactly the same printer setup, and every individual printer should have exactly the same name on both the client and server machines. This issue is shared with the previous batch implementation.
- The ConfigureDrawingsBatch utility must be run each time mapped account settings are changed.
- If you are running 64-bit drawings batch services and Oracle, you must install the 64-bit Oracle client on the computer running the batch services.

LAB 37: Submitting a job to a batch server

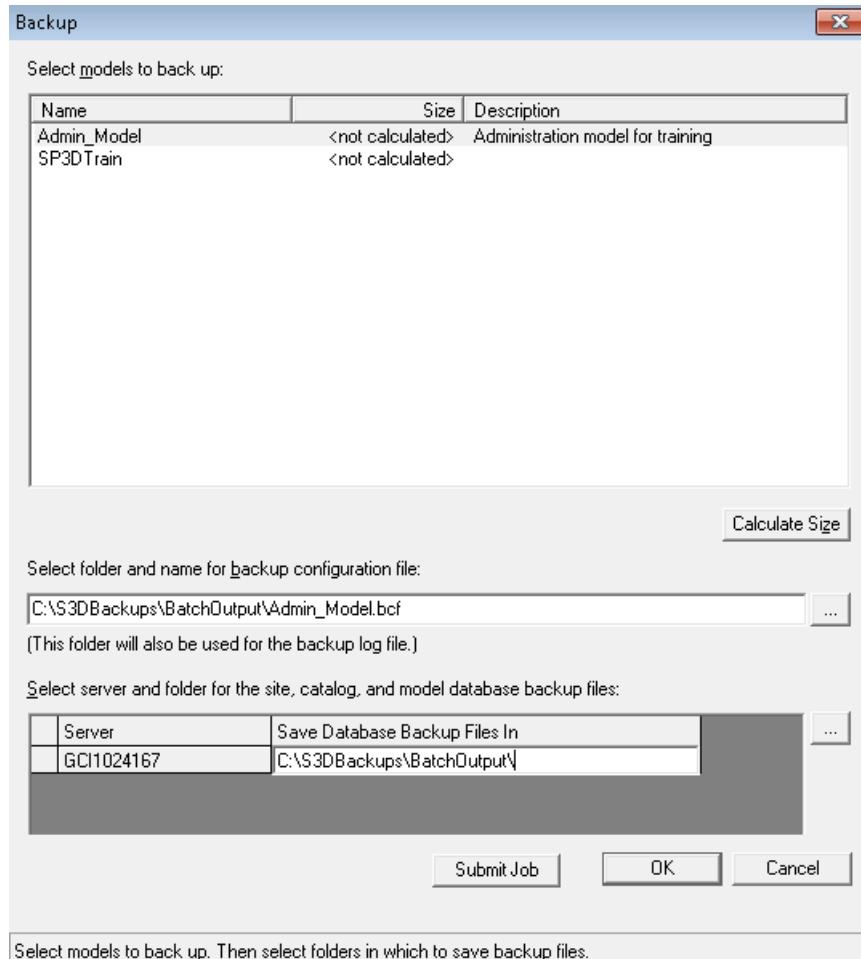
Objectives

After completing this lab, you will be able to:

- Submit a job or schedule a task to an Intergraph batch server that is already configured for use with Smart 3D.
1. Open **Project Management** if not already open.
 2. Go to **Tools > Backup** option.
 3. Note the submit job button appears as enabled. This button is only enabled when Intergraph Batch services software is installed in the workstation where the job is being submitted.

LAB 37: Submitting a job to a batch server

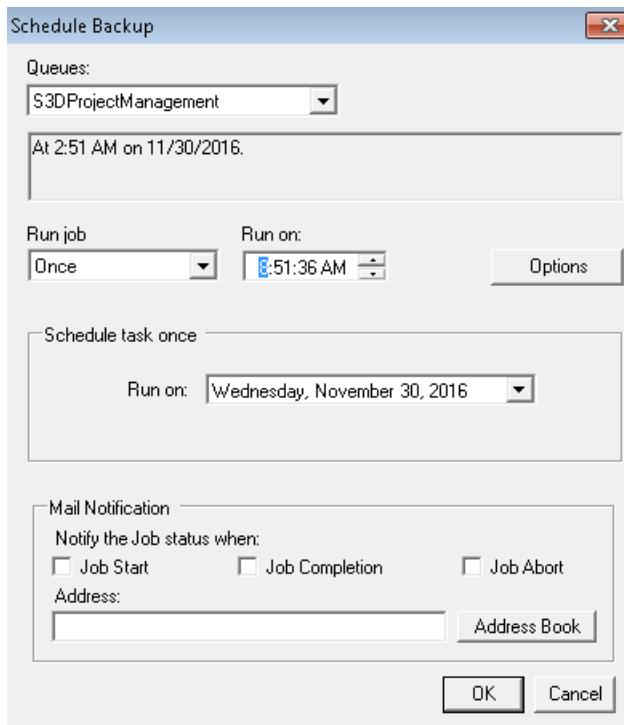
4. Fill the backup form as you normally would. The folders defined for output will be the actual folders where the resulting files of the backup job will be placed.



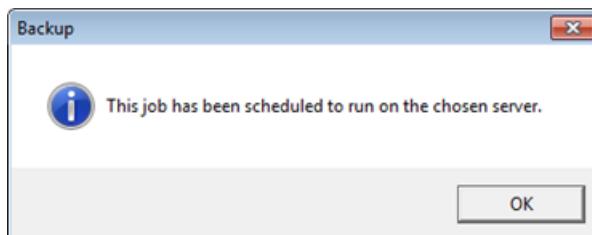
5. Click **Submit Job**.

LAB 37: Submitting a job to a batch server

6. Select the batch server where the job will be processed from the drop down list and set scheduling options for the backup job to be submitted. For this practice, you will set the backup job to run once and five minutes from now.



7. Click **OK**, the following message will appear as a confirmation of the action.



8. Click **OK** to dismiss the dialog box, and then click **Cancel** in the backup form.
9. Open **Batch manager** if not already open and then verify that the job appears under the **SP3DProjectManagement** queue.



10. Wait for the backup job to complete, the entry under the **SP3DProjectManagement** queue will be automatically cleared if it is not a recurrent event.

11. Open the output folder where the backup files were set to be saved, verify the backup files were created.

Name	Type	Size
Admin_Model.bcf	BCF File	1 KB
Admin_Model_CatalogBackup.dat	DAT File	645,522 KB
Admin_Model_Model_Backup.dat	DAT File	55,386 KB
Admin_ModelBackup.log	Text Document	3 KB
Admin_SDB_SiteBackup.dat	DAT File	14,200 KB

12. Open the **SP3DBatchSvcTemp** folder on the batch server and review the log files created for the backup job. You may open the log files folder by typing **%SYSTEMDRIVE%\SP3DBatchSvcTemp** in the address bar of any windows explorer window.



13. When properly configured, the batch server can send emails notifying of job completion or failure; these output files can be sent as attachments.
14. As an additional practice, use guidelines already provided and schedule a weekly job to perform a Database Integrity check on the Site, Catalog, Model and Reports databases of the training model. Verify results using the Batch manager to confirm the job is in the queue and has been successfully executed.
15. Close Project Management and Batch Manager if they are open.

LAB 38: Adding User Defined Attribute to Smart 3D Database

Objectives

After completing this lab you will be able to:

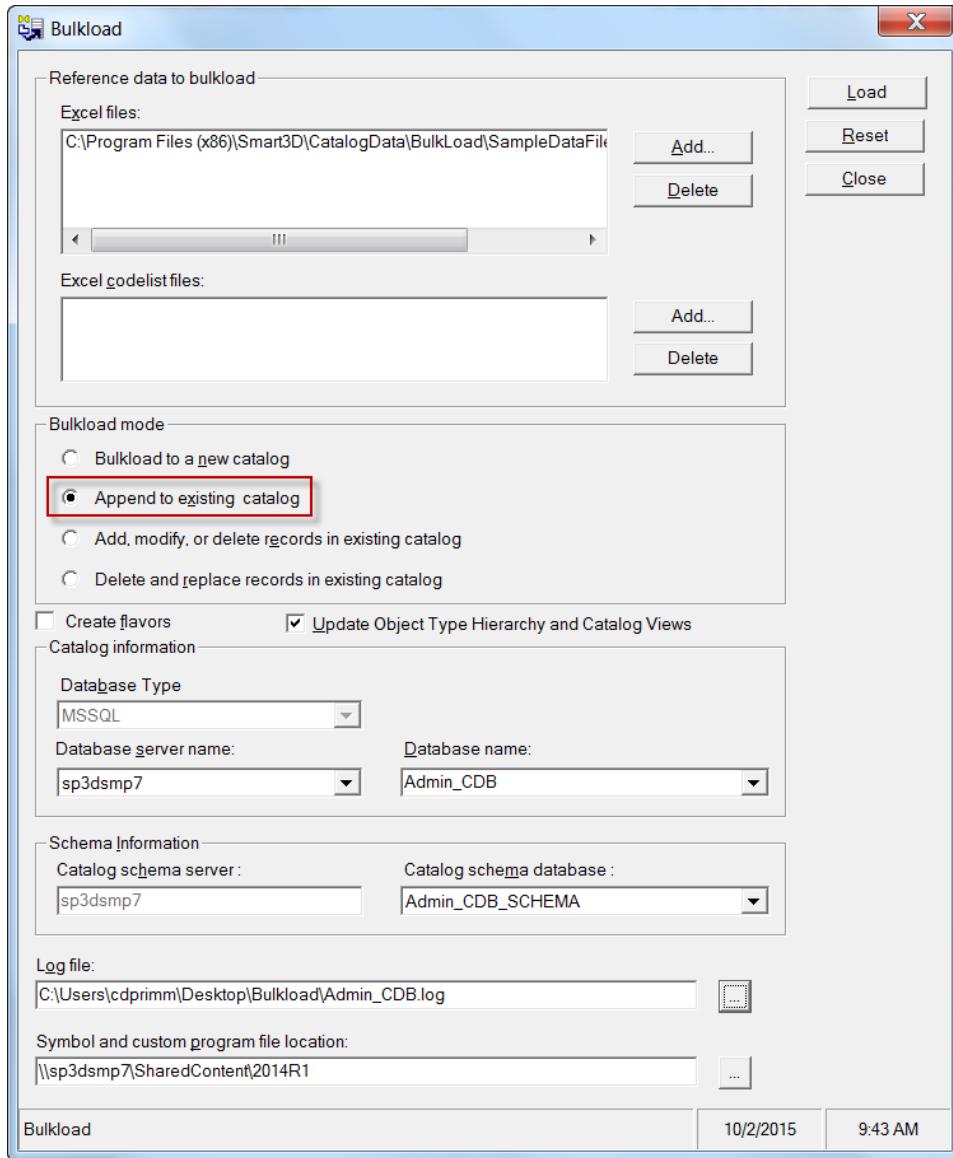
- Add user defined attributes to objects in Smart 3D database.
1. In this lab practice we will add the **Room Number** attribute on Smart 3D object classes using the workbook **RoomNumber.xls** delivered under **[Smart 3D install folder]\CatalogData\BulkLoad\ SampleDataFiles**

	A	B	C	D
1				
2	HEAD	ClassName		InterfaceName
3				
4	Start			
5				
6	!	Example of adding interfaces to virtual classes		
7				
8				
9	!	Adding interfaces to non-virtual classes		
10				
11	!	Cableway Features		
12		CPCablewayAlongLegPathFeat	IURoomNo	
13		CPCablewayBranchPathFeat	IURoomNo	
14		CPCablewaySlantTransFeat	IURoomNo	
15		CPCablewayStraightPathFeat	IURoomNo	
16		CPCablewayTransALPathFeat	IURoomNo	
17		CPCablewayTurnPathFeat	IURoomNo	
18		CPCablewayTurnTransFeat	IURoomNo	
19		CPCablewayEndPathFeat	IURoomNo	
20				
21	!	Cable Tray Parts		
22		CPRteCableTrayComponentOcc	IURoomNo	
23		CPRteCableTrayOccur	IURoomNo	
24				
25	!	Duct Features		

2. Start the Bulkload utility by going to Start > Intergraph Smart 3D > Bulkload Reference Data.

LAB 38: Adding User Defined Attribute to Smart 3D Database

3. Complete bulkload form providing the path to the Excel file "RoomNumber.xls" and options as shown below:

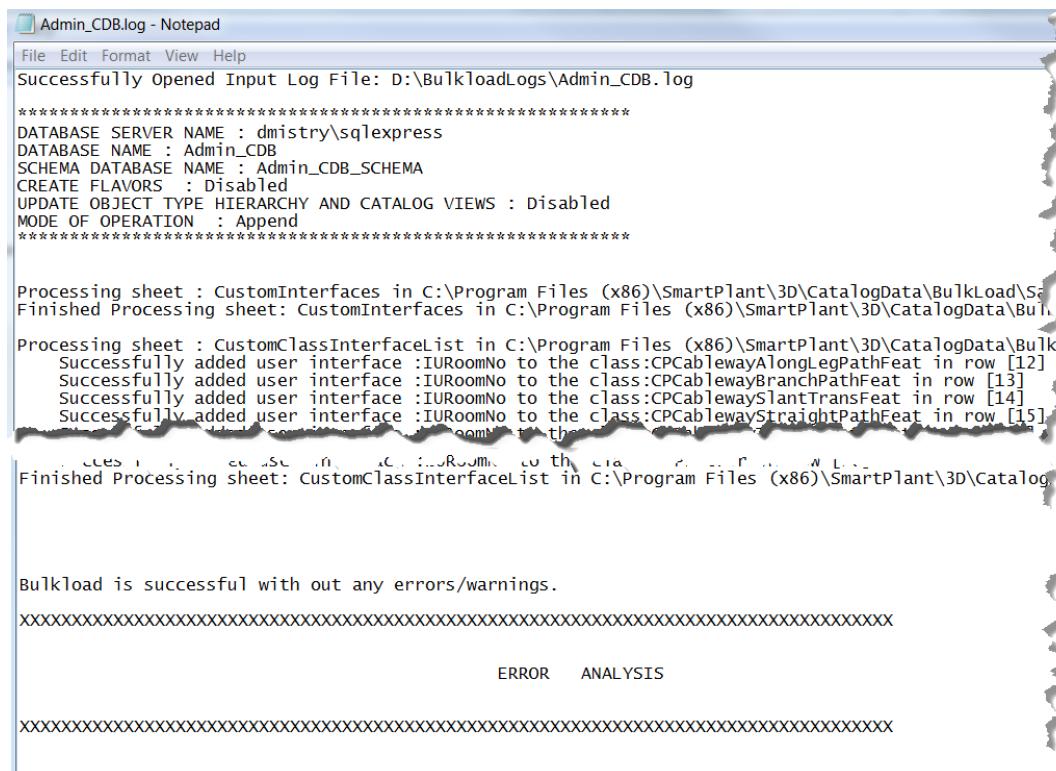


NOTE Make sure the Catalog and Catalog schema databases for the Admin model are selected correctly.

4. Click **Load**.

LAB 38: Adding User Defined Attribute to Smart 3D Database

- Once the bulkload is complete, review bulkload log file for any errors.



The screenshot shows a Notepad window titled "Admin_CDB.log - Notepad". The window displays a log file with the following content:

```
File Edit Format View Help
Successfully Opened Input Log File: D:\BulkloadLogs\Admin_CDB.log
*****
DATABASE SERVER NAME : dmistry\sqlexpress
DATABASE NAME : Admin_CDB
SCHEMA DATABASE NAME : Admin_CDB_SCHEMA
CREATE FLAVORS : Disabled
UPDATE OBJECT TYPE HIERARCHY AND CATALOG VIEWS : Disabled
MODE OF OPERATION : Append
*****

Processing sheet : CustomInterfaces in C:\Program Files (x86)\SmartPlant\3D\CatalogData\BulkLoad\Sheets
Finished Processing sheet: CustomInterfaces in C:\Program Files (x86)\SmartPlant\3D\CatalogData\BulkLoad\Sheets

Processing sheet : CustomClassInterfaceList in C:\Program Files (x86)\SmartPlant\3D\CatalogData\BulkLoad\Sheets
Successfully added user interface :IURoomNo to the class:CPCableewayAlongLegPathFeat in row [12]
Successfully added user interface :IURoomNo to the class:CPCableewayBranchPathFeat in row [13]
Successfully added user interface :IURoomNo to the class:CPCableewaySlantTransFeat in row [14]
Successfully added user interface :IURoomNo to the class:CPCableewayStraightPathFeat in row [15]
    ... (more rows)
Finished Processing sheet: CustomClassInterfaceList in C:\Program Files (x86)\SmartPlant\3D\CatalogData\BulkLoad\Sheets

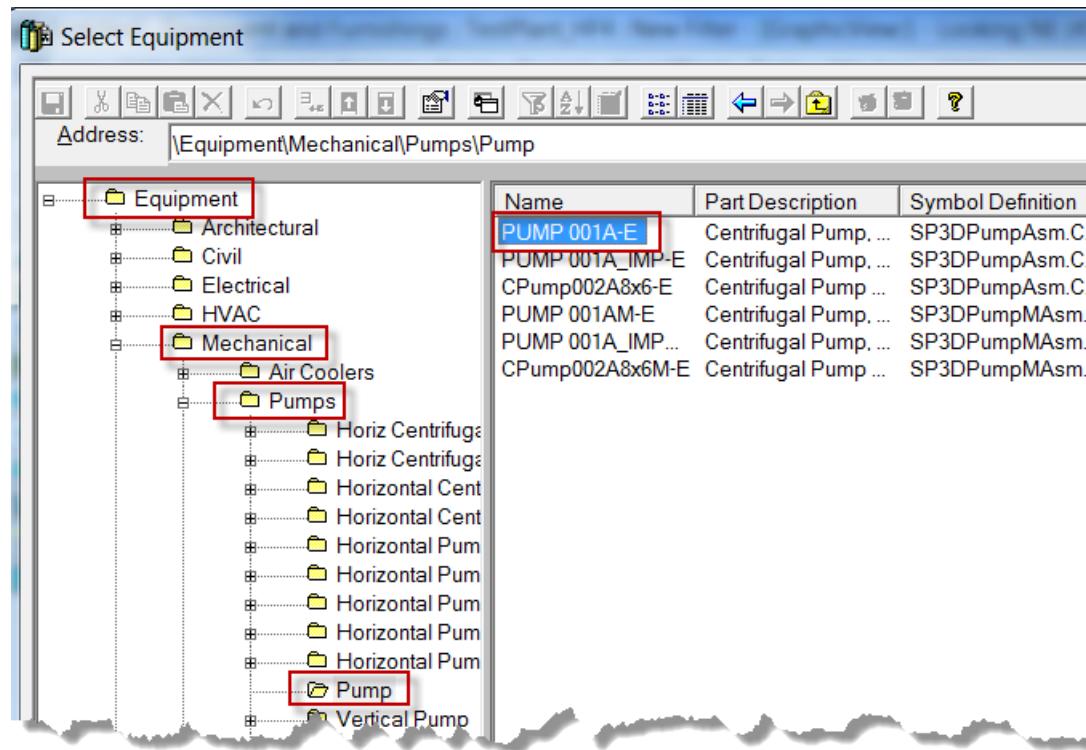
Bulkload is successful with out any errors/warnings.
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

ERROR ANALYSIS
XX

- Start a new **Smart 3D** session and define your workspace in **Admin_Model**.
- Switch to the Equipment and furnishing task.
- Start the **Place Equipment** command  on the vertical toolbar.

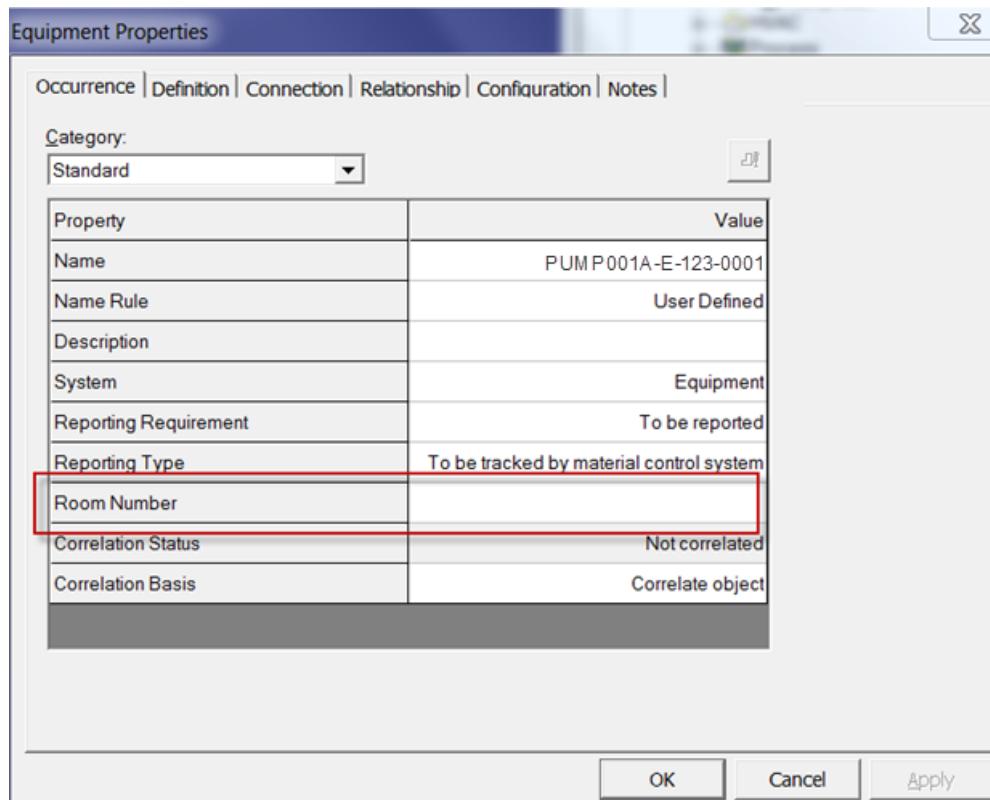
LAB 38: Adding User Defined Attribute to Smart 3D Database

9. On the Select Equipment window, navigate to **Equipment > Mechanical > Pumps > Pump** and select **PUMP 001A-E** and click OK.



LAB 38: Adding User Defined Attribute to Smart 3D Database

10. The equipment properties dialog will be displayed. Note the **Room Number** attribute on the Occurrence tab of the equipment properties under the Standard category.



11. Click **OK** on the equipment properties dialog and click in the graphic view to place the equipment.
12. The Room Number attribute will be displayed on all the S3D object classes that we saw in the **RoomNumber.xls** workbook. If time permits, try placing a few objects and check for the Room Number attribute on their properties dialog.
13. Exit Smart 3D.

LAB 39: Adding Approval Status in Smart 3D

Objectives

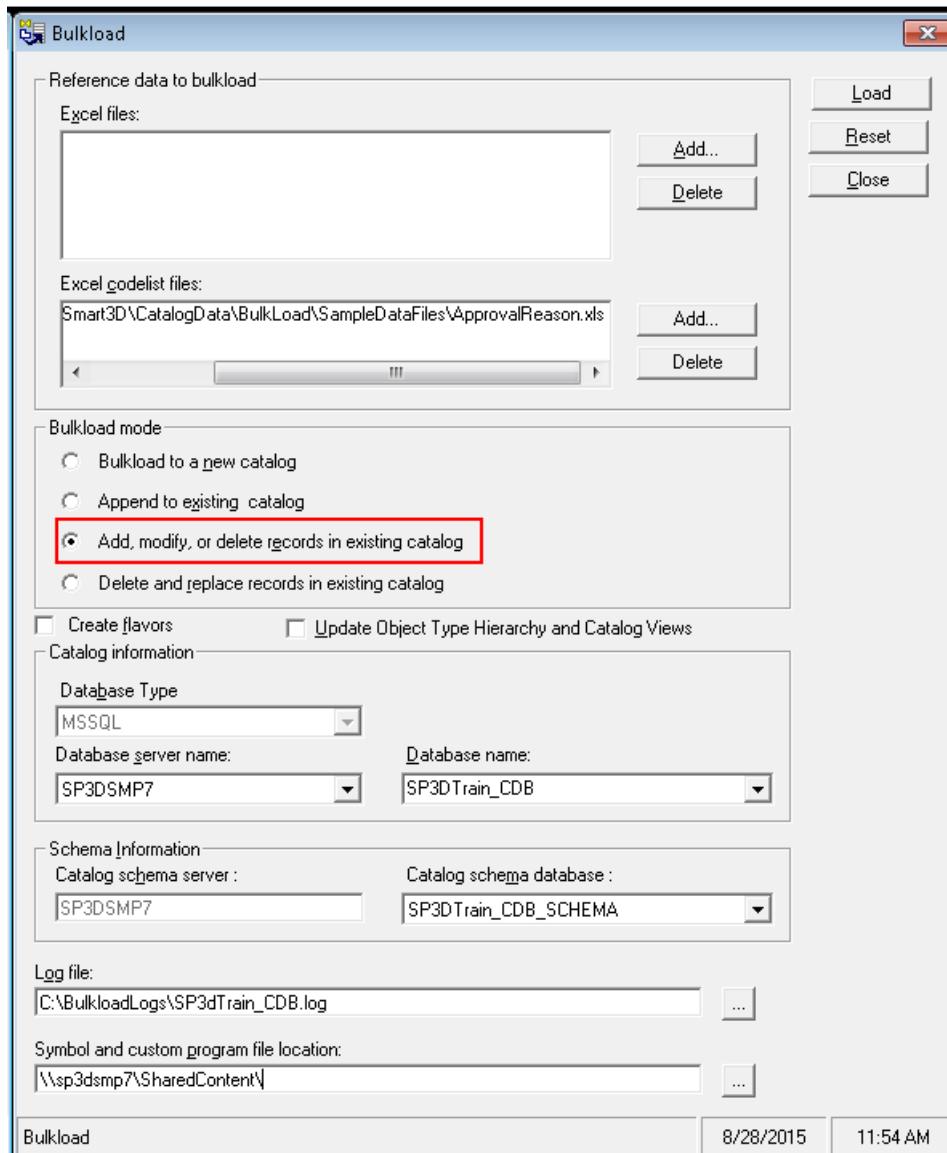
After completing this lab you will be able to:

- Add approval reasons for objects modeled in Smart 3D. These approval reasons will be shown on the properties page of modeled object on the configuration tab.
1. In this lab practice, we will add approval reasons on Smart 3D objects using the workbook **ApprovalReasons.xls** delivered under [**Smart 3D Install folder**]|\CatalogData\BulkLoad\ SampleDataFiles\.

A	B	C	D	E	F	G
1	<i>[cell in yellow are default status provided by system.]</i>					
2	<i>[User can customize long description but not allowed to change CodeListNumber for yellow cells.]</i>					
3	<i>[Cell in green have to match values to get list in order. Pattern has to be followed for status to show in sorted order]</i>					
4						
5	HEAD	ApprovalStatus ShortDescription	ApprovalStatus LongDescription	ApprovalReason ShortDescription	ApprovalReason LongDescription	Codelist Number
6	<i>[The numeric value for any new code list entry added by the user should be between 10,001 and 40,000. SmartPlant \]</i>					
7	<i>[START]</i>					
8		Approved	Approved			8
9	A			Approved-D	Approved-D	803
10	A			Approved-C	Approved-C	802 803
11	A			Approved-B	Approved-B	801 802
12	M			Approved	Approved-A	8 801
13		Rejected	Rejected			4
14	A			Rejected-D	Rejected-D	403 8
15	A			Rejected-C	Rejected-C	402 403
16	A			Rejected-B	Rejected-B	401 402
17	M			Rejected	Rejected-A	4 401
18		InReview	InReview			2
19	A			InReview-D	InReview-D	204 4
20	A			InReview-C	InReview-C	203 204
21	A			InReview-B	InReview-B	201 203
22	M			InReview	InReview-A	2 201
23		Working	Working			1
24	A			Working-B	Working-B	102 2
25	M			Working	Working-A	1 102
26	<i>[END]</i>					

2. Start the Bulkload by going to **Start > Intergraph Smart 3D > Bulkload Reference Data**.

3. Complete the bulkload form providing the path to the Excel file "ApprovalReasons.xls" and options as shown below:



NOTE Make sure the Catalog and Catalog schema databases are properly selected. The **ApprovalReasons.xls** is a codelist file and has to be bulkloaded as such.

4. Click **Load**.

5. Once the bulkload is complete, review the bulkload log file for any errors.

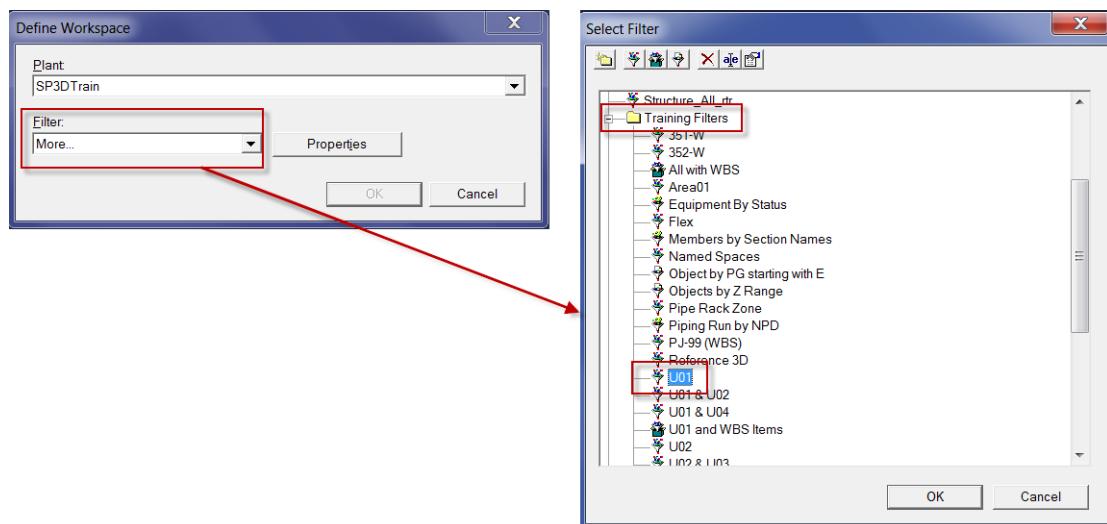
```

SP3DTrain_CDB - Notepad
File Edit Format View Help
Successfully Opened Input Log File: F:\Users\Support\Desktop\SP3DTrain_CDB.log
*****
DATABASE SERVER NAME : SP3DSUPT6_2\SQLEXPRESS
DATABASE NAME : SP3DTrain_CDB
SCHEMA DATABASE NAME : SP3DTrain_CDB_SCHEMA
CREATE FLAVORS : Disabled
UPDATE OBJECT TYPE HIERARCHY AND CATALOG VIEWS : Disabled
MODE OF OPERATION : Add/Modify/Delete
*****

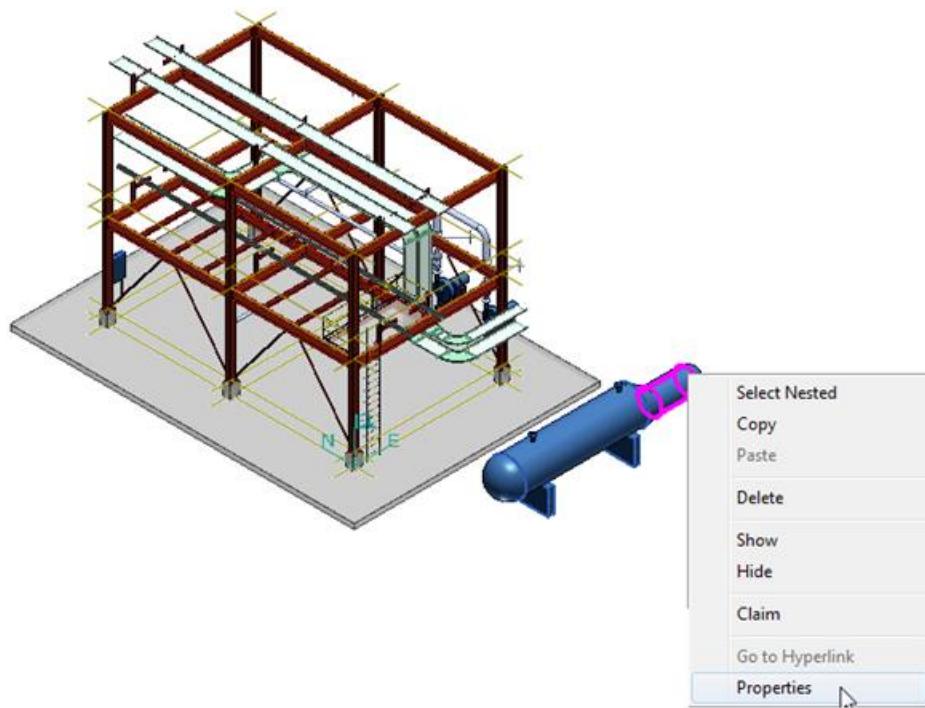

Processing sheet : ApprovalReason in F:\Users\Support\Desktop\ApprovalReason.xls workbook - Started at : 5/31/2012 3:11:47 PM
Successfully Modified the codeList Value: 8 in the codeList Table : ApprovalReason in row [12] in ApprovalReason worksheet of
Successfully Modified the codeList Value: 4 in the codeList Table : ApprovalReason in row [17] in ApprovalReason worksheet of
Successfully Modified the codeList Value: 2 in the codeList Table : ApprovalReason in row [22] in ApprovalReason worksheet of
Successfully Modified the codeList Value: 1 in the codeList Table : ApprovalReason in row [25] in ApprovalReason worksheet of
Successfully created all new entries in the codeList Table : ApprovalReason
Finished Processing sheet: ApprovalReason in F:\Users\Support\Desktop\ApprovalReason.xls workbook - finished at : 5/31/2012 3:11:47 PM

Successfully updated the Excel workBooks after updateBulkload
Bulkload is successful with out any errors/warnings.
*****
```

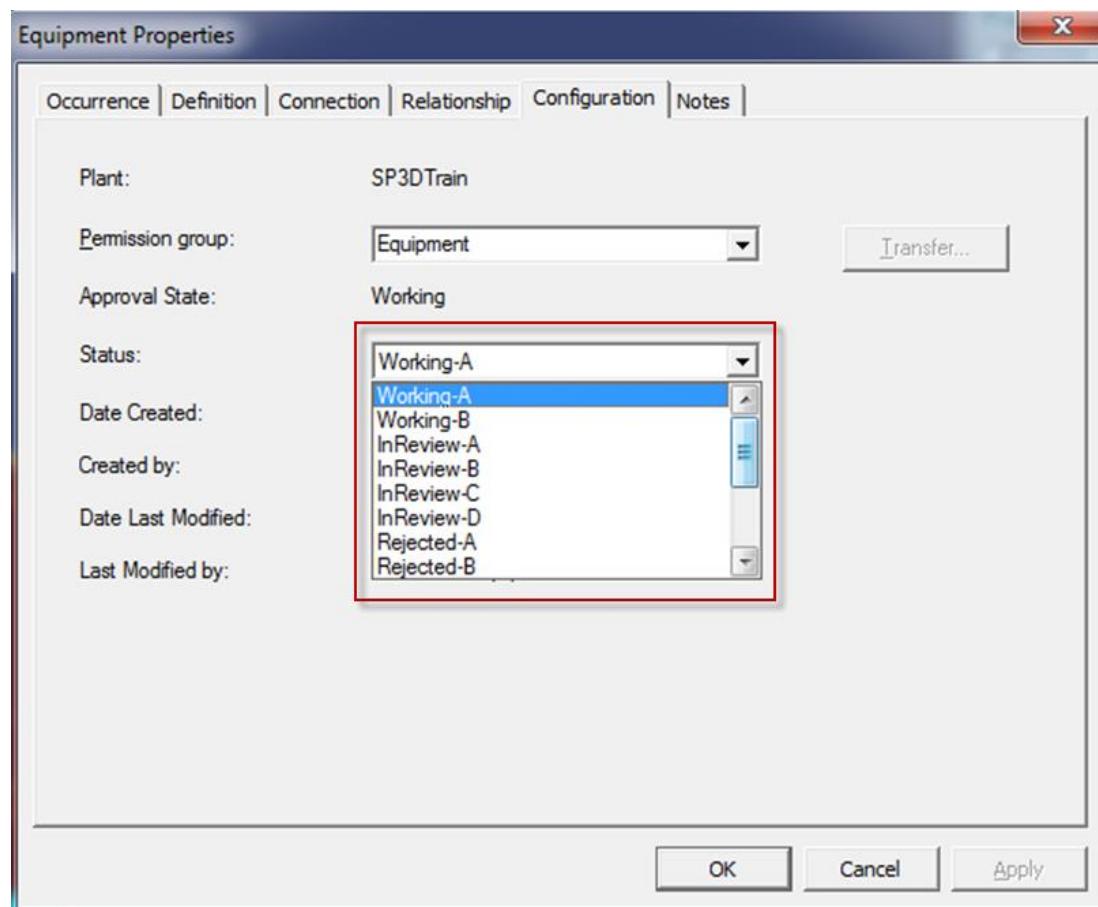
6. Start a new **Smart 3D** session and define your workspace in **SP3DTrain** model using filter **U01** located under **Plant Filters > Training Filters > U01**.



7. Select the equipment **E-102** in the workspace and go to its properties.



8. Switch to the **Configuration** tab on the Equipment properties dialog and note the new **Approval** statuses that were bulkloaded in the catalog.



9. Close the Equipment properties dialog and exit **Smart 3D**.

