

SmartPlant 3D

Setup and Administration Practice Labs

Process, Power & Marine



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LAB 1: Domain, server and client setup

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 following users, set password same as username: pipe1, pipe2, struct1, struct2, elect1, hvac1, equip1 with same name as password (uncheck the 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 that of the local or domain policy settings.

3. Create new groups named Pipe, Structure, SP3Dadmins, SP3Dusers, ProjectA
4. Assign users to groups as follows

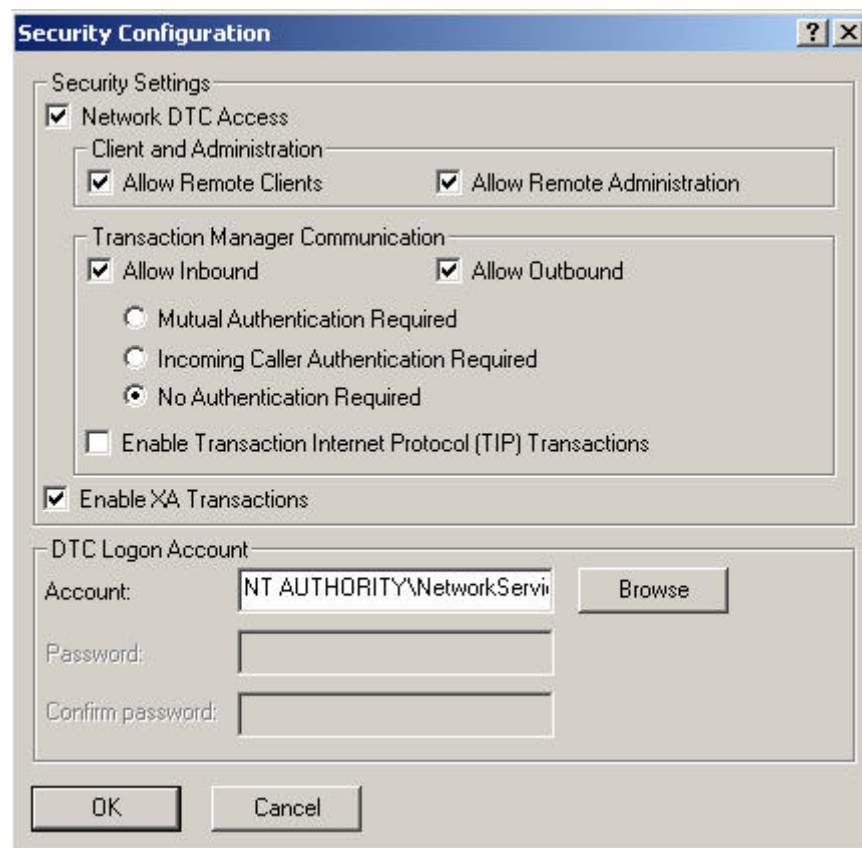
Group	Users
Pipe	pipe1, pipe2
Structure	struct1, struct2
SP3Dusers	pipe1, pipe2, struct1, struct2, equip1, hvac1, elect1
SP3Dadmins	pipe1, struct1, administrator
ProjectA	pipe1, struct1

Install and configure database, prerequisites and SP3D

In class, a functioning database system may already be provided. **Proceed to install and configure required pre-requisite software, following the installation guide provided with the SP3D CD (this step may have been completed with the assistance of the instructor).** The training workstation will be acting as a database server, reference data server and administrator workstation.

At the office, MSDTC must be configured on database server and SP3D machines as follows:

Go to: Control Panel > Administrative Tools > Component Services > Computers > My Computer > right click then Properties > MSDTC tab > Security Configuration option:



On an entirely stand-alone machine this may not be required for SP3D to function.

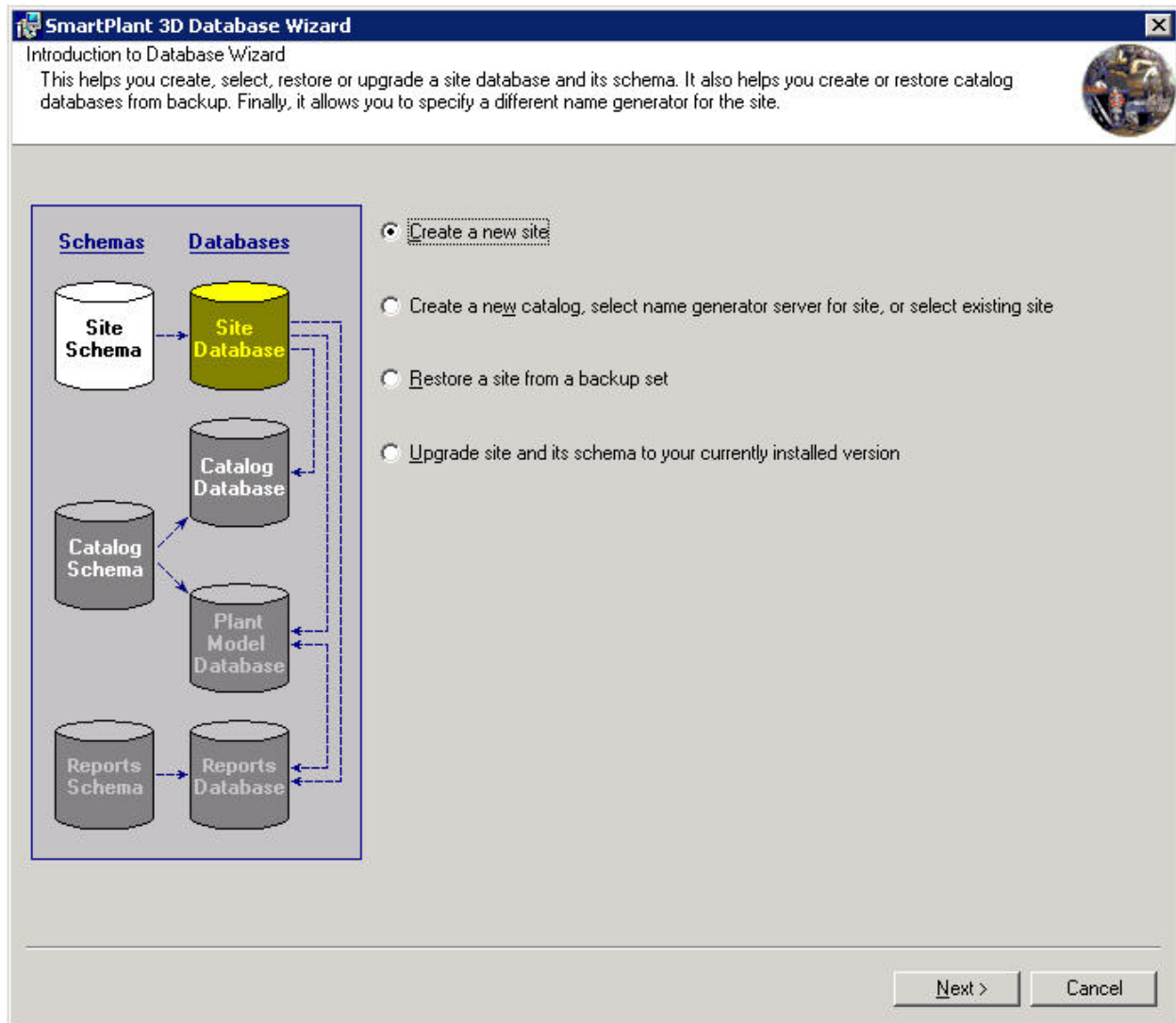
Note: If there is a Firewall enabled, you must set proper exceptions as outlined in the SmartPlant3DInstallationGuide409.pdf document delivered with the software.

Close the component services window and any other windows.

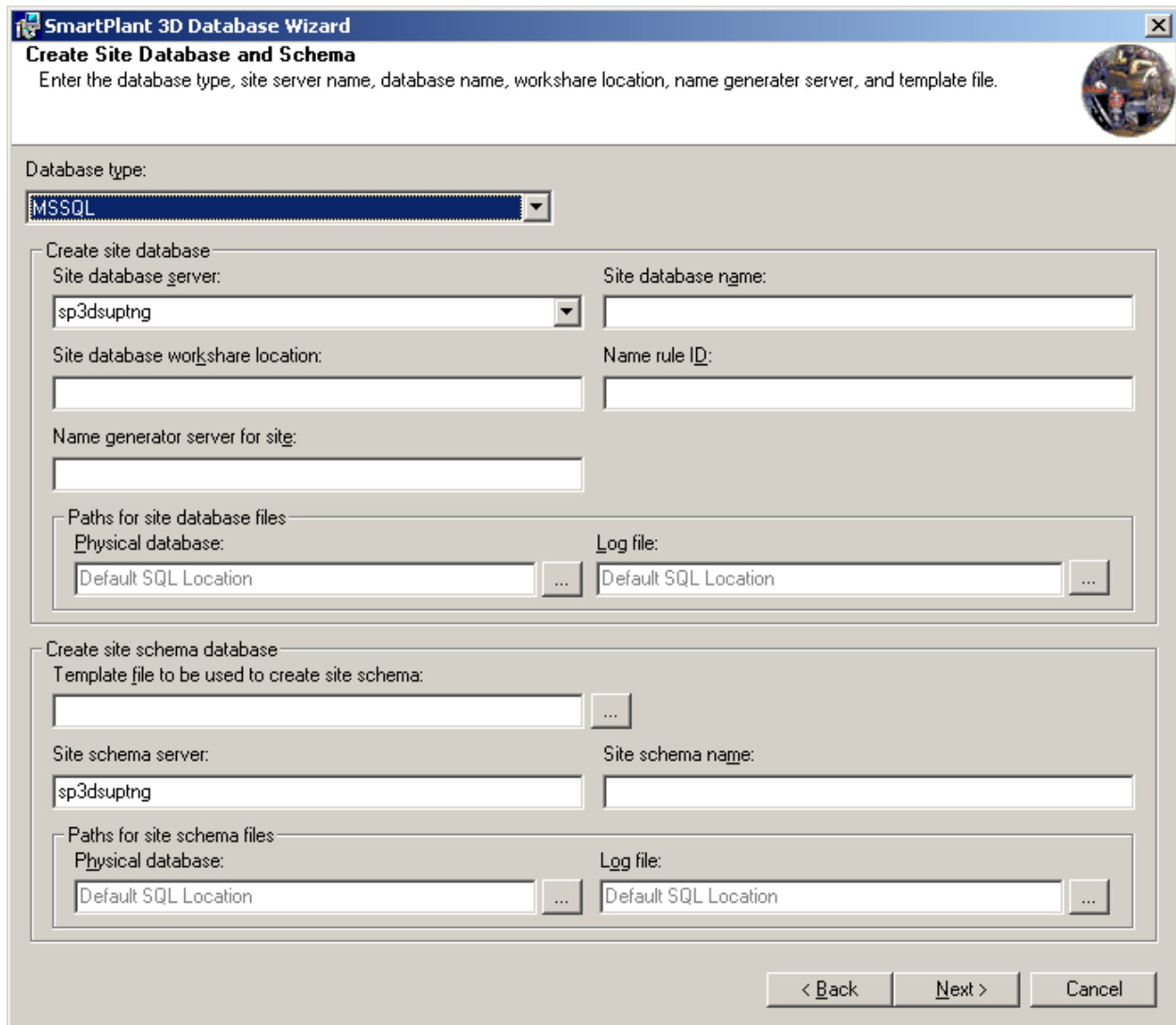
LAB 2: Create new site, catalog and plant

Create new site and catalog databases

1. Start **Database Wizard** following Start → All Programs → Intergraph SmartPlant 3D → Database Tools → Database Wizard



2. Select the option **Create a new site**. Click **Next**.



SmartPlant 3D Database Wizard
Create Site Database and Schema
 Enter the database type, site server name, database name, workshare location, name generator server, and template file.

Database type:
 MSSQL

Create site database

Site database server:
 sp3dsuptng

Site database name:

Site database workshare location:

Name rule ID:

Name generator server for site:

Paths for site database files

Physical database:
 Default SQL Location

Log file:
 Default SQL Location

Create site schema database

Template file to be used to create site schema:

Site schema server:
 sp3dsuptng

Site schema name:

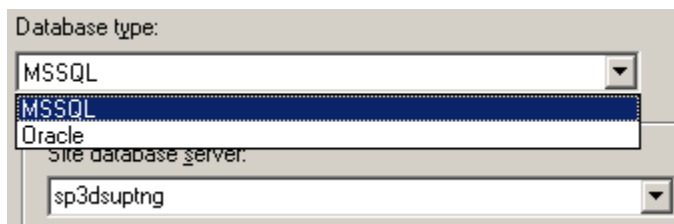
Paths for site schema files

Physical database:
 Default SQL Location

Log file:
 Default SQL Location

< Back Next > Cancel

3. Select **Database type** as appropriate for your classroom setup (MSSQL/Oracle)



Database type:
 MSSQL
 MSSQL
 Oracle

Site database server:
 sp3dsuptng

4. From the **Site database server** drop down list, select your server name (which will be your machine name when working in stand-alone) for site database server
5. Name the site 'Admin_SDB'
6. Enter 'HSV' (or any other alphanumeric string) as **Site database workshare location**
7. Type '1' as **Name rule ID**
8. Type in a **Name generator server for site**. This identifies the machine where the Name Generator Service (NGS) COM+ application have 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 [Reference Data Install Directory]\DatabaseTemplates\AppRepos.dat

i.e.: C:\Program Files\SmartPlant\3D\Server\DatabaseTemplates\Apprepos.dat
(AppRepos.dmp if Oracle)

The screenshot shows the 'SmartPlant 3D Database Wizard' window, specifically the 'Create Site Database and Schema' step. The window has a title bar with the SmartPlant logo and a close button. Below the title bar, the text 'Create Site Database and Schema' is displayed, followed by a subtitle: 'Enter the database type, site server name, database name, workshare location, name generator server, and template file.' A small globe icon is in the top right corner of the main area.

The main area is divided into two sections: 'Create site database' and 'Create site schema database'.

Create site database section:

- Database type:** A dropdown menu showing 'MSSQL'.
- Site database server:** A dropdown menu showing 'sp3dsuptng'.
- Site database name:** A text box containing 'Admin_SDB'.
- Site database workshare location:** A text box containing 'HSV'.
- Name rule ID:** A text box containing '1'.
- Name generator server for site:** A text box containing 'sp3dsuptng'.
- Paths for site database files:**
 - Physical database:** A text box containing 'Default SQL Location' with a browse button (...).
 - Log file:** A text box containing 'Default SQL Location' with a browse button (...).

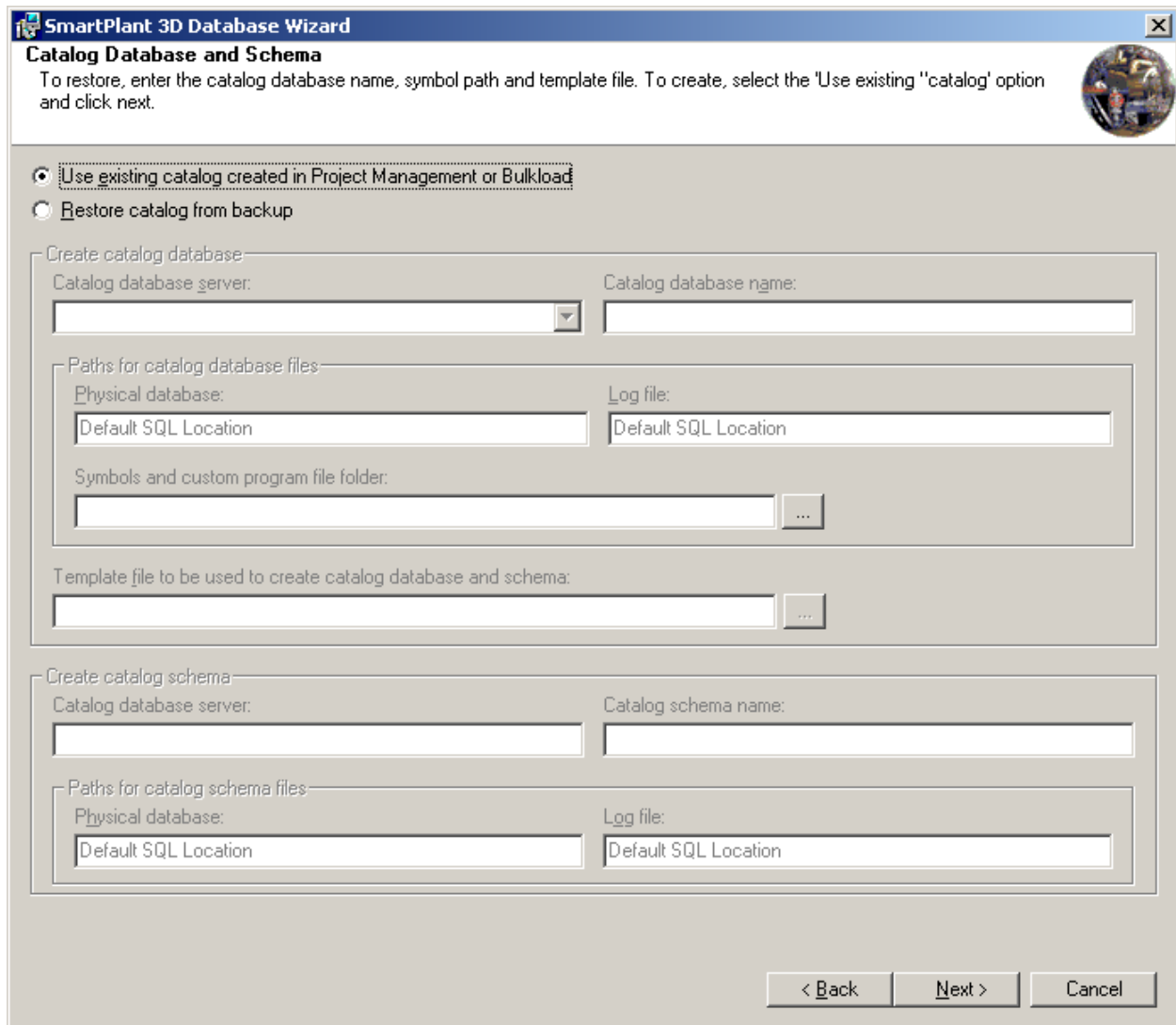
Create site schema database section:

- Template file to be used to create site schema:** A text box containing 'C:\Program Files\SmartPlant\3D\Server\DatabaseTemplates\Ap' with a browse button (...).
- Site schema server:** A text box containing 'sp3dsuptng'.
- Site schema name:** A text box containing 'Admin_SDB_SCHEMA'.
- Paths for site schema files:**
 - Physical database:** A text box containing 'Default SQL Location' with a browse button (...).
 - Log file:** A text box containing 'Default SQL Location' with a browse button (...).

At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Note: Screenshot above is assuming an MSSQL configuration, 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.

10. Click **Next**.



SmartPlant 3D Database Wizard

Catalog Database and Schema

To restore, enter the catalog database name, symbol path and template file. To create, select the 'Use existing 'catalog' option and click next.

☒ Use existing catalog created in Project Management or Bulkload
☐ Restore catalog from backup

Create catalog database:

Catalog database server: Catalog database name:

Paths for catalog database files:

Physical database: Log file:

Symbols and custom program file folder: ...

Template file to be used to create catalog database and schema: ...

Create catalog schema:

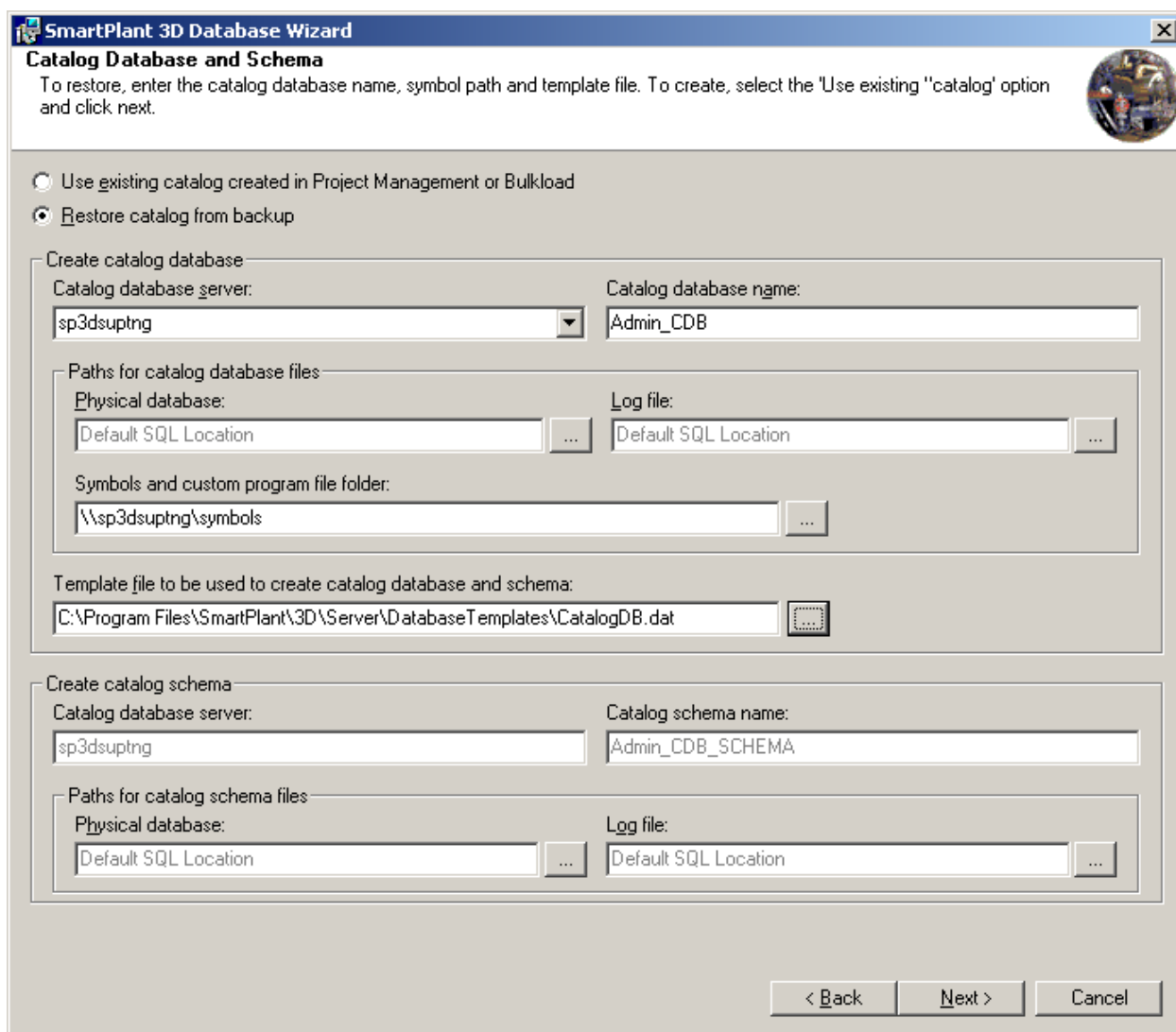
Catalog database server: Catalog schema name:

Paths for catalog schema files:

Physical database: Log file:

< Back Next > Cancel

11. Select **Restore catalog from backup**
12. Select server name for **Catalog database server**
13. Name the catalog 'Admin_CDB'
14. For the **Symbols and custom program files location** type `\\servername\symbols` (if your machine is networked or has loopback adapter installed) where `\\servername` is the name of the computer where Referencec Data components for SP3D have been installed, in a standalone configuration this would be the machine from where the restore is taking place; if not enter [Reference Data Install Directory]\CatalogData\Symbols or use the browse button "..."
15. Click "... in the option **Template file to be used to create catalog database and schema**, select [Reference Data Install Directory]\DatabaseTemplates\CatalogDB.dat
 i.e.: C:\Program Files\SmartPlant\3D\Server\DatabaseTemplates\CatalogDB.dat
 (CatalogDB.dmp if Oracle)



SmartPlant 3D Database Wizard

Catalog Database and Schema

To restore, enter the catalog database name, symbol path and template file. To create, select the 'Use existing 'catalog' option and click next.

☐ Use existing catalog created in Project Management or Bulkload
☒ Restore catalog from backup

Create catalog database

Catalog database server: Catalog database name:

Paths for catalog database files

Physical database: ... Log file: ...

Symbols and custom program file folder: ...

Template file to be used to create catalog database and schema: ...

Create catalog schema

Catalog database server: Catalog schema name:

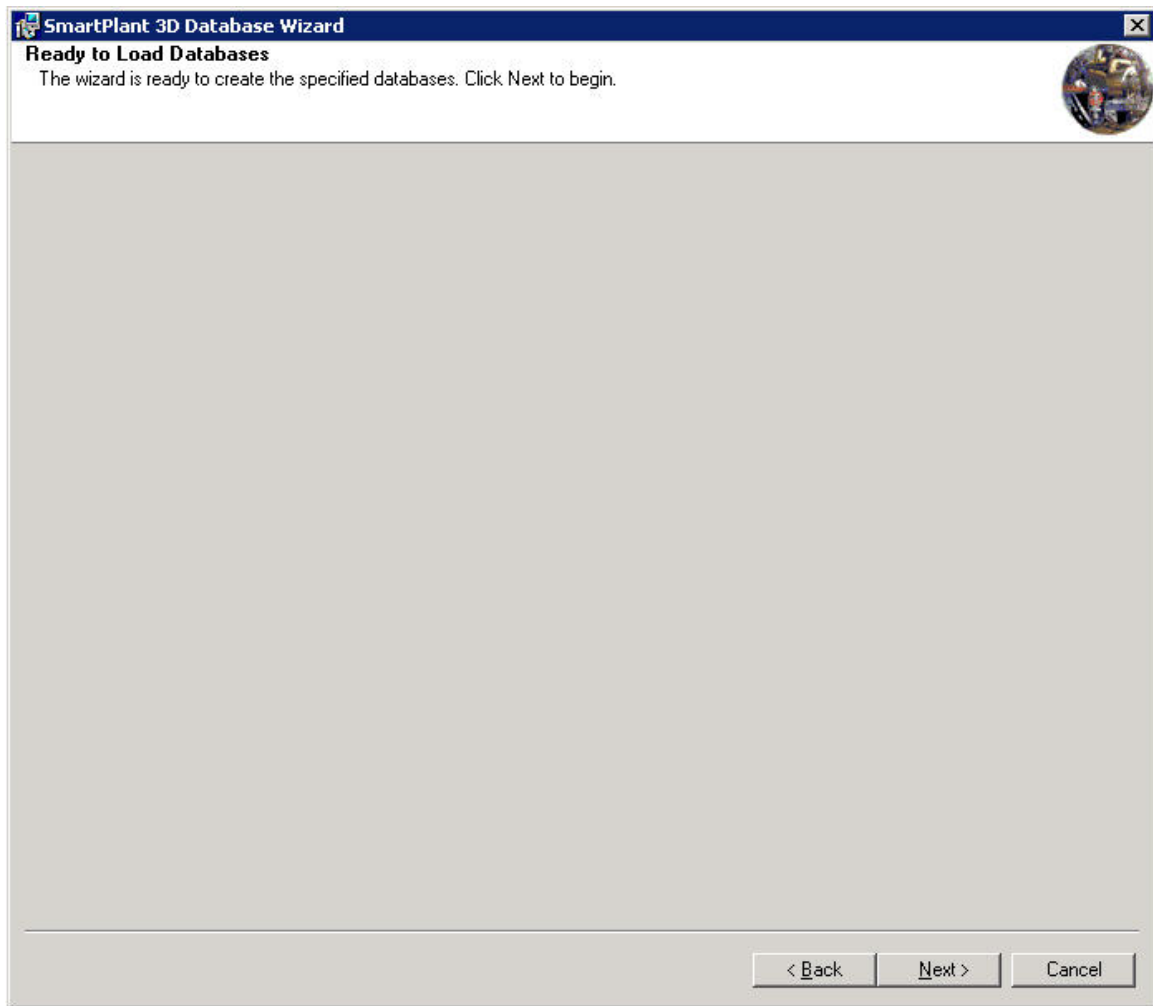
Paths for catalog schema files

Physical database: ... Log file: ...

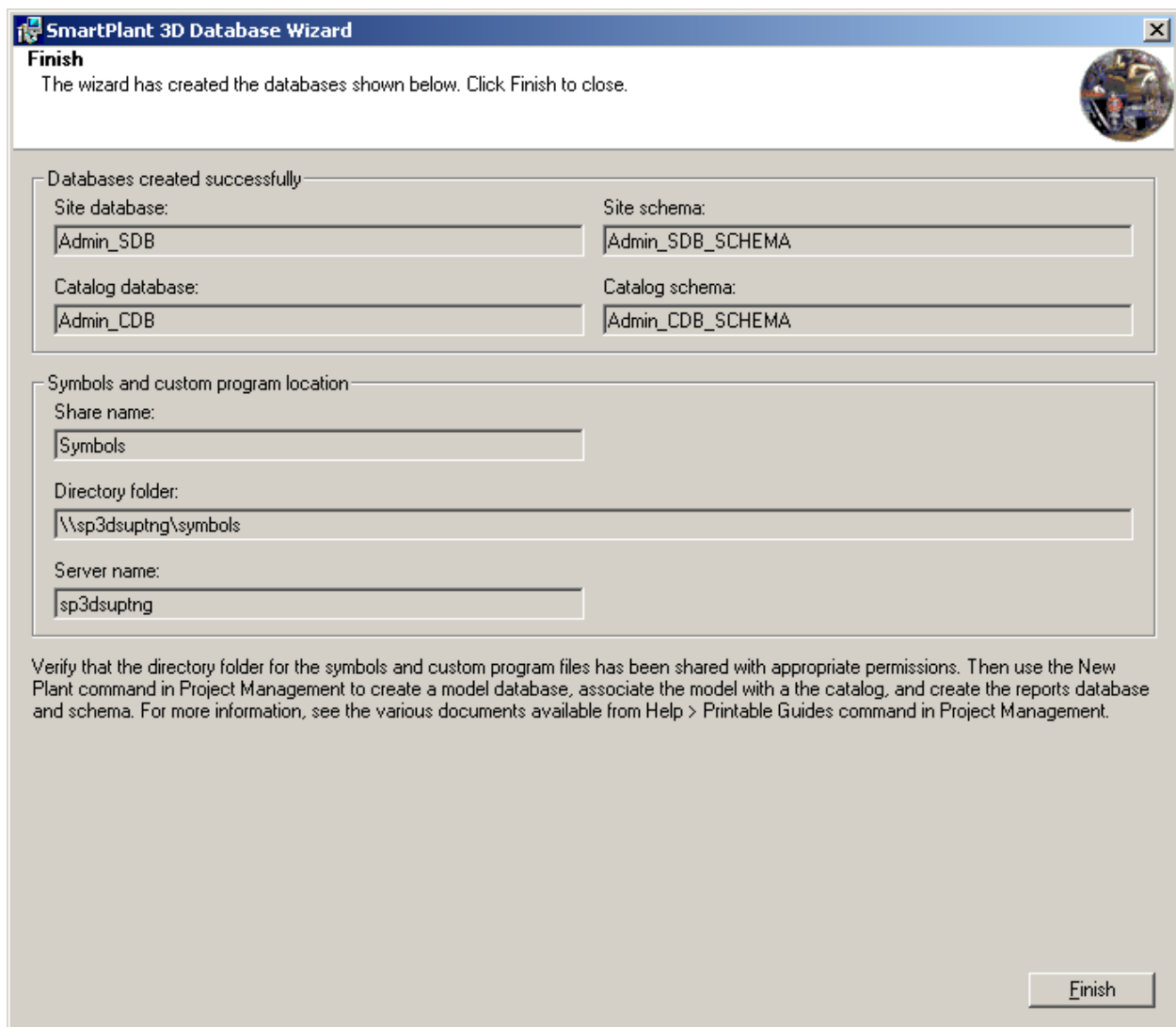
< Back Next > Cancel

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 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**.



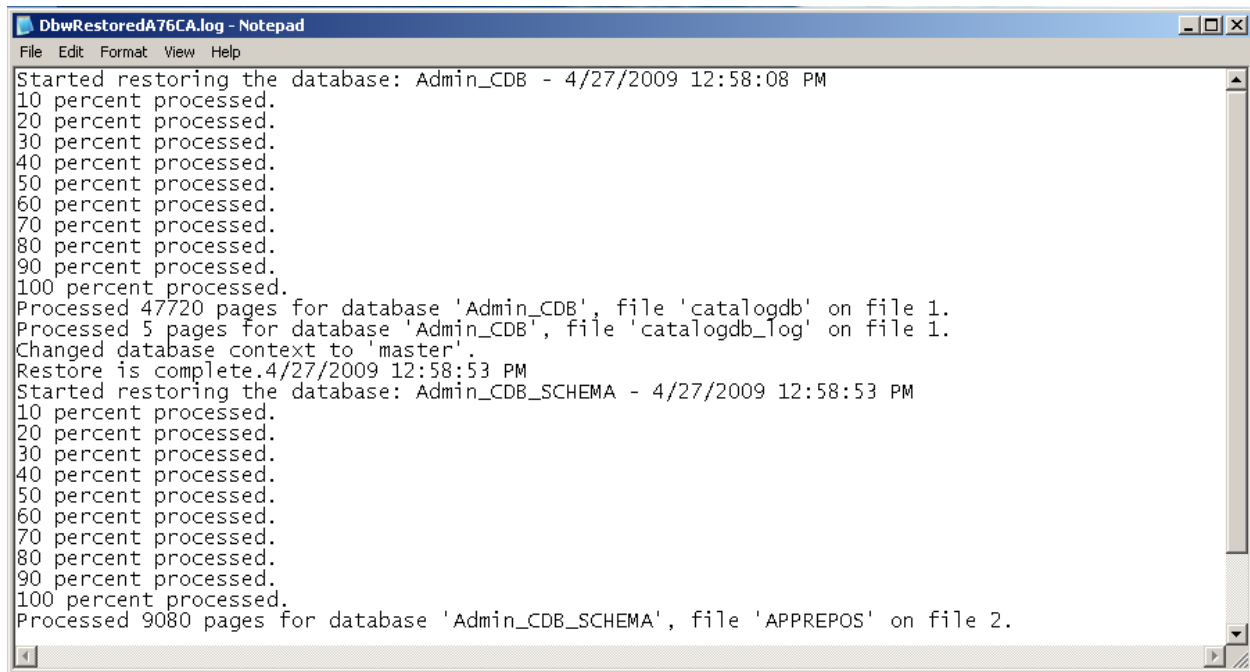
17. Click **Next**



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

19. Review log file **DbwRestoredA76CA.log** on your temp folder. You may type %temp% in the address bar of Windows Explorer for quick access.

Note: the last 5 characters of the restore log file name will change depending upon different databases being restored.

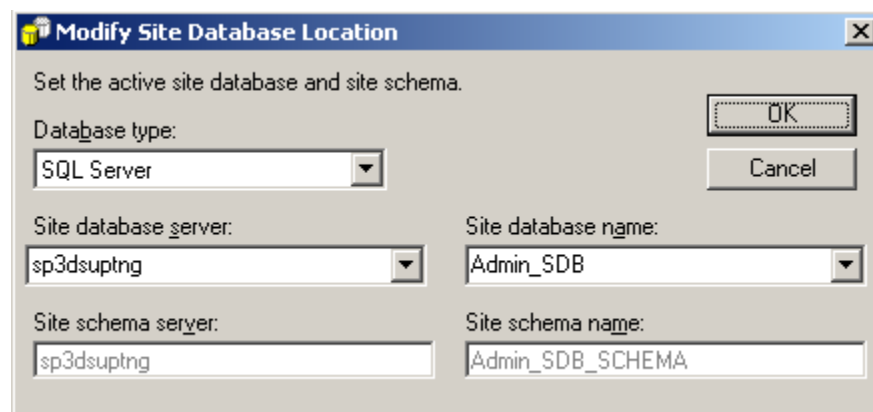


```
DbwRestoredA76CA.log - Notepad
File Edit Format View Help
Started restoring the database: Admin_CDB - 4/27/2009 12:58:08 PM
10 percent processed.
20 percent processed.
30 percent processed.
40 percent processed.
50 percent processed.
60 percent processed.
70 percent processed.
80 percent processed.
90 percent processed.
100 percent processed.
Processed 47720 pages for database 'Admin_CDB', file 'catalogdb' on file 1.
Processed 5 pages for database 'Admin_CDB', file 'catalogdb_log' on file 1.
Changed database context to 'master'.
Restore is complete.4/27/2009 12:58:53 PM
Started restoring the database: Admin_CDB_SCHEMA - 4/27/2009 12:58:53 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 9080 pages for database 'Admin_CDB_SCHEMA', file 'APPREPOS' on file 2.
```

Note: This depicted log file is different from Oracle database configurations.

Verify new site creation

1. Start **Modify Database and Schema Location** following Start → All Programs → Intergraph SmartPlant 3D → Database Tools → Modify Database and Schema Location
2. The form will display location of the Site and Site_Schema databases:



Modify Site Database Location

Set the active site database and site schema.

Database type:

Site database server: Site database name:

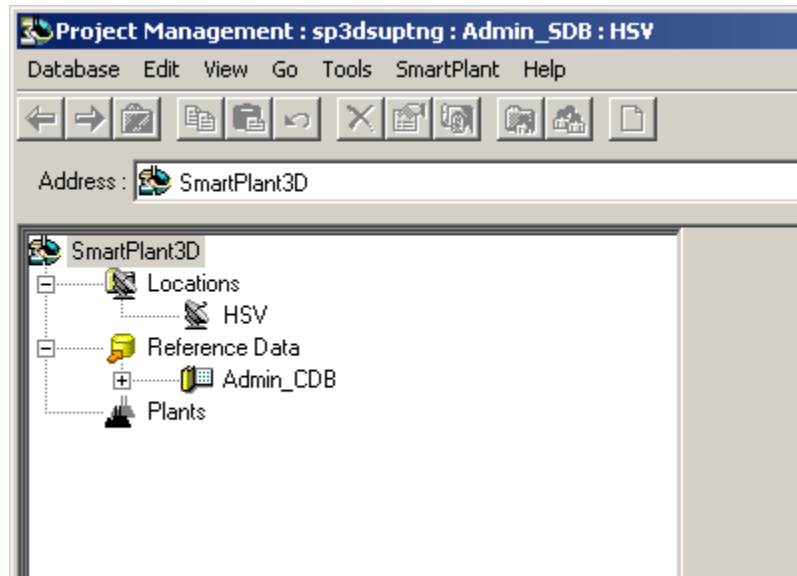
Site schema server: Site schema name:

Note: This connection information can be manually edited on SP3D workstations to allow for connection to this Site database and the Plants that it will contain.

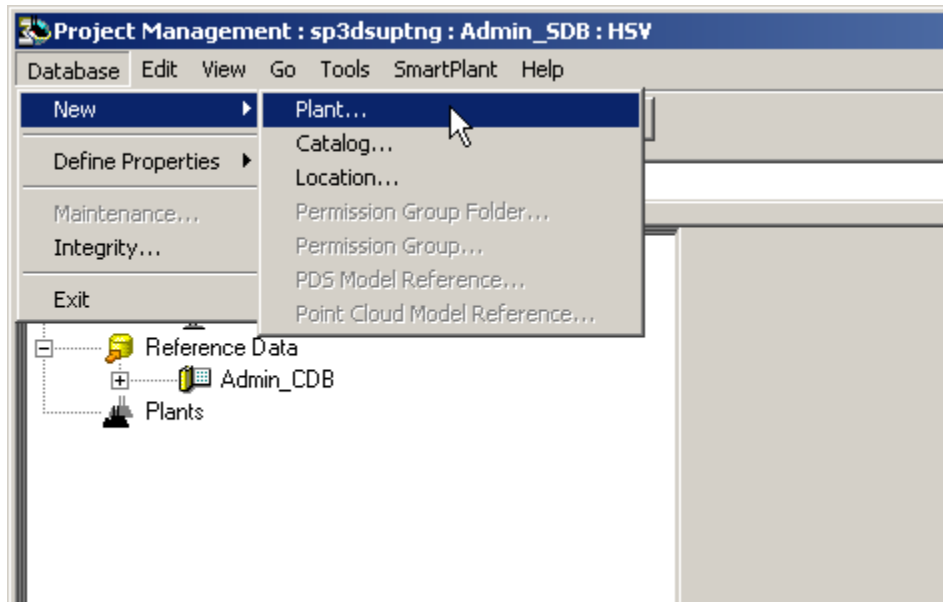
3. Click **OK**

Create new plant

1. Enter **Project Management** following Start → All Programs → Intergraph SmartPlant 3D → Project Management



2. From **Database** menu, select **New → Plant...**



3. Fill in the **General** tab of the **New Plant** dialog according to next image.

New Plant

General | **Databases**

Property	Value
Name	Admin_Plant
Description	Administration plant for training
Site	(your company's location)
Owner	(your company name)

OK Cancel

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

New Plant

General | **Databases**

Plant databases:

Type	DB Provider	Server	Name
Catalog	MSSQL	sp3dsuptng	Admin_CDB
Model	MSSQL	sp3dsuptng	Admin_Plant_MDB
Reports	MSSQL	sp3dsuptng	Admin_Plant_RDB

Name generator server for plant:

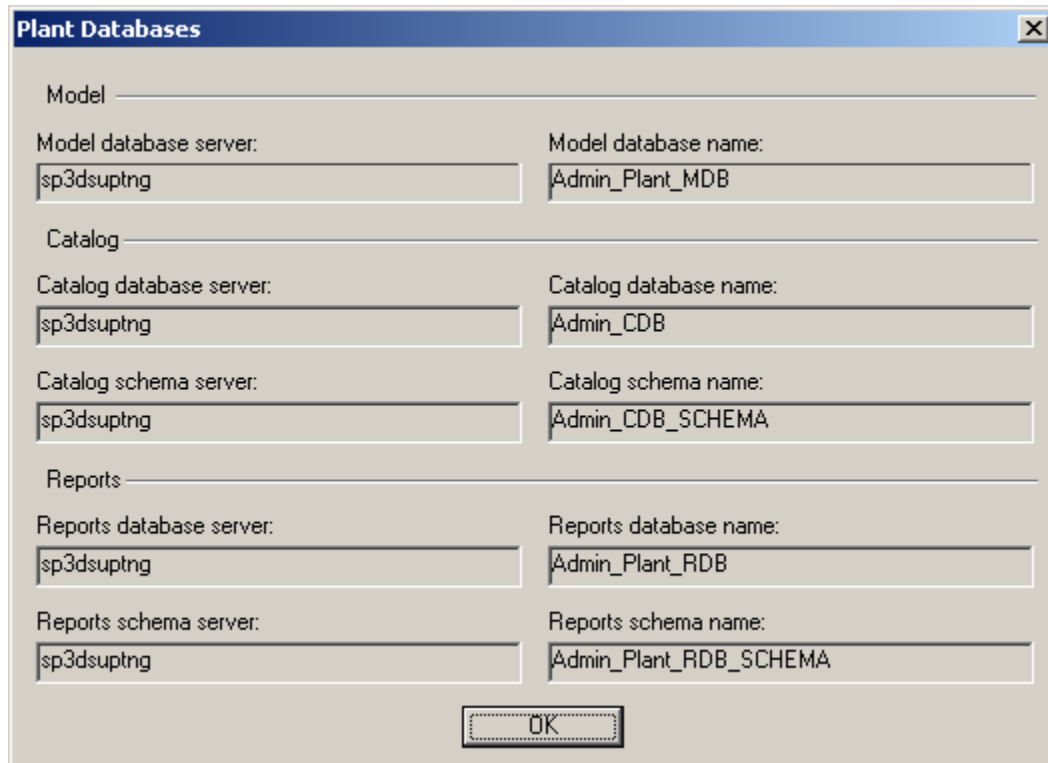
Locations for the model database files

Physical database:
 ...

Log file:
 ...

OK Cancel

5. Click **OK** to create the plant and then review results when completed.



The 'Plant Databases' dialog box is shown with the following fields:

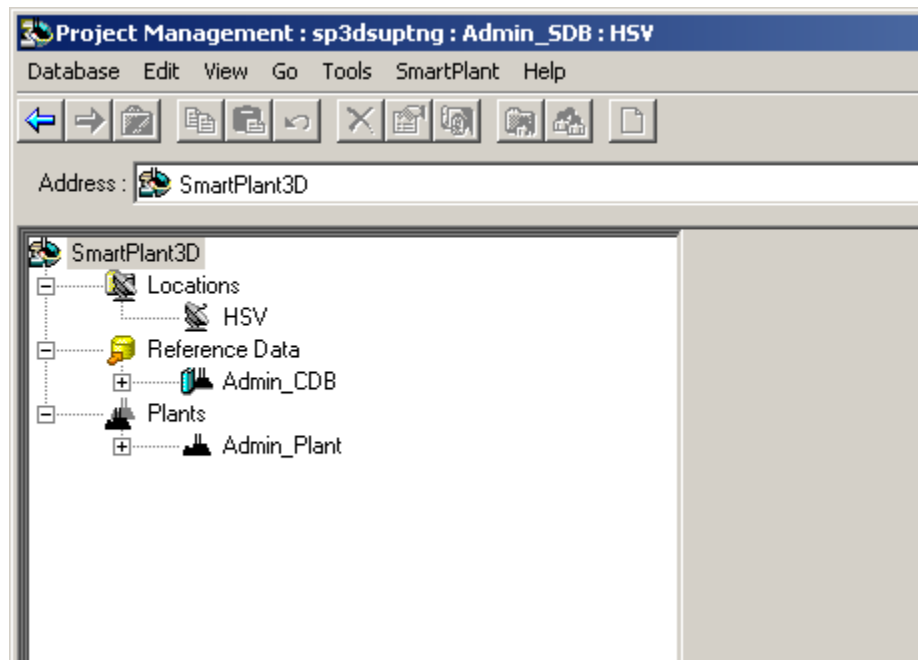
Model	
Model database server:	Model database name:
sp3dsuptng	Admin_Plant_MDB

Catalog	
Catalog database server:	Catalog database name:
sp3dsuptng	Admin_CDB
Catalog schema server:	Catalog schema name:
sp3dsuptng	Admin_CDB_SCHEMA

Reports	
Reports database server:	Reports database name:
sp3dsuptng	Admin_Plant_RDB
Reports schema server:	Reports schema name:
sp3dsuptng	Admin_Plant_RDB_SCHEMA

At the bottom, there is an 'OK' button.

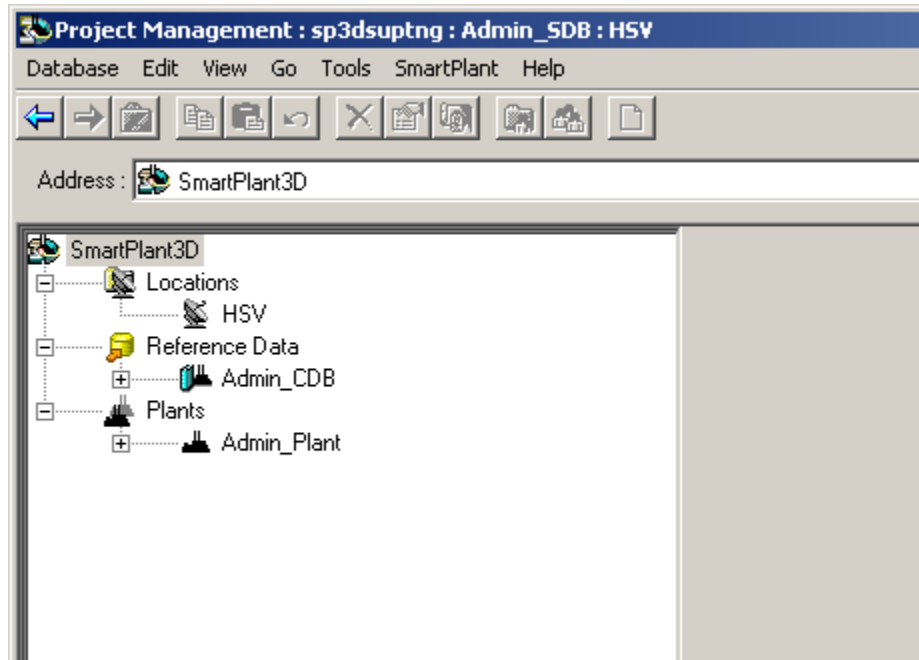
6. Review the **Project Management** hierarchy and observe the change in color and shape for the Catalog icon. This is the result of the Catalog being associated to at least one Plant; before, it was unassigned.



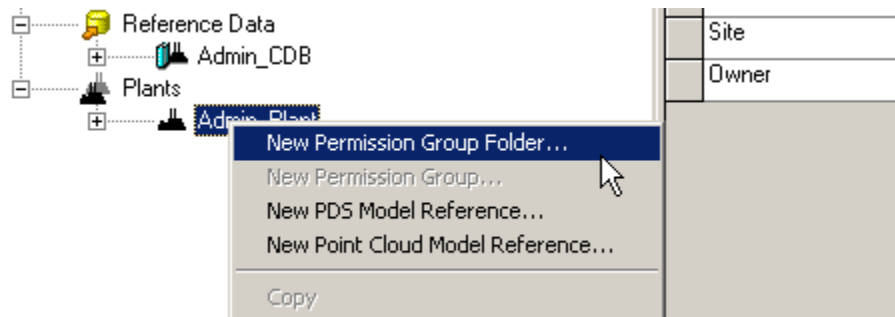
LAB 3: Create permission groups and assign permissions

Create Permission Groups

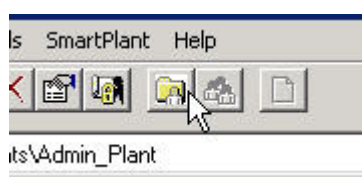
1. If required, enter **Project Management** following Start → All Programs → Intergraph SmartPlant 3D → Project Management



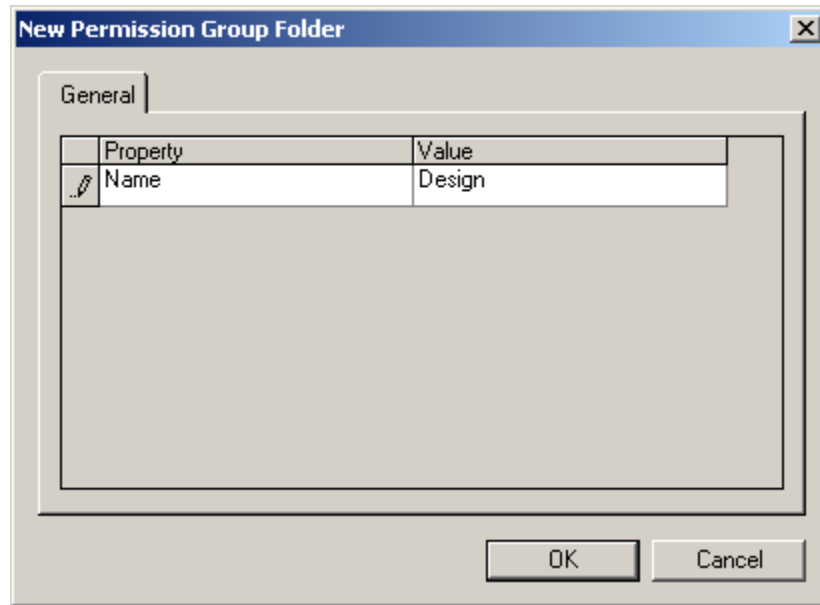
2. Right-click on 'Admin_Plant' and select **New Permission Group Folder...**



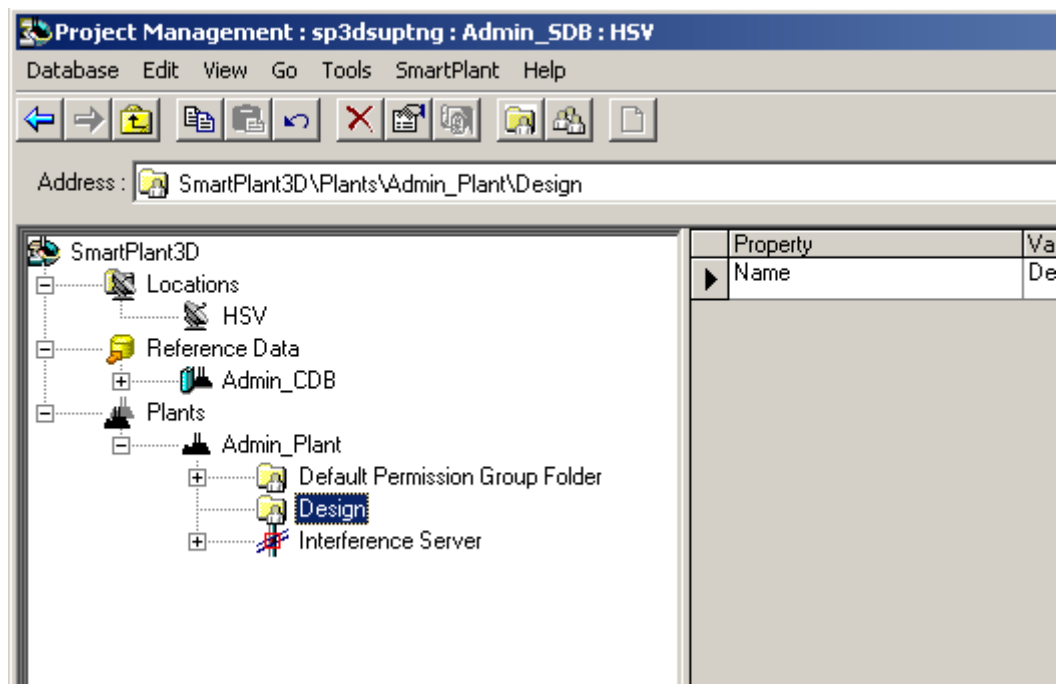
Note: You may also access this functionality by clicking on the “New permission group folder” icon, located on the ribbon bar.



3. **Name** the folder 'Design'

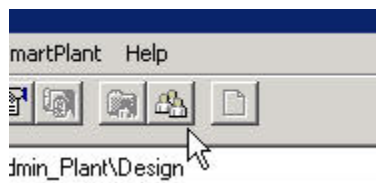


4. Expand the Plant hierarchy by clicking on the + **box** to the left of **Admin_Plant**.
5. Select the folder '**Design**'

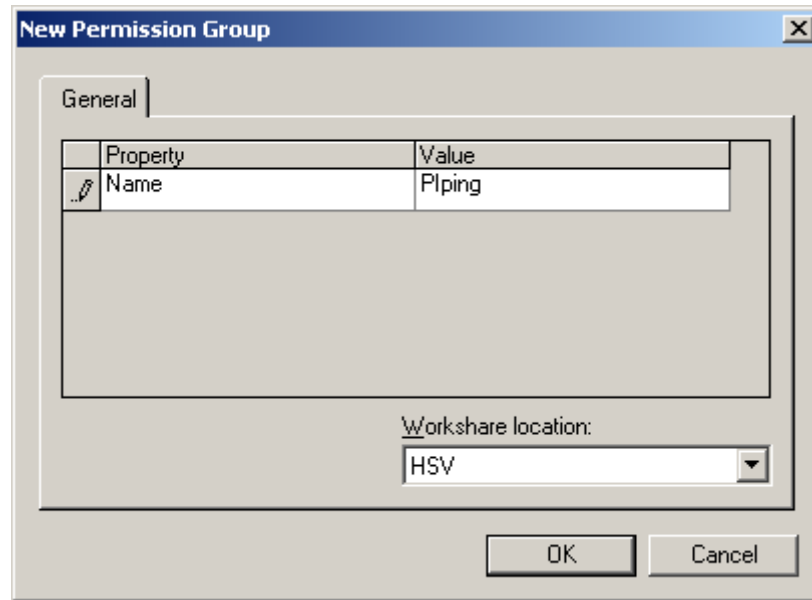


6. Right-click on '**Design**' and select **New Permission Group...**

Note: You may also access this functionality by clicking on the “New permission group” icon, located on the ribbon bar.

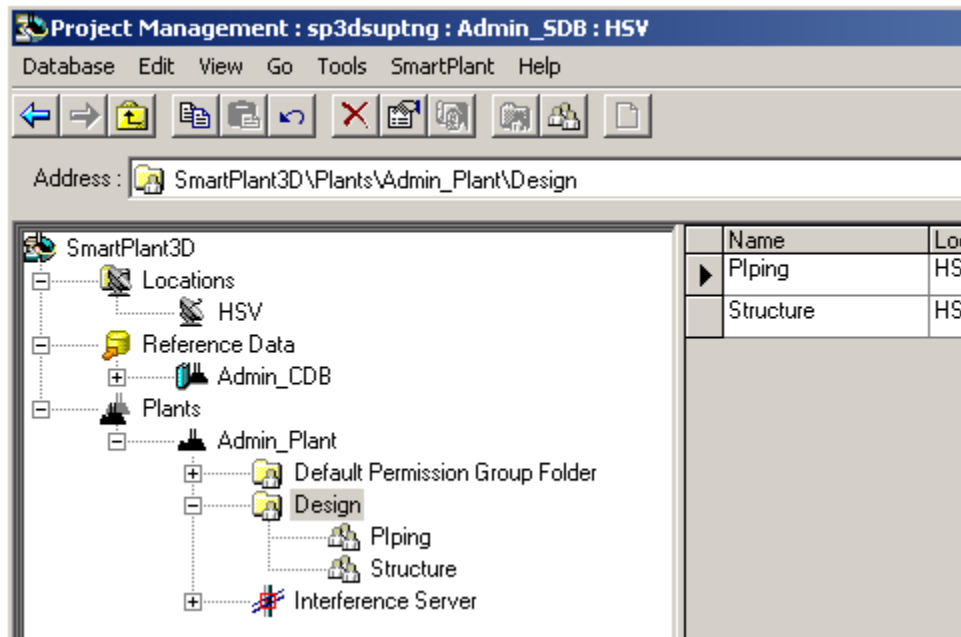


7. Name the group '**Piping**'

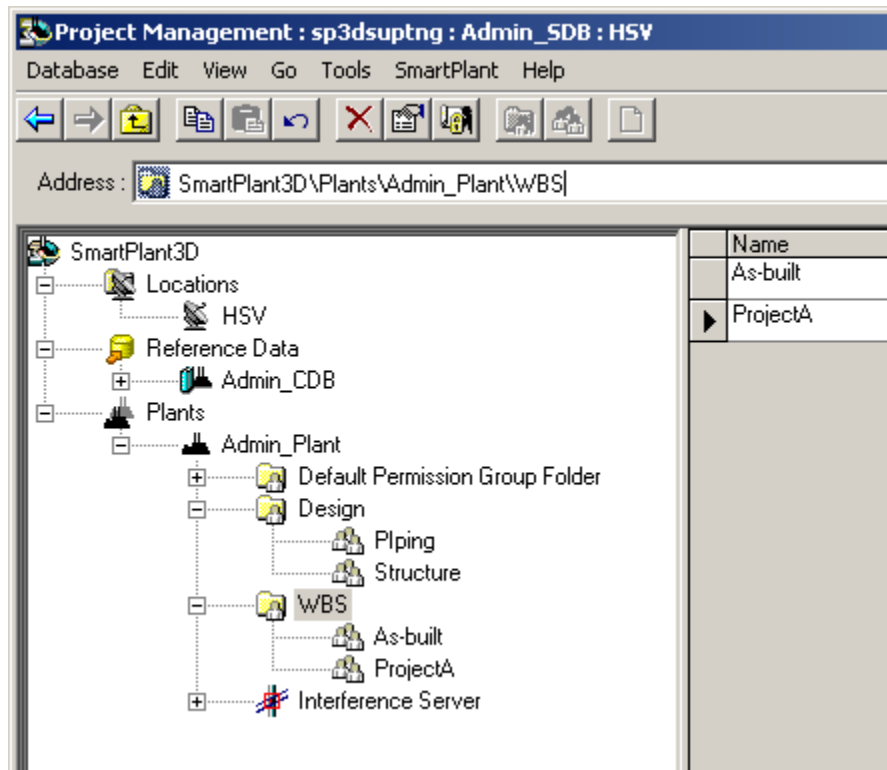


8. Click **OK**.

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

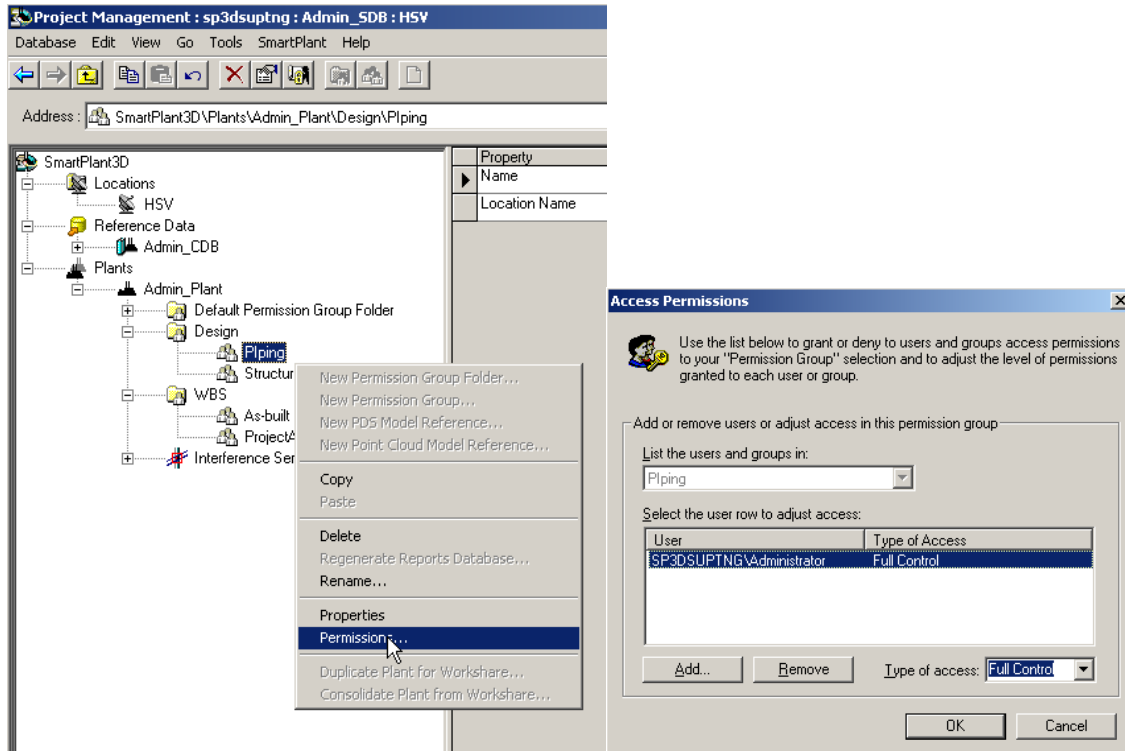


10. Similarly, create the following hierarchy of permission group folder "**WBS**" and permission groups "**As-Built**" and "**ProjectA**"

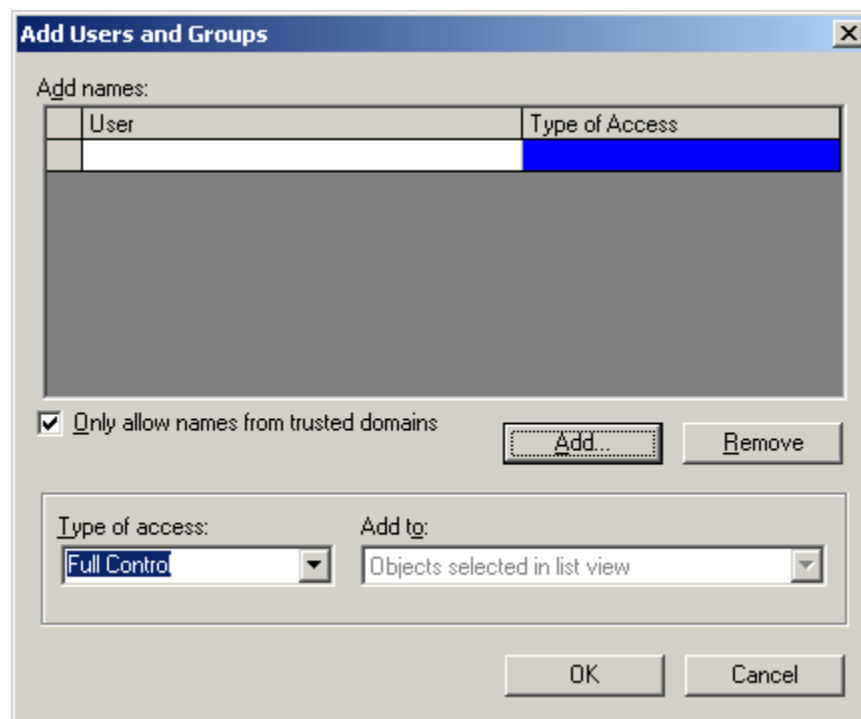


Assign permissions in Project Management

1. Select permission group **Piping**
2. **Right-click** and select **Permissions**



3. Click **Add...** button



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.

4. Click **Add...** button
5. 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.

Select Users or Groups

Select this object type:
Users, Groups, or Built-in security principals

Object Types...

From this location:
SP3DSUPTNG

Locations...

Enter the object names to select (examples):
SP3DSUPTNG\Pipe

Check Names

Advanced... OK Cancel

6. Click **OK**.

Add Users and Groups

Add names:

User	Type of Access
SP3DSUPTNG\Pipe	Full Control

☒ Only allow names from trusted domains

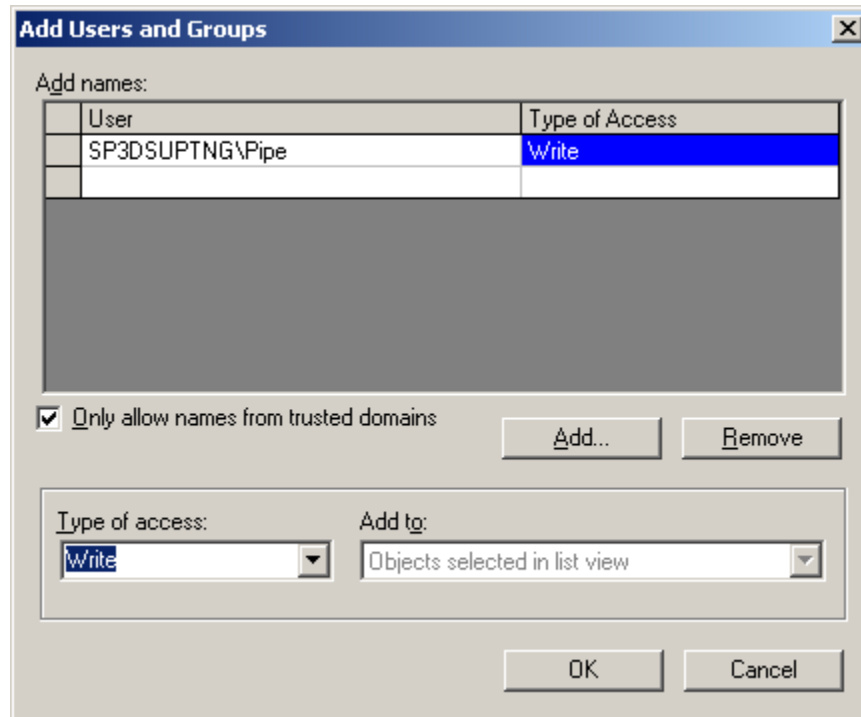
Add... Remove

Type of access: Full Control

Add to: Objects selected in list view

OK Cancel

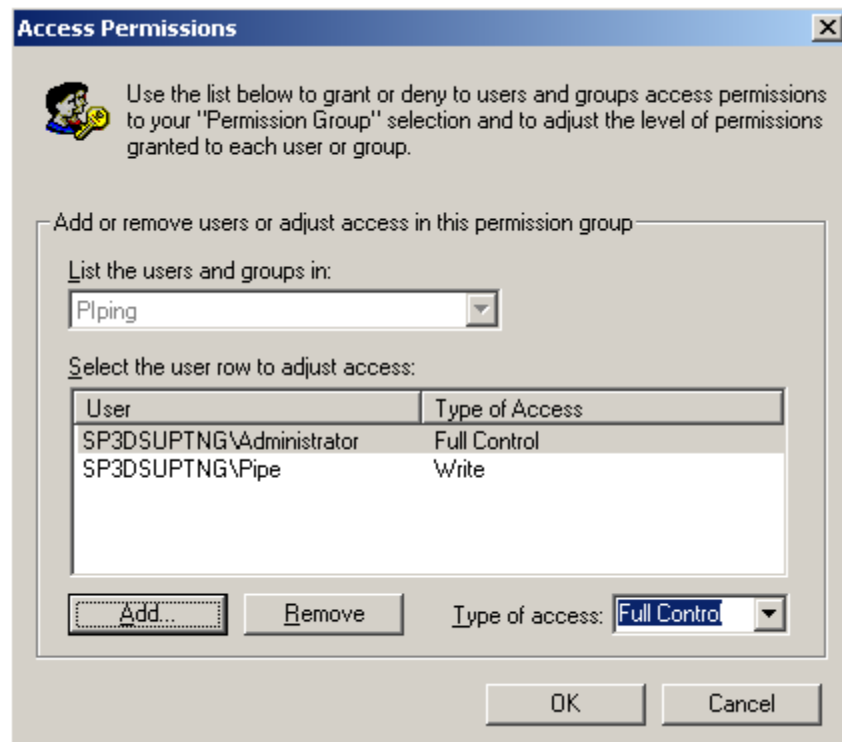
- Expand **Type of access** drop down list to change permission as **Write** access.



The 'Add Users and Groups' dialog box is shown. It has a title bar with a close button. Below the title bar is a section labeled 'Add names:' containing a table with two columns: 'User' and 'Type of Access'. The table has one row with 'SP3DSUPTNG\Pipe' in the 'User' column and 'Write' in the 'Type of Access' column. Below the table is a large empty rectangular area. Underneath this area is a checkbox labeled 'Only allow names from trusted domains' which is checked. To the right of the checkbox are 'Add...' and 'Remove' buttons. Below these buttons is a section with two dropdown menus. The first is labeled 'Type of access:' and has 'Write' selected. The second is labeled 'Add to:' and has 'Objects selected in list view' selected. At the bottom right are 'OK' and 'Cancel' buttons.

User	Type of Access
SP3DSUPTNG\Pipe	Write

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



The 'Access Permissions' dialog box is shown. It has a title bar with a close button. Below the title bar is a message icon and text: 'Use the list below to grant or deny to users and groups access permissions to your "Permission Group" selection and to adjust the level of permissions granted to each user or group.' Below this is a section labeled 'Add or remove users or adjust access in this permission group'. Inside this section is a dropdown menu labeled 'List the users and groups in:' with 'Piping' selected. Below that is a section labeled 'Select the user row to adjust access:' containing a table with two columns: 'User' and 'Type of Access'. The table has two rows: 'SP3DSUPTNG\Administrator' with 'Full Control' and 'SP3DSUPTNG\Pipe' with 'Write'. Below the table are 'Add...' and 'Remove' buttons. To the right of these buttons is a dropdown menu labeled 'Type of access:' with 'Full Control' selected. At the bottom right are 'OK' and 'Cancel' buttons.

User	Type of Access
SP3DSUPTNG\Administrator	Full Control
SP3DSUPTNG\Pipe	Write

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

Add Users and Groups

Add names:

User	Type of Access

☐ Only allow names from trusted domains

Add... Remove

Type of access: Full Control Add to: Objects selected in list view

OK Cancel

11. In **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.

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

Add Users and Groups

Add names:

User	Type of Access
sp3dsuptng\Structure	

☐ Only allow names from trusted domains

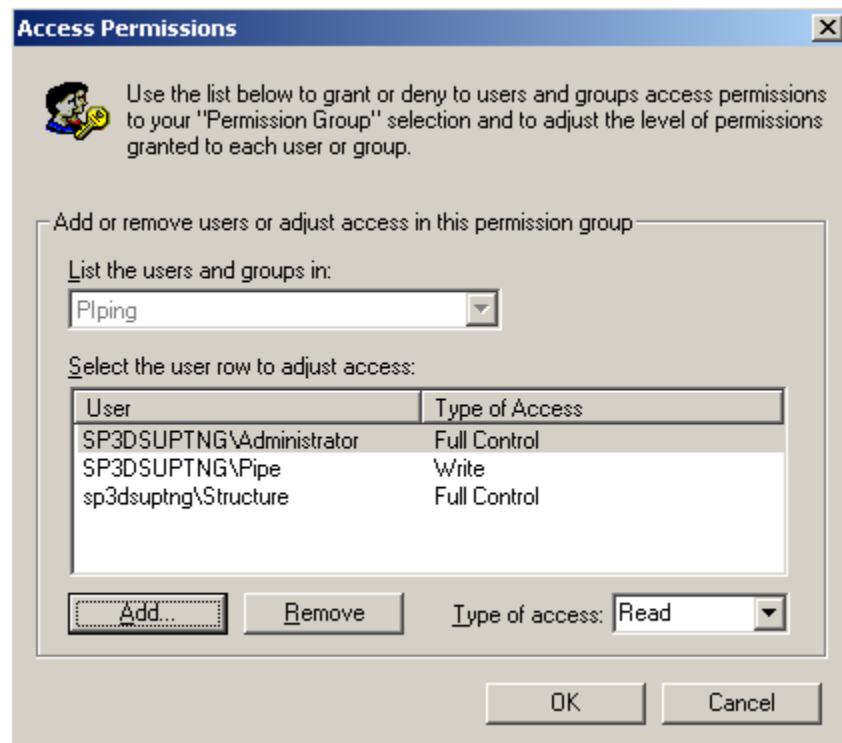
Add... Remove

Type of access: Full Control Add to: Objects selected in list view

OK Cancel

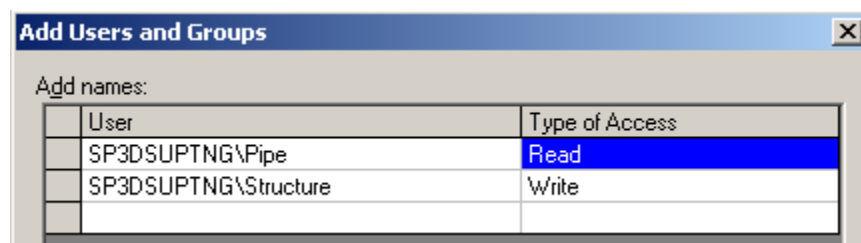
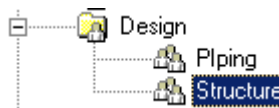
13. Click **OK**.

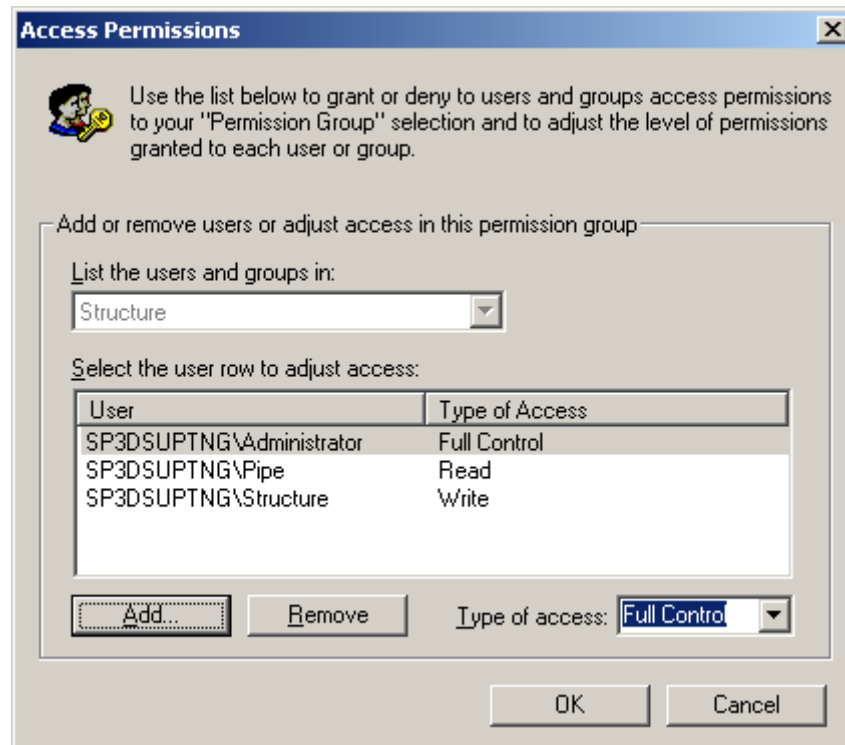
14. Review Access Permissions form.



15. Click **OK**

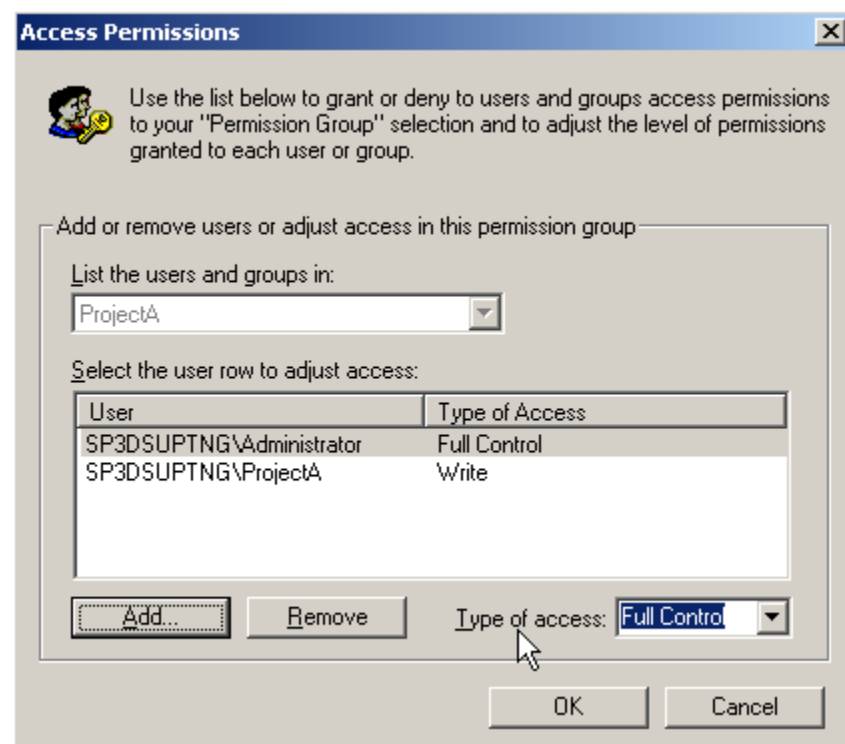
16. **Select** the Permission Group '**Structure**', go to **add users** and choose the option your prefer (domain verification on/off) and assign **Write** to '**Structure**' and **Read** to '**Pipe**' Windows groups





17. Click **OK**

18. Select permission group **ProjectA**, choose the option you do not prefer (opposite from previous step) and assign **Write** permissions to the windows user group 'ProjectA'

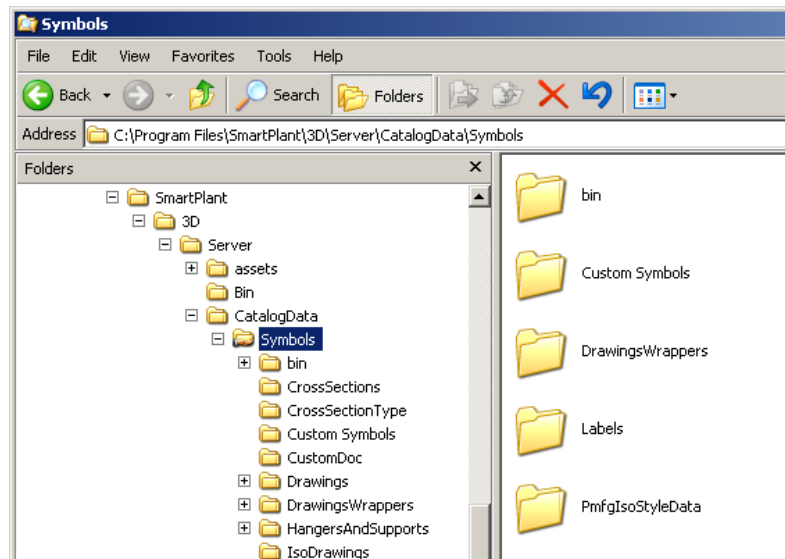


19. Click **OK**

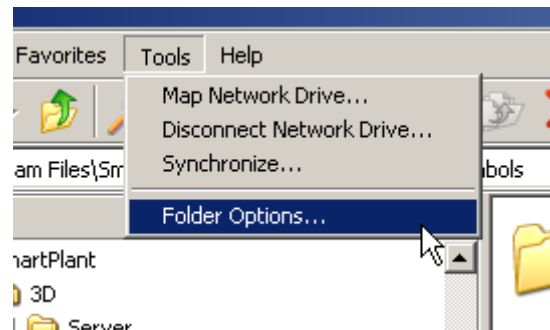
Assign permissions in the file system

1. Using **Windows Explorer** navigate to directory where **Symbols** folder is located. Example:

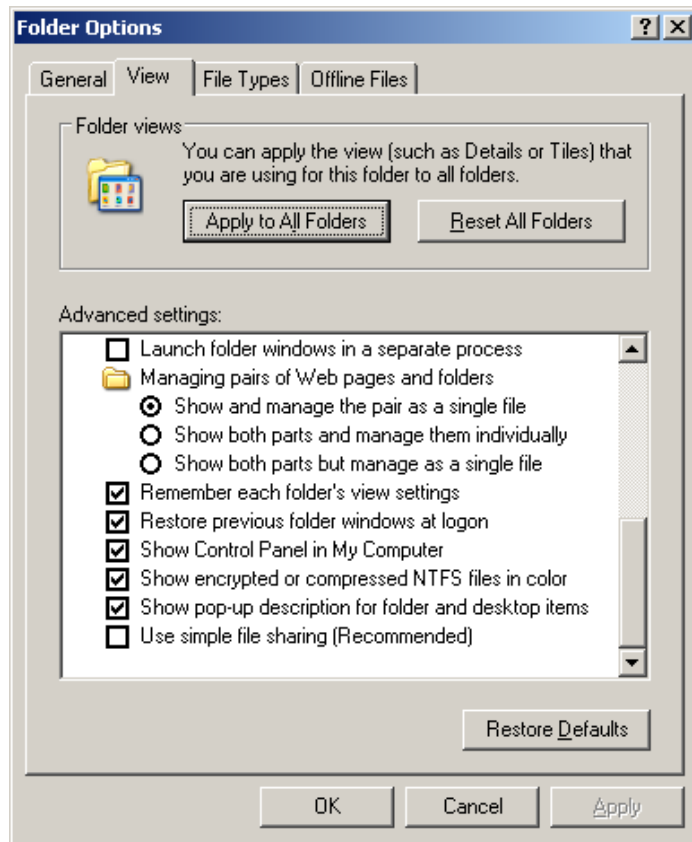
C:\Program Files\SmartPlant\3D\Server\CatalogData\Symbols



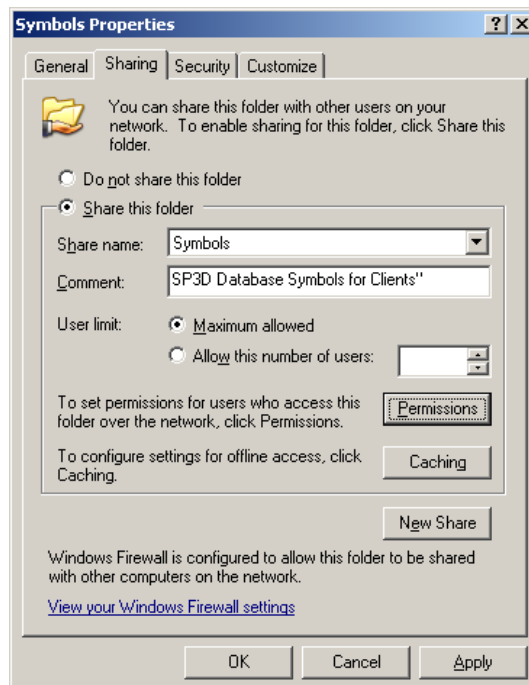
2. From **Tools** menu in Explorer window, select **Folder Options**.



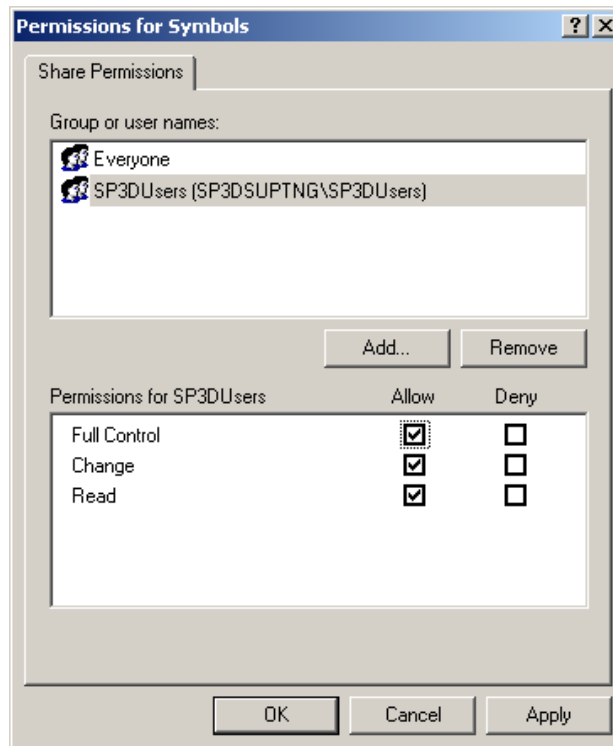
3. On the **View** tab, ensure **Use simple file sharing (recommended)** option is **unchecked**.



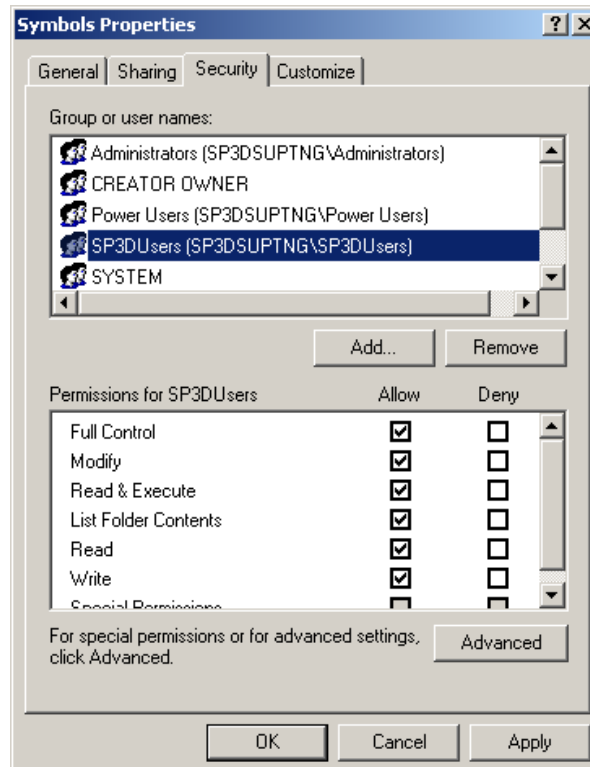
4. Click **OK**.
5. **Right mouse** click on the **Symbols** folder, then select **Properties**; go to **Sharing** tab, then click **Permissions**.



6. **Modify** permissions such that **SP3DUsers** group (created on Lab 1) have **Full Control** access.

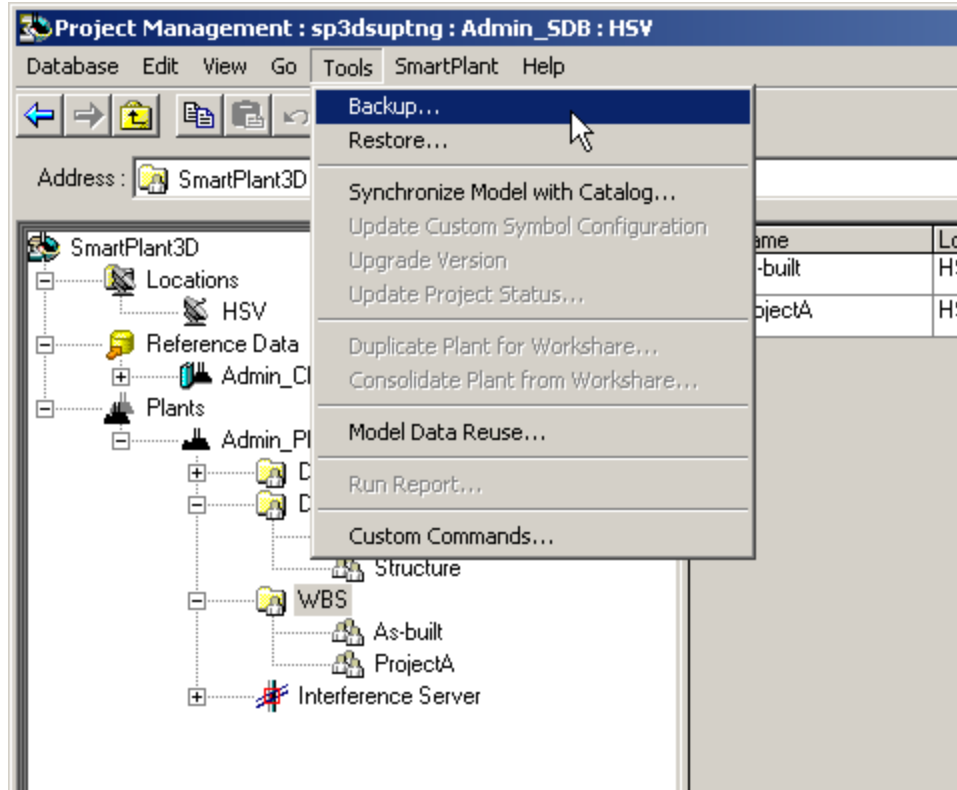


7. Click **OK**
8. Go to **Security** tab and modify security permissions such that **SP3DUsers** group have **Full Control**.



LAB 4: Simple Backup

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.

Backup [X]

Select plants to back up:

Name	Size	Description
Admin_Plant	791357.44 KB	Administration plant for training

[Calculate Size]

Select folder and name for backup configuration file:

[Text Field] ...

(This folder will also be used for the backup log file.)

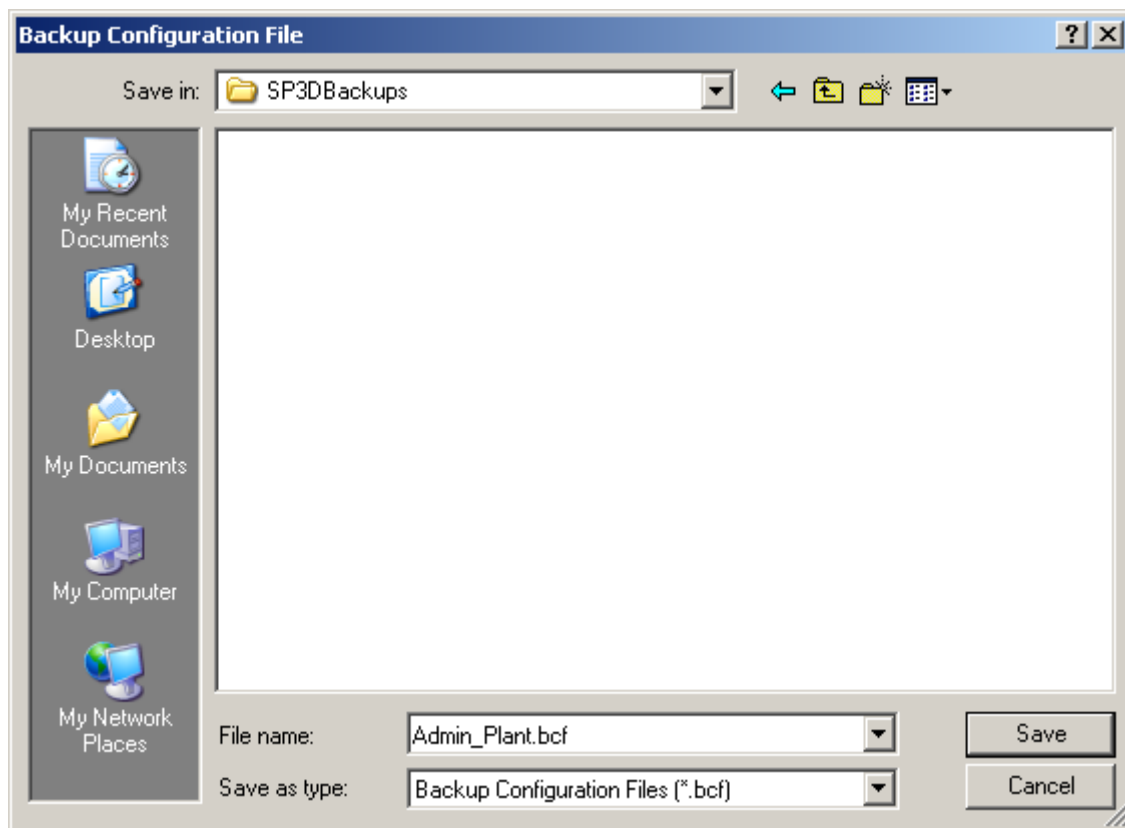
Select server and folder for the site, catalog, and model database backup files:

Server	Save Database Backup Files In
sp3dsuptng	[Text Field]

[OK] [Cancel]

Total database size for selected plant(s): 791357.44 KB

- 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 **SP3DBackups**



5. Click **Save**.
6. Return to **Backup** form and use 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).

Backup [X]

Select plants to back up:

Name	Size	Description
Admin_Plant	791357.44 KB	Administration plant for training

Calculate Size

Select folder and name for backup configuration file:

C:\SP3DBackups\Admin_Plant.bcf ...

(This folder will also be used for the backup log file.)

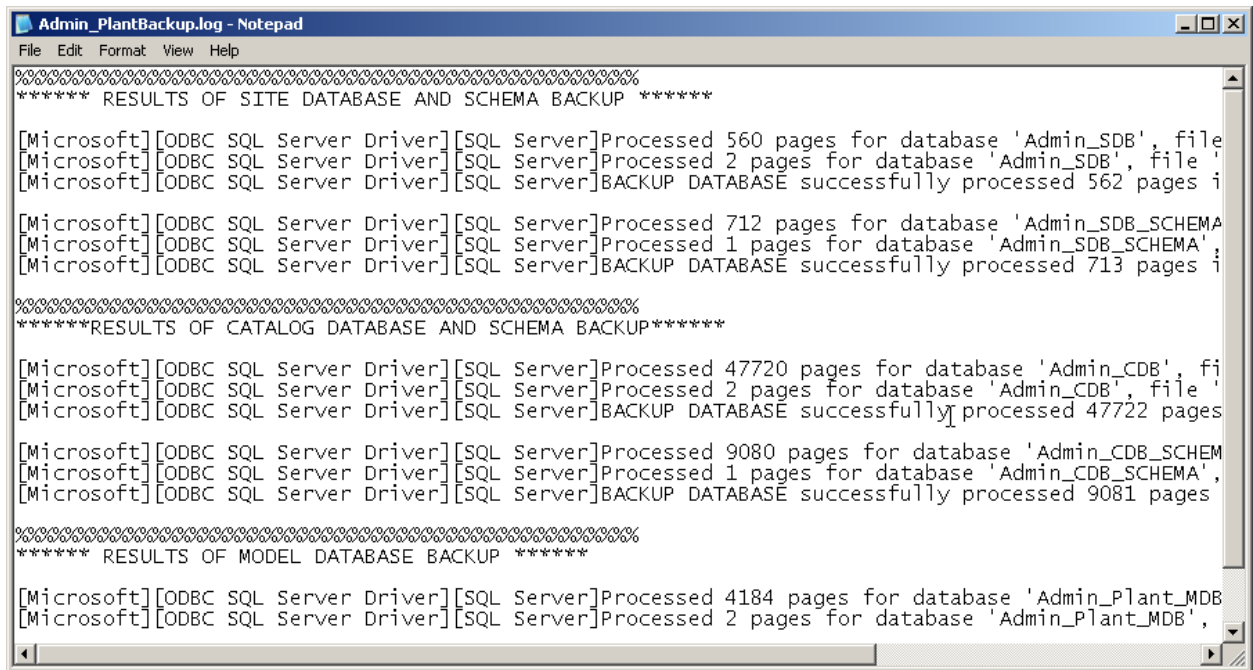
Select server and folder for the site, catalog, and model database backup files:

Server	Save Database Backup Files In
sp3dsuptng	C:\SP3DBackups\

OK Cancel

Total database size for selected plant(s): 791357.44 KB

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)



```
Admin_PlantBackup.log - Notepad
File Edit Format View Help

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
***** RESULTS OF SITE DATABASE AND SCHEMA BACKUP *****

[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 560 pages for database 'Admin_SDB', file '
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 2 pages for database 'Admin_SDB', file '
[Microsoft][ODBC SQL Server Driver][SQL Server]BACKUP DATABASE successfully processed 562 pages i

[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 712 pages for database 'Admin_SDB_SCHEMA
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 1 pages for database 'Admin_SDB_SCHEMA',
[Microsoft][ODBC SQL Server Driver][SQL Server]BACKUP DATABASE successfully processed 713 pages i

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
*****RESULTS OF CATALOG DATABASE AND SCHEMA BACKUP*****

[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 47720 pages for database 'Admin_CDB', fi
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 2 pages for database 'Admin_CDB', file '
[Microsoft][ODBC SQL Server Driver][SQL Server]BACKUP DATABASE successfully processed 47722 pages

[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 9080 pages for database 'Admin_CDB_SCHEM
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 1 pages for database 'Admin_CDB_SCHEMA',
[Microsoft][ODBC SQL Server Driver][SQL Server]BACKUP DATABASE successfully processed 9081 pages

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
***** RESULTS OF MODEL DATABASE BACKUP *****

[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 4184 pages for database 'Admin_Plant_MDB
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 2 pages for database 'Admin_Plant_MDB',
```

9. **Close** log file

10. Click **X** button on top right, or **Cancel** button on the Backup form to return to **Project Management**.

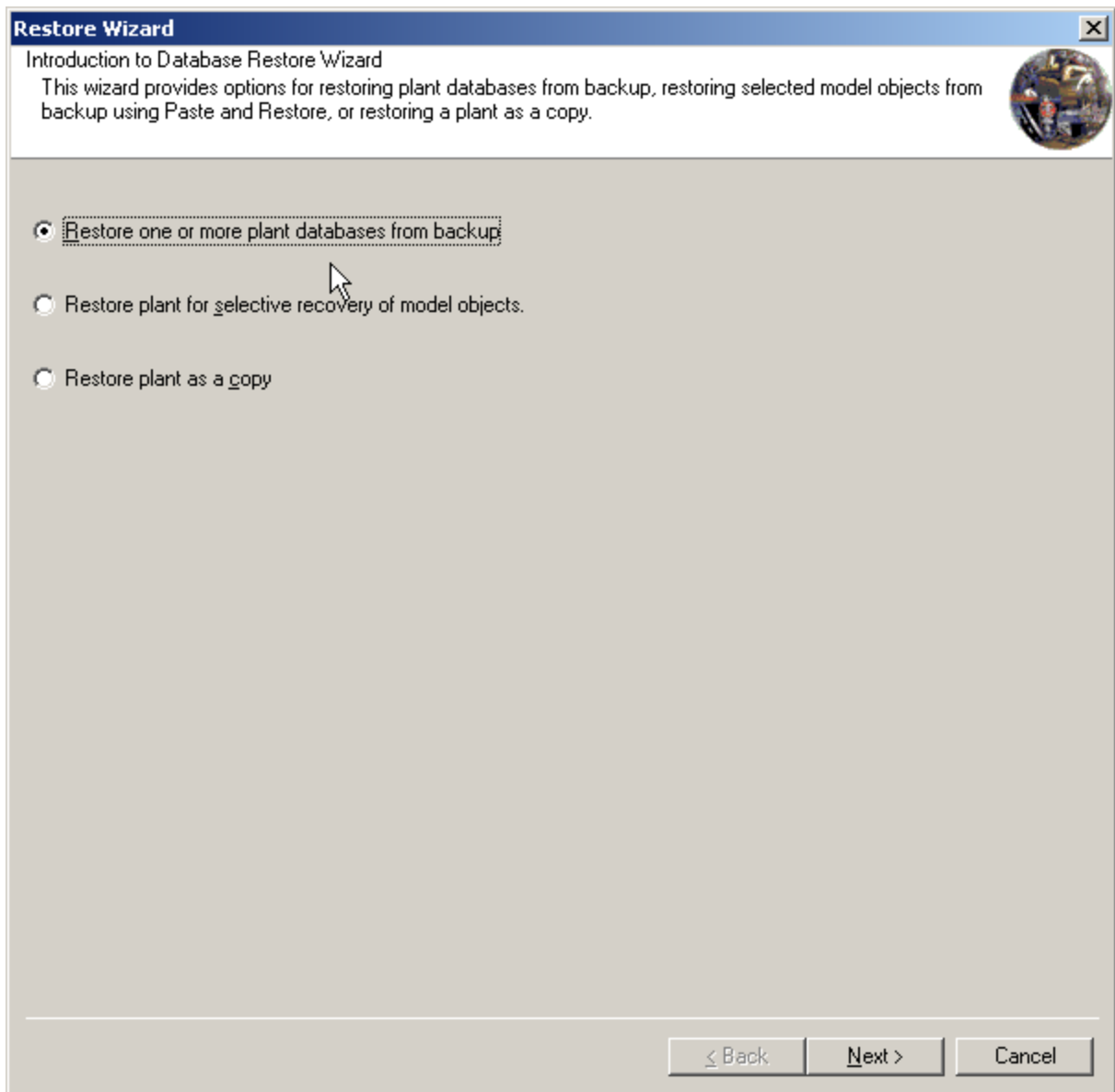
Note: The Backup log report is different for Oracle based projects.

LAB 5: Restoring a Plant Database

(Restore Option 1)

Note: Option 1 is “Restore one or more plant databases from backup” The intent of this command is to restore a Plant 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.

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



3. Choose option **Restore one or more plant databases from backup**. This will restore **OVER THE EXISTING** plant database and it will only work if plant already exists in the Site and Site_Schema databases (plant must be listed under Plants 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:

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

Restore Wizard

Restore Plants from Backup
Select the configuration file and then select one or more plants to restore from backup. The existing database backup files may exist on multiple servers and paths.

Backup configuration file to restore:
C:\SP3DBackups\Admin_Plant.bcf

Plants to restore:

Name	Size	Date of Backup
Admin_Plant	772.81KB	4/27/2009 10:11:41 ...

Server and path to existing database backup files:

Server	Database Backup Files Path
sp3dsuptng	C:\SP3DBackups\

Paths for new databases:

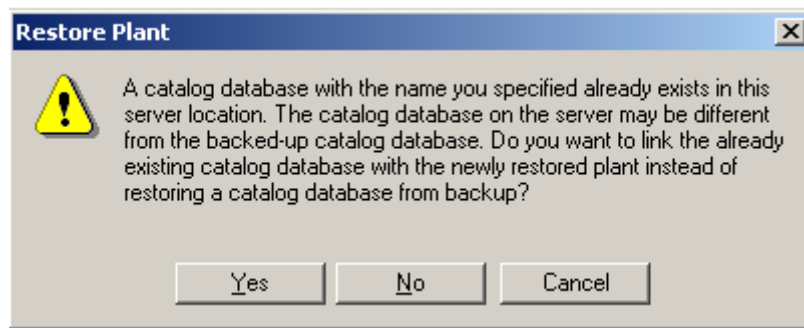
Type	Server	Database Path	Log Path
Catalog	sp3dsuptng	C:\Program Files\Microsoft SQL Ser	C:\Program Files\Microsoft SQL Ser
Model	sp3dsuptng	C:\Program Files\Microsoft SQL Ser	C:\Program Files\Microsoft SQL Ser

Symbol and custom program file location:
\\sp3dsuptng\symbols

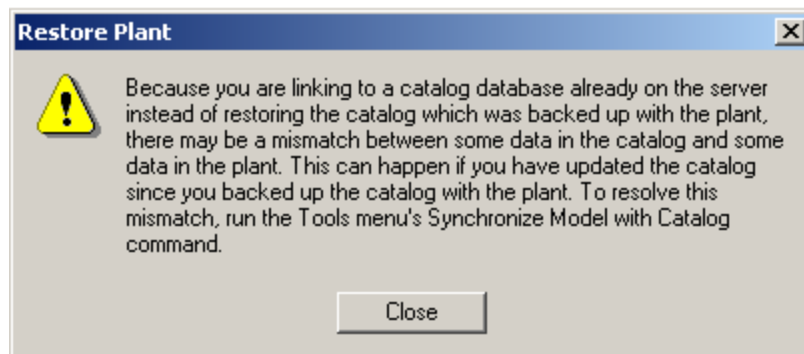
Name generator server for plant:
sp3dsuptng

≤ Back Finish Cancel

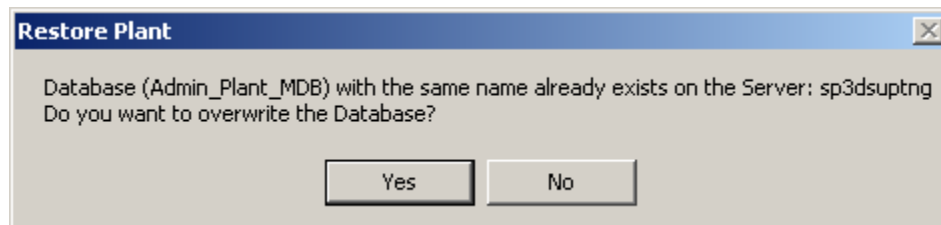
6. Click **Finish**
7. Because Catalog database already exists on the server, you have two options in this restore mode. You can either leave the existing Catalog in place (linking it) or overwrite it from the backup. Because there have not been any changes to the Catalog, the logical choice would be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



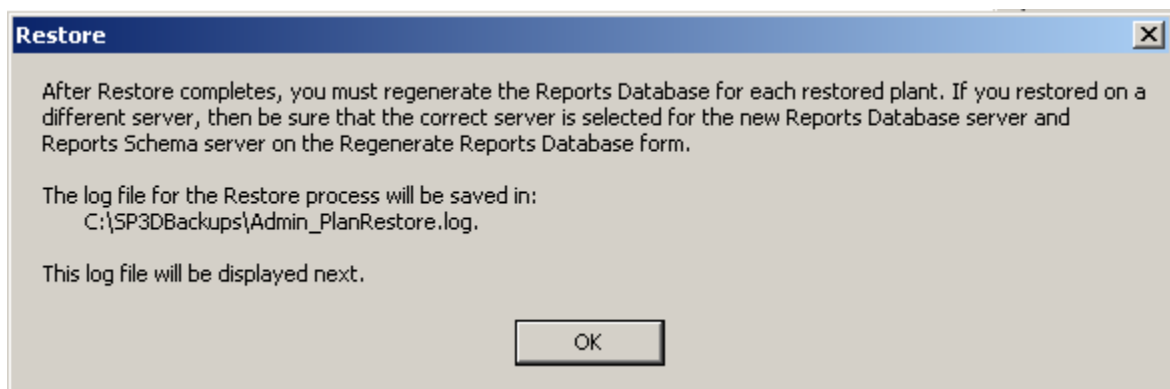
8. Click **Yes**
9. An additional warning message will be displayed.



10. Click **Close** button (we will not be required to run Synchronization at this time because the Catalog have 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**.



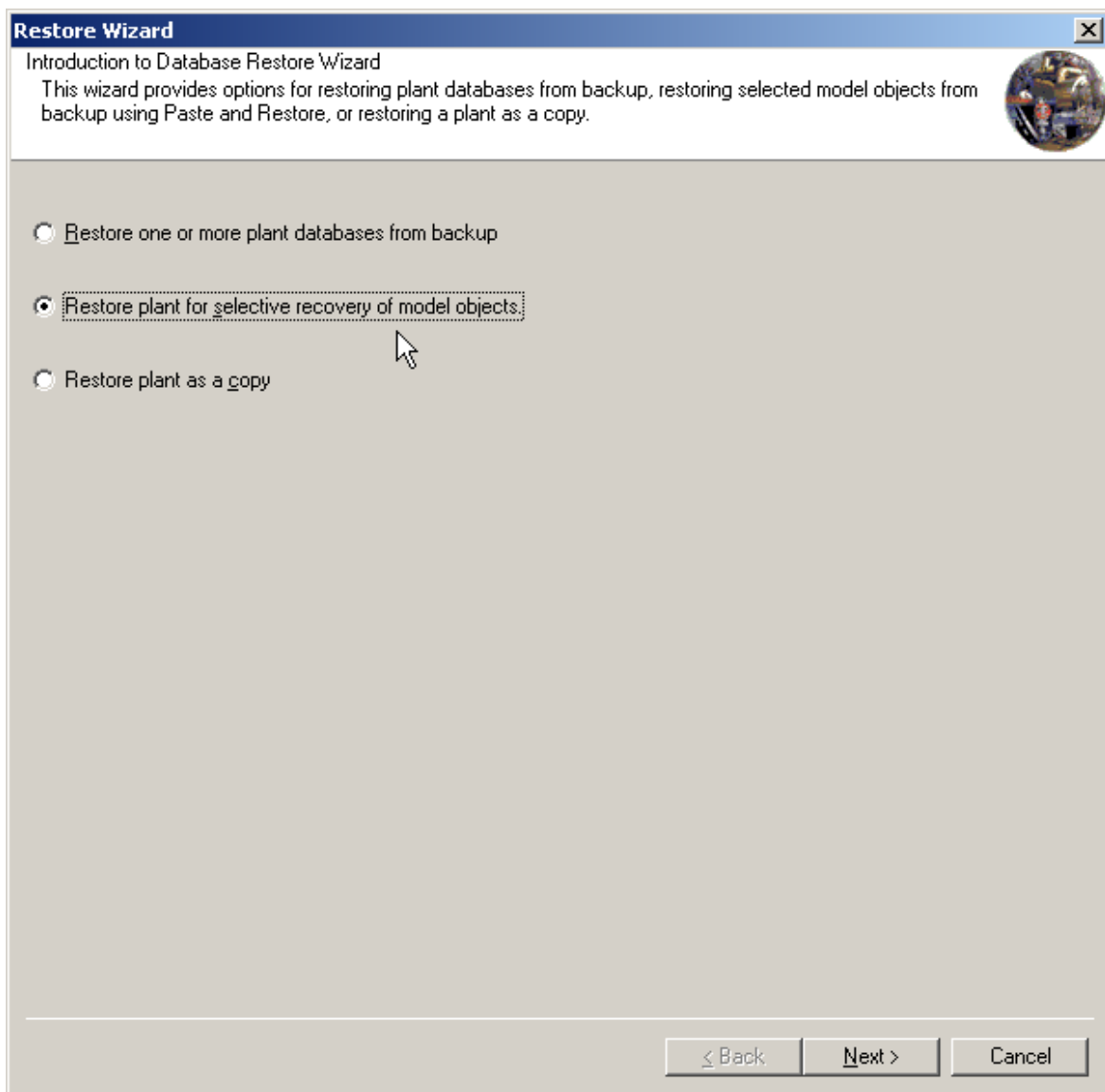
14. **Repeat** the process described in steps 1-13 but this time, choose to restore over the Catalog Database.

LAB 6: Restoring a Plant Database

(Restore Option 2)

Note: Restore Option 2 is “Restore plant for selective recovery of model objects” The intent with this command 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 **Tools** menu select **Restore...**



3. Select option **Restore plant for selective recovery of model objects**
4. Click **Next**
5. **Complete** the form as depicted below by identifying the **backup configuration file** (*.bcf), **Backup file path** and **Catalog and Model** names/location.

Restore Wizard

Restore Plant for Selective Recovery of Model Objects
Select the configuration file and then select a plant to restore. The existing backup database files may exist on multiple servers and paths. Once restored, users can use the SmartPlant 3D Copy and Paste as Restore commands to recover selected objects.

Backup configuration file to restore:
C:\SP3DBackups\Admin_Plant.bcf

Plant to restore:

Name	Size	Date of Backup
Admin_Plant	772.81KB	4/27/2009 10:11:41 ...

Server and path to existing database backup files:

Server	Database Backup Files Path
sp3dsuptng	C:\SP3DBackups

Paths for new databases:

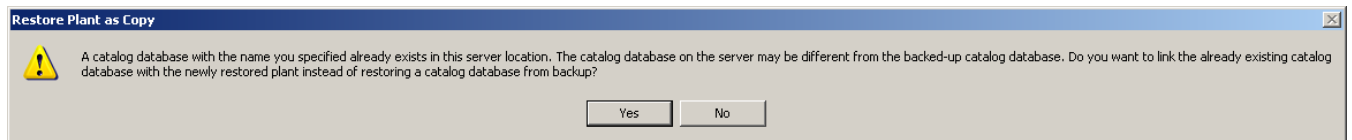
Type	Server	Database Name	Database Path	Log Path
▶ Catalog	sp3dsuptng	Admin_CDB	C:\Program Files\Micros	C:\Program Files\Micros
Model	sp3dsuptng	Admin_Plant_1_42709	C:\Program Files\Micros	C:\Program Files\Micros

New plant name: Admin_Plant_1_42709

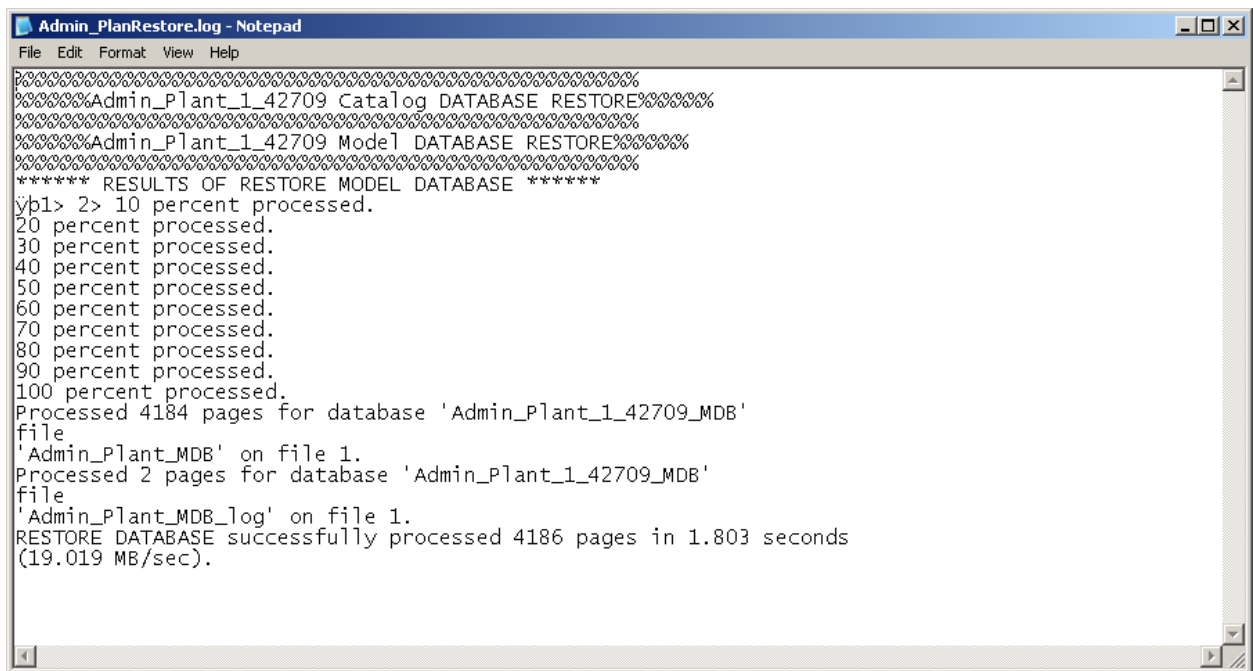
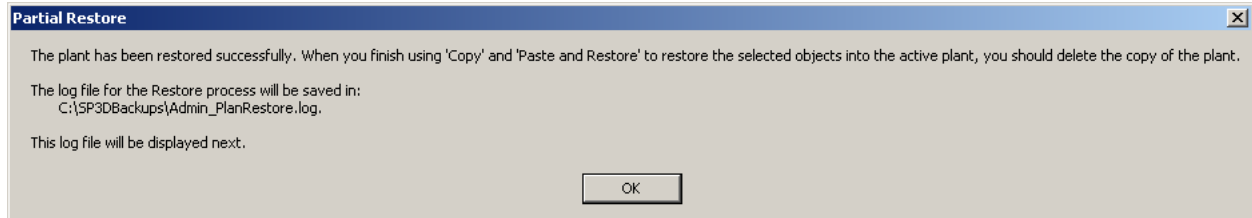
Description: This is a restored Model using option number 2

≤ Back Finish Cancel

6. Note that New plant name would contain current date (04-27-2009 in the screenshot above). Provide a description that is meaningful to you.
7. Click **Finish**
8. Indicate that you would like to link to the existing Catalog by selecting **Yes**



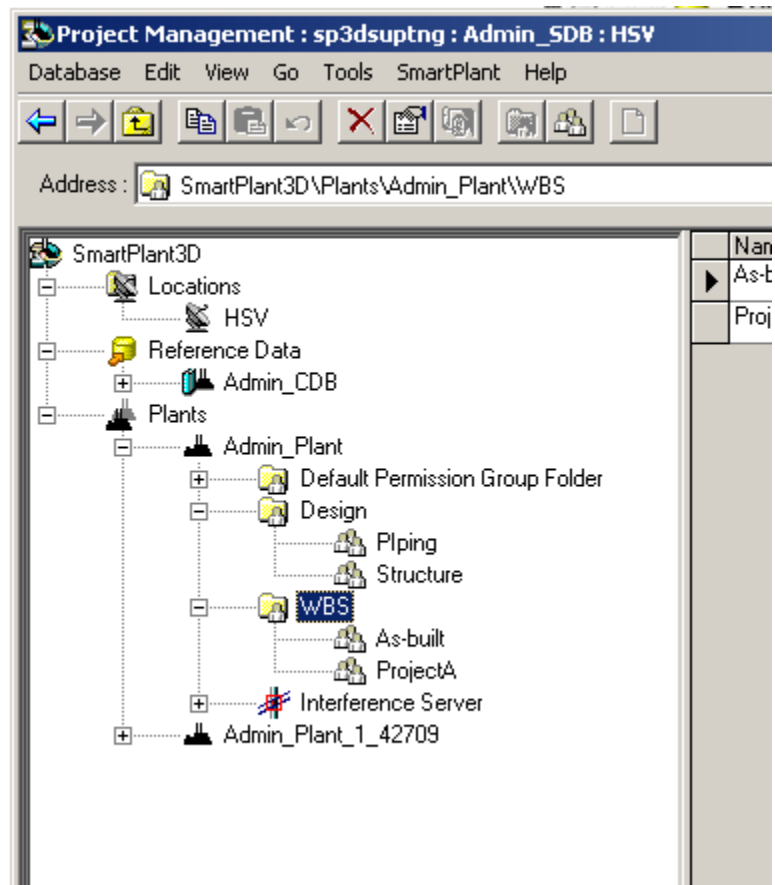
9. Click **OK**. Once again, you may want to review the restore log file:



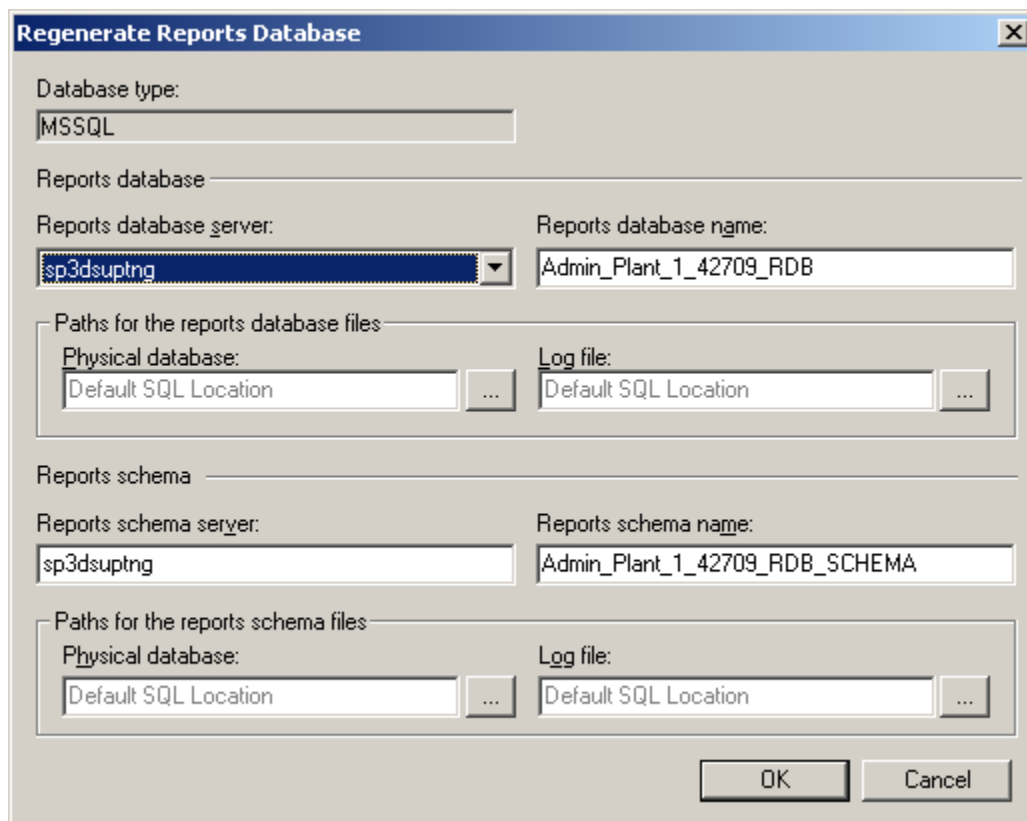
Note: For Oracle based projects, the restore log file will look different than the screenshot above.

10. **Close Restore Wizard form.**

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



12. Typically, you would follow this type of operation by restricting access to permission groups in the restored Plant. 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 Plant.
13. **Right mouse click** on the newly restored plant and select **Regenerate Report database** (as the restored plant is actually making use of the pre-existing Report databases for the initial plant).



Regenerate Reports Database

Database type:

Reports database

Reports database server:

Reports database name:

Paths for the reports database files

Physical database:
 ...

Log file:
 ...

Reports schema

Reports schema server:

Reports schema name:

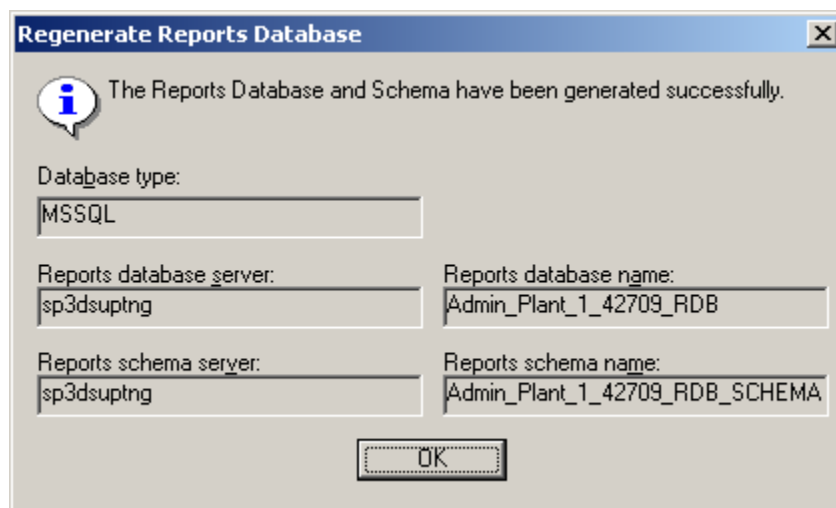
Paths for the reports schema files

Physical database:
 ...


Log file:
 ...

OK Cancel

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



Regenerate Reports Database

 The Reports Database and Schema have been generated successfully.

Database type:

Reports database server:

Reports database name:

Reports schema server:

Reports schema name:

OK

15. Click **OK** to dismiss dialog box

16. The database can now be used for recovery of objects operations, had this been a live project.

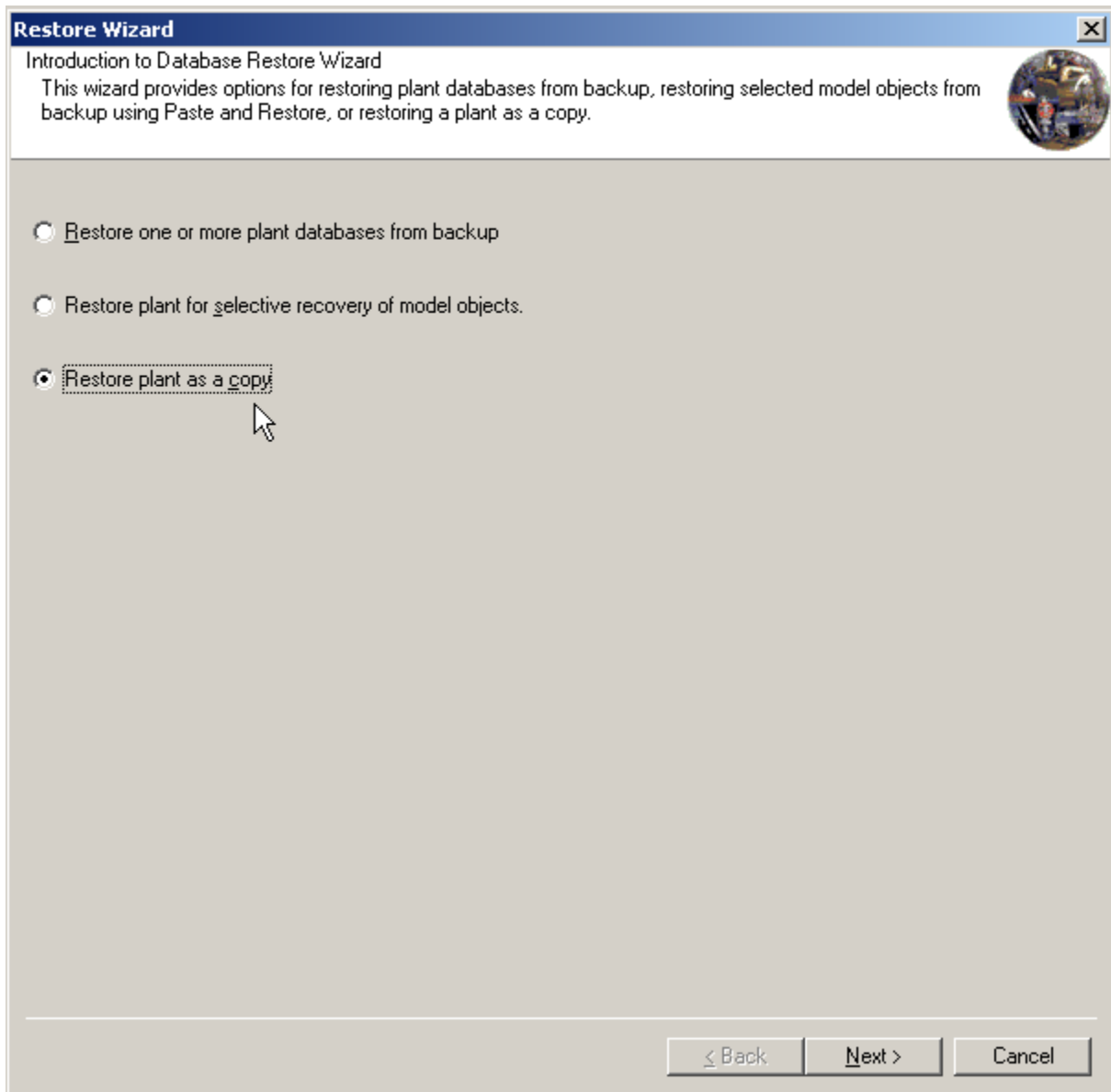
Note: The workflow to recover objects from a previous backup of the plant may involve one of two methods, first there is “Copy/Paste Restore” procedure between two sessions, or the use of Model Data Reuse command found in Project Management.

LAB 7: Restoring a Plant Database

(Restore Option 3)

Note: Option 3 is represented by the restore option “Restore plant as a copy” This method is generally used to restore a plant that does not exist in the current Site database set, or to duplicate a Plant (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 Plant to exist in the Site database.

1. Start **Project Management** if not already open
2. From the **Tools** → **Restore** command select the third option as captured below:



3. Click **Next**

Note: Your instructor will provide you location of training plant, *.bcf and backup files before you continue on to step 4.

4. The form works much the same way as it has before for restore option 1 and option 2. Complete the form as depicted below by keying in a New plant name, locating the .bcf and backup files; choosing the Catalog name, and the Model name.

Restore Wizard

Restore Plant as Copy
Select the configuration file and then select a plant to restore as a copy. The existing database backup files may exist on multiple servers and paths.

New plant name: Description:

Backup configuration file to restore:

Plant to restore:

Name	Size	Date of Backup
SP3DTrain	629.81KB	4/7/2009 8:47:29 PM

Server and path to existing database backup files:

Server	Database Backup Files Path
sp3dsuptng	C:\Training_Plant\

Paths for new databases:

Type	Server	Database Name	Database Path	Log Path
Catalog	sp3dsuptng	SP3DTrain_CDB	C:\Program Files\Micros	C:\Program Files\Micros
Model	sp3dsuptng	SP3DTrain_MDB	C:\Program Files\Micros	C:\Program Files\Micros

Symbol and custom program file location:

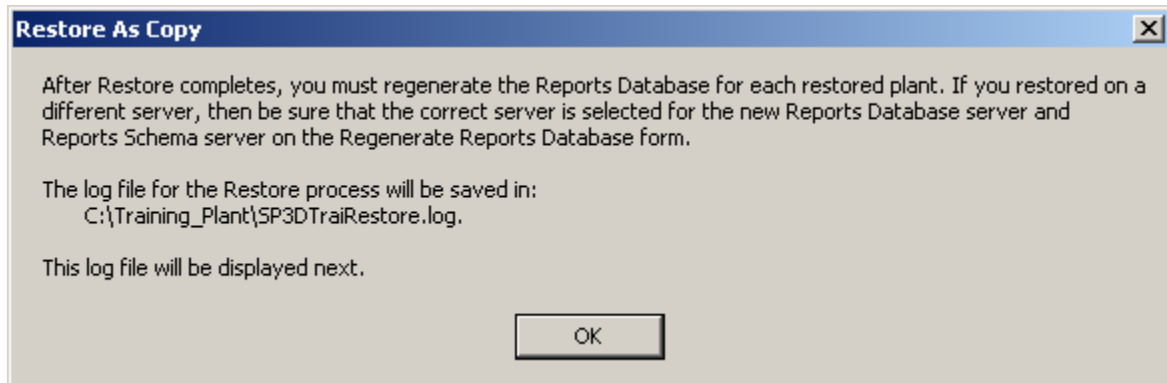
Name generator server for plant:

≤ Back Finish Cancel

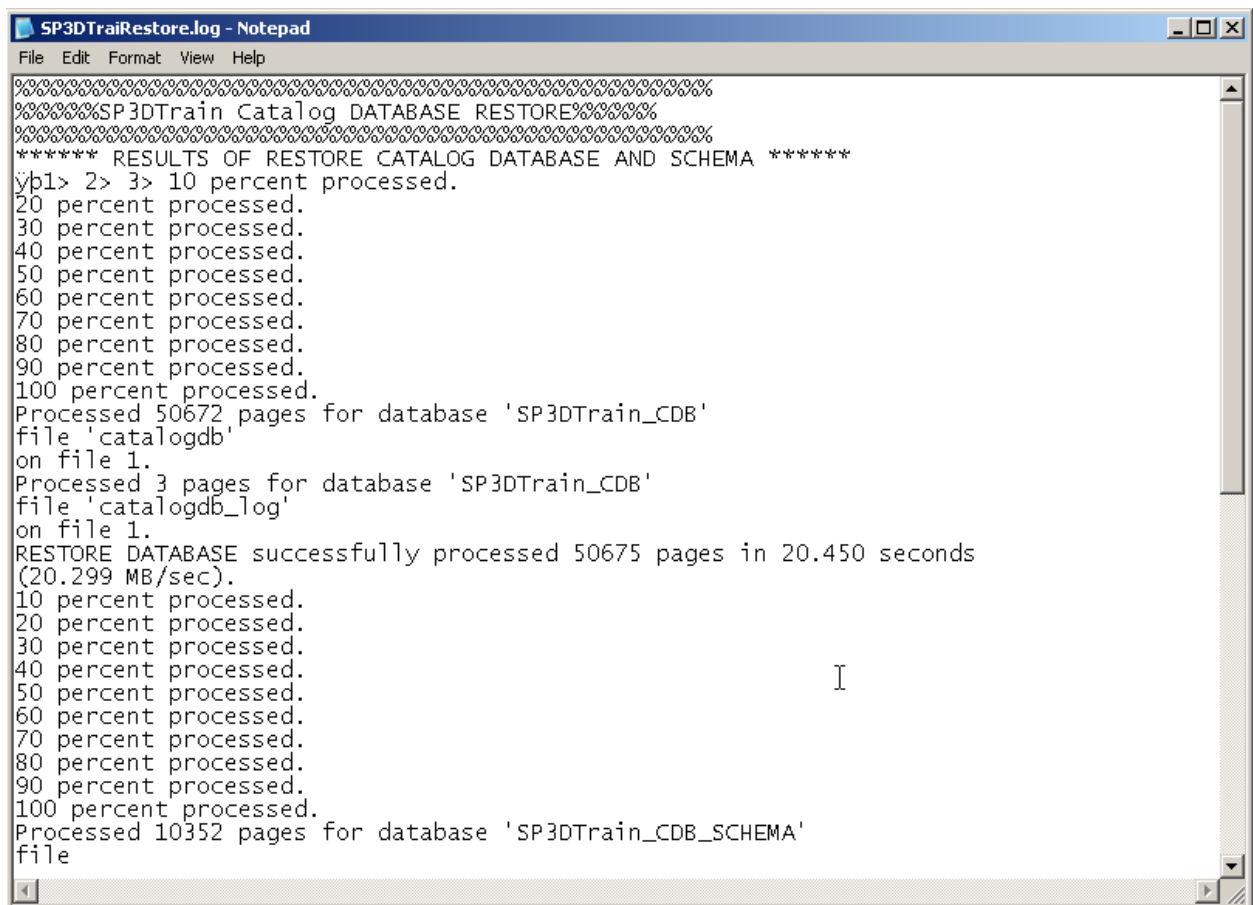
5. Click **Finish**.

Note: You will not be prompted to link to 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 server).

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

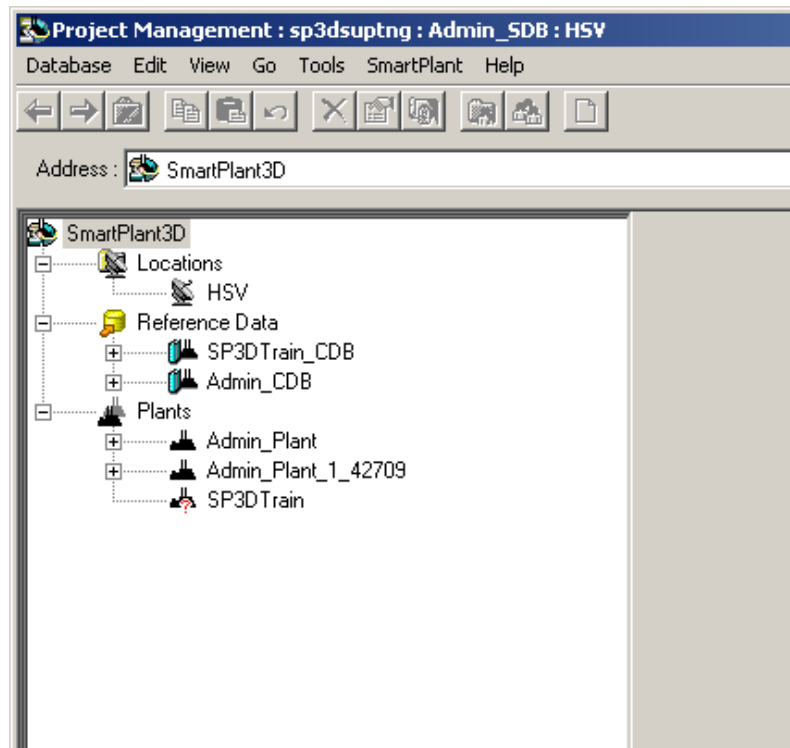


7. **Review** log file to verify restore operation's integrity.

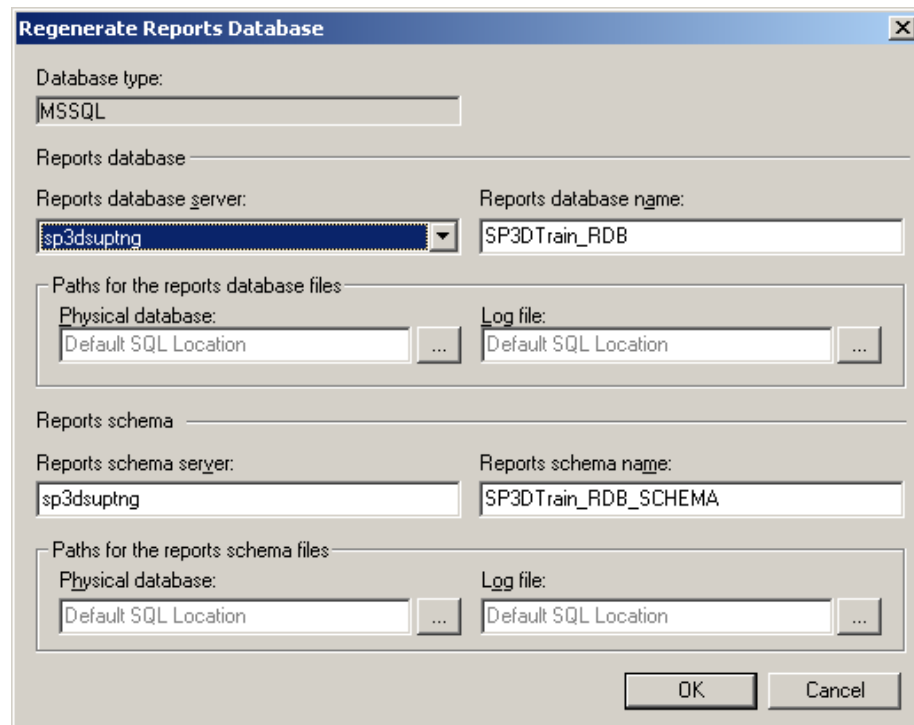


8. **Close** restore form when completed.

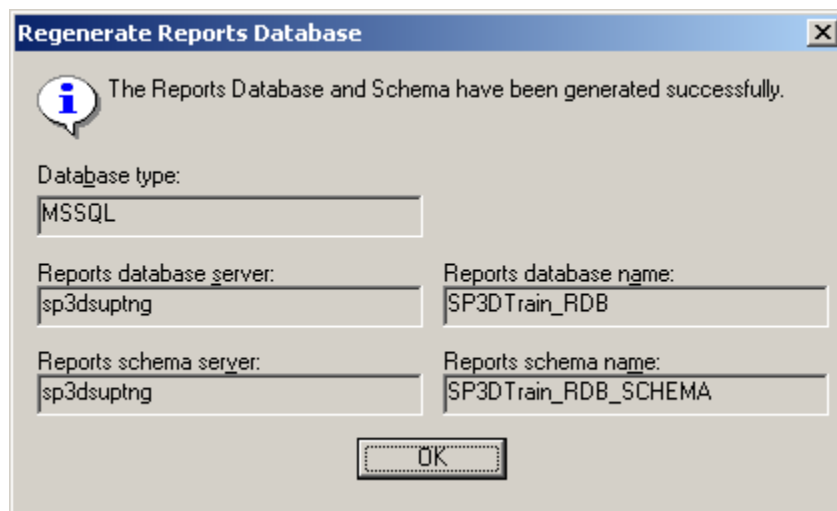
9. Note there are two catalogs and three plants. The question mark next to SP3DTrain plant is an indication that Reports databases have not been regenerated.



10. Right mouse click on SP3DTrain plant and select **Regenerate Reports Databases**.



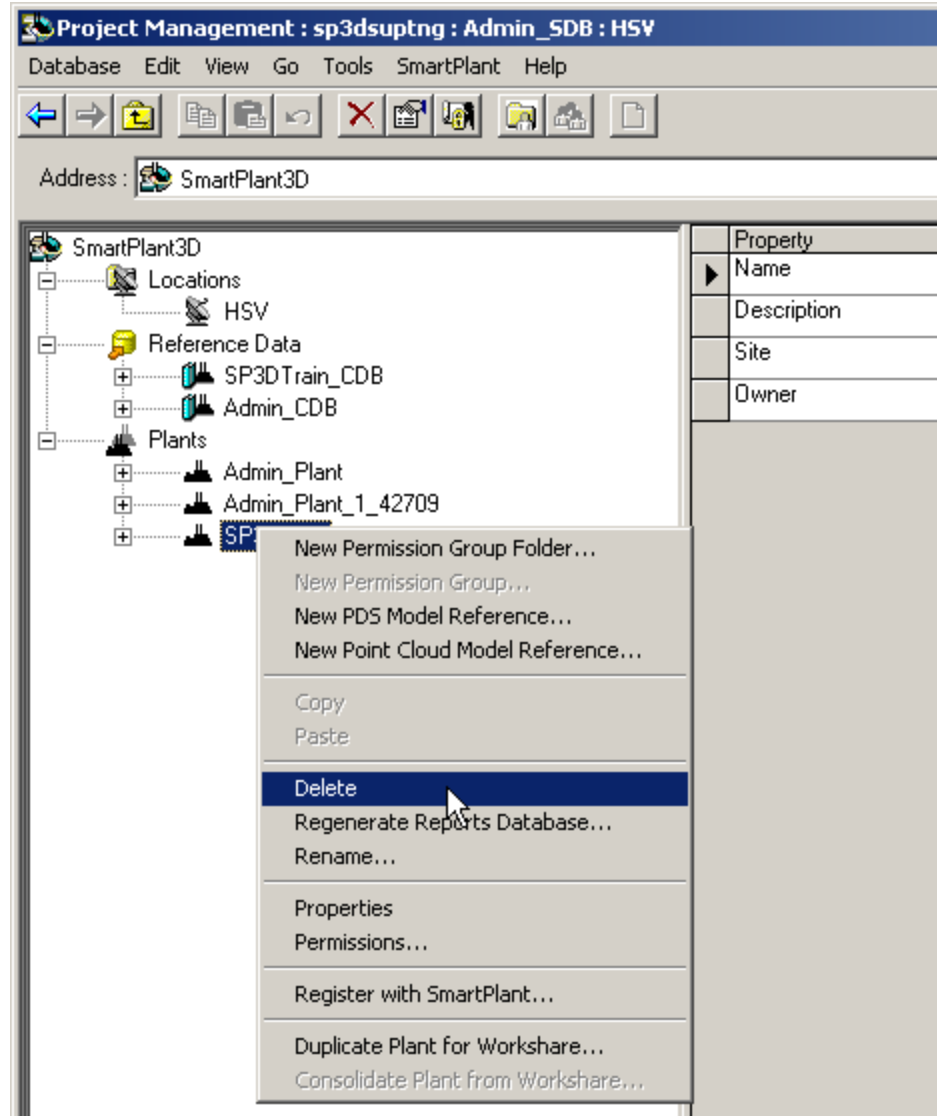
11. Click **OK**.



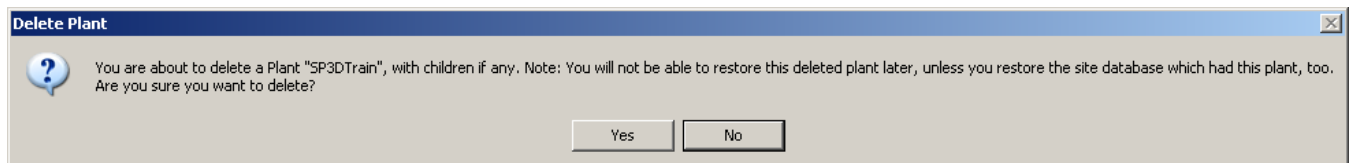
12. Click **OK**

LAB 8: Deleting a Plant

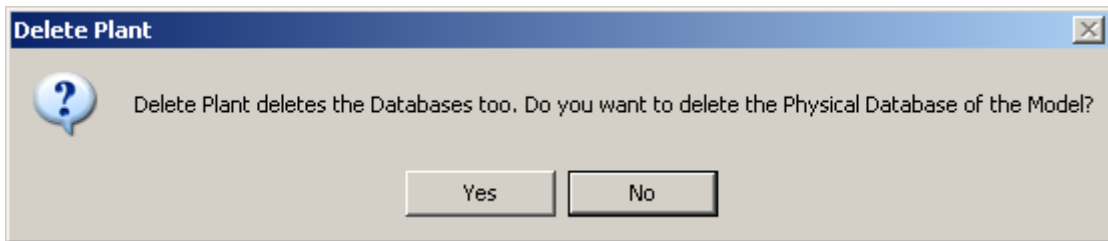
1. Start **Project Management** if not already open
2. Right mouse click on **SP3DTrain** plant and select **Delete**.



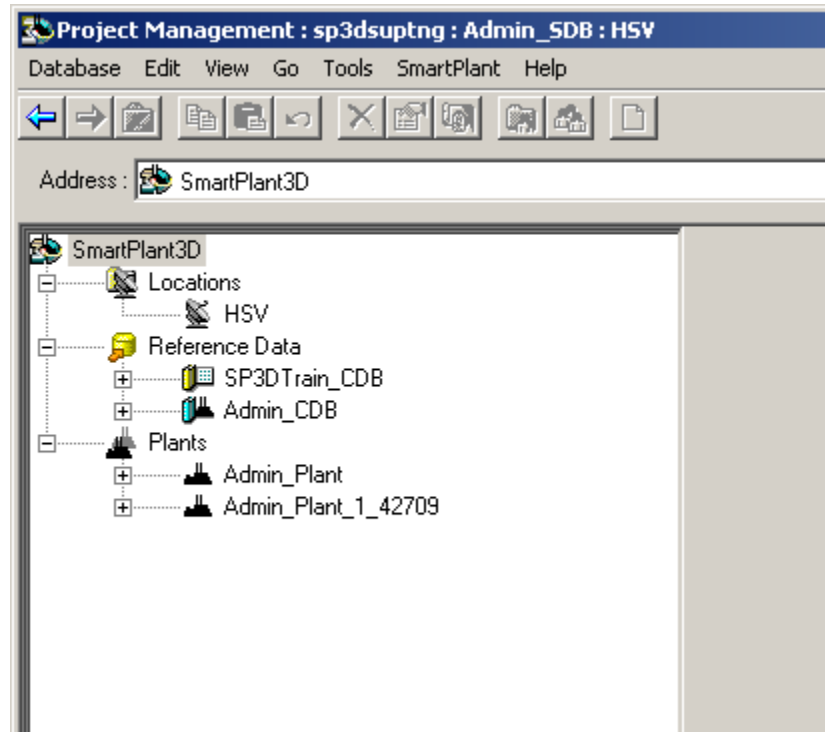
3. Deleting the plant will effectively remove its pointer from the Site database. Click **Yes**



4. Select **Yes** on next form to delete physical database files, this allows to release hard drive space on database server:



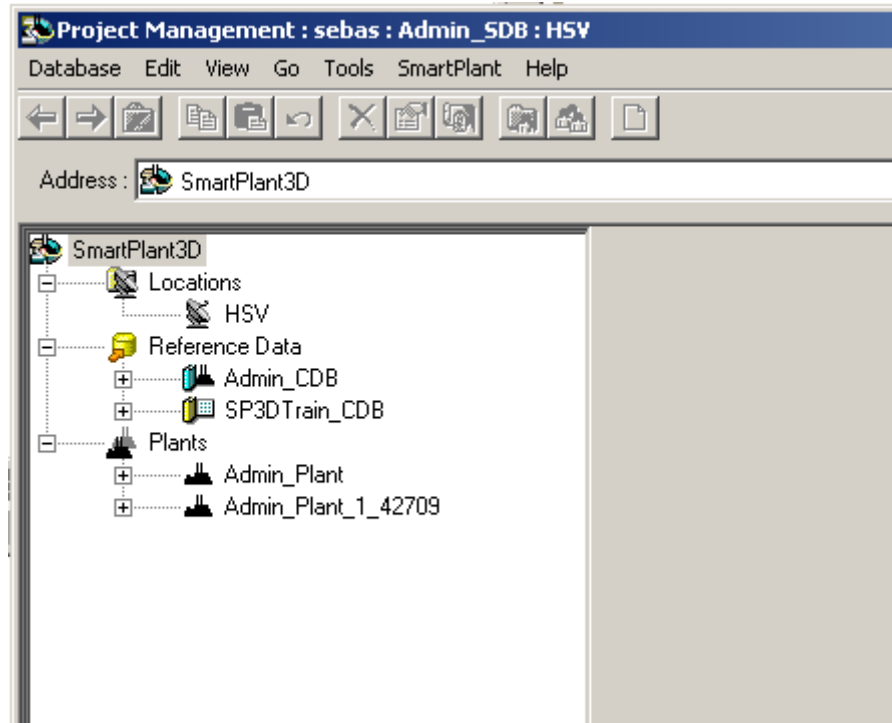
5. Note the Plant has been removed from the hierarchy but Catalog still remains.



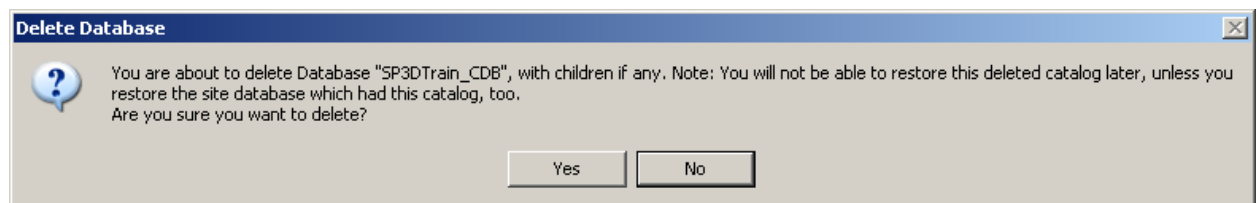
Note: SP3DTrain_CDB database still remains; it can be deleted as it is no longer associated to any plant, or it can be used with a new plant by running Database → New → Plant... command.

LAB 9: Deleting a Catalog

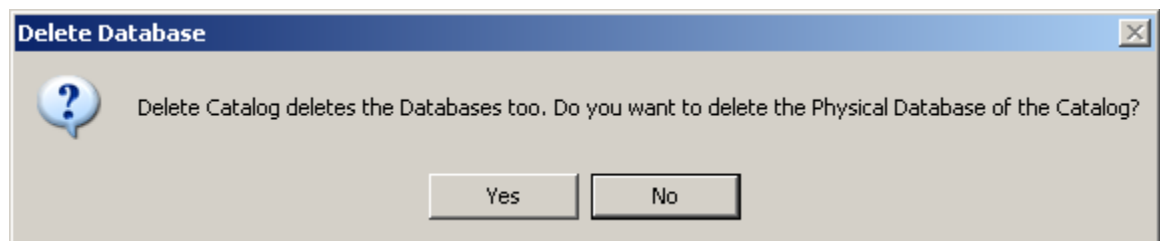
1. Catalog databases can only be deleted if there are no plants associated to them. Deletable catalogs can be recognized by a yellow mini book icon in Project Management hierarchy.



2. Right click on **SP3DTrain_CDB** Catalog and select **Delete**



3. As with deleting plants, the software will prompt for confirmation, select **Yes**



4. Select **Yes**.

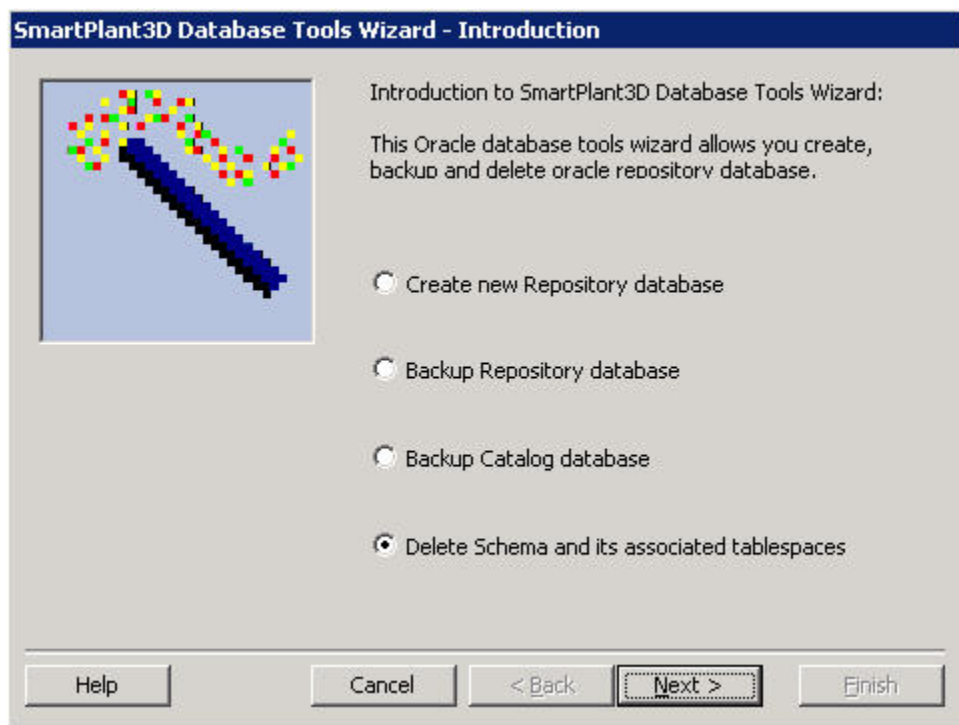
5. Try to delete the Catalog database named Admin_CDB and note the results.

Note for Oracle based projects:

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

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

- Open the Oracle Database Tools Wizard for SmartPlant 3D
- On the Introduction page, select Delete Schema databases and associated tablespaces, and then click Next
- Select the schemas to delete and click Finish.



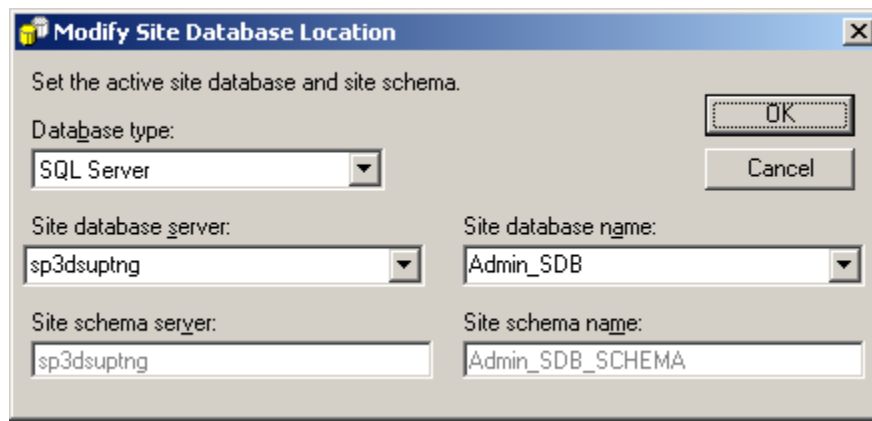
Note: This process may take some time to complete (approximately from 5 to 10 minutes per database), depending on the quantity of databases to process and performance/load factors of the server. The Wizard window may at some time, look like it is hanged, do not kill it and wait for it to complete (It'll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

LAB 10: Manual Creation of System Hierarchy

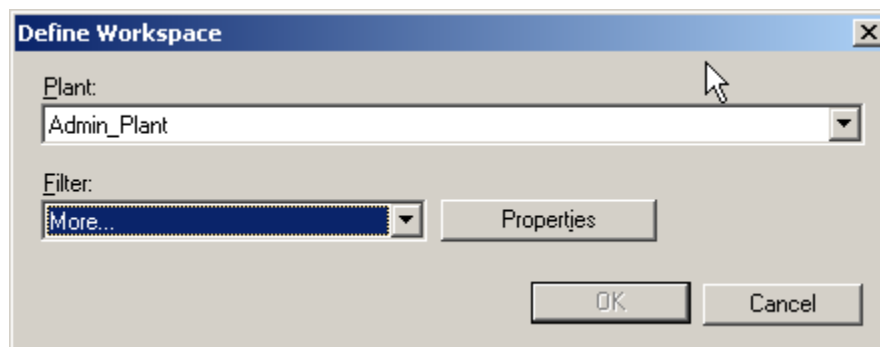
Objectives

After completing this lab, you will be able to:

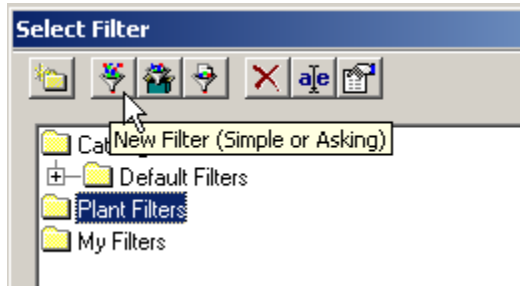
- Create a systems hierarchy in a new plant.
1. Set site database to **Admin_SDB** using Modify Site Database Location utility following Start > All Programs > Intergraph SmartPlant 3D > Database Tools > **Modify Database And Schema Location**



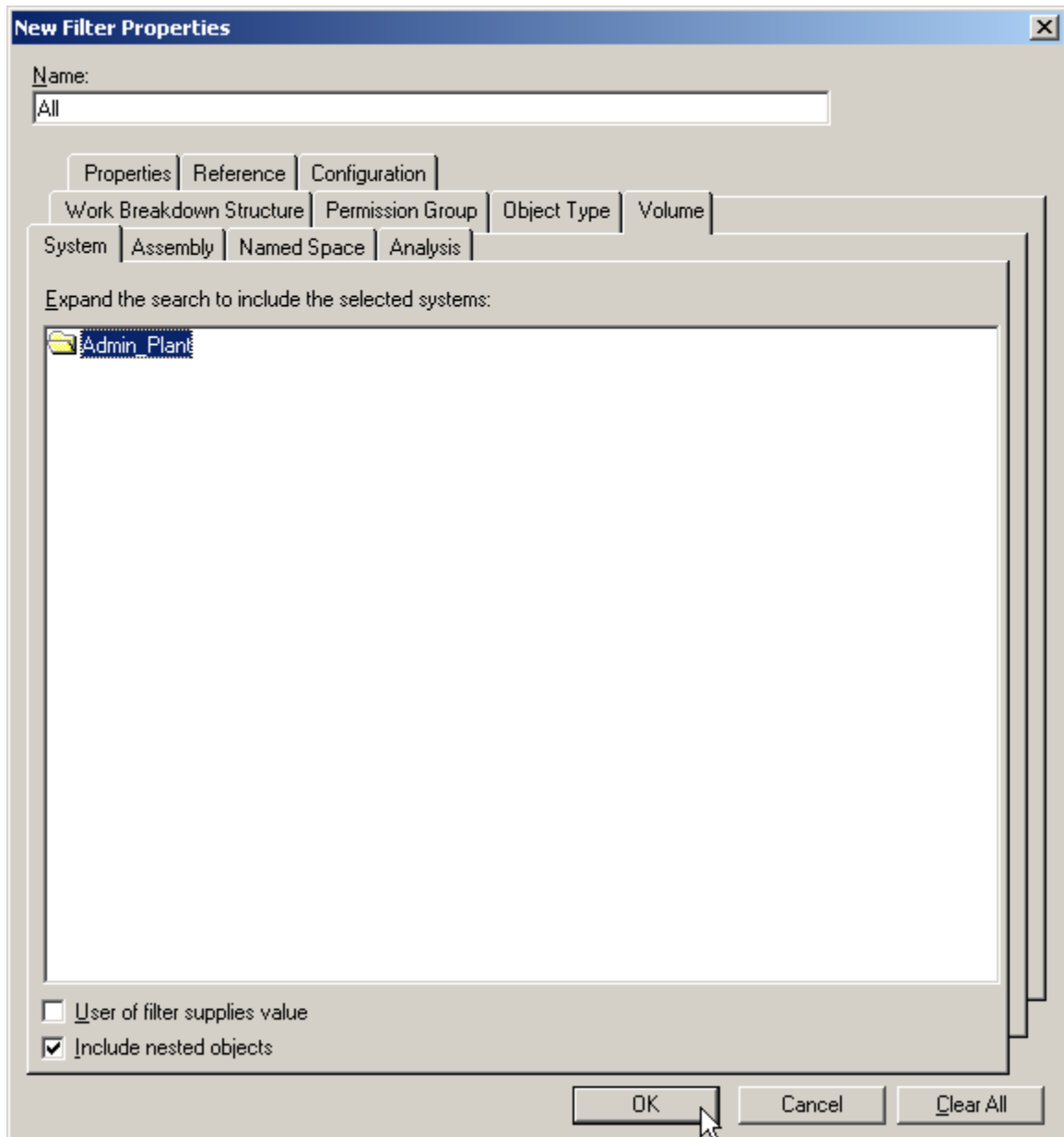
2. Open **SmartPlant 3D**, when prompted, select either English or Metric units **template**
3. Go to File > **Define Workspace**
4. From the plant drop down list, select **Admin_plant** and on the filter drop down list click **More...** to create a filter.



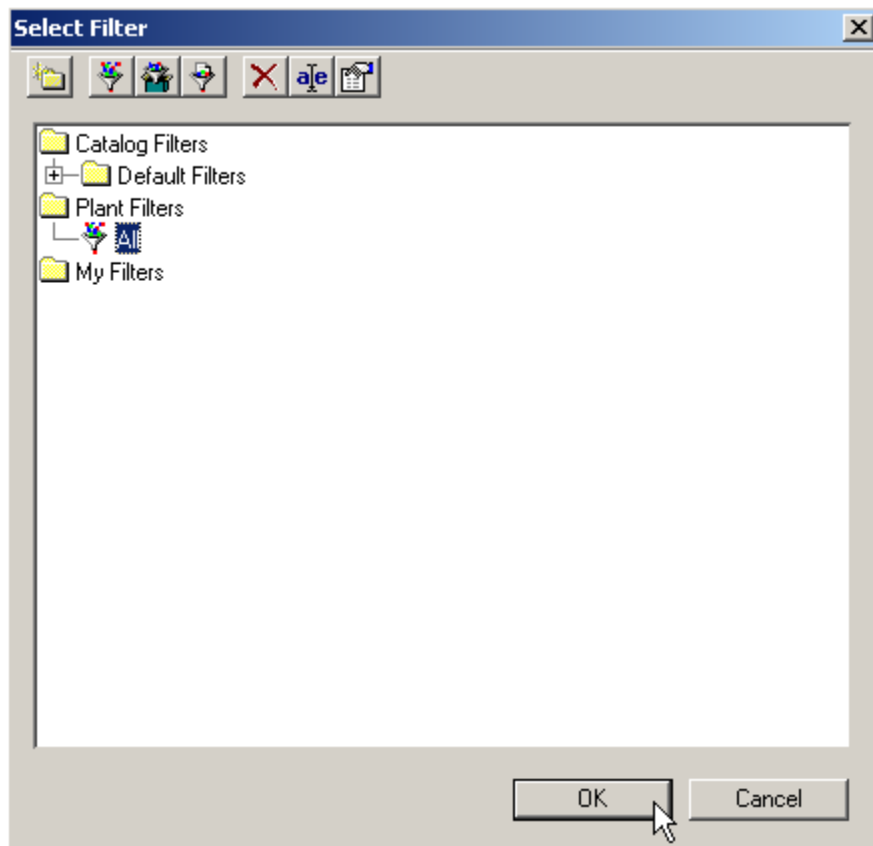
5. Highlight **Plant Filters** node and click **New Filter** button at the top of the form



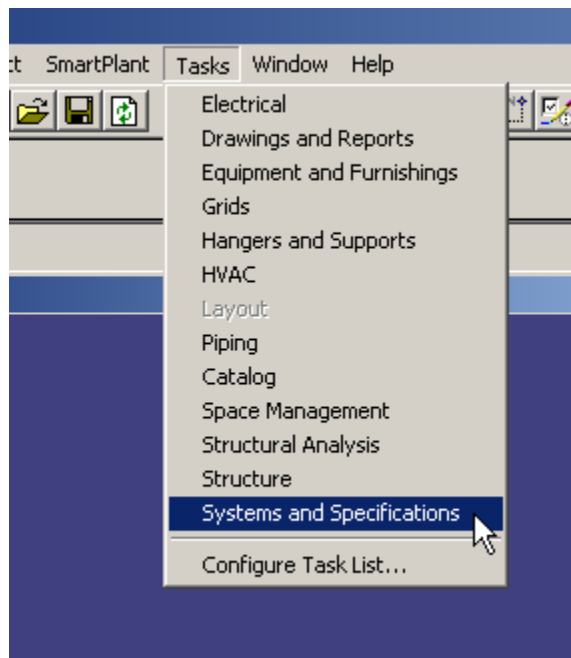
6. In the form that opens up, type **All** as filter name
7. In **System** tab, highlight **Admin_Pant**, and click **OK** to the form

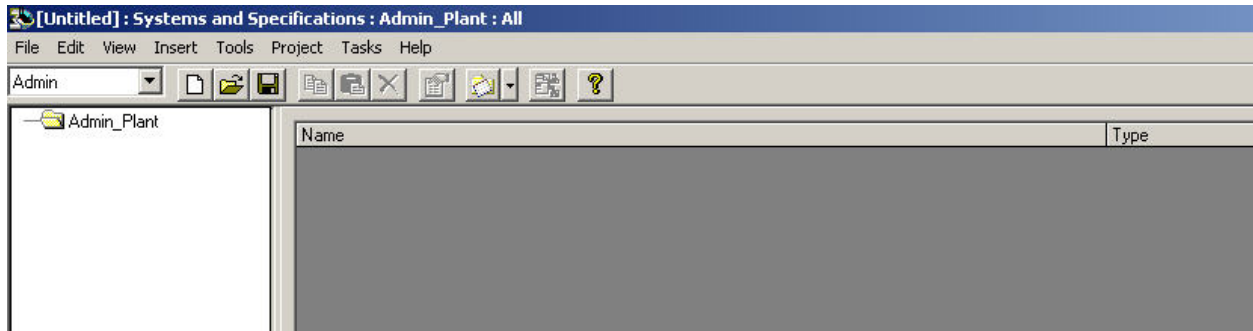


8. Select the newly created filter **All** and click **OK**



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

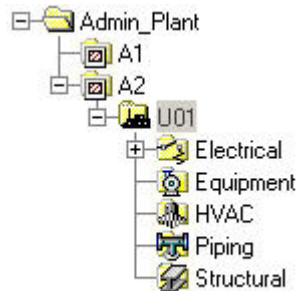




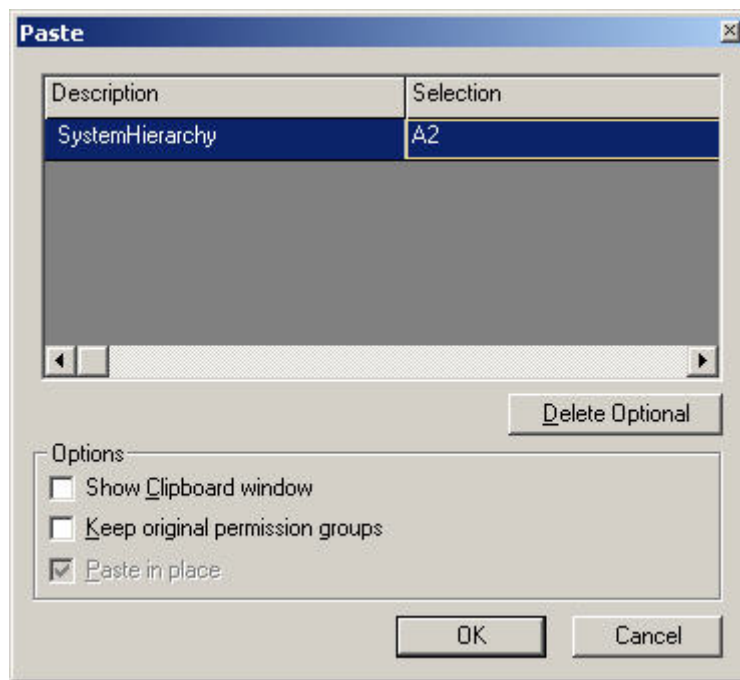
11. Right click on **Admin plant** root level and select New System > **New Area System**
12. Name the new area **A1**
13. Right click **Admin plant** root level and select New System> **New Area System**
14. Name the new area **A2**
15. Right click on area **A2** and select New System > **New Unit System** to create unit **U01**



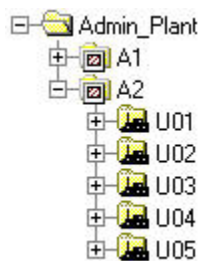
16. Right click on unit **U01** and select New System > **New Electrical System** click **OK** on the form. Use properties page dialog to rename the new system to **Electrical**
17. Likewise create the following **systems** in U01:



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



24. Select option **Keep original permission groups** and click **OK**
25. Rename the new unit from U01(2) to **U02**.
26. Repeat the unit Paste and rename procedure to create **units 3 - 5**



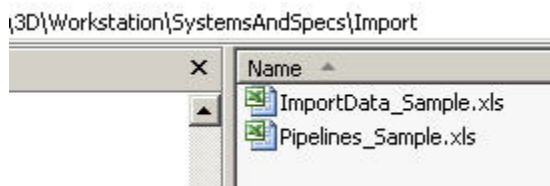
LAB 11: Import Creation of System Hierarchy

Objectives

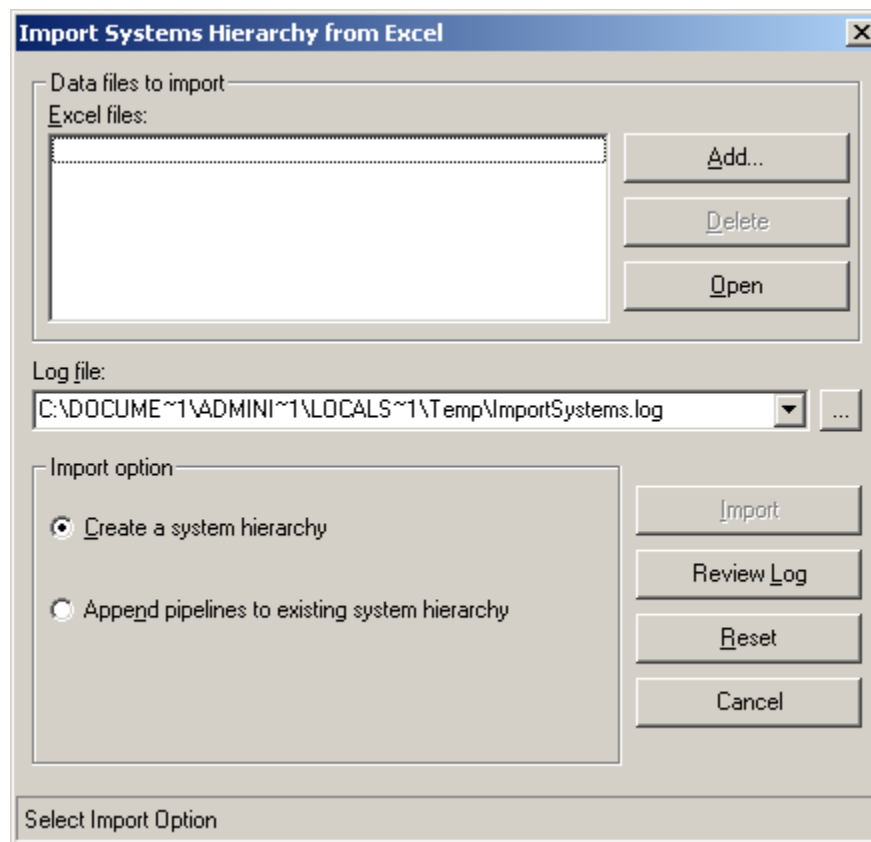
After completing this lab, you will be able to:

- Create a systems hierarchy in a new plant by import.
1. Copy the sample system import workbook “ImportData_Sample.xls” from the delivery location to a different folder.

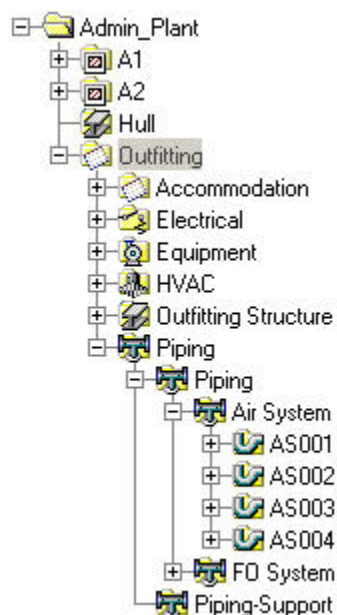
Note: The software delivers two sample Excel files, ImportData_Sample.xls and Pipelines_Sample.xls to [Product Directory]\SystemsAndSpecs\Import as part of default client setup.



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 **SmartPlant 3D** if not already open,
7. Define a workspace and select **All** filter created in lab 10
8. go to **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. Close Import dialog box when command has finished (see status bar of the form).
12. Review system hierarchy. The new systems should appear in their assigned position.
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 active permission group selected during import command execution.

Note: The example hierarchy included in ImportData_Sample.xls workbook was created for SmartMarine 3D software; Hull and Outfitting are marine terms, but this should not affect applicability with SmartPlant 3D.

LAB 12: Assign Specifications to Systems

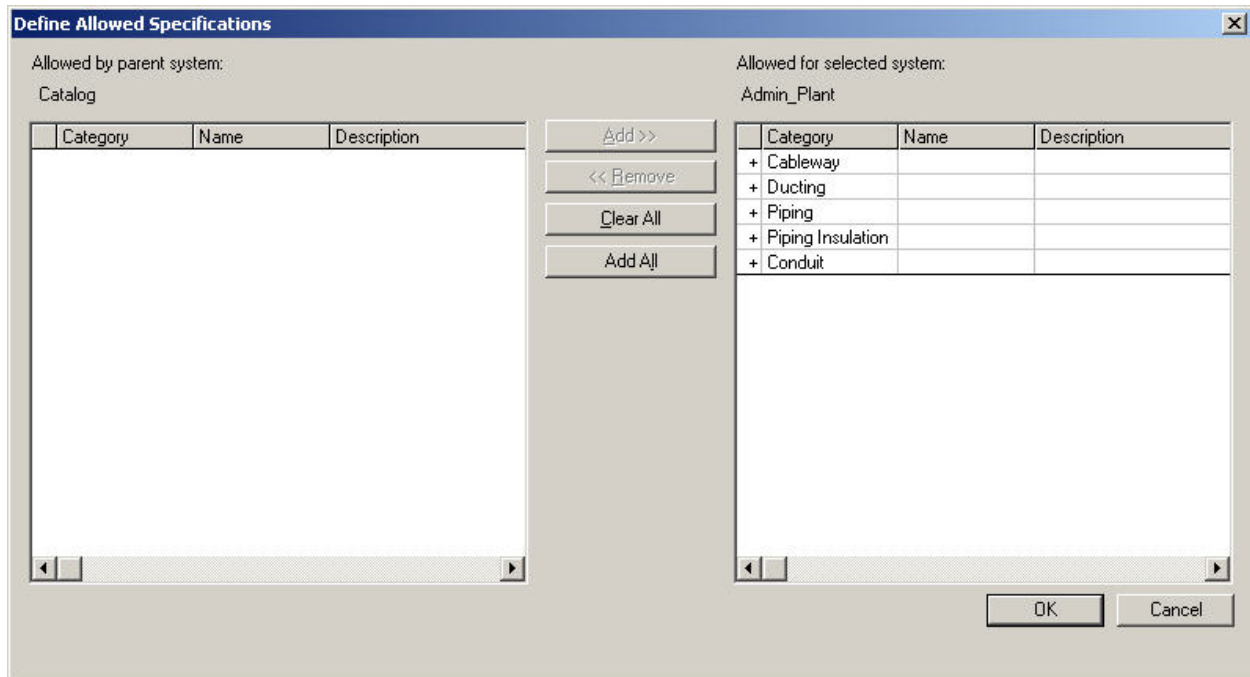
Objectives

After completing this lab, you will be able to:

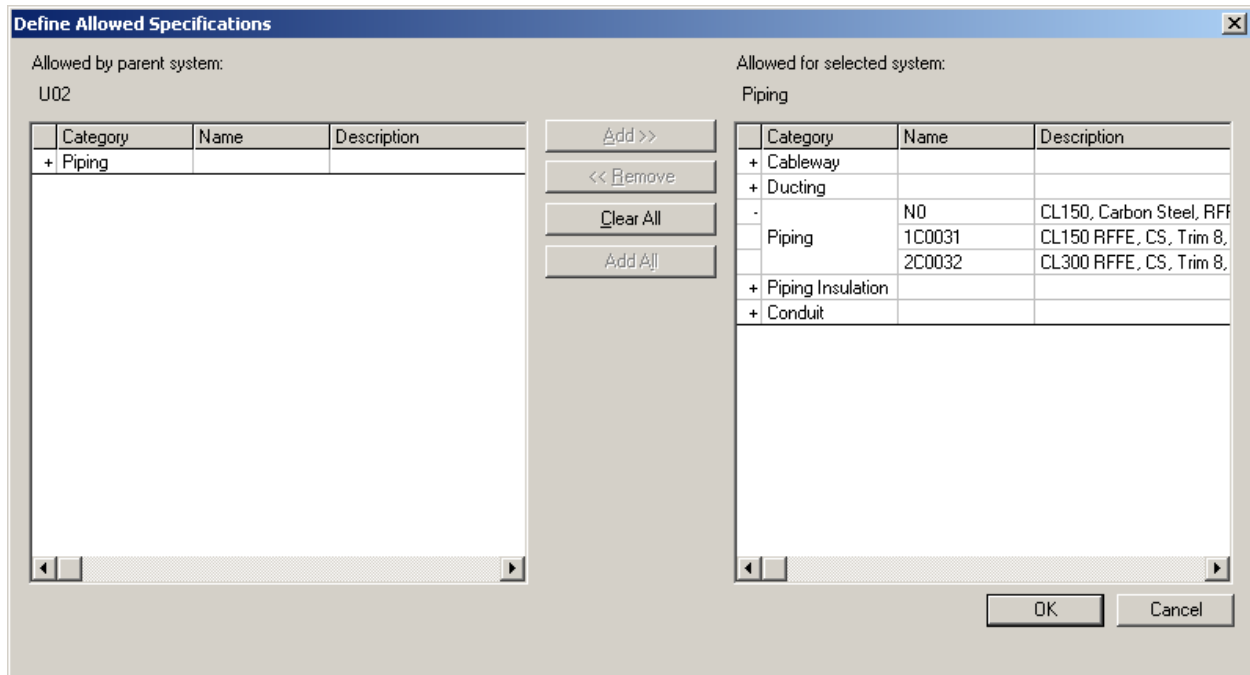
- Designate allowed specifications for multiple disciplines in the plant
1. Open **SmartPlant3D** if not already open.
 2. Define a workspace and select **All** filter created in lab 10
 3. Go to **Systems and Specifications** task
 4. Click on the root level of the plant, e.g. Admin_Plant
 5. Select **Define Allowed Specifications** button to the left of Help button (question mark)



6. **Allow** all specifications/All disciplines at the root level and click **OK**



7. Expand A2 > U02 > and select Piping, use Define Allowed Specifications command to restrict (<< Remove) the use of piping specifications to only show N0, 1C003 and 2C0032 for this piping system folder.

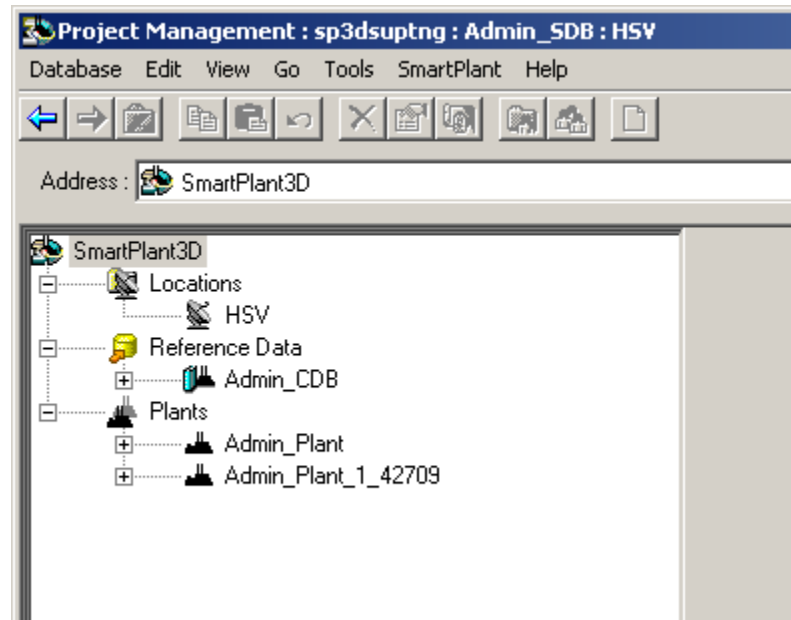


8. Go to unit U01 > Piping and use the same command to restrict (<<Remove) the use of piping specs to only show 1C0101, 1S3984 and 4C0033 for this piping system.
9. Perform this procedure on the Electrical system on U03 and leave only Cws-0 and CB-S1-L6-12B Cableway specs.
10. Go to one of the Pipeline 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. Switch to Piping task and start routing pipe in unit U02 > Piping. You may need to create a new piping system on the workspace explorer. Notice that you should only have available for use the two specs previously allowed. Your instructor may provide some help to perform this step.

LAB 13: Restore as copy Training Plant

This lab will help you restore a copy of the training plant that will be used for Model Data Reuse practice.

1. Start **Project Management**.



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

The 'Restore Wizard' dialog box is shown with the title 'Restore Plant as Copy'. It contains the following fields and tables:

New plant name: SP3DTrain
Description: (empty field)

Backup configuration file to restore: C:\Training_Plant\SP3DTrain.bcf

Plant to restore:

Name	Size	Date of Backup
SP3DTrain	629.81KB	4/7/2009 8:47:29 PM

Server and path to existing database backup files:

Server	Database Backup Files Path
sp3dsuptng	C:\Training_Plant\

Paths for new databases:

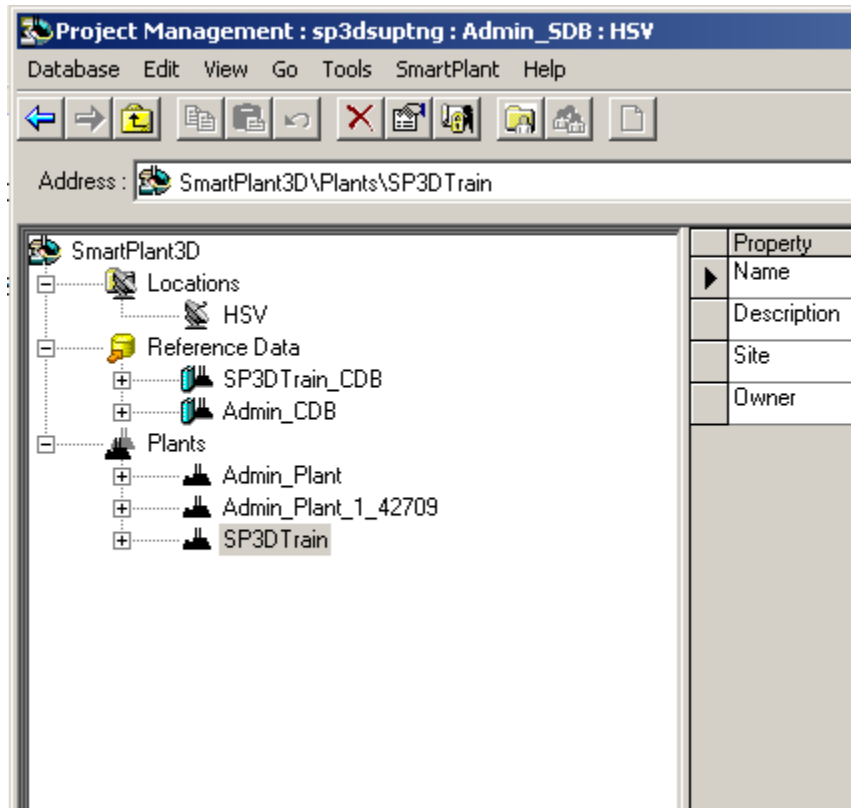
Type	Server	Database Name	Database Path	Log Path
Catalog	sp3dsuptng	SP3DTrain_CDB	C:\Program Files\Micros	C:\Program Files\Micros
Model	sp3dsuptng	SP3DTrain_MDB	C:\Program Files\Micros	C:\Program Files\Micros

Symbol and custom program file location: \\sp3dsuptng\symbols

Name generator server for plant: sp3dsuptng

Buttons: < Back, Finish, Cancel

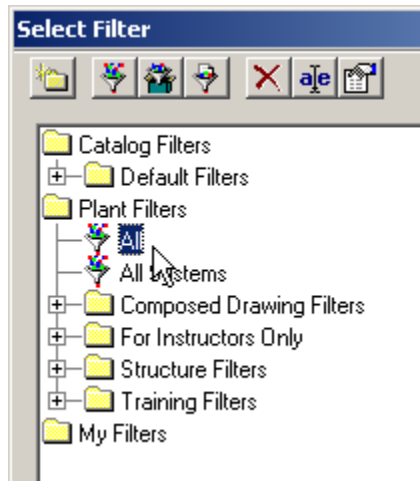
3. When done, Project Management should resemble the following:



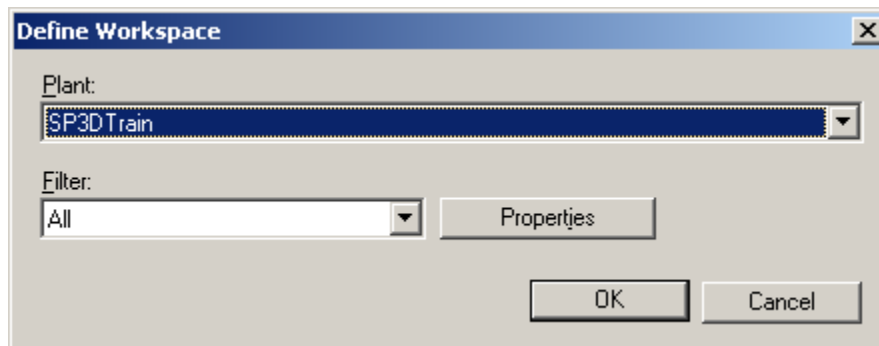
LAB 14: Prepare the session for Model Data Reuse command

This lab will create a session file and prepare the objects that will be copied with Model Data Reuse command.

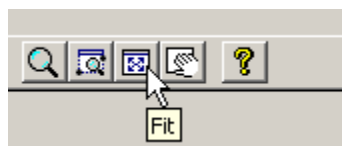
1. Open **SmartPlant 3D** if not already open
2. Select **English** or **Metric** units template
3. **Define a Workspace** on plant SP3DTrain and use **All** filter located under **Plant Filters** node.



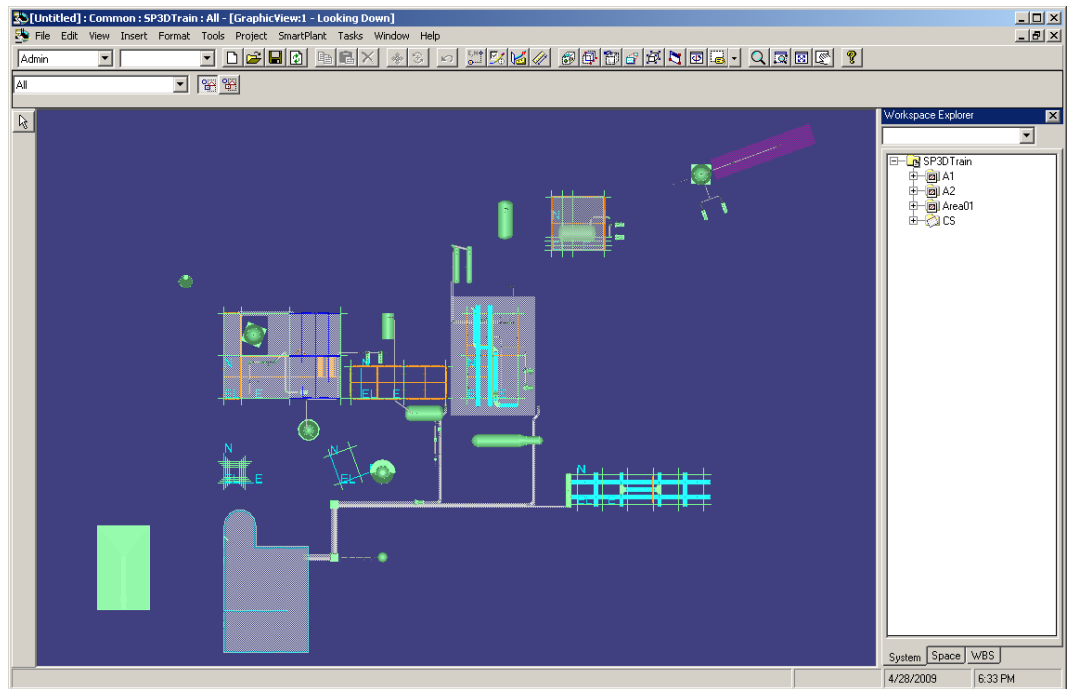
4. Click **OK** to define workspace



5. Maximize the window and click **Fit** view command



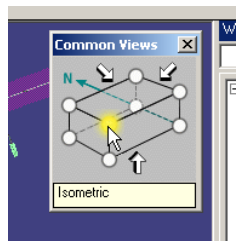
6. The entire plant is displayed

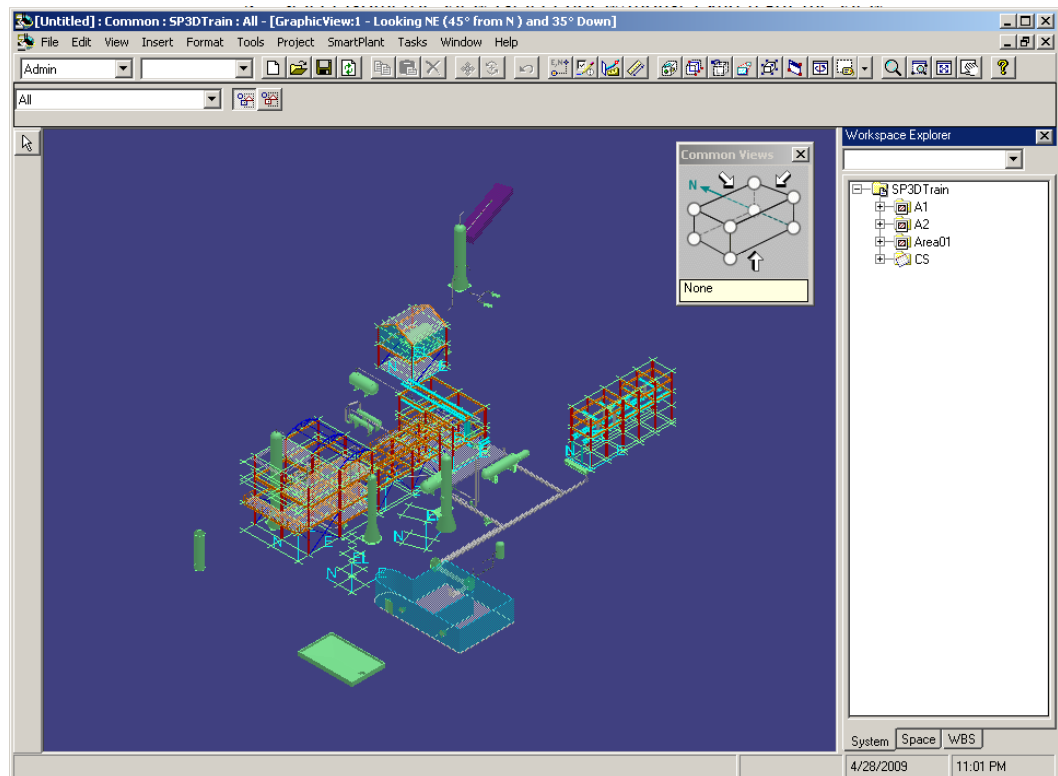


7. Select **Common Views** command from the ribbon bar (upper right)

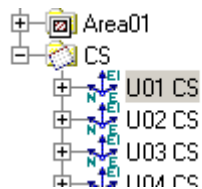


8. Select Isometric view (select dot w/mouse) and re-fit the view

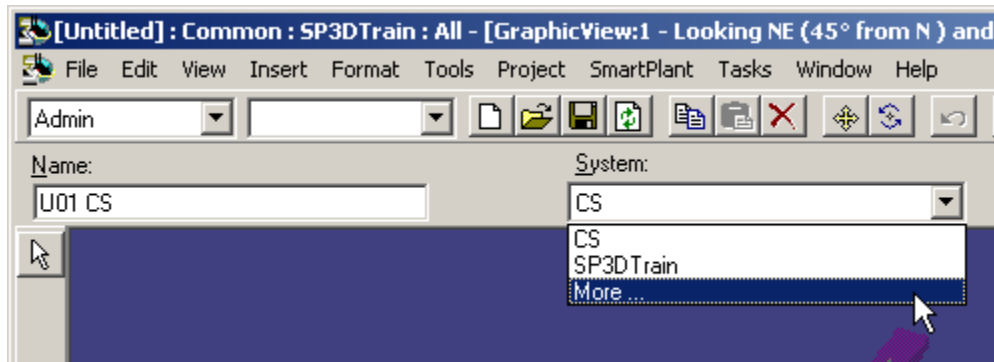




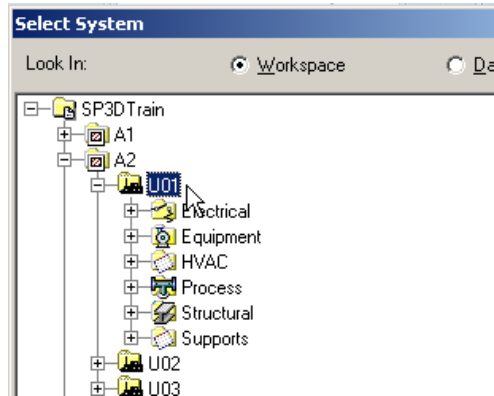
9. On **Workspace explorer** hierarchy, select U01CS under path CS > **U01CS**



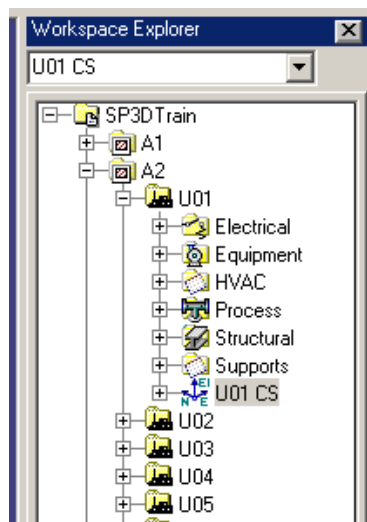
10. Expand **System** drop down list from ribbon bar, and select **more**



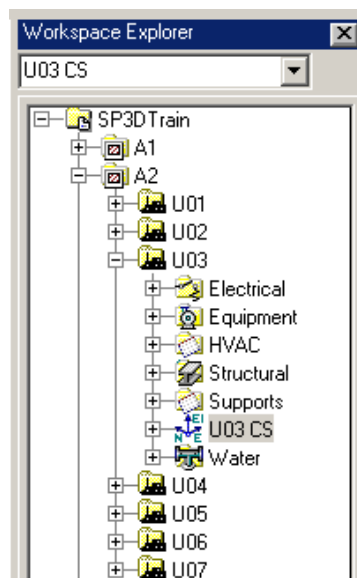
11. Select **U01** under A2 system and click **OK**



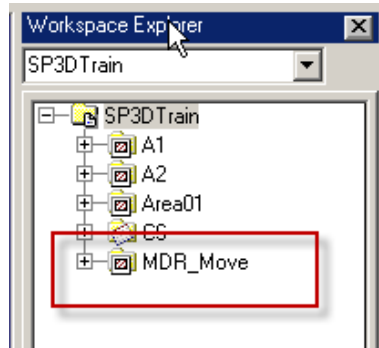
12. U01CS coordinate system should be under U01 unit system now



13. Repeat steps 9 - 12 in order to relocate **U03CS** coordinate system to unit **U03** under A2.



14. Create a new **Area system** under plant root called **MDR_Move**



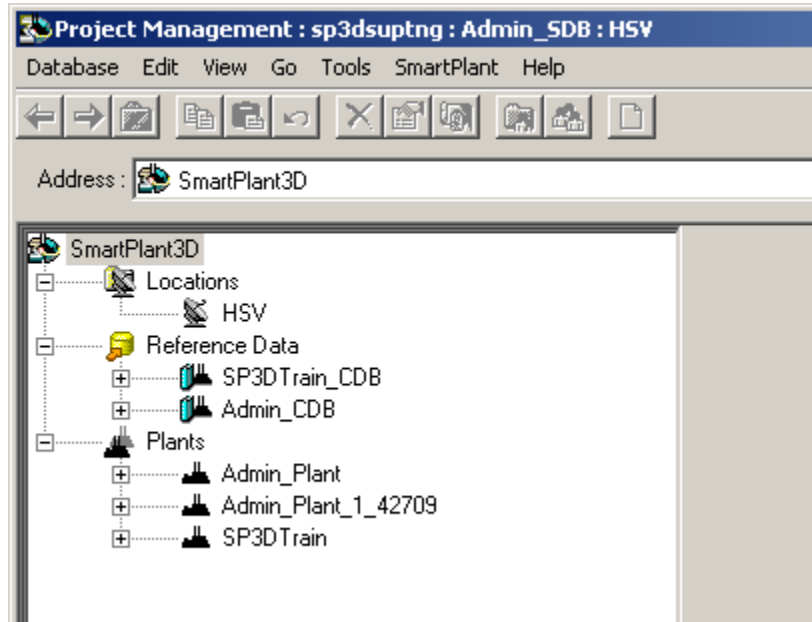
15. **Exit** SmartPlant 3D and **Save** session file to desktop when prompted, name the session as **SP3DTrain_All**

Note: The coordinate systems are moved from their origin system parent with the purpose to include all planes, grid lines and related objects which have relationships to structural members. This has to be done since only one System can be selected in the Model Data Reuse command, and ideally, this system should contain all objects to be transferred (including objects that are in relationships).

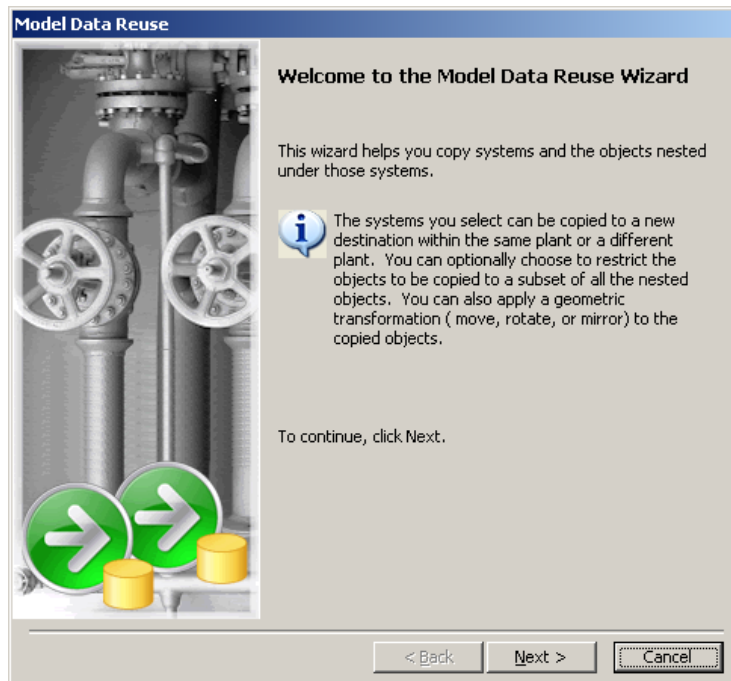
This parent system move for the coordinate system, does not affect in any manner the physical position of it in the 3D space (x, y, z position), and can be moved to a different or original parent system once the copy/paste operation has been completed.

LAB 15: Model Data Reuse Copy – Move in Existing Plant

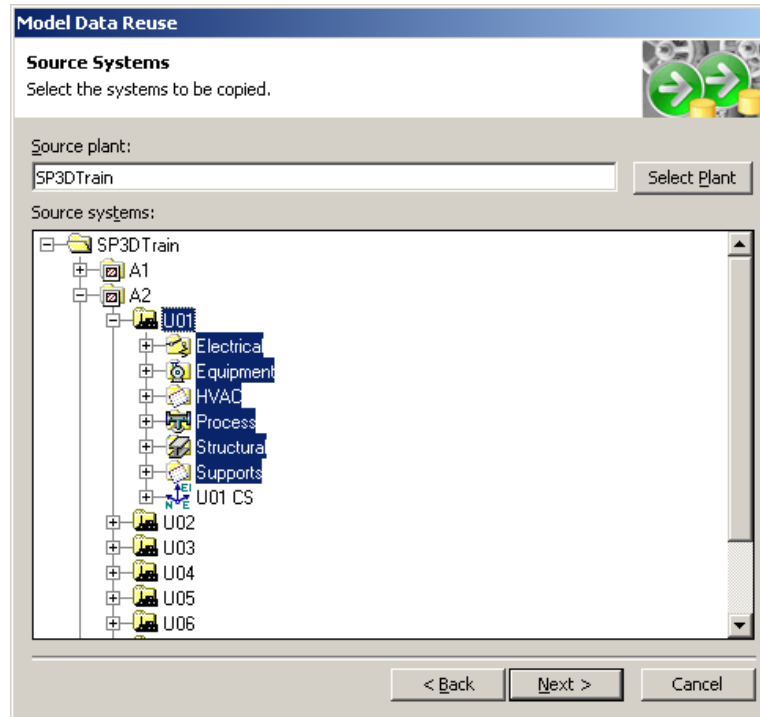
1. Open **Project Management** if not already open



2. Note: There are three plants in the Site, SP3DTrain contains the model objects that were reviewed previously, Admin_Plant is an empty plant that will be used to copy objects across plants.
3. Start **Model Data Reuse** command from menu Tools > Model Data Reuse...



4. Click **Next**
5. In the new form, click **Select Plant** and choose SP3DTrain, this will be the source, or 'from' plant.
6. In the source System hierarchy, select **U01** under **A2**. If a different system has been selected by accident, deselect it by holding down CTRL key, then click on the system again.



7. Click **Next**
8. In disciplines form you may select either all or selected 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**

Model Data Reuse

Disciplines
Select the disciplines to be copied

☒ All disciplines
☐ Select disciplines

Grids
Electrical
Equipment
Hangers & Supports
HVAC
Piping
Structural

< Back Next > Cancel

- Next form displays the destination or 'to' plant and system. Click on the **browse** button in **Destination System** field to assign a new destination system. On the Select Destination System form, select the "MDR_Move" system (Area) and click **OK** to the form.

Model Data Reuse

Destination Systems
Select the destinations for the copied systems.

Destination plant:
SP3DTrain Select Plant

Parent systems:

Source System	Destination System
A2	A2 ...

Default permission group:
Admin

Select Destination System

System:

- SP3DTrain
 - A1
 - A2
 - Area01
 - CS
 - MDR_Move**

OK Cancel

10. Back in **Destination Systems** form, expand **Default Permission Group** drop down list. The system allows the user to assign the copied items to any existing Permission Group with access to the source dataset objects. Maintain the “Admin” group selection.

The screenshot shows the 'Model Data Reuse' dialog box with the 'Destination Systems' tab selected. The 'Destination plant' is set to 'SP3DTrain'. The 'Parent systems' table shows 'A2' as the Source System and 'MDR_Move' as the Destination System. The 'Default permission group' dropdown is open, showing a list of groups: Admin, Electrical, Equipment, HVAC, IFC, Isometric, Layout, and Misc. The 'Admin' group is highlighted. Buttons for 'Map', 'Next >', and 'Cancel' are visible.

Source System	Destination System
A2	MDR_Move

Default permission group:
Admin
Electrical
Equipment
HVAC
IFC
Isometric
Layout
Misc

11. Select the **Map** button. This form allows the user to assign new permissions based on the permission groups of source objects. It is shown as information for this exercise.

The screenshot shows the 'Permission Group Map' dialog box. It has two buttons at the top: 'Use Default' and 'Keep Originals'. Below is a table with two columns: 'Source Permission Group' and 'Destination Permission Group'. The table lists various permission groups, all of which are mapped to 'Admin' in the destination. Buttons for 'OK' and 'Cancel' are at the bottom.

Source Permission Group	Destination Permission Group
Admin	Admin
Electrical	Admin
Equipment	Admin
HVAC	Admin
Misc	Admin
Layout	Admin
Piping	Admin
Structural	Admin
WBS	Admin
Supports	Admin
IFC	Admin

12. Click **OK** to dismiss Permissions Group Map form
13. Select **Next** on the MDR **Destination Systems** form
14. 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 -50 ft for East distance, 140 ft for North distance and 0 ft for Up distance (equivalent to -50ft X, 140ft Y, 0ft Z).

Model Data Reuse

Transformations
Specify the type of transformations to be applied to the copied objects.

☐ None

☒ **Move by relative distance**

East distance: North distance: Up distance: Units:

☐ Move by coordinate system

From coordinate system: To coordinate system:

☐ Rotate

Axis coordinate system: Angle of rotation (deg):

☐ Mirror

Plane coordinate system: Mirror plane:

< Back **Next >** Cancel

15. Click **Next**
16. Click **Copy** on the confirmation form

Model Data Reuse

Confirmation
Click the Copy button to begin the operation.

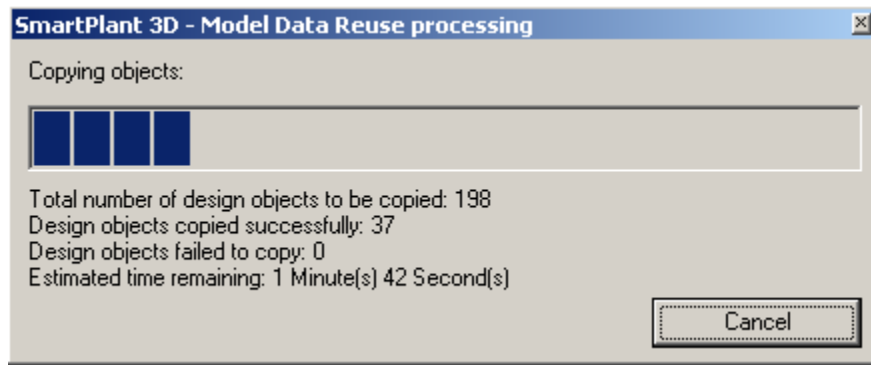
If there are many objects within the selected systems, this operation may take some time to complete.

This command cannot be undone.

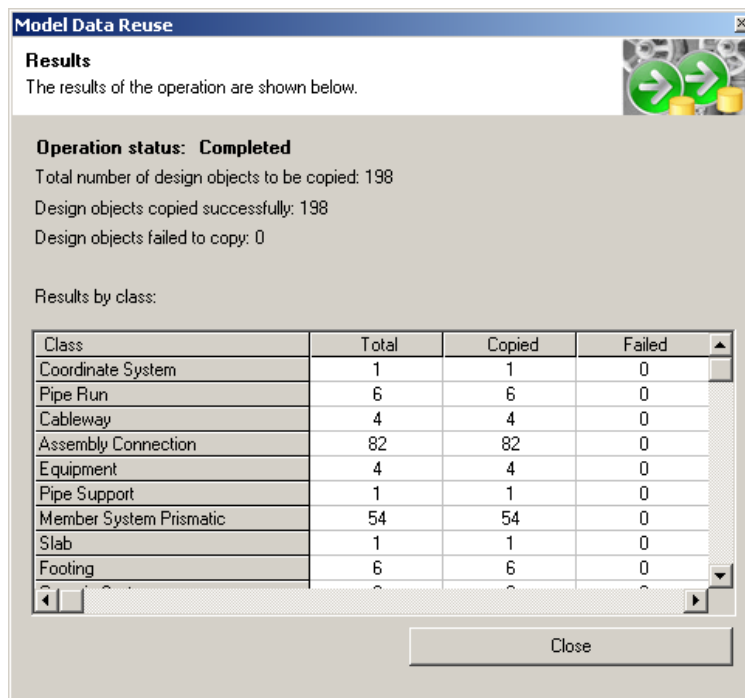
Click the Copy button to proceed.

< Back **Copy** Cancel

17. The system processes the command. (This should take no more than 5 minutes)



18. Upon completion, the software displays results of the copy. The user can review the process and find out if any objects failed. **Review** and **Close** the form.

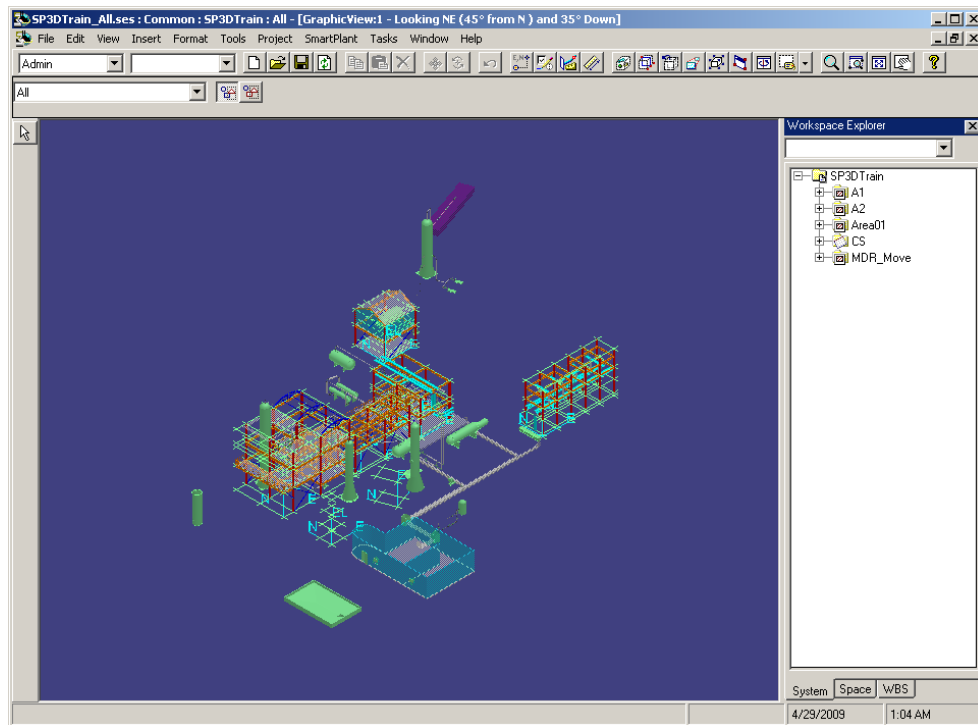


19. Close **Project Management**

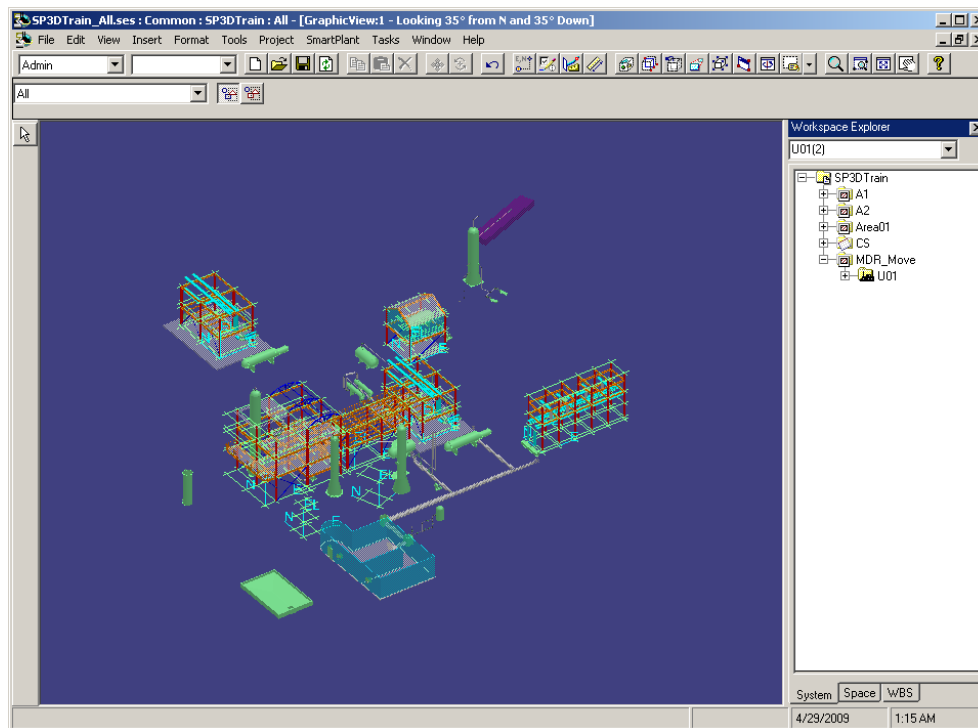
20. The results of the copy-move operation can now be seen in the model.

21. **Open** session file named **SP3DTrain_All** previously saved to desktop

22. Set view to Isometric (if not default) and fit view



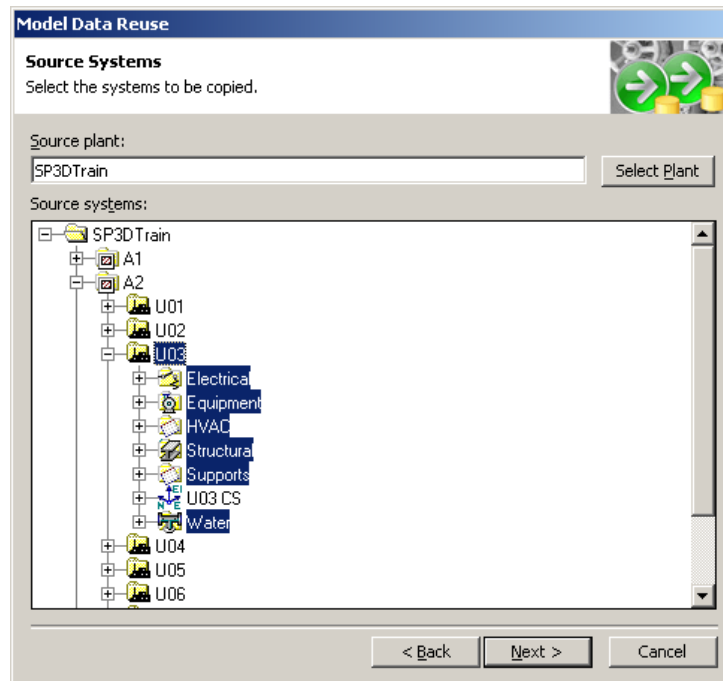
23. To bring changes from the database, **refresh** the session, then re-fit active view.



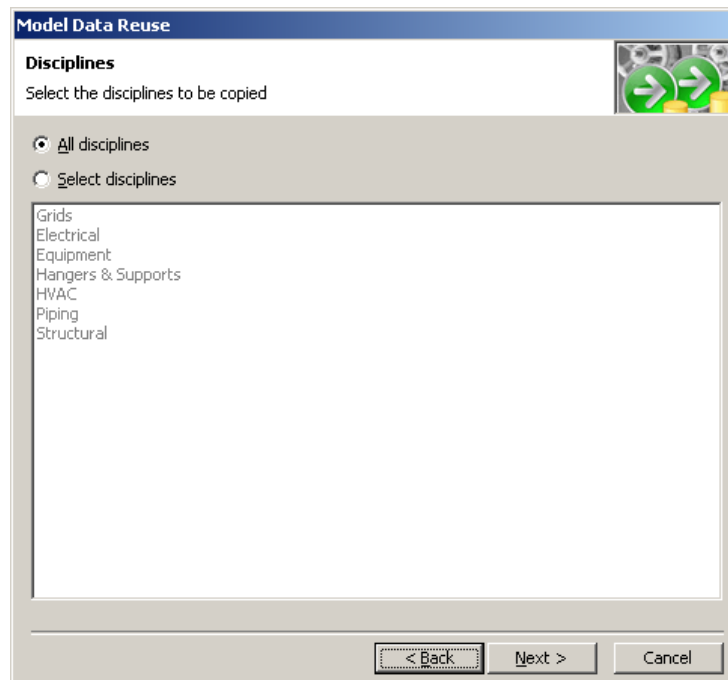
24. Exit SmartPlant 3D when finished, save changes to session file.

LAB 16: Model Data Reuse Copy – Rotate and Copy to New Plant

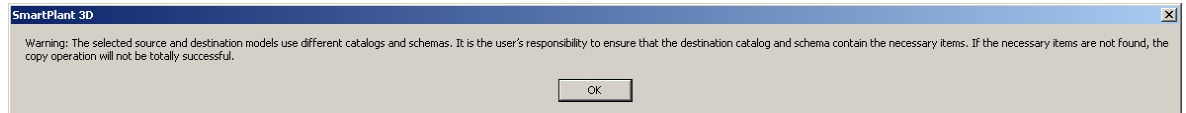
1. Open **Project Management** if not already open
2. Repeat initial steps to initiate **Model Data Reuse** command
3. Select **SP3DTrain** as source plant and **U03** as source System



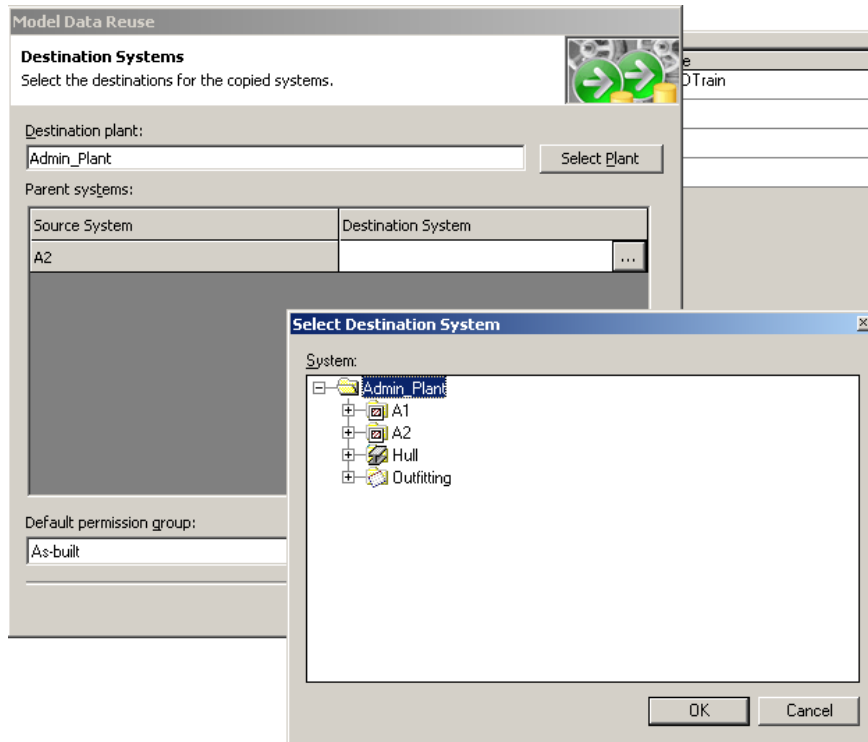
4. Click **Next**, Select **All disciplines** and click **Next**



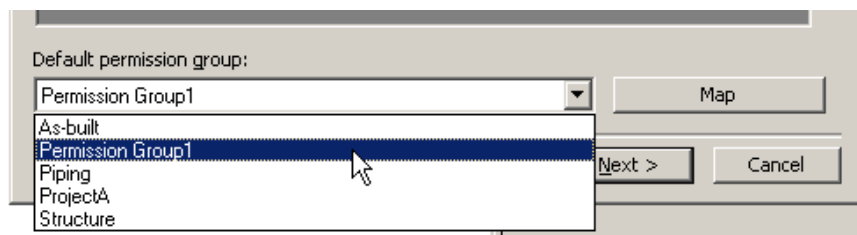
5. On **Destination System** form, select **Admin_Plant** as the new destination.
6. The software warns about the possibility of Schemas not having same information, click **OK**



7. Click browse button to select the destination system, then select plant root as new system.

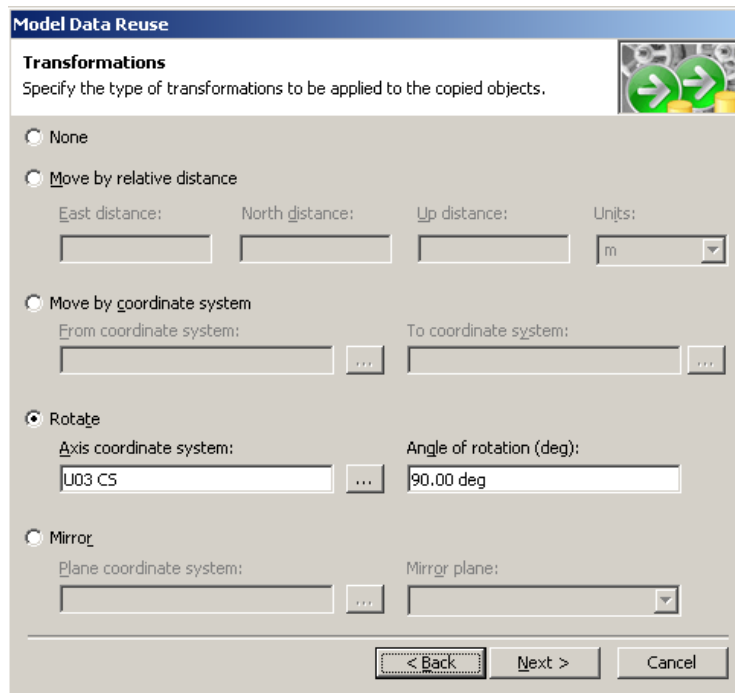


8. Set **default permission group** to Permission Group 1



Note that the "Default permission group:" select list has changed. The groups are defined per Plant.

9. Click **Next**
10. Select **Rotate** radio button. Browse and select **U03 CS** under U03 unit as the **Axis coordinate system**, type in 90 degrees for the rotation angle.



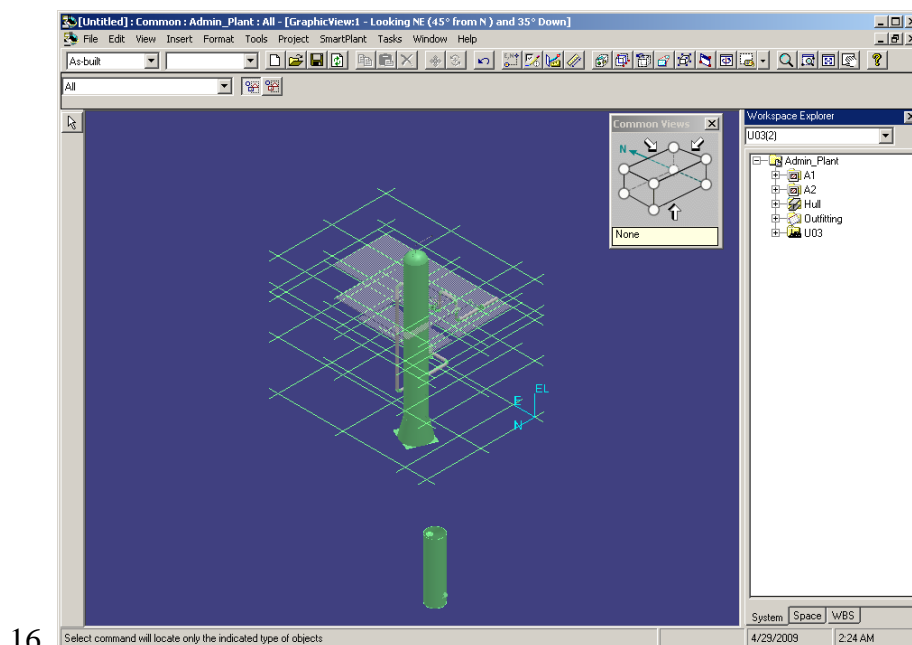
11. Click **Next**

12. Accept dataset for copy. (this should take about 5 minutes)

13. Again **review** results. There may be some errors reported, review the MDR log file located in the temp folder. Type in the address bar of a Windows Explorer “%temp%” for quick access to temporal files.

14. To view results of the copy – rotate operation, **open** a session file and **define a workspace** to bring objects of Unit **U03**, which should be under the root of the plant. You may also use the **All** filter if one exists.

15. **Fit** objects to window then select **Isometric** view.



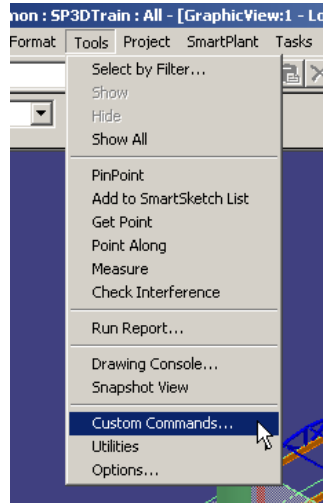
16. Select command will locate only the indicated type of objects

17. This is an example of how the MDR command can fail, only certain objects were copied and successfully rotated 90 degrees (compare it with top view of SP3DTrain_All session). The next lab will demonstrate the use of a custom command to perform basic MDR troubleshooting.
18. **Close** SmartPlant 3D, **Save** the session.

LAB 17: Model Data Reuse troubleshooting

During previous lab practice, certain objects could not be copied by the Model Data Reuse command, this practice will help you review and identify those objects.

1. Open source session file (SP3DTrain_All.ses)
2. Enable Model Data Reuse custom command to perform troubleshooting by going to **Tools** menu then **Custom Commands** option



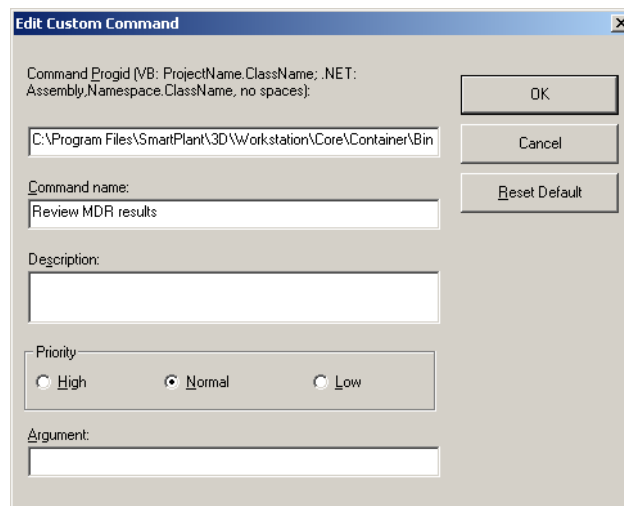
3. Click **Add**, define the following argument as command **ProgID**

C:\Program

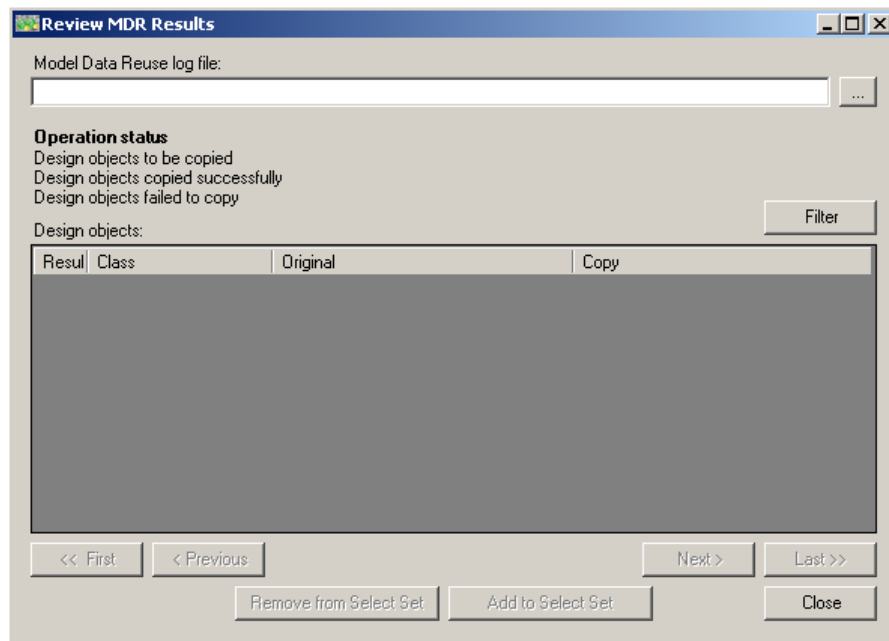
Files\SmartPlant\3D\Workstation\Core\Container\Bin\Assemblies\Release\CommonCommands,Ingr.SP3D.Common.Client.Commands.ReviewMDRResults

Note: Adjust this path in order to point to appropriate CommonCommands dll located under ..\Core\Container\Bin\Assemblies\Release folder of the SmartPlant directory.

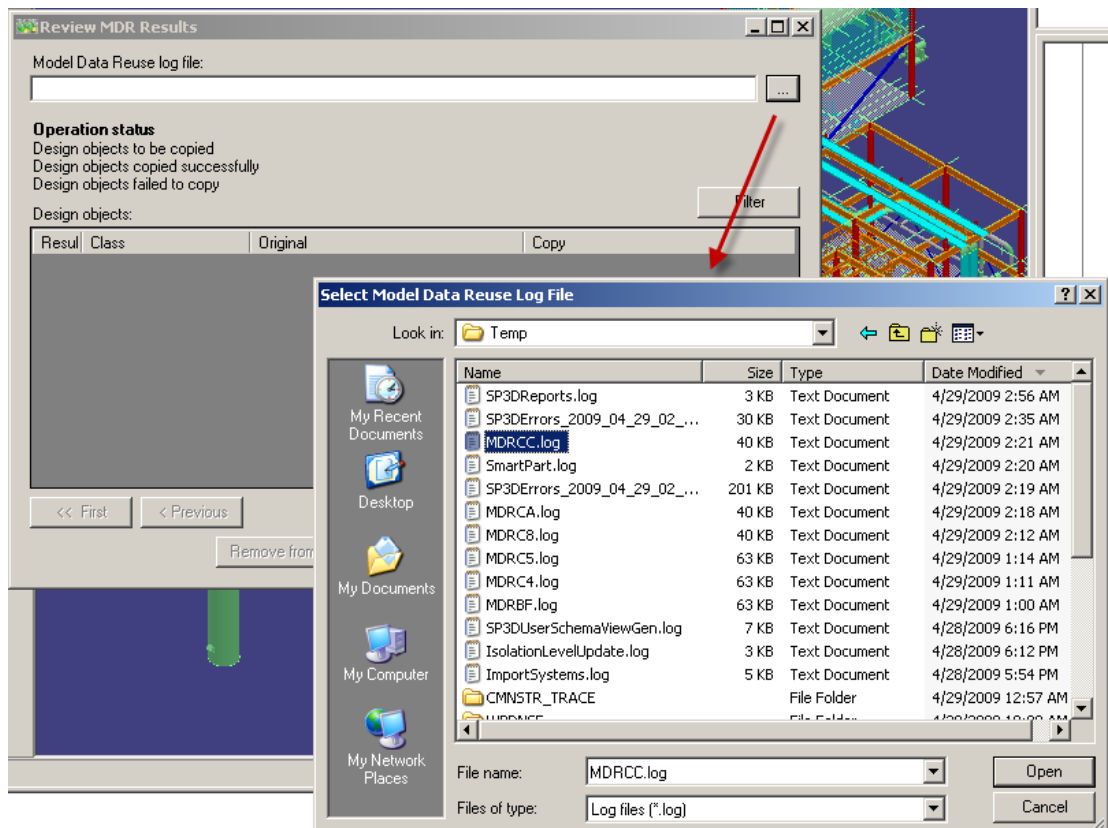
4. Name the command as **Review MDR results**



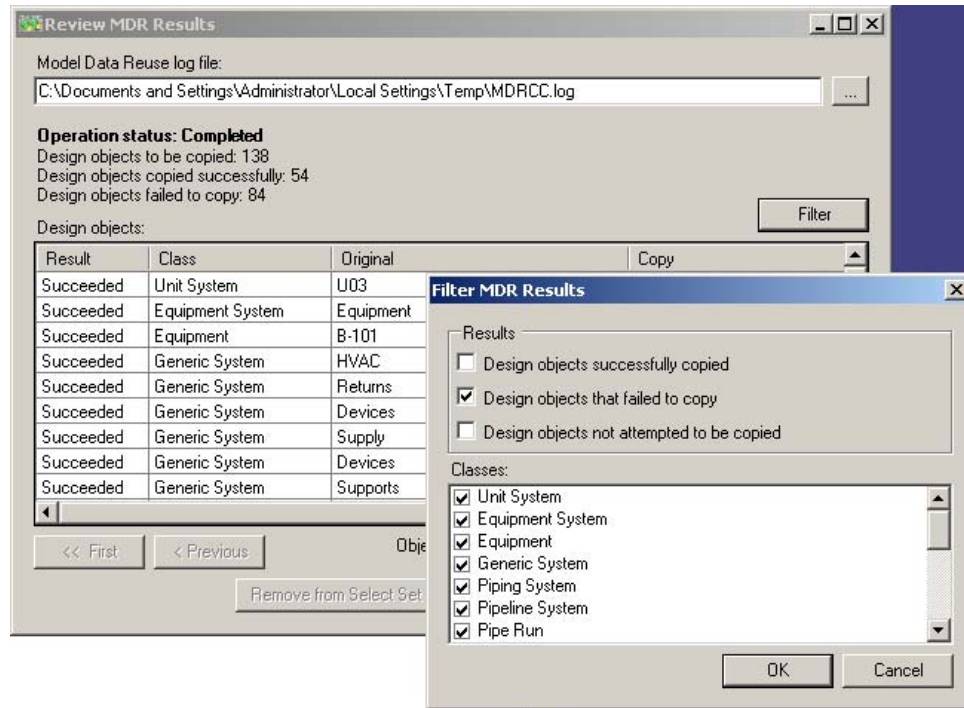
5. Click **OK** to return to custom command form. **Run** recently created **Review MDR results** command



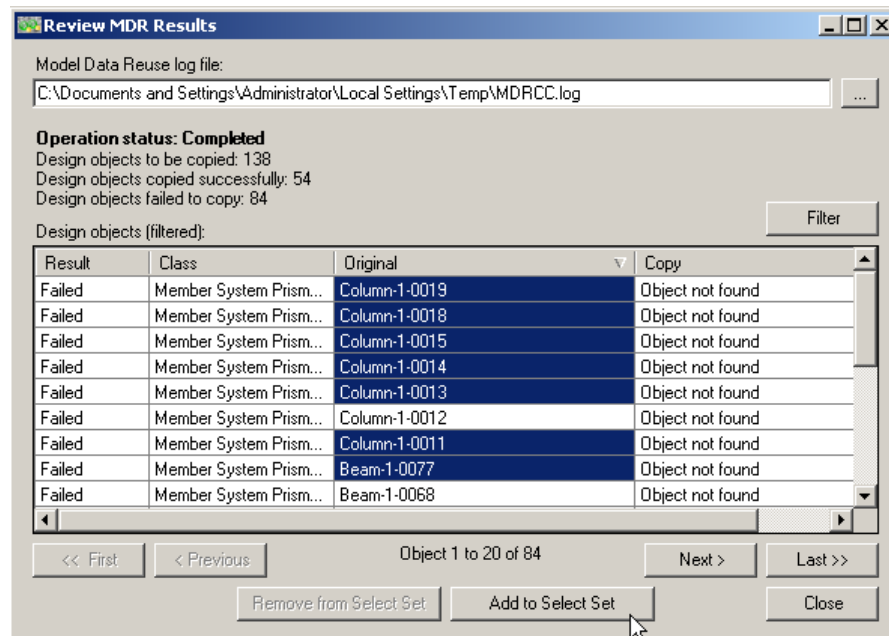
6. Click browse button to select the MDR log file of the last operation performed where some objects failed to copy. A new log file is created every time the command runs and log file name starts with the letters MDRxx, if log file cannot be quickly identified, the list can be sorted by date modified then select most recent MDR log file.



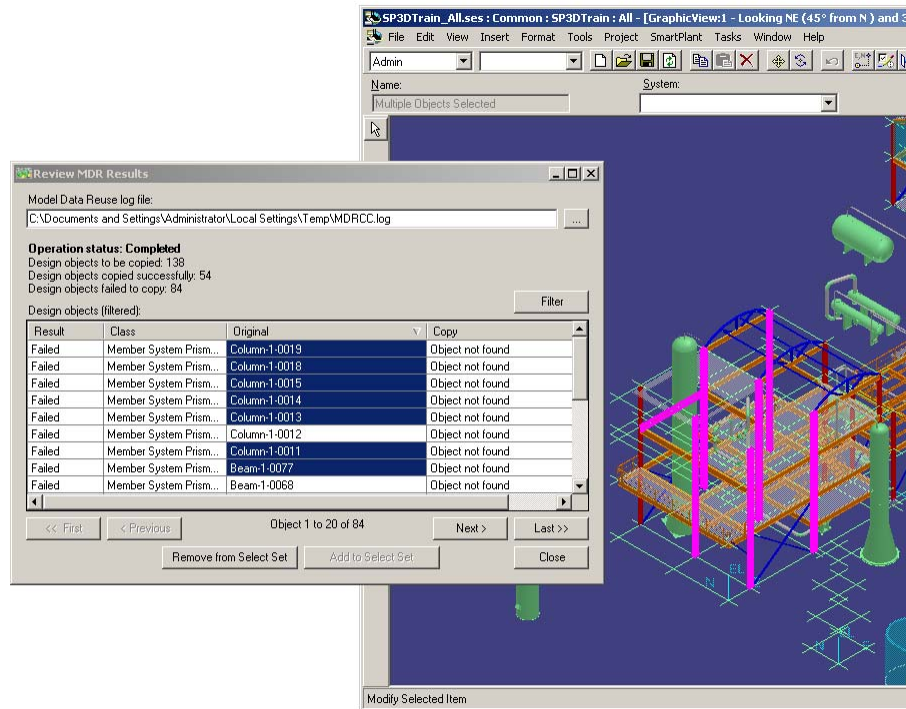
7. Click **Filter** button to expand the list of filtering options for the list of objects
8. Leave only **Design objects that failed to copy** as checked and all classes checkboxes checked.



9. Click **OK**
10. Objects can be selected on the Original column (meaning, they belong to source plant). Select a few objects from this list (hold down CTRL key to multi select or SHIFT key for multiple selection at once), then click **Add to select set** button at the bottom of the form.



11. These objects are now selected and can be located in the session by using the Fit view command.



12. Once the objects that failed to copy have been identified, user can evaluate their condition and integrity (verify they are not in 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 objects in order to have them at the destination plant.

13. **Close SmartPlant 3D.**

LAB 18: Synchronize Model with Catalog and View Generation

Objectives

After completing this lab, you will be able to:

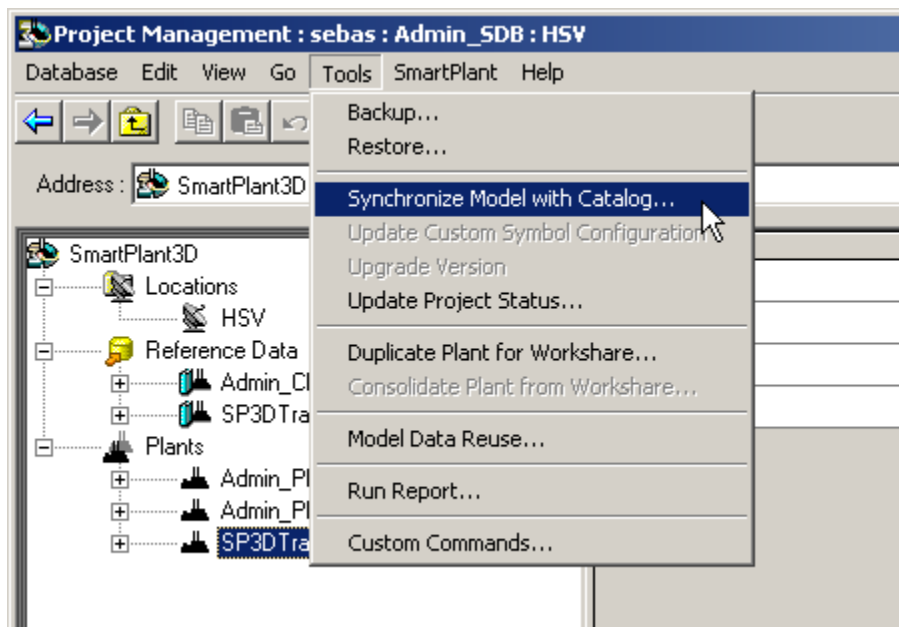
- Actively choose whether to synchronize the model with catalog or run the view generator on the model command, or both from within Project Management.

Notes:

Let us play out the scenario that there are two plants (plant A and plant B) sharing the same catalog, this catalog has changed significantly since the last backup was taken for plant 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 inline 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 plant in the tree that you wish to Synchronize (SP3DTrain), then from the **Tools** menu select **Synchronize Model with Catalog**



3. Note the existence of two check boxes:

Synchronize Model with Catalog

Options

- ☒ Synchronize model with catalog
- ☒ Regenerate views
- ☒ Mark out-of-date occurrences
- ☒ Update out-of-date occurrences

Model

Model database server:	Model database name:	Version:
sp3dsuptng	SP3DTrain_MDB	8.0.0

Catalog

Catalog database server:	Catalog database name:	Version:
sp3dsuptng	SP3DTrain_CDB	8.0.0
Catalog schema server:	Catalog schema name:	Version:
sp3dsuptng	SP3DTrain_CDB_SCHEMA	8.0.0

OK Cancel

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 have 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**

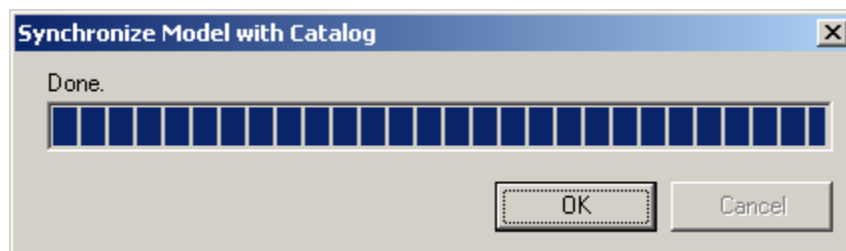
Synchronize Model with Catalog

Synchronization process is completed. Please check the log file for more information :
C:\DOCUMENT~1\ADMINI~1\LOCALS~1\Temp\SynchronizeModelWithCatalogError44558.Log

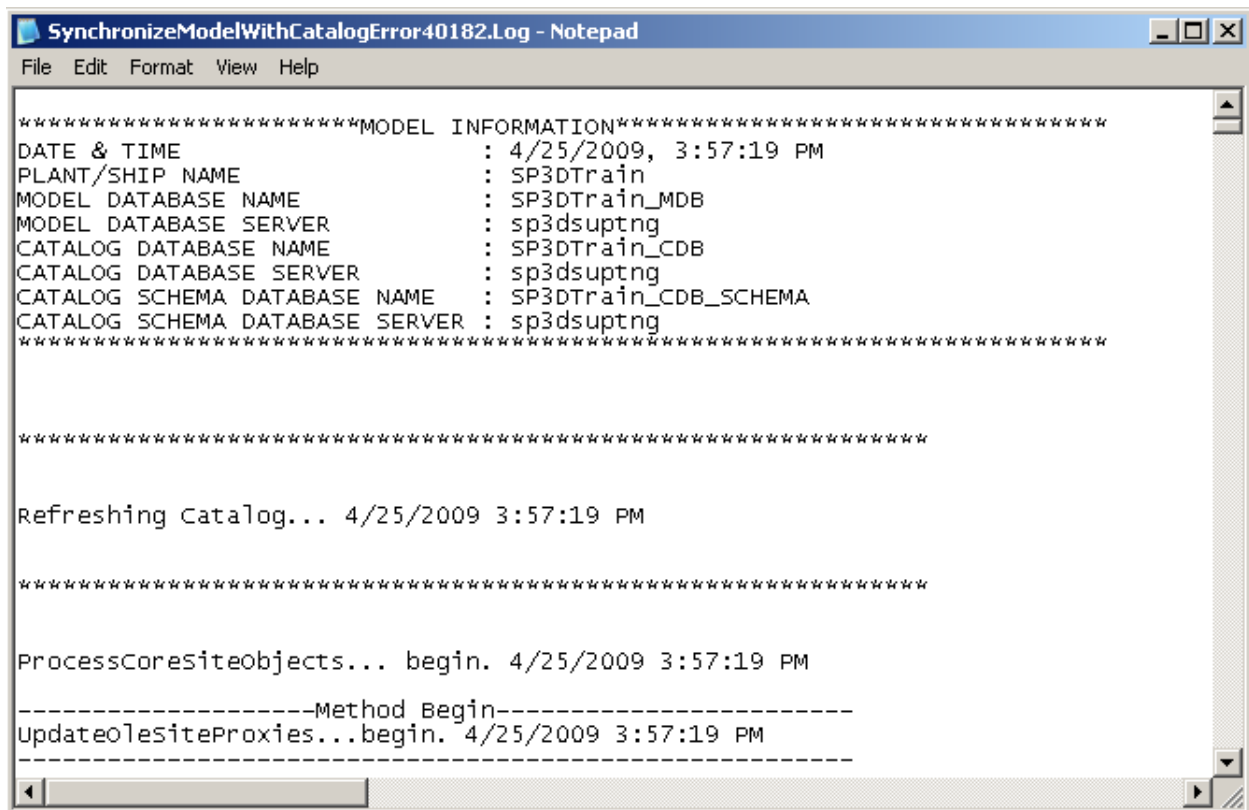
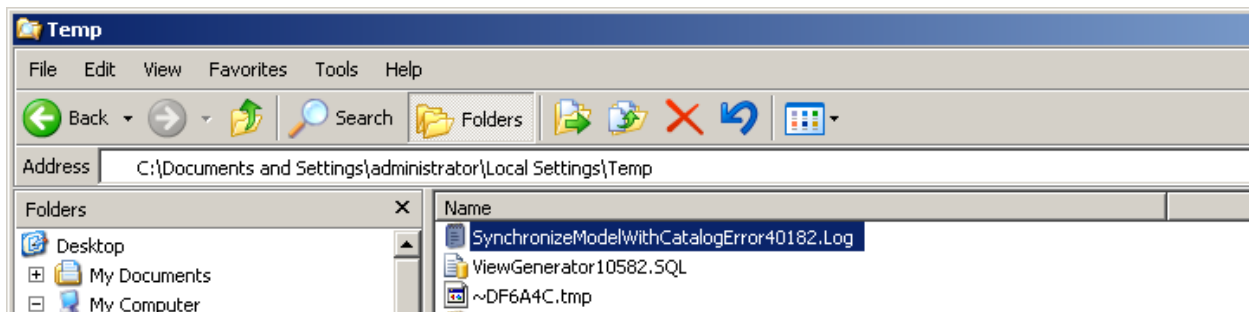
Successfully updated the views in the model.

OK

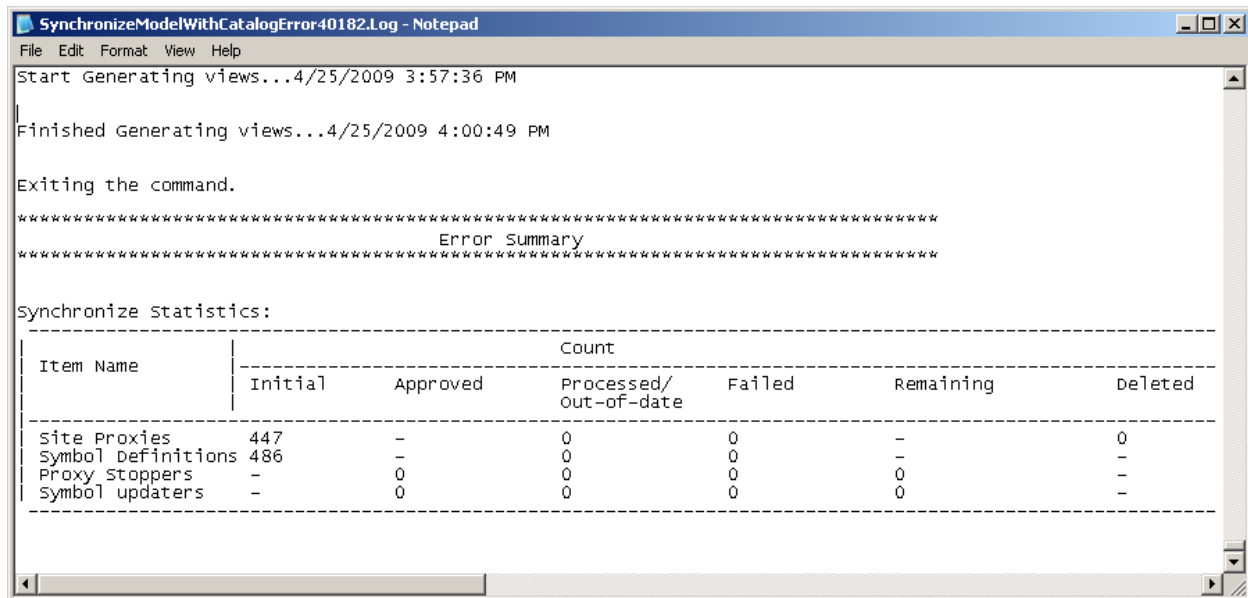
Note: In a production or test environment you would then follow this action by regenerating reports databases.



6. Click **OK**
7. Open and review generated log file



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



```
SynchronizeModelWithCatalogError40182.Log - Notepad
File Edit Format View Help
Start Generating views...4/25/2009 3:57:36 PM
Finished Generating views...4/25/2009 4:00:49 PM
Exiting the command.
*****
Error Summary
*****

Synchronize Statistics:
-----
| Item Name | Initial | Approved | Count | Failed | Remaining | Deleted |
|-----|-----|-----|-----|-----|-----|-----|
| Site Proxies | 447 | - | 0 | 0 | - | 0 |
| Symbol Definitions | 486 | - | 0 | 0 | - | - |
| Proxy Stoppers | - | 0 | 0 | 0 | 0 | - |
| Symbol updaters | - | 0 | 0 | 0 | 0 | - |
|-----|-----|-----|-----|-----|-----|
```


LAB 19: New Catalog Command

Objectives

After completing this lab, you will be able to:

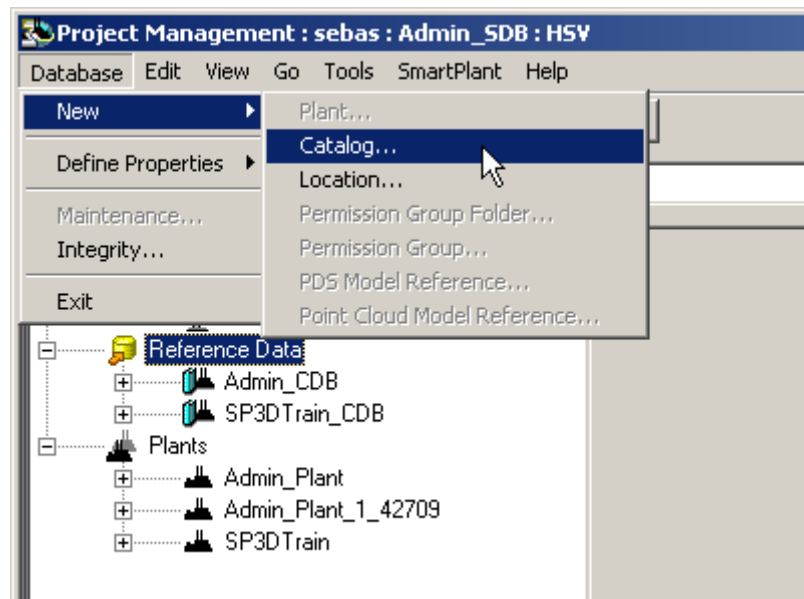
- Create a new Catalog from within Project Management.

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 Plant based off of the newly created catalog.

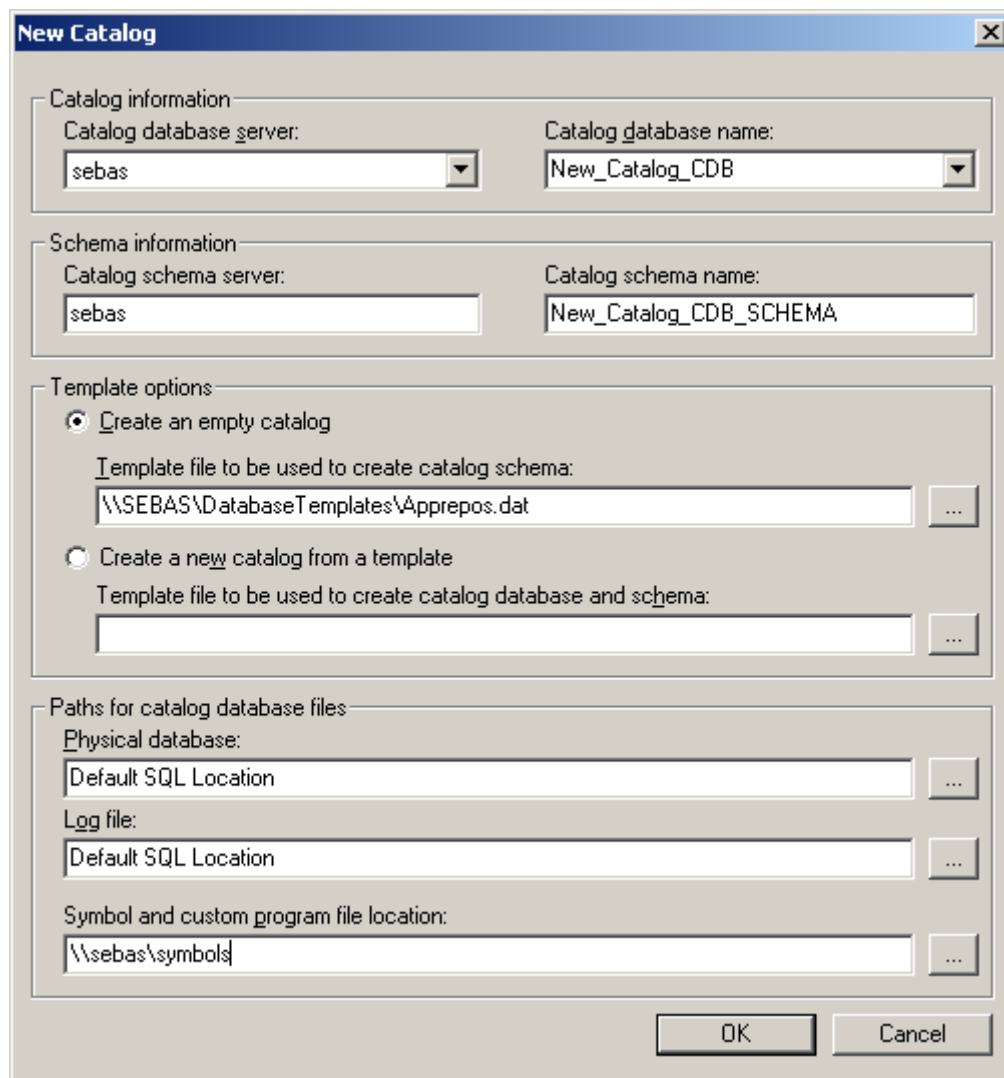
In a Global Workshare configuration, this command is only available for use at the Host location.

1. Open **Project Management** and select **Catalog** from Database > New menu



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

- Note that some information is 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.
- From the **Catalog database name** drop-down list, select **<new database>**, and then type over the name of the new database as **New_Catalog_CDB**. Also, type in the symbols folder path.
- Note: Make sure Apprepos.dat (Apprepos.dmp for Oracle based configurations) template exists at the suggested location. If not, locate the template file as necessary using the “...” browse button on the right.



The 'New Catalog' dialog box is divided into four sections:

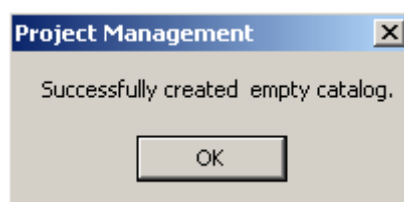
- Catalog information:**
 - Catalog database server:
 - Catalog database name:
- Schema information:**
 - Catalog schema server:
 - Catalog schema name:
- Template options:**
 - ☒ Create an empty catalog
 - Template file to be used to create catalog schema:
 - ☐ Create a new catalog from a template
 - Template file to be used to create catalog database and schema:
- Paths for catalog database files:**
 - Physical database:
 - Log file:
 - Symbol and custom program file location:

At the bottom right are 'OK' and 'Cancel' buttons.

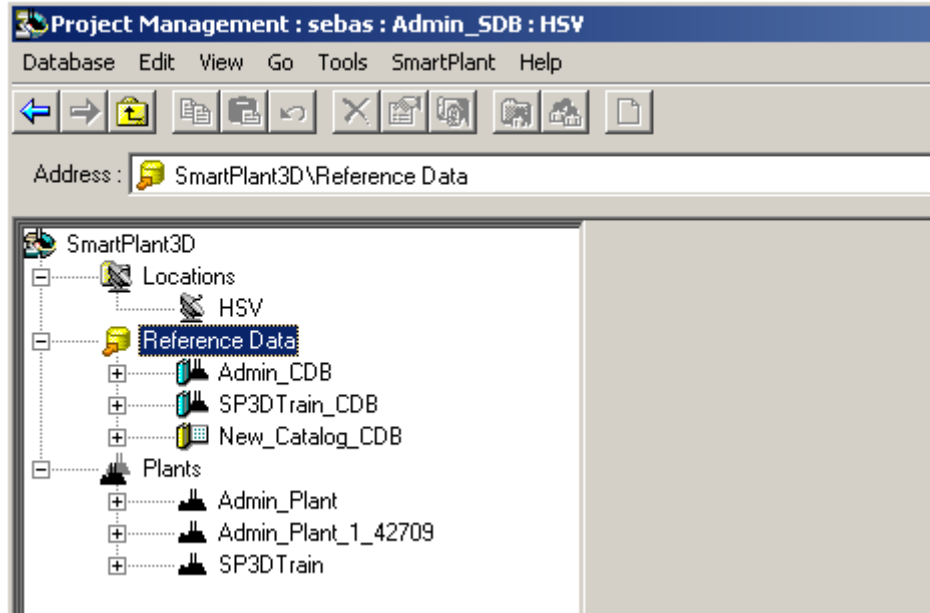
- When the form has been completed, click **OK**

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.

- Click **OK** on confirmation dialog.



6. Project Management hierarchy should resemble the following



LAB 20: Database Maintenance

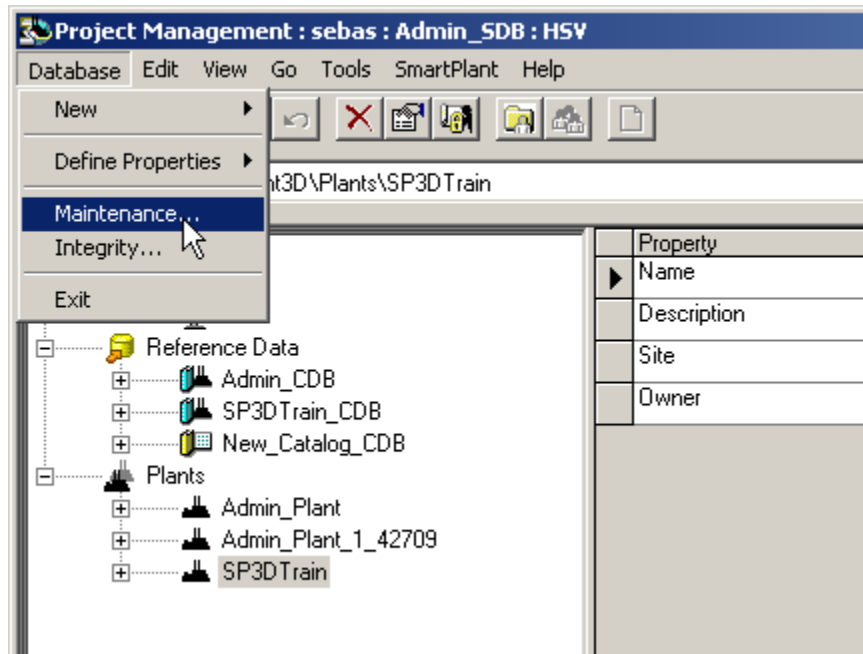
Objectives

After completing this lab, you will be able to:

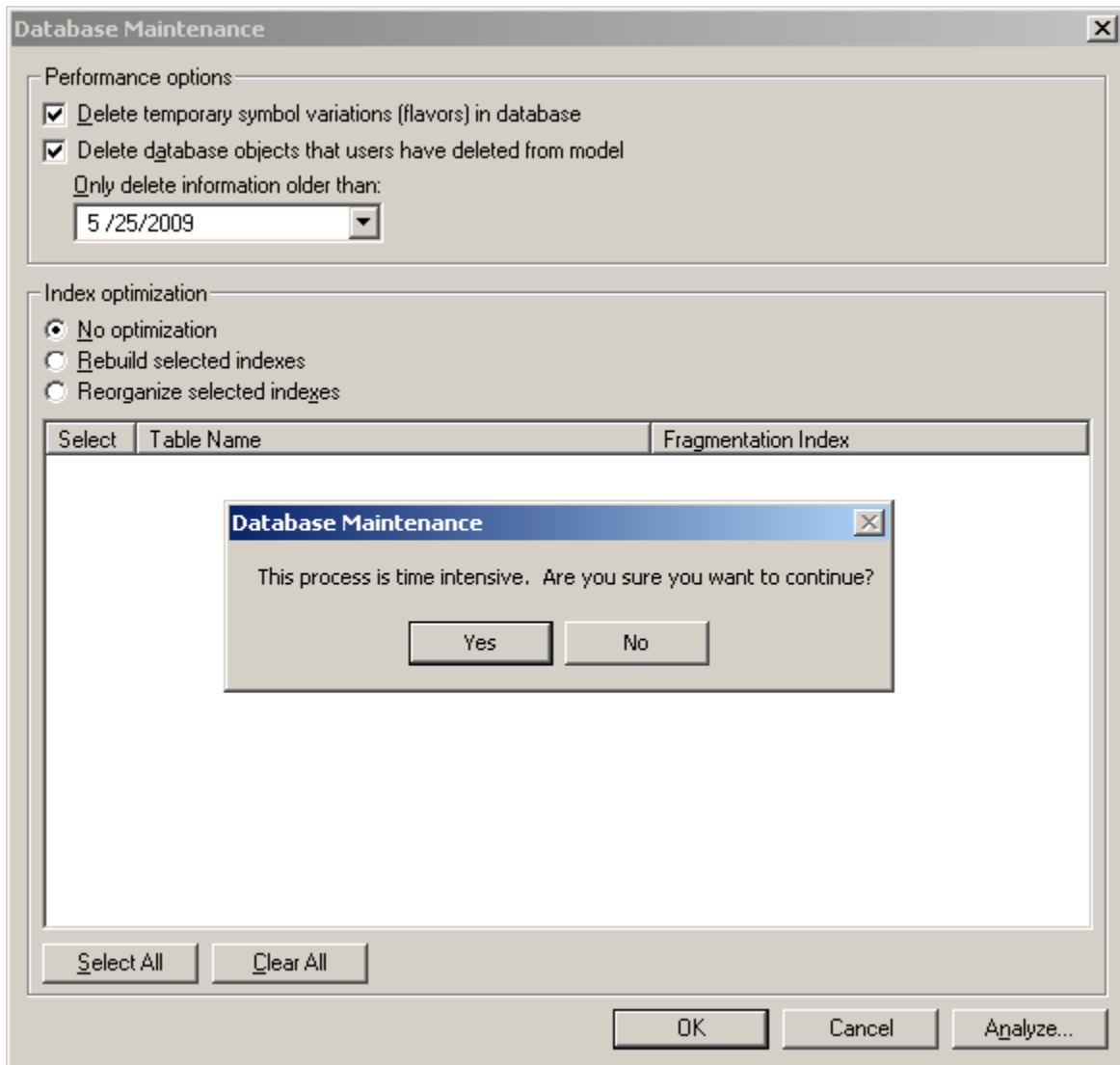
- Access Maintenance form to perform optimization and cleaning on the database.

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

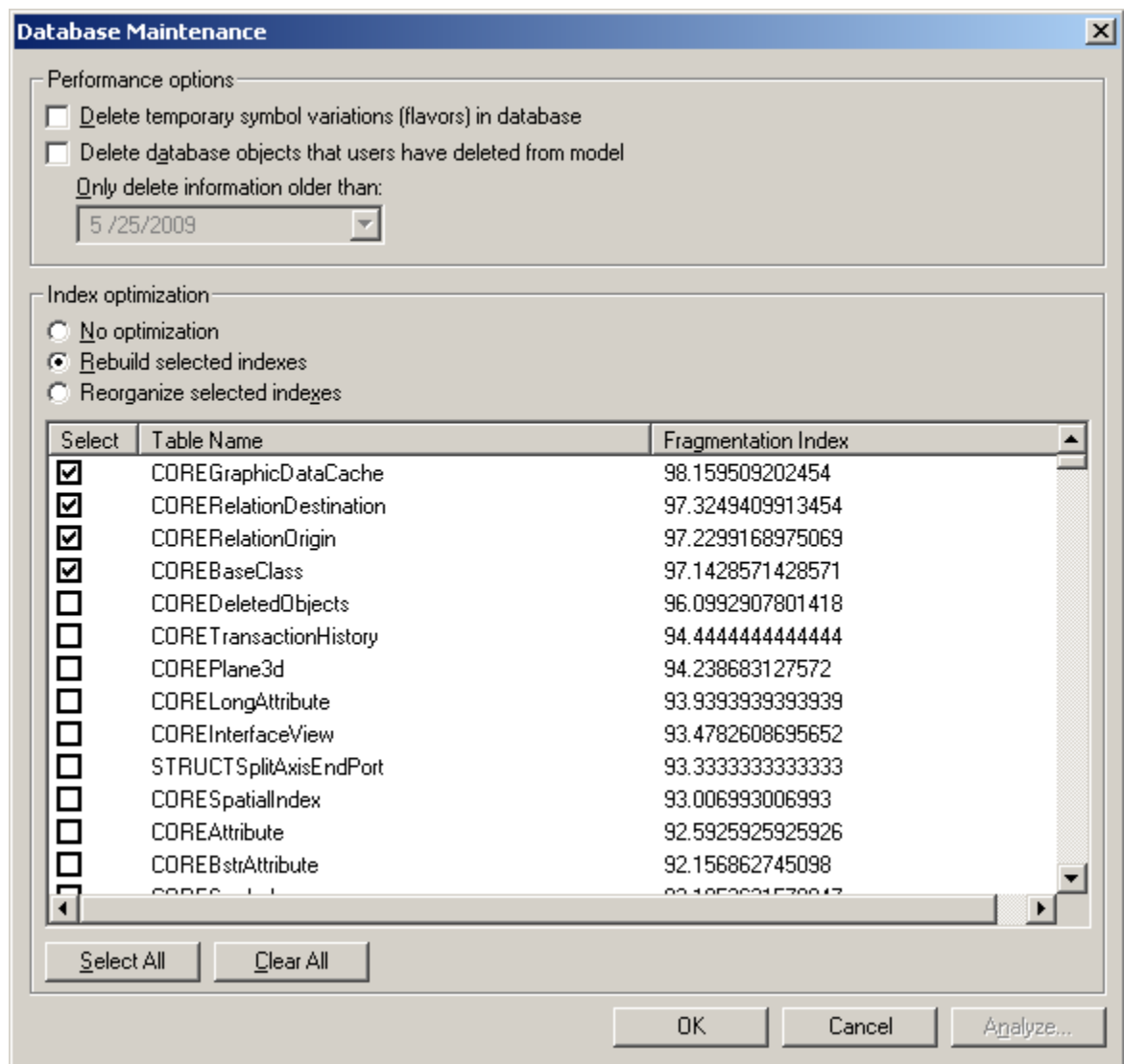
1. Start **Project Management**, select the plant or catalog you want to perform maintenance for, then select **Maintenance** from the **Database** menu



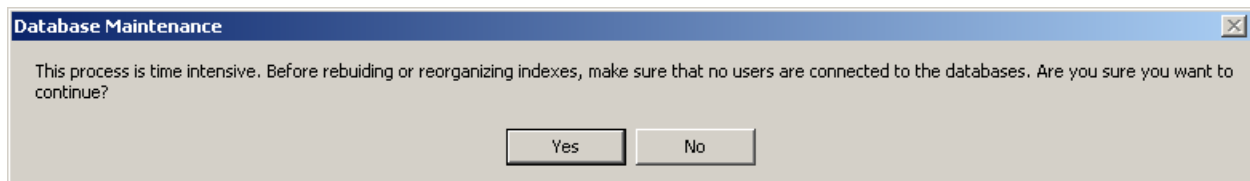
3. To perform these actions, **close** Analyze form and then click **OK** on database maintenance form.



4. Click **Yes**, thus acknowledging that it may take some time.
5. After this process has finished, go back to the **Database Maintenance** form and select **Rebuild selected indexes** option from the Index optimization section, it may take a few seconds to populate the list.



6. Select first four tables as depicted above, click **OK**.



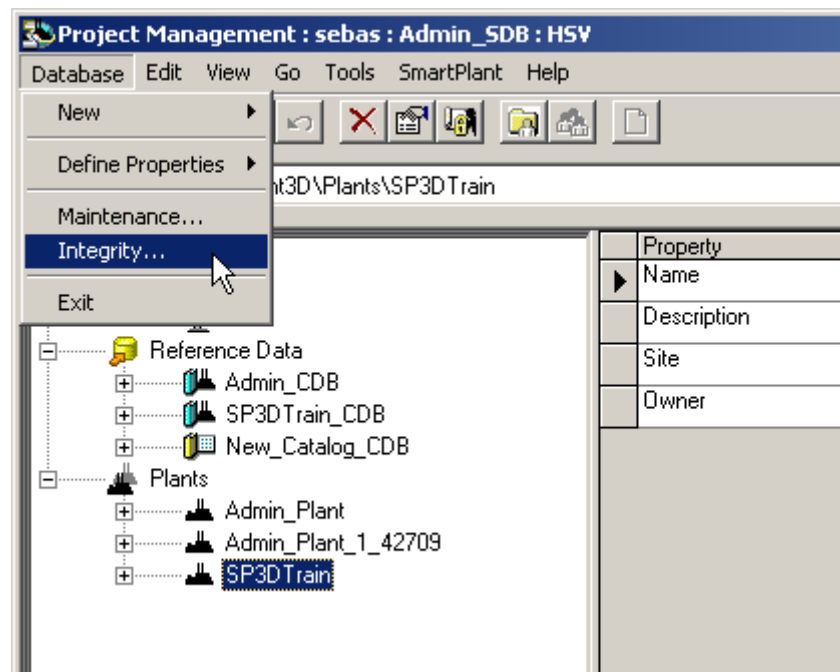
7. Note the warning message and then review the server to ensure that all users followed directions and disconnected.
8. Click **OK** to let the command work.
9. Once the command has completed you can close the form by using X or Cancel button.

LAB 21: Database Integrity

Objectives

After completing this lab, you will be able to:

- Run Database Integrity command to verify consistency of model objects.
1. Open **Project Management** if not already open
 2. Select **SP3D_Train** plant to run integrity check on, then select **Integrity** command from **Database** menu.



Check database:

Check	Database Type	Database Name
<input type="checkbox"/>	Site	Admin_SDB
<input type="checkbox"/>	Model	CopyofSP3DTrain_MDB
<input type="checkbox"/>	Catalog	SP3DTrain_CDB
<input type="checkbox"/>	Reports	SP3DTrain2009_RDB

Status:

Checking:

Options:

☒ Basic check

☐ Full check

Run Exit

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

Check database:

Check	Database Type	Database Name
<input checked="" type="checkbox"/>	Site	Admin_SDB
<input checked="" type="checkbox"/>	Model	CopyofSP3DTrain_MDB
<input checked="" type="checkbox"/>	Catalog	SP3DTrain_CDB
<input type="checkbox"/>	Reports	SP3DTrain2009_RDB

Status:

Checking:

Finished executing the SQL script: CheckControlPoints.sql. Finish Time: 4:41:02 PM.
 Executing the SQL script: CheckNotes.sql. Start Time: 4:41:02 PM
 Finished executing the SQL script: CheckNotes.sql. Finish Time: 4:41:02 PM.
 Executing the SQL script: CheckWBS.sql. Start Time: 4:41:02 PM
 Finished executing the SQL script: CheckWBS.sql. Finish Time: 4:41:02 PM.
 Executing the SQL script: CheckNameRule.sql. Start Time: 4:41:02 PM
 Finished executing the SQL script: CheckNameRule.sql. Finish Time: 4:41:02 PM.
 Executing the SQL script: CheckSketchAide.sql. Start Time: 4:41:02 PM

Options:

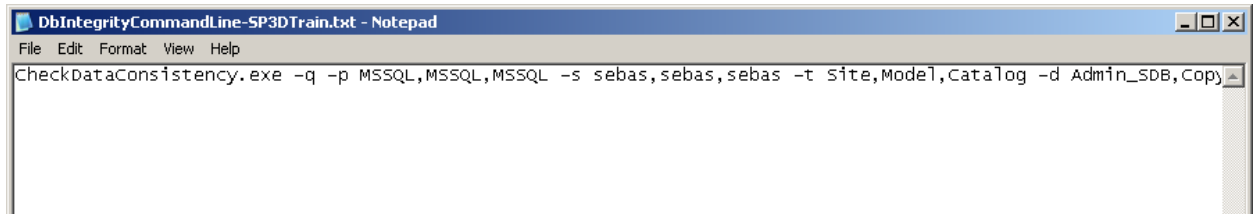
☒ Basic check

☐ Full check

Run Exit

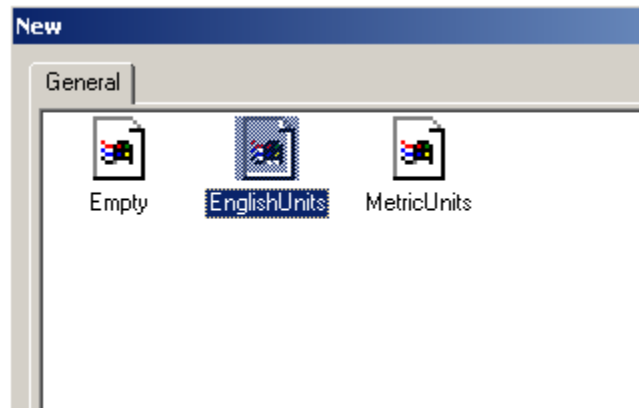
4. Exit the form when finished.

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.

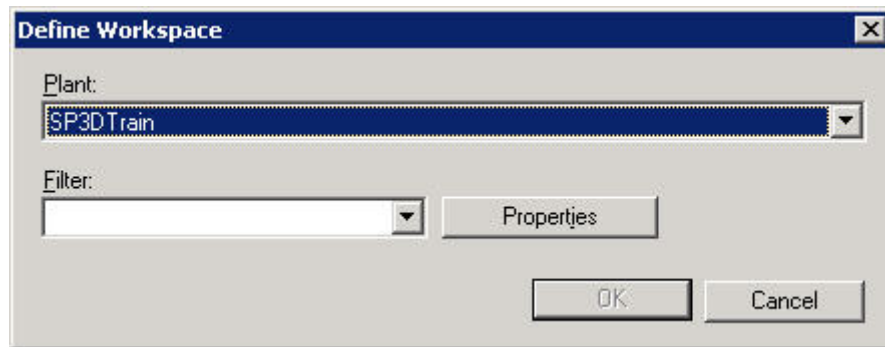


Note: Once Database Integrity has finished, next action is to clean the database for issues that were found. The Clean Database command is not yet integrated in the GUI environment, you will need to use a special custom command with progID SP3DCleanDatabaseCmd.CCheckObj to perform clean procedure. This command needs to be executed from an SP3D session as there may be objects that need to be modified in the graphical environment. An example of how to access this command from an SP3D session in the event that there were items to be cleaned is as follows.

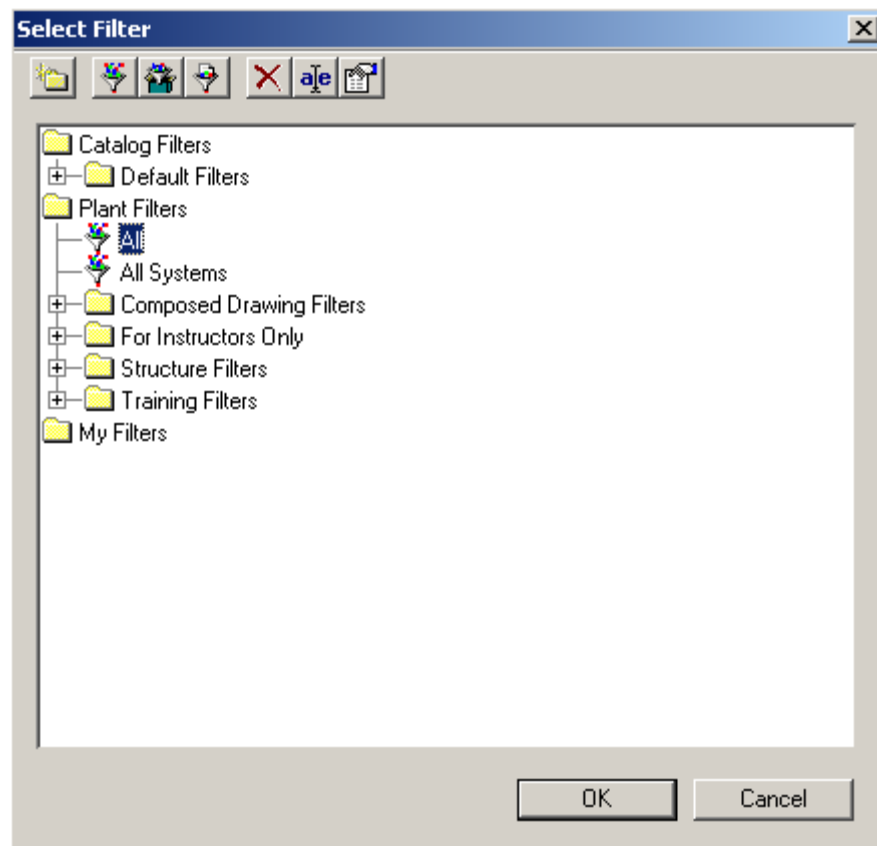
7. Start SmartPlant 3D, select EnglishUnits Session template:



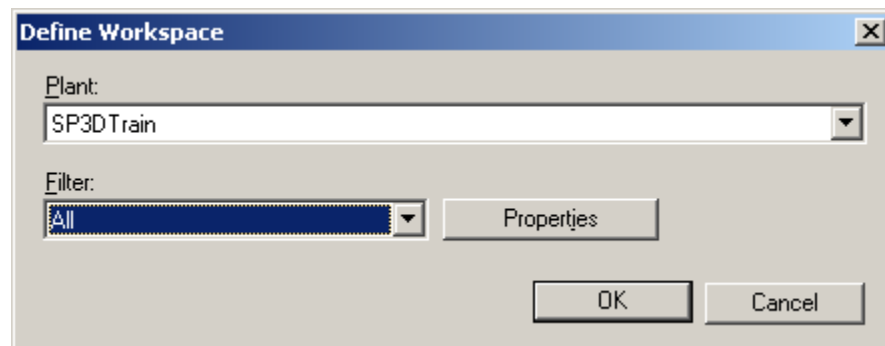
8. Click **OK**
9. Use File → Define Workspace to select **SP3DTrain** plant:



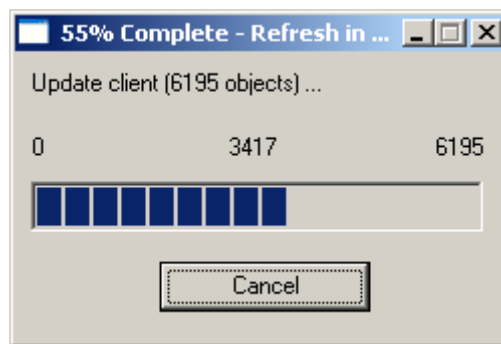
10. From the Filter drop down select **More** and then select **ALL** filter



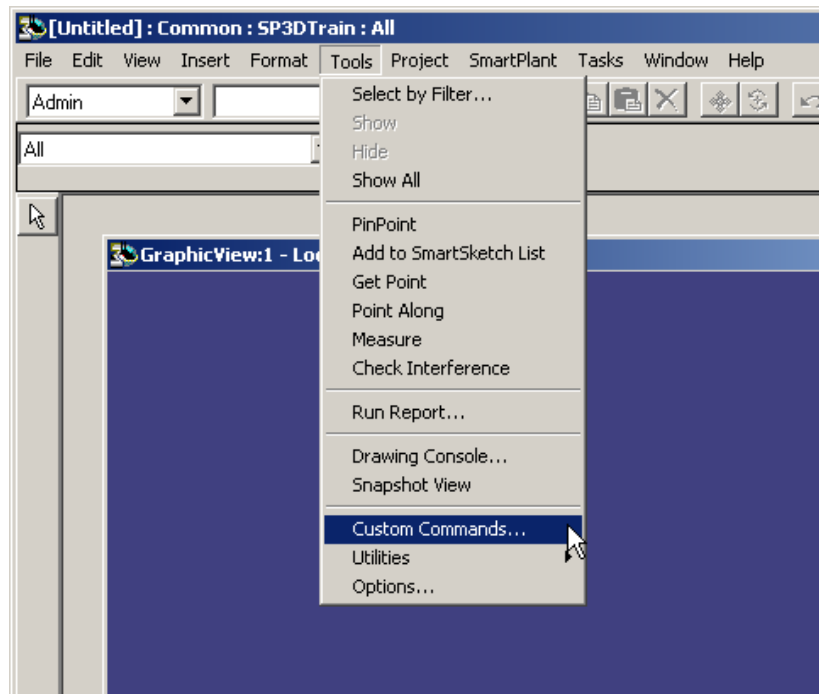
11. Click **OK**



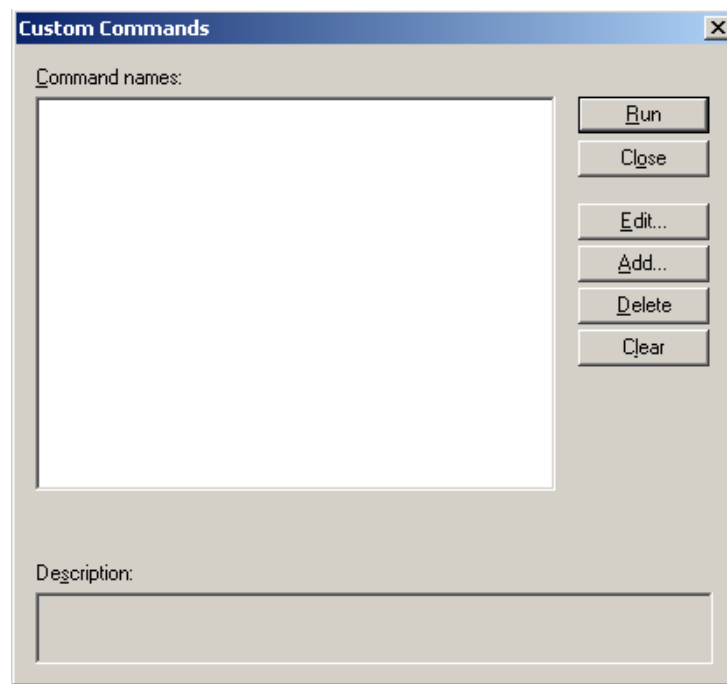
12. Click **OK** on Define Workspace form and allow Refresh to complete.



13. From **Tools** menu select **Custom Command**

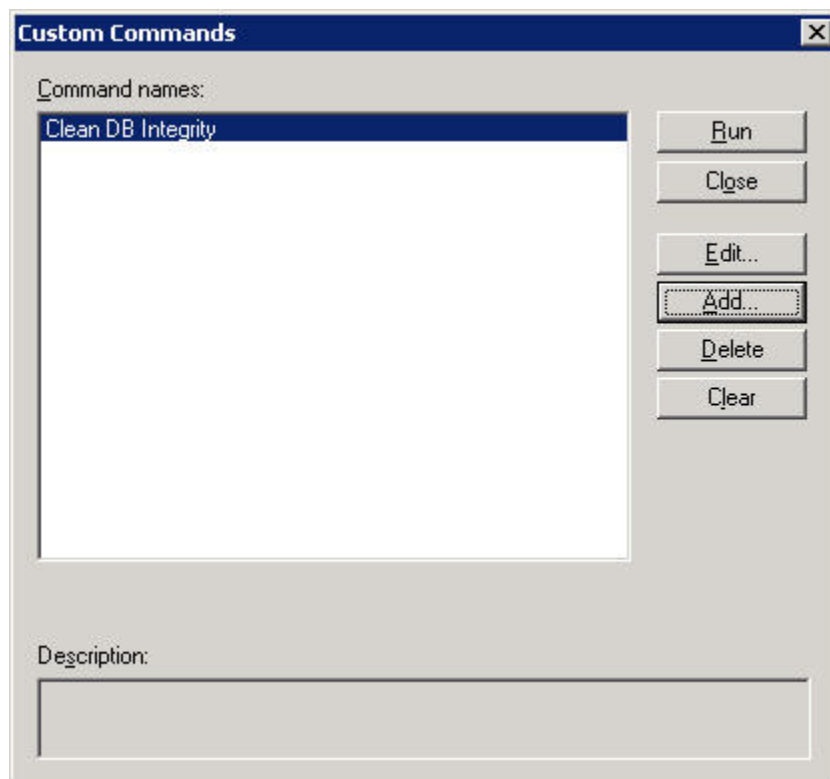


14. Following form will be displayed:

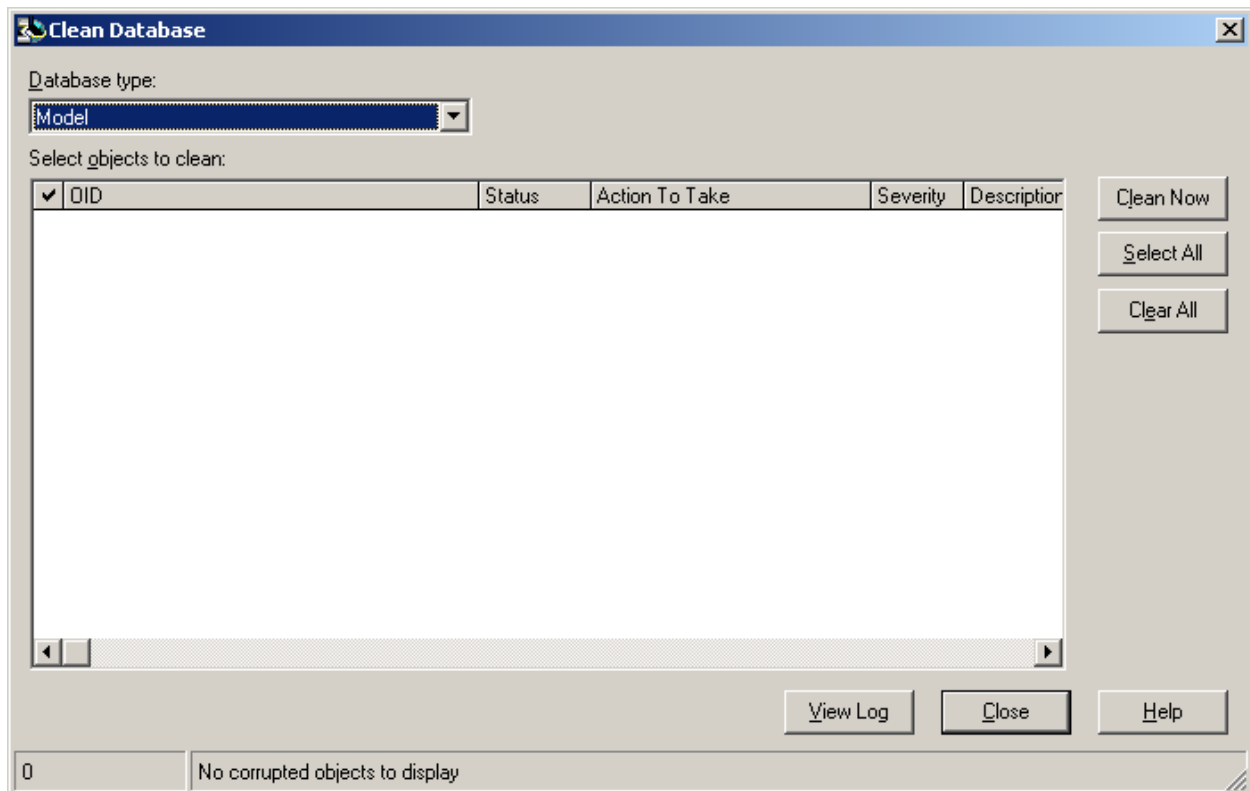


15. Click **Add** button

16. Click **OK** after completing the form as depicted above.



17. Click **Run** command.

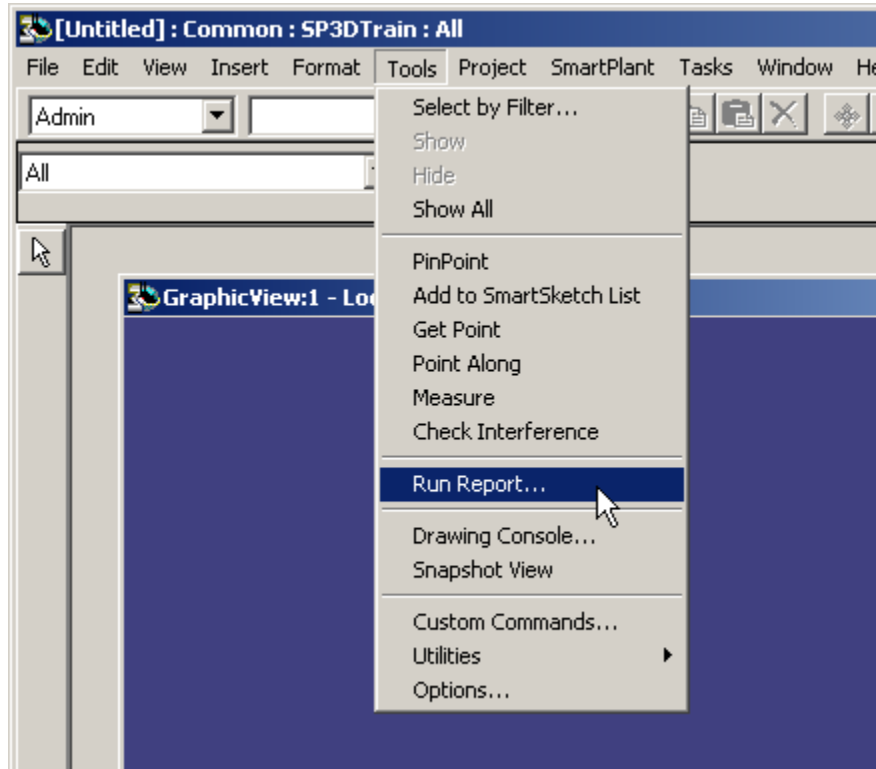


18. In general, you will use this Form to select any items appearing on the list and then perform a Clean Now operation. Refer to the DBIntegrity.pdf help file (located in

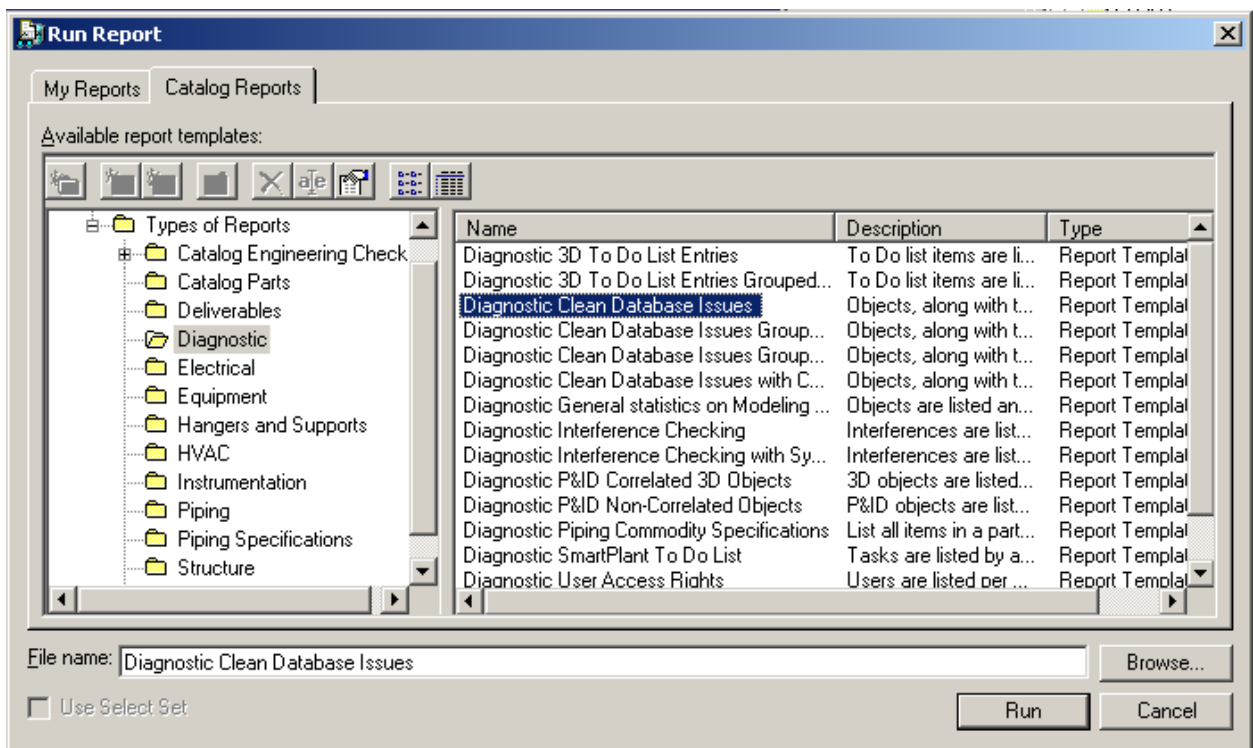
C:\Program Files\Common Files\Intergraph\SmartPlant\Help) for more detailed information on specific issues.

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

20. From the **Tools** menu select **Run Reports**.



21. 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. From the **Catalog Reports** tab, select report Diagnostic Clean Database Issues 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.



22. Click **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).



Microsoft Excel - Diagnostic Clean Database Issues.xls [Read-Only]								
File Edit View Insert Format Tools Data Window Help								
Type a question for help								
B3								
1	Plant Name:	SP3DTrain						
2	User:	INGRNETAdministrator						
3								
4	Diagnostic Clean Database Issues							
5	Note: In normal operation, this report should not return any value.							
6	Object							
7	Name (Or Class Name)	DataStore	State	OID	Date Created	Date Deleted	Application	Sta
8	First Relations	In Todo List	Approval	Permission Group	Date Modified	Deleted by	Owner	Sev
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								

23. **Close** Excel after revision of reported objects (none in this example) and then Close SP3D session. If prompted to save a Session file, select no.

LAB 22: Reference a PDS Project (Optional)

Guidelines

SmartPlant 3D V2009 SP1 can only reference PDS projects version 8.0 or later.

The PDS project is assumed to be setup as usual on a PDS server. Any database type (SQL or Oracle) may be used for the PDS project.

Software installed

The following software must be installed on an SP3D client that references a PDS project on a PDS server.

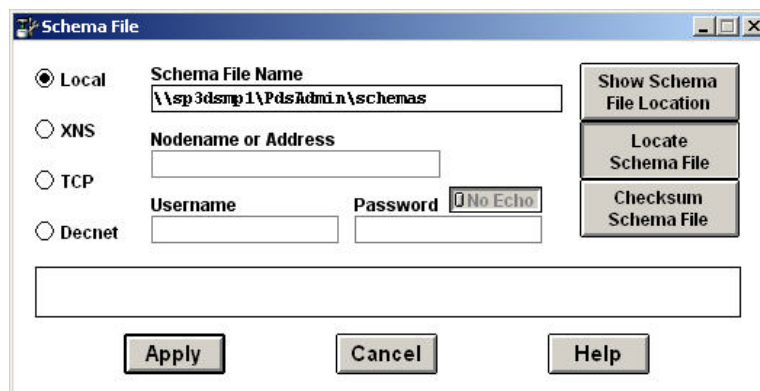
1. SmartPlant License Manager
2. PD_Shell (Plant Design System environment)
3. RIS_Share (RIS Shared Components)
4. Batch Services

Procedure to reference

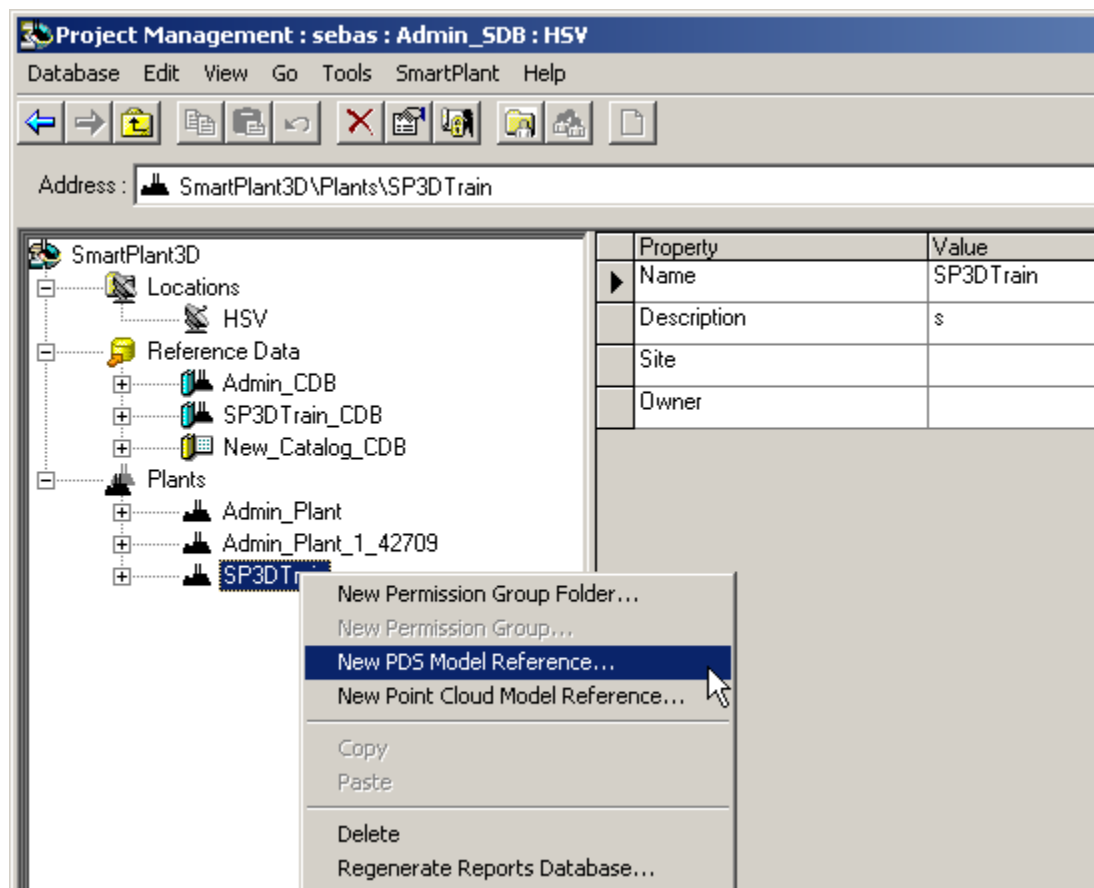
1. Using PDS Configure, point to pds.cmd file that contains the path to the profile containing PDS project to reference



2. Using RIS Schema Manager point to schema file for PDS project to reference



3. Using Project Management, attach the PDS project to the SP3D plant by selecting a plant, right mouse click and select **New PDS Model Reference** from the list.



Dos and don'ts

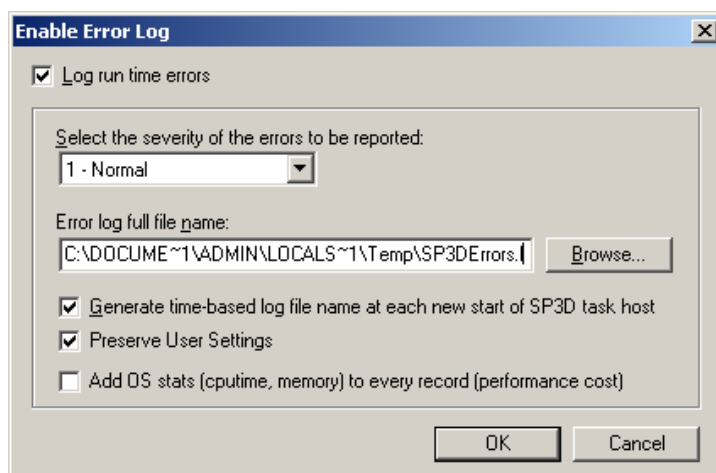
1. Don't de-reference a PDS project and re-reference it to the same SP3D plant. This generates a new reference string and invalidates prior filters.
2. If two SP3D plants that share a catalog refer the same PDS project, de-referencing it from one plant de-references it from the other plant as well.

LAB 23: Error log files

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 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, SmartPlant 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 location `..\Core\Tools\Administrator\Bin\` and execute program `ErrorLogEnable.exe`
3. Set options according to following values

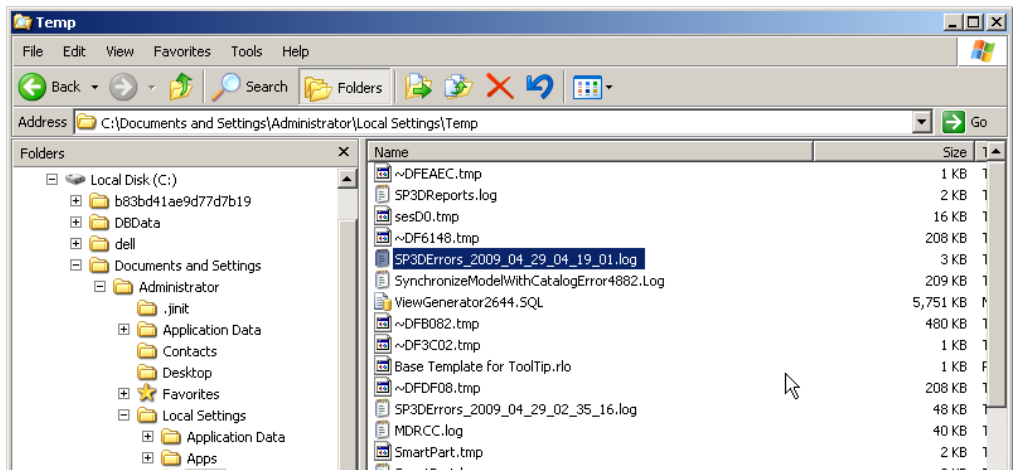


Note: Ensure the path that is provided on the form is writable by all local users (if it is not, then it will not be written for these users because it will not be able to write to the specified location).

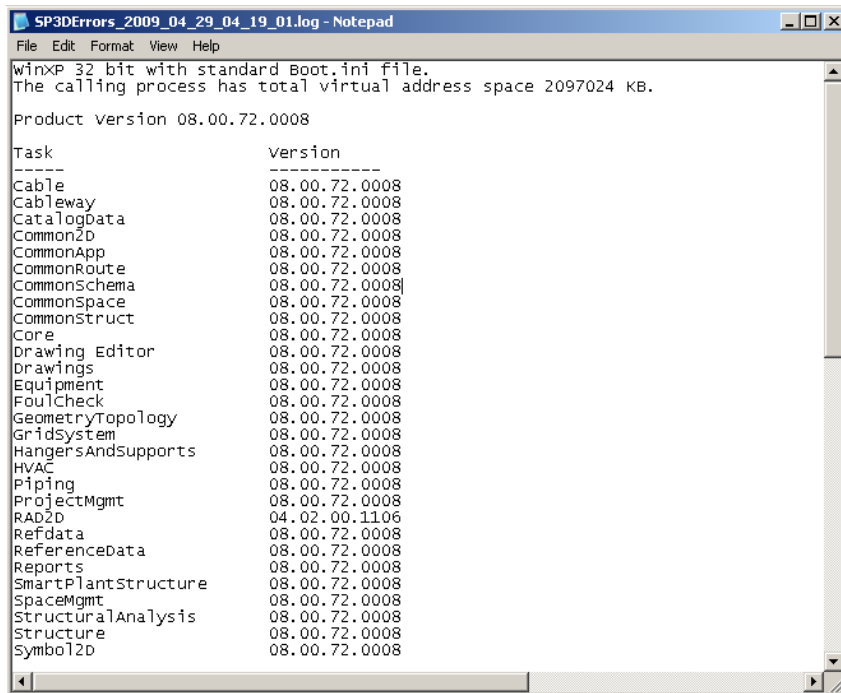
In General, severity level “1-Normal” will usually be sufficient, but there may be times when the support analyst working a problem you are reporting, will have you adjust this value.

You will need to close SmartPlant 3D and start it once 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 temp directory every time a session is opened and closed. A different error log is going to be created for each instance of SP3D opened.
6. Open **SmartPlant 3D** to generate a new log file.
7. Navigate to temp folder (you can type in the address bar of a Windows Explorer window %temp% then enter)



8. Open the most recent SP3D 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.



9. The information reported initially will help to identify the kind of operating system, the presence of the /3GB switch, total addressable memory, product version (very helpful when troubleshooting setup issues).
10. Further down, information about process ID and path to TaskHost executable file can be seen, alongside with display rendering settings.

```

SP3DErrors 2009_04_29_04_19_01.log - Notepad
File Edit Format View Help

PID: 1724
Executable: [C:\Program Files\SmartPlant\3D\workstation\Core\Container\Bin\Taski
Command Line: [ "C:\Program Files\SmartPlant\3D\workstation\Core\Container\Bin\

*** warning ***
Time      : 04/29/09  04:19:08
OS        : pid=1724, cputime=0.203 secs, memory (commit=49.297, reserved=44.1
ID        : 0x00000001(1)(1);SPLM
Source    : SPLM
Desc      : SPLM warning : License Expires within [Days] - 11 - sp3dsuptng

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

*** Info ***
Time      : 04/29/09  04:19:16
OS        : pid=1724, cputime=2.250 secs, memory (commit=190.715, reserved=117
ID        : 0x00000000(0)(0);CMNAPPTreeCache
Source    : SPRLE!OpenGLManager::init_gl_pfds
Desc      : Selected PixelFormatDescriptor
PixelFormat 8
Version 1
Flags DOUBLEBUFFER DRAW_TO_WINDOW SUPPORT_GDI SUPPORT_OPENGL SWAP_COPY
PixelFormat RGBA
ColorBits 32  R 8  G 8  B 8  A 8
AccumBits 64  R 16 G 16 B 16 A 16
DepthBits 24
StencilBits 0

Help      : ..\OpenGLManager\GLContext.cpp;768

*** Info ***
Time      : 04/29/09  04:19:17
Source    : IMSCommandManager2.CommandManager.1
Desc      : [Command] Fire_OnCmdStart: Sequence=0, ProgId='IMSSelectCmd.CSelec

```

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 files as a regular methodology to track down and find clues when performing troubleshooting.
12. Close log file and SmartPlant 3D session

LAB 24: Interference Checking

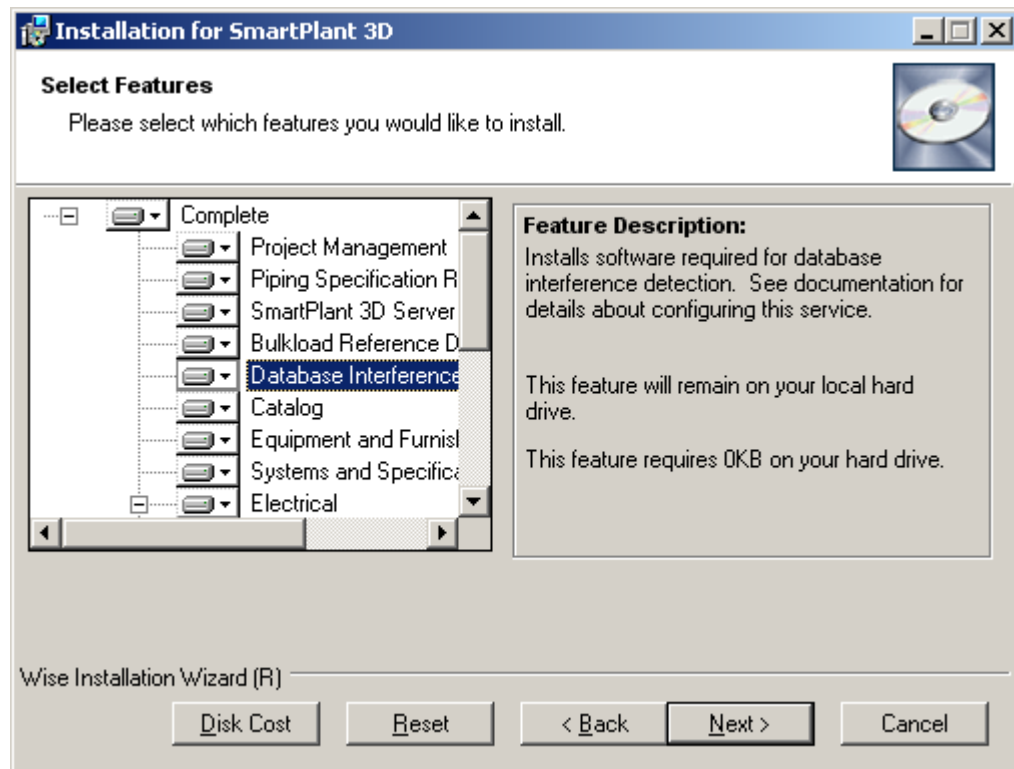
Objectives

After completing this lab, you will be able to:

- Configure an Interference Checking Server for a particular project.
- Enable and use Local detect.
- Review interference objects using the List view from within local detect interference settings.

Database Detect

During installation of the software, the option “Database Interference Detection Service” was selected from the list of available features, thus making this workstation a potential IFC Server.

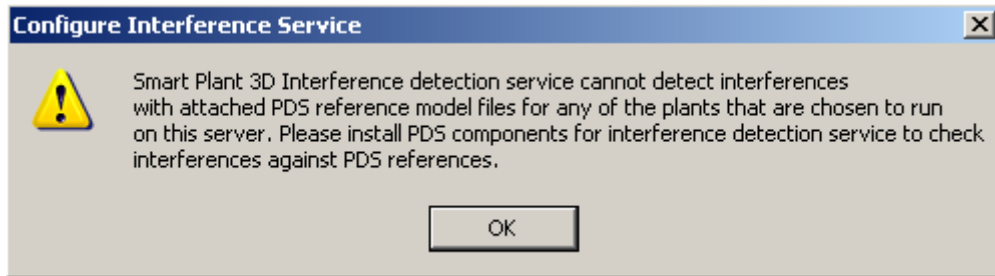


During this lab practice, the word IFC will be used to refer Interference Checking

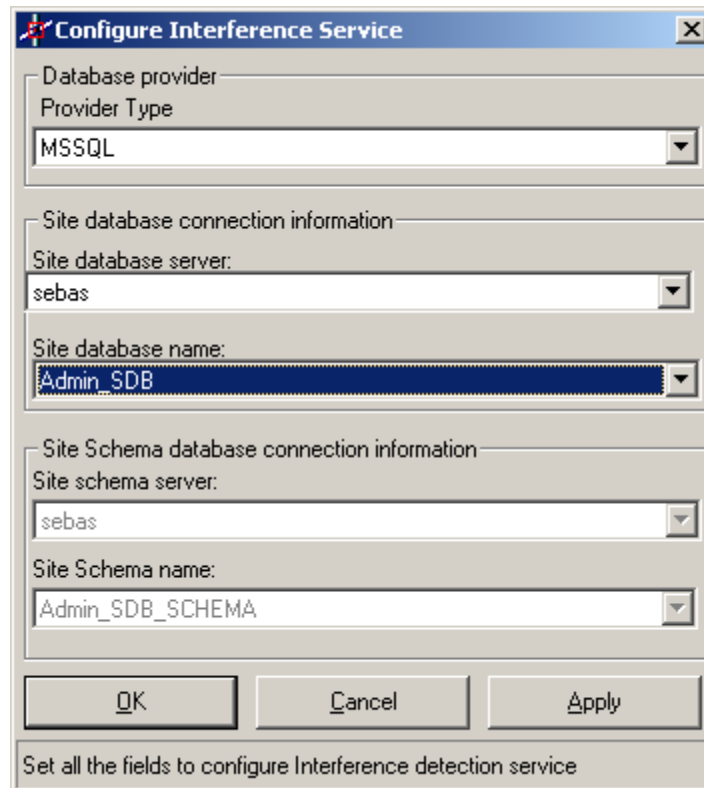
1. Click on the Configure Interference Service option

 found in Start → All Programs → Intergraph SmartPlant 3D → Database Tools → **Configure Interference Service**

2. The following message may appear depending upon the configuration of your workstation, if it does, then click **OK**.

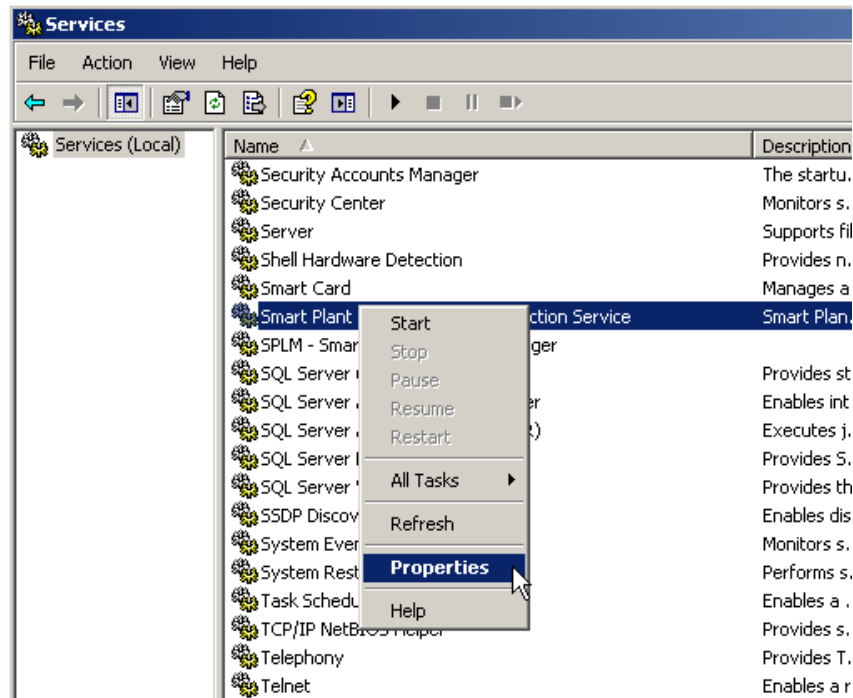


3. Complete the form as depicted below identifying Admin_SDB and Admin_SDB_SCHEMA. By completing this form in this manner you are indicating that this IFC Server can process any Plant that belongs to this Site Database.

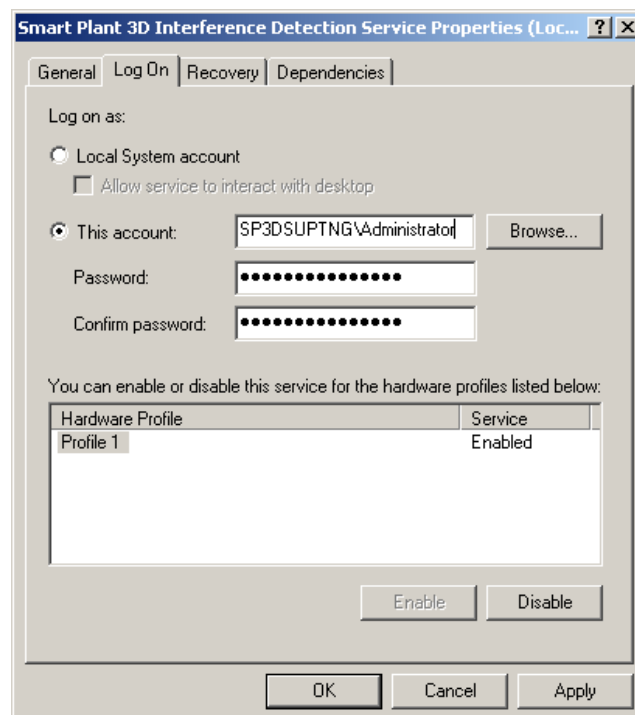
A screenshot of the "Configure Interference Service" dialog box. It contains three sections of configuration fields. The first section, "Database provider", has a "Provider Type" dropdown menu set to "MSSQL". The second section, "Site database connection information", has a "Site database server" dropdown set to "sebas" and a "Site database name" dropdown set to "Admin_SDB". The third section, "Site Schema database connection information", has a "Site schema server" dropdown set to "sebas" and a "Site Schema name" dropdown set to "Admin_SDB_SCHEMA". At the bottom, there are three buttons: "OK", "Cancel", and "Apply". Below the buttons, a text label reads "Set all the fields to configure Interference detection service".

4. Click **OK**.

5. Open a windows **services console** and locate SP3D IFC Service named **Smart Plant 3D Interference Detection Service**, right click on it and select **Properties**.



6. Switch to **Log On** tab and select Log on as option **This account**, 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 local administrator account credentials then click **OK**.

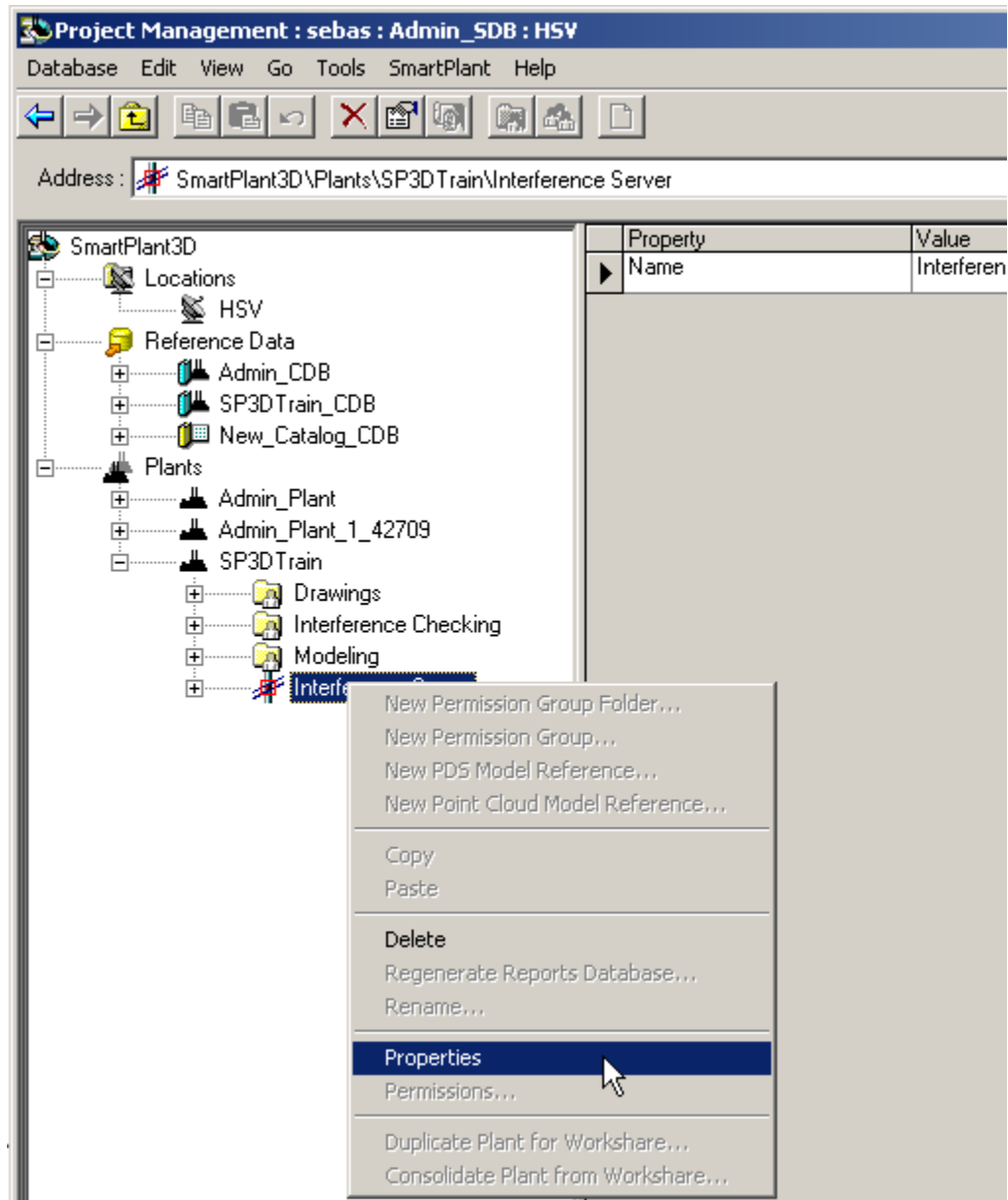


Note: In a production project, this identity is a domain account that meets the following permission requirements.

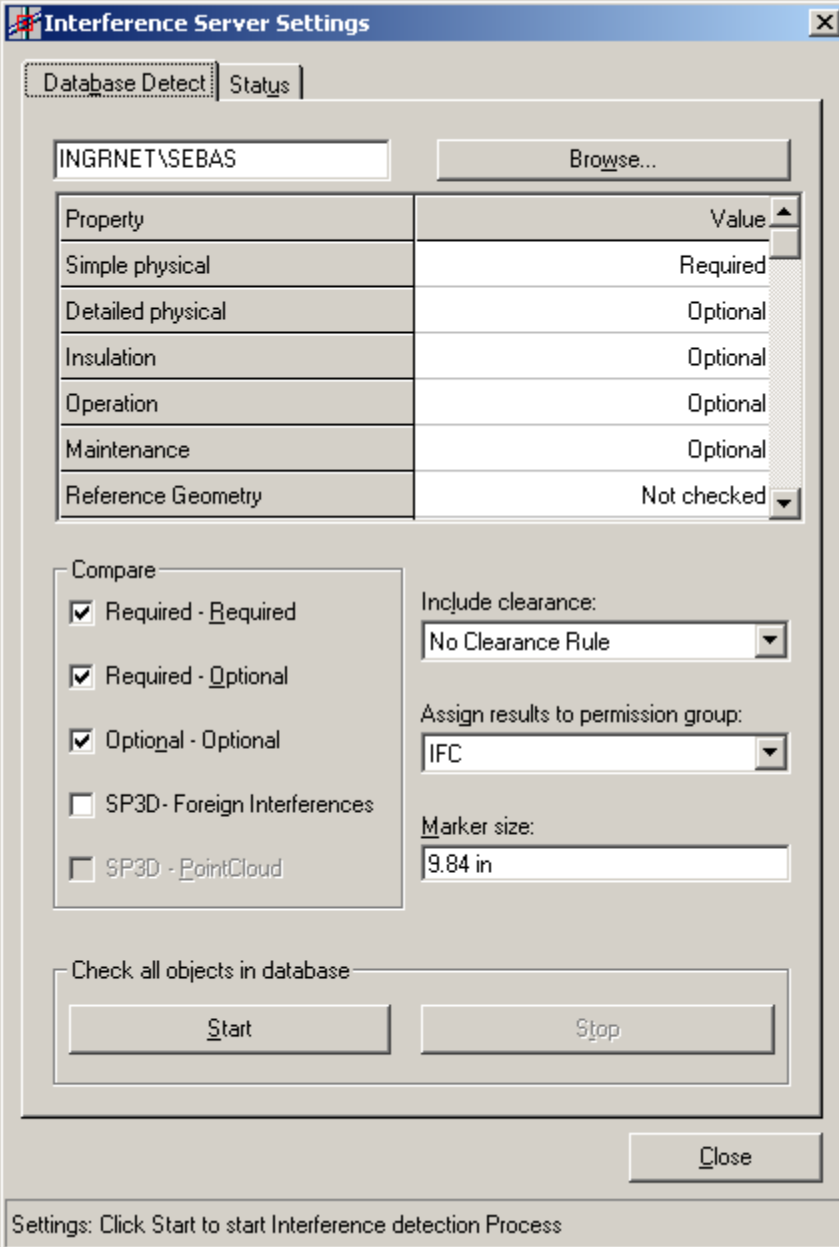
- Account is included in local administrators group
- Has database access and permissions as a regular user to SQL or Oracle database
- Has write or higher level of access to at least one permission group

7. **Start** windows service **Smart Plant 3D Interference Detection Service**.

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



9. Complete the form as depicted below, taking care to identify the machine used for training in the form of 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.



The dialog box is titled "Interference Server Settings" and has two tabs: "Database Detect" (selected) and "Status".

Under the "Database Detect" tab, there is a text field containing "INGRNET\SEBAS" and a "Browse..." button to its right.

Below this is a table with two columns: "Property" and "Value".

Property	Value
Simple physical	Required
Detailed physical	Optional
Insulation	Optional
Operation	Optional
Maintenance	Optional
Reference Geometry	Not checked

Below the table is a "Compare" section with a list of checkboxes:

- ☒ Required - Required
- ☒ Required - Optional
- ☒ Optional - Optional
- ☐ SP3D - Foreign Interferences
- ☐ SP3D - PointCloud

To the right of the "Compare" section are three settings:

- "Include clearance:" with a dropdown menu showing "No Clearance Rule".
- "Assign results to permission group:" with a dropdown menu showing "IFC".
- "Marker size:" with a text field showing "9.84 in".

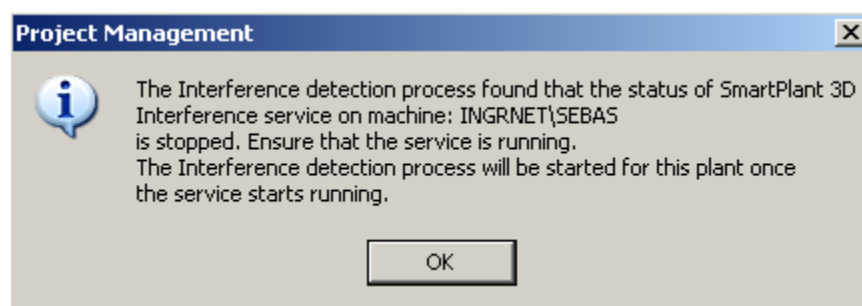
At the bottom of the dialog, there is a "Check all objects in database" section with two buttons: "Start" and "Stop".

At the very bottom right is a "Close" button.

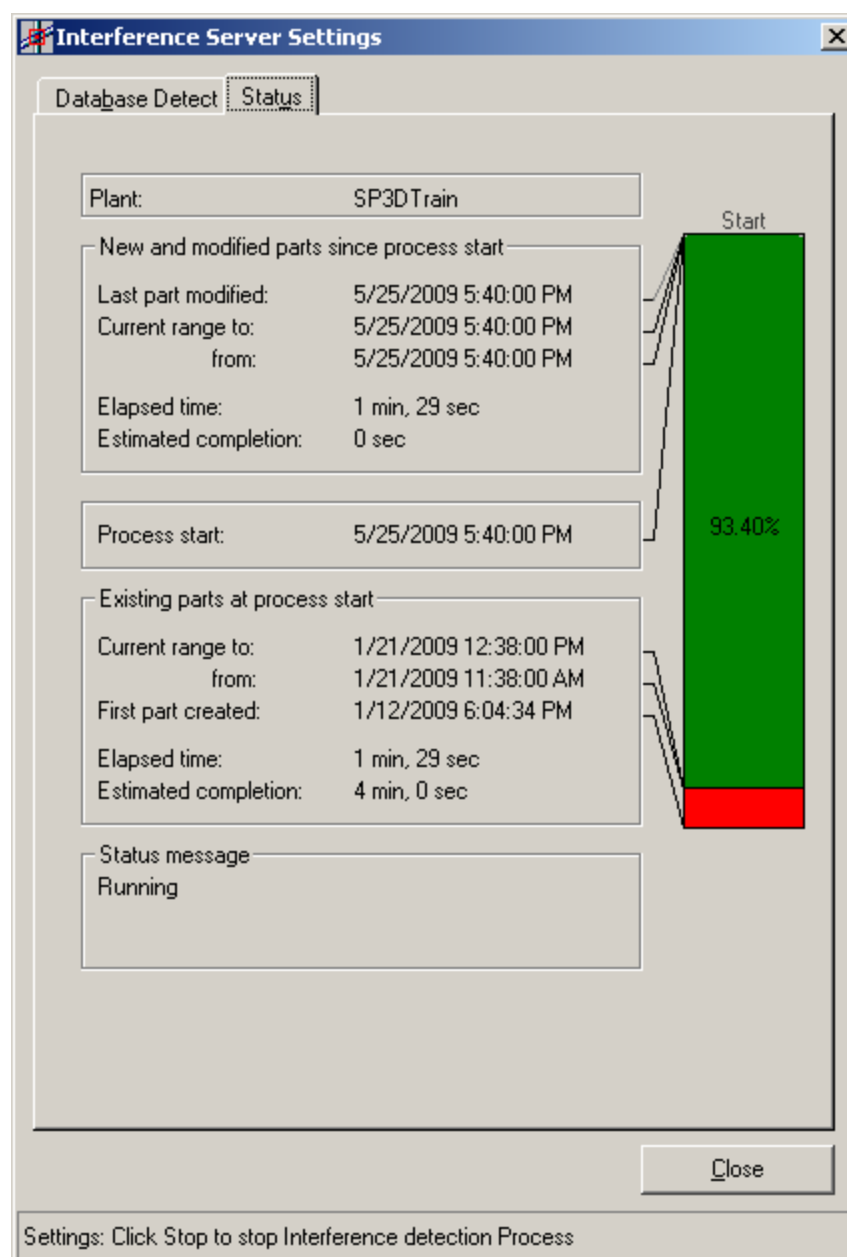
A status bar at the bottom of the dialog reads: "Settings: Click Start to start Interference detection Process".

10. Click the **Start** Button.

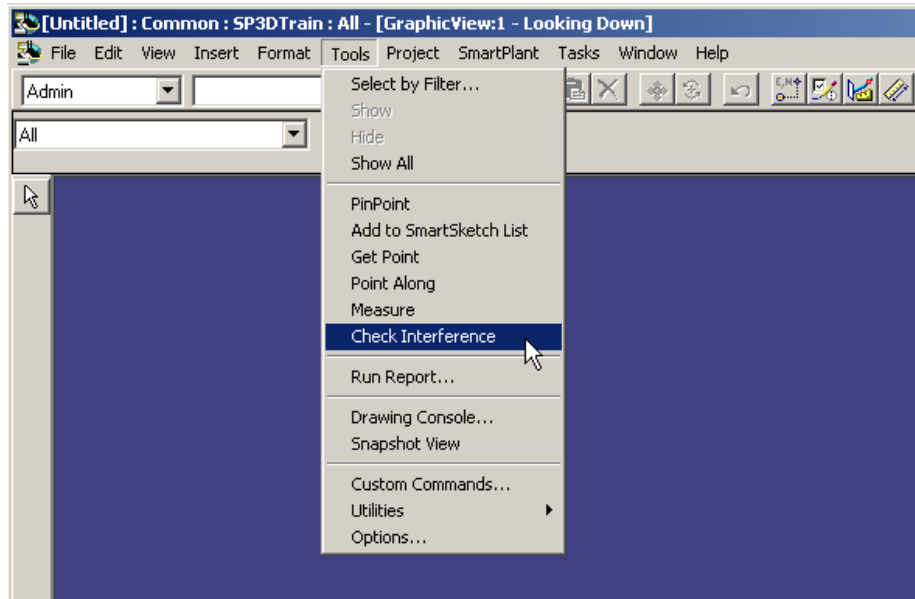
Note: If the Service was not started in previous steps, you may be presented with the following message:



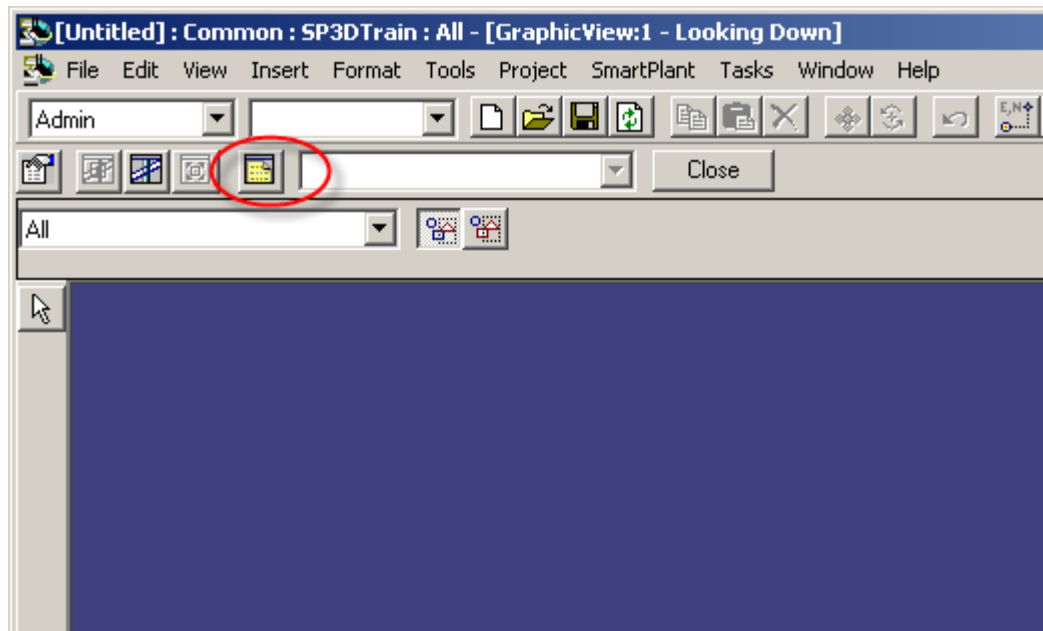
11. It may take up to 4 minutes for the processing to start. When it begins to run, you can review the progress on the Status tab



12. When process reaches 99% or 100% start **Smart Plant 3D**, define a workspace on plant **SP3DTrain** with the **All** filter.
13. From the **Tools** menu select **Check Interference**




14. A new toolbar will be displayed, Click on the yellow icon to see the Interference List



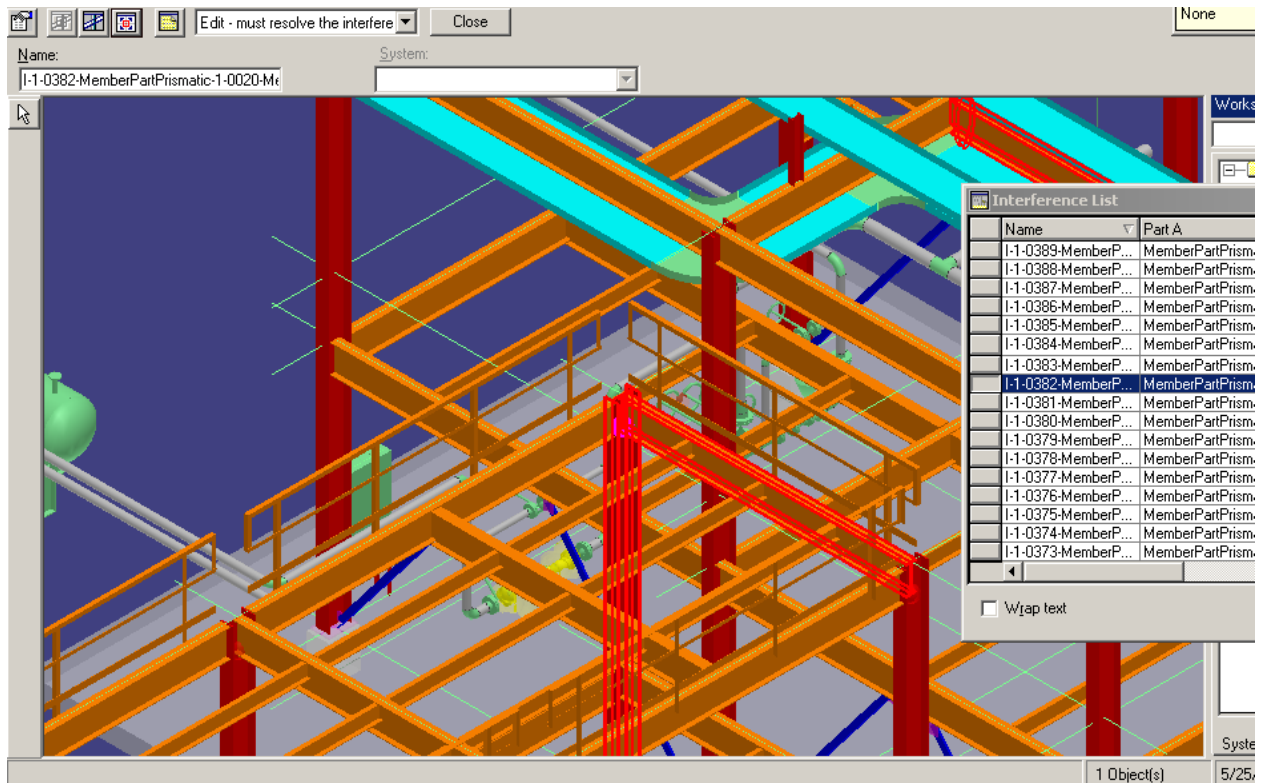
Interference List						
Name	Part A	Part B	Type	Required Action	Last Modified	
I-1-0389-MemberP...	MemberPartPrisma...	Slab-1-0011	Severe	Edit - must resol...	2009-05-25 17:40:51	
I-1-0388-MemberP...	MemberPartPrisma...	Slab-1-0012	Severe	Edit - must resol...	2009-05-25 17:40:51	
I-1-0387-MemberP...	MemberPartPrisma...	WallPart-1-0012	Severe	Edit - must resol...	2009-05-25 17:40:51	
I-1-0386-MemberP...	MemberPartPrisma...	Slab-1-0012	Severe	Edit - must resol...	2009-05-25 17:40:51	
I-1-0385-MemberP...	MemberPartPrisma...	MemberPartPrisma...	Severe	Edit - must resol...	2009-05-25 17:40:50	
I-1-0384-MemberP...	MemberPartPrisma...	MemberPartPrisma...	Severe	Edit - must resol...	2009-05-25 17:40:50	
I-1-0383-MemberP...	MemberPartPrisma...	MemberPartPrisma...	Severe	Edit - must resol...	2009-05-25 17:40:50	
I-1-0382-MemberP...	MemberPartPrisma...	MemberPartPrisma...	Severe	Edit - must resol...	2009-05-25 17:40:50	
I-1-0381-MemberP...	MemberPartPrisma...	MemberPartPrisma...	Severe	Edit - must resol...	2009-05-25 17:40:50	
I-1-0380-MemberP...	MemberPartPrisma...	MemberPartCurve...	Severe	Edit - must resol...	2009-05-25 17:40:50	
I-1-0379-MemberP...	MemberPartPrisma...	MemberPartPrisma...	Severe	Edit - must resol...	2009-05-25 17:40:50	
I-1-0378-MemberP...	MemberPartPrisma...	Beam_BlockExpos...	Optional	Undefined - not ...	2009-05-25 17:40:50	
I-1-0377-MemberP...	MemberPartPrisma...	MemberPartPrisma...	Severe	Edit - must resol...	2009-05-25 17:40:50	
I-1-0376-MemberP...	MemberPartPrisma...	MemberPartPrisma...	Severe	Edit - must resol...	2009-05-25 17:40:50	
I-1-0375-MemberP...	MemberPartPrisma...	Slab-1-0201	Severe	Edit - must resol...	2009-05-25 17:40:50	
I-1-0374-MemberP...	MemberPartPrisma...	Slab-1-0006	Severe	Edit - must resol...	2009-05-25 17:40:50	
I-1-0373-MemberP...	MemberPartPrisma...	Slab-1-0004	Severe	Edit - must resol...	2009-05-25 17:40:50	


☐ Wrap text Close

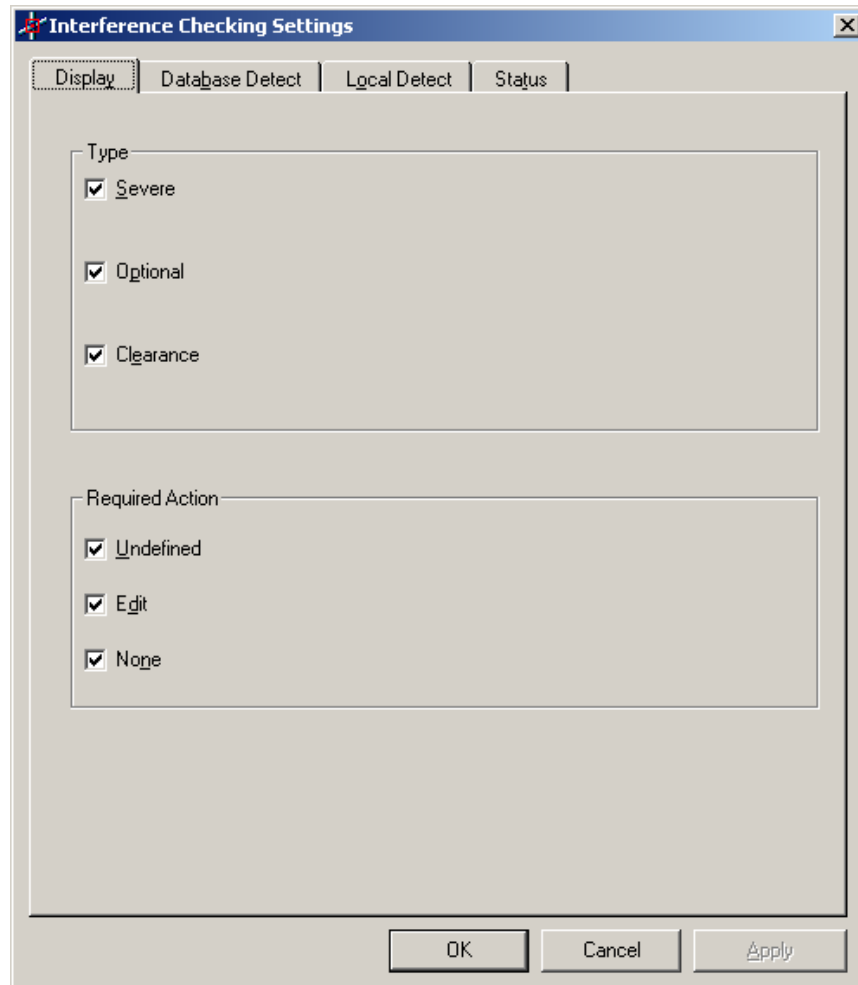
15. Hold the **Ctrl** key and select any **row header** from this list, the IFC object will be highlighted.

16. Click on **Fit Interferences** button  located on Interference checking toolbar.

17. The graphic window will zoom you to that interference and the objects involved, change to an isometric view for better viewing.

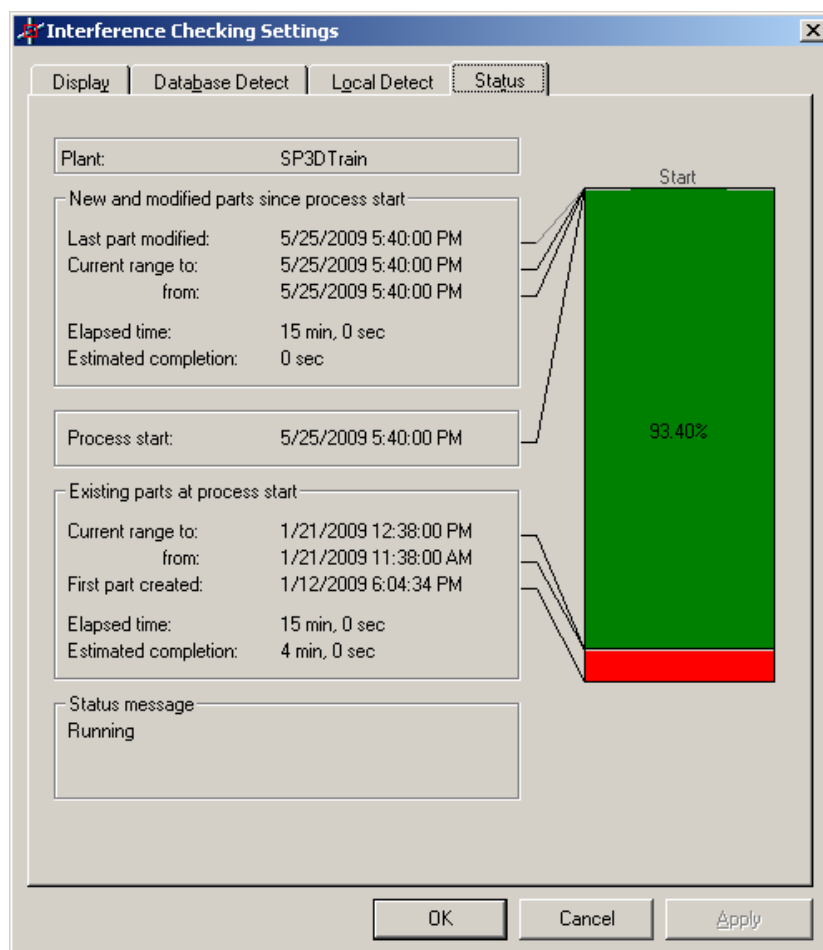


18. Any user can turn on/off the IFC objects that are displayed graphically on a session by using  Settings button to access following form

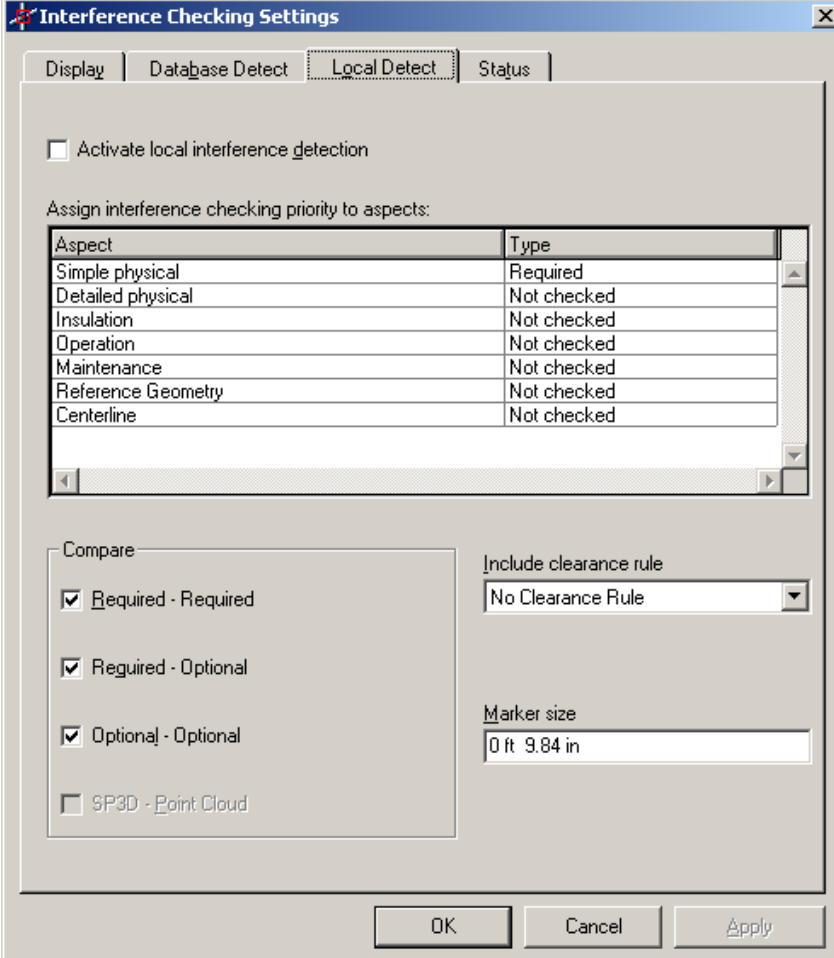


The image shows a dialog box titled "Interference Checking Settings". It has four tabs: "Display", "Database Detect", "Local Detect", and "Status". The "Display" tab is currently selected. Inside the "Display" tab, there are two sections. The first section is labeled "Type" and contains three checkboxes: "Severe", "Optional", and "Clearance", all of which are checked. The second section is labeled "Required Action" and contains three checkboxes: "Undefined", "Edit", and "None", all of which are checked. At the bottom of the dialog box, there are three buttons: "OK", "Cancel", and "Apply".

19. De-selecting checkboxes from Type or Required Action sections will hide IFC markers from the current view (though they will still exist in the database).
20. The status tab can also be used to review progress of database detect in workstations where project management is not installed.



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



The dialog box is titled "Interference Checking Settings" and has four tabs: "Display", "Database Detect", "Local Detect" (which is selected), and "Status".

Under the "Local Detect" tab, there is a checkbox labeled "Activate local interference detection" which is currently unchecked.

Below this is a section titled "Assign interference checking priority to aspects:" containing a table with two columns: "Aspect" and "Type".


Aspect	Type
Simple physical	Required
Detailed physical	Not checked
Insulation	Not checked
Operation	Not checked
Maintenance	Not checked
Reference Geometry	Not checked
Centerline	Not checked

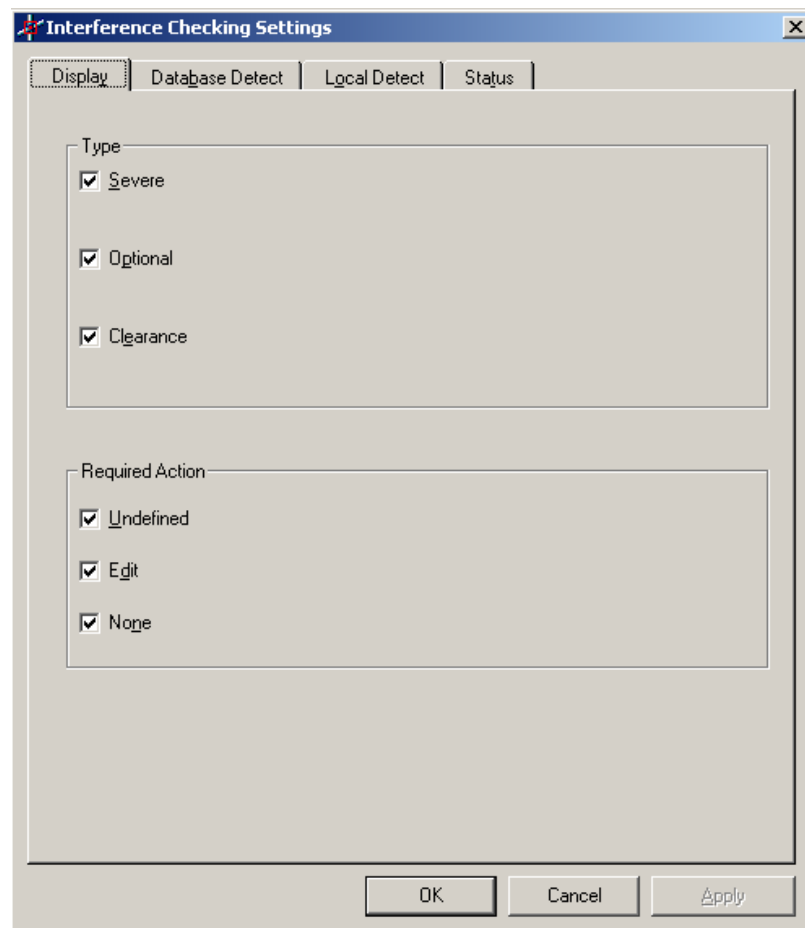
At the bottom of the dialog, there is a "Compare" section with four checkboxes: "Required - Required" (checked), "Required - Optional" (checked), "Optional - Optional" (checked), and "SP3D - Point Cloud" (unchecked). To the right of this section is a dropdown menu labeled "Include clearance rule" with "No Clearance Rule" selected. Below that is a text field labeled "Marker size" containing the value "0 ft 9.84 in".

At the very bottom are three buttons: "OK", "Cancel", and "Apply".

22. **Close** interference checking settings form.
23. Enable **Interference list** from the toolbar or bring it to focus. Expand it so as to see the Notes column.
24. Click the notes field of any IFC entry and start typing a Note. Try to find this interference in the Model and review its properties, the note should be there as well.
25. Right click any Interference under the Name column and the properties page for that interference will appear.
26. 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 options set in Project Management on IFC form.

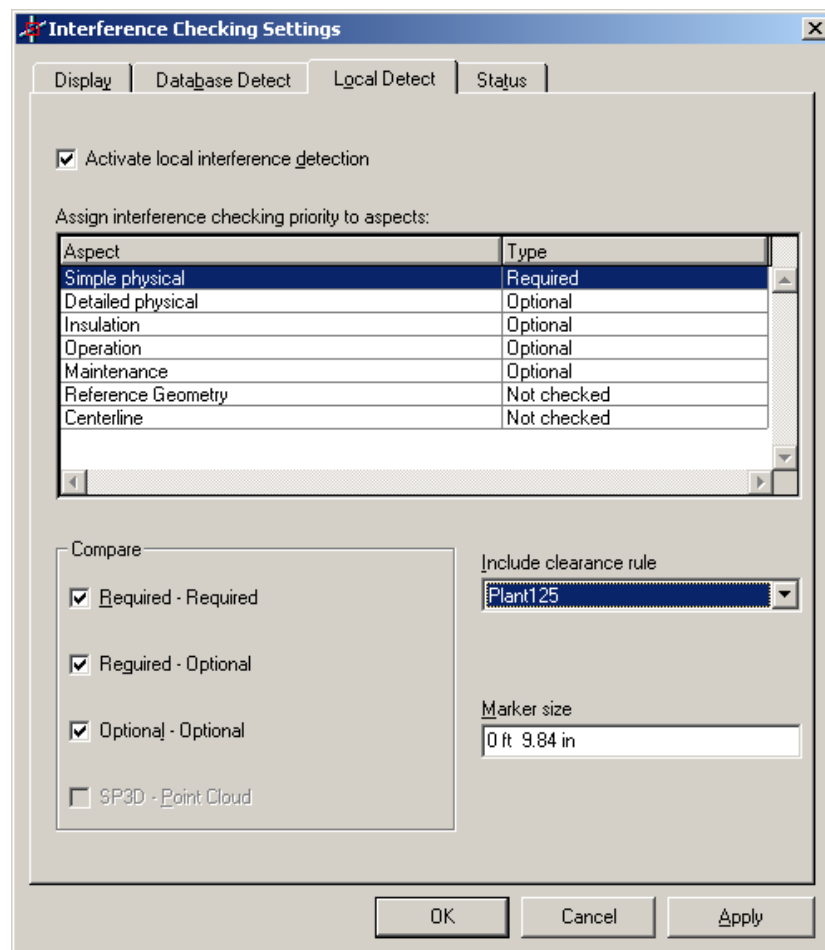
Local Detect

1. Start **SmartPlant 3D** (Start → All Programs → Intergraph SmartPlant 3D → SmartPlant 3D) if not already open.
2. **Define a workspace** using the **All** filter or refresh the session.
3. If IFC toolbar is not already enabled, from the **Tools** menu, select **Check Interference**.
4. Click the left most button for IFC Settings , the following form will display

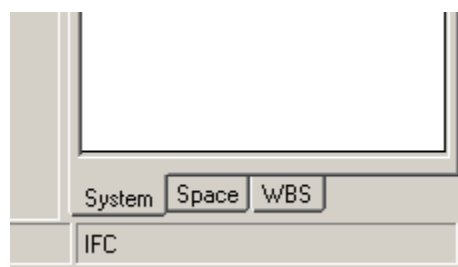


The image shows a screenshot of the 'Interference Checking Settings' dialog box. The dialog has a title bar with a close button. Below the title bar are four tabs: 'Display', 'Database Detect', 'Local Detect', and 'Status'. The 'Display' tab is currently selected. Inside the dialog, there are two main sections. The first section is labeled 'Type' and contains three checked checkboxes: 'Severe', 'Optional', and 'Clearance'. The second section is labeled 'Required Action' and contains three checked checkboxes: 'Undefined', 'Edit', and 'None'. At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Apply'.

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

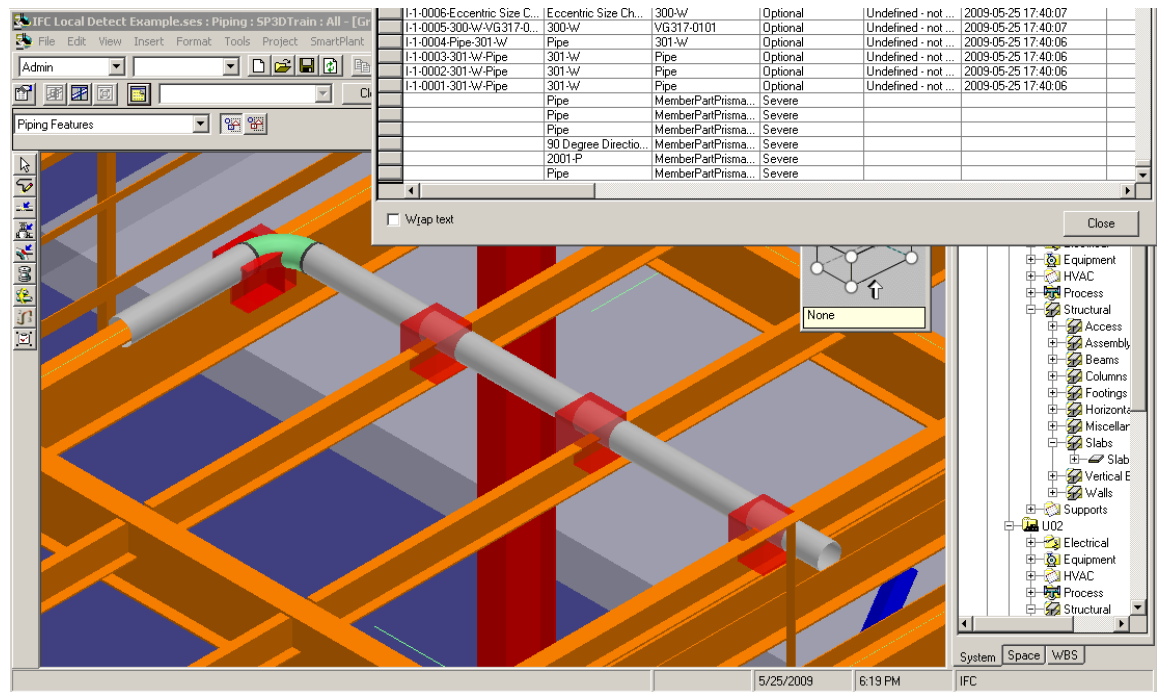


6. Click **OK**.
7. Note that now there is an IFC entity in the bottom left of the SP3D window:

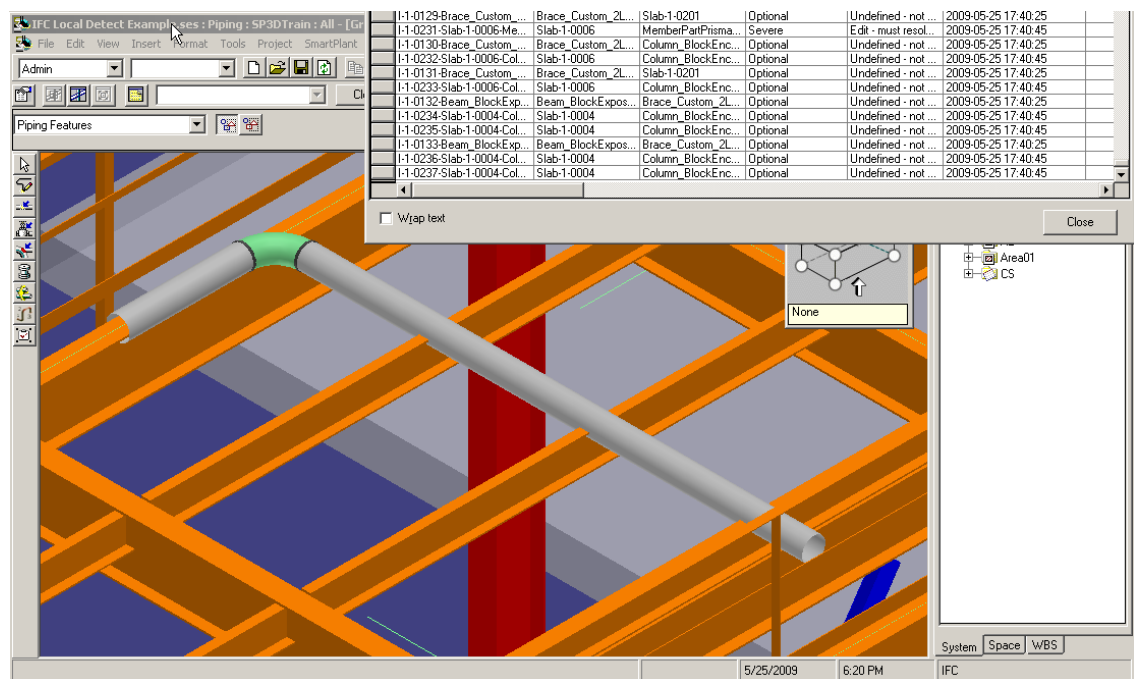


8. **Save** session file as “IFC Local Detect Example.ses”
9. Because this class is presumed to be taken before the Equipment or Piping classes, the instructor may guide you through some adhoc simple examples to show that the Local Detect is now working. You may also try to generate some clashes by doing base move of objects so as to make them collide.

10. 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.



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



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

Configuring IFC Clearance Rules (Optional)

1. Open the Excel workbook “IFCRule.xls”, <SP3D Installation Folder>\\CatalogData\\BulkLoad\\Datafiles\\
2. On the IFCClearanceRule sheet of the IFCrule workbook, highlight all rows pertaining to “Equipment with other objects types” from the Plant125 rule. This is approximately row 7 thru 116.
3. Go Edit→ Copy
4. Select the row containing Plant125 in the B column.
5. Right mouse on the Number representing that row (on the left of the Excel interface) and select Insert copied Rows.
6. 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.

HEAD	RuleName	Object Type1	Aspect1	Object Type2	Aspect2	Clearance
START	EquipOnlyClearance					
!	Equipments with other object types					
!						
!						
		Legacy Equipment		Equipment(s)		
		Legacy Equipment	Simple physical	Legacy Equipment	Simple physical	100
		Legacy Equipment	Simple physical	Legacy Designed Equipment	Simple physical	100
		Legacy Equipment	Simple physical	Equipment	Simple physical	100
				Cableways(S)		
		Legacy Equipment	Simple physical	Cableway Turn	Simple physical	0
		Legacy Equipment	Simple physical	Cableway Straight	Simple physical	0
		Legacy Equipment	Simple physical	Cable Trays	Simple physical	0

7. Scroll to column G, which is labeled Clearance.
8. Replace all values with “152” (~6 in) for the EquipOnlyClearance Rule entries that you have just copied. This will now create a clearance rule of 152mm for equipment against all of SP3D objects.
9. In the “A” column, where the value of the A column’s cell is not “!” (This is a comment mark and not processed by bulkload) place an “A” for Add to all the rows under the “EquipOnlyClearance” so the bulkload will process the row and create the new clearance rule.

	A	B	C	D	E	F	G
15	A		Legacy Equipment	Simple physical	Cable Tray Components	Simple physical	6 in
16	!				HVAC(S)		6 in
17	A		Legacy Equipment	Simple physical	HVAC Components	Simple physical	6 in
18	A		Legacy Equipment	Simple physical	Ducts	Simple physical	6 in
19	!				Piping(S)		6 in
20	A		Legacy Equipment	Simple physical	Piping Welds	Simple physical	6 in
21	A		Legacy Equipment	Simple physical	Piping Components	Simple physical	6 in
22	A		Legacy Equipment	Simple physical	Piping Instruments	Simple physical	6 in
23	A		Legacy Equipment	Simple physical	Piping Specialty Items	Simple physical	6 in
24	A		Legacy Equipment	Simple physical	Pipes	Simple physical	6 in
25	!				Volume(S)		6 in
26	A		Legacy Equipment	Simple physical	Interference Volumes	Simple physical	6 in
27	!				Structure(S)		6 in
28	A		Legacy Equipment	Simple physical	Member Part Linear	Detailed physical	6 in
29	A		Legacy Equipment	Simple physical	Member Part Curve	Detailed physical	6 in
30	A		Legacy Equipment	Simple physical	Slab	Detailed physical	6 in
31	A		Legacy Equipment	Simple physical	Footings	Detailed physical	6 in
32	A		Legacy Equipment	Simple physical	Equipment Foundation	Detailed physical	6 in
33	A		Legacy Equipment	Simple physical	Stairs	Detailed physical	6 in
34	A		Legacy Equipment	Simple physical	Ladders	Detailed physical	6 in
35	A		Legacy Equipment	Simple physical	Handrails	Detailed physical	6 in
36	!				Supports(S)		6 in
37	A		Legacy Equipment	Simple physical	Pipe Supports	Simple physical	6 in
38	A		Legacy Equipment	Simple physical	Cable Tray Supports	Simple physical	6 in
39	A		Legacy Equipment	Simple physical	Duct Supports	Simple physical	6 in
40	!				Conduits(S)		6 in
41	A		Legacy Equipment	Simple physical	Conduit Components	Simple physical	6 in
42	A		Legacy Equipment	Simple physical	Conduits	Simple physical	6 in
43	!						
44	!		Equipment		Equipment(s)		
45	A		Equipment	Simple physical	Legacy Equipment	Simple physical	6 in
46	A		Equipment	Simple physical	Legacy Designed Equipment	Simple physical	6 in
47	A		Equipment	Simple physical	Equipment	Simple physical	6 in
48	!				Cableways(S)		6 in
49	A		Equipment	Simple physical	Cableway Turn	Simple physical	6 in
50	A		Equipment	Simple physical	Cableway Straight	Simple physical	6 in
51	A		Equipment	Simple physical	Cable Trays	Simple physical	6 in

10. Save the Excel Workbook as “IFCRule_Admin.xls”
11. Start the Bulkload Utility, Start → All Programs → Intergraph SmartPlant 3D → Database Tools → Bulkload Reference Data.
12. Complete the bulkload form providing the path to the Excel file “IFCRule_Admin.xls”
13. Input the Server Name, Catalog Db (“SP3DTrain_CAT”) and Catalog_Schema (“SP3DTrain_CAT_Schema”).
14. Set the Mode to Add/Modify/Delete.
15. Provide a path to the log file
16. Provide the Symbol Share path

Bulkload

Reference data to bulkload

Excel files:

C:\Documents and Settings\ADMIN\Desktop\IFCRule_Admin.xls

Add...

Delete

Excelodelist files:

Add...

Delete

Load

Reset

Close

Bulkload mode

☐ Bulkload to a new catalog

☐ Append to existing catalog

☒ Add, modify, or delete records in existing catalog

☐ Delete and replace records in existing catalog

☐ Create flavors

Catalog information

Database Type

MSSQL

Database server name:

sp3dsmp1

Database name:

SP3DTrain_CAT

Schema information

Catalog schema server :

sp3dsmp1

Catalog schema database :

SP3DTrain_CAT_SCHEMA

Log file:

C:\Documents and Settings\ADMIN\Desktop\SP3DTrain_CAT.log

Symbol and custom program file location:

\\sp3dsmp1\Symbols

Bulkload

2/12/2008

8:23 AM

17. Click Load.

18. Review the log file for any errors. Correct as necessary.


```

SP3DTrain_CAT.log - Notepad
File Edit Format View Help
Successfully opened Input Log File: C:\Documents and Settings\ADMIN\Desktop\SP3DTrain_CAT.log
*****
DATABASE SERVER NAME : sp3dsmp1
DATABASE NAME : SP3DTrain_CAT
SCHEMA DATABASE NAME : SP3DTrain_CAT_SCHEMA
CREATE FLAVORS : Disabled
MODE OF OPERATION : Add/Modify/delete
*****

Processing CatalogRoot sheet in C:\Documents and Settings\ADMIN\Desktop\IFCRule_Admin.xls workbook - Sta
Finished Processing CatalogRoot sheet in C:\Documents and Settings\ADMIN\Desktop\IFCRule_Admin.xls workbo

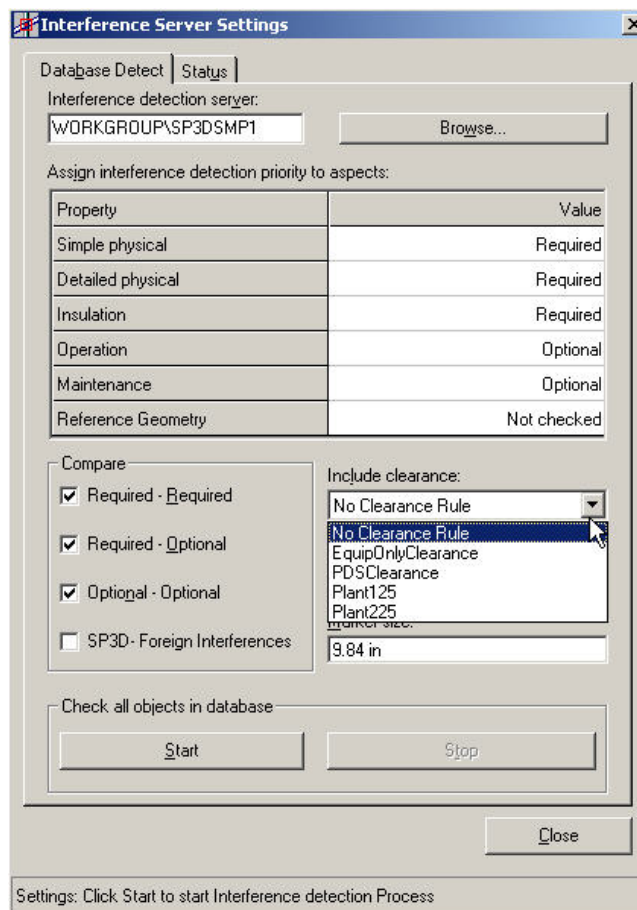
Processing sheet: ClassNodeType in workbook: C:\Documents and Settings\ADMIN\Desktop\IFCRule_Admin.xls wo
Finished processing sheet: ClassNodeType in workbook: C:\Documents and Settings\ADMIN\Desktop\IFCRule_Adm

Processing sheet: IFCPostProcessorRule in workbook: C:\Documents and Settings\ADMIN\Desktop\IFCRule_Admin
Finished processing sheet: IFCPostProcessorRule in workbook: C:\Documents and Settings\ADMIN\Desktop\IFCF

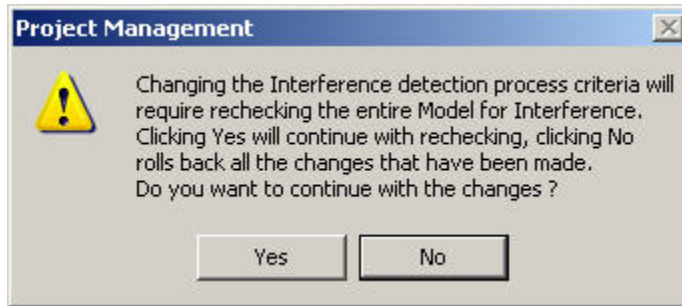
Processing sheet: IFCClearanceRule in workbook: C:\Documents and Settings\ADMIN\Desktop\IFCRule_Admin.xls
Successfully modified the object in row [8]
Successfully modified the object in row [9]
Successfully modified the object in row [10]
Successfully modified the object in row [12]
Successfully modified the object in row [13]
Successfully modified the object in row [14]
Successfully modified the object in row [15]
Successfully modified the object in row [17]
Successfully modified the object in row [18]
Successfully modified the object in row [20]

```

19. Start a new Project Management Session.
20. Expand SP3DTrain → Interference Server.
21. Right mouse on Interference Server and select Properties.
22. Click the Stop button on the Interference form.



23. Observe the existence of “EquipOnlyClearance”
24. Complete the form similar to what we did in the previous section, this time selecting the newly created “EquipOnlyClearance”
25. Click Start.
26. The following message will display and warn you about the consequences of the change, click Yes.



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