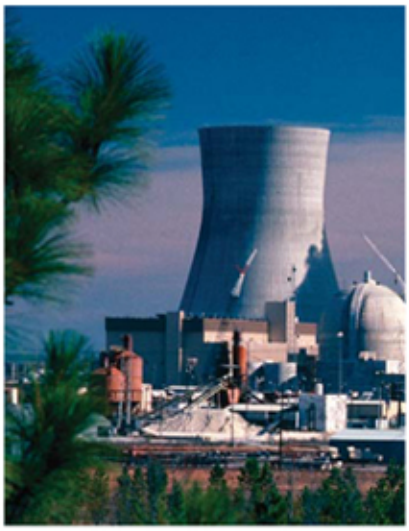
SmartPlant 3D

Setup and Administration Practice Labs

Process, Power & Marine


INTERGRAPH

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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

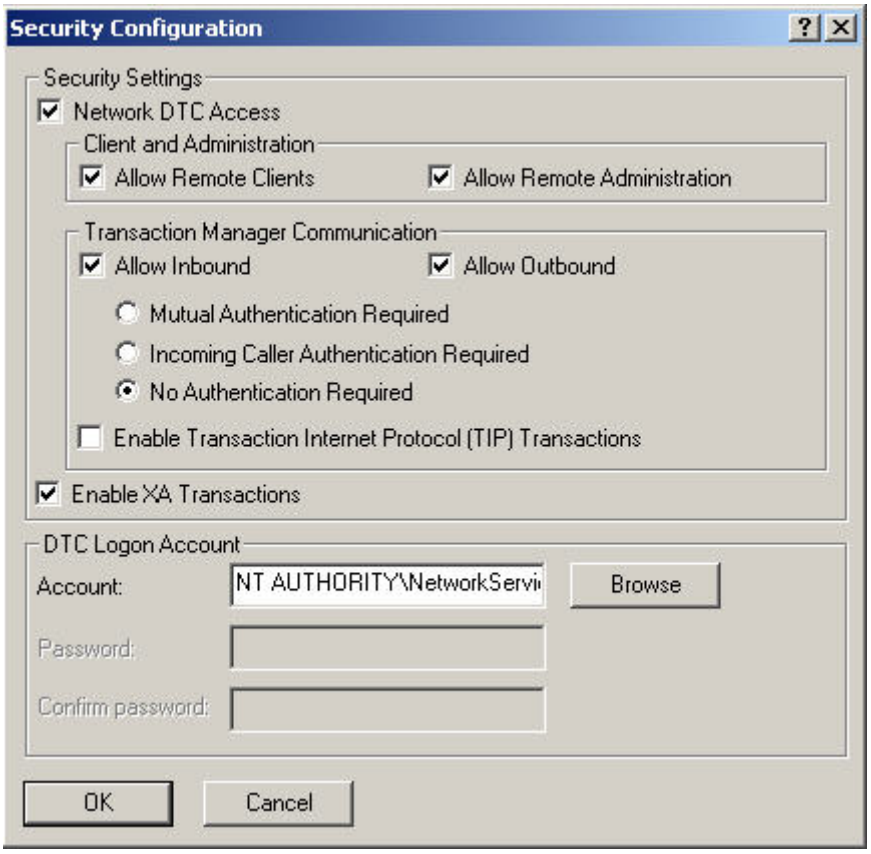
Group	**Users**
Pipe	pipe1, pipe2
Structure	struct1, struct2
SP3Dusers	pipe1, pipe2, struct1, struct2, equip1, hvac1, elect1
SP3Dadmins	pipe1, struct1, administrator
ProjectA	pipe1, struct1

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.

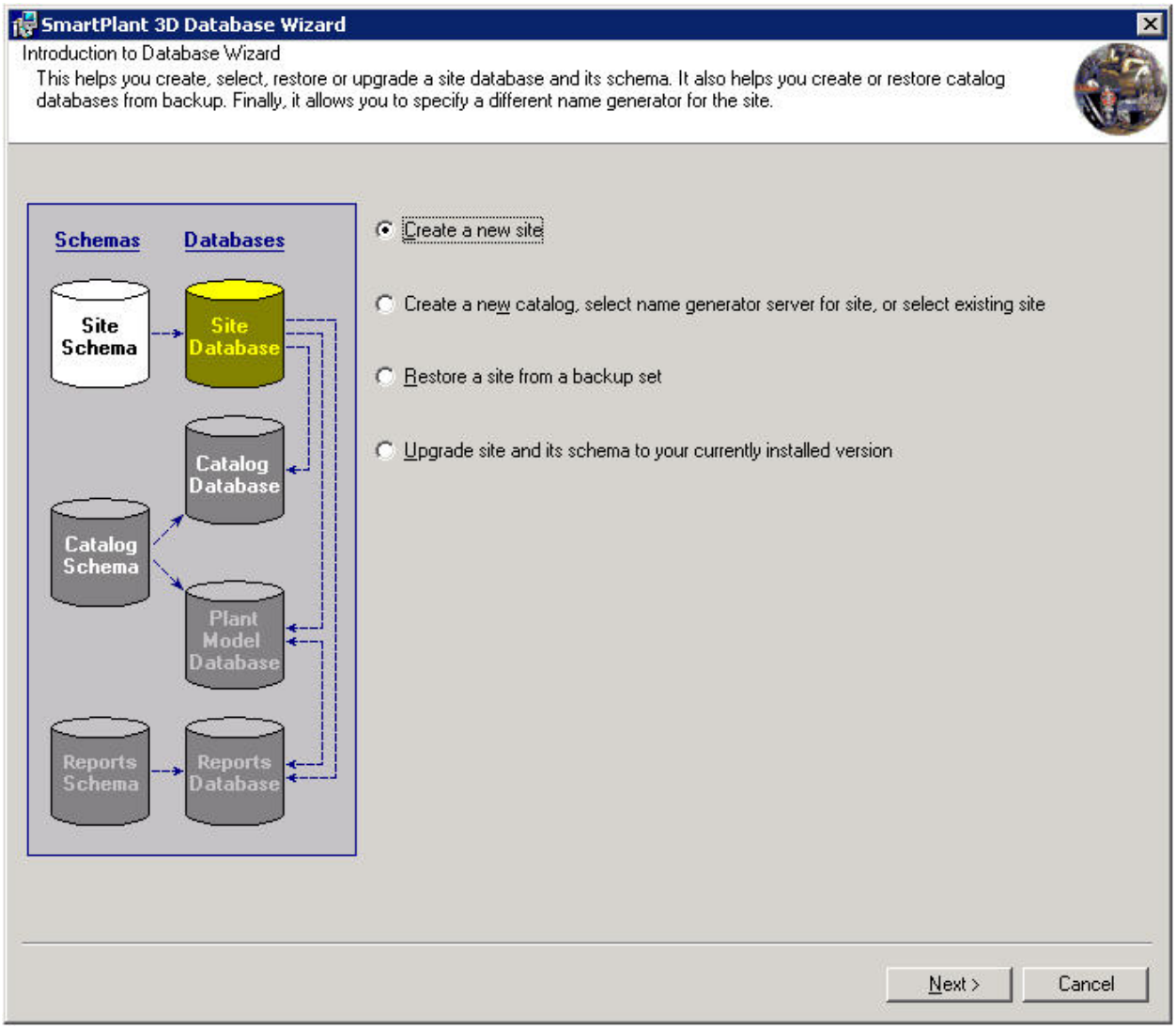
Note: If there is a Firewall enabled, you must set proper exceptions as outlined in the SmartPlant3DInstallationGuide409.pdf document delivered with the software.

Close the component services window and any other windows.

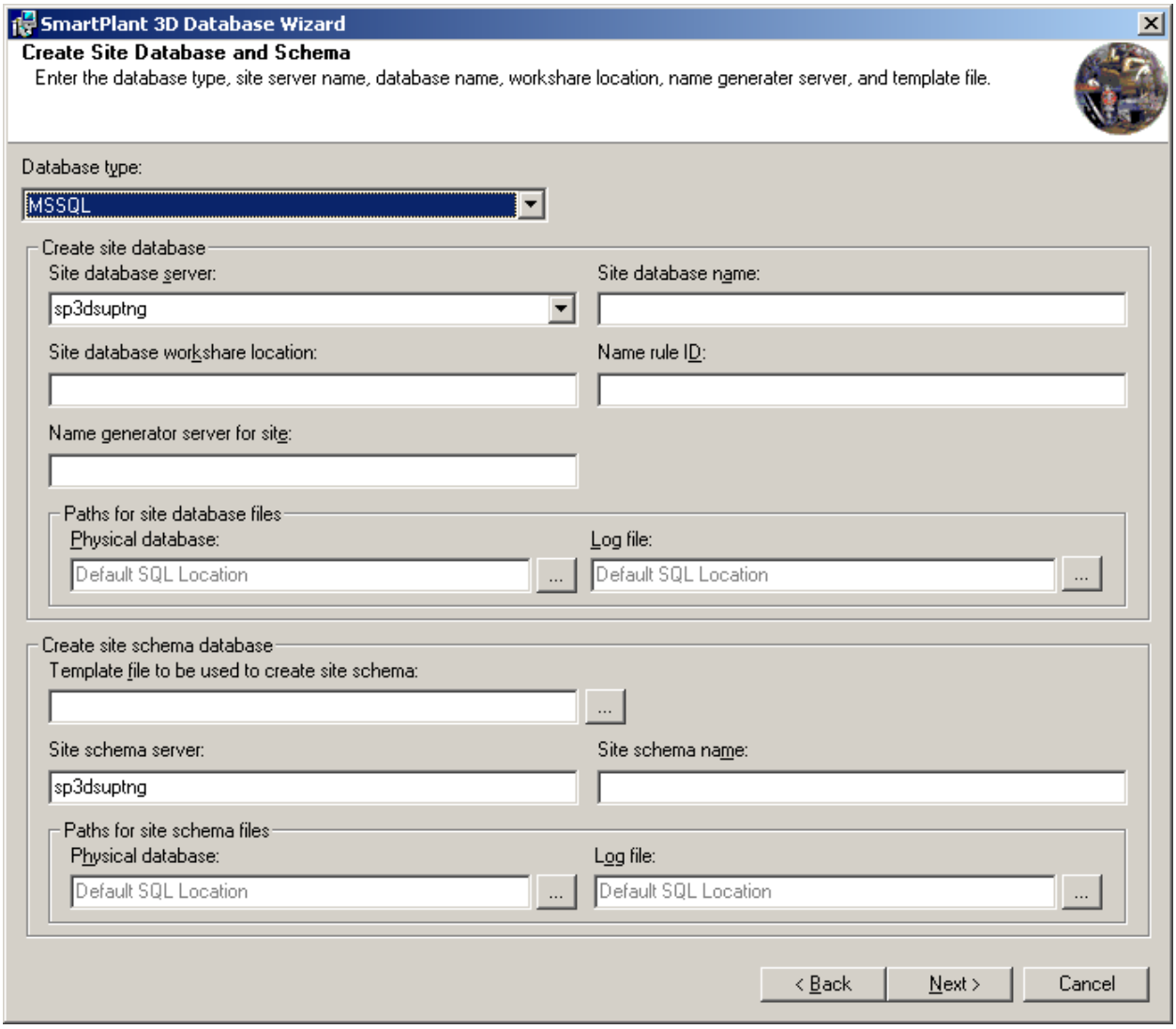
LAB 2: Create new site, catalog and plant

Create new site and catalog databases

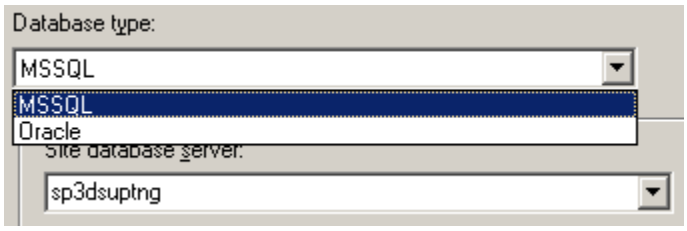
1. Start **Database Wizard** following Start → All Programs → Intergraph SmartPlant 3D → Database Tools → Database Wizard



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



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



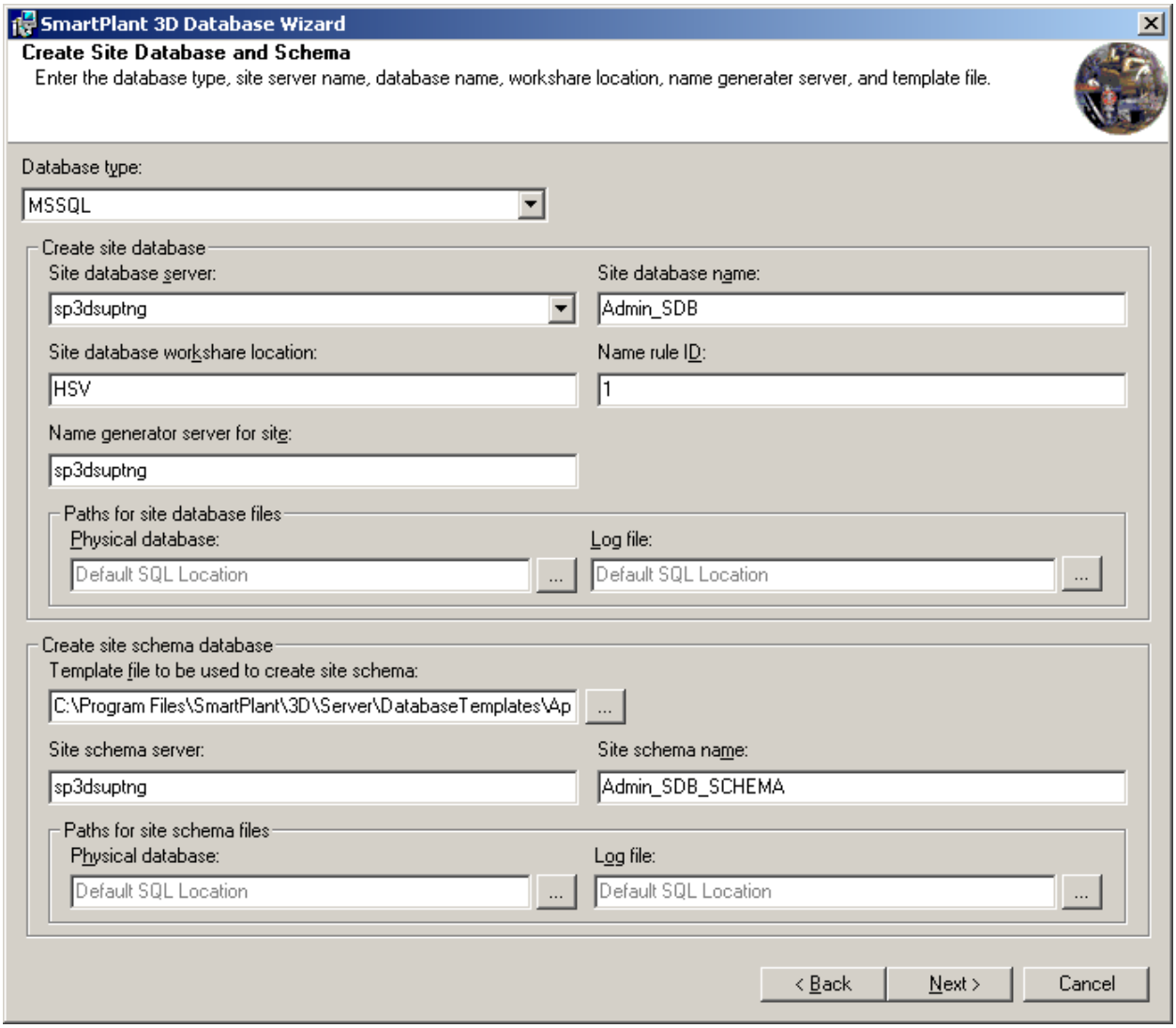
4. From the **Site database server** drop down list, select your server name (which will be your machine name when working in stand-alone) for site database server
5. Name the site 'Admin_SDB'
6. Enter 'HSV' (or any other alphanumeric string) as **Site database workshare location**
7. Type '1' as **Name 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

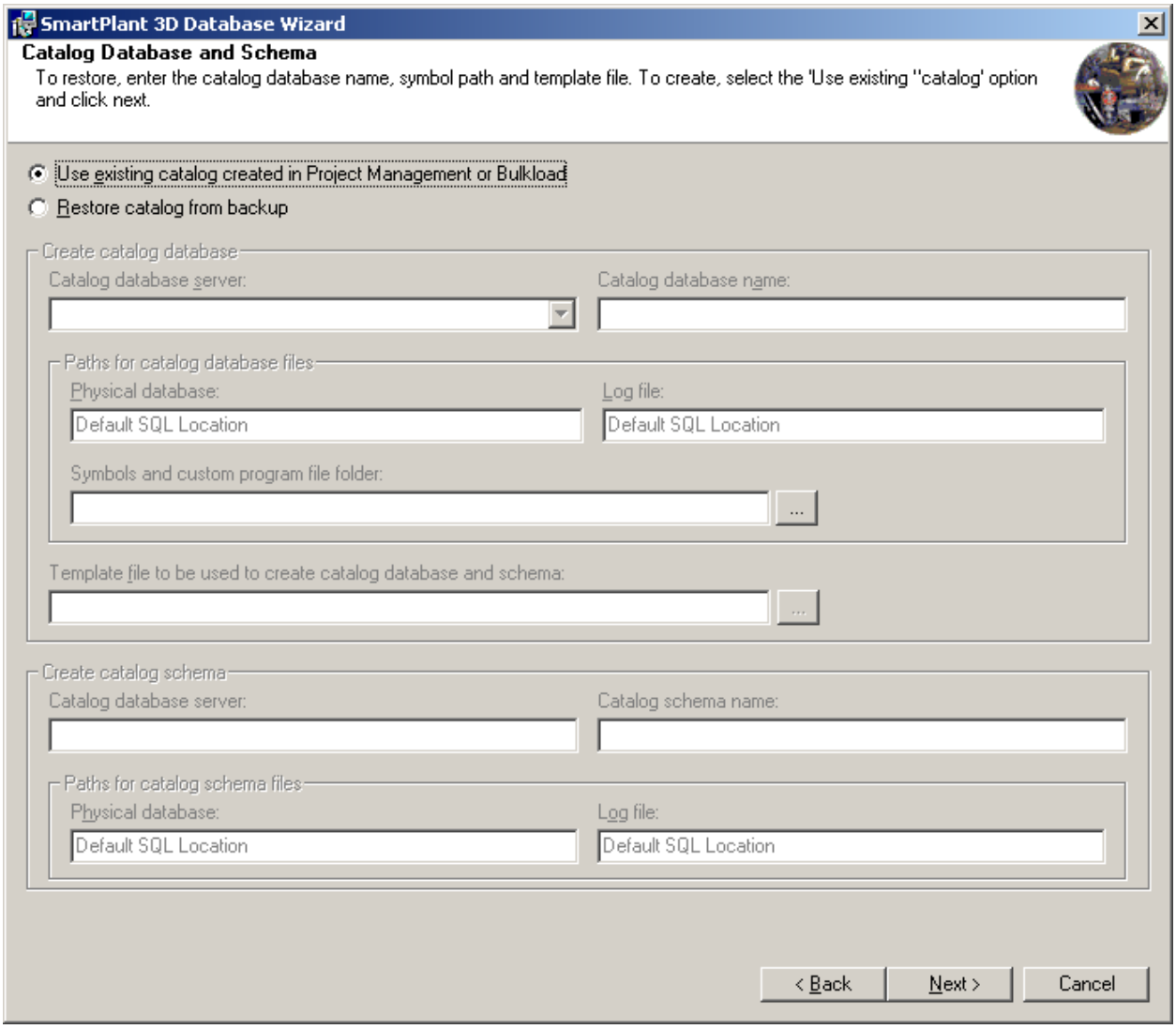
   i.e.: C:\Program Files\SmartPlant\3D\Server\DatabaseTemplates\Apprepos.dat

   (AppRepos.dmp if Oracle)



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.

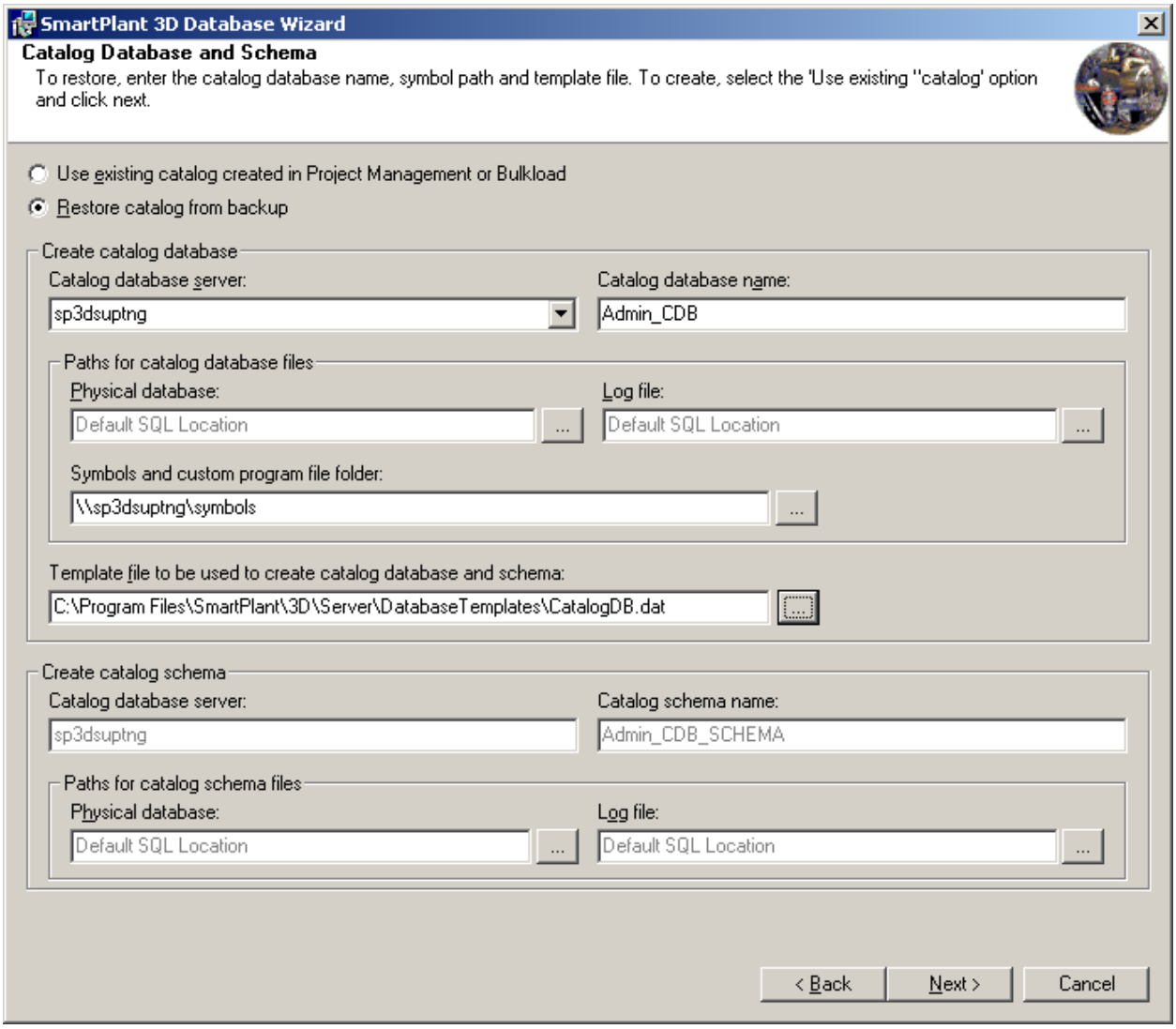
10. Click **Next.**



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]\DatabaseT**e**mplates\CatalogDB.dat

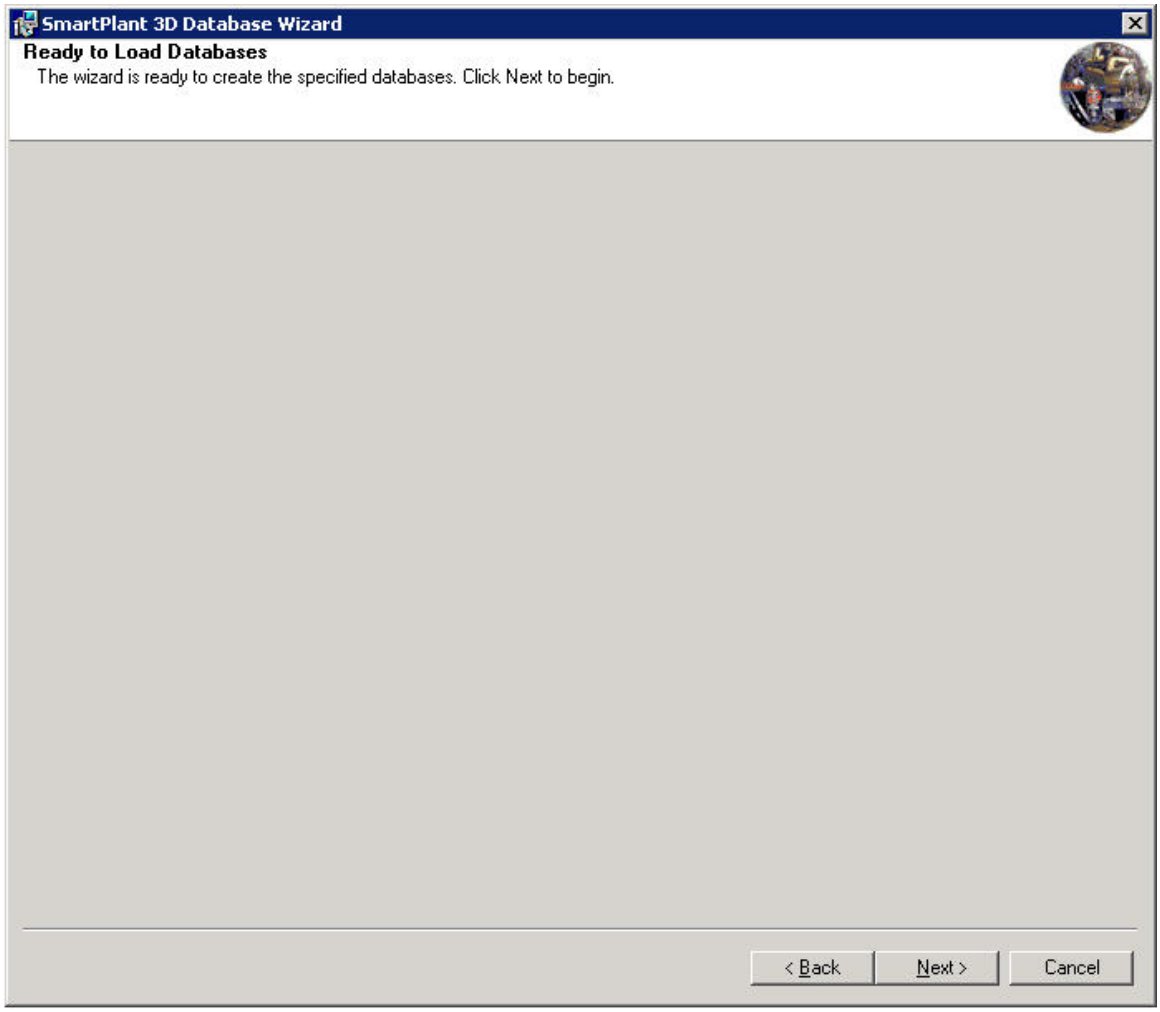
    i.e.: C:\Program Files\SmartPlant\3D\Server\DatabaseTemplates\CatalogDB.dat

    (CatalogDB.dmp if Oracle)

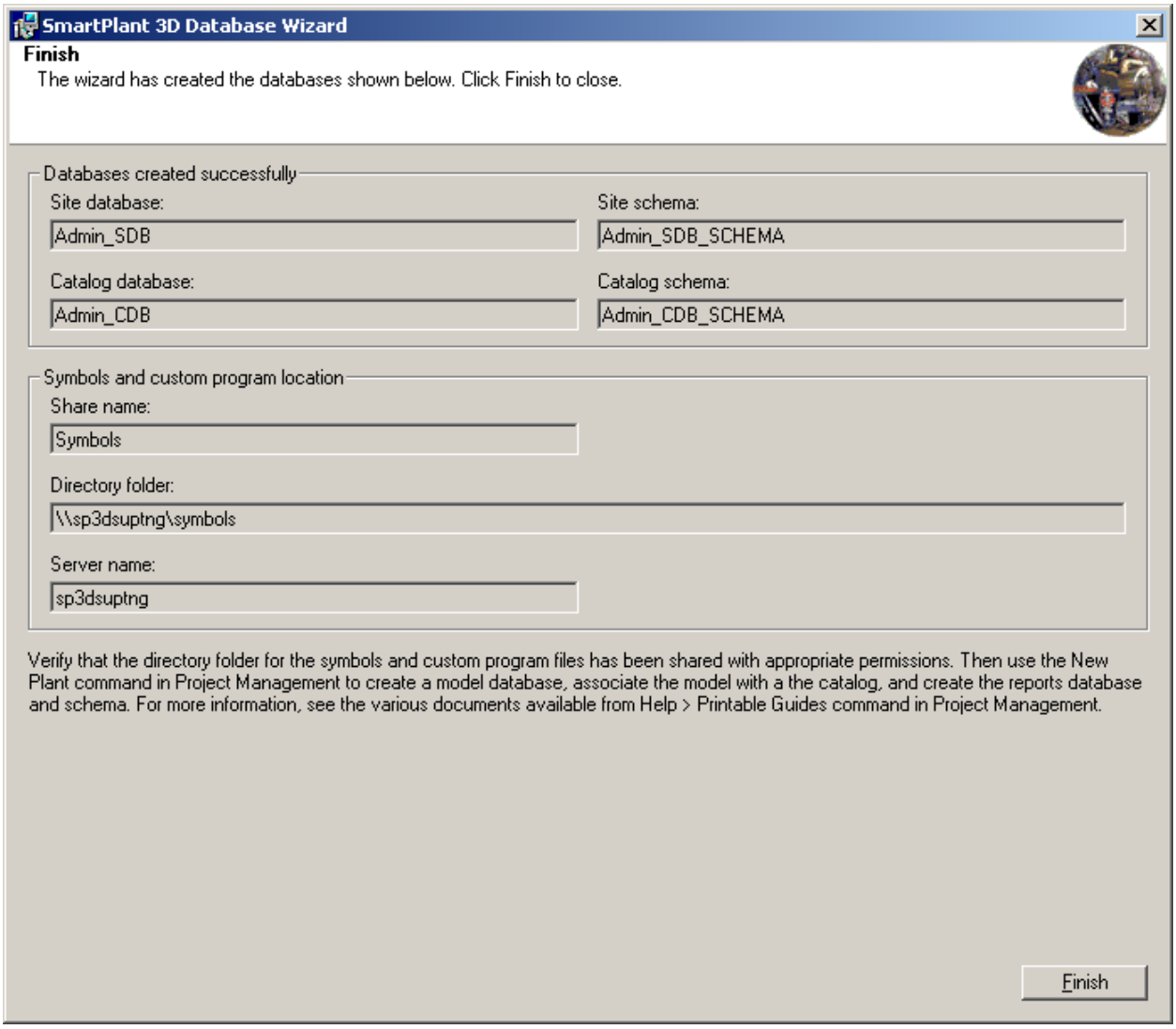


Note: Screenshot above is assuming an MSSQL configuration, principal difference with an Oracle configuration is the "Template file to be used to create catalog database and schema" path. For an MSSQL project, the path for the CatalogDB.dat template is as it would be when read from the Server machine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

16. Click **Next**.



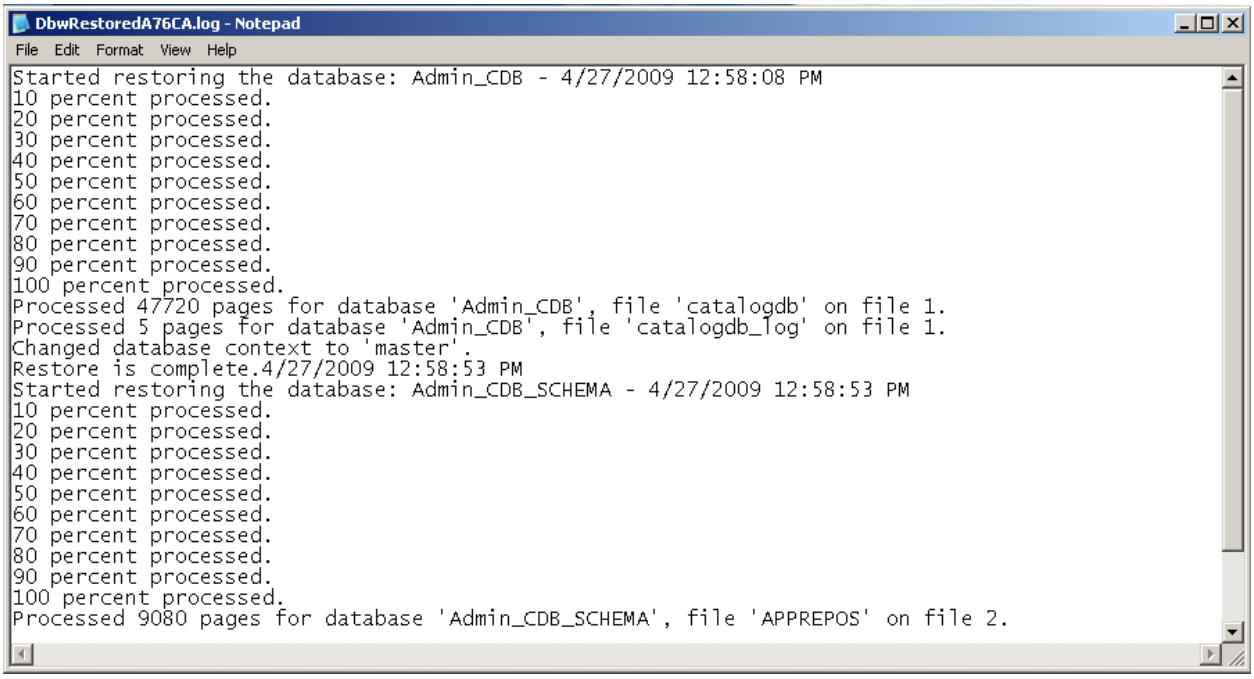
17. Click **Next**



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.

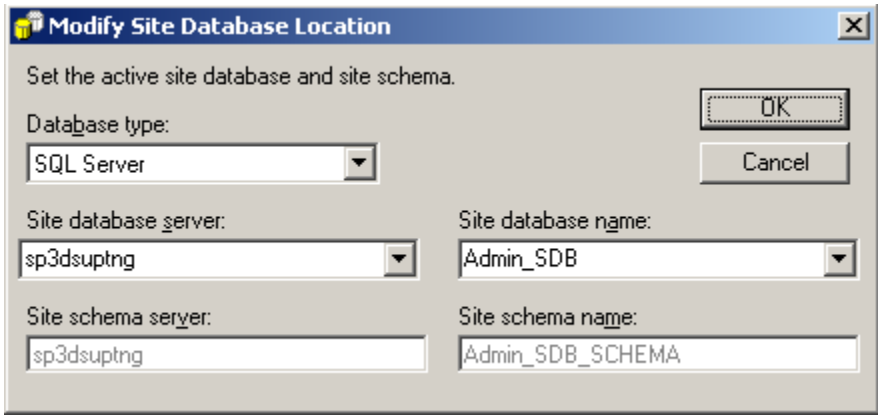
    Note: the last 5 characters of the restore log file name will change depending upon different databases being restored.



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:

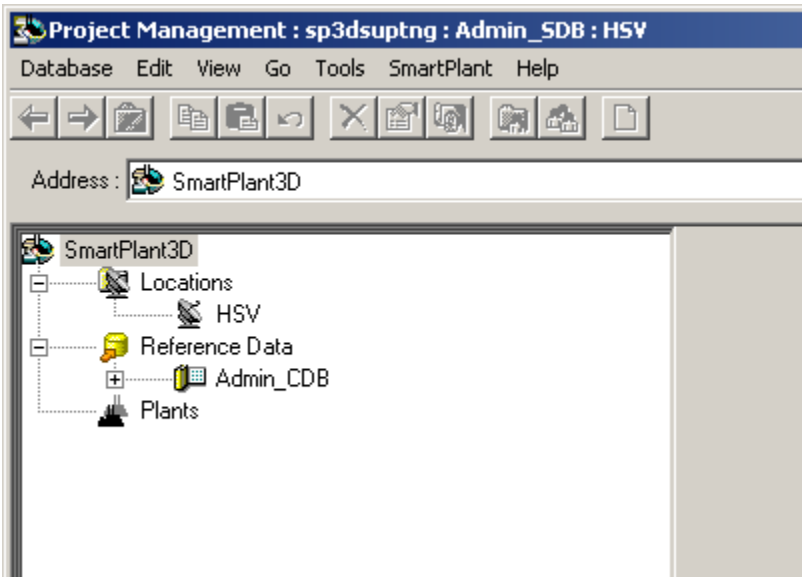


Note: This connection information can be manually edited on SP3D workstations to allow for connection to this Site database and the Plants that it will contain.

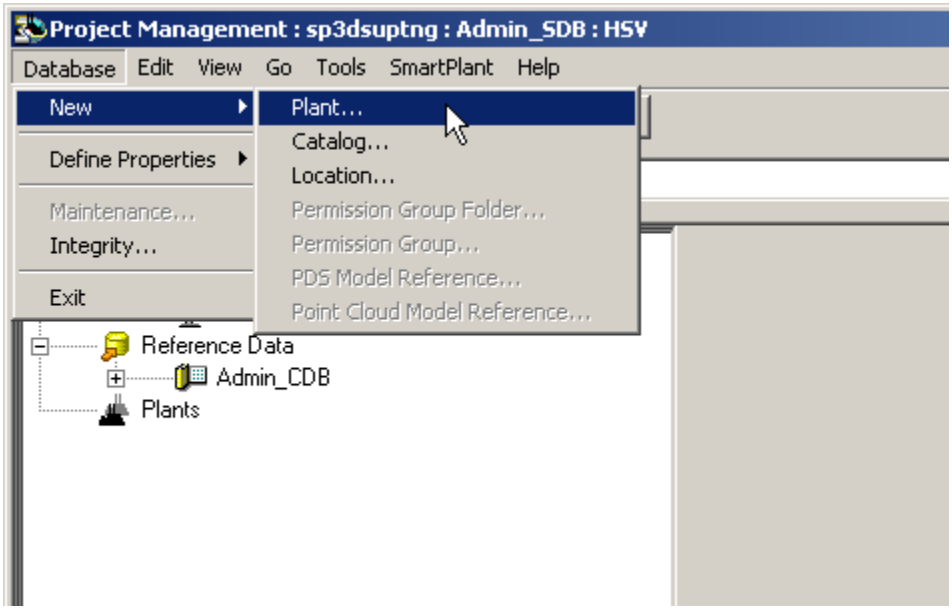
3. Click **OK**

Create new plant

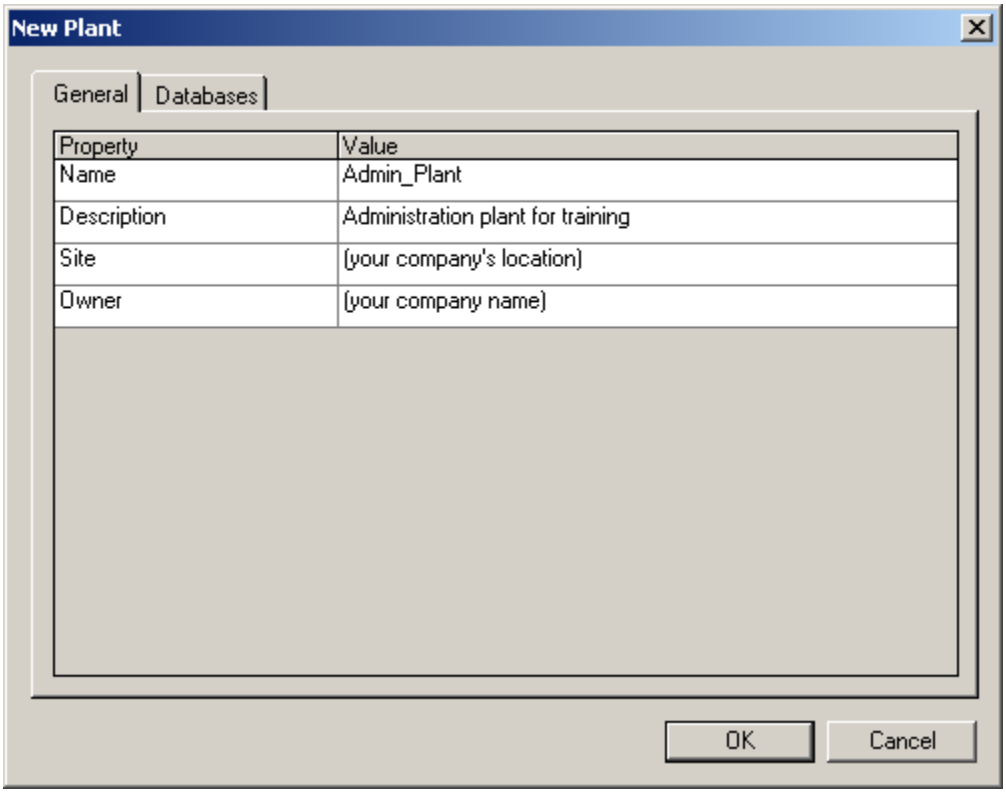
1. Enter **Project Management** following Start → All Programs → Intergraph SmartPlant 3D → Project Management



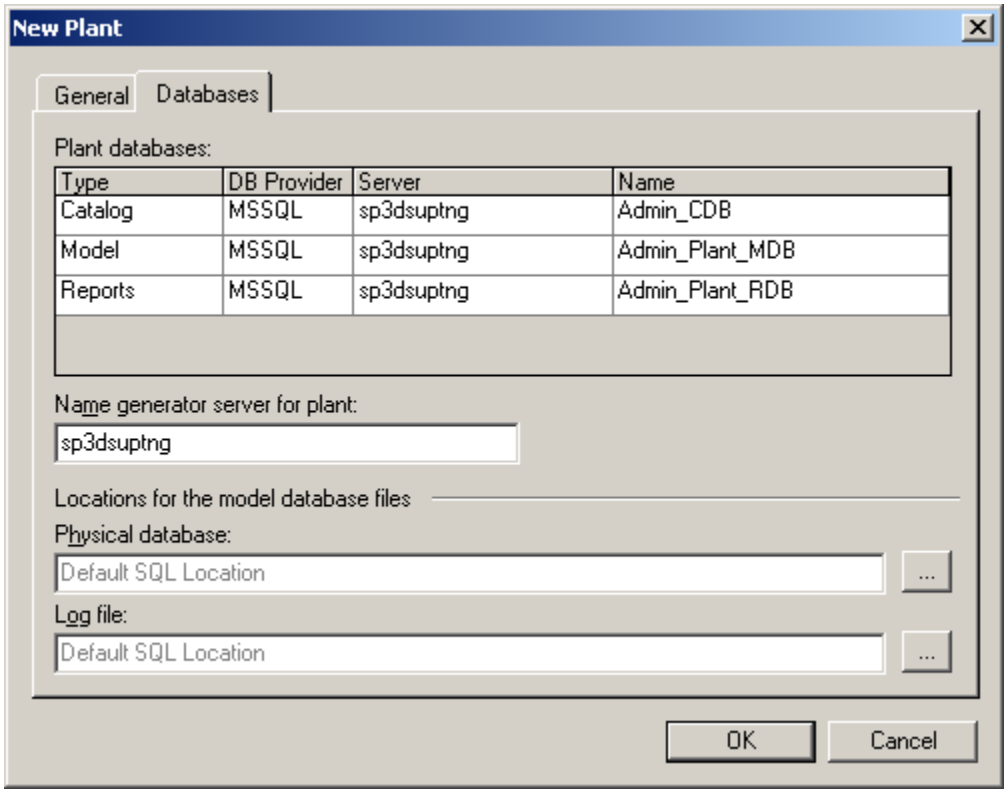
2. From **Database** menu, select **New → Plant…**



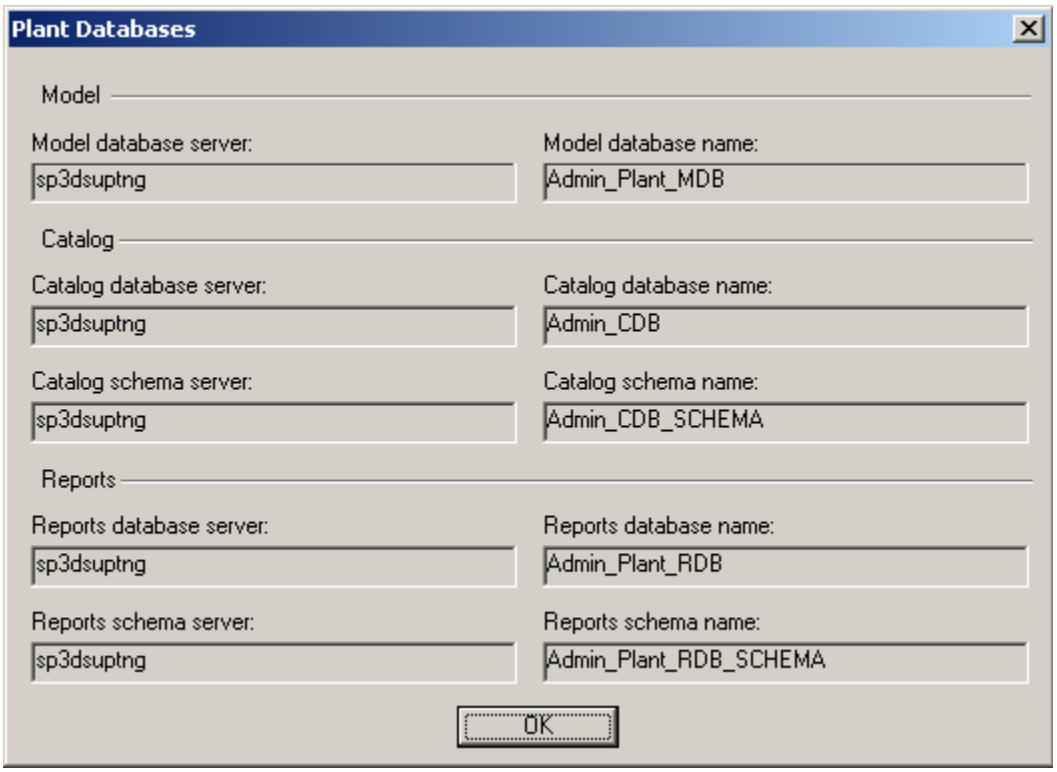
3. Fill in the **General** tab of the **New Plant** dialog according to next image.



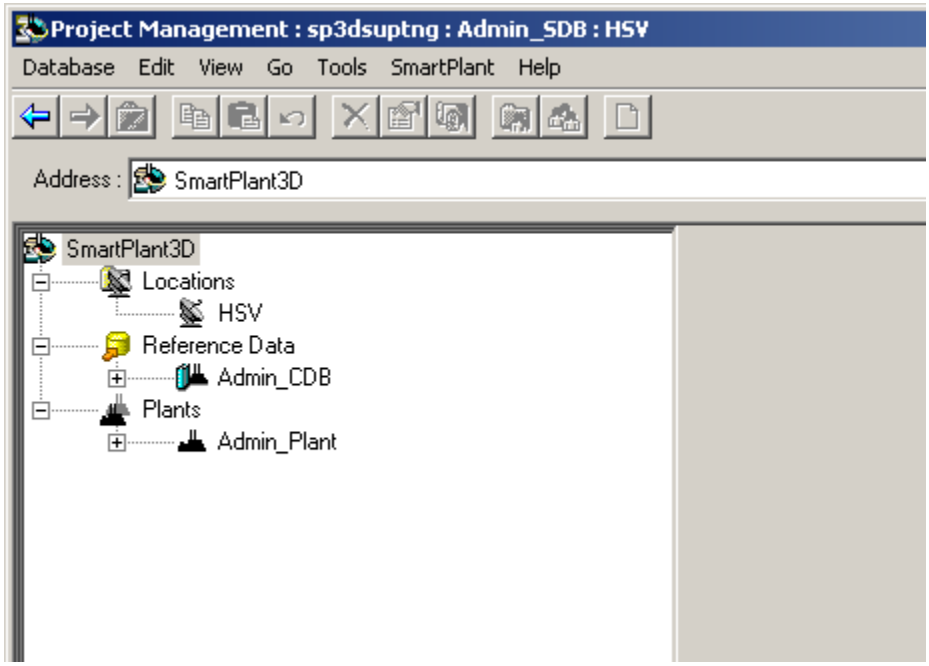
4. Complete **Databases** tab as follows. Have each row to provide information for Catalog, Model, and Reports databases. Remember to identify **Name Generator** machine as it was previously done for Site Database on the Database Wizard form.



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



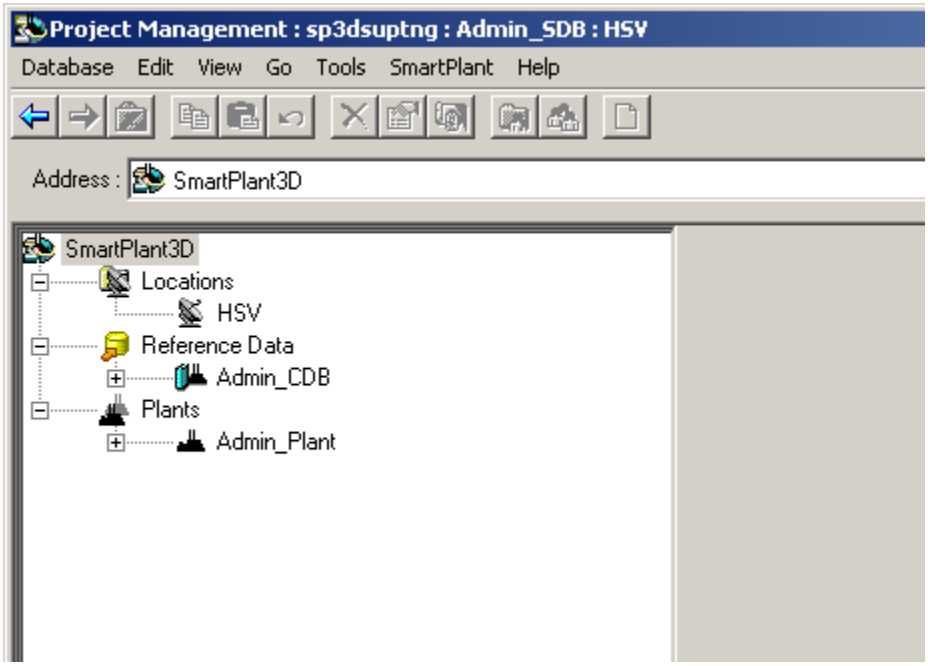
6. Review the **Project Management** hierarchy and observe the change in color and shape for the Catalog icon. This is the result of the Catalog being associated to at least one Plant; before, it was unassigned.



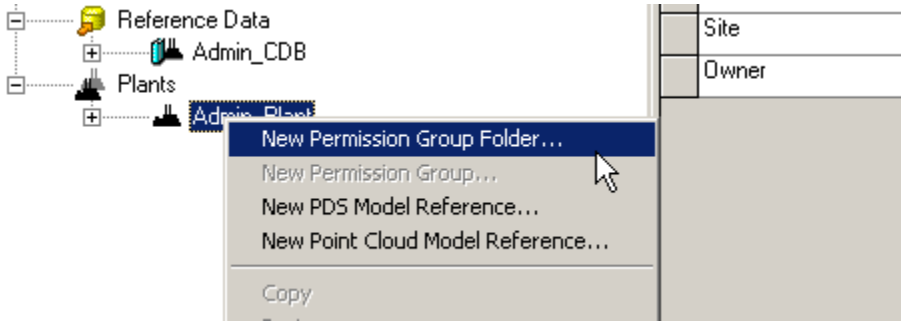
LAB 3: Create permission groups and assign permissions

Create Permission Groups

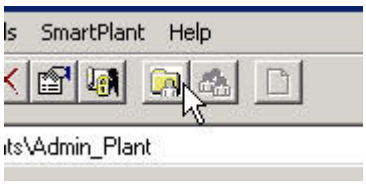
1. If required, enter **Project Management** following Start → All Programs → Intergraph SmartPlant 3D → Project Management



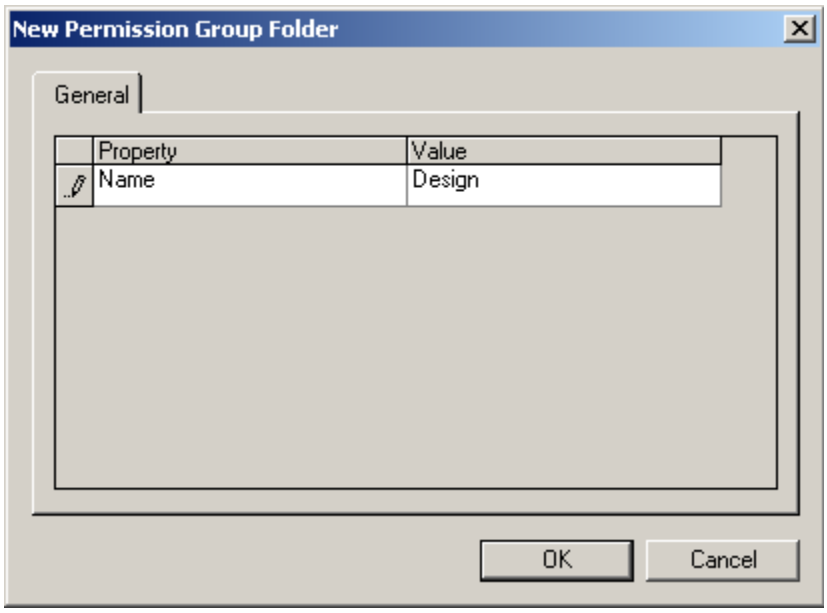
2. Right-click on 'Admin_Plant' and select **New Permission Group Folder…**



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

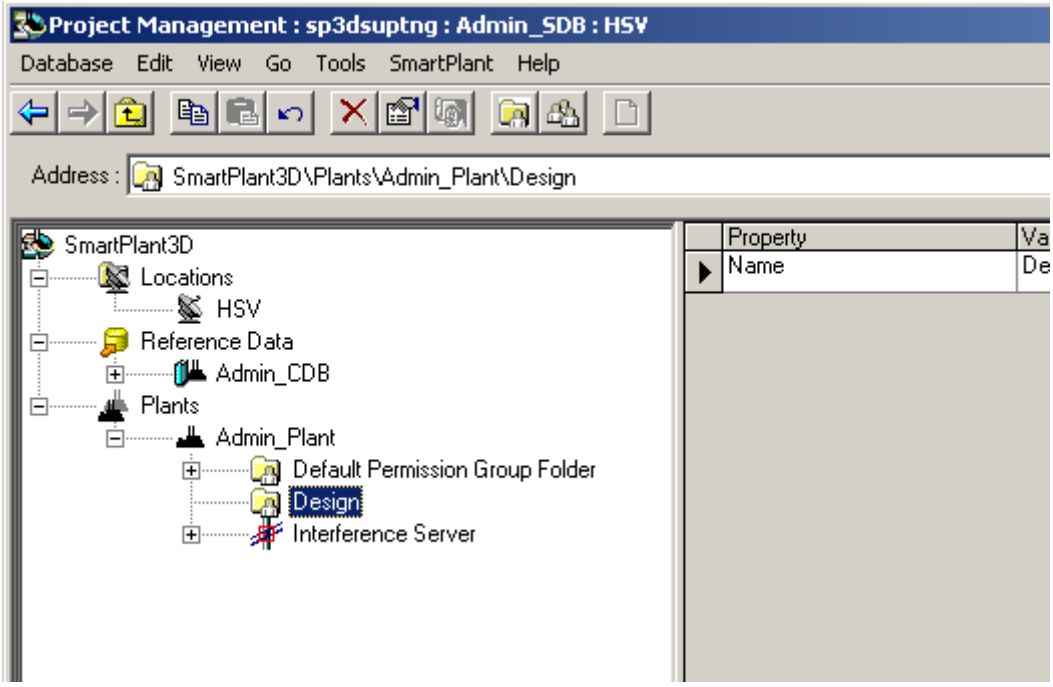


3. **Name** the folder ‘Design’



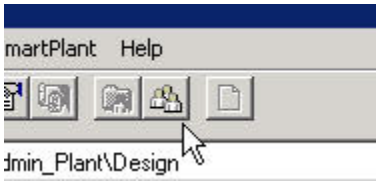
4. Expand the Plant hierarchy by clicking on the **+ box** to the left of **Admin_Plant**.

5. Select the folder ‘**Design**’

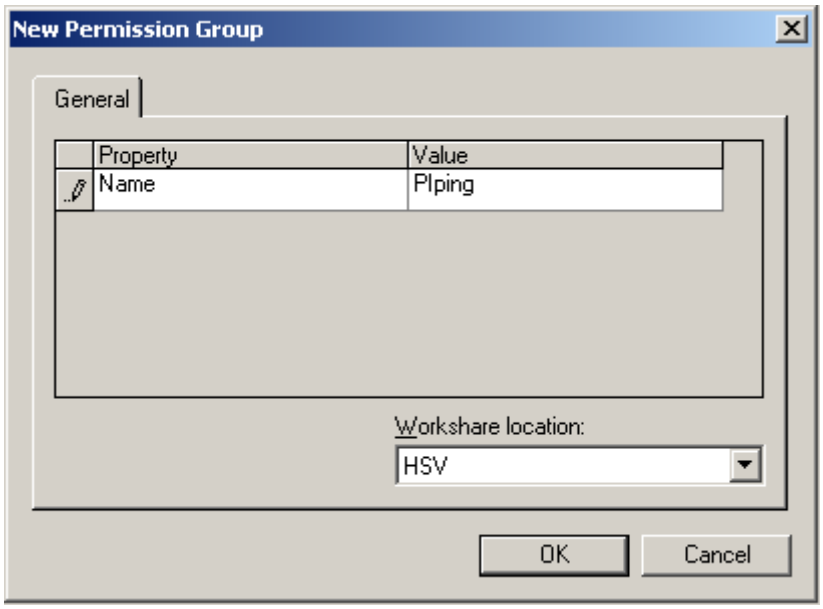


6. Right-click on ‘**Design’** and select **New Permission Group...**

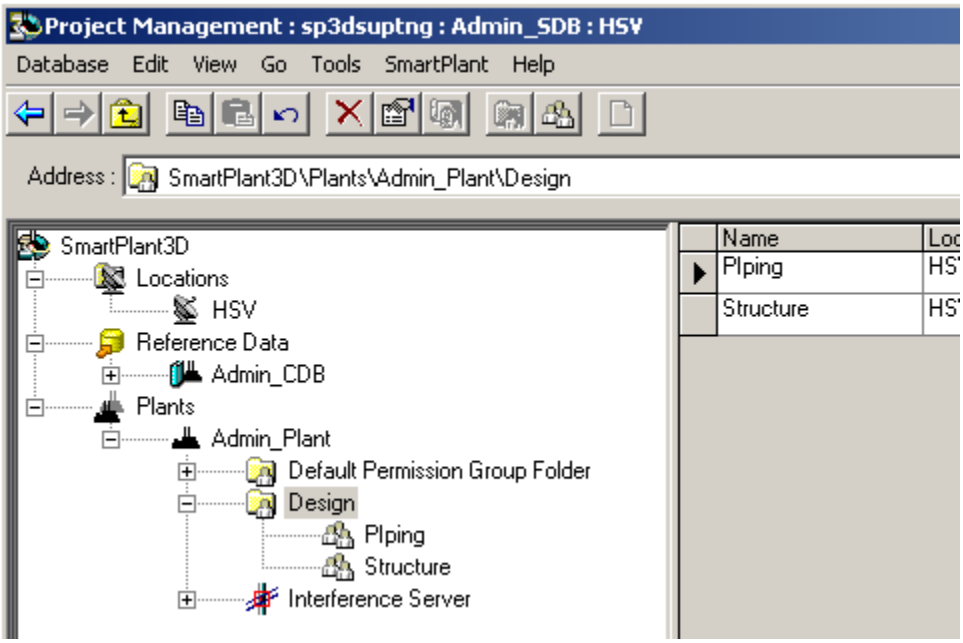
Note: You may also access this functionality by clicking on the “New permission group” icon, located on the ribbon bar.



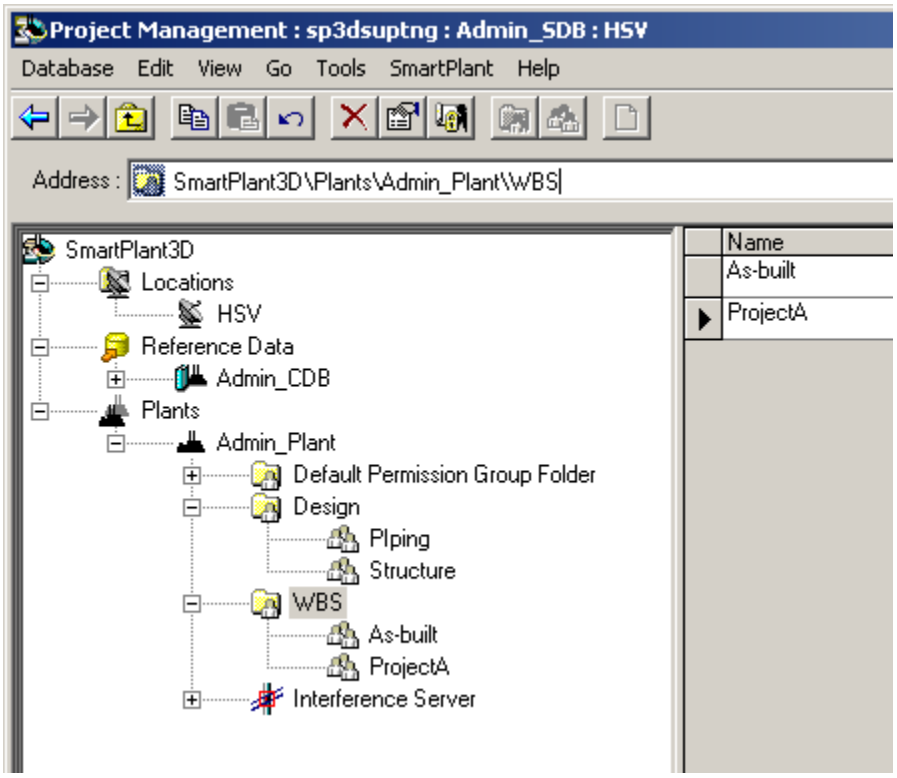
7. Name the group '**Piping**'



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

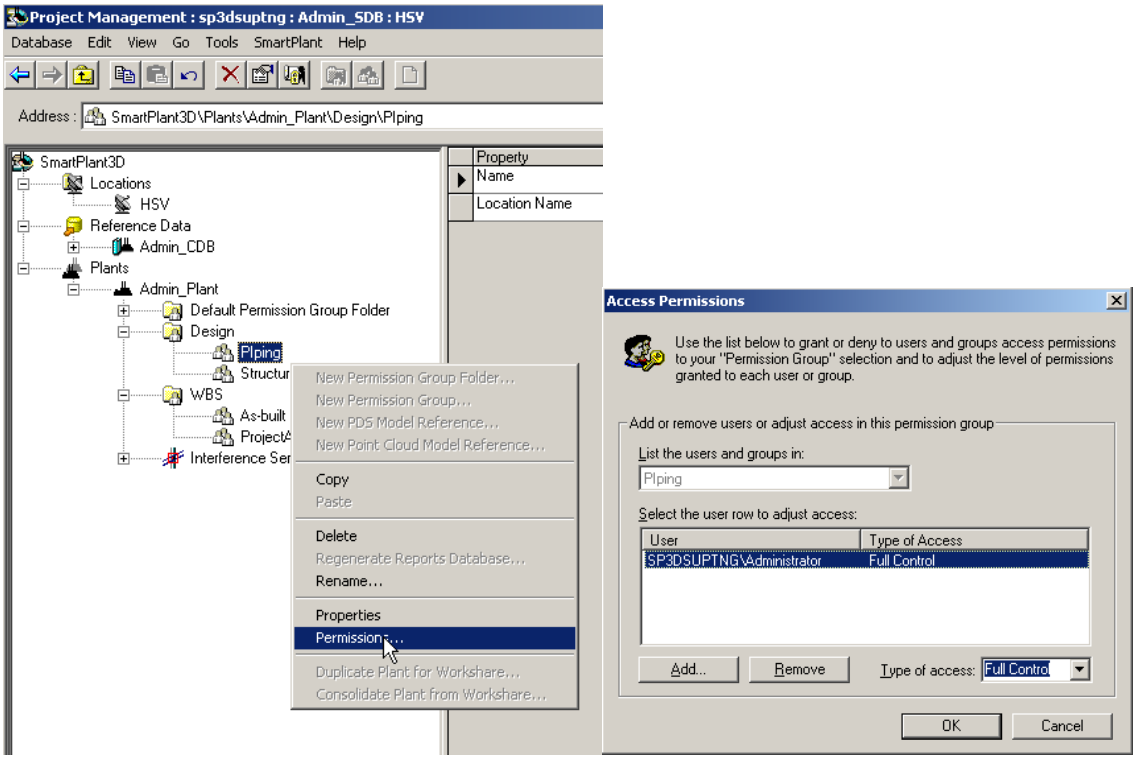


10. Similarly, create the following hierarchy of permission group folder "**WBS**" and permission groups "**As-Built**" and "**ProjectA**"

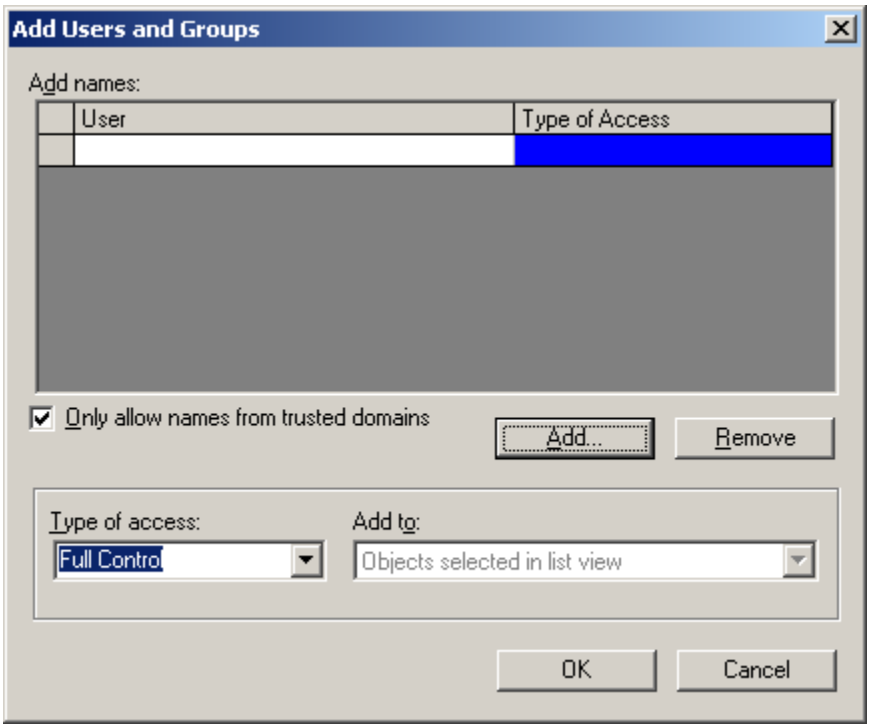

Project Management : sp3dsuptng : Admin_SDB : HSV
Database Edit View Go Tools SmartPlant Help
Address : SmartPlant3D\Plants\Admin_Plant\WBS
SmartPlant3D
Locations
HSV
Reference Data
Admin_CDB
Plants
Admin_Plant
Default Permission Group Folder
Design
PIping
Structure
WBS
As-built
ProjectA
Interference Server
Name
As-built
ProjectA

Assign permissions in Project Management

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



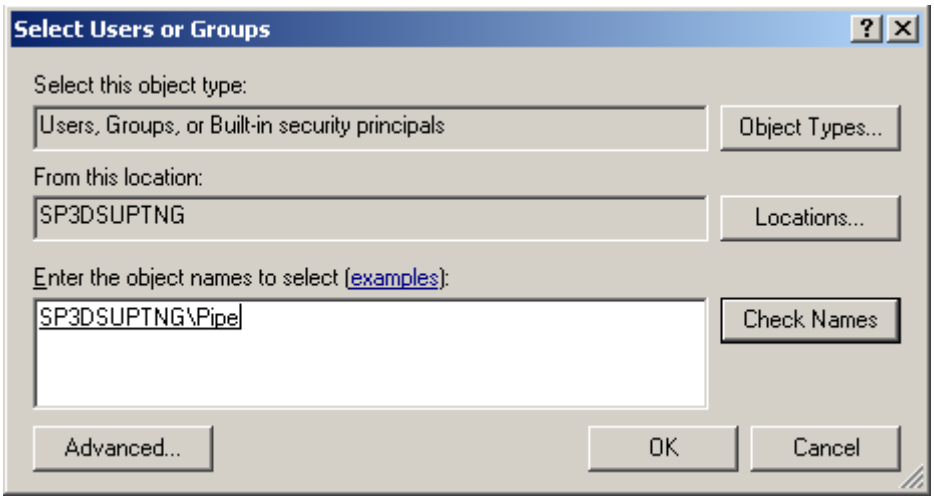
3. Click **Add…** button



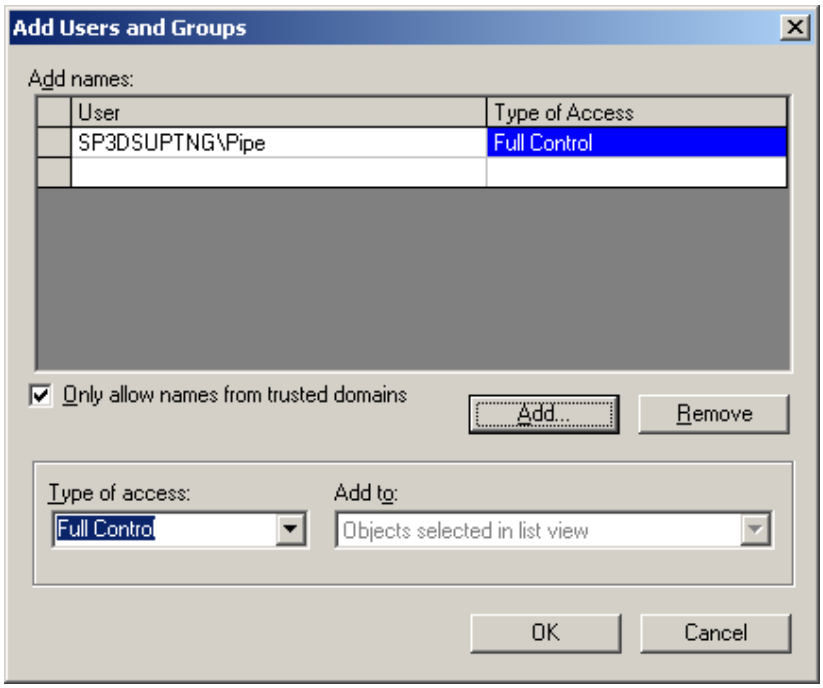
Note: This form can be operated in two modes determined by the checkbox "Only allow names from trusted domains". If you want the form to verify the existence of the user or group on Active Directory, leave the check box selected. If you want to add the user or group without domain verification, leave 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

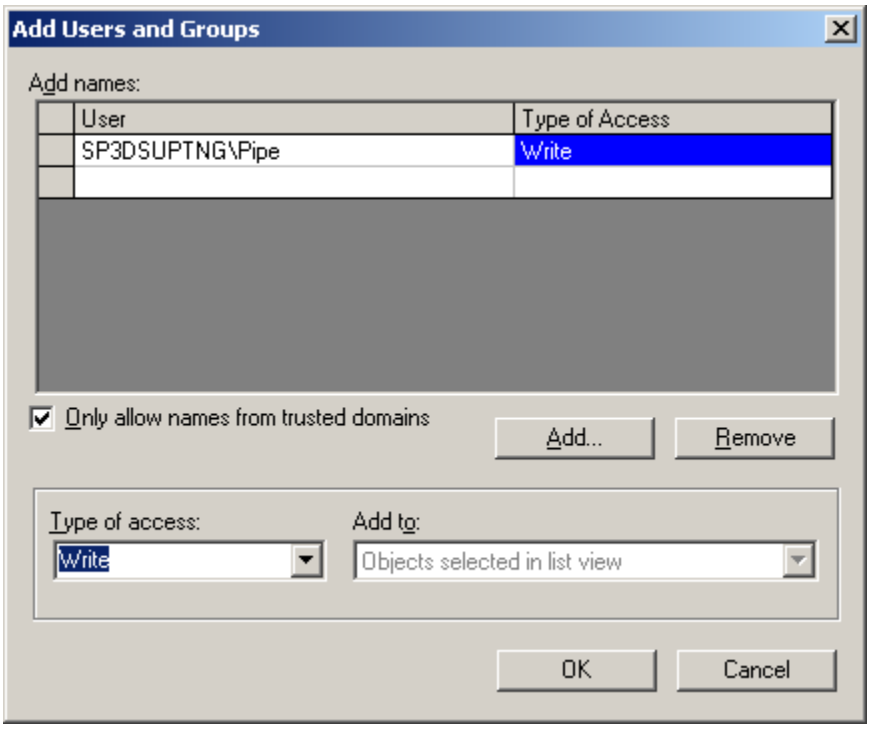
5. Use the standard user/group form for Windows to identify by domain\name the user or group you wish to add. In our case we will be selecting the group **Pipe** from the local computer.



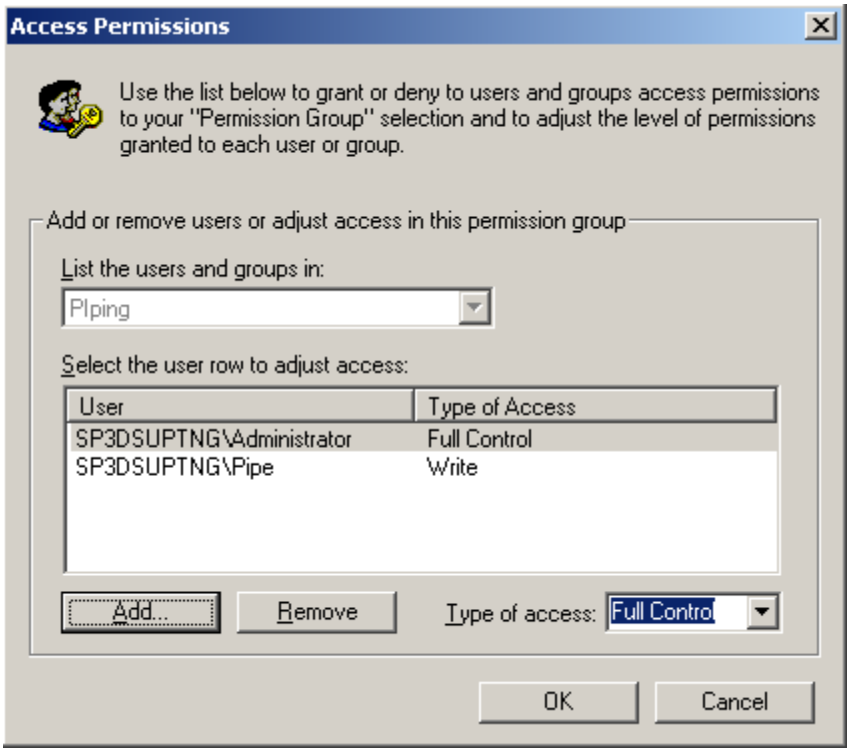
6. Click **OK**.



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

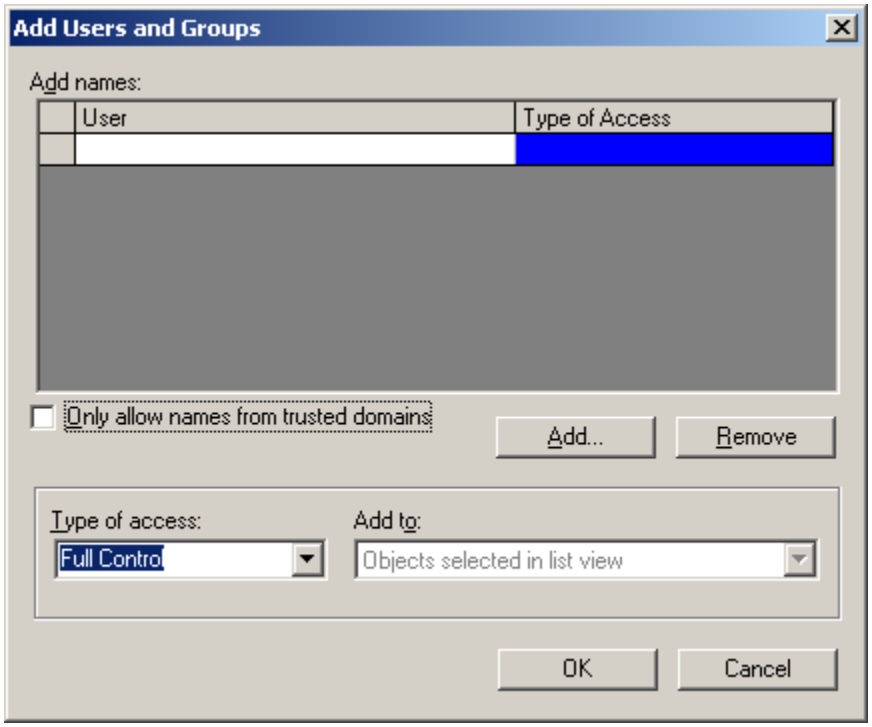


8. Click **OK** and review the Access Permissions form.

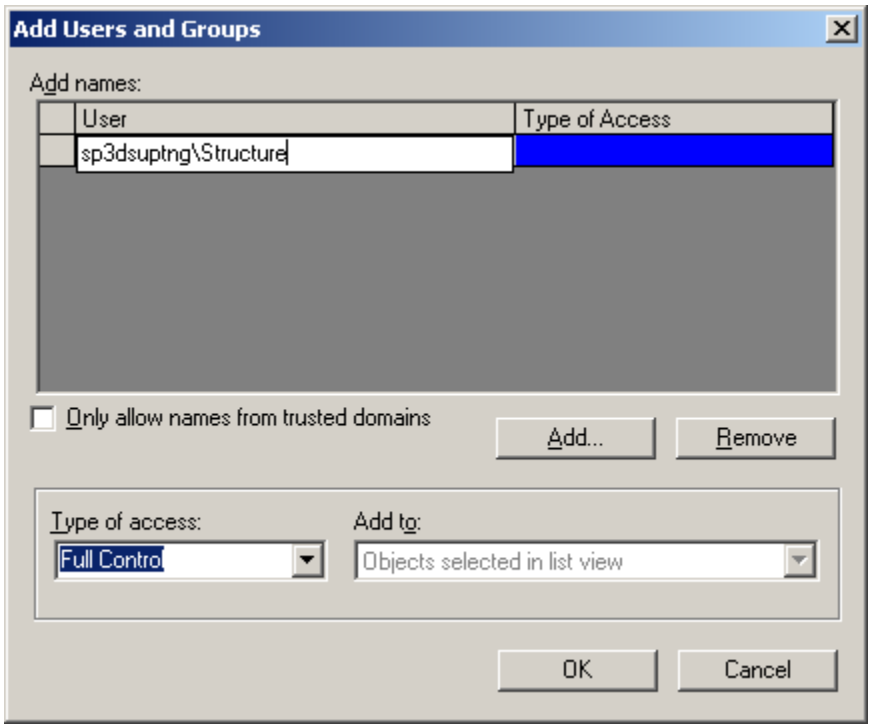


9. Click **Add…** button to return to the **Add Users and Groups** form. This time a user will be added without verifying its existence on the domain or Active Directory.

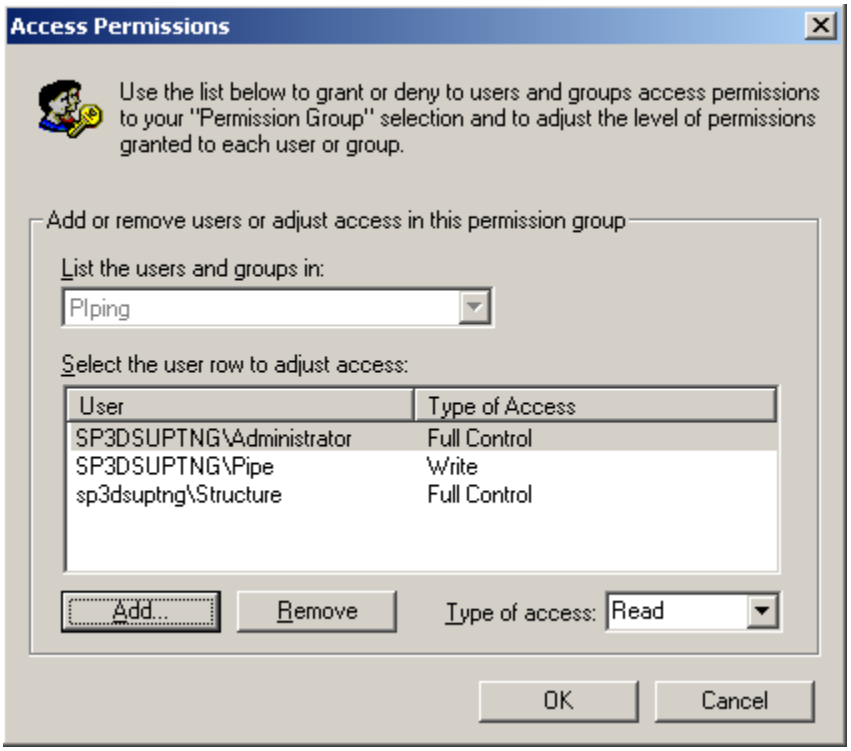
10. **Uncheck** the box **Only allow names from trusted domains**



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**.

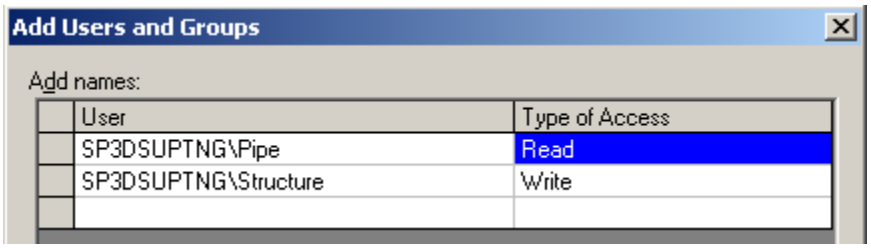


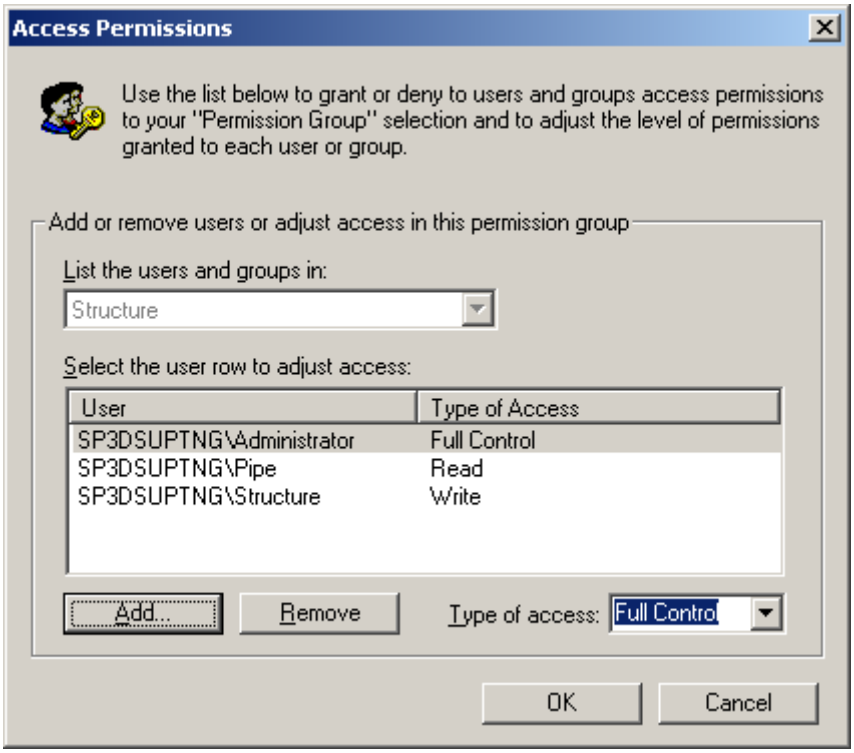
13. Click **OK**.
14. Review Access Permissions form.



15. Click **OK**

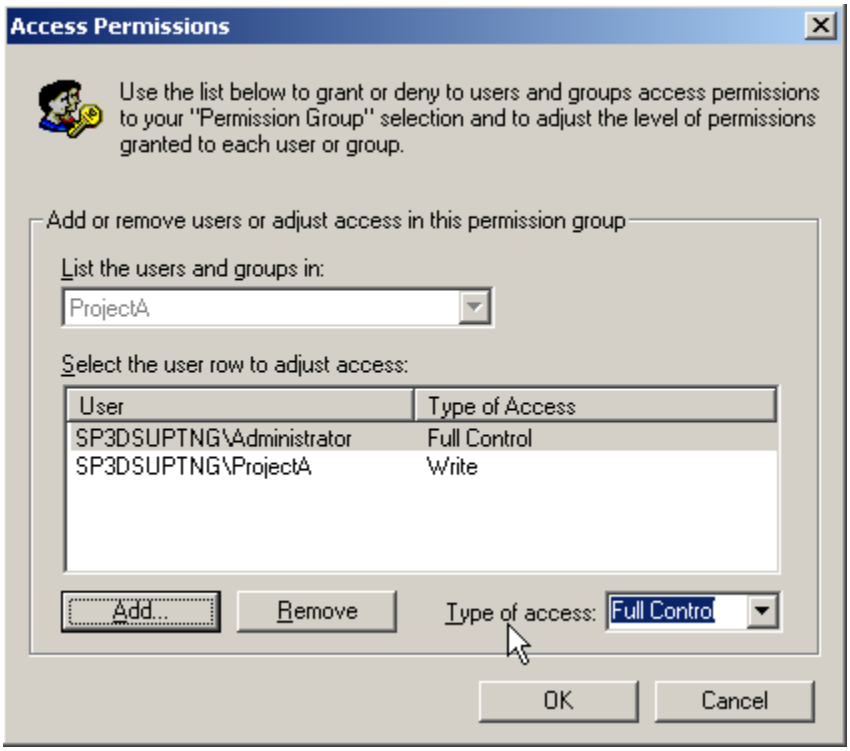
16. **Select** the Permission Group '**Structure'**, go to **add users** and choose the option your prefer (domain verification on/off) and assign **Write** to 'Structure' and **Read** to 'Pipe' Windows groups





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'

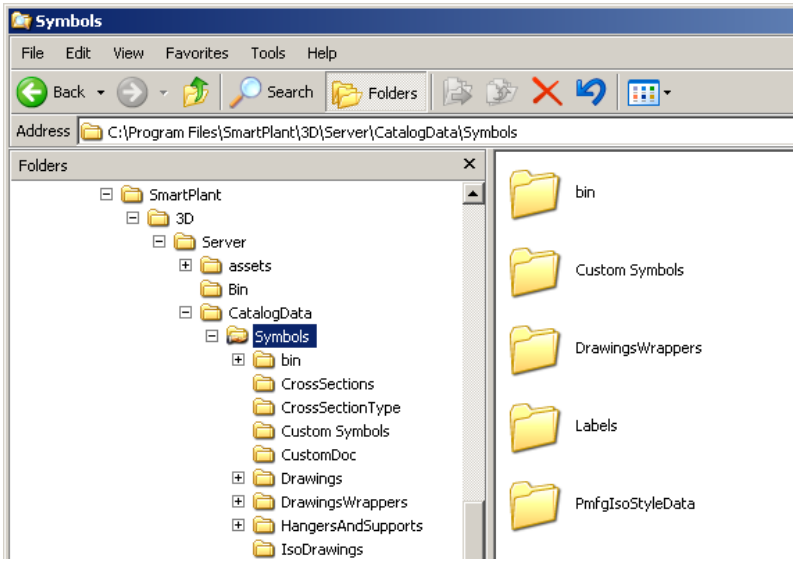


19. Click **OK**

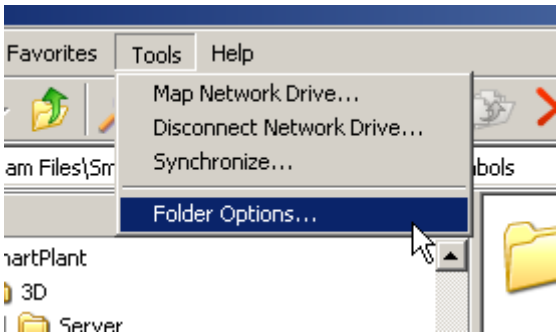
Assign permissions in the file system

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

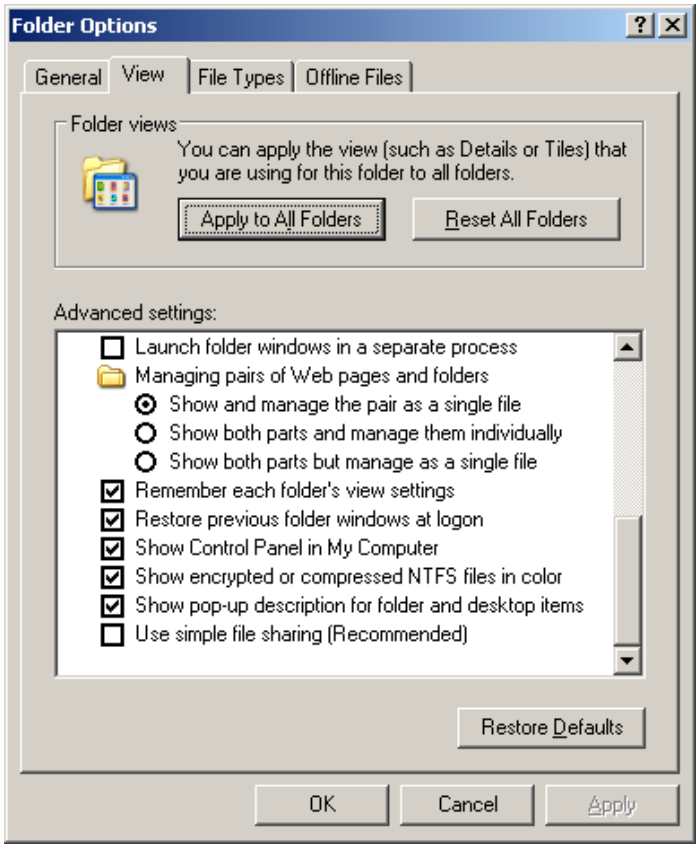
   C:\Program Files\SmartPlant\3D\Server\CatalogData\Symbols



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

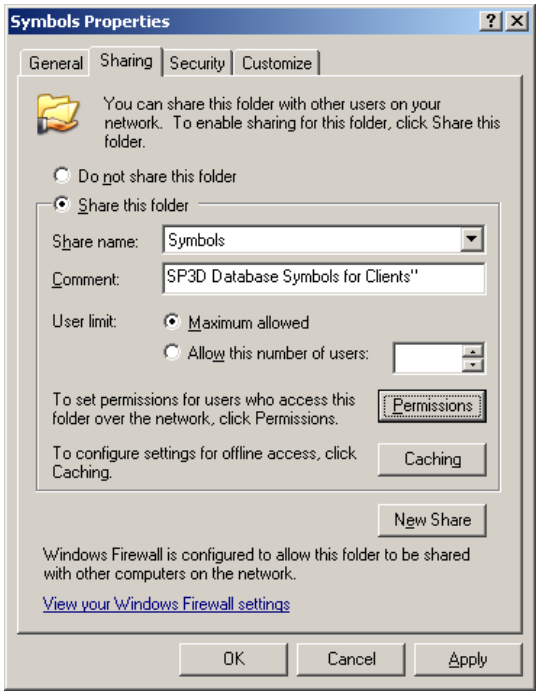


3. On the **View** tab, ensure **Use simple file sharing (recommended)** option is **unchecked**.

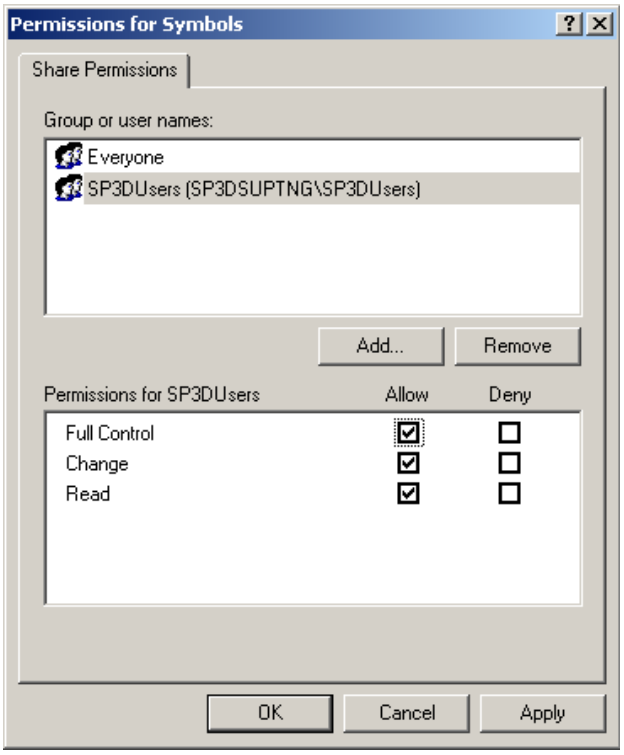


4. Click **OK**.

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

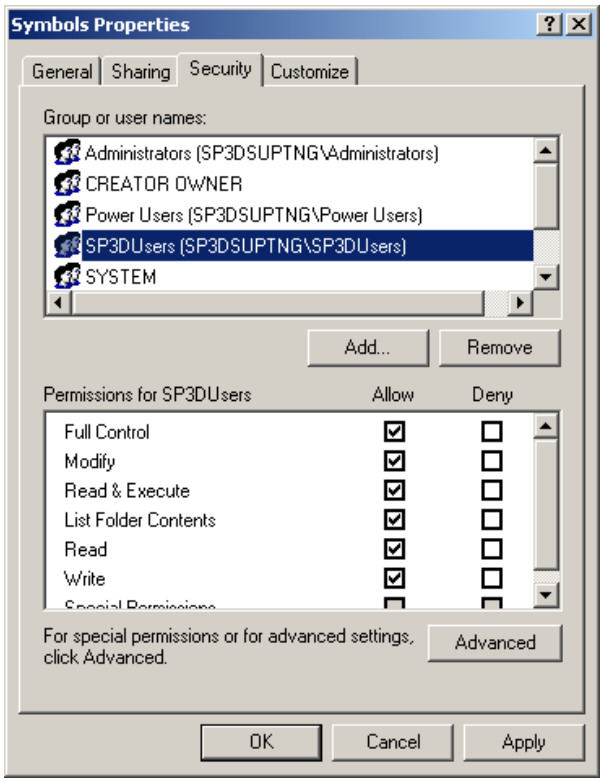


6. **Modify** permissions such that **SP3DUsers** group (created on Lab 1) have **Full Control** access.



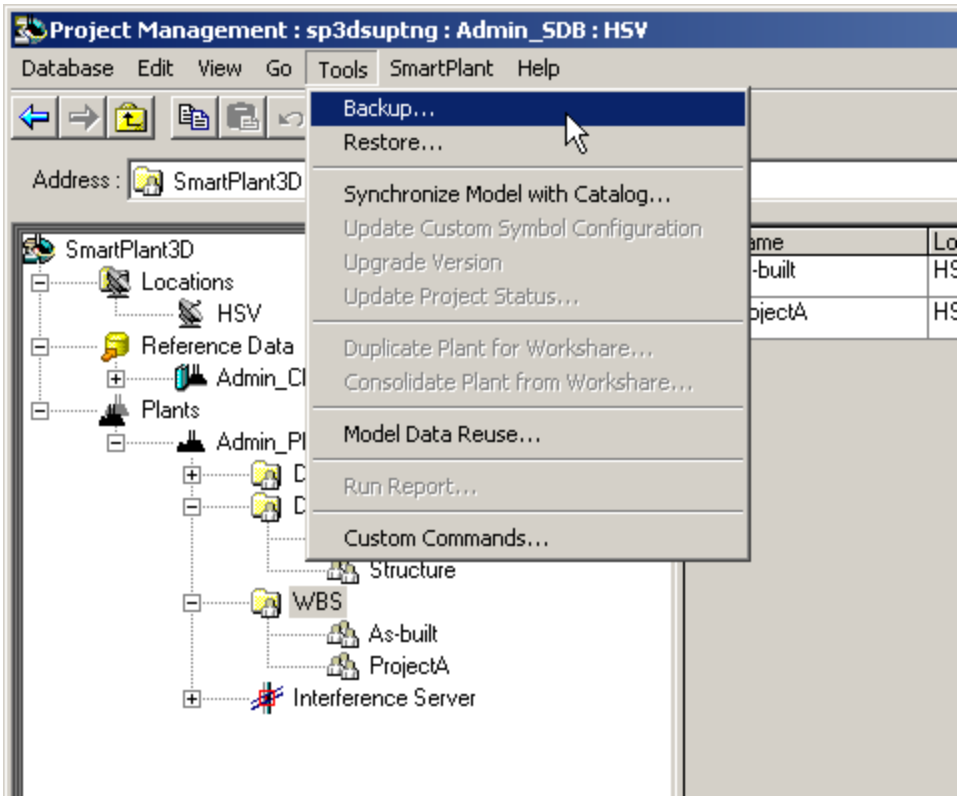
7. Click O**K**

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



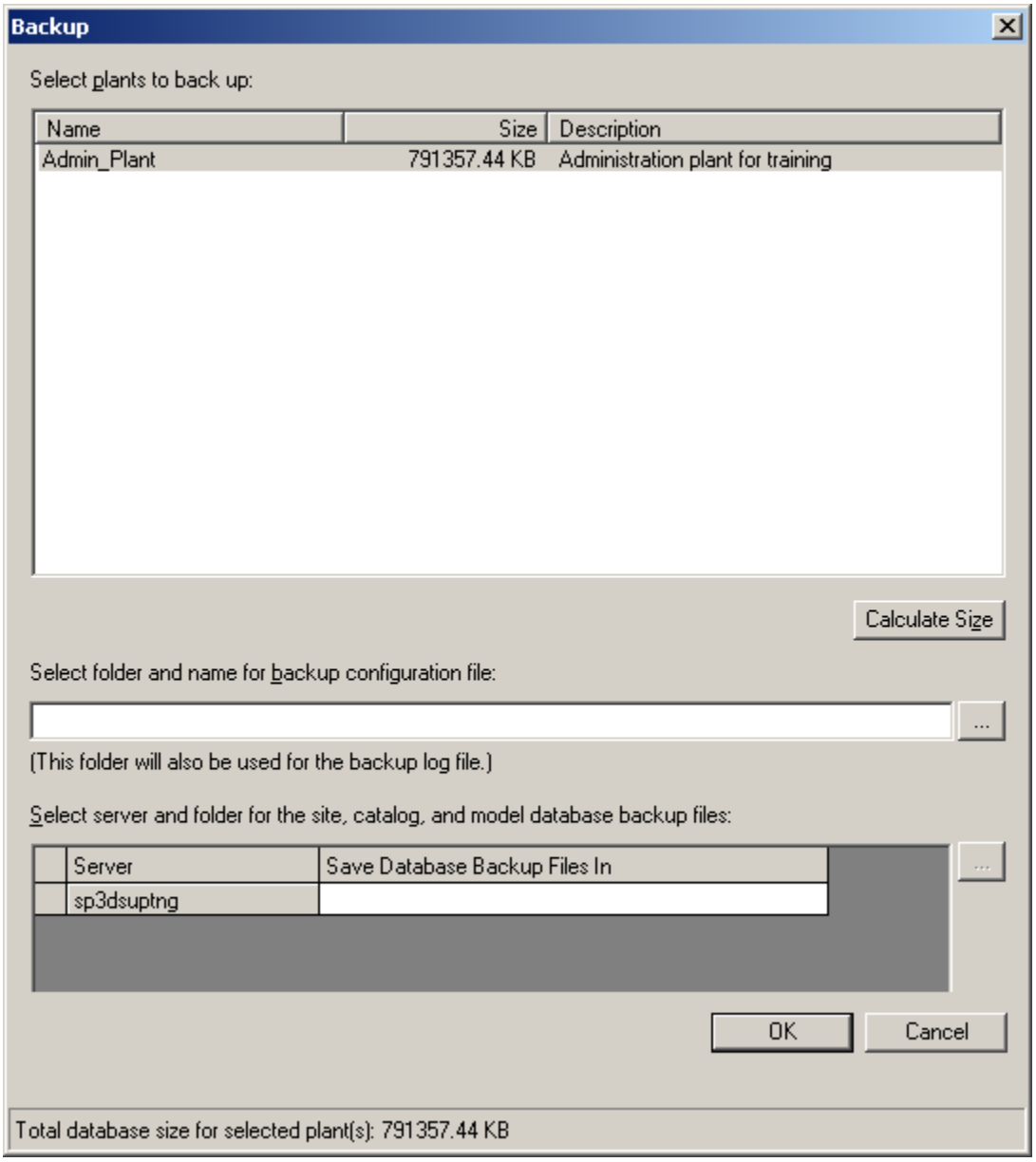
LAB 4: Simple Backup

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

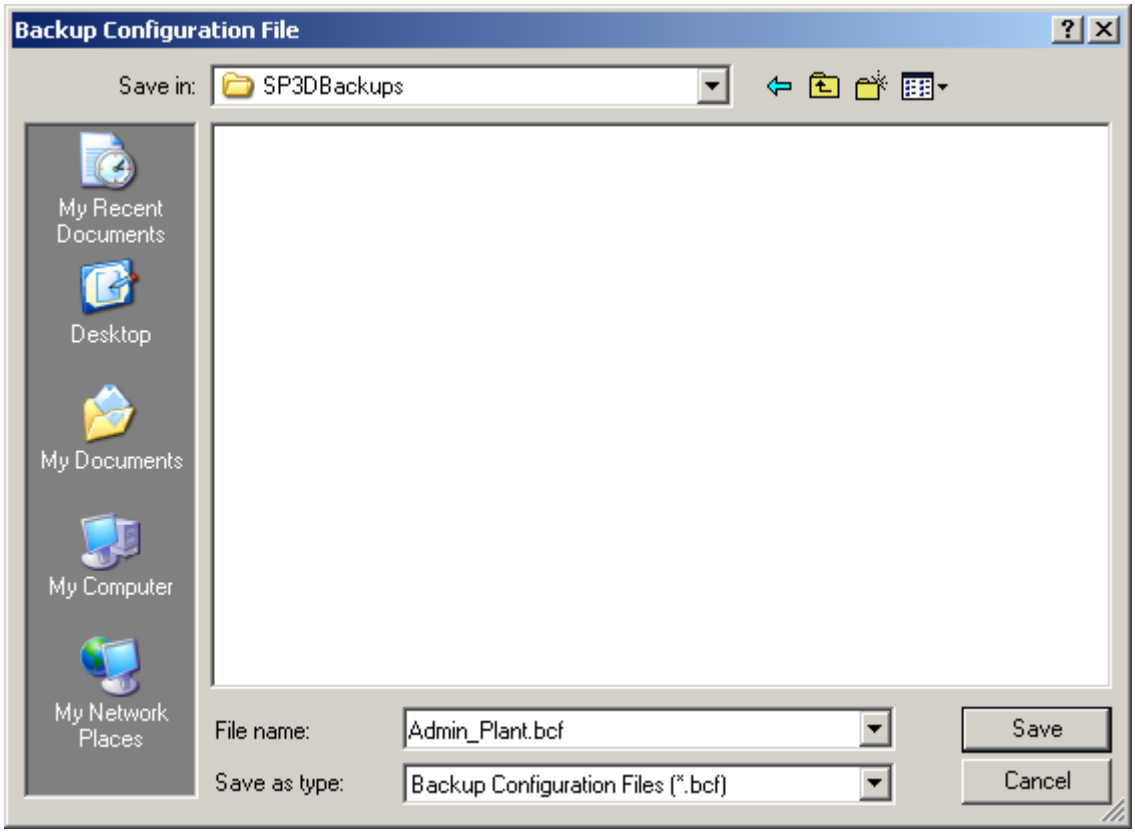


3. In the Backup form, use **Calculate Size** button to determine the size of the backup:

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

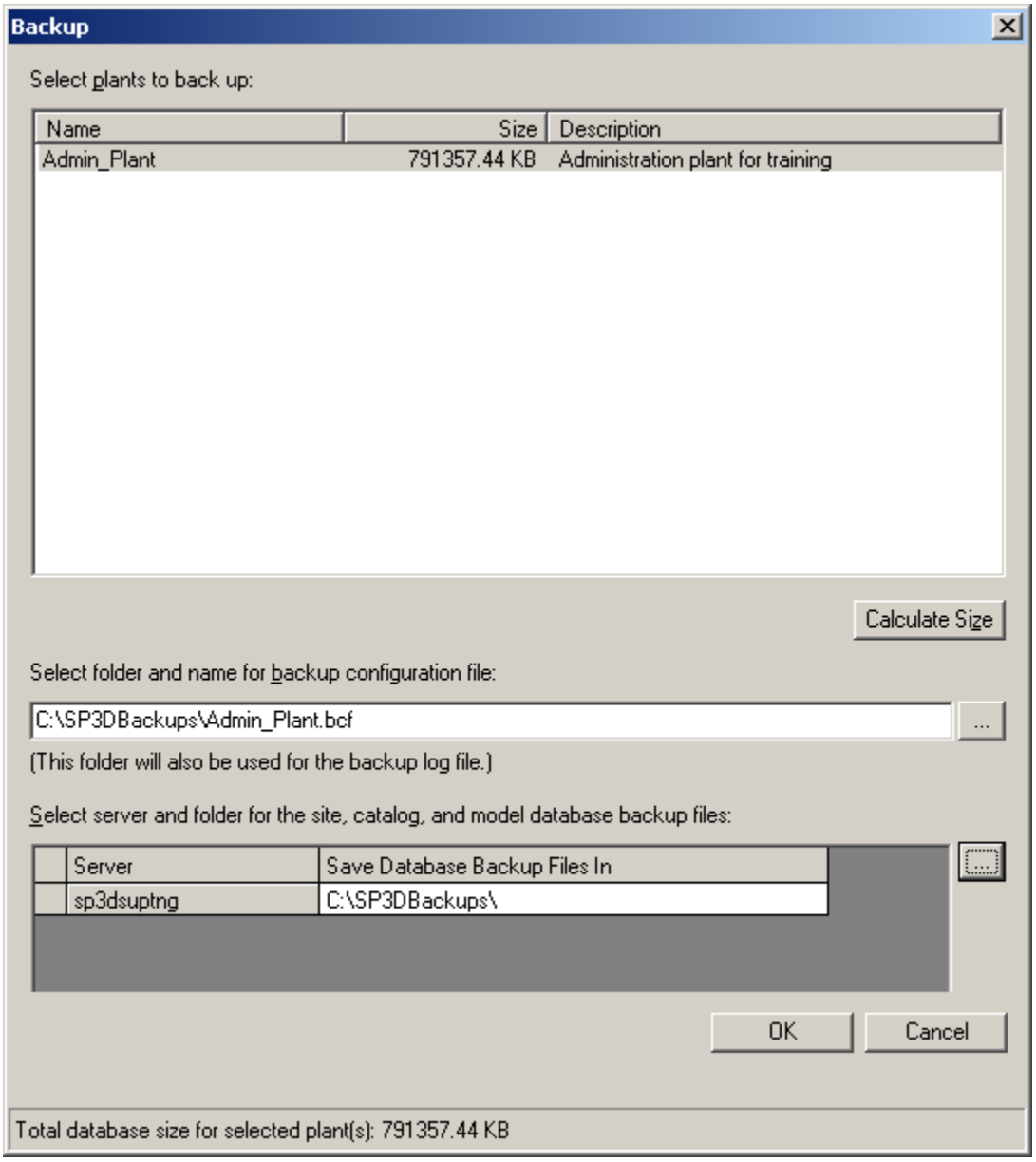


4. Click button '…' on **Select folder and name for backup configuration file** field; create a folder on a drive that has sufficient space to hold the backup. Name the folder **SP3DBackups**

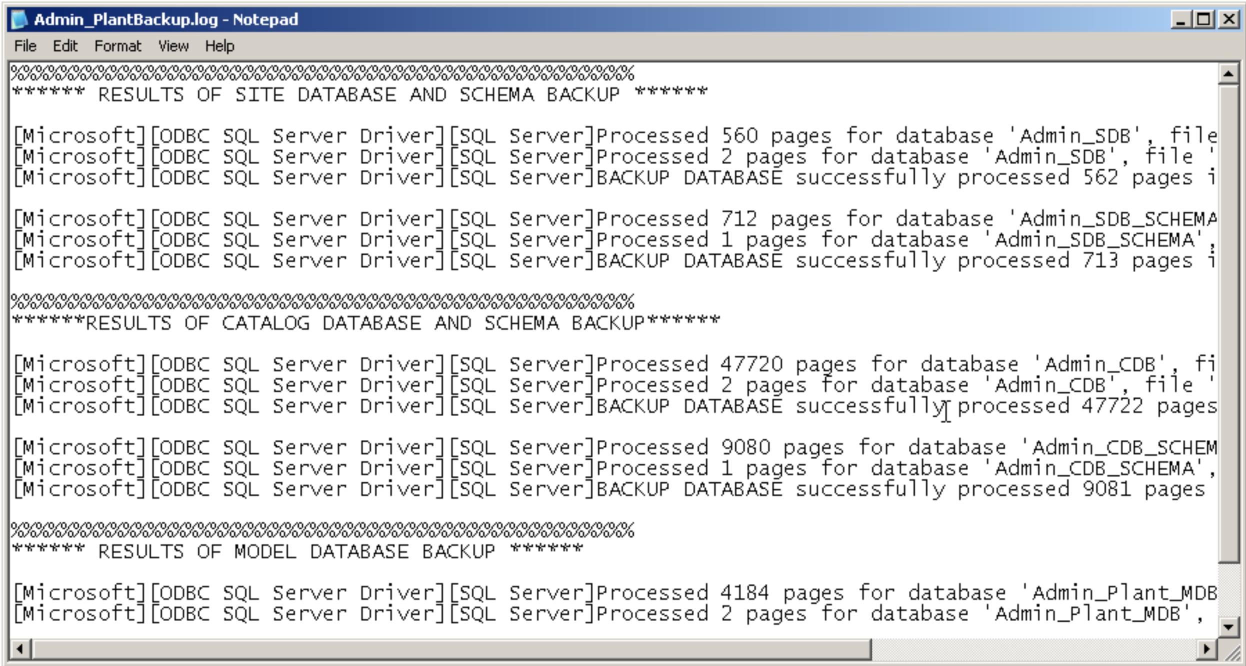


5. Click **Save**.
6. Return to **Backup** form and use browse button on **Select server and folder for the site, catalog and model**... option to determine a location to store database file backups. If possible, try to place the .bcf and the database files together during the backup procedure.

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



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',
```

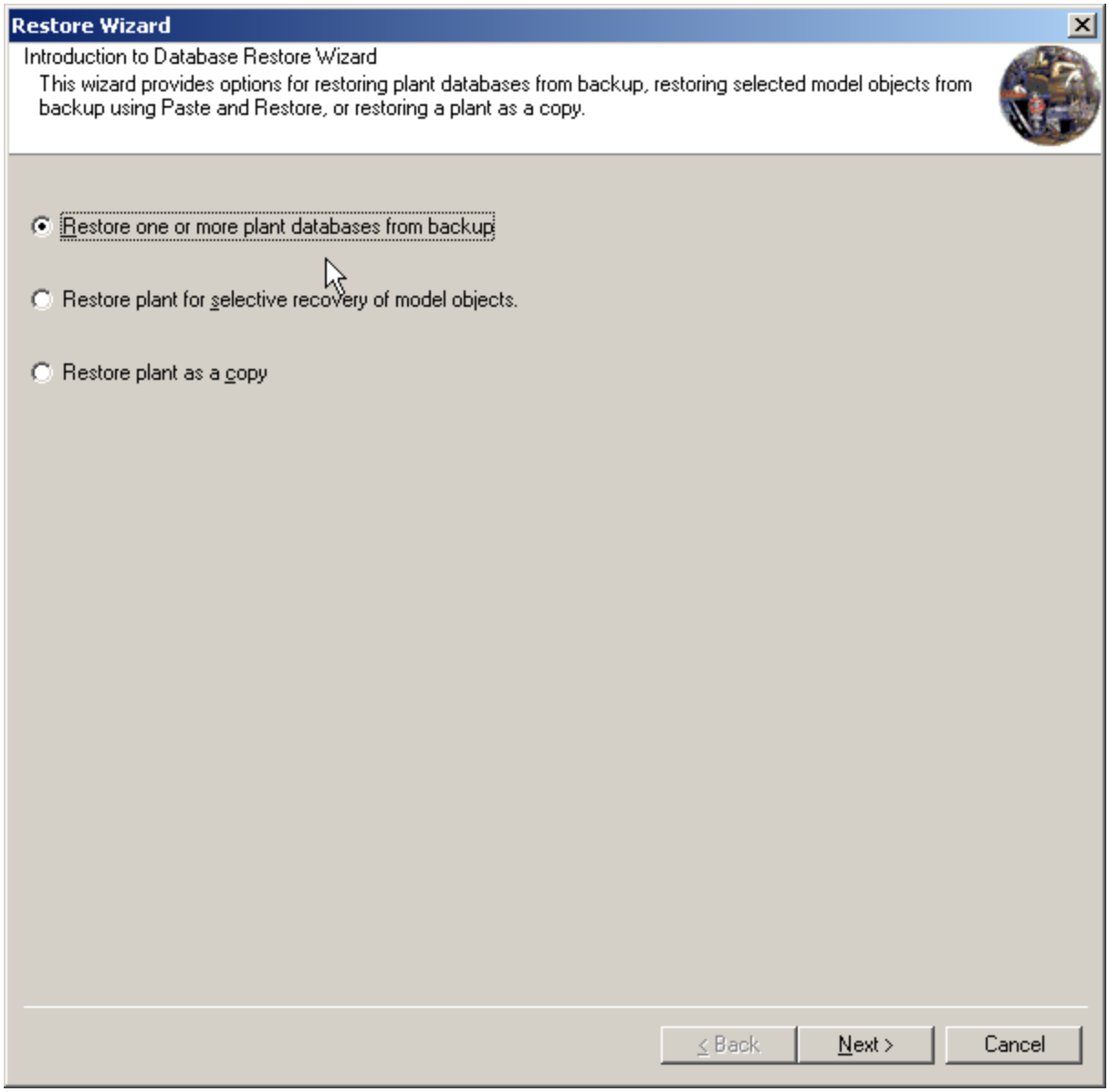
9. **Close** log file
10. Click **X** button on top right, or **Cancel** button on the Backup form to return to **Project Management**.

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**…

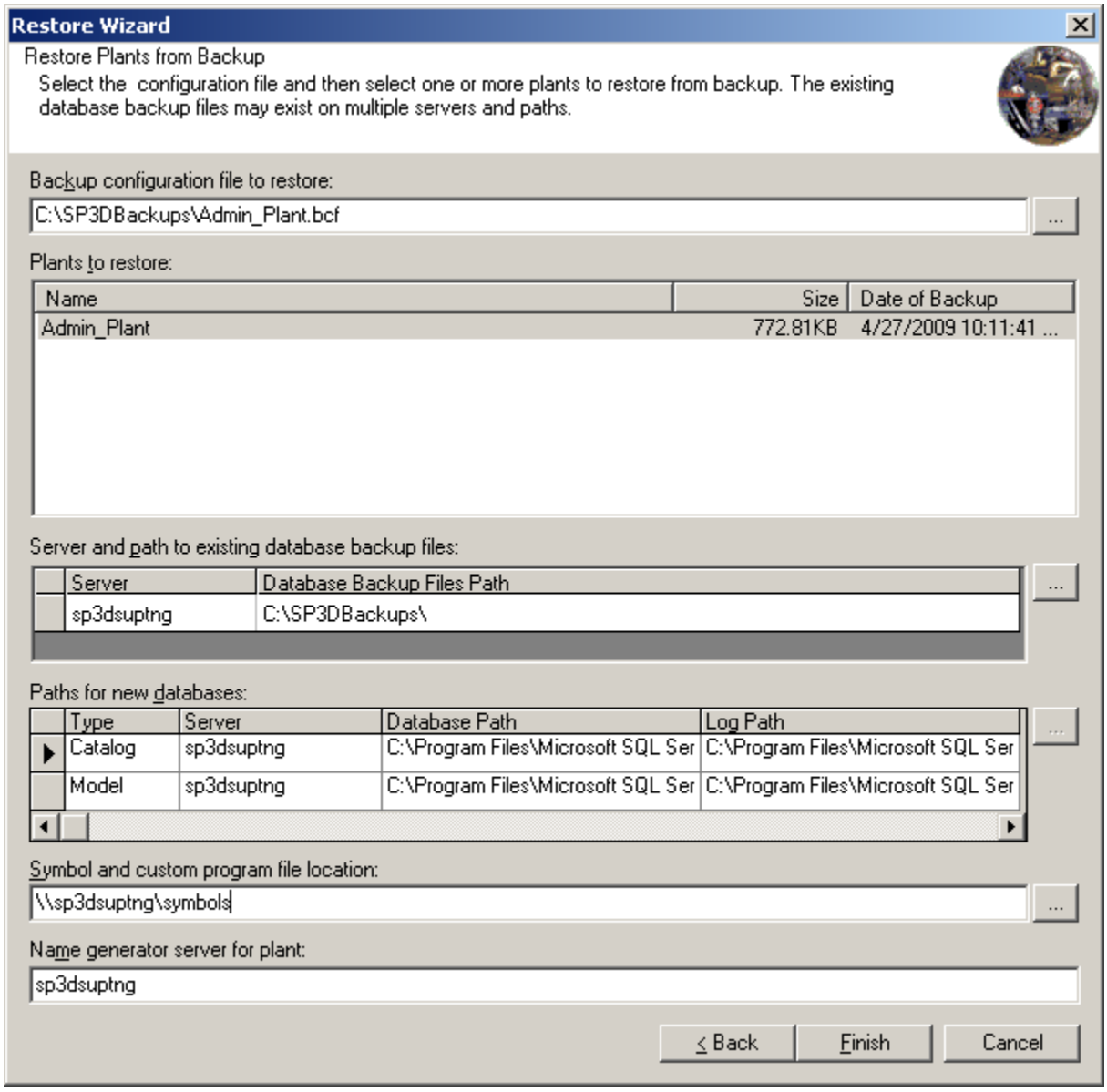


3. Choose option **Restore one or more plant databases from backup**. This will restore OVER THE EXISTING plant database and it will only work if plant already exists in the Site and Site_Schema databases (plant must be listed under Plants node in Project Management hierarchy).

4. Click **Next**

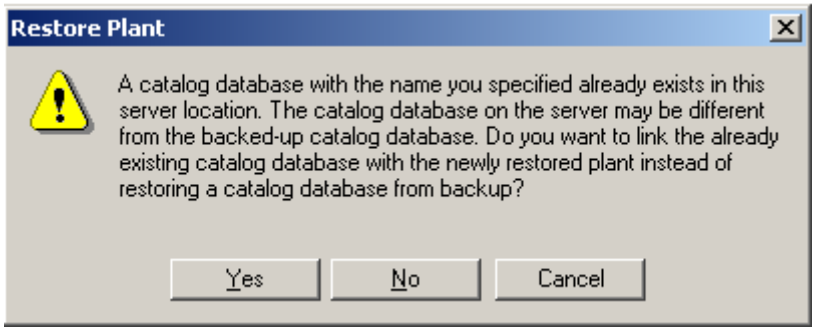
5. **Complete** the form as depicted below by identifying the **backup configuration file** (*.bcf), **Backup file** path, **Catalog and Model** names/locations, and **Symbols** share path:

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

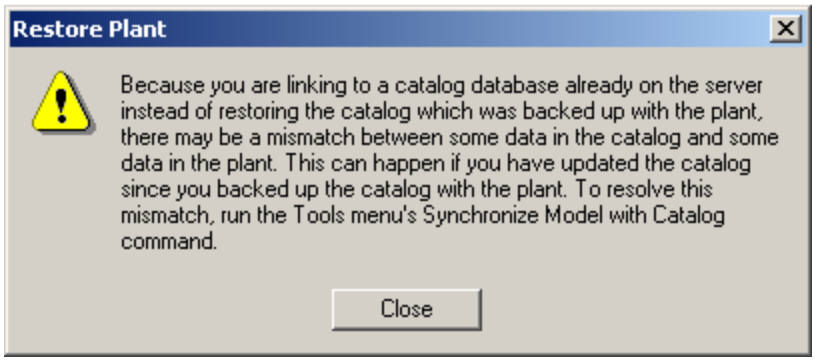


6. Click **Finish**

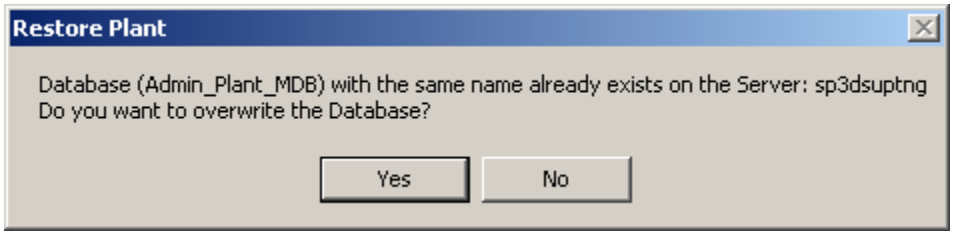
7. Because Catalog database already exists on the server, you have two options in this restore mode. You can either leave the existing Catalog in place (linking it) or overwrite it from the backup. Because there have not been any changes to the Catalog, the logical choice would be to select Yes and leave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



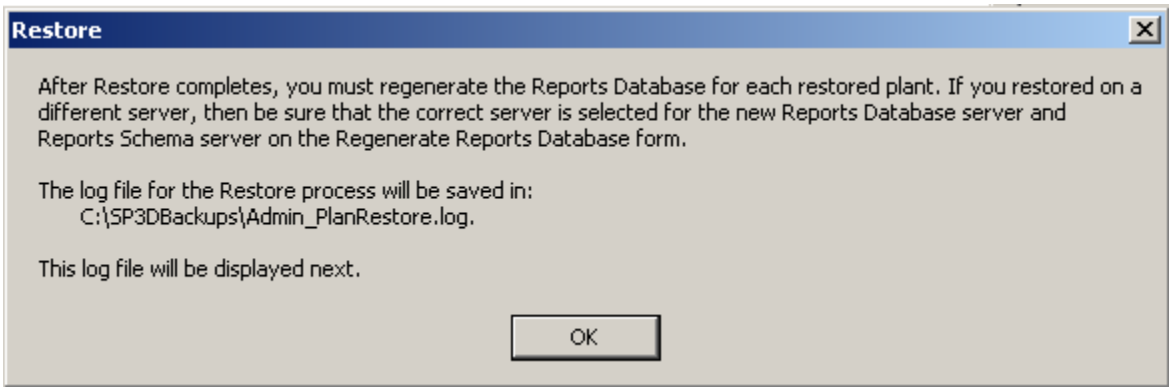
8. Click **Yes**
9. An additional warning message will be displayed.



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.**

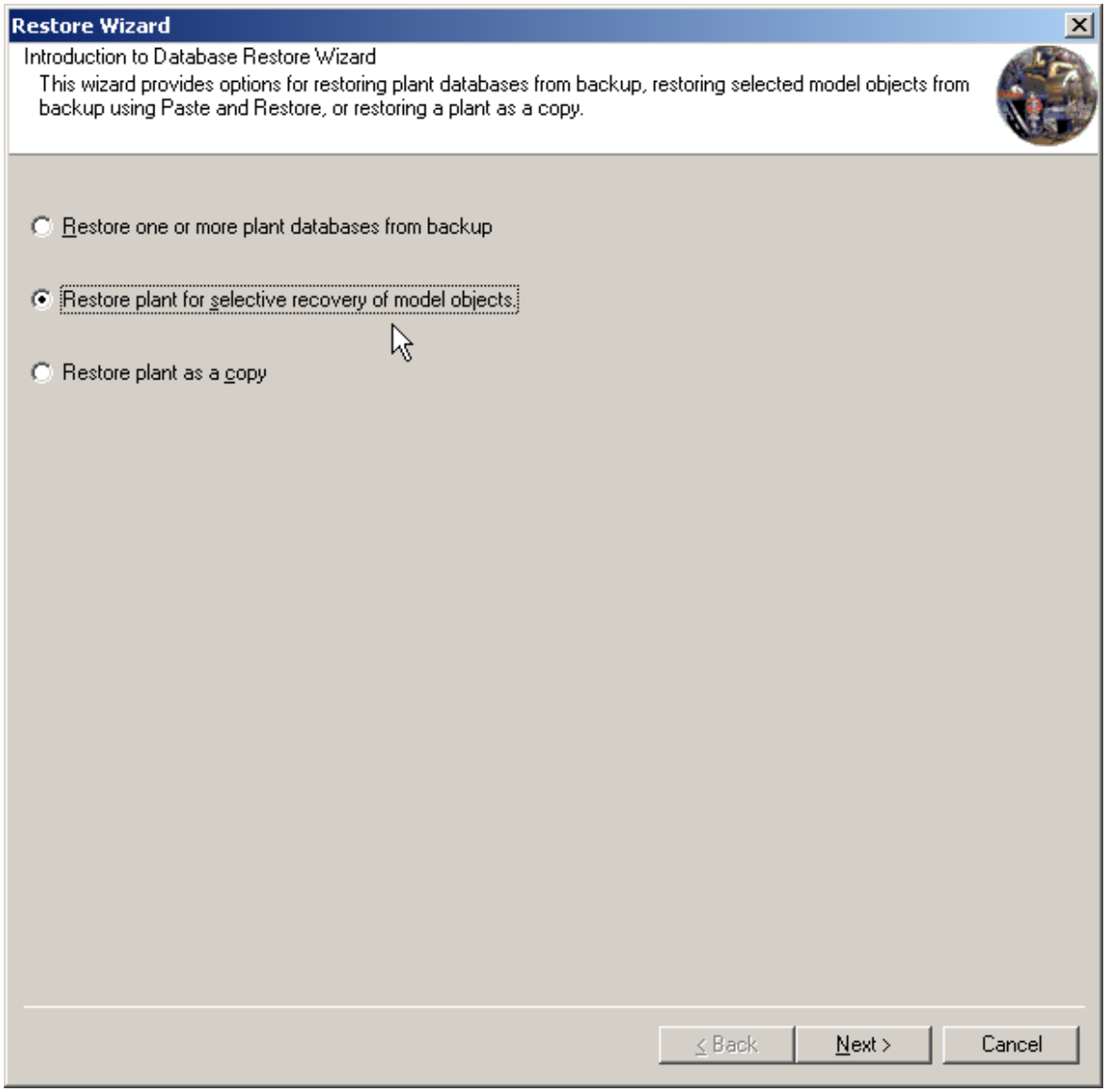


14. **Repeat** the process described in steps 1-13 but this time, choose to restore over the Catalog Database.

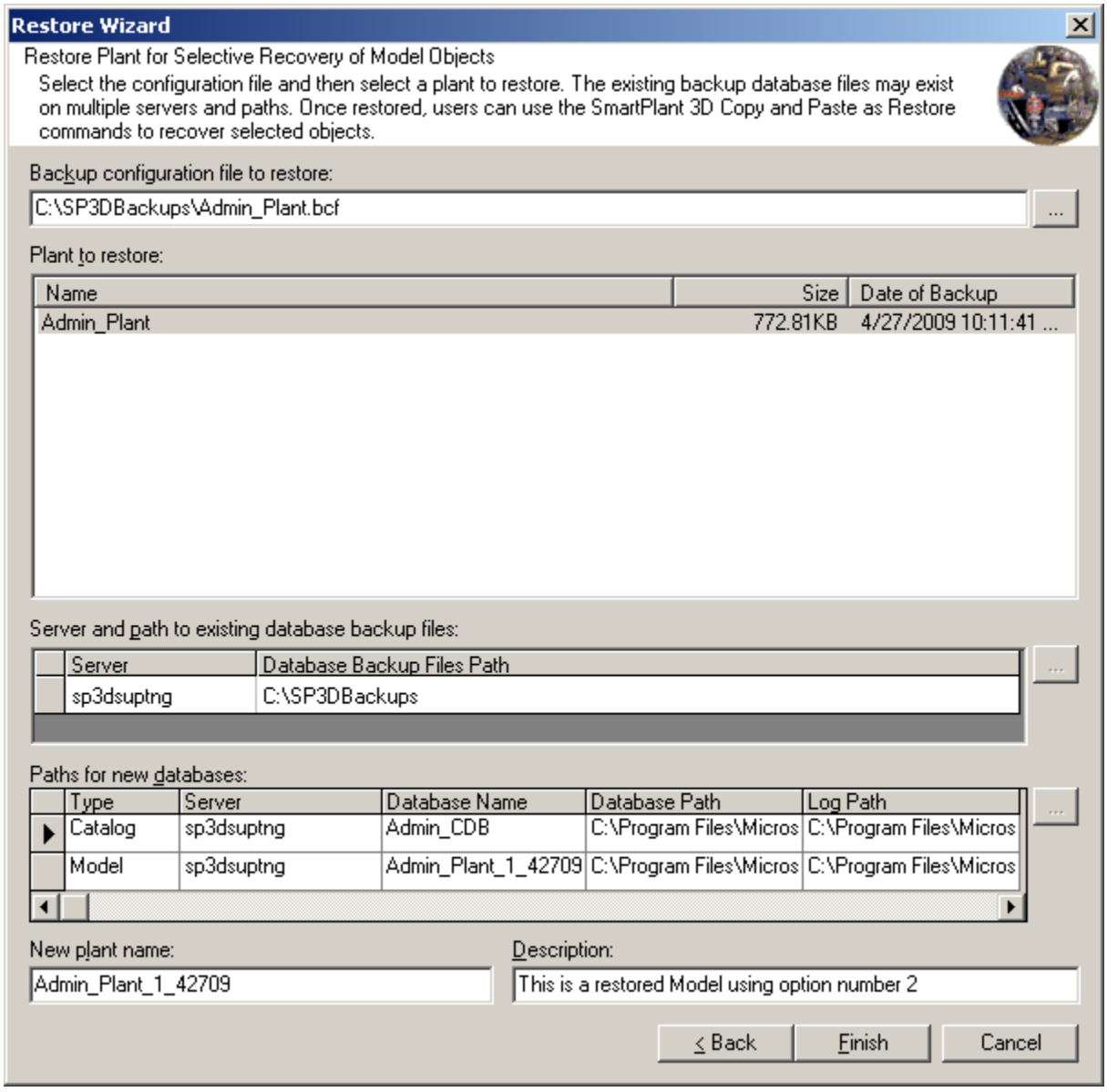
LAB 6: Restoring a Plant Database (Restore Option 2)

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.

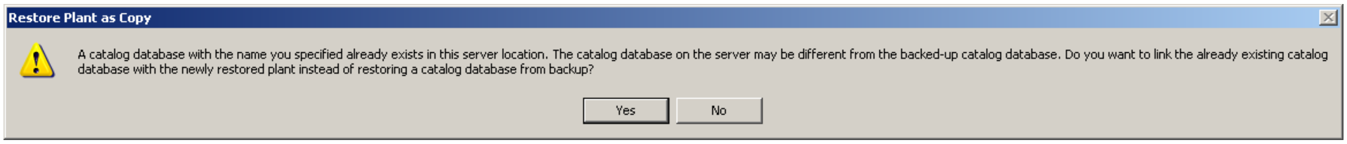
1. Start **Project Management** if not already open
2. From **Tools** menu select **Restore**…



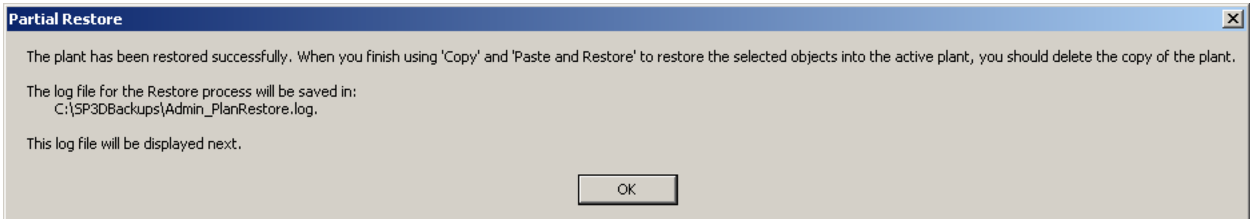
3. Select option **Restore plant for selective recovery of model objects**
4. Click **Next**
5. **Complete** the form as depicted below by identifying the **backup configuration file** (*.bcf), **Backup file** path and **Catalog and Model** names/location.

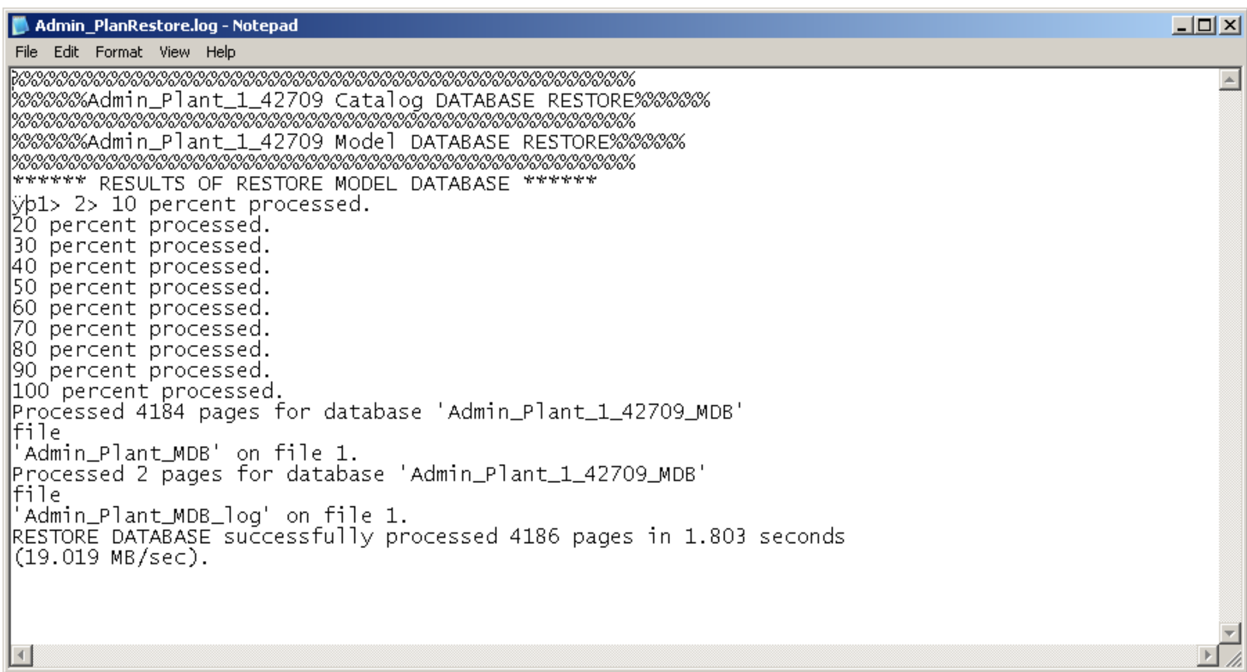


6. Note that New plant name would contain current date (04-27-2009 in the screenshot above). Provide a description that is meaningful to you.
7. Click **Finish**
8. Indicate that you would like to link to the existing Catalog by selecting **Yes**



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

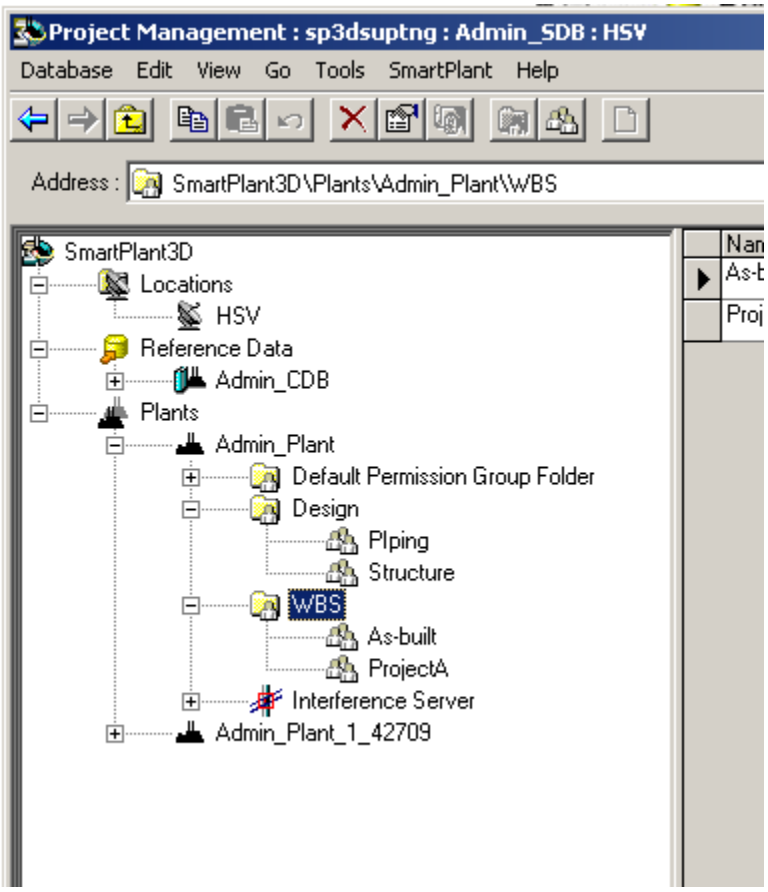




Note: For Oracle based projects, the restore log file will look different than the screenshot above.

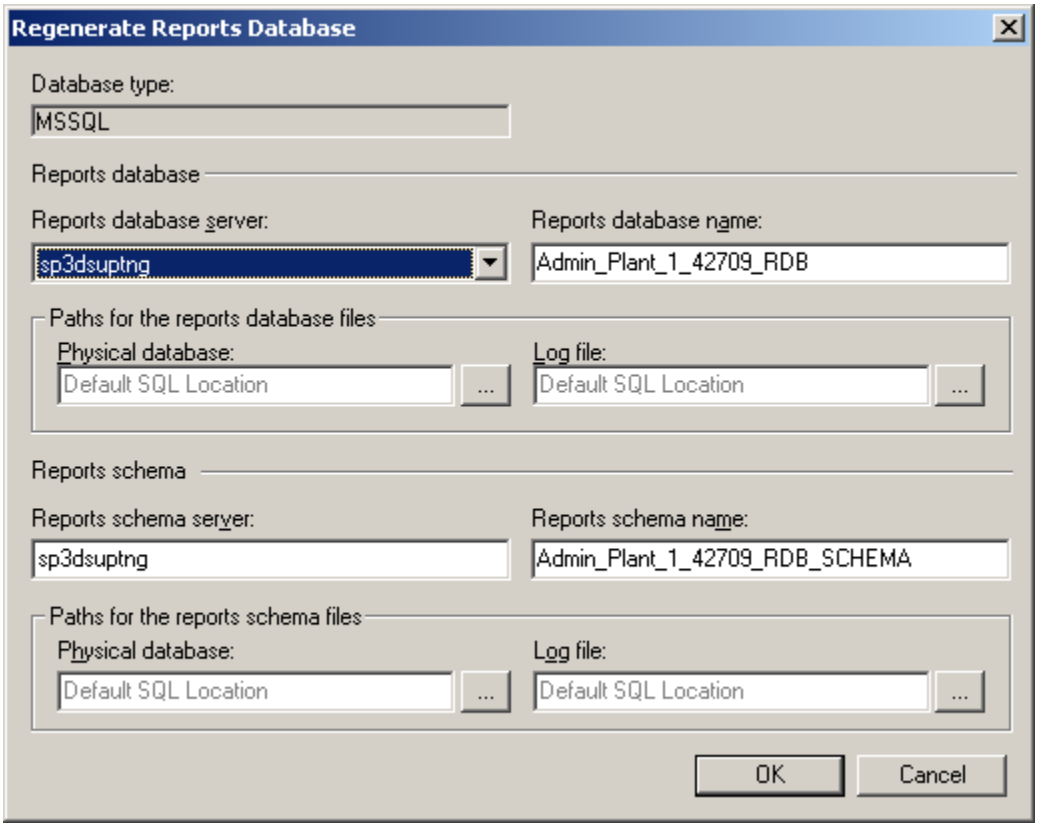
10. **Close** Restore Wizard **form**.

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

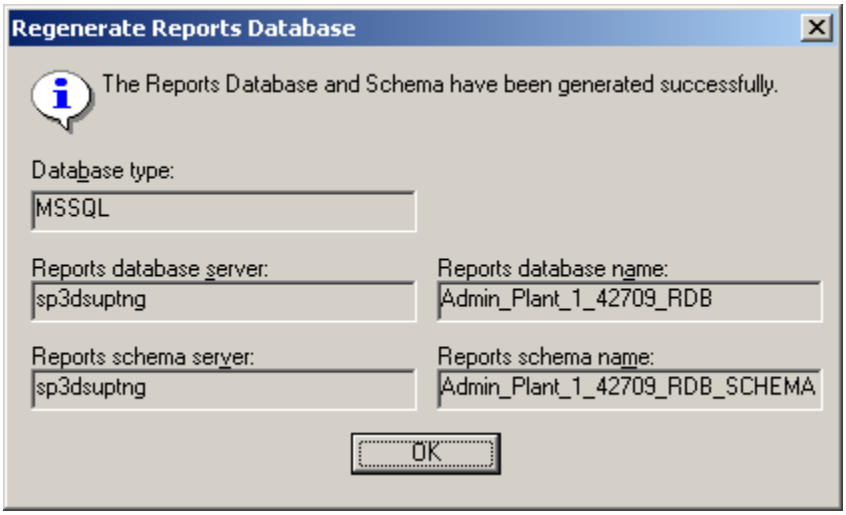


12. Typically, you would follow this type of operation by restricting access to permission groups in the restored Plant. As an exercise, use the skills you have learned to set user access to read for all groups and users except yourself on the Restored Plant.

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).



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



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

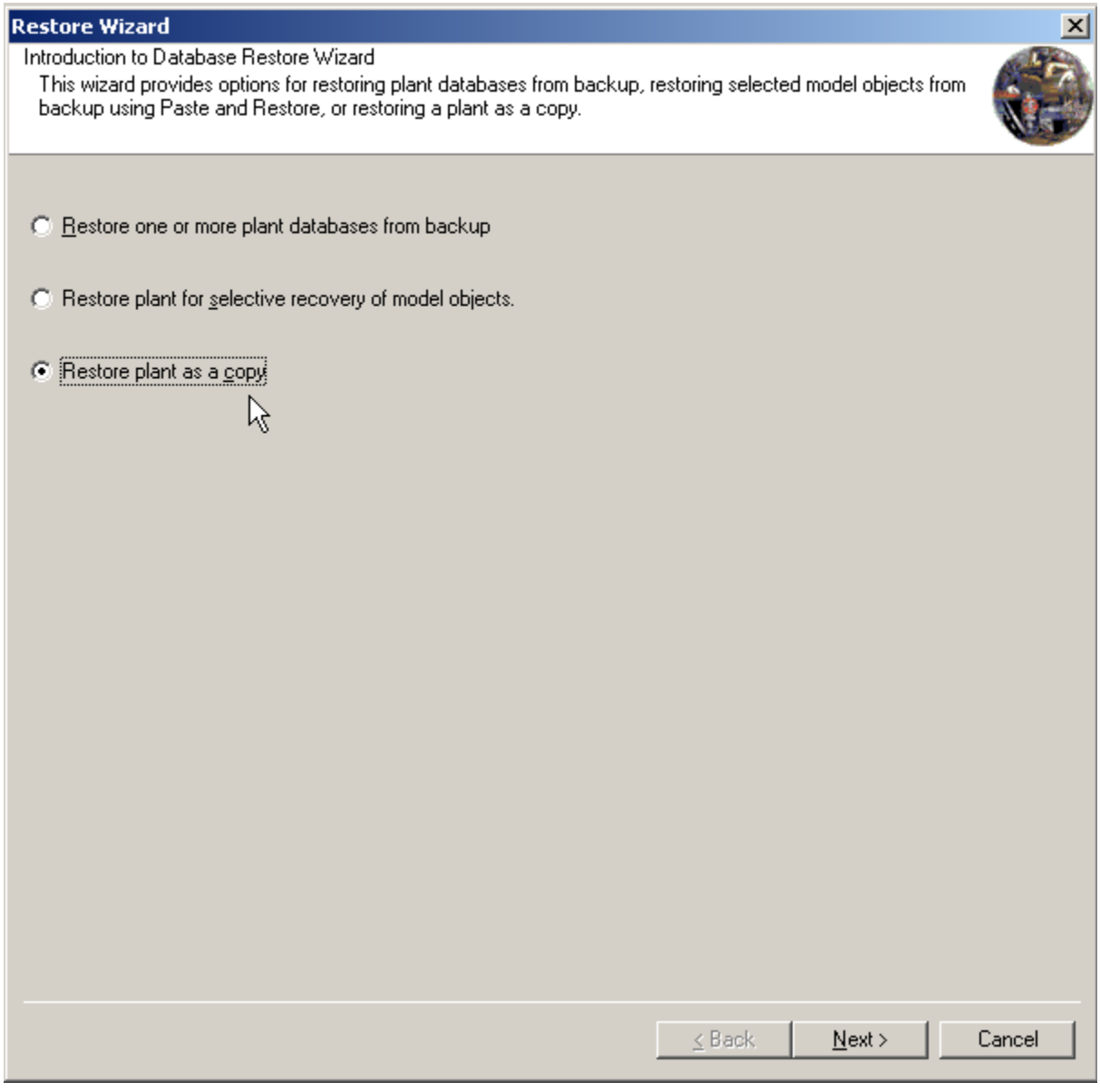
16. The database can now be used for recovery of objects operations, had this been a live project.

    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.

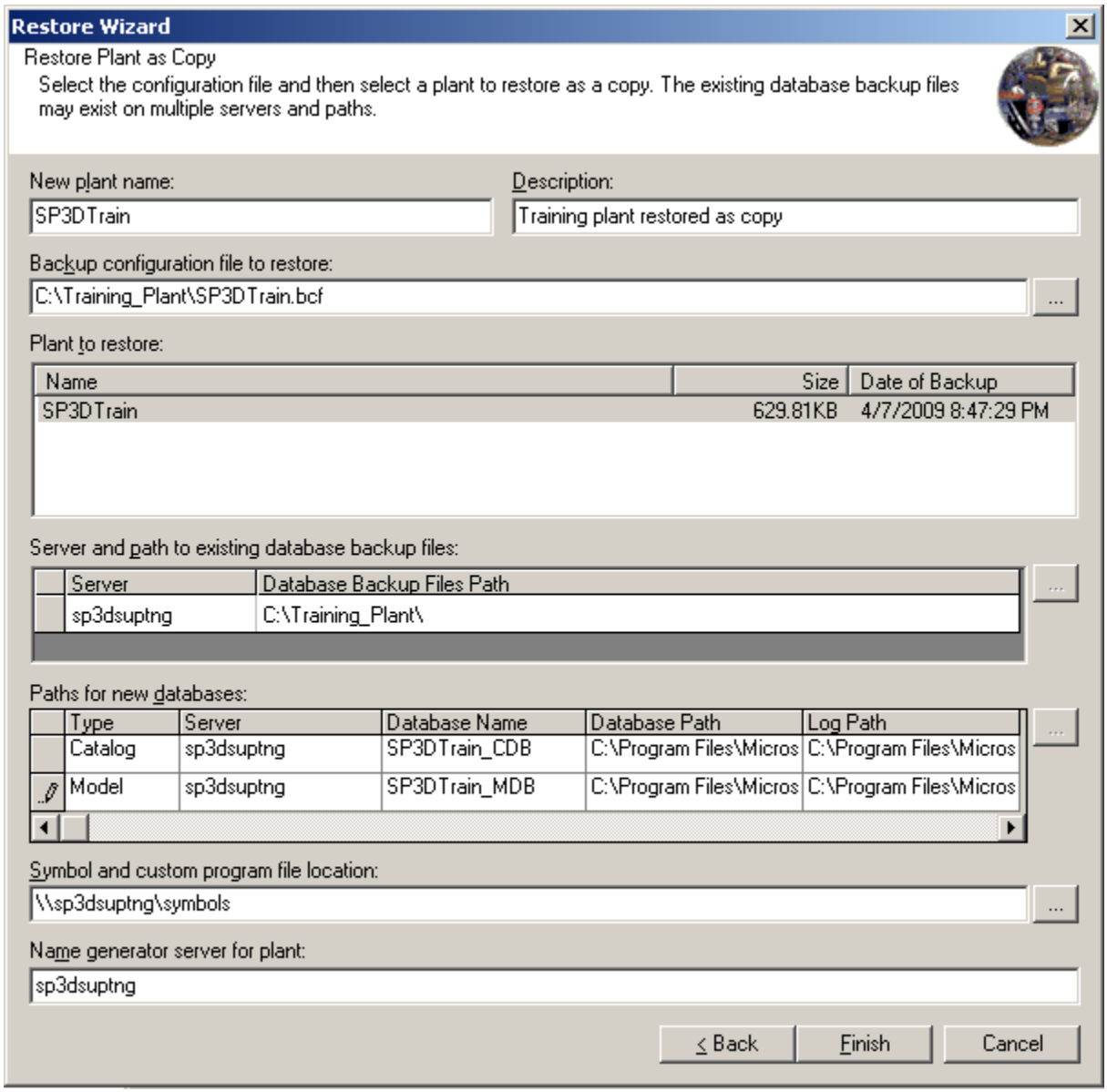
1. Start **Project Management** if not already open
2. From the **Tools → Restore** command select the third option as captured below:



3. Click **Next**

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

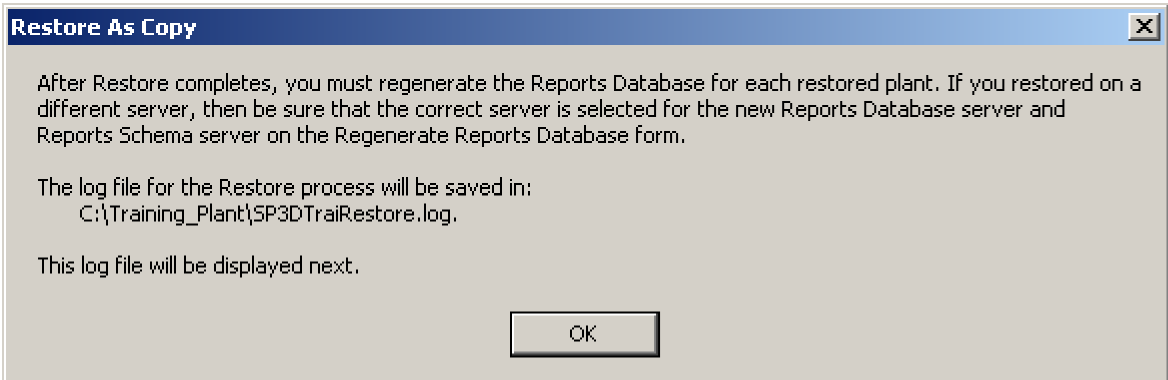
4. The form works much the same way as it has before for restore option 1 and option 2. Complete the form as depicted below by keying in a New plant name, locating the .bcf and backup files; choosing the Catalog name, and the Model name.



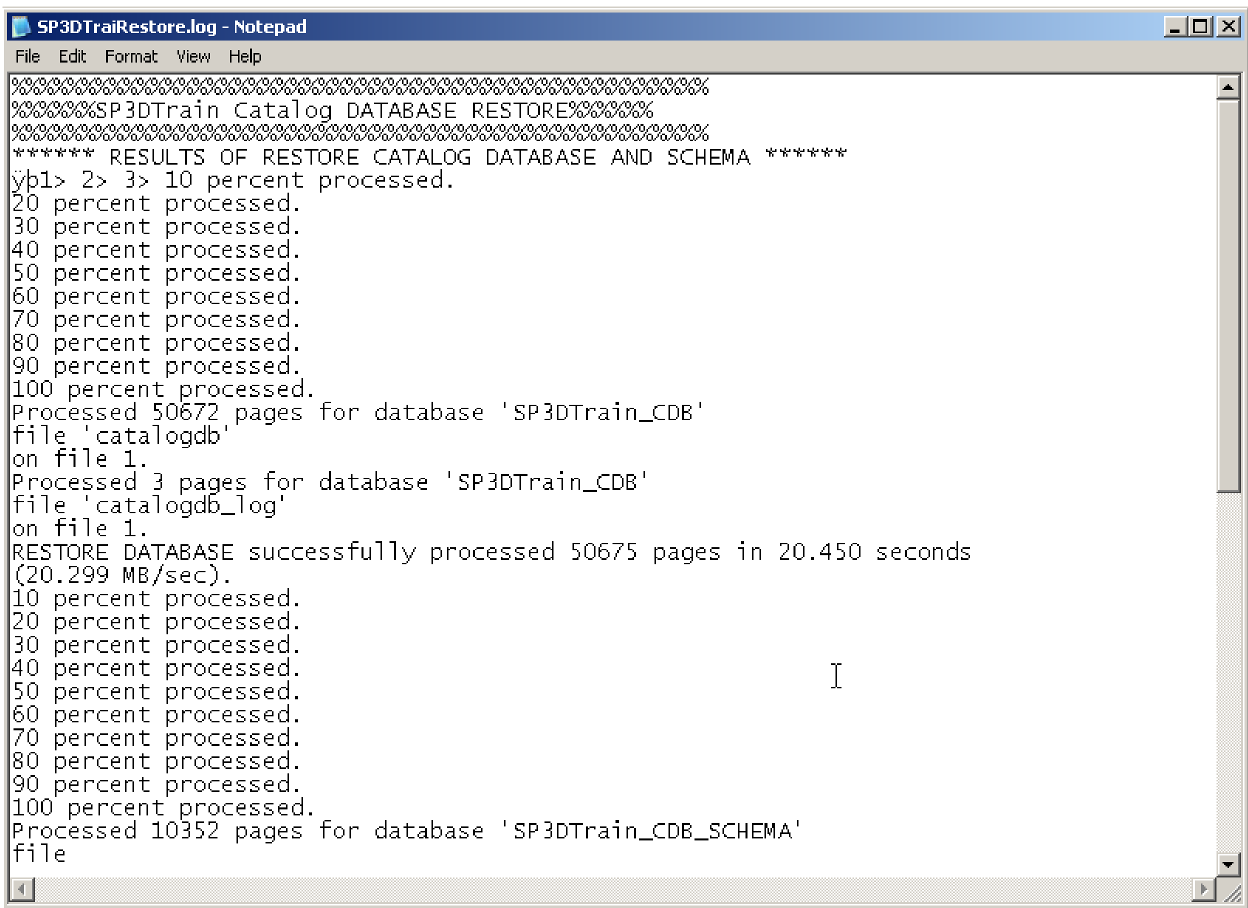
5. Click **Finish**.

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**

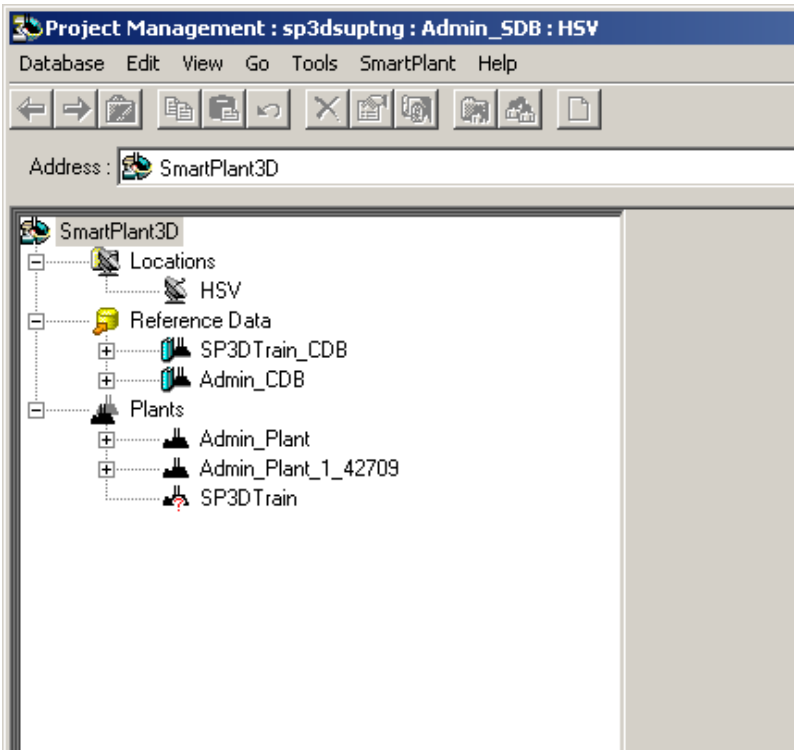


7. **Review** log file to verify restore operation's integrity.

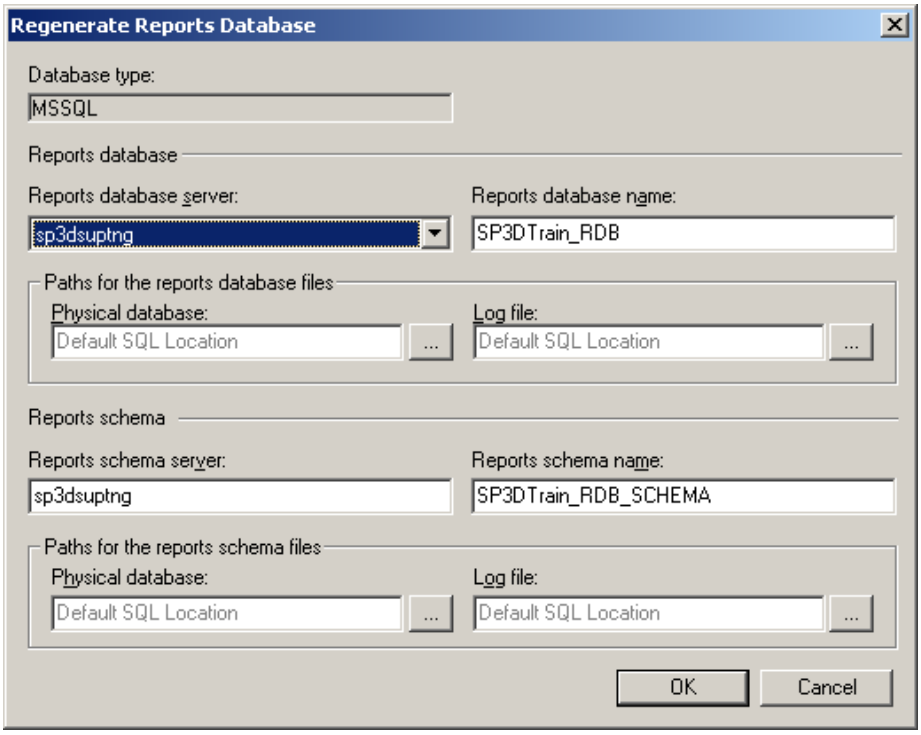


8. **Close** restore form when completed.

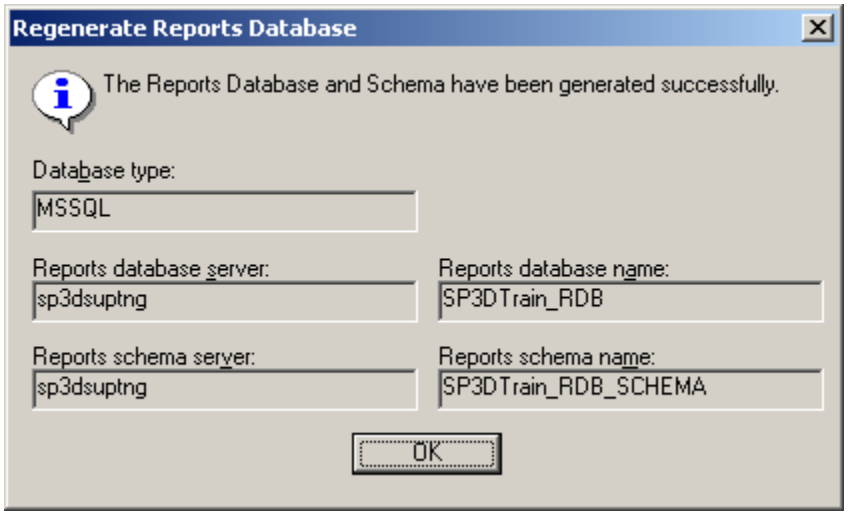
9. Note there are two catalogs and three plants. The question mark next to SP3DTrain plant is an indication that Reports databases have not been regenerated.



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



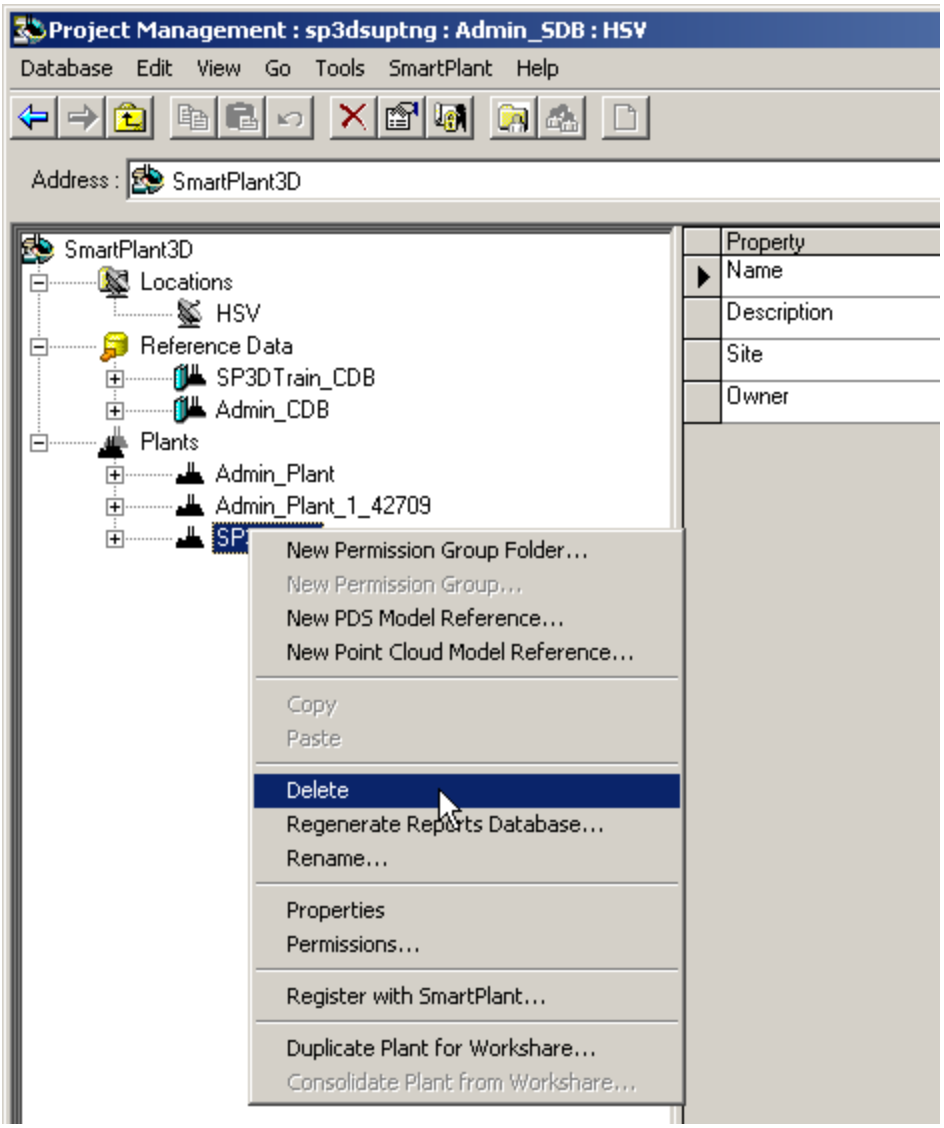
11. Click **OK**.


Regenerate Reports Database
The Reports Database and Schema have been generated successfully.
Database type:
MSSQL
Reports database server:
sp3dsuptng
Reports database name:
SP3DTrain_RDB
Reports schema server:
sp3dsuptng
Reports schema name:
SP3DTrain_RDB_SCHEMA
OK

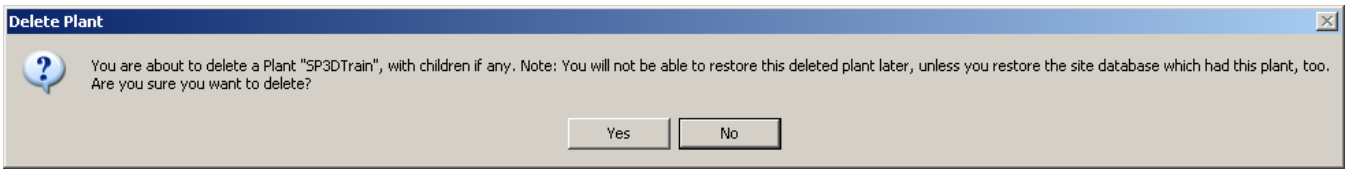
12. Click **OK**

LAB 8: Deleting a Plant

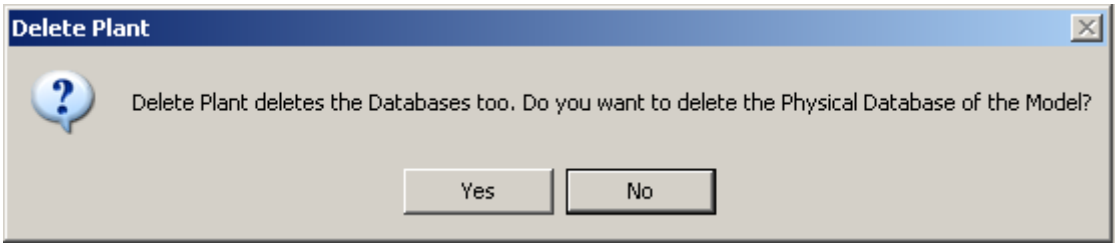
1. Start **Project Management** if not already open
2. Right mouse click on **SP3DTrain** plant and select **Delete**.



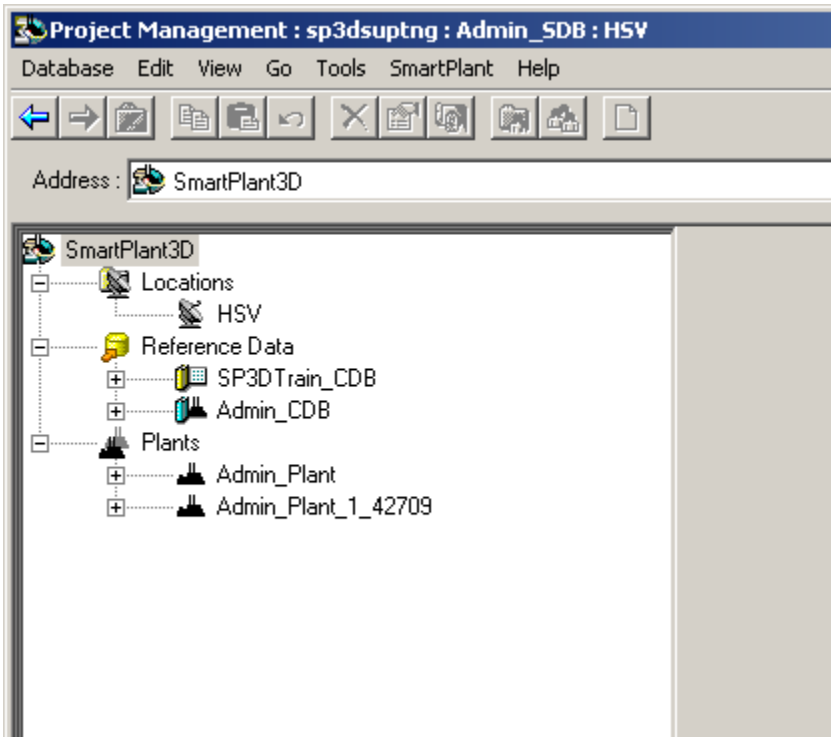
3. Deleting the plant will effectively remove its pointer from the Site database. Click **Yes**



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



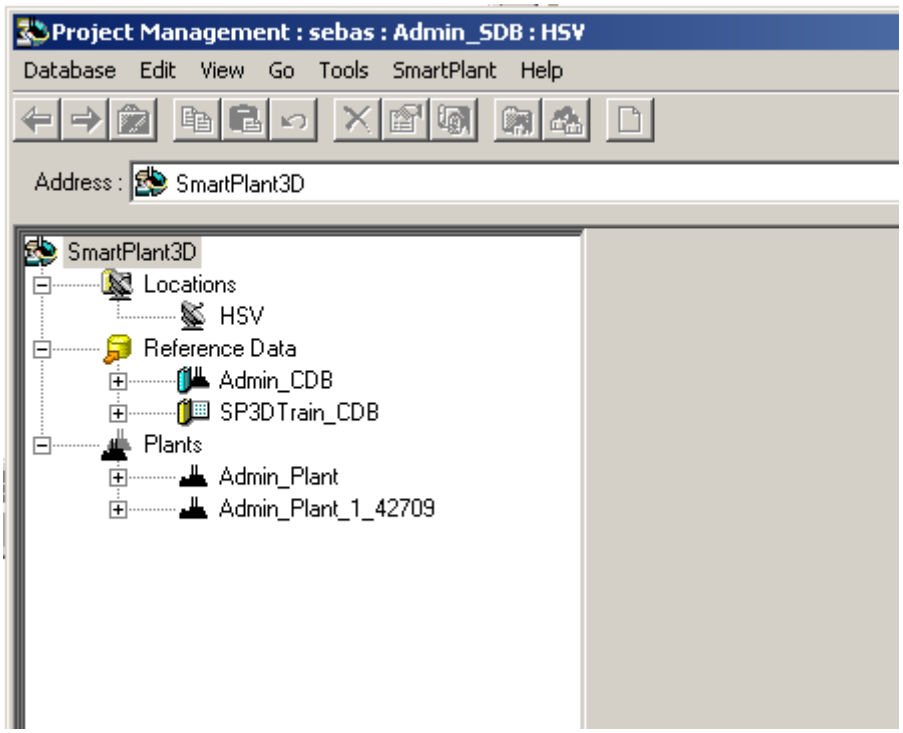
5. Note the Plant has been removed from the hierarchy but Catalog still remains.



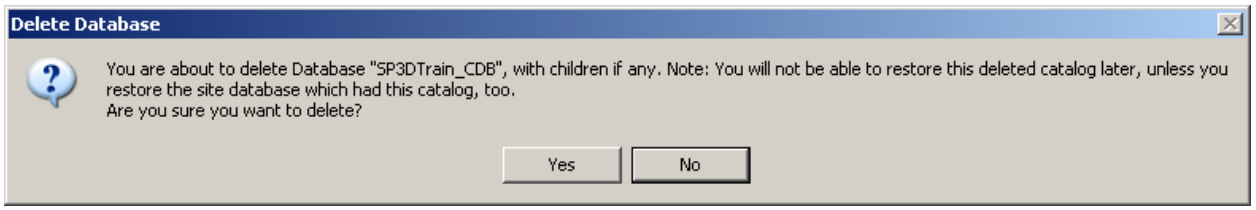
Note: SP3DTrain_CDB database still remains; it can be deleted as it is no longer associated to any plant, or it can be used with a new plant by running Database → New → Plant... command.

LAB 9: Deleting a Catalog

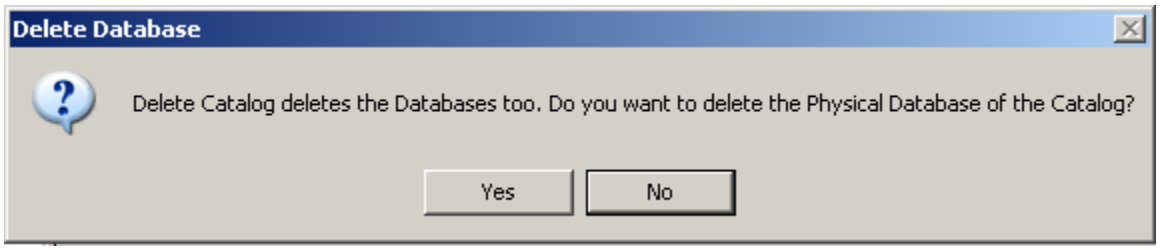
1. Catalog databases can only be deleted if there are no plants associated to them. Deletable catalogs can be recognized by a yellow mini book icon in Project Management hierarchy.



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**.

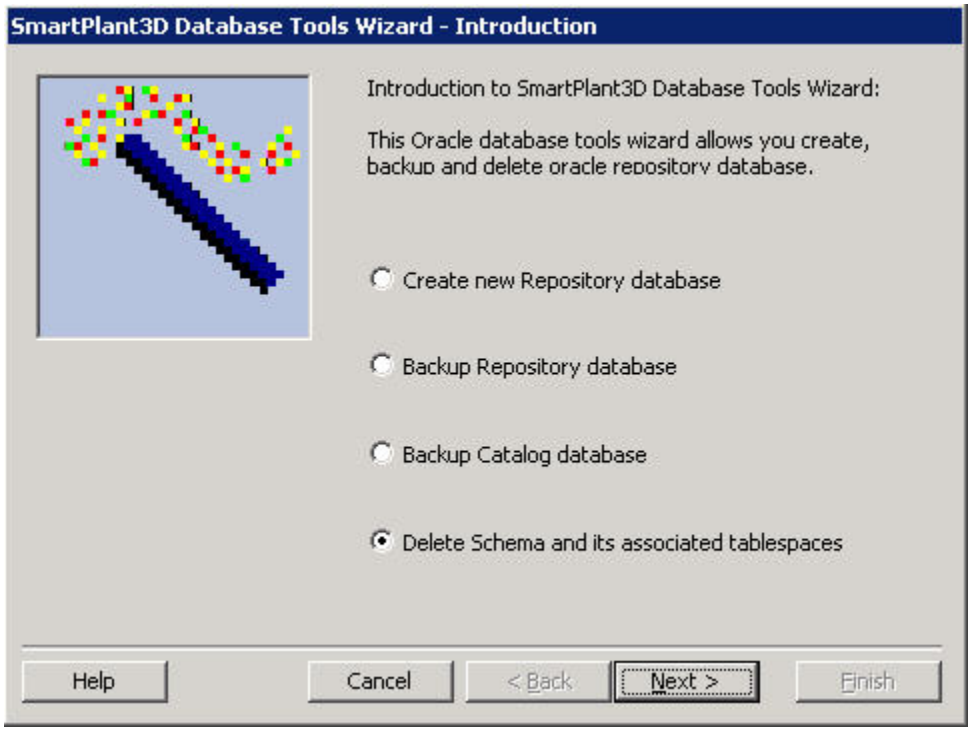
5. Try to delete the Catalog database named Admin_CDB and note the results.

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).

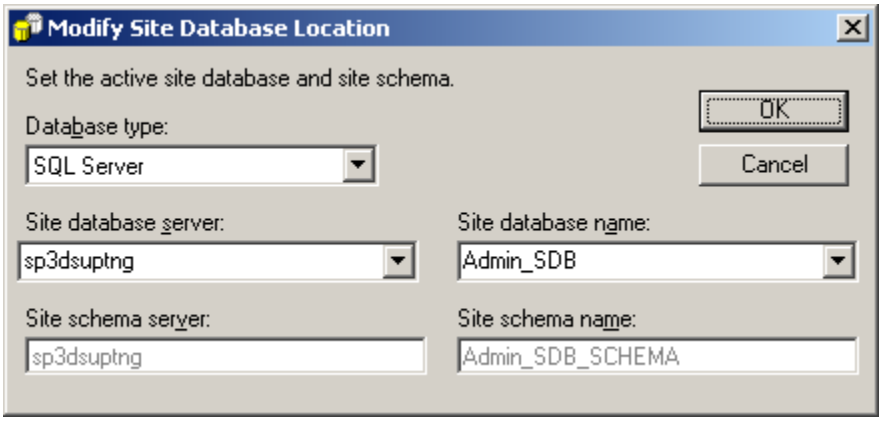
LAB 10: Manual Creation of System Hierarchy

Objectives

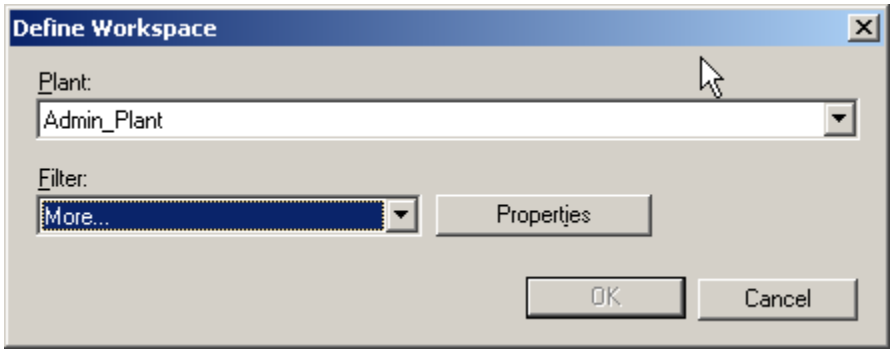
After completing this lab, you will be able to:

- Create a systems hierarchy in a new plant.

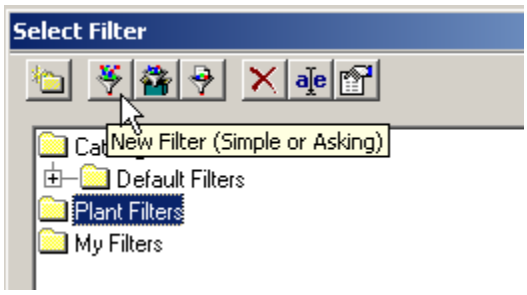
1. Set site database to **Admin_SDB** using Modify Site Database Location utility following Start > All Programs > Intergraph SmartPlant 3D > Database Tools > **Modify Database And Schema Location**



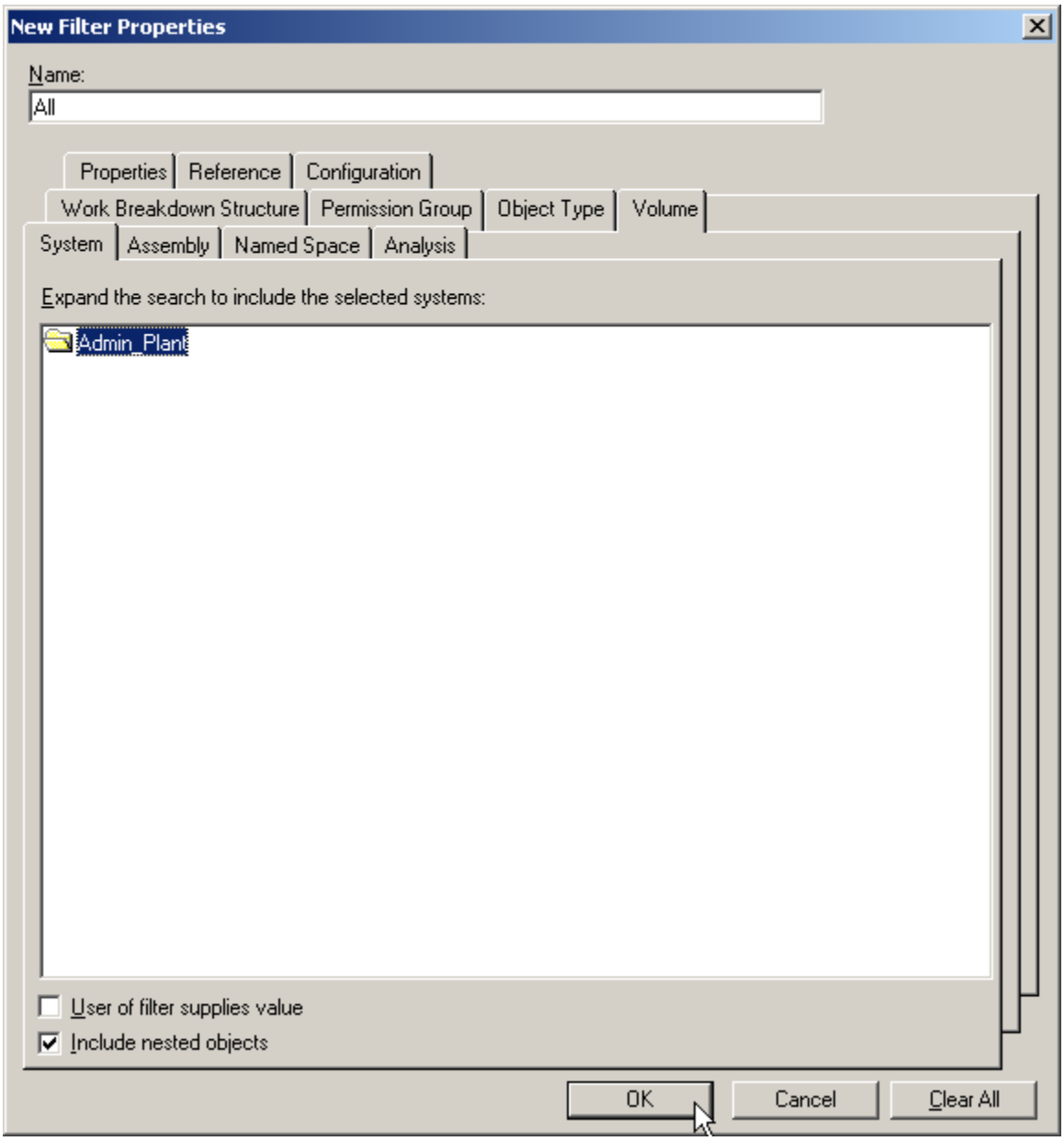
2. Open **SmartPlant 3D**, when prompted, select either English or Metric units **template**
3. Go to File > **Define Workspace**
4. From the plant drop down list, select **Admin_plant** and on the filter drop down list click **More**… to create a filter.



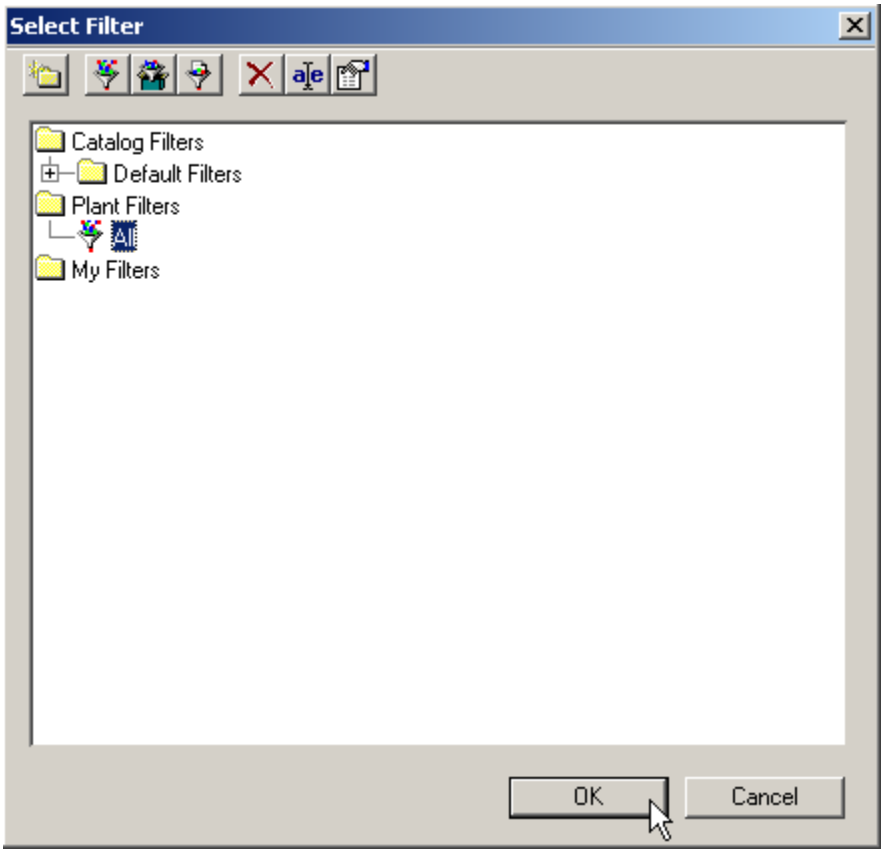
5. Highlight **Plant Filters** node and click **New Filter** button at the top of the form



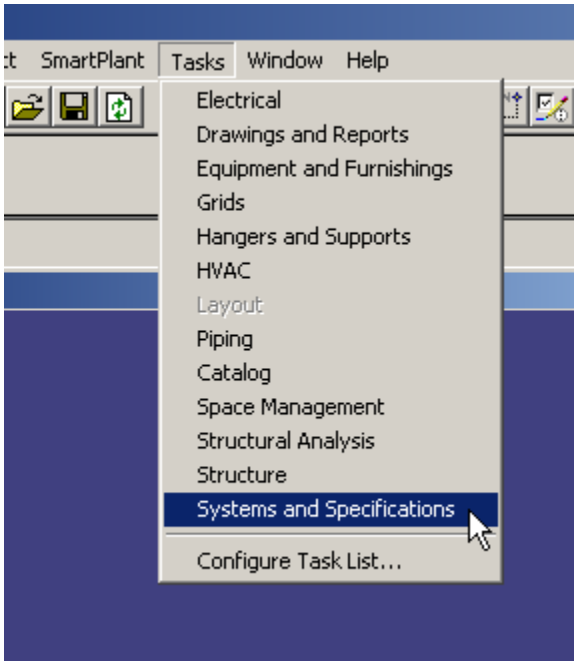
6. In the form that opens up, type **All** as filter name
7. In **System** tab, highlight **Admin_Pant**, and click **OK** to the form

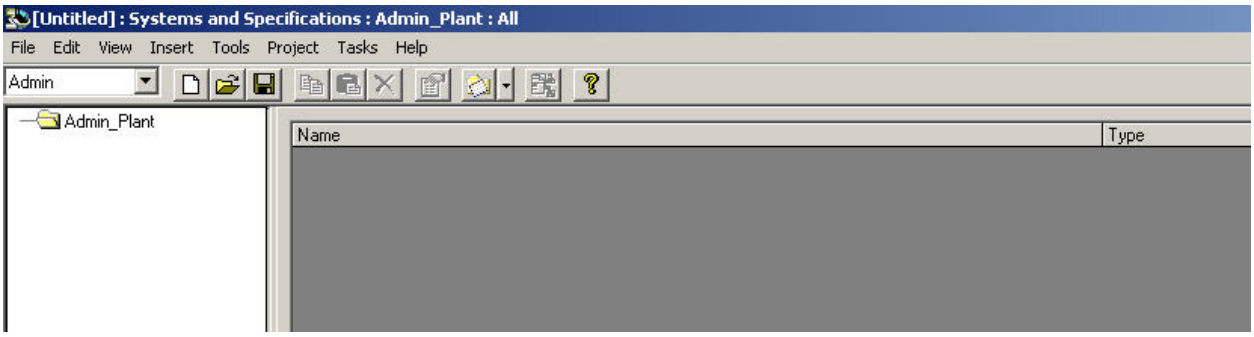


8. Select the newly created filter **All** and click **OK**



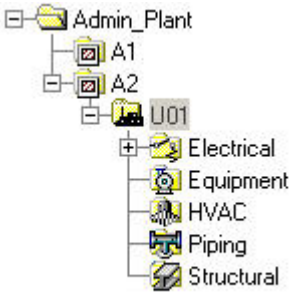
9. Click **OK** on **Define Workspace** form
10. Go to menu Tasks > **Systems and Specifications**



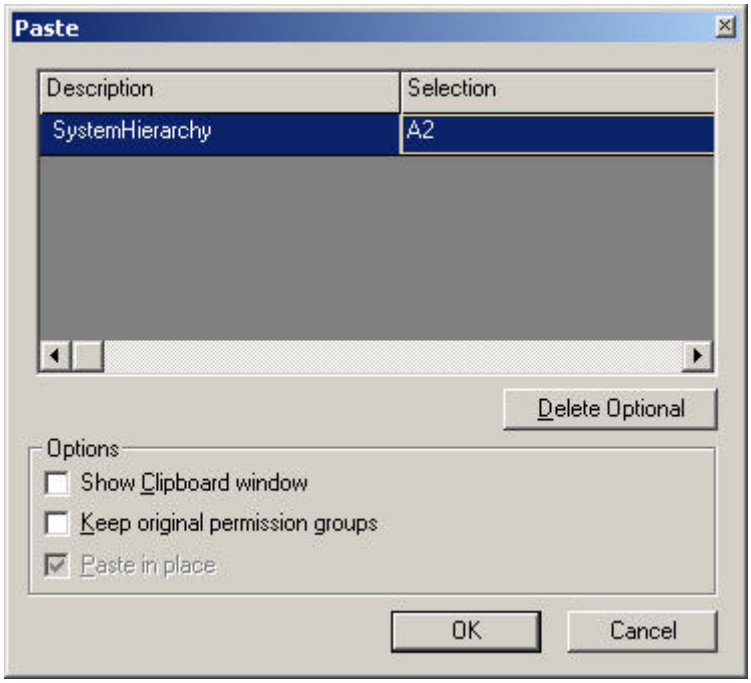


11. Right click on **Admin plant** root level and select New System > **New Area System**
12. Name the new area **A1**
13. Right click **Admin plant** root level and select New System> **New Area System**
14. Name the new area **A2**
15. Right click on area **A2** and select New System > **New Unit System**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



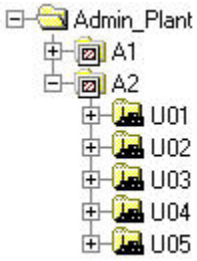
18. Right click on **Structural** system and select **Properties**
19. On the **Configuration** tab set **Permission Group** = **Structure**
20. Assign **Piping** system to its own permission group.
21. Right click on unit **U01** and select **Select Nested**
22. From the main menu select Edit > **Copy** (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

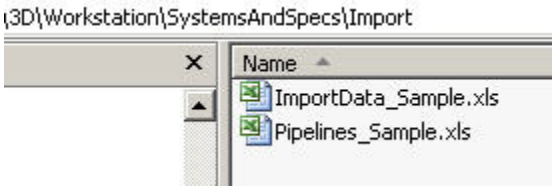
Objectives

After completing this lab, you will be able to:

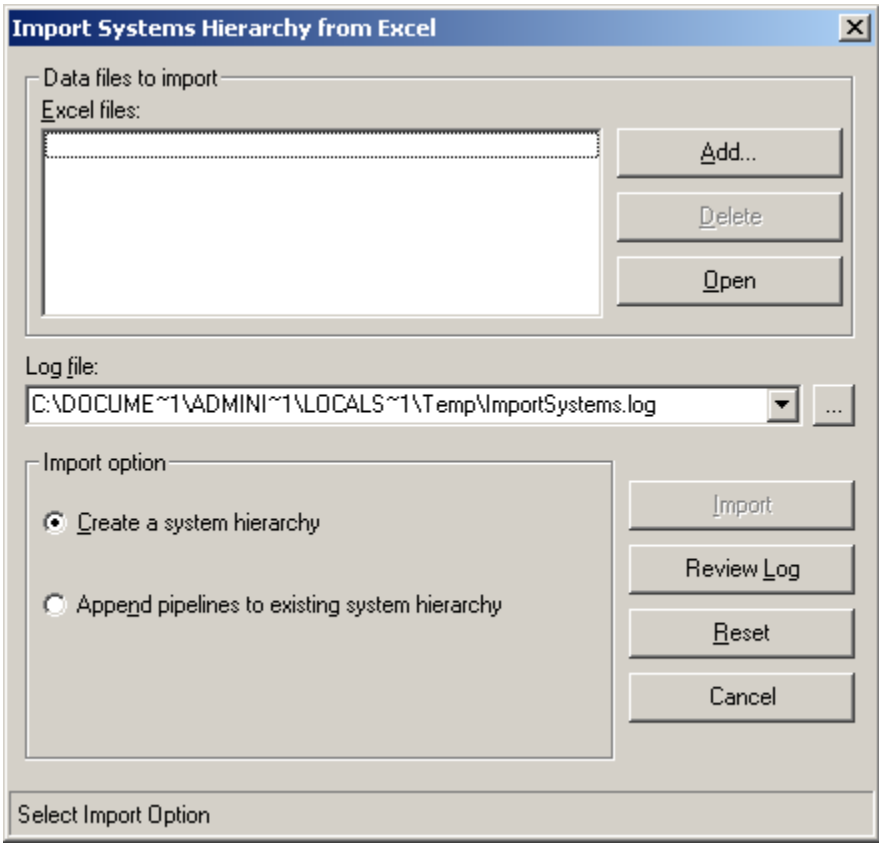
- Create a systems hierarchy in a new plant by import.

1. Copy the sample system import workbook “ImportData_Sample.xls” from the delivery location to a different folder.

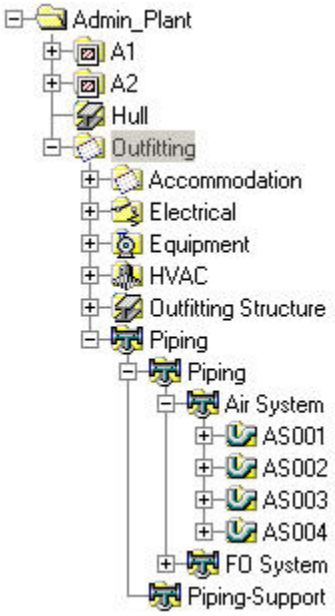
Note: The software delivers two sample Excel files, ImportData_Sample.xls and Pipelines_Sample.xls to [Product Directory]\SystemsAndSpecs\Import as part of default client setup.



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

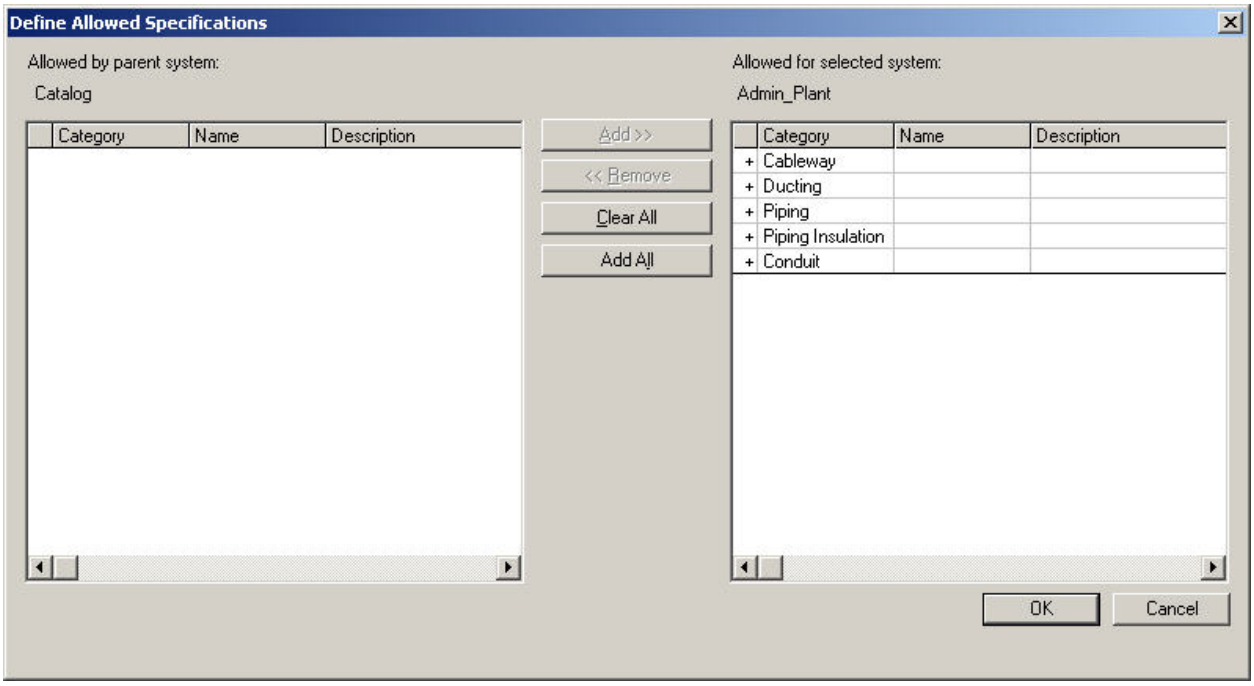
Objectives

After completing this lab, you will be able to:

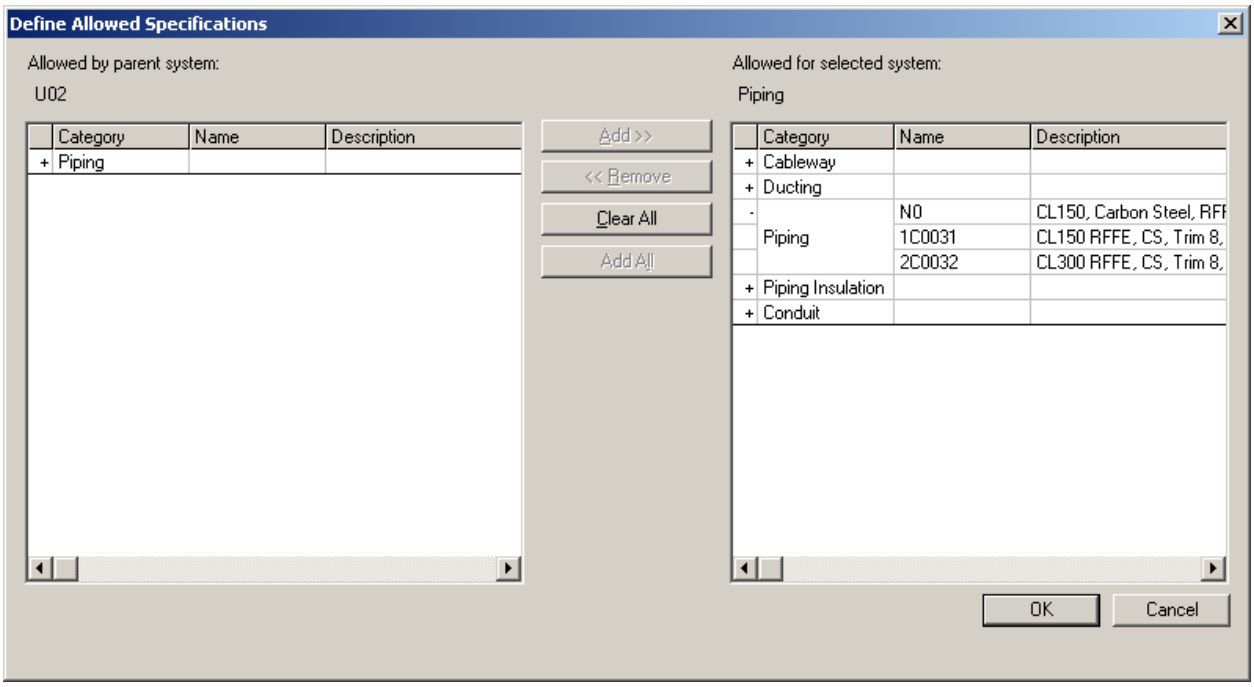
- Designate allowed specifications for multiple disciplines in the plant

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.

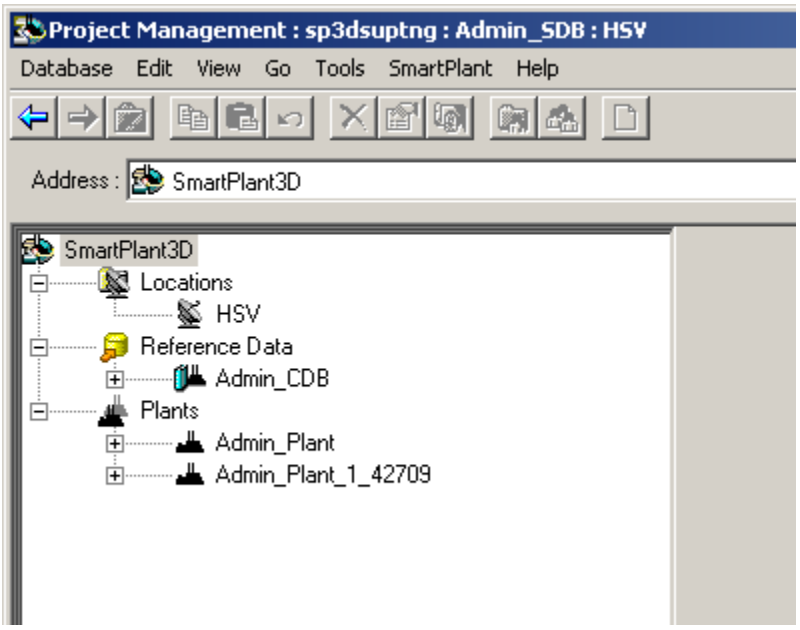
10. Go to one of the Pipeline systems created by import from Excel (AS001, AS002, AS003, etc) and attempt to restrict the usage to piping specs 1C0031 and 2C0032, note what happens.

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.

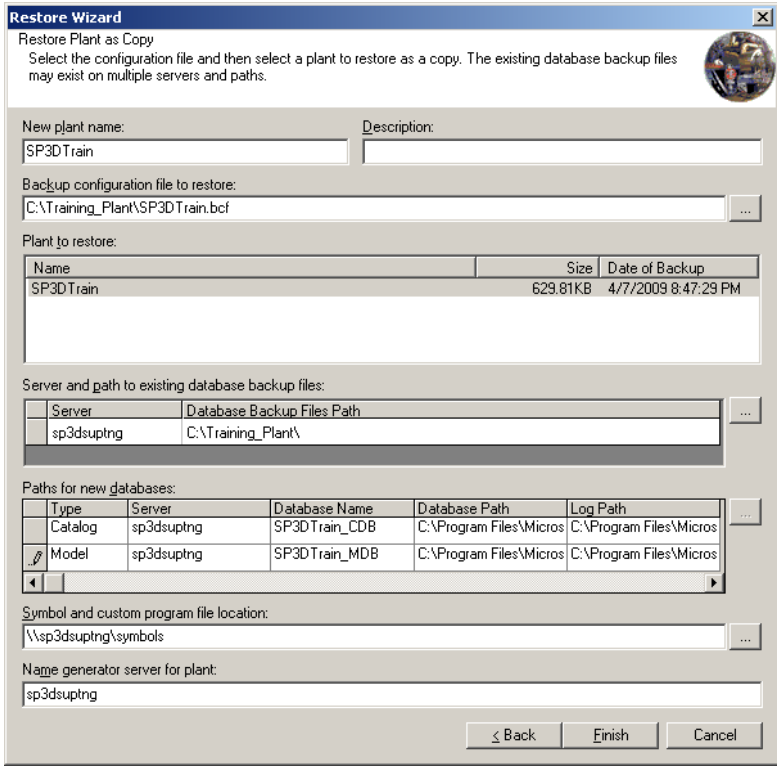
LAB 13: Restore as copy Training Plant

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

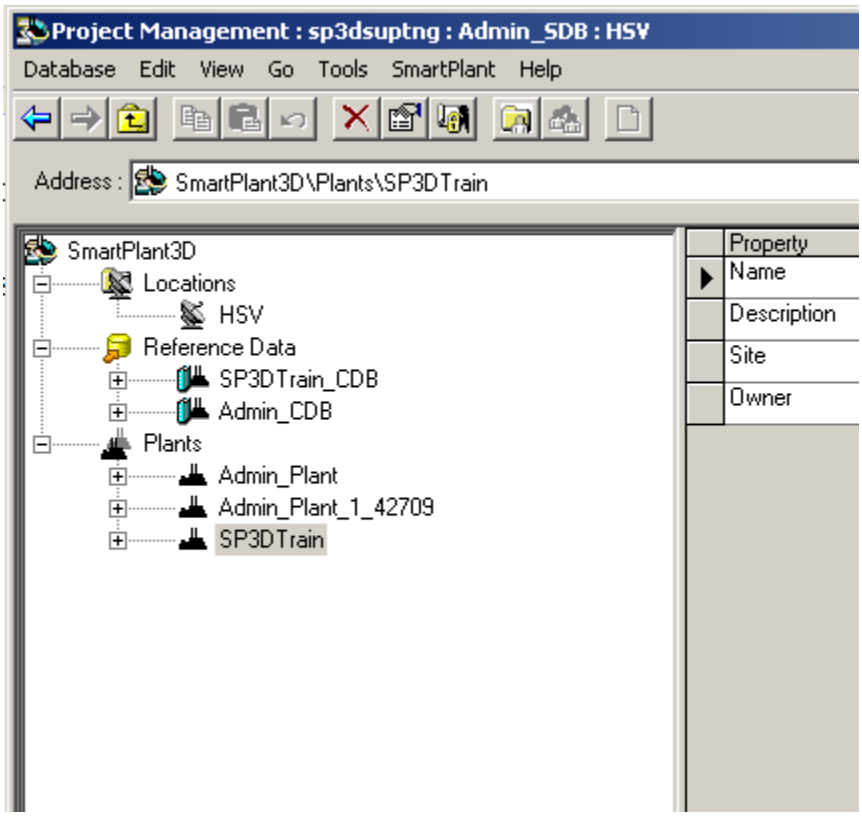
1. Start **Project Management.**



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.



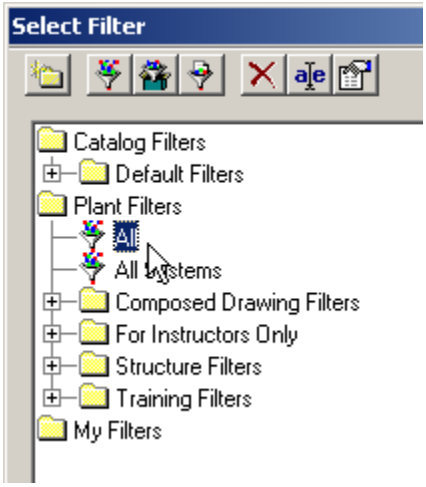
3. When done, Project Management should resemble the following:



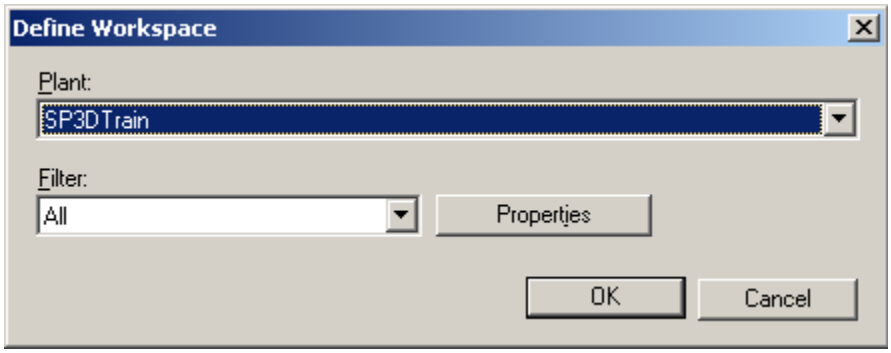
LAB 14: Prepare the session for Model Data Reuse command

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

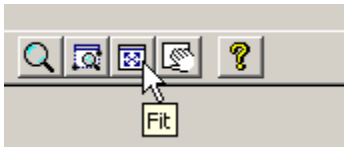
1. Open **SmartPlant 3D** if not already open
2. Select **English** or **Metric** units template
3. **Define a Workspace** on plant SP3DTrain and use **All** filter located under **Plant Filters** node.



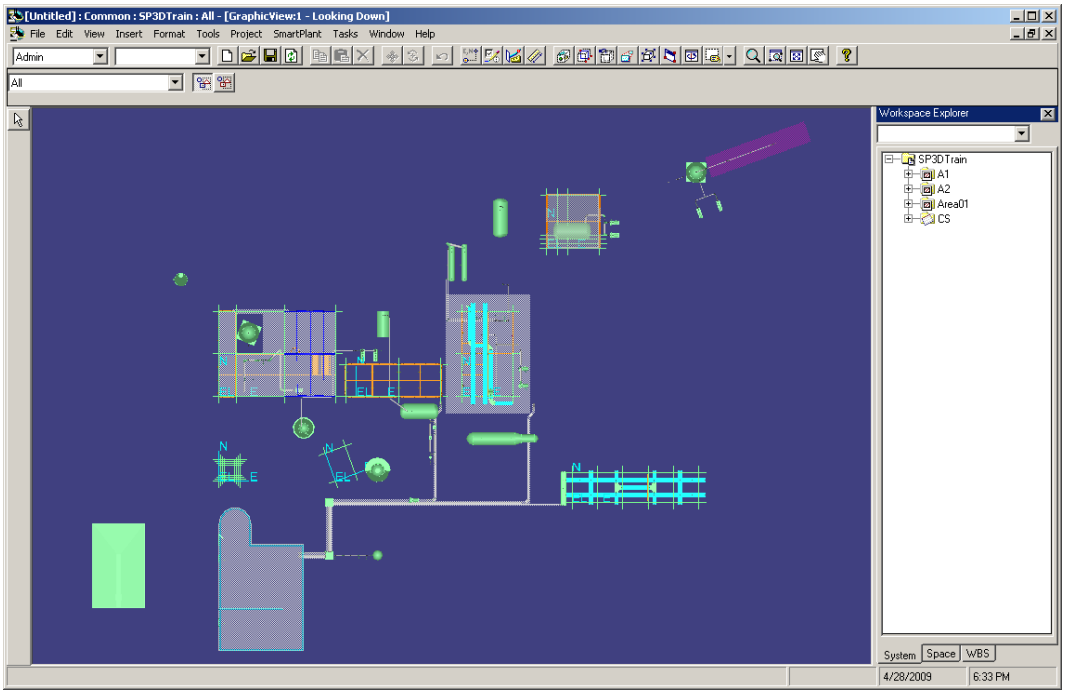
4. Click **OK** to define workspace



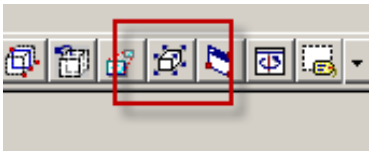
5. Maximize the window and click **Fit** view command



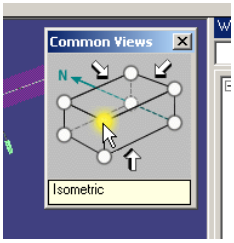
6. The entire plant is displayed

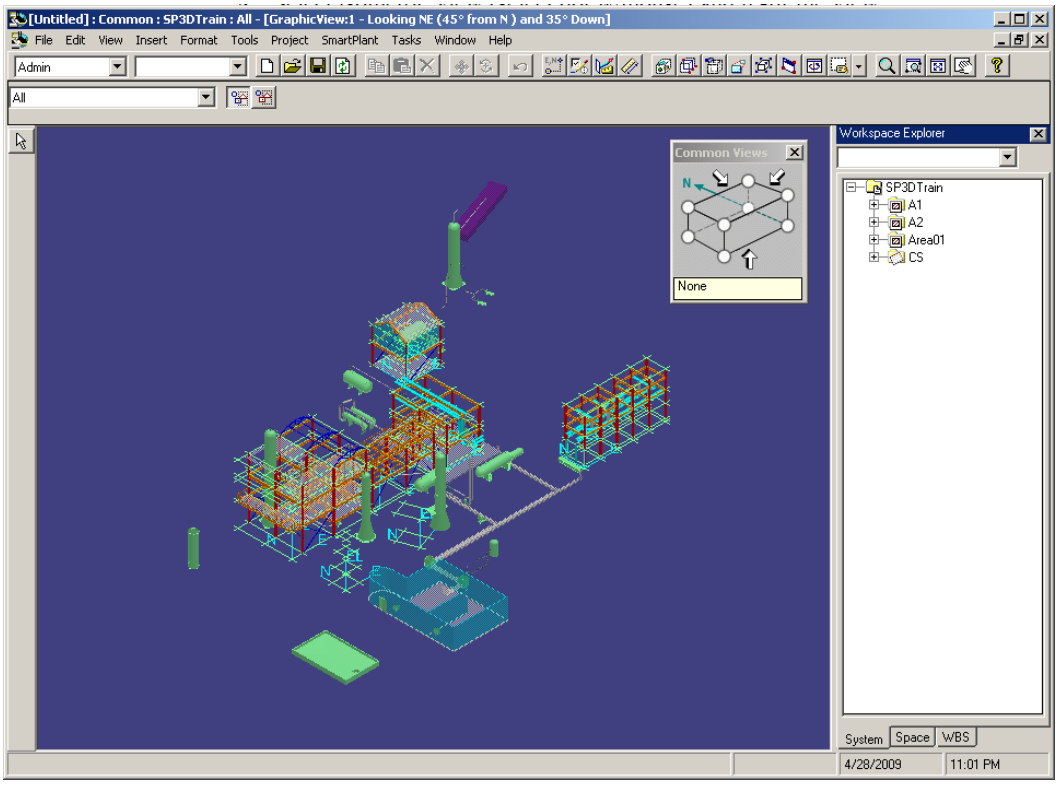


7. Select **Common Views** command from the ribbon bar (upper right)

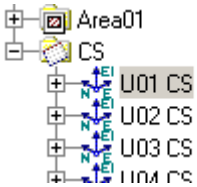


8. Select Isometric view (select dot w/mouse) and re-fit the view

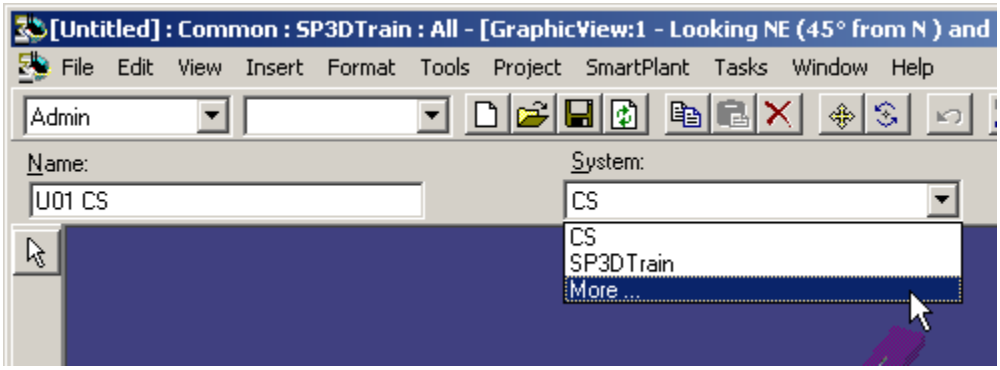




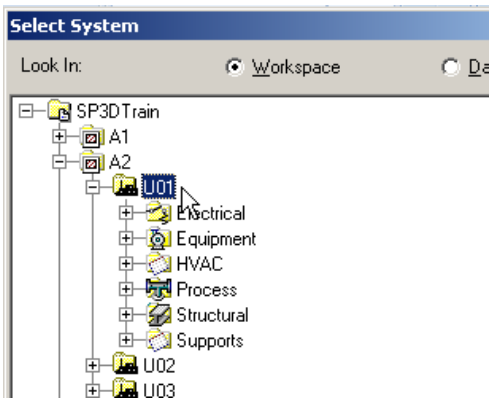
9. On **Workspace explorer** hierarchy, select U01CS under path CS > **U01CS**



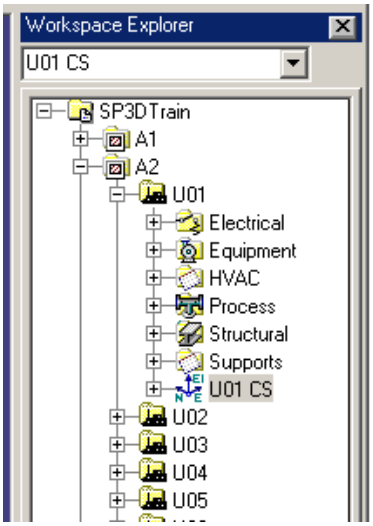
10. Expand **System** drop down list from ribbon bar, and select **more**



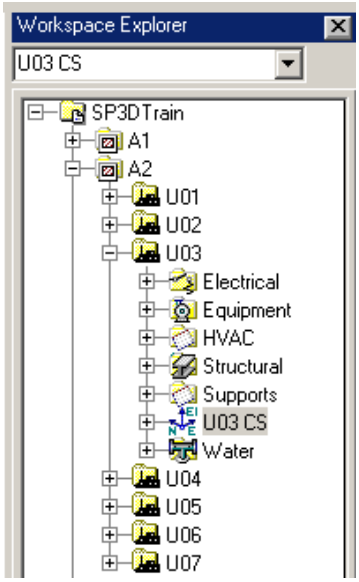
11. Select **U01** under A2 system and click **OK**



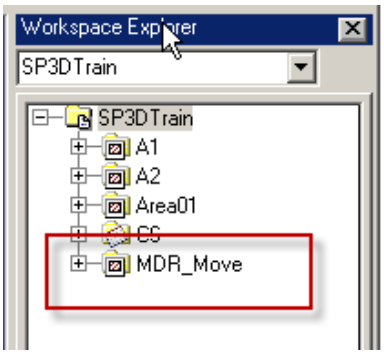
12. U01CS coordinate system should be under U01 unit system now



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**



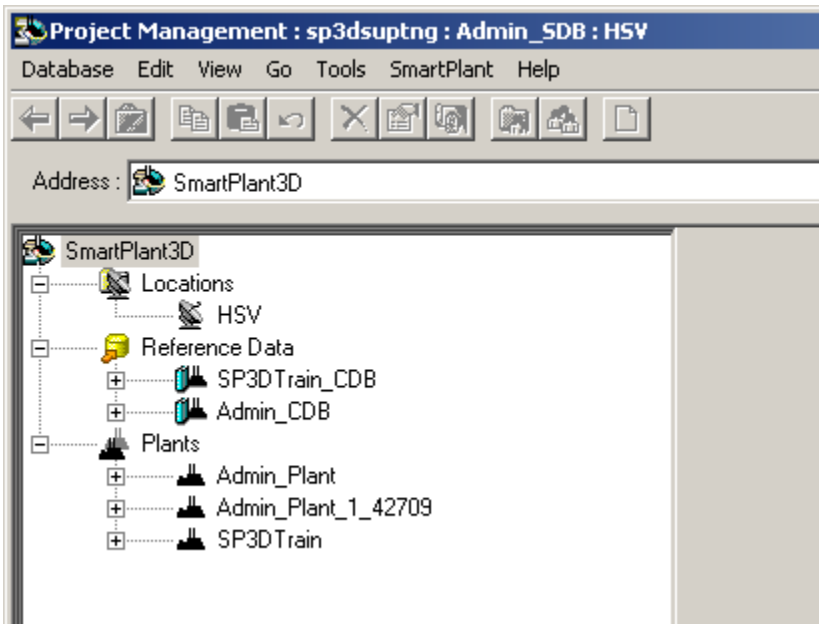
15. **Exit** SmartPlant 3D and **Save** session file to desktop when prompted, name the session as **SP3DTrain_All**

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.

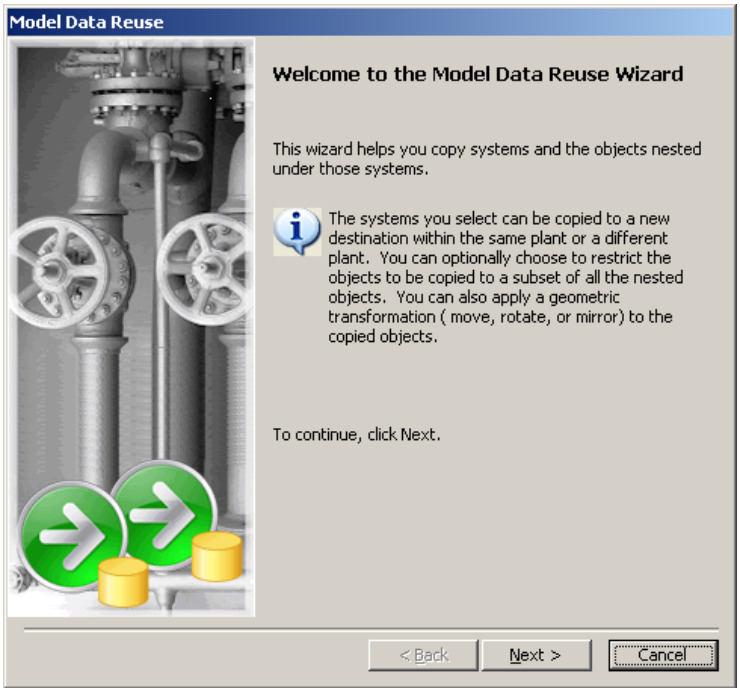
LAB 15: Model Data Reuse Copy – Move in Existing Plant

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.

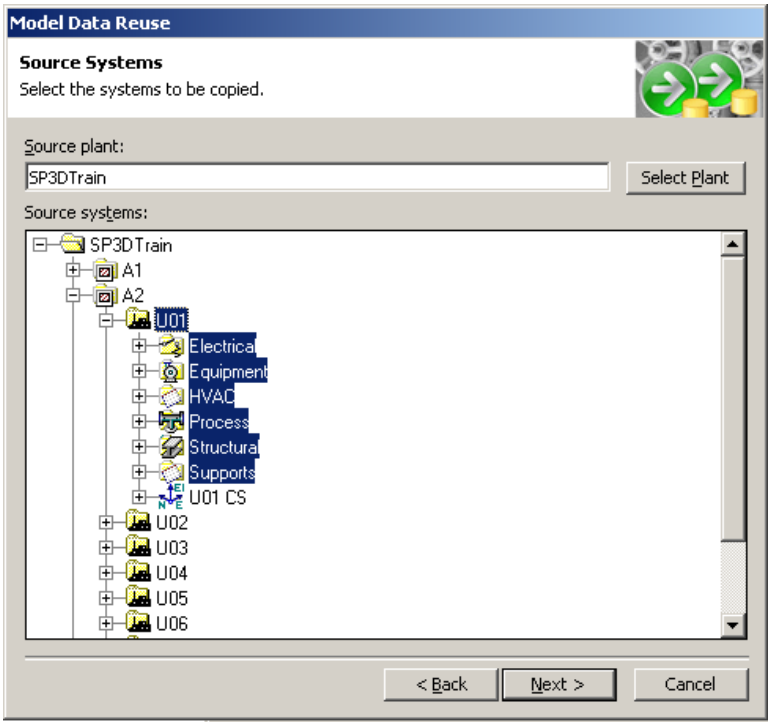
3. Start **Model Data Reuse** command from menu Tools > Model Data Reuse…



4. Click **Next**

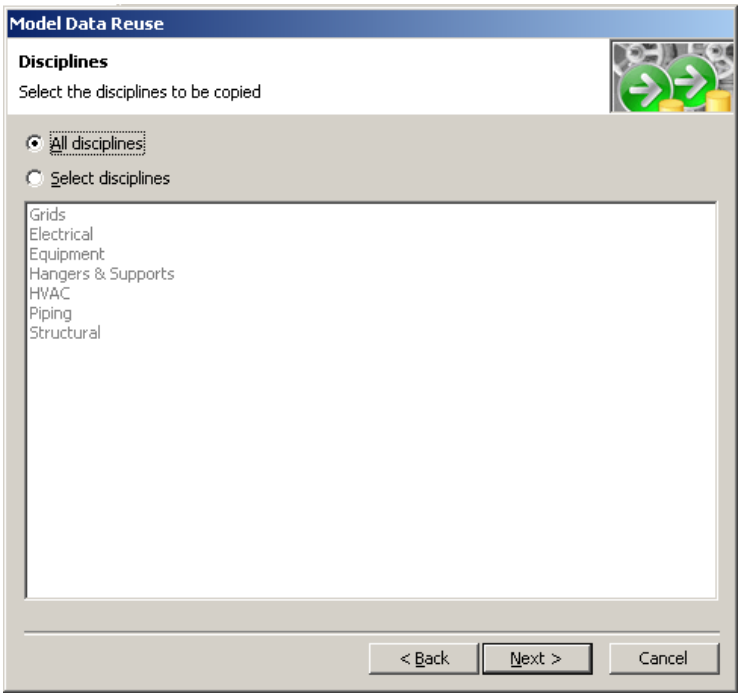
5. In the new form, click **Select Plant** and choose SP3DTrain, this will be the source, or 'from' plant.

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.

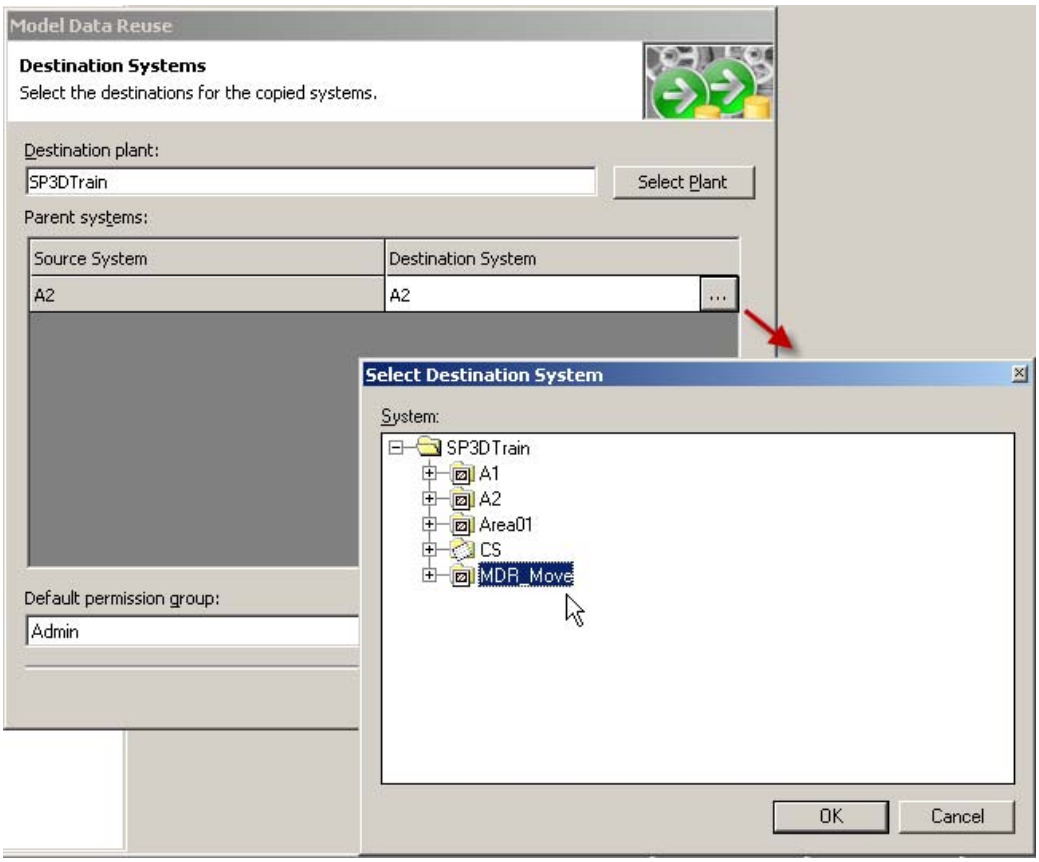


7. Click **Next**

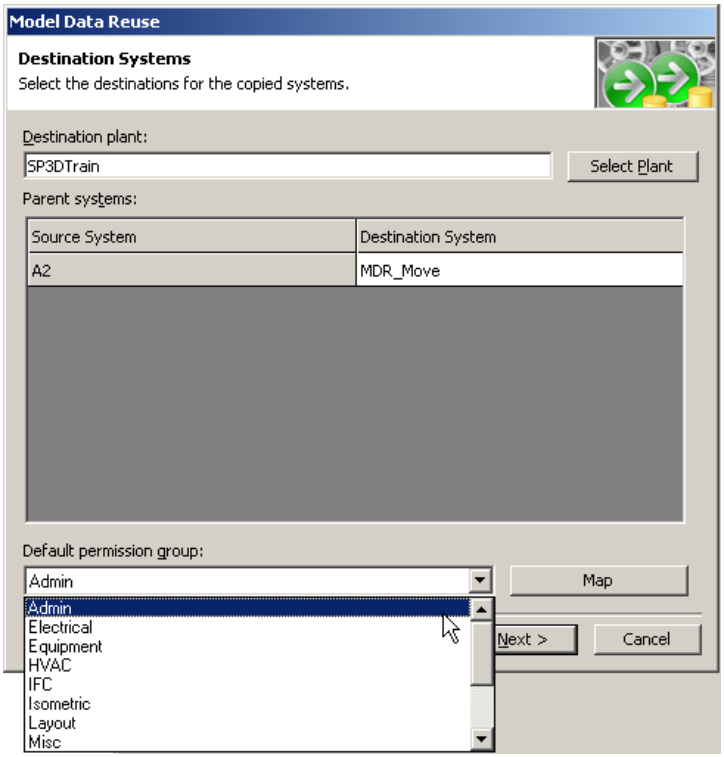
8. In disciplines form you may select either all or selected disciplines for object data to be copied as required. Toggle the radio button from **All disciplines** to **Select disciplines**, reselect **All disciplines** radio button. Click **Next**



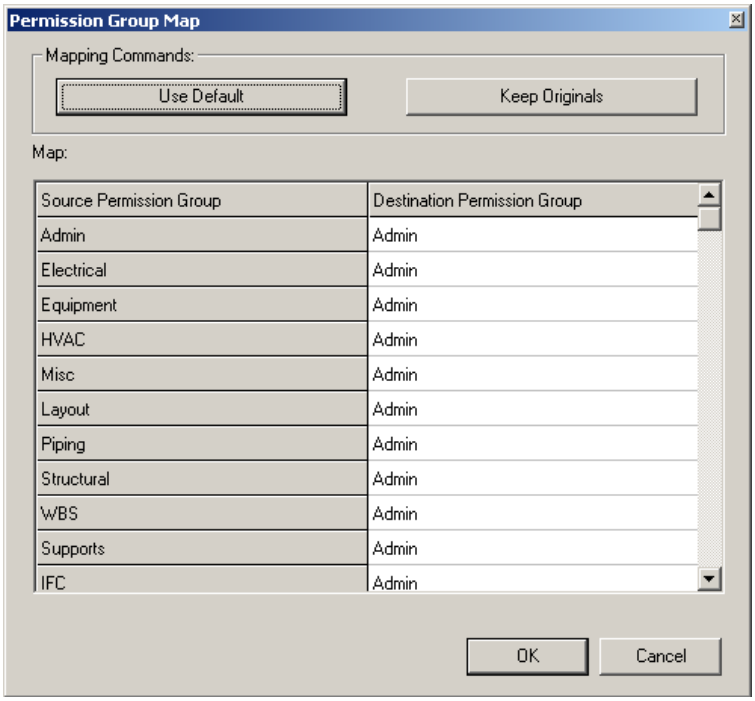
9. Next form displays the destination or 'to' plant and system. Click on the **browse** button in **Destination System** field to assign a new destination system. On the Select Destination System form, select the "MDR_Move" system (Area) and click **OK** to the form.



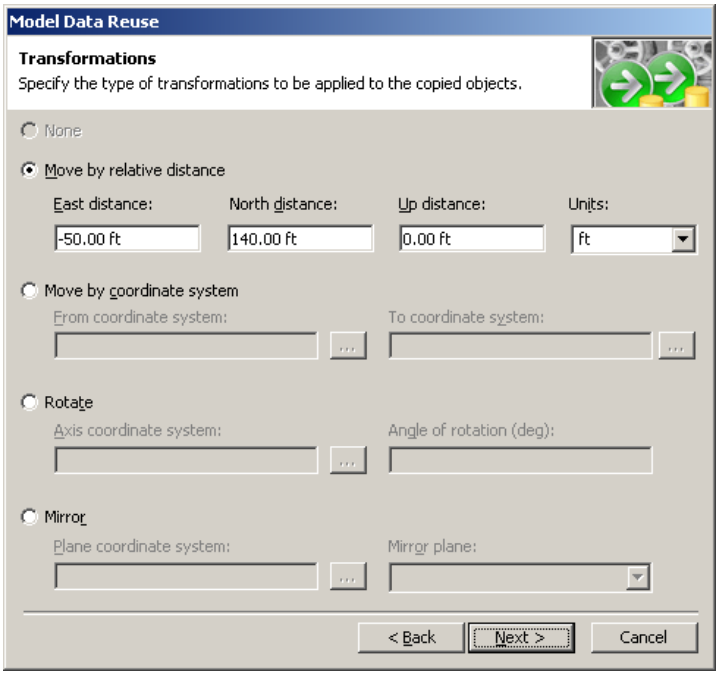
10. Back in **Destination Systems** form, expand **Default Permission Group** drop down list. The system allows the user to assign the copied items to any existing Permission Group with access to the source dataset objects. Maintain the "Admin" group selection.



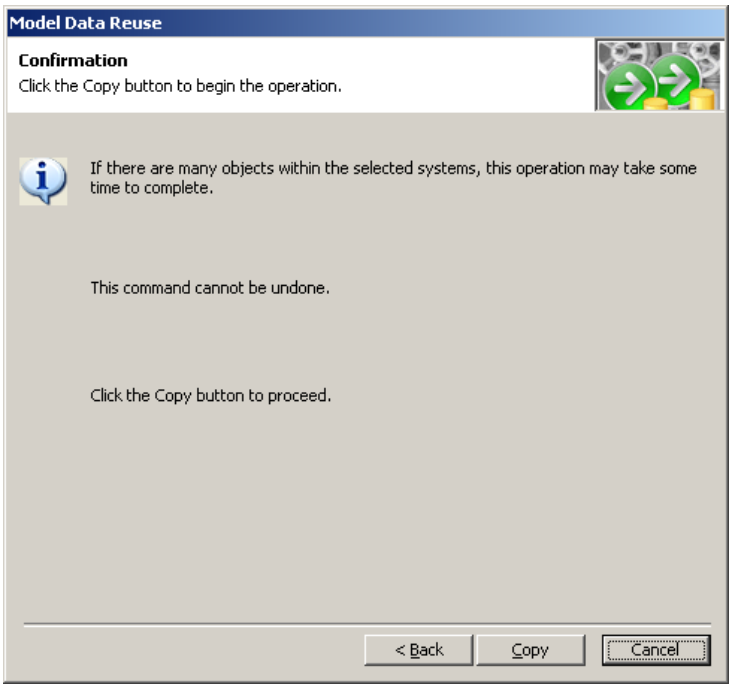
11. Select the **Map** button. This form allows the user to assign new permissions based on the permission groups of source objects. It is shown as information for this exercise.



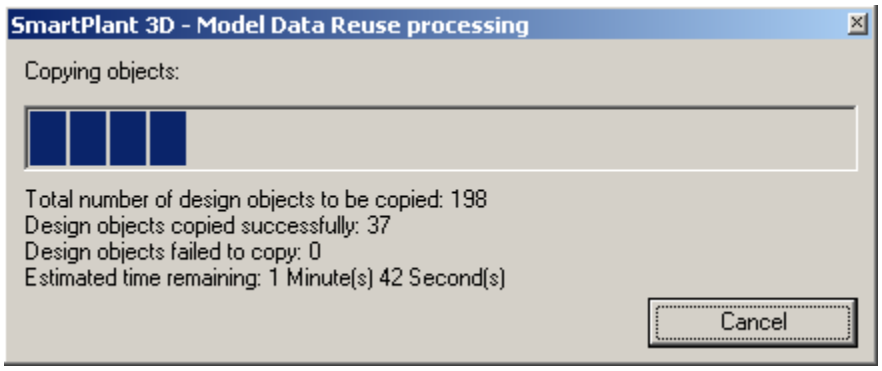
12. Click **OK** to dismiss Permissions Group Map form
13. Select **Next** on the MDR **Destination Systems** form
14. Select **Move by relative distance** radio button (if not selected by default). Expand **Units** drop down list and select **ft** as default unit. Type in -50 ft for East distance, 140 ft for North distance and 0 ft for Up distance (equivalent to -50ft X, 140ft Y, 0ft Z).



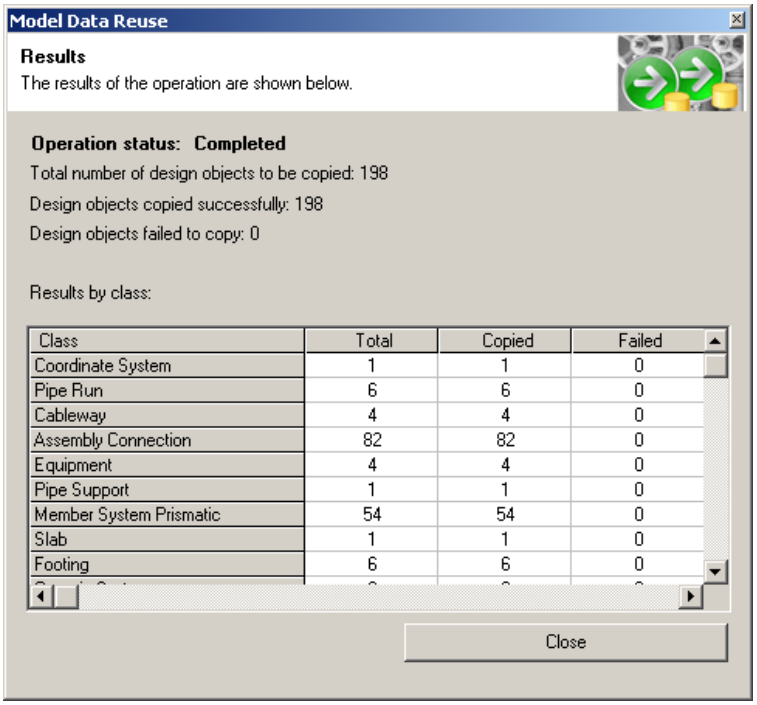
15. Click **Next**
16. Click **Copy** on the confirmation form



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.

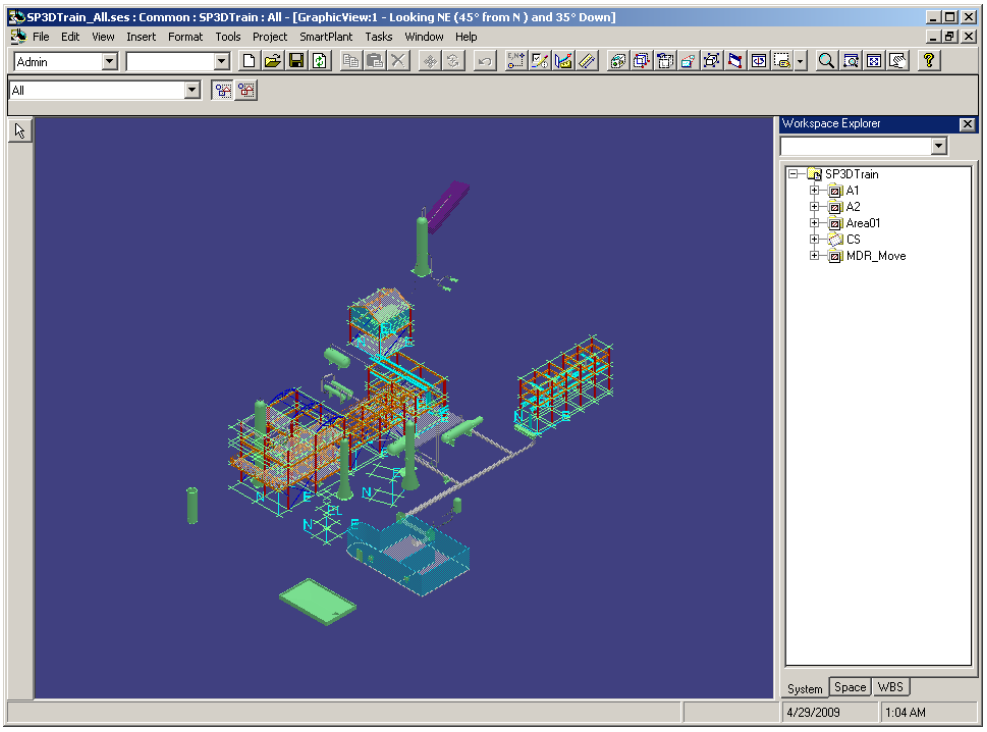


19. Close **Project Management**

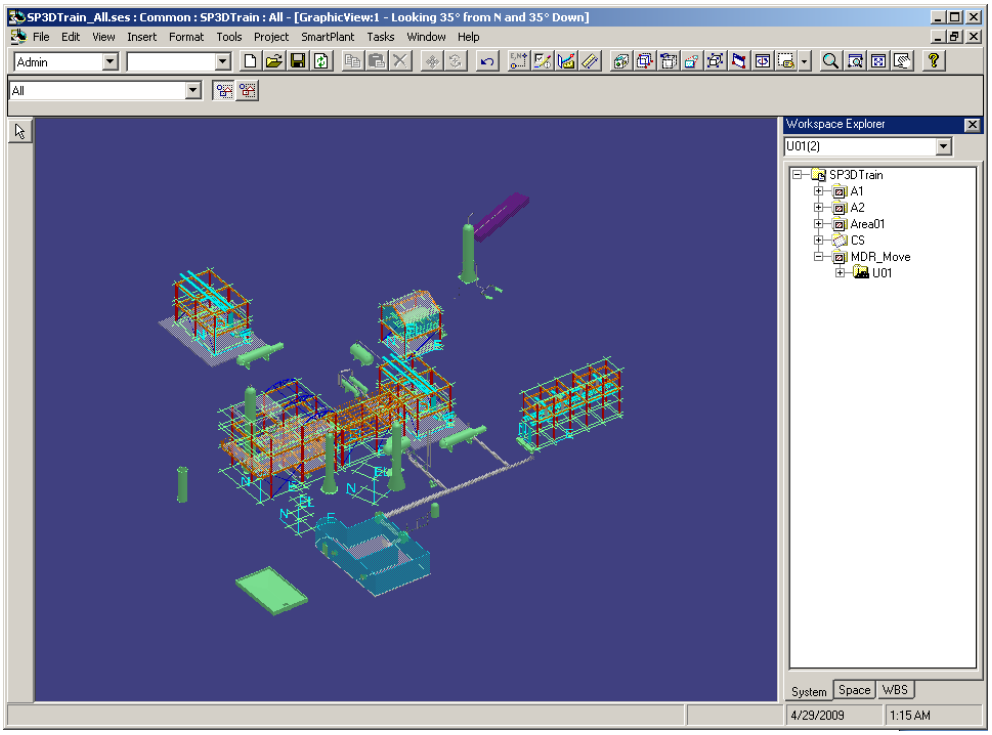
20. The results of the copy-move operation can now be seen in the model.

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

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



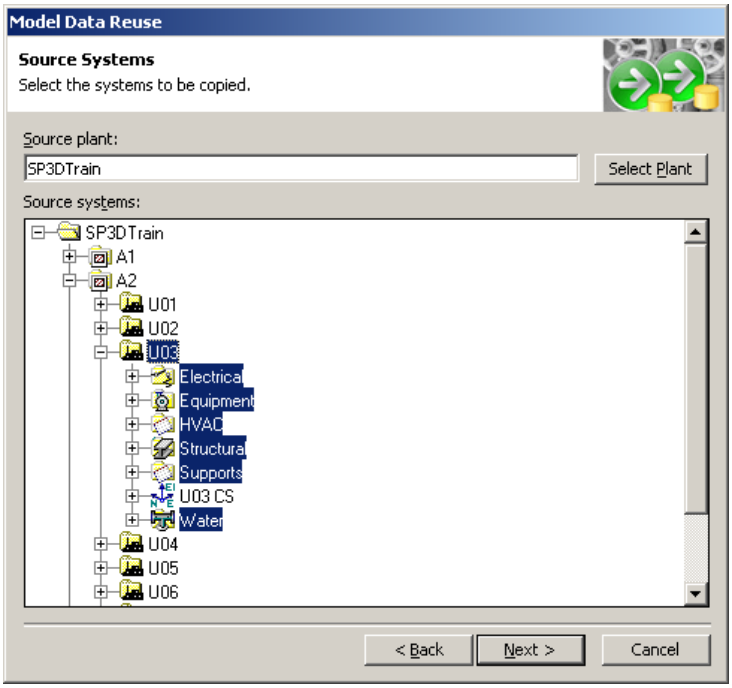
23. To bring changes from the database, **refresh** the session, then re-fit active view.



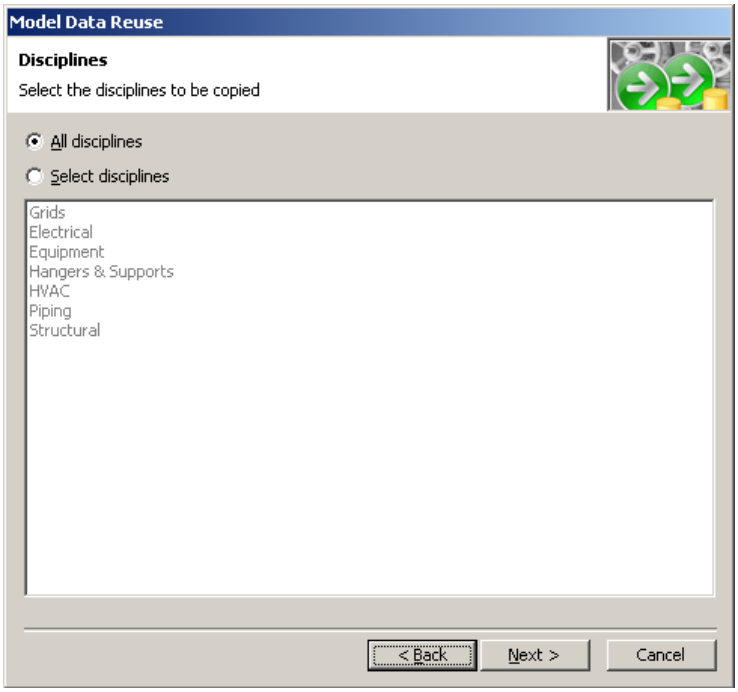
24. Exit SmartPlant 3D when finished, save changes to session file.

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

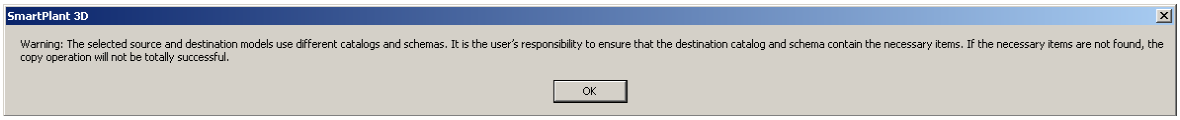
1. Open **Project Management** if not already open
2. Repeat initial steps to initiate **Model Data Reuse** command
3. Select **SP3DTrain** as source plant and **U03** as source System



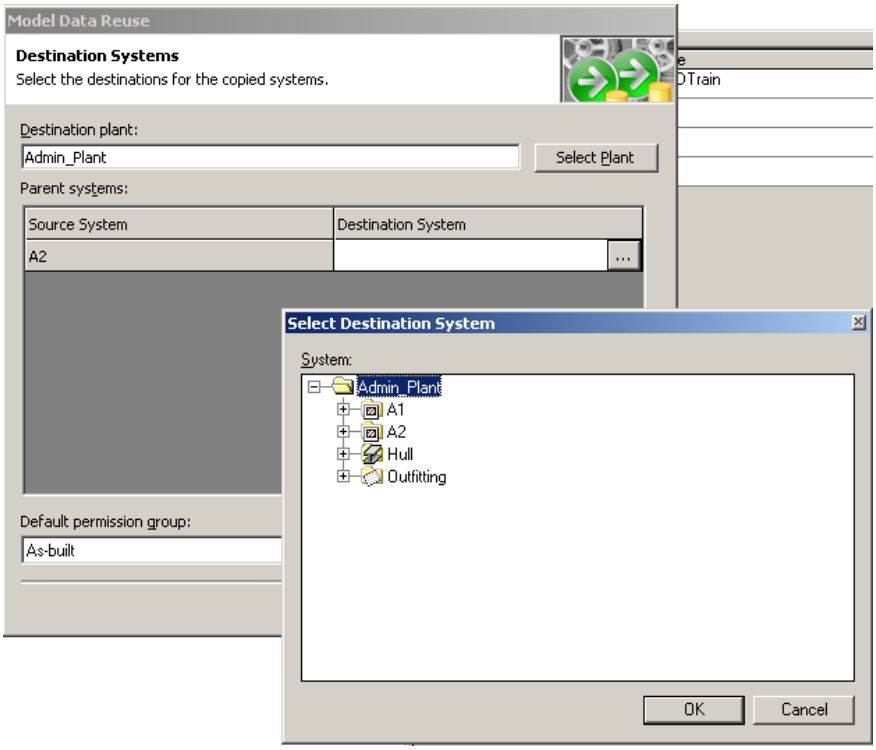
4. Click **Next**, Select **All disciplines** and click **Next**



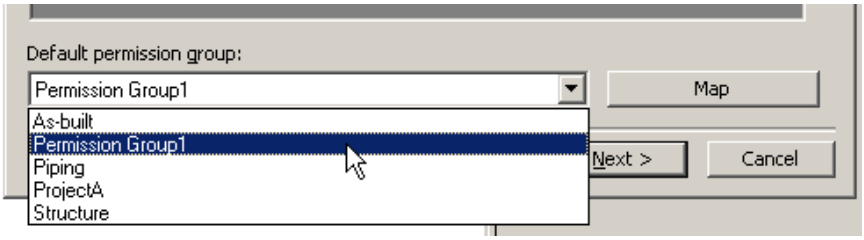
5. On **Destination System** form, select **Admin_Plant** as the new destination.
6. The software warns about the possibility of Schemas not having same information, click **OK**



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

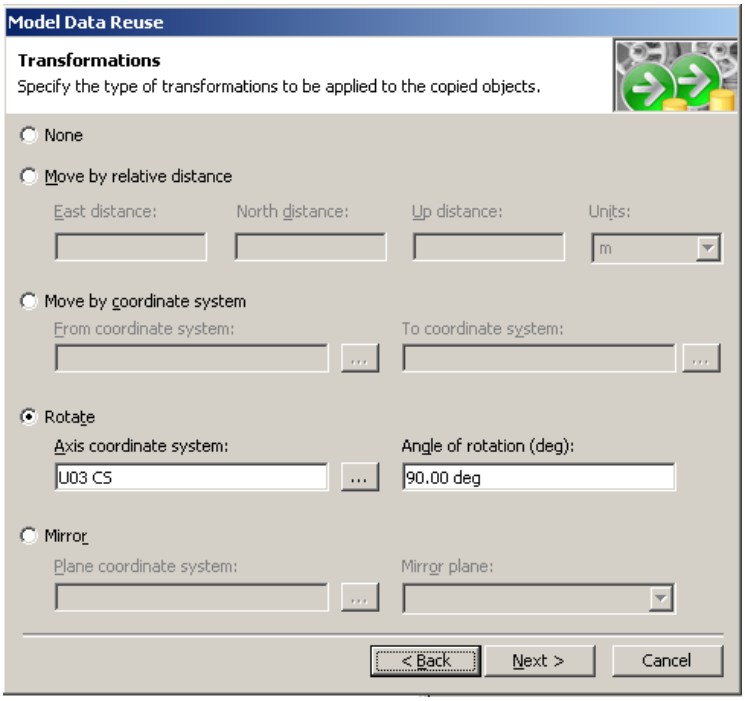


8. Set **default permission group** to Permission Group 1



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.



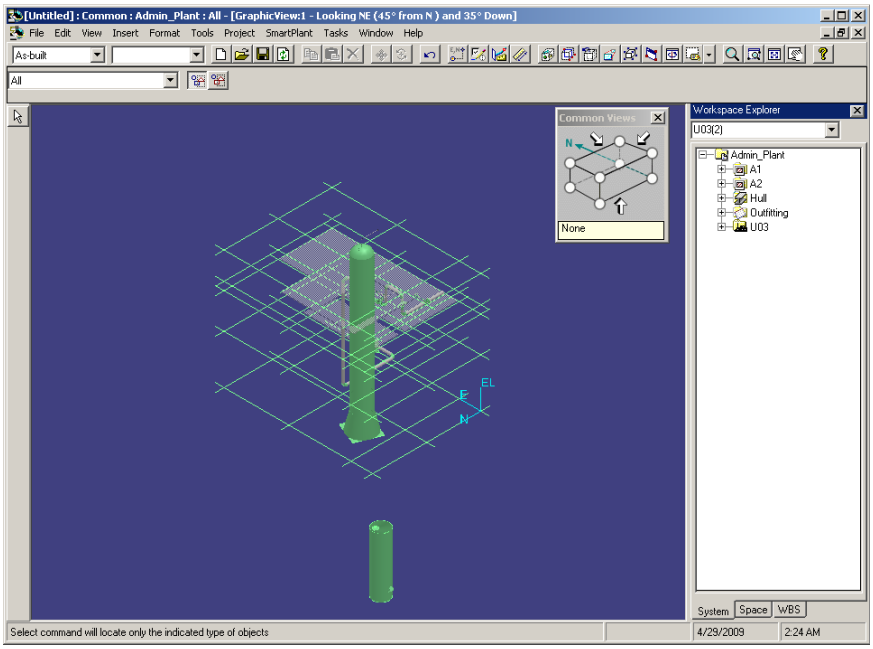
11. Click **Next**

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. 

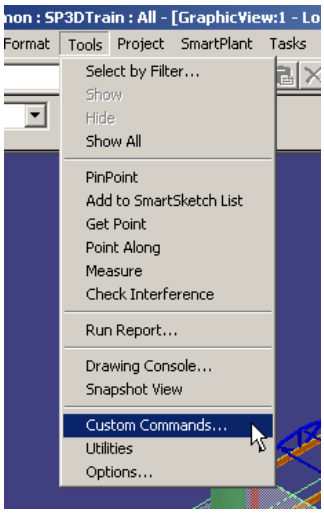
17. This is an example of how the MDR command can fail, only certain objects were copied and successfully rotated 90 degrees (compare it with top view of SP3DTrain_All session). The next lab will demonstrate the use of a custom command to perform basic MDR troubleshooting.

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

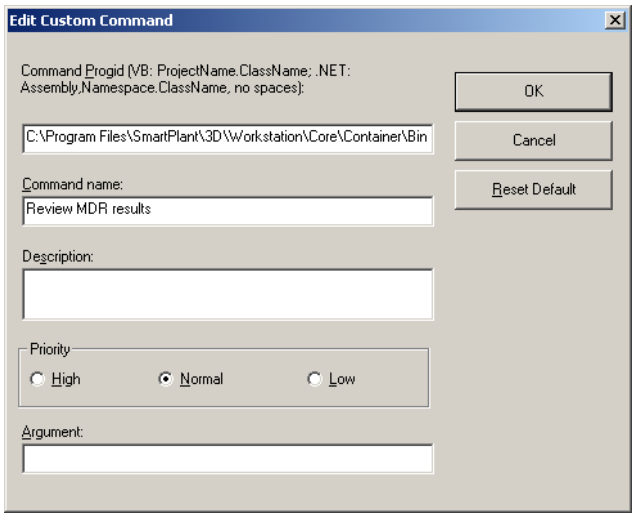


3. Click **Add,** define the following argument as command **ProgID**

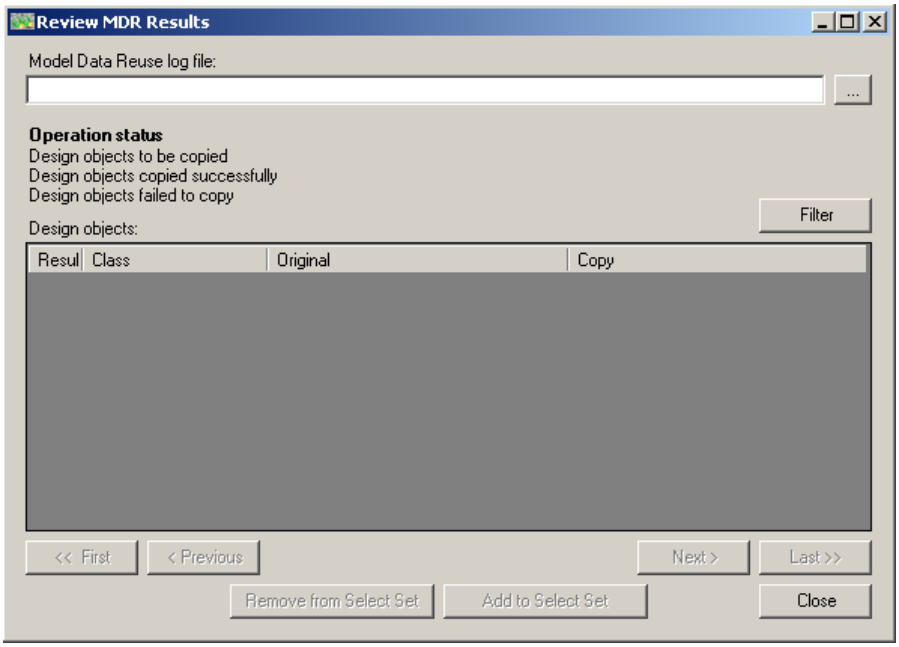
   C:\Program Files\SmartPlant\3D\Workstation\Core\Container\Bin\Assemblies\Release\CommonCommands,Ingr.SP3D.Common.Client.Commands.ReviewMDRResults

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

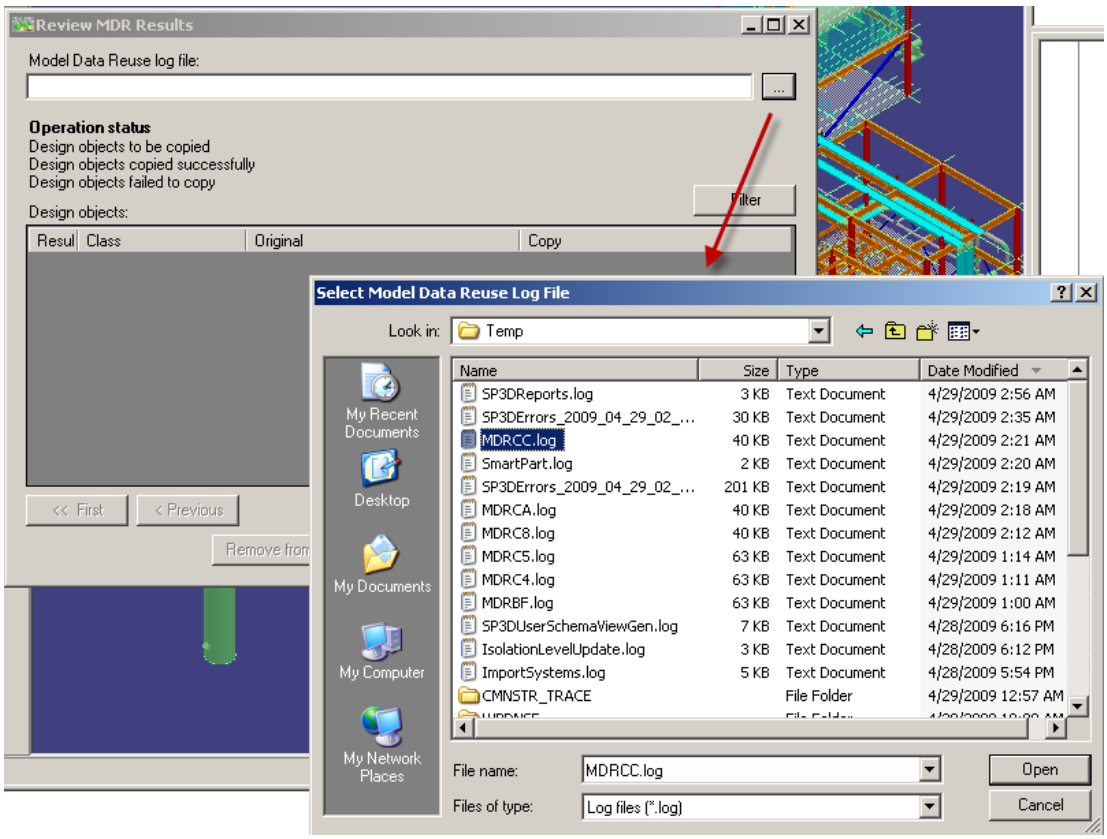
4. Name the command as **Review MDR results**



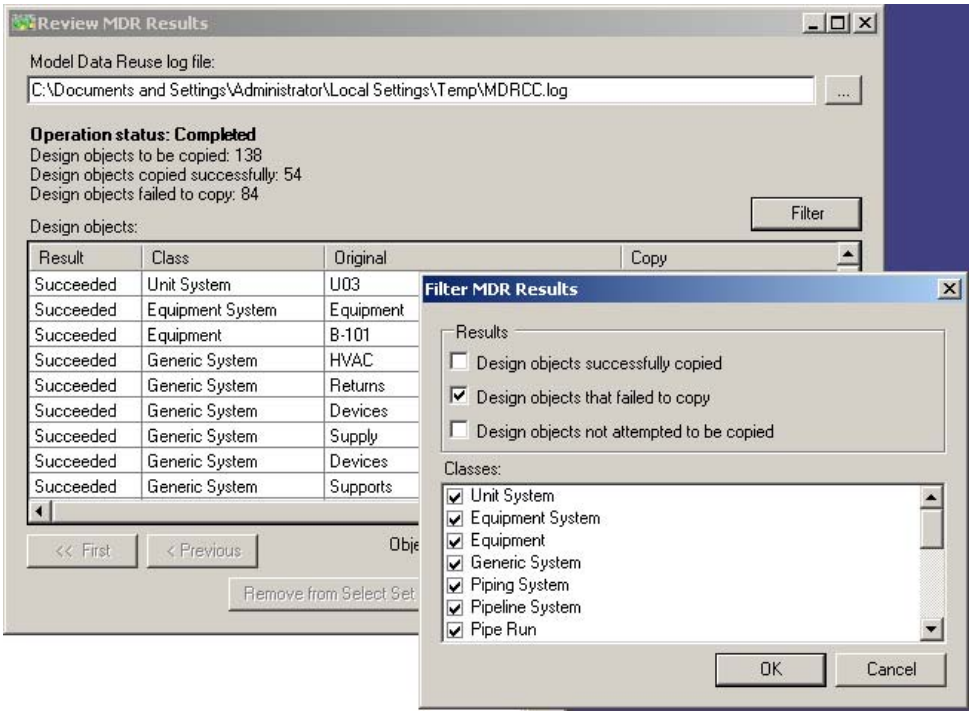
5. Click **OK** to return to custom command form. **Run** recently created **Review MDR results** command



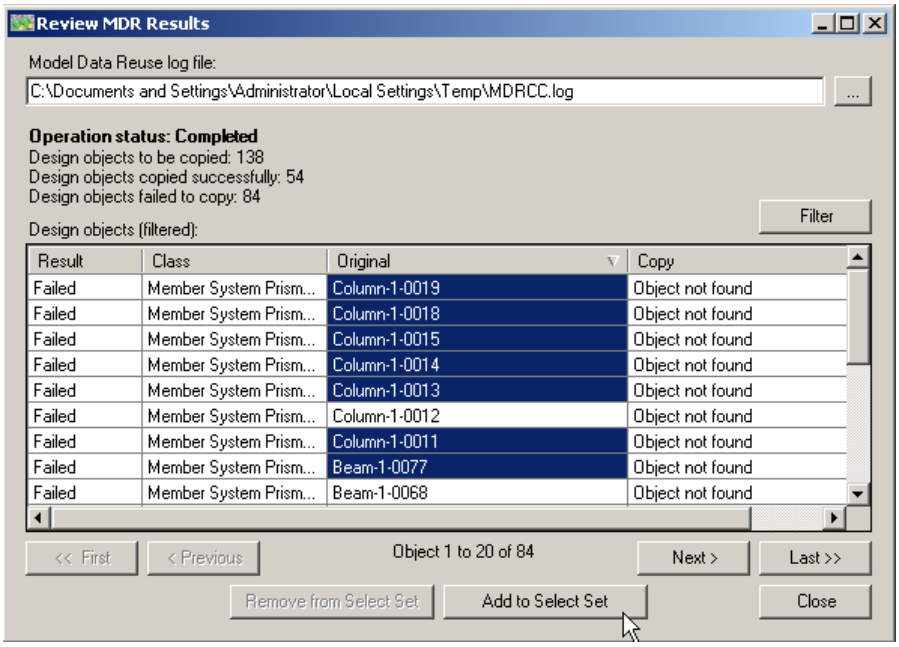
6. Click browse button to select the MDR log file of the last operation performed where some objects failed to copy. A new log file is created every time the command runs and log file name starts with the letters MDRxx, if log file cannot be quickly identified, the list can be sorted by date modified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



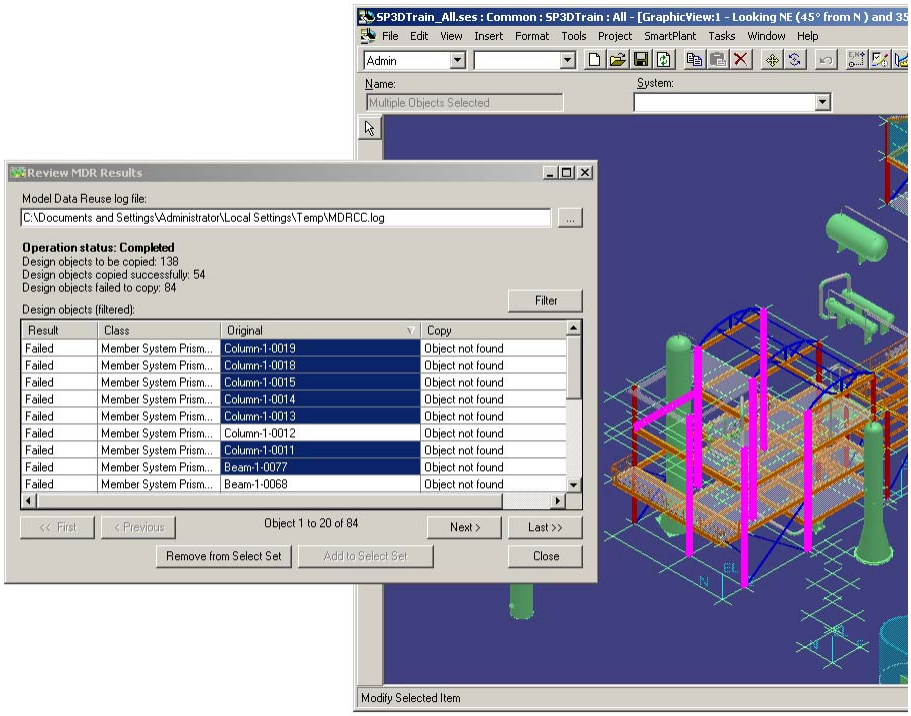
7. Click **Filter** button to expand the list of filtering options for the list of objects
8. Leave only **Design objects that failed to copy** as checked and all classes checkboxes checked.



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:

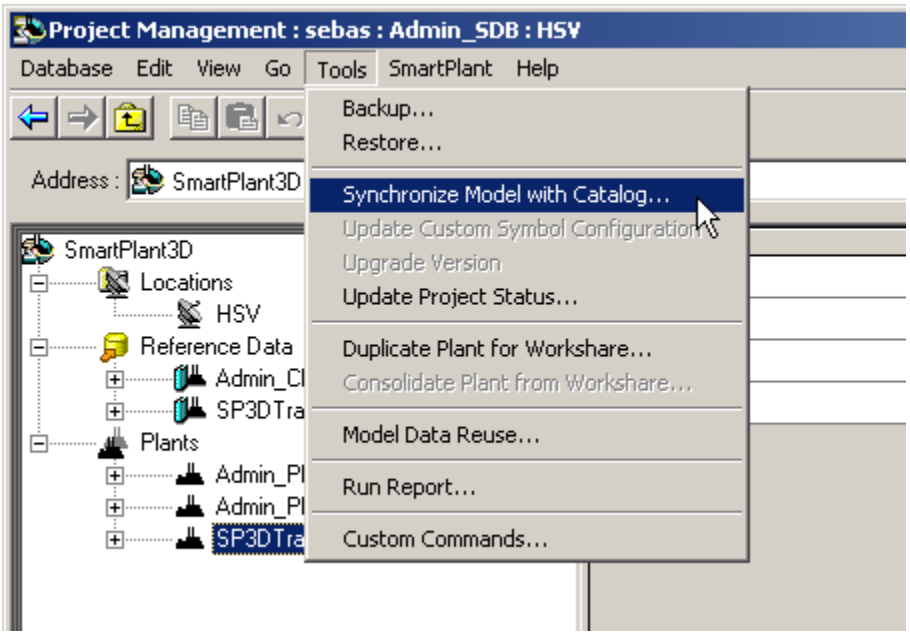
- Actively choose whether to synchronize the model with catalog or run the view generator on the model command, or both from within Project Management.

Notes:

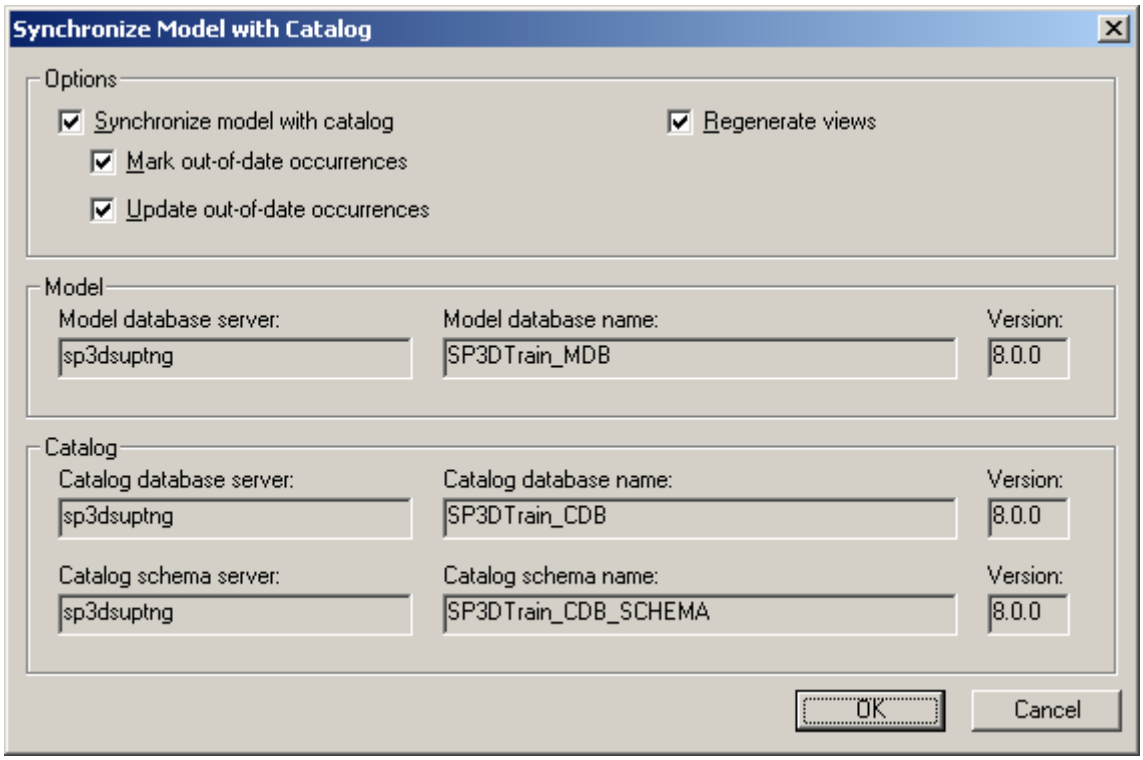
Let us play out the scenario that there are two plants (plant A and plant B) sharing the same catalog, this catalog has changed significantly since the last backup was taken for plant B. In this scenario we would perhaps run the synchronize model with catalog command on model B in the event it gets restored 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**



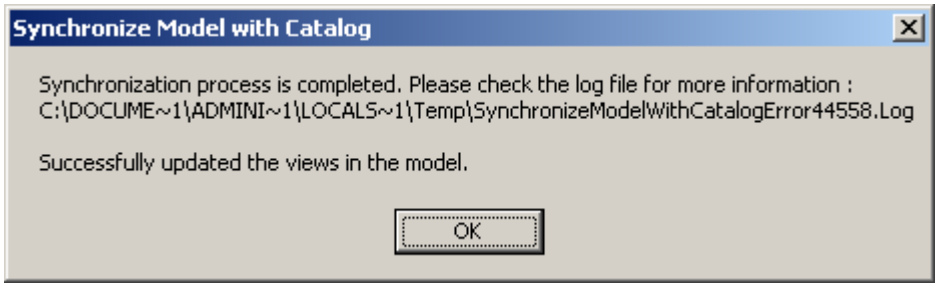
3. Note the existence of two check boxes:



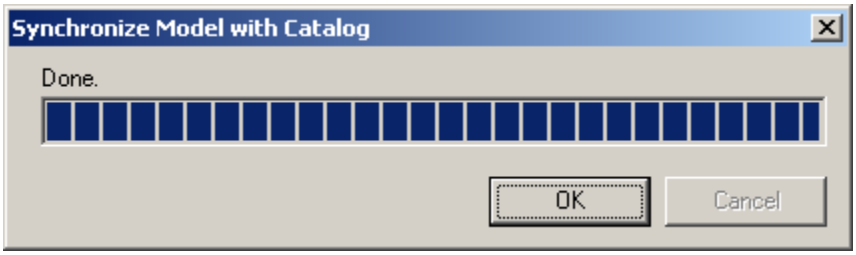
Not all Catalog changes require a true Synchronization of the data but the following instances are an example of when to run it: perhaps an entirely new part class have been added to the Catalog that did not previously exist, or even a new Interface that was not there. The views associated with this 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**.

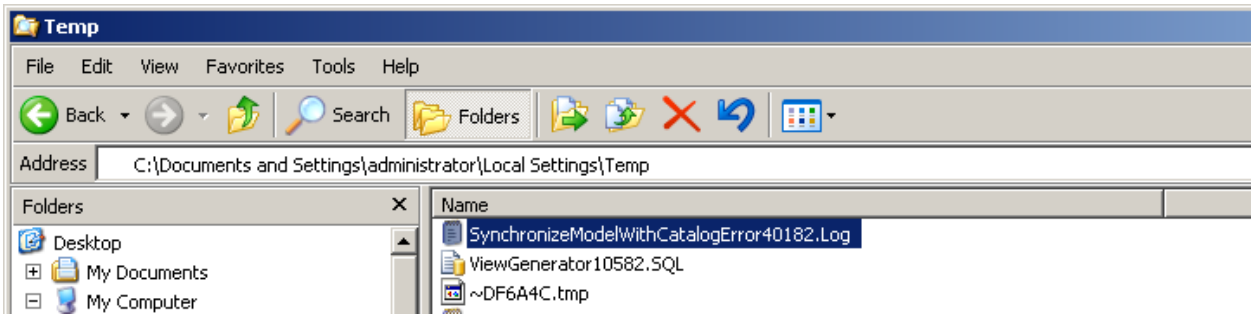
5. Click **OK**

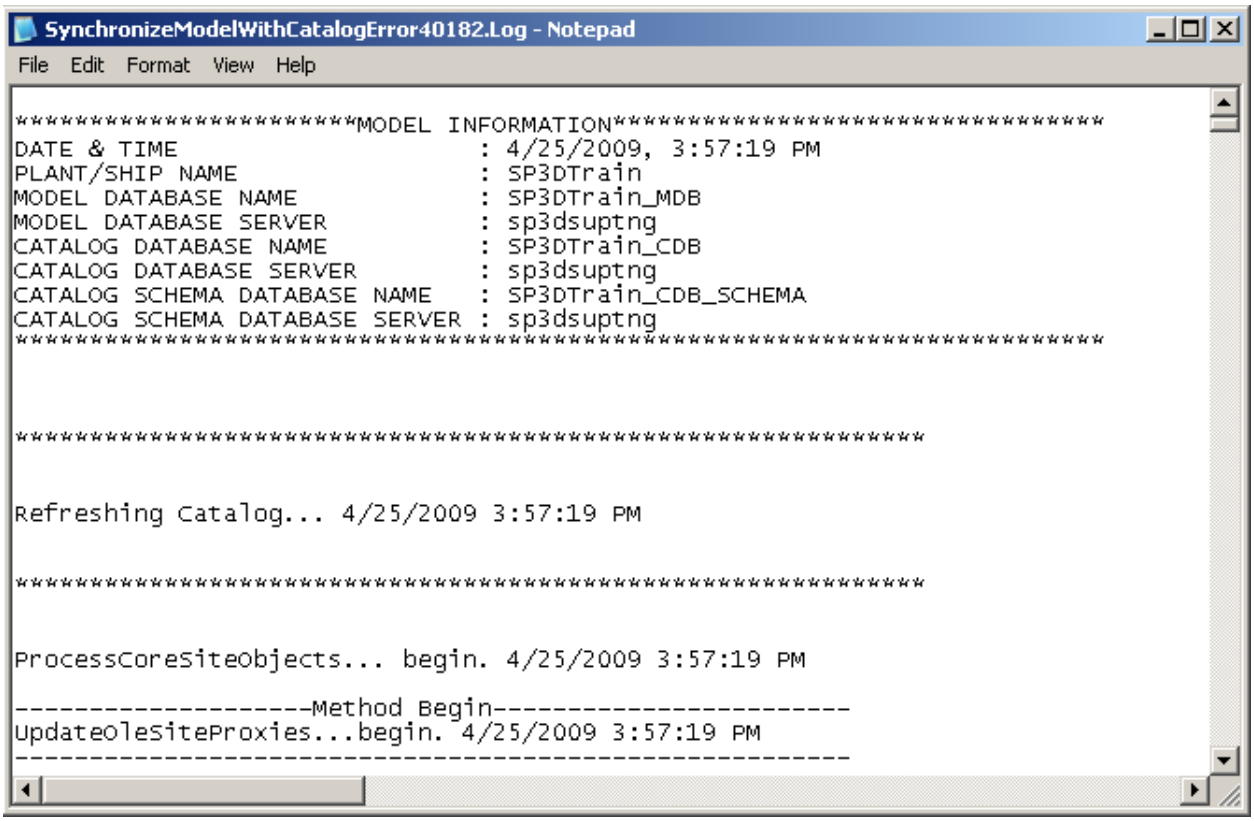


Note: In a production or test environment you would then follow this action by regenerating reports databases.

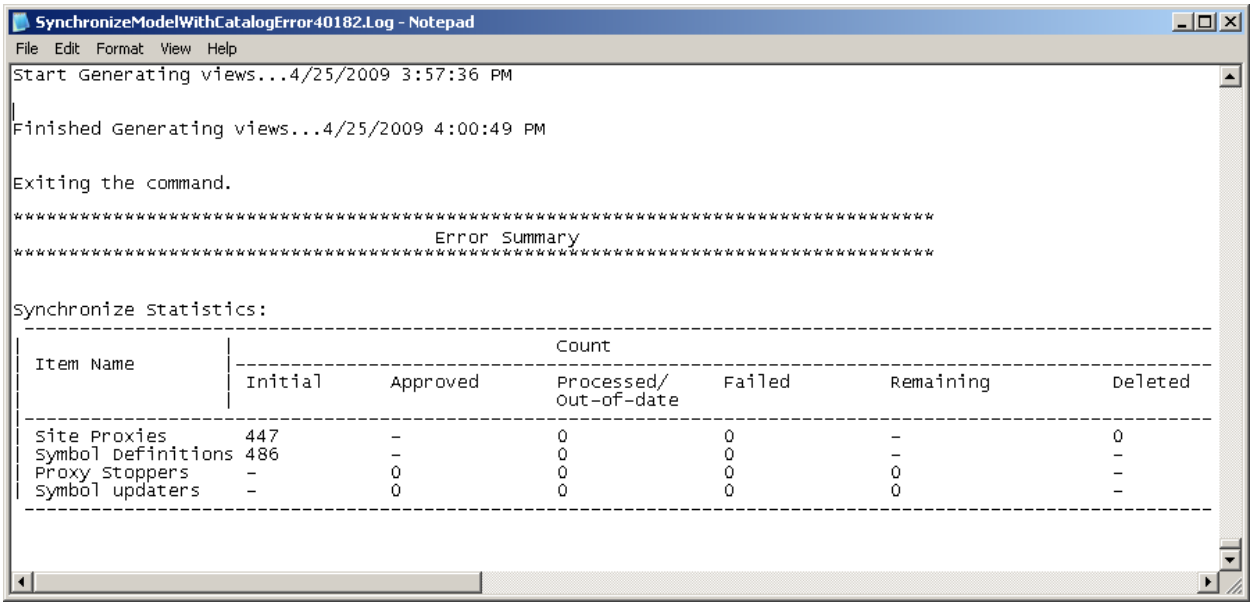


6. Click **OK**
7. Open and review generated log file





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



LAB 19: New Catalog Command

Objectives

After completing this lab, you will be able to:

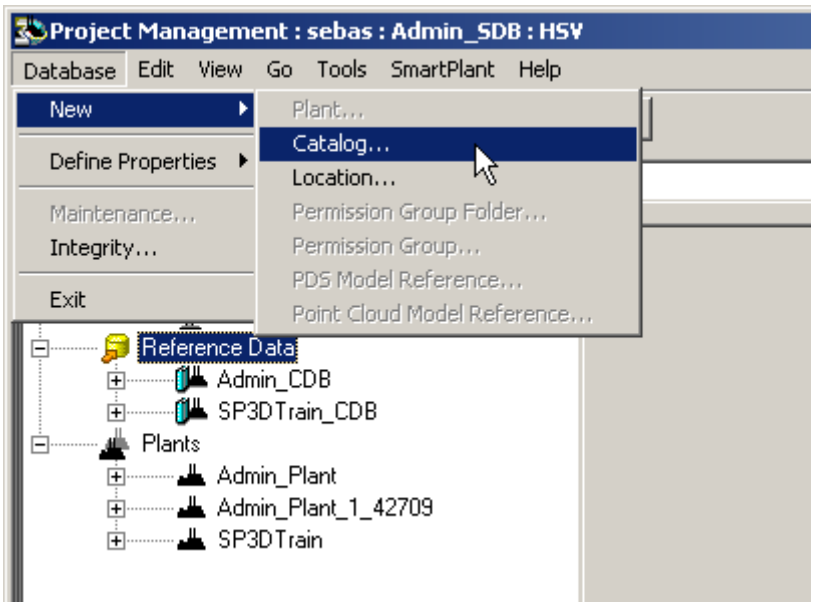
- Create a new Catalog from within Project Management.

Notes:

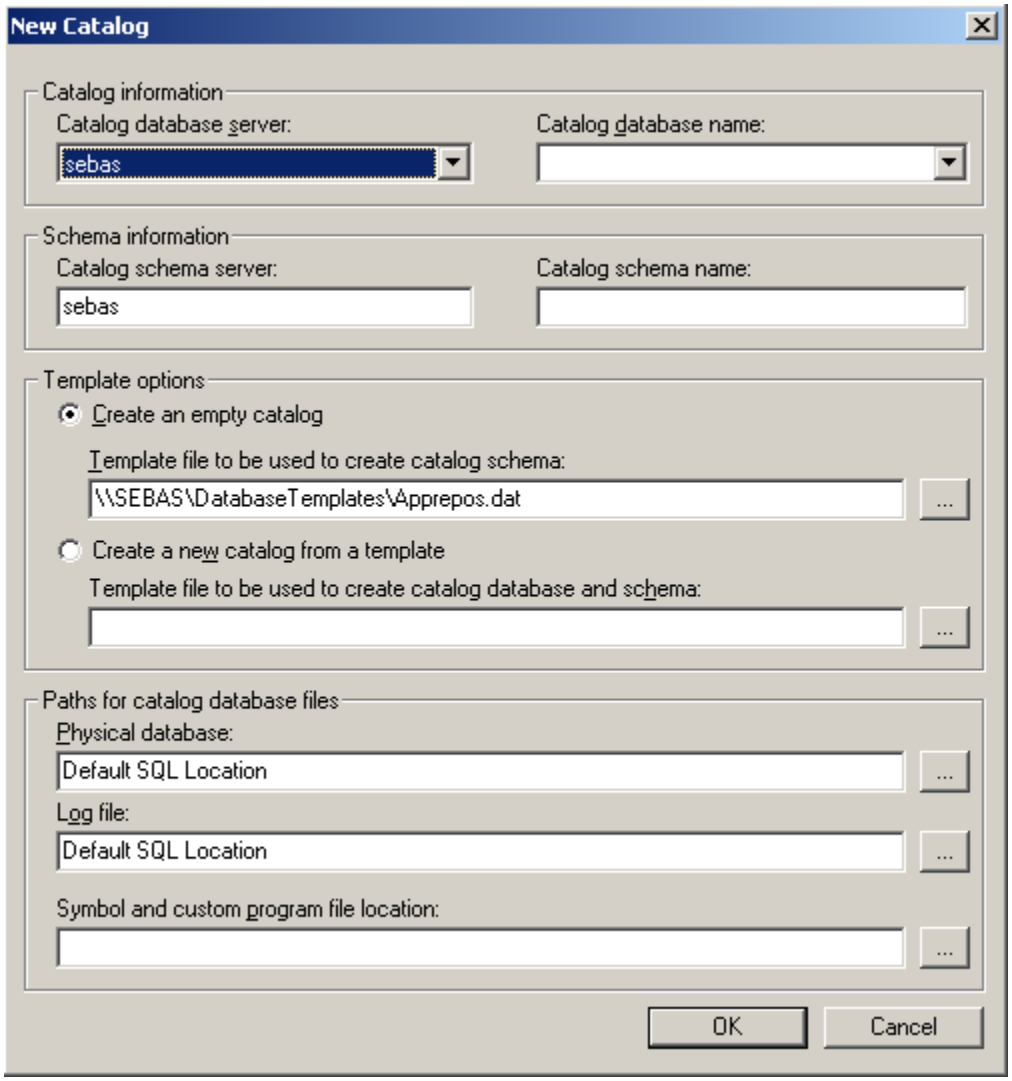
The new catalog command allows you to create a new empty catalog without performing a restore command. You will then be able to bulkload to this database at will, but you cannot use the catalog task to change anything in it unless you also make a Plant based off of the newly created catalog.

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



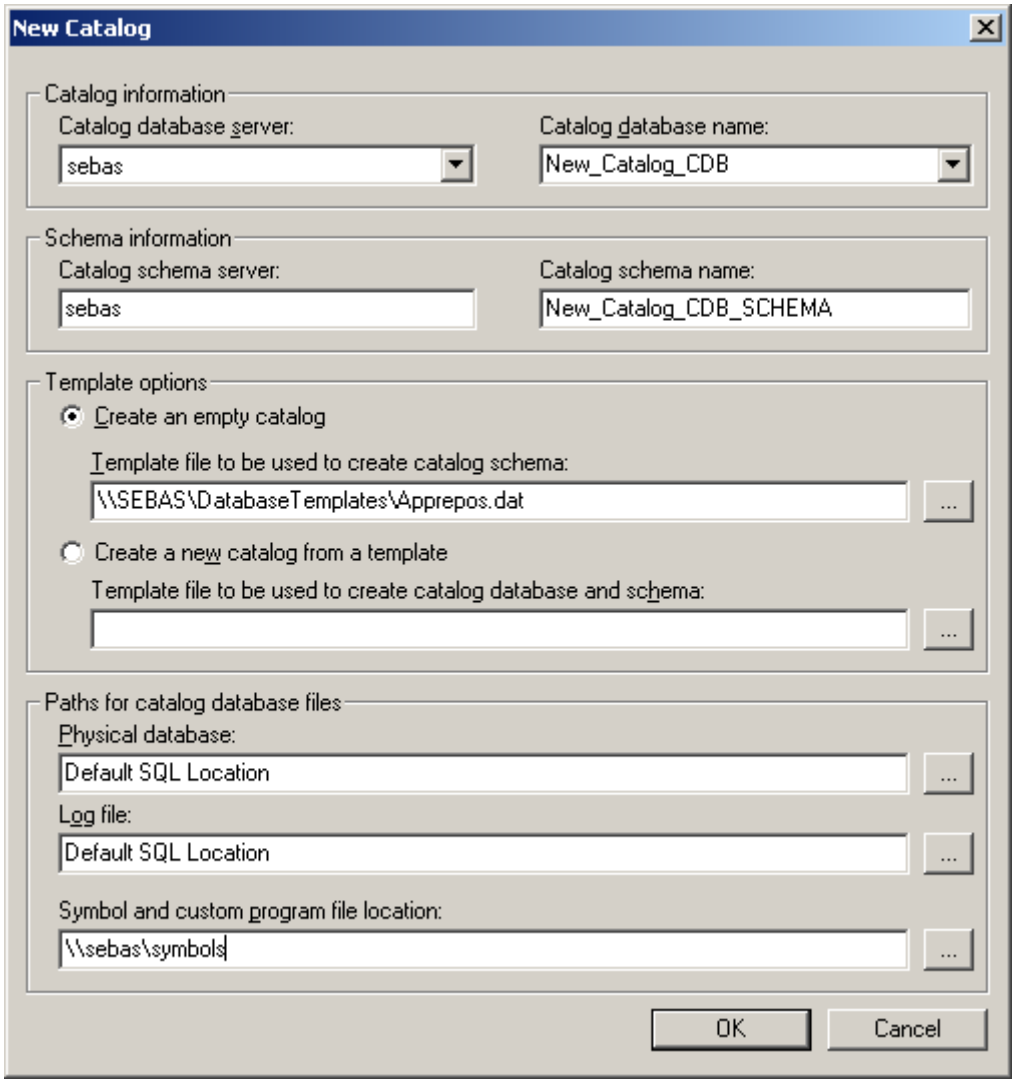
2. The new catalog form will appear. Select the server where the catalog will be restored on:



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.

3. 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.

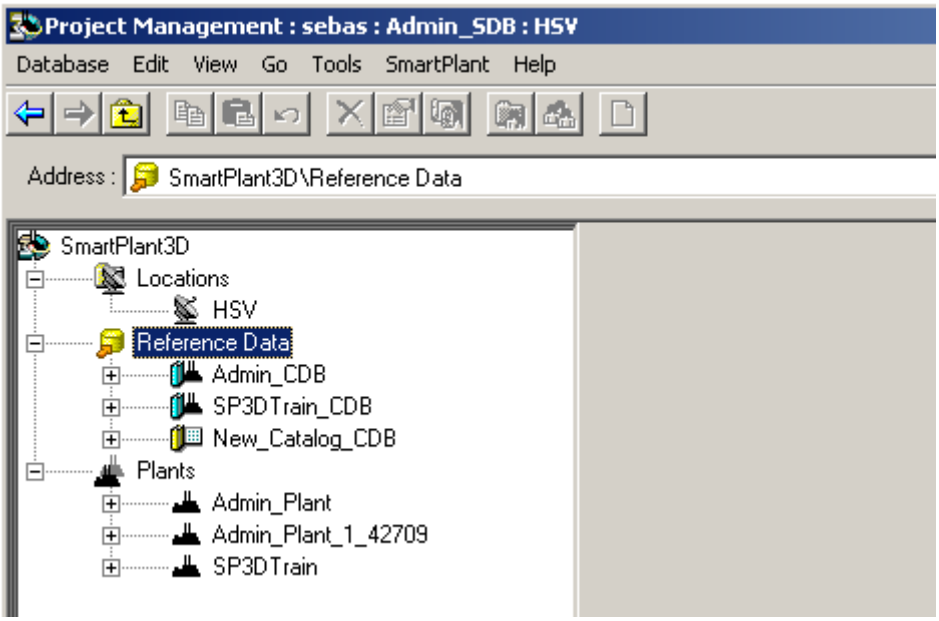


4. When the form has been completed, click **OK**

   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.

5. Click **OK** on confirmation dialog.

6. Project Management hierarchy should resemble the following



LAB 20: Database Maintenance

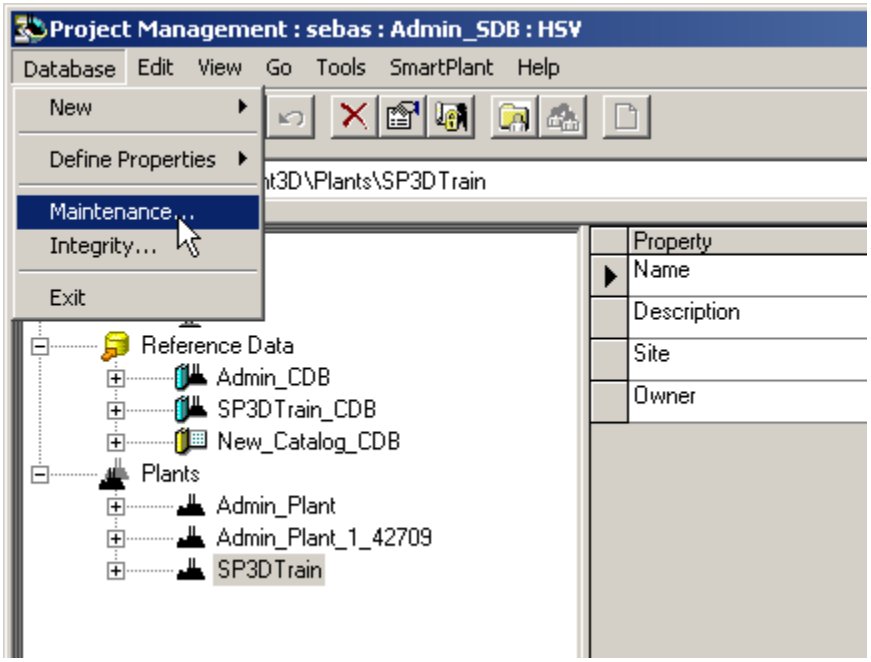
Objectives

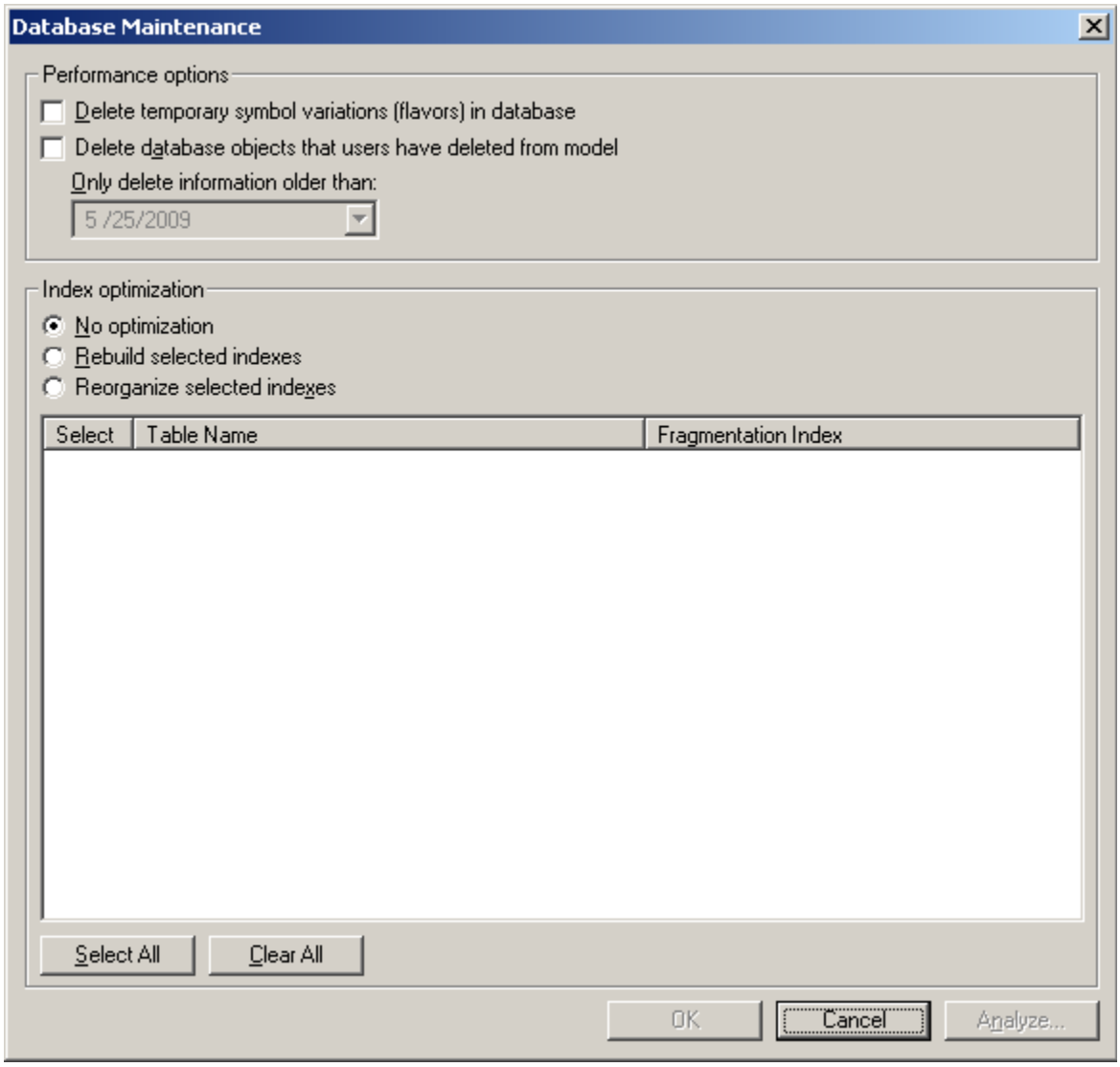
After completing this lab, you will be able to:

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

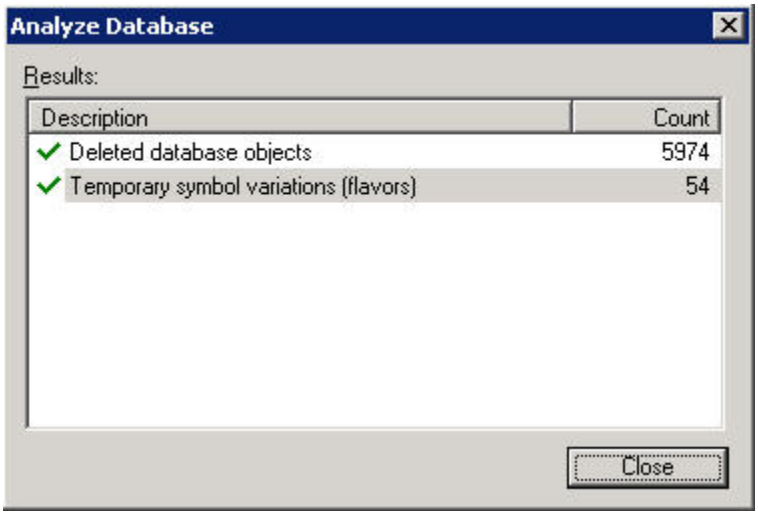
Note: This is an enhancement to the delivered software that allows users to purge temporary data and perform tasks such as optimizing indexes.

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

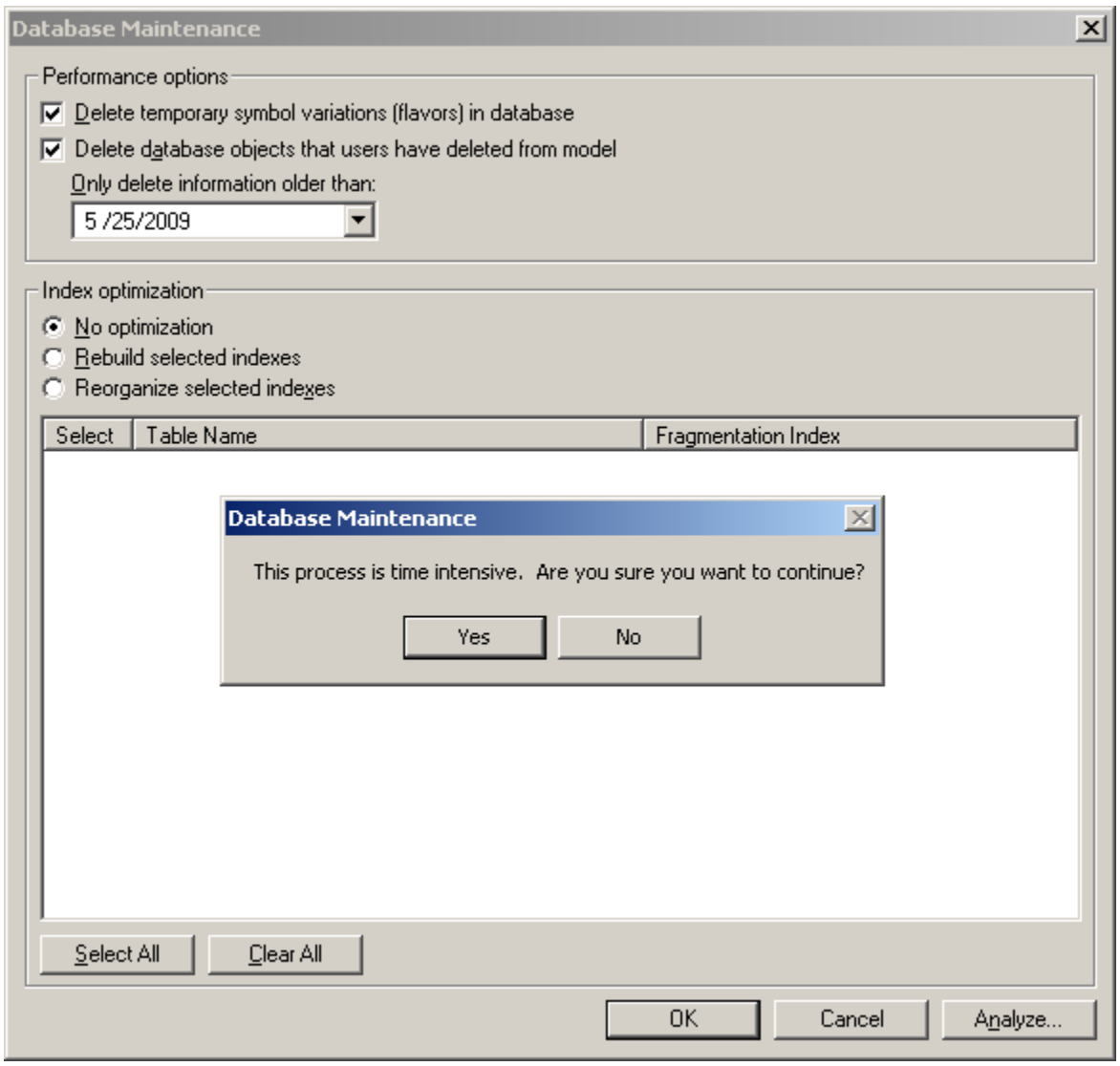




2. Place **checkboxes** in the first two options and then click **Analyze** button to understand the need

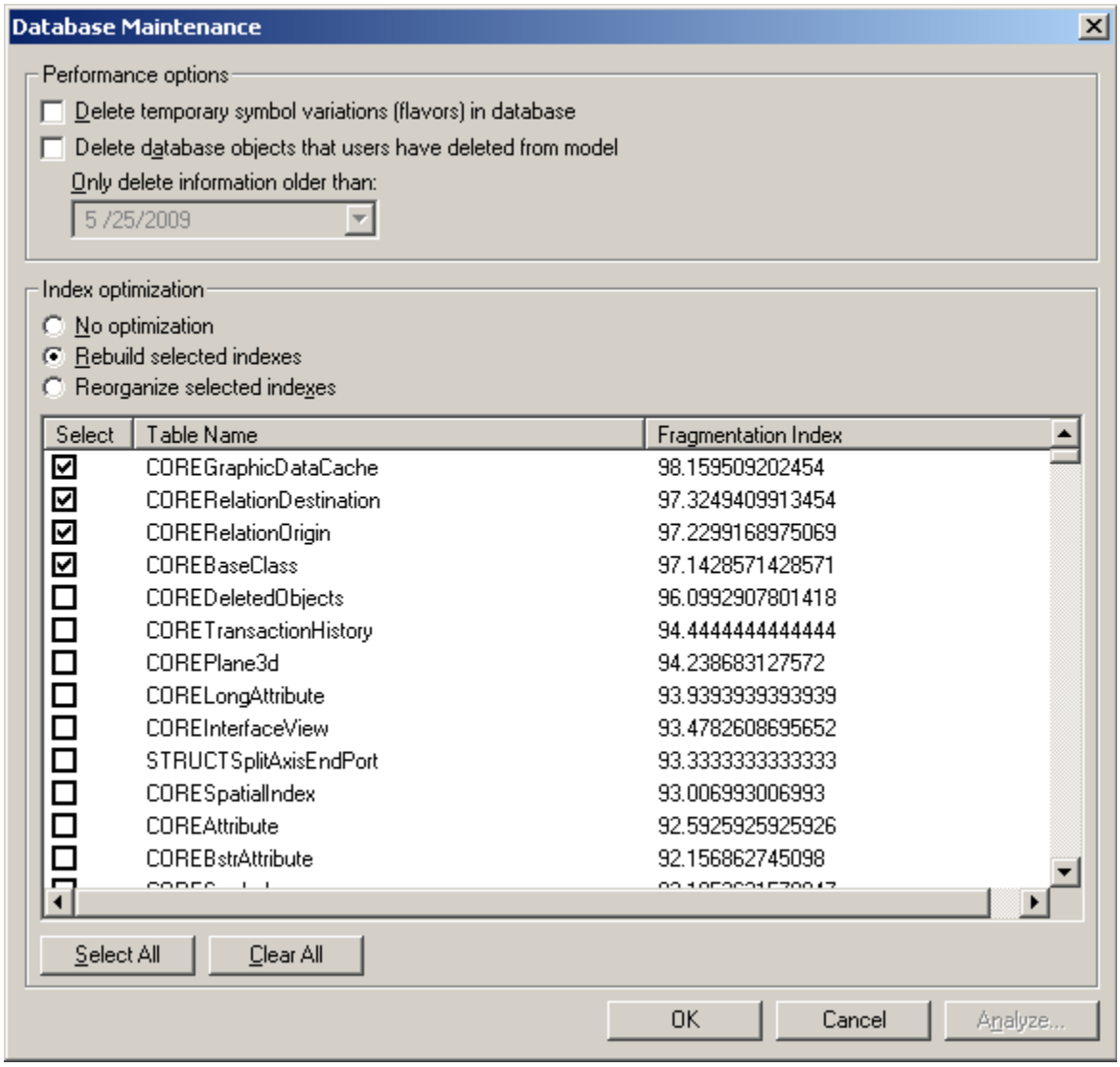


3. To perform these actions, **close** Analyze form and then click **OK** on database maintenance form.

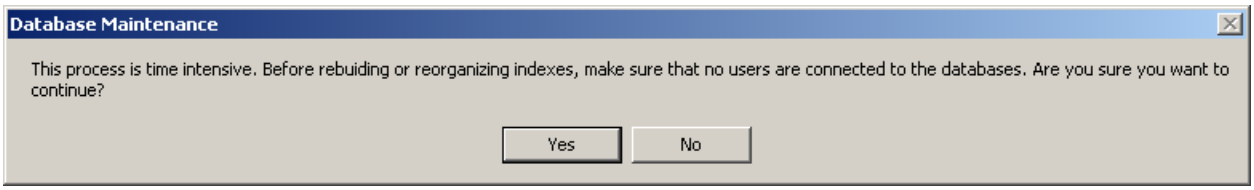


4. Click **Yes**, thus acknowledging that it may take some time.

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.

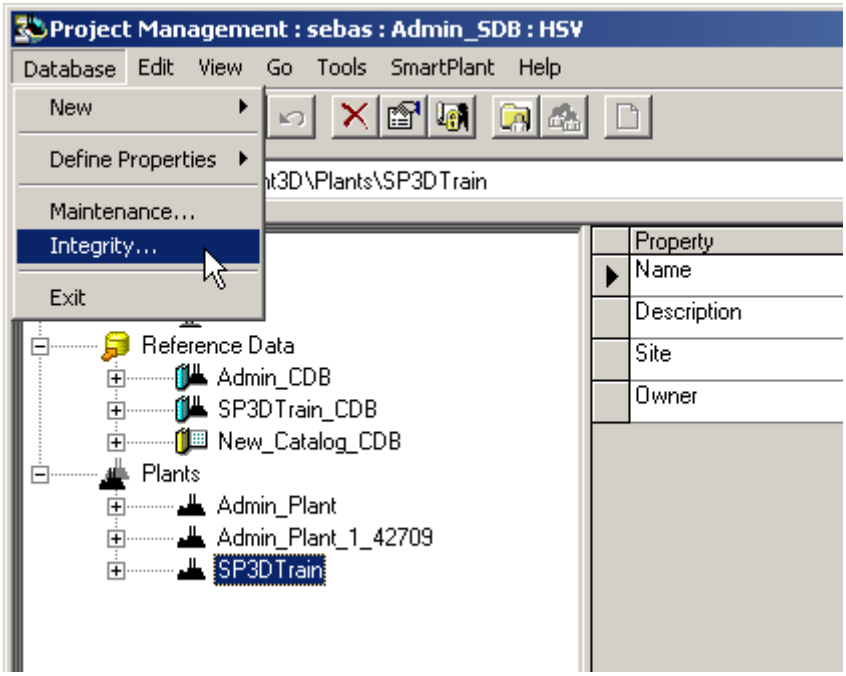
LAB 21: Database Integrity

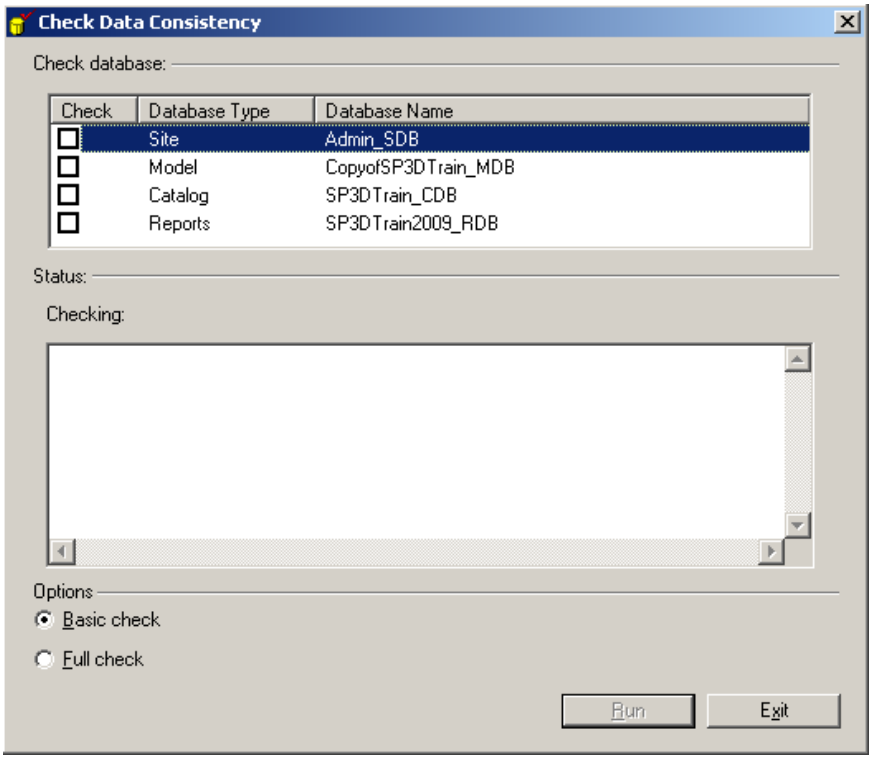
Objectives

After completing this lab, you will be able to:

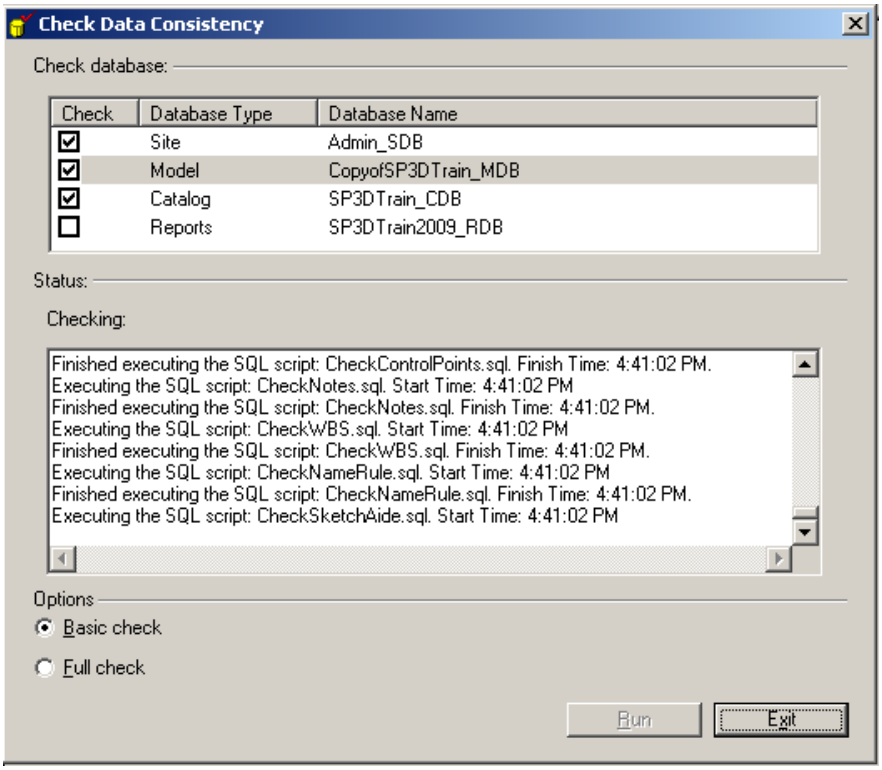
- Run Database Integrity command to verify consistency of model objects.

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.





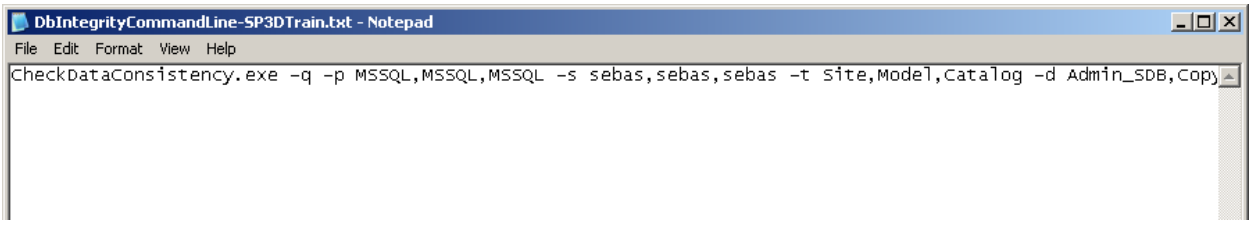
3. Select the database you wish to check for (check all three databases for this lab), choose **Basic** check, and then click **Run**.



4. Exit the form when finished.

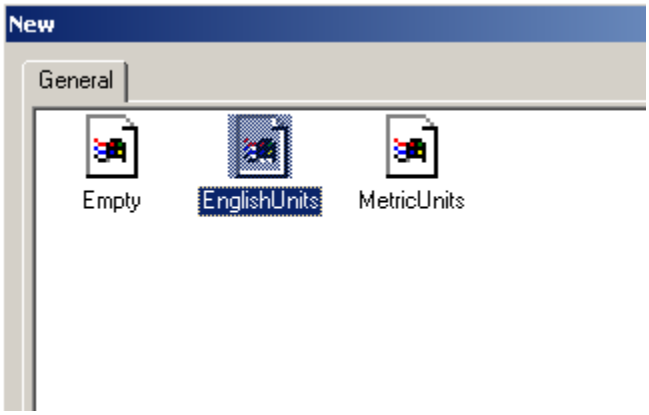
5. Open the temp folder by typing in the address bar of windows explorer **%temp%** and review the three error logs created for database integrity check. Make sure there were no catastrophic failures by looking for the word error or making sure the command completed successfully on each database.

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



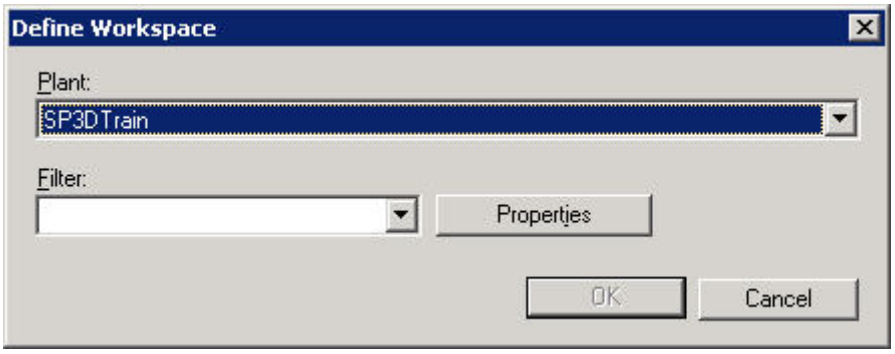
Note: Once Database Integrity has finished, next action is to clean the database for issues that were found. The Clean Database command is not yet integrated in the GUI environment, you will need to use a special custom command with progID SP3DCleanDatabaseCmd.CCheckObj to perform clean procedure. This 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:

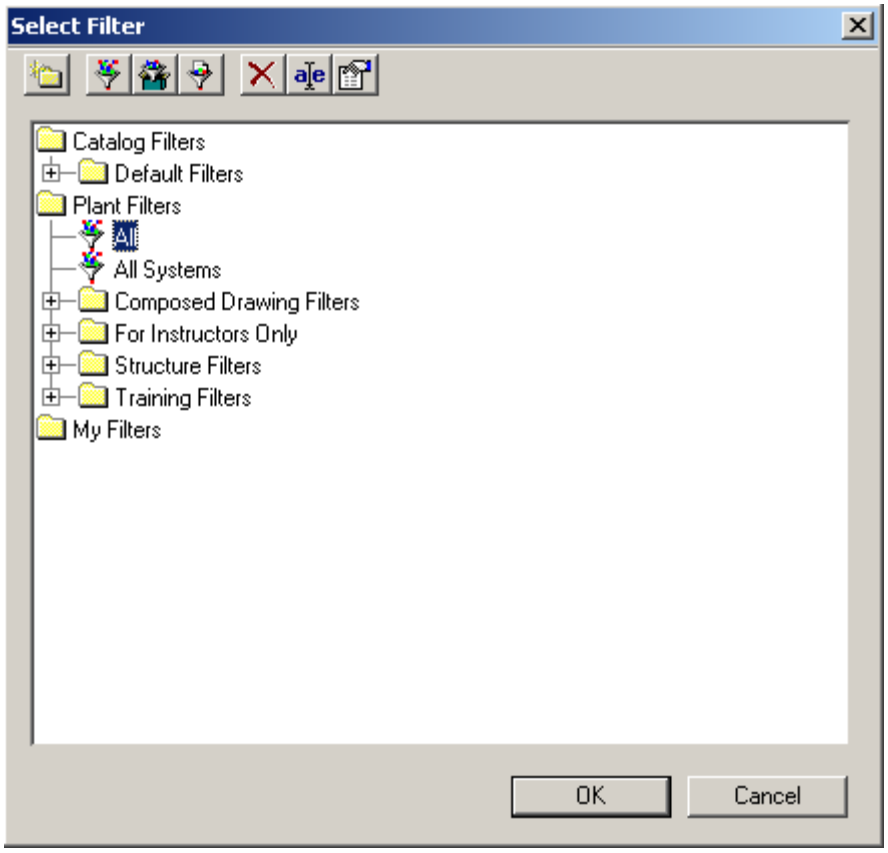


8. Click **OK**

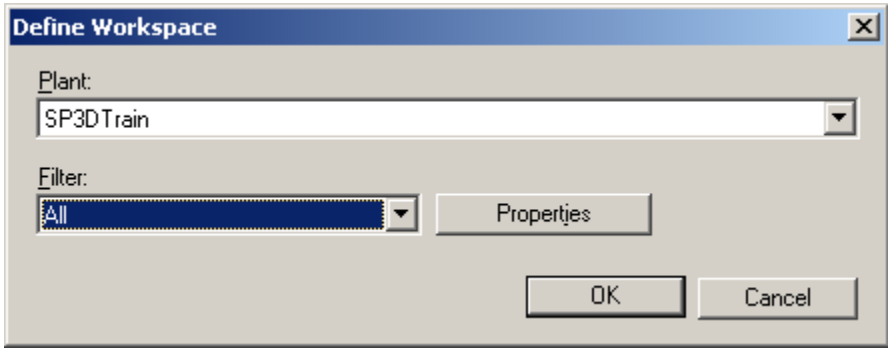
9. Use File → Define Workspace to select **SP3DTrain** plant:



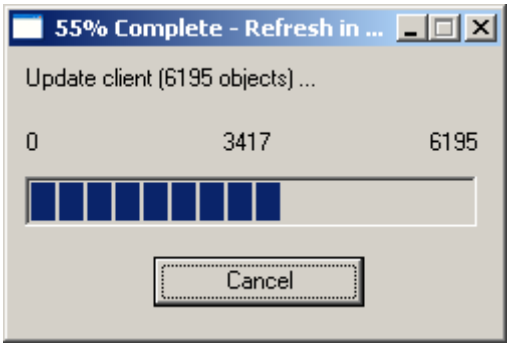
10. From the Filter drop down select **More** and then select **ALL** filter



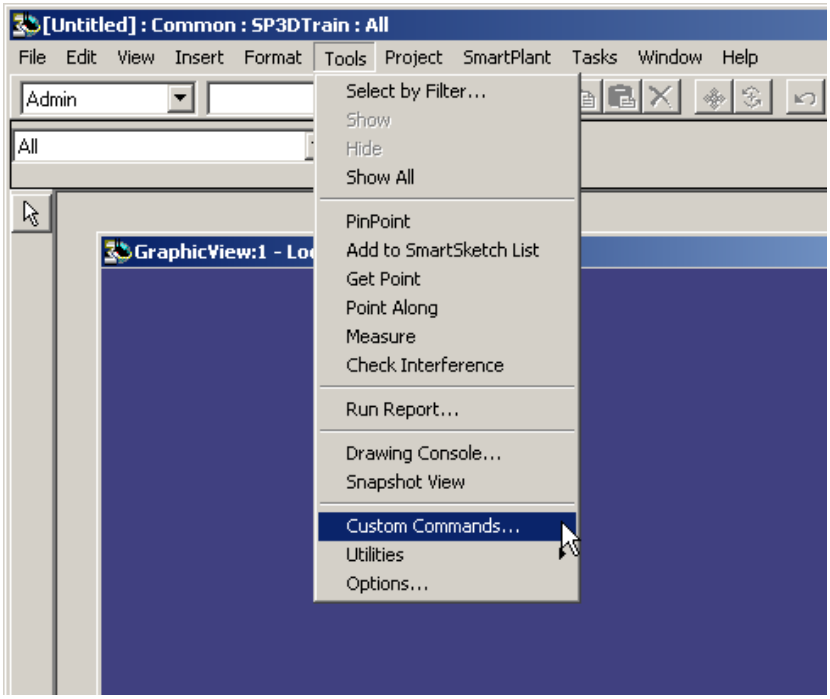
11. Click **OK**



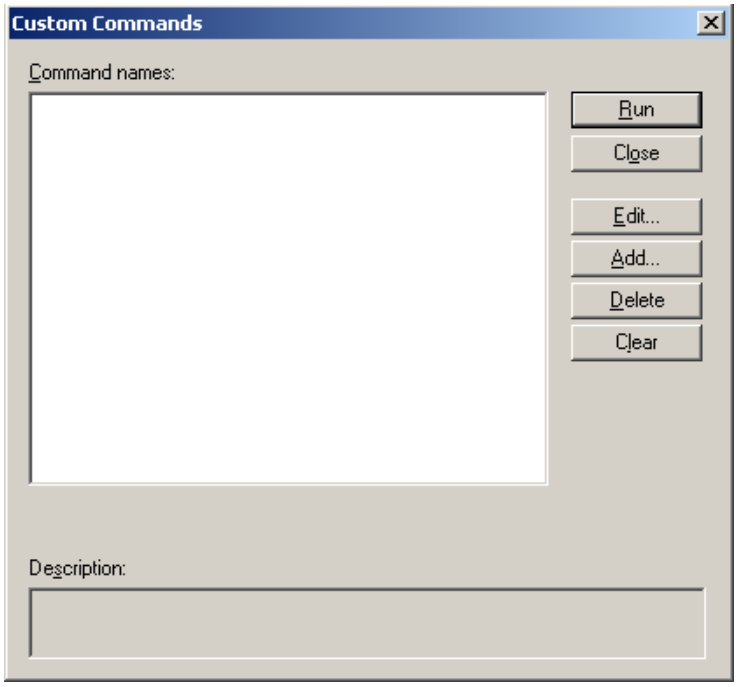
12. Click **OK** on Define Workspace form and allow Refresh to complete.



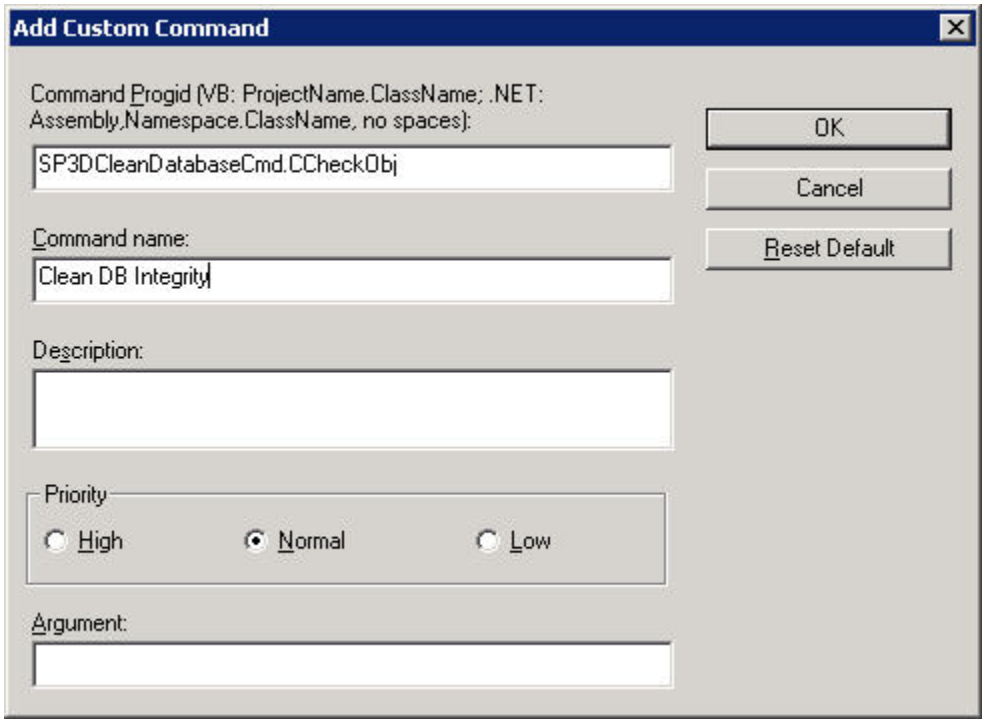
13. From **Tools** menu select **Custom Command**



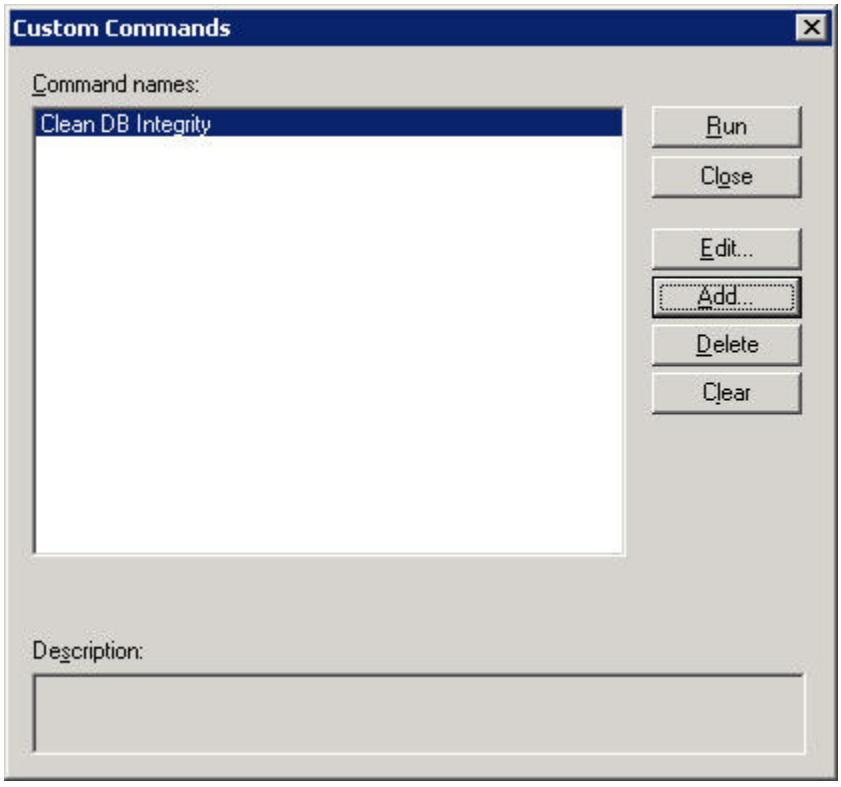
14. Following form will be displayed:



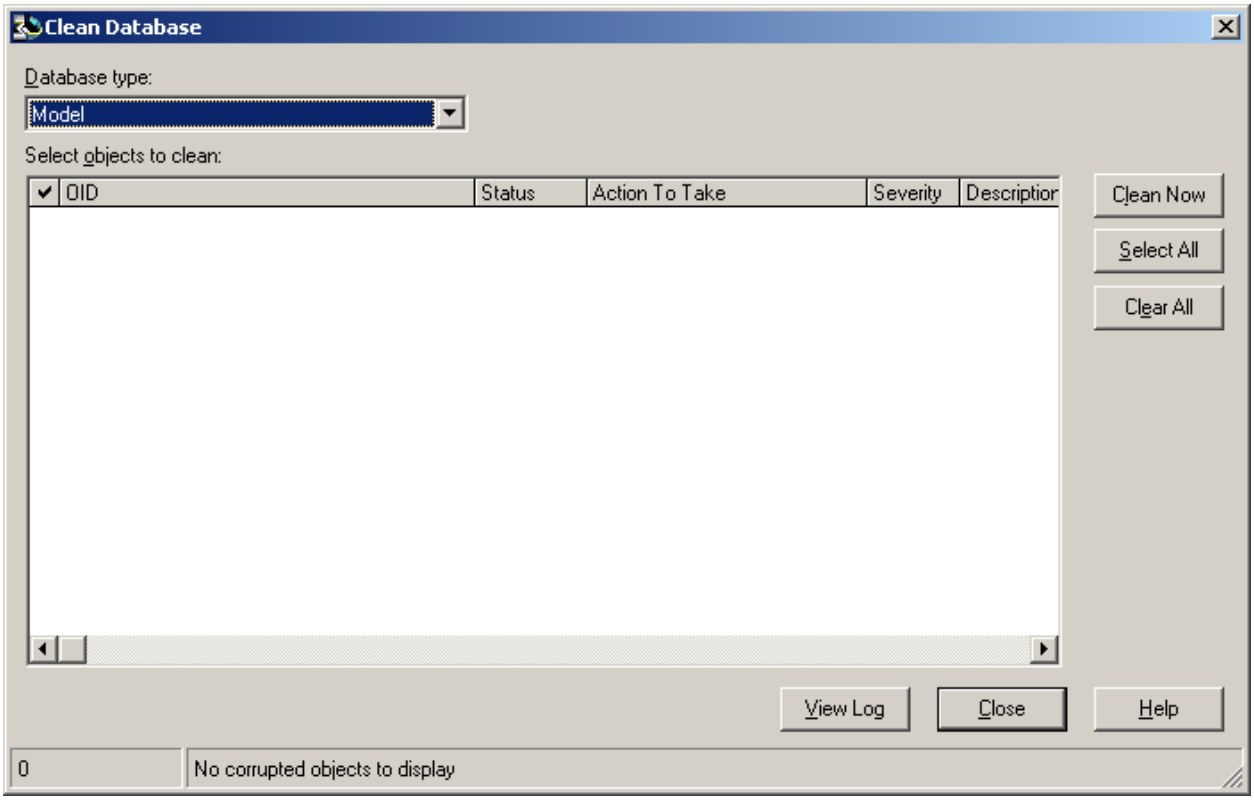
15. Click **Add** button



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



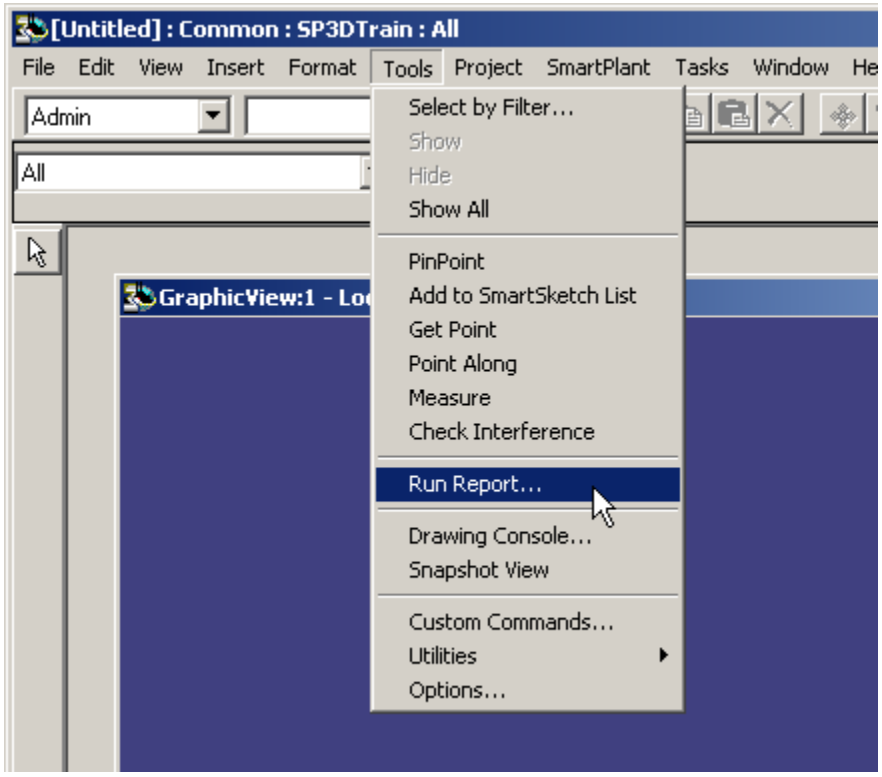
17. Click **Run** command.



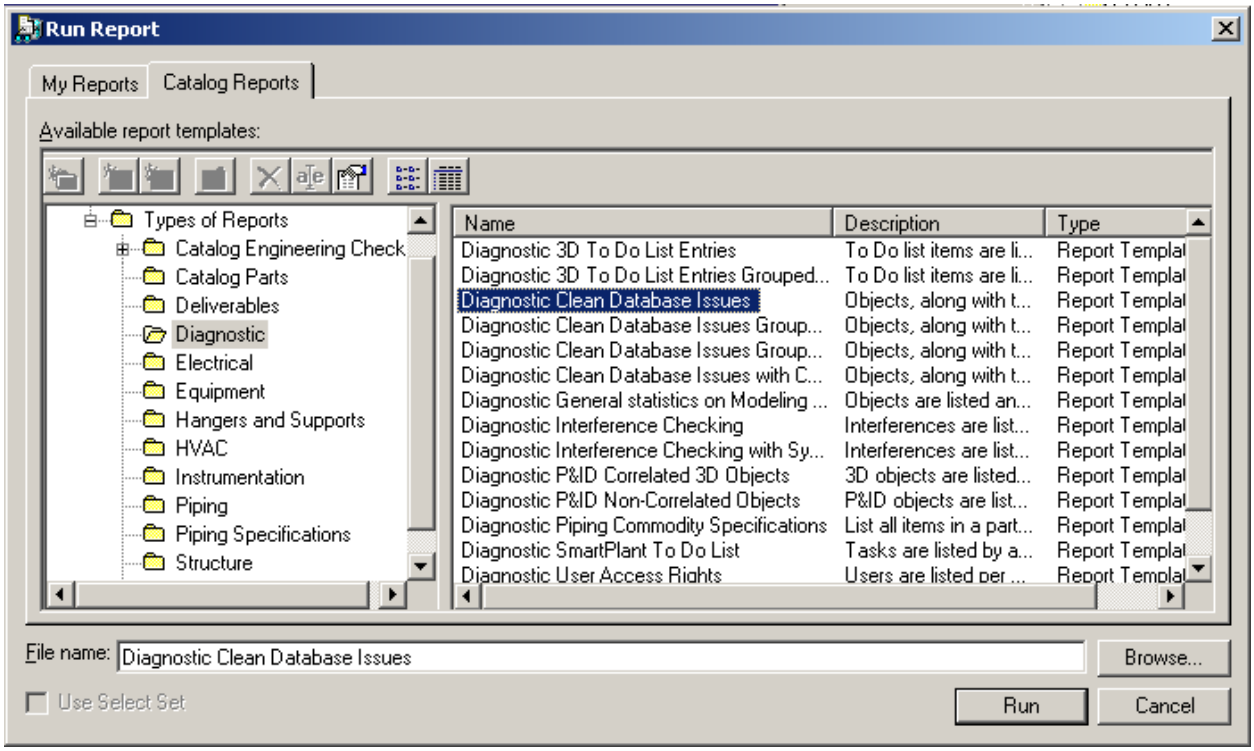
18. In general, you will use this Form to select any items appearing on the list and then perform a Clean Now operation. Refer to the DBIntegrity.pdf help file (located in

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**.

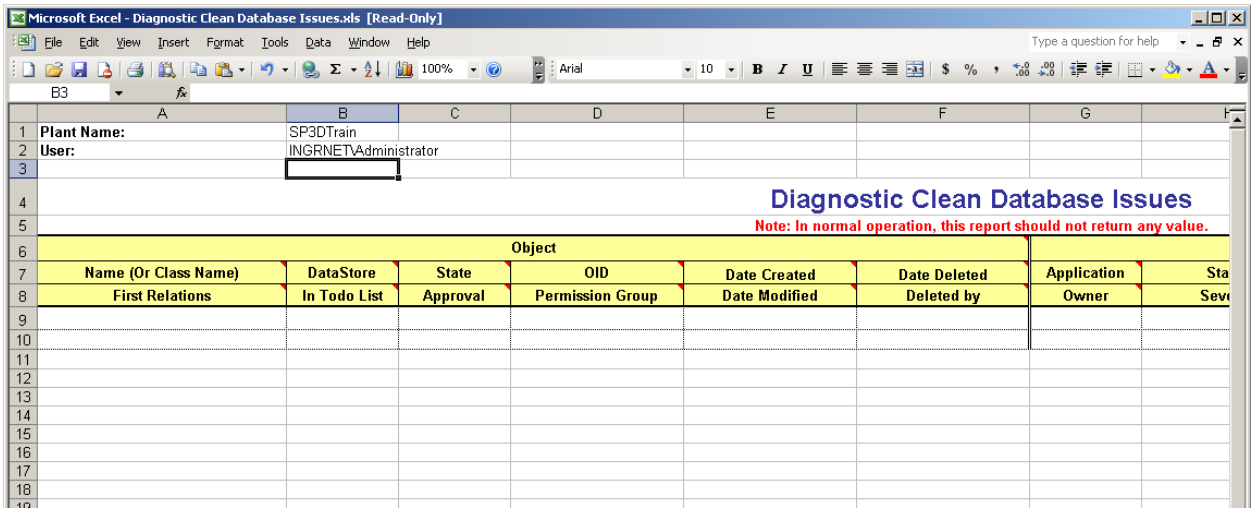


21. We will now run a report for Database Integrity entries. This report could be executed both before and after the Clean Custom Command is executed. From the **Catalog Reports** tab, select report Diagnostic Clean Database Issues as depicted below and execute it. If there had been any problems found 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).



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.

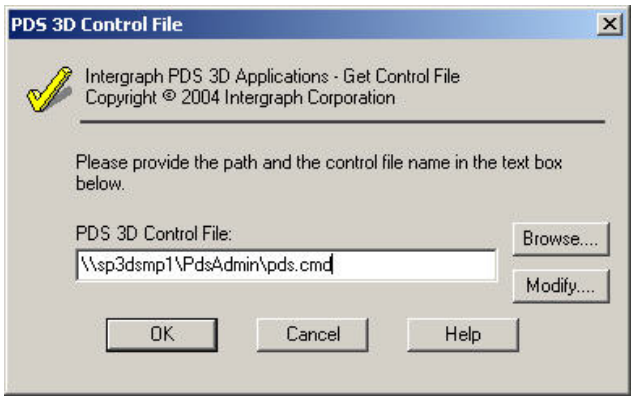
Software installed

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

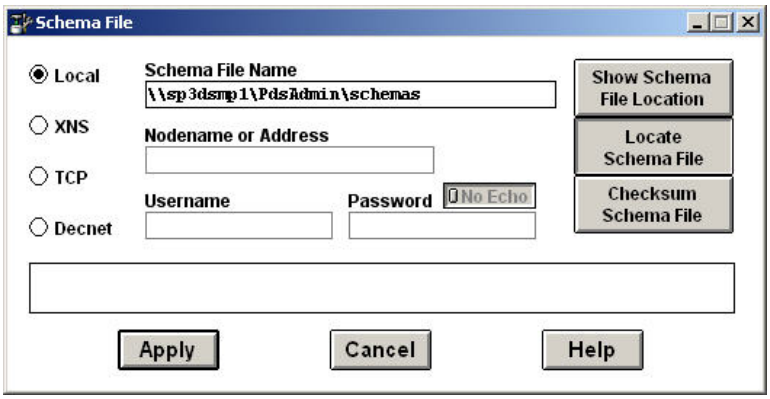
1. SmartPlant License Manager
2. PD_Shell (Plant Design System environment)
3. RIS_Share (RIS Shared Components)
4. Batch Services

Procedure to reference

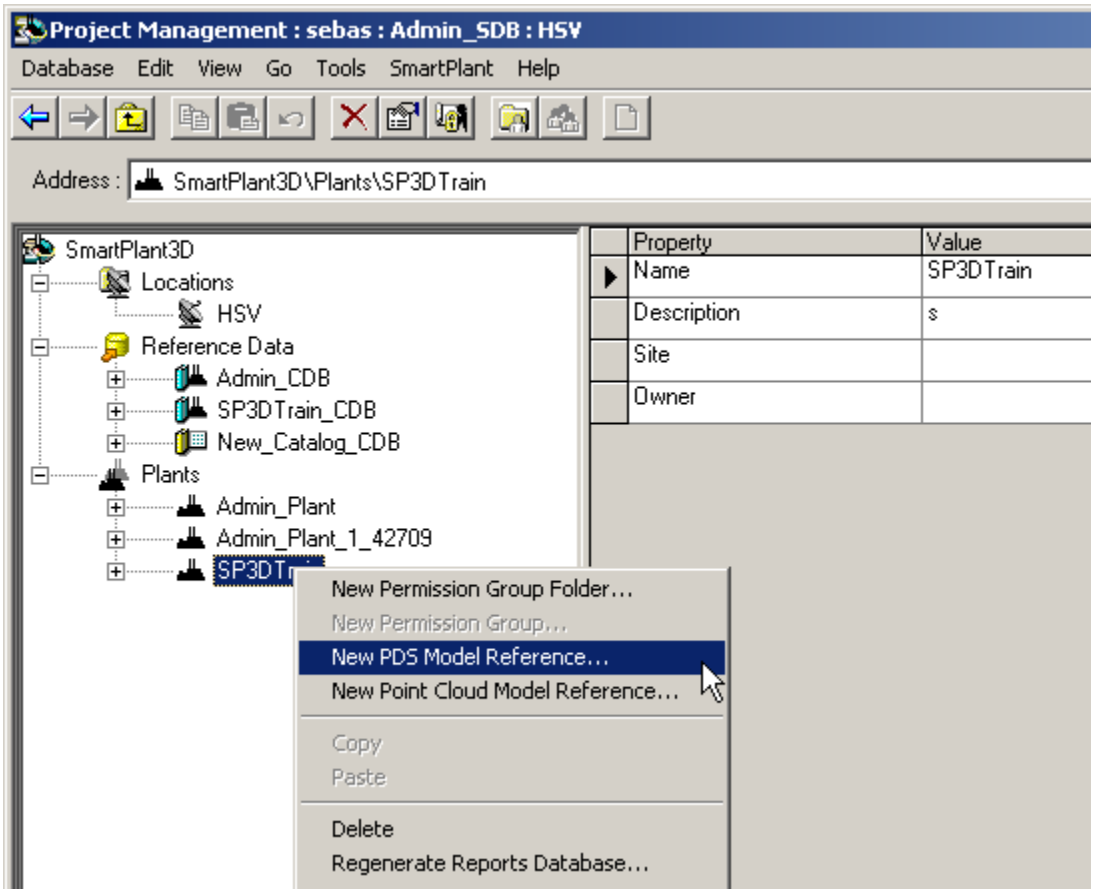
1. Using PDS Configure, point to pds.cmd file that contains the path to the profile containing PDS project to reference



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.

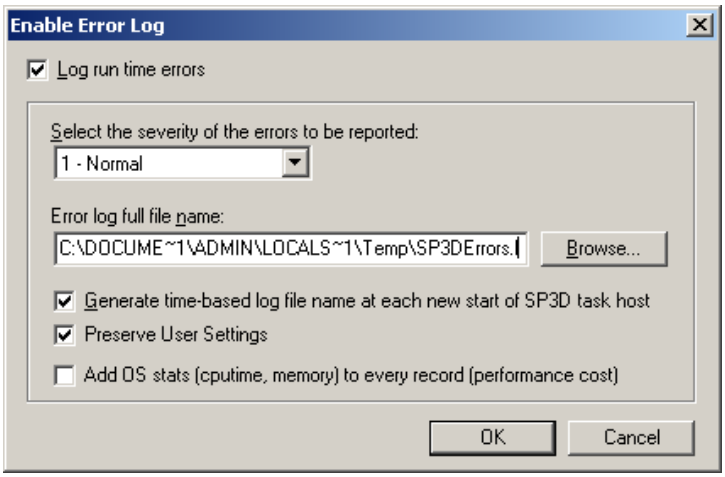
LAB 23: Error log files

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.

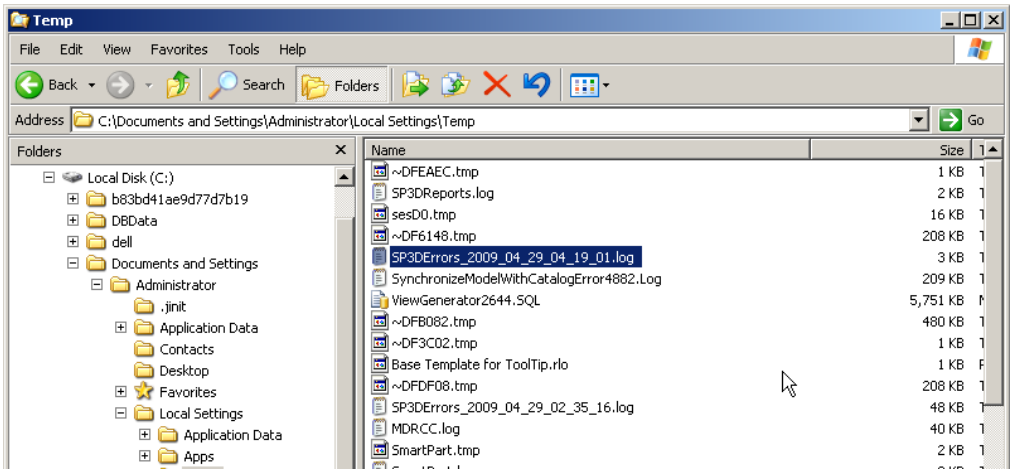
   You will need to close SmartPlant 3D and start it once again (potentially from an already saved session file) before these settings take effect.

4. Click **OK**

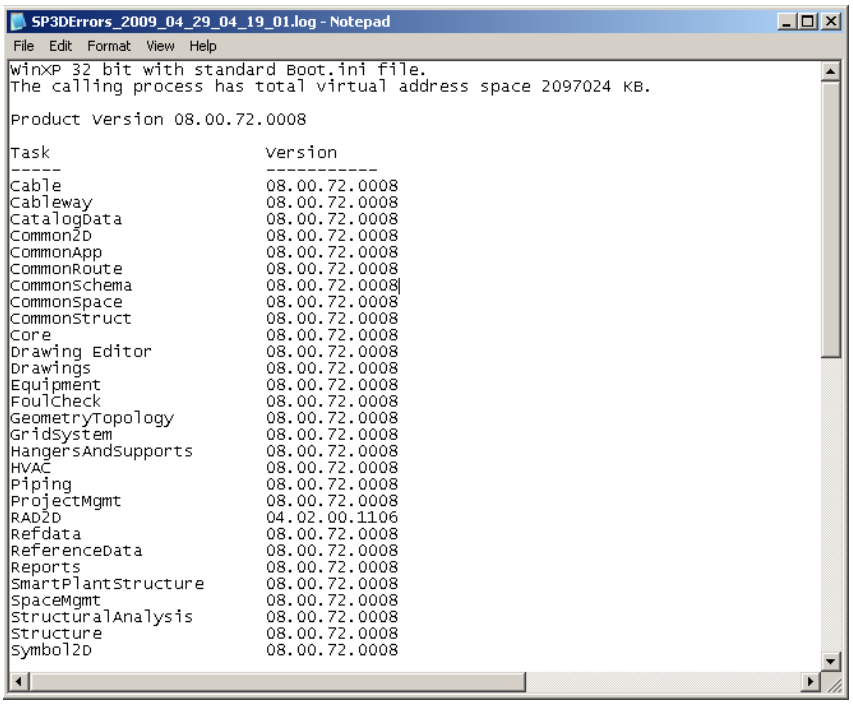
5. From now on, an error log file will remain in temp directory every time a session is opened and closed. A different error log is going to be created for each instance of SP3D opened.

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)

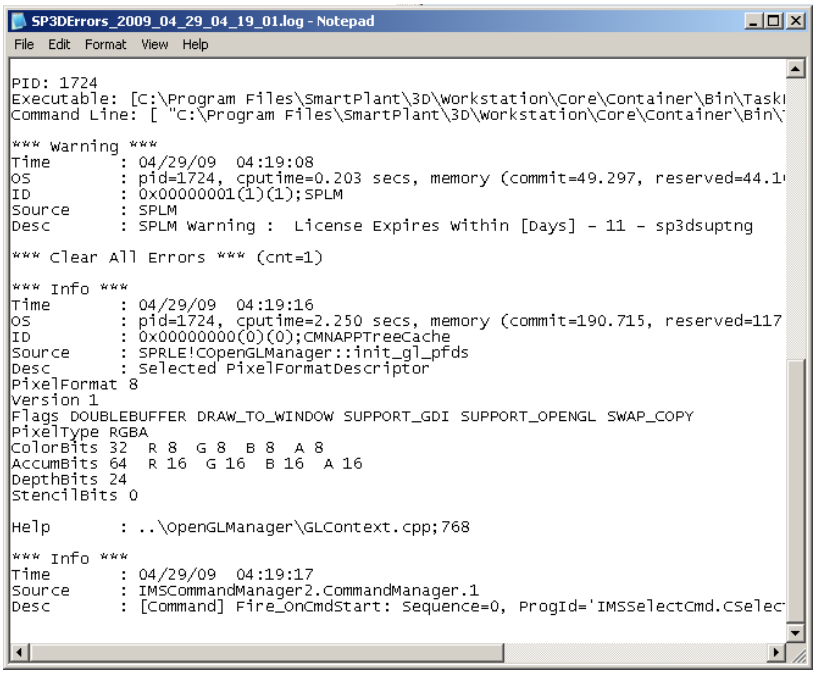


8. Open the most recent SP3D log file (sort by date modified column for quick revision), it will have a name that is compounded of the words SP3DErrors_TIMESTAMP where TIMESTAMP is the date and time when the log file was created.



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.



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

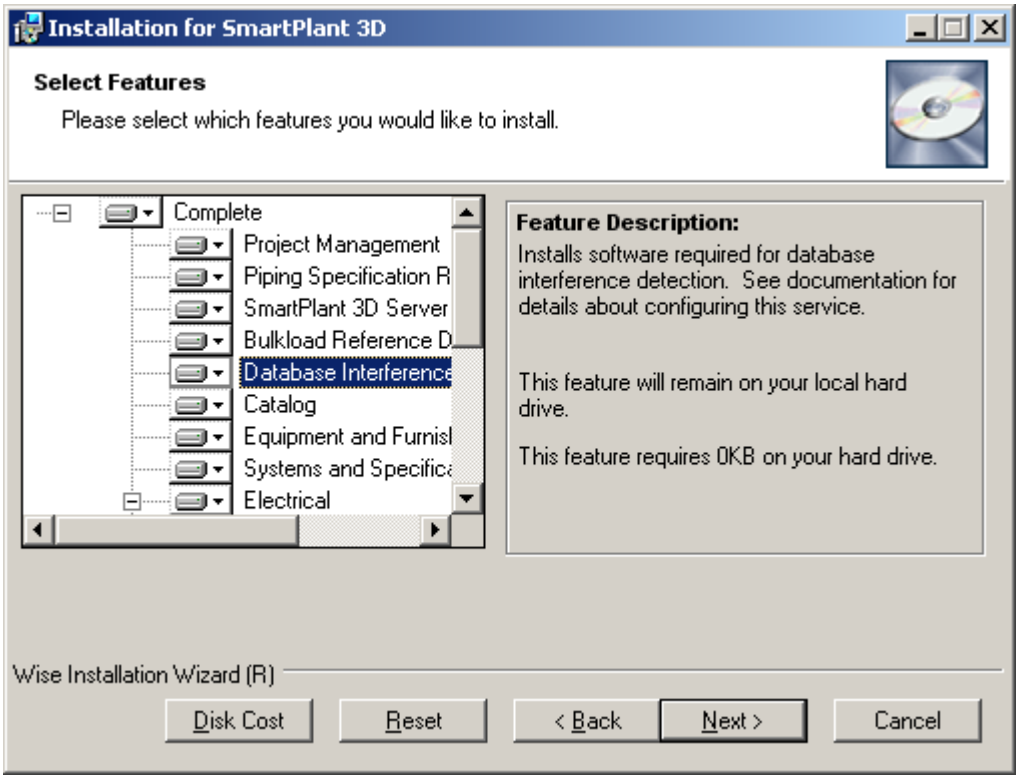
Objectives

After completing this lab, you will be able to:

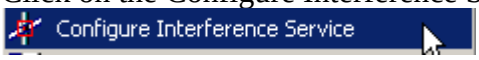
- Configure an Interference Checking Server for a particular project.
- Enable and use Local detect.
- Review interference objects using the List view from within local detect interference settings.

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.

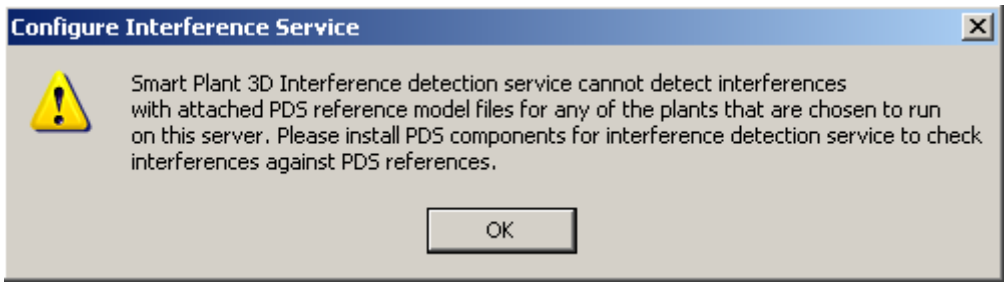


During this lab practice, the word IFC will be used to refer Interference Checking

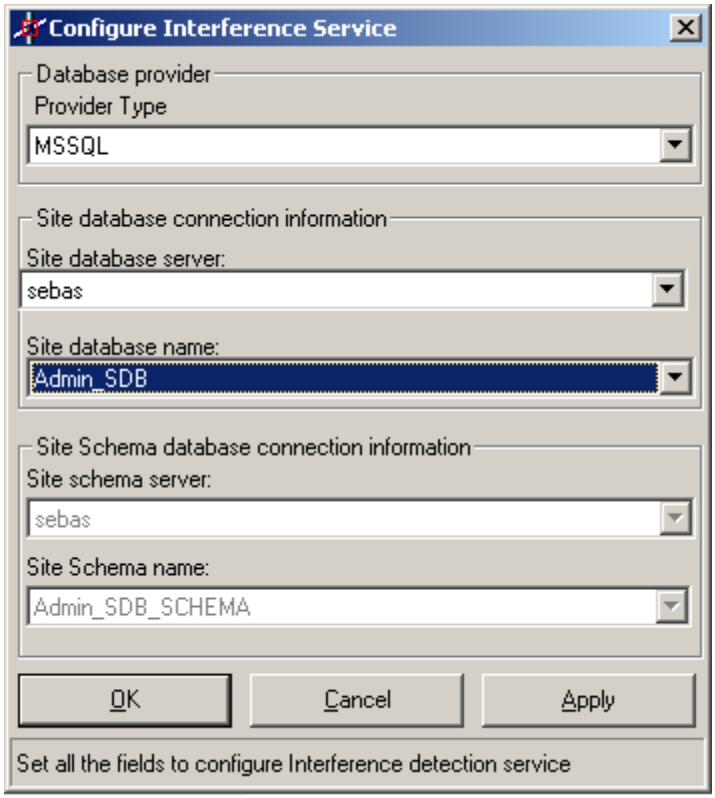
1. Click on the Configure Interference Service option 

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**.

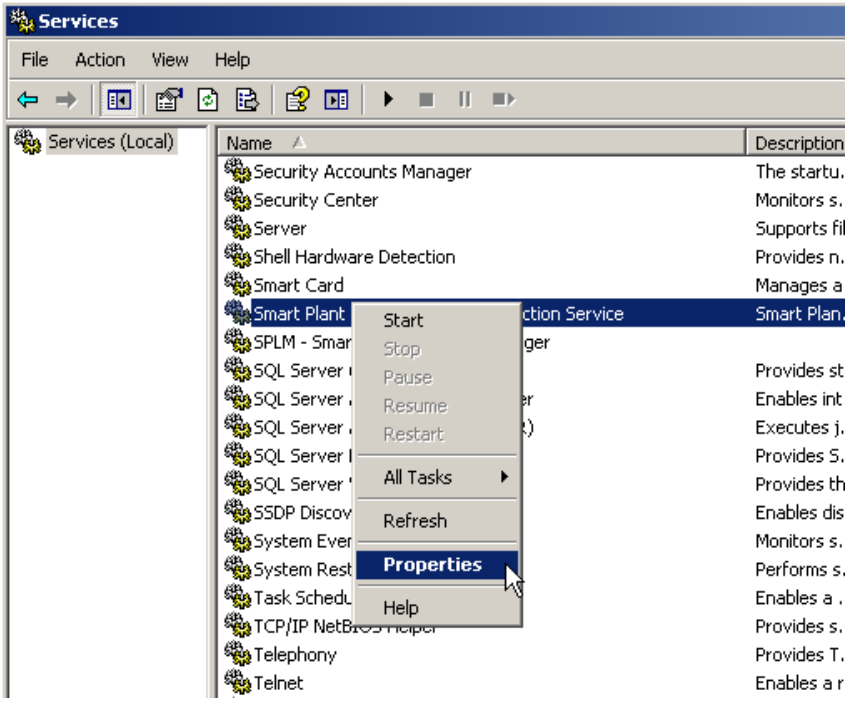


3. Complete the form as depicted below identifying Admin_SDB and Admin_SDB_SCHEMA. By completing this form in this manner you are indicating that this IFC Server can process any Plant that belongs to this Site Database.

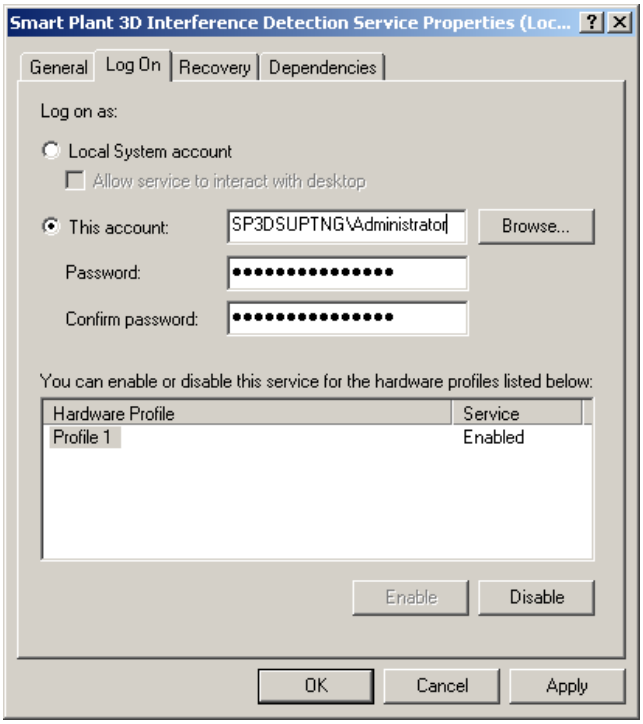


4. Click **OK**.

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.

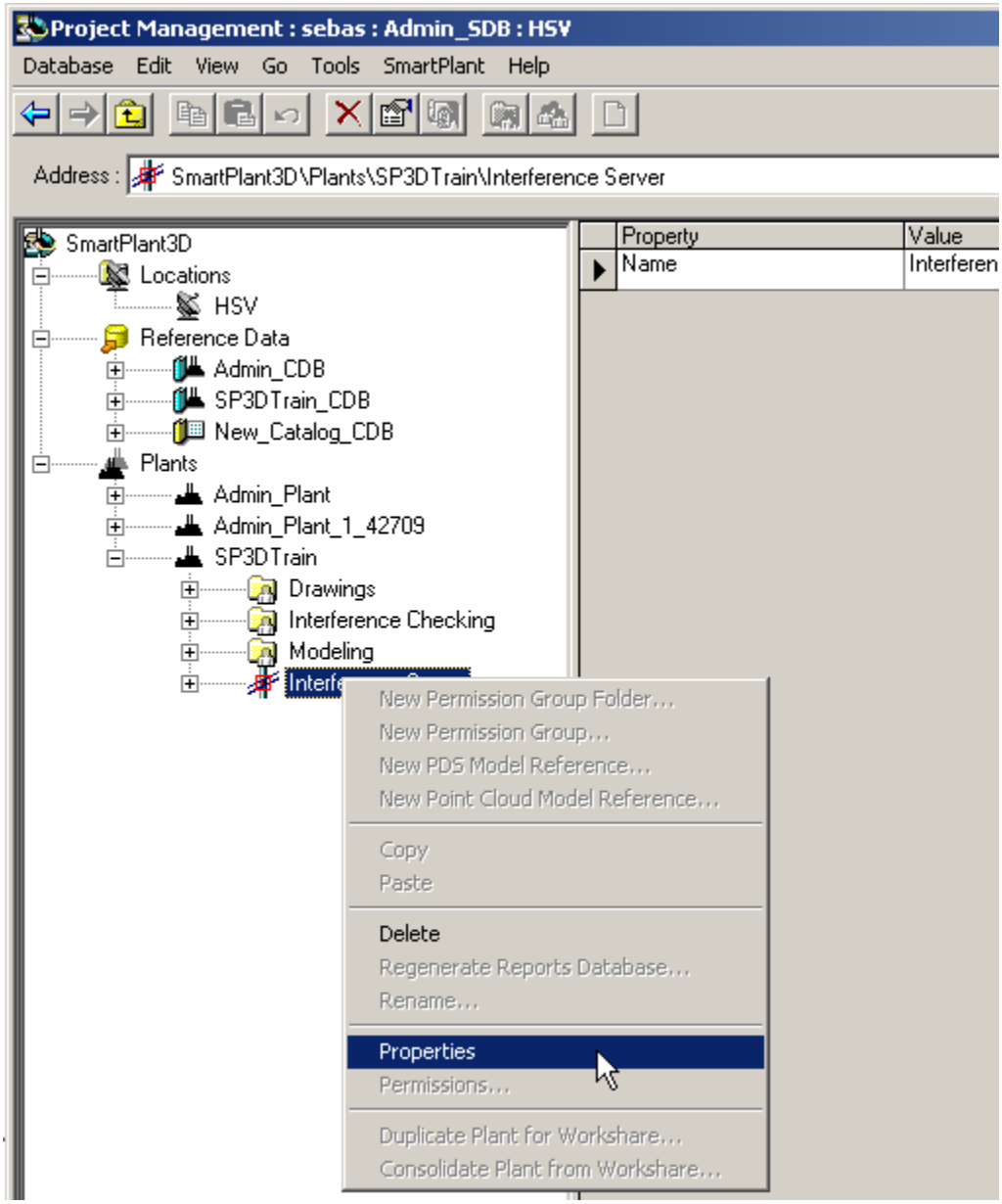
- Account is included in local administrators group

- Has database access and permissions as a regular user to SQL or Oracle database

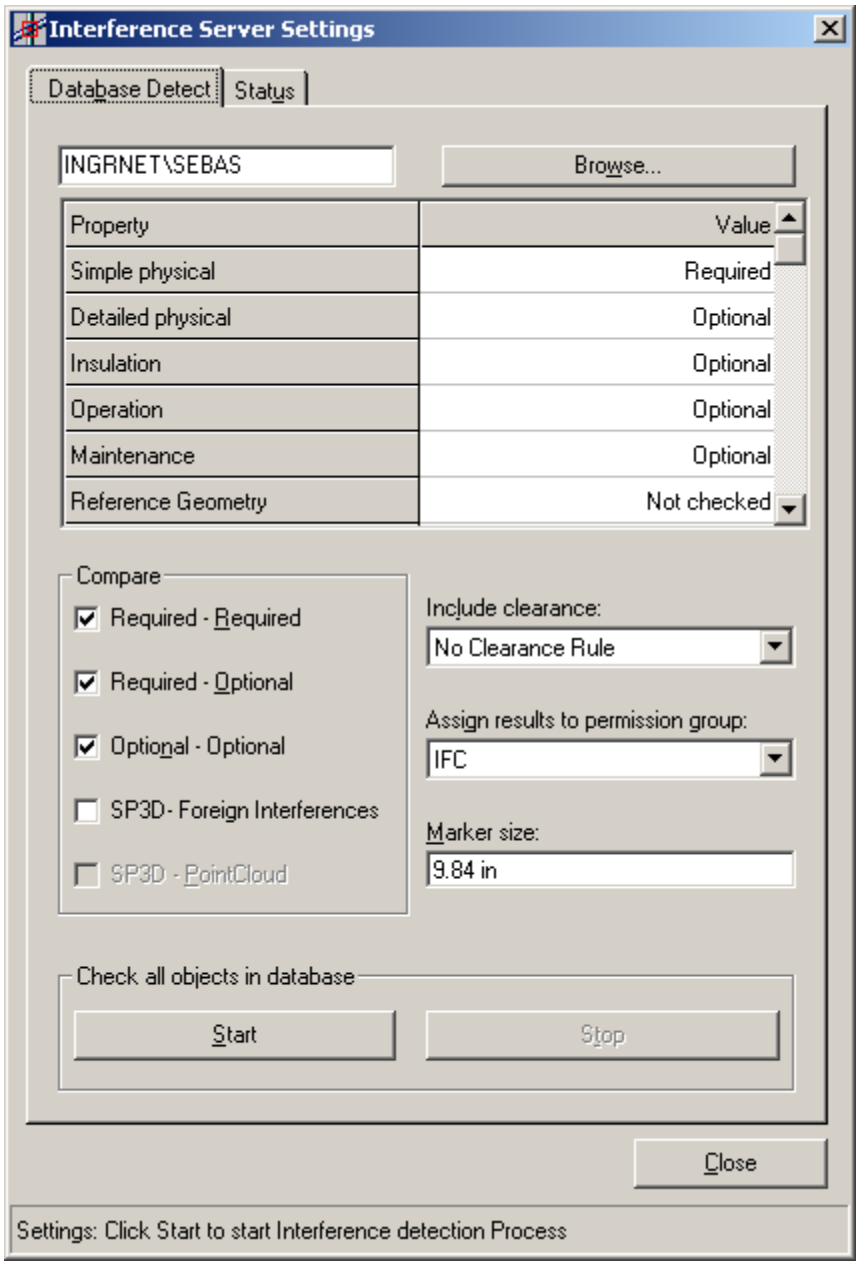
- Has write or higher level of access to at least one permission group

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**.

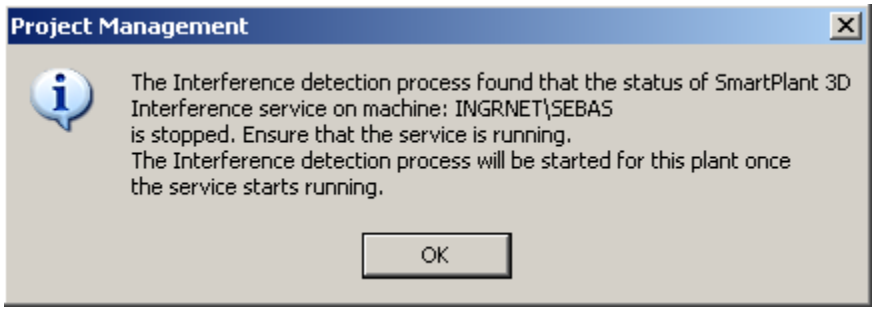


9. Complete the form as depicted below, taking care to identify the machine used for training in the form of domain\computer, this field identifies the computer where the IFC service has been started. In a production environment this form could be completed from any computer with Project Management loaded and does not need to be completed from the IFC machine.

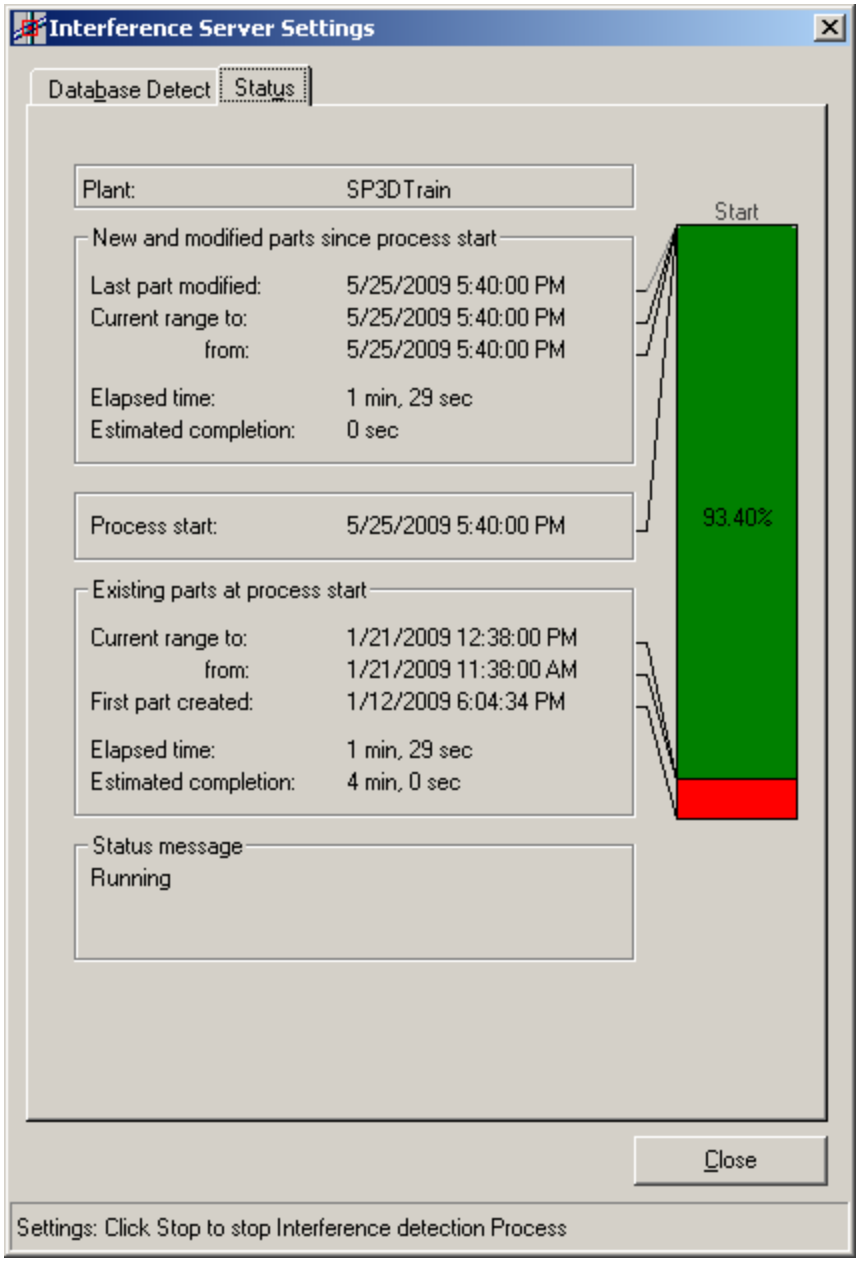


10. Click the **Start** Button.

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

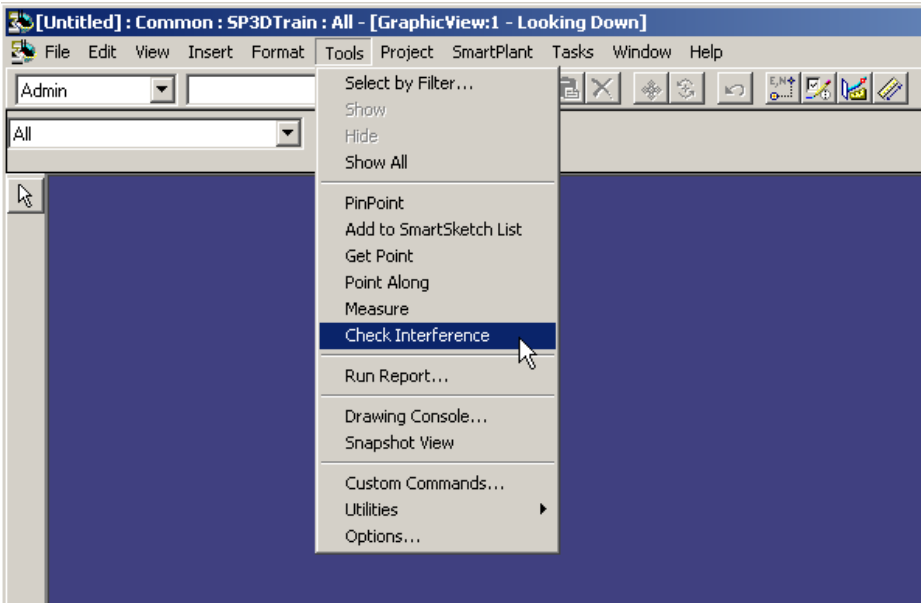


11. It may take up to 4 minutes for the processing to start. When it begins to run, you can review the progress on the Status tab

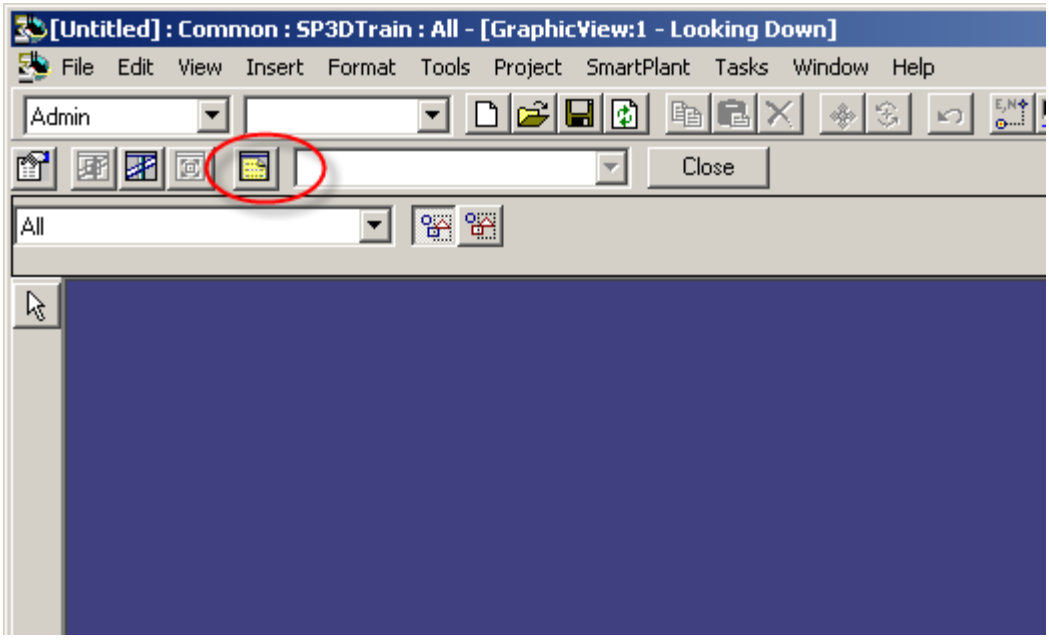


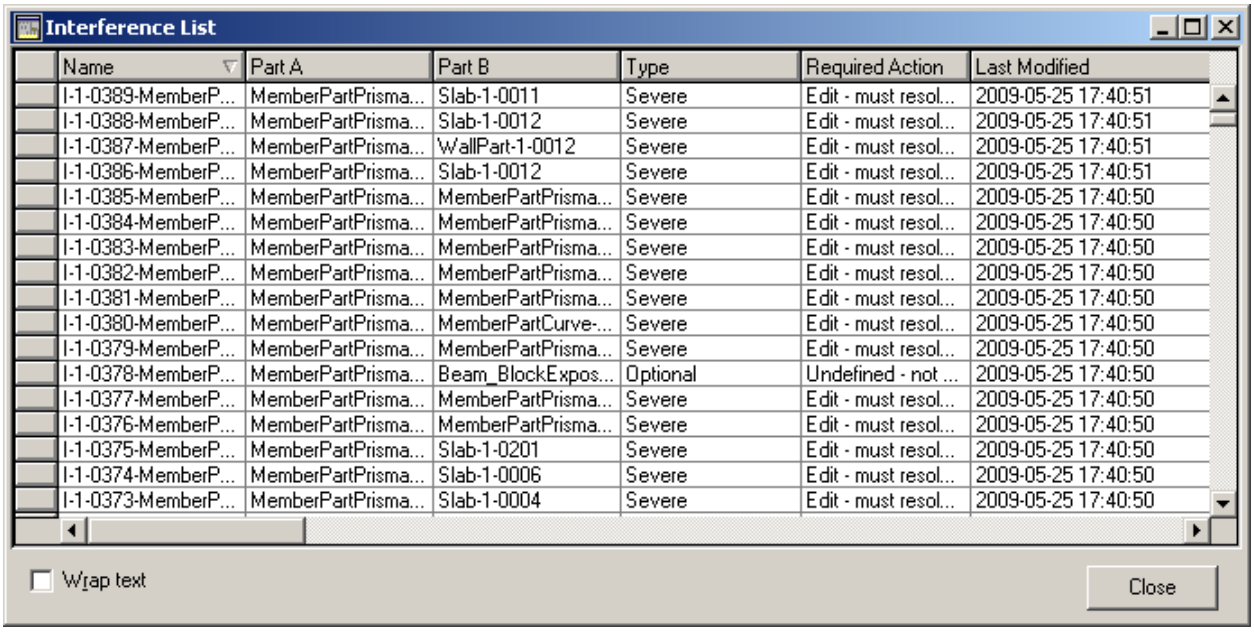
12. When process reaches 99% or 100% start **Smart Plant 3D**, define a workspace on plant **SP3DTrain** with the **All** filter.

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

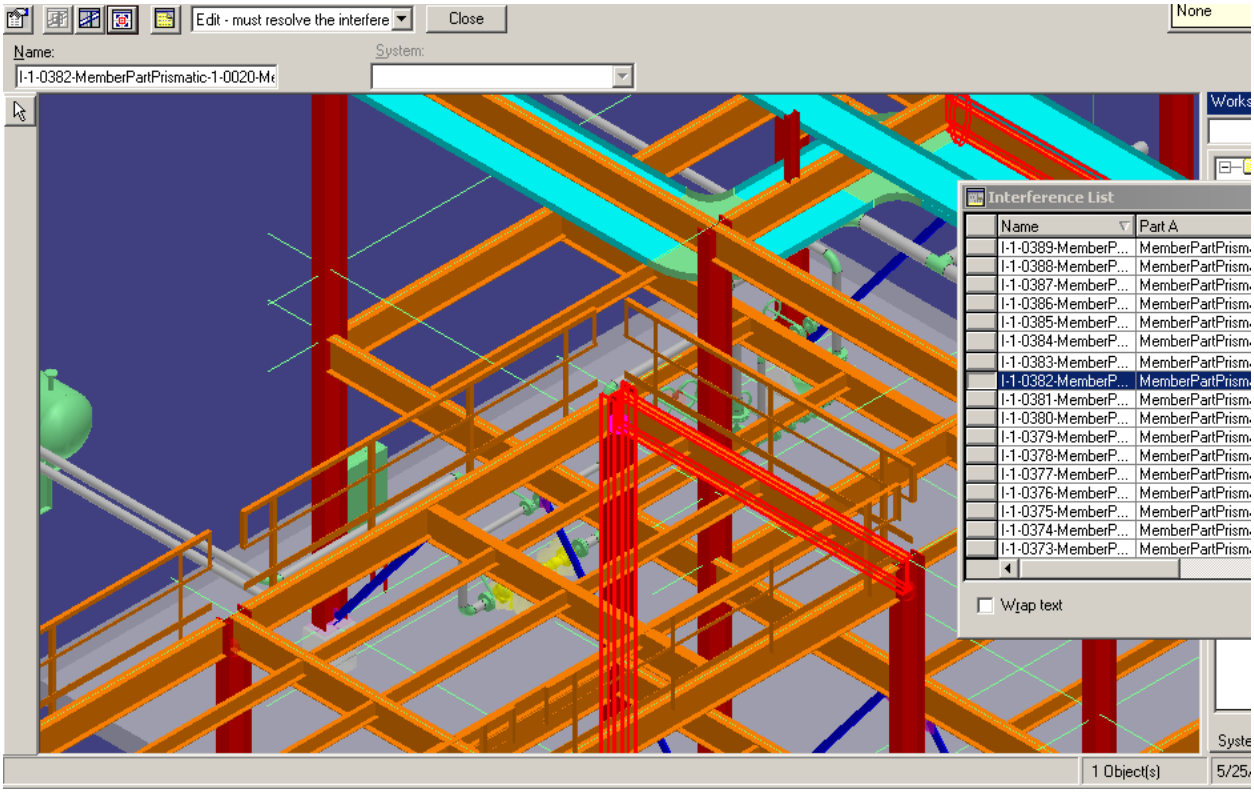




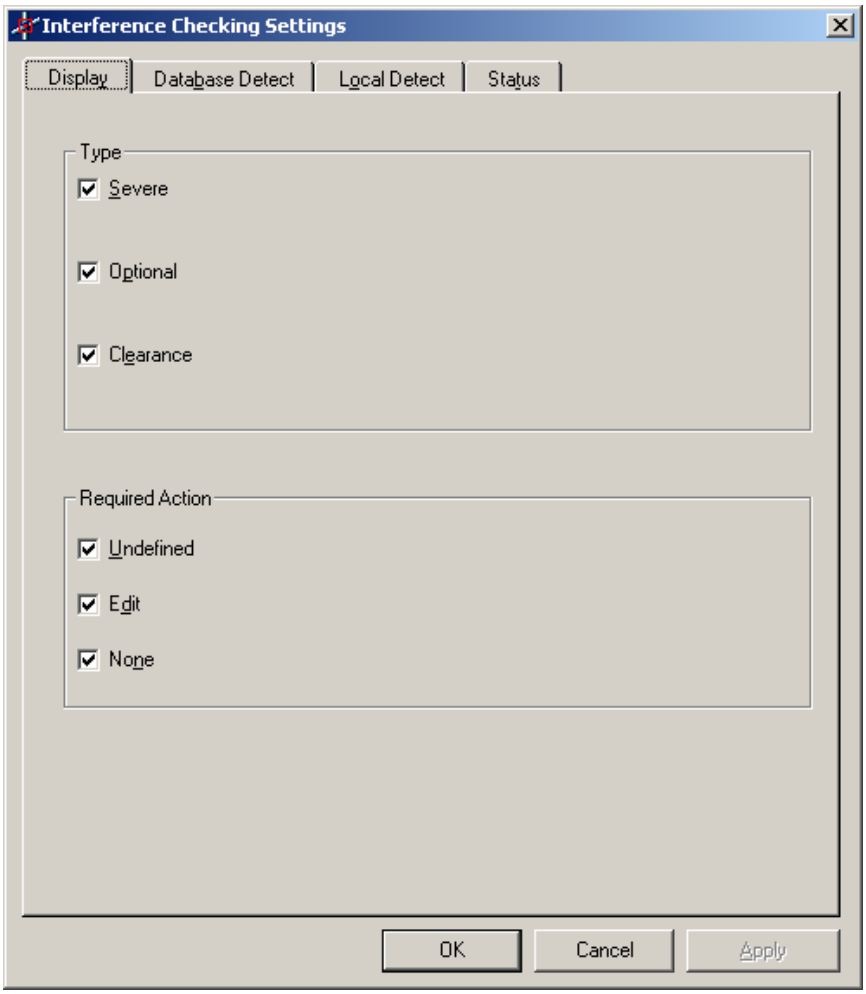
15. Hold the **Ctrl** key and select any **row header** from this list, the IFC object will be highlighted.

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.

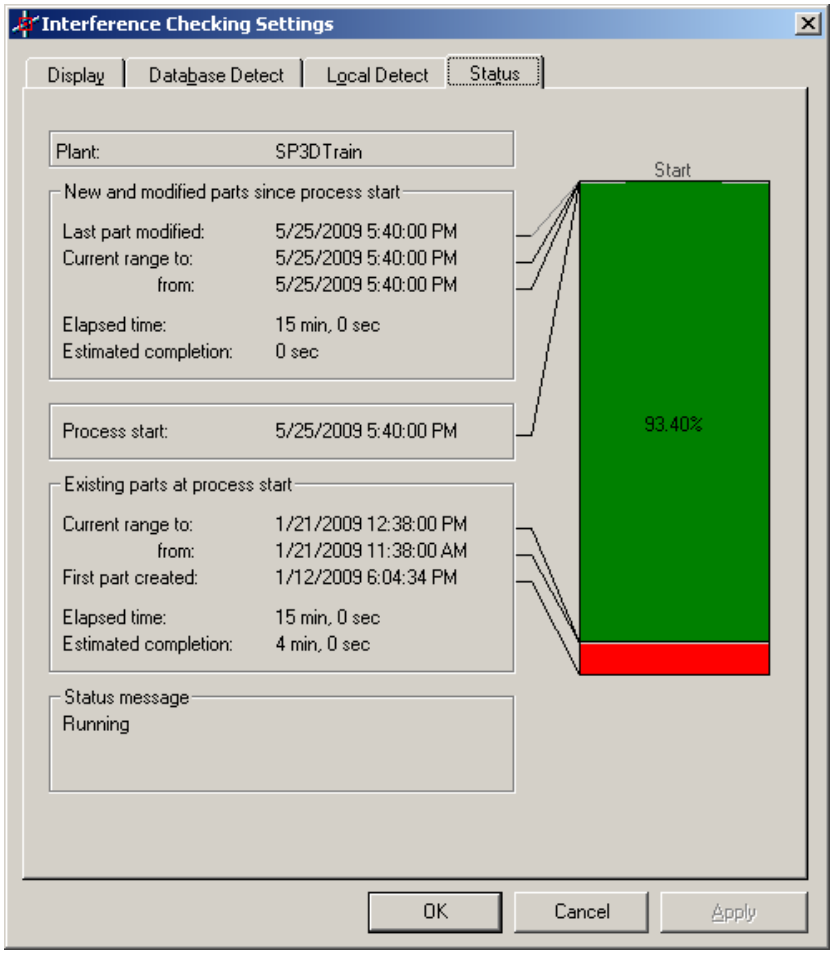


18. Any user can turn on/off the IFC objects that are displayed graphically on a session by using  Settings button to access following form

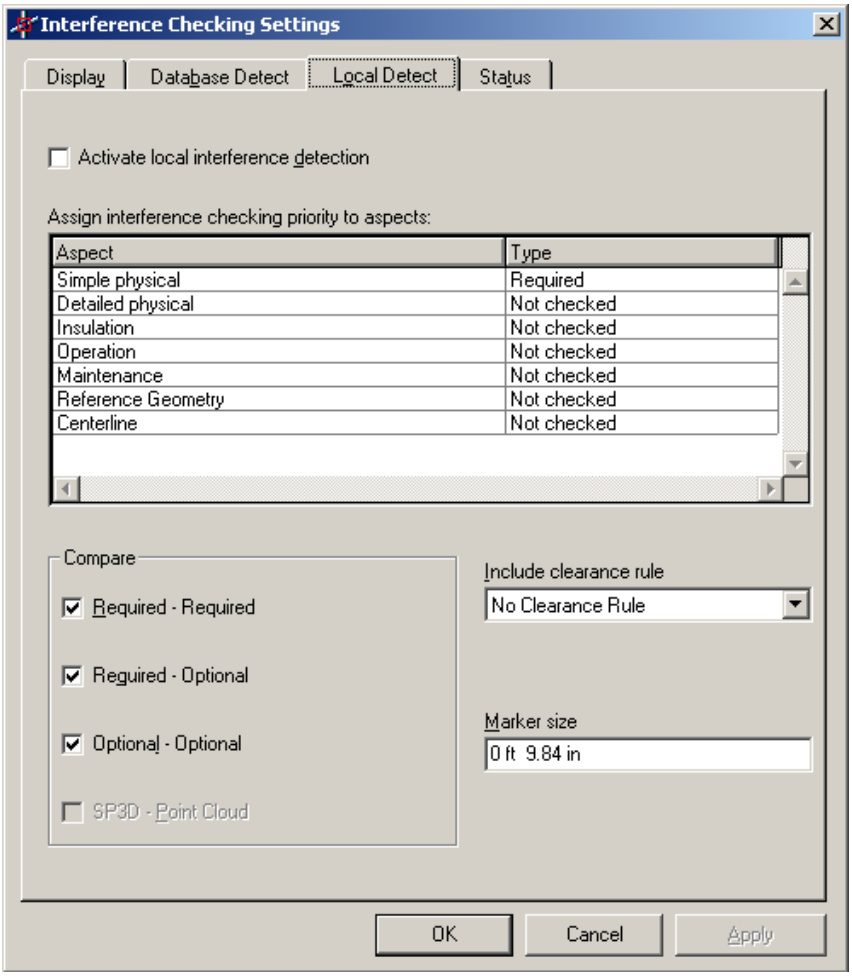


19. De-selecting checkboxes from Type or Required Action sections will hide IFC markers from the current view (though they will still exist in the database).

20. The status tab can also be used to review progress of database detect in workstations where project management is not installed.



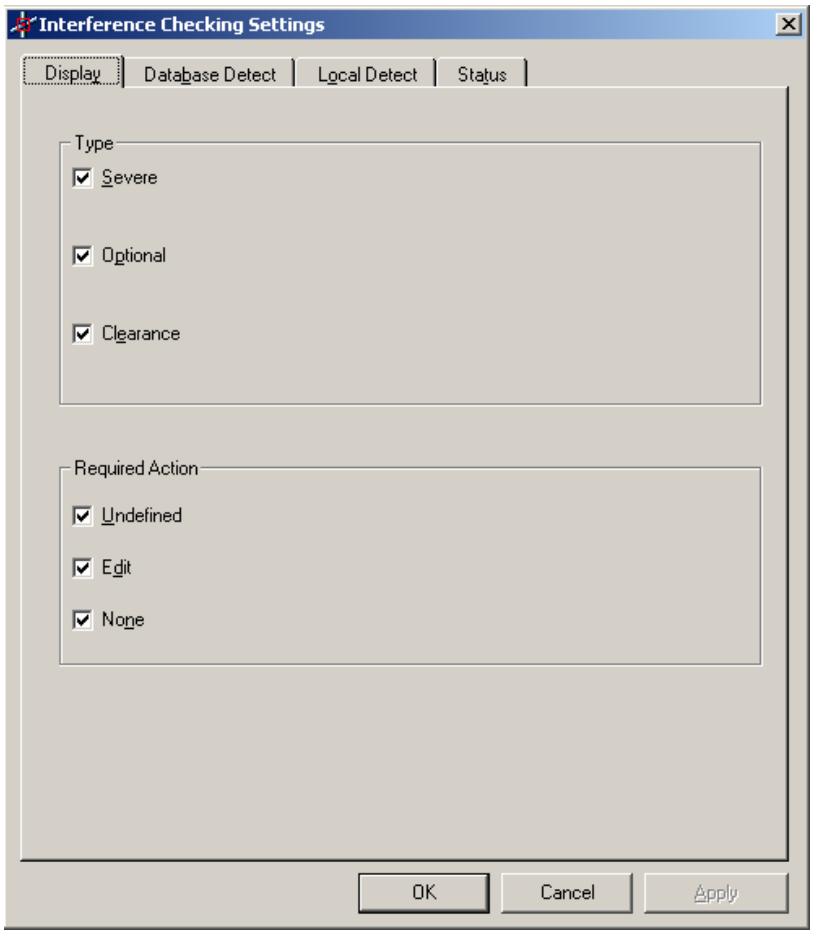
21. On **Local Detect** tab you will find options to set and start local interference checking. Note the options you that can be set are basically the same as the settings for database detect, however, the user is free to modify them according to his/her needs. Local IFC will not interfere with Database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



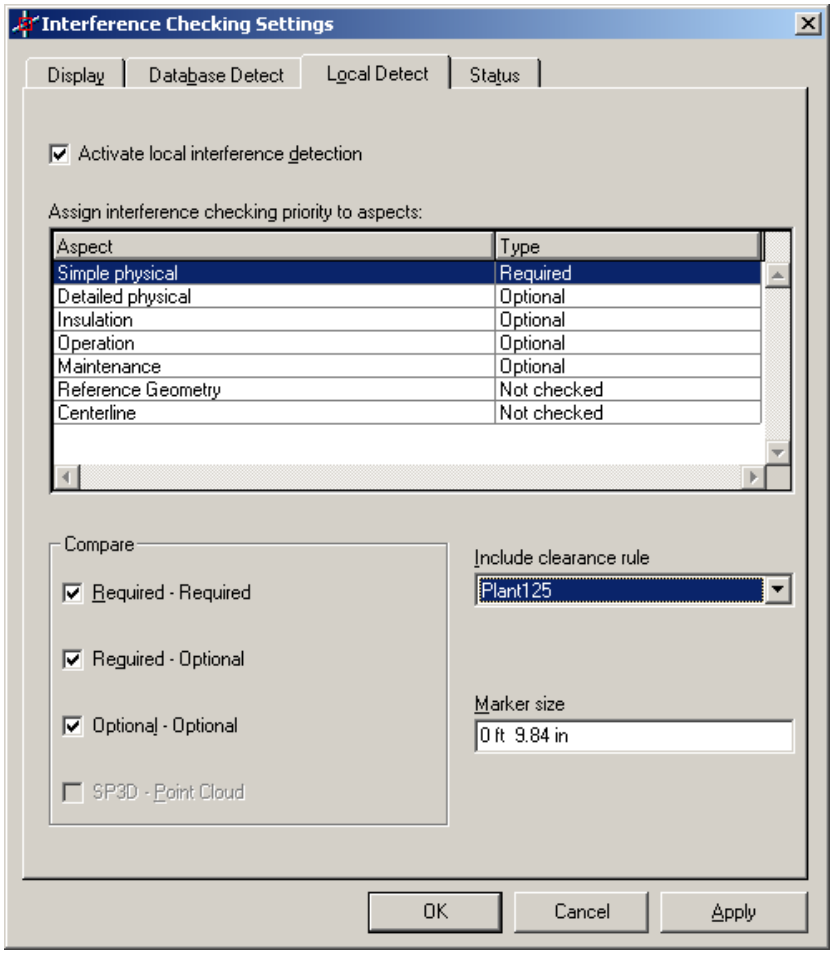
22. **Close** interference checking settings form.
23. Enable **Interference list** from the toolbar or bring it to focus. Expand it so as to see the Notes column.
24. Click the notes field of any IFC entry and start typing a Note. Try to find this interference in the Model and review its properties, 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

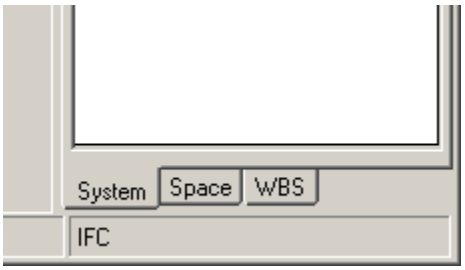
1. Start **SmartPlant 3D** (Start → All Programs → Intergraph SmartPlant 3D → SmartPlant 3D) if not already open.
2. **Define a workspace** using the **All** filter or refresh the session.
3. If IFC toolbar is not already enabled, from the **Tools** menu, select **Check Interference**.
4. Click the left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



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

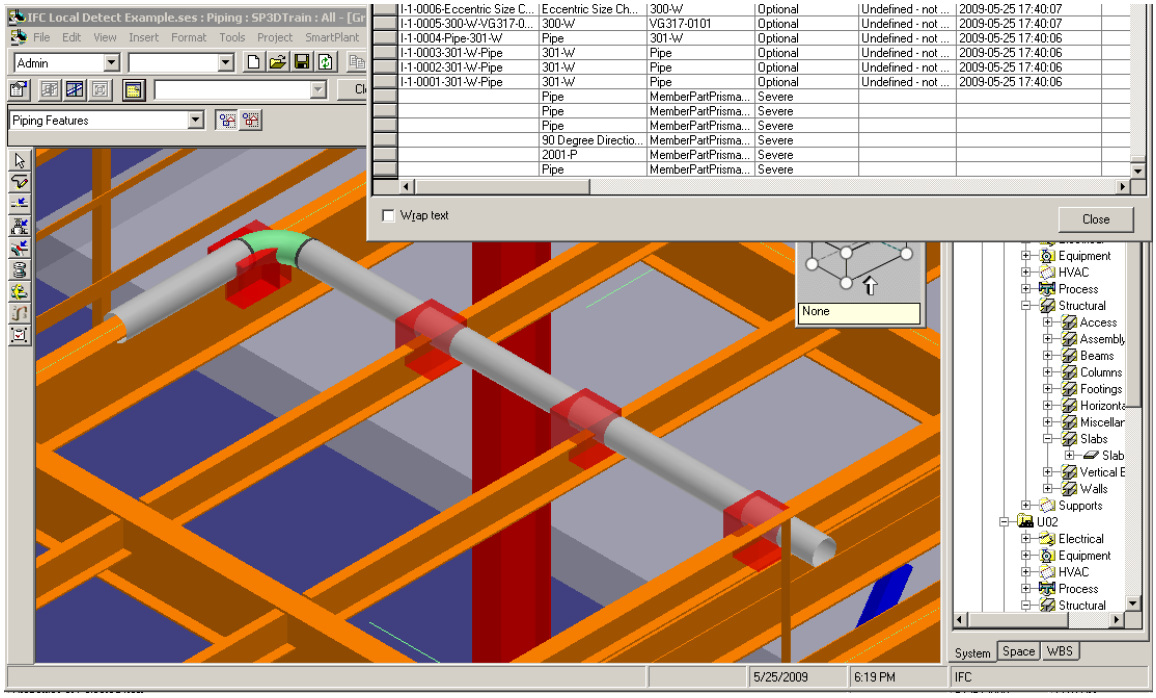


6. Click **OK**.
7. Note that now there is an IFC entity in the bottom left of the SP3D window:

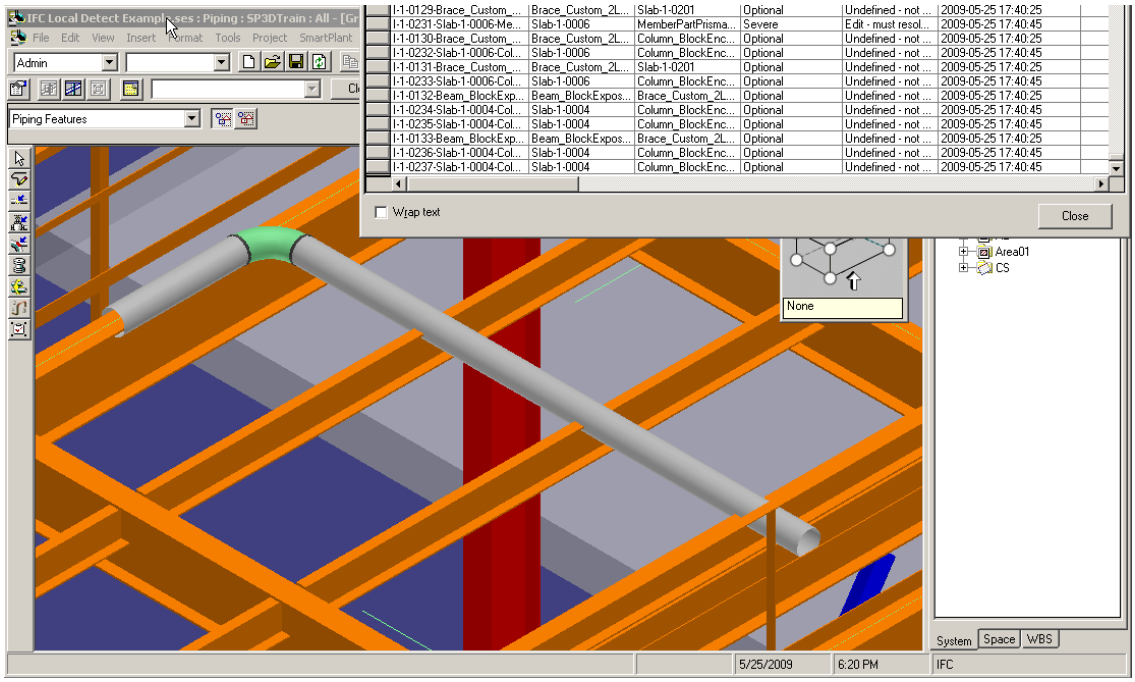


8. **Save** session file as “IFC Local Detect Example.ses”
9. Because this class is presumed to be taken before the Equipment or Piping classes, the instructor may guide you through some adhoc simple examples to show that the Local Detect is now working. You may also try to generate some clashes by doing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



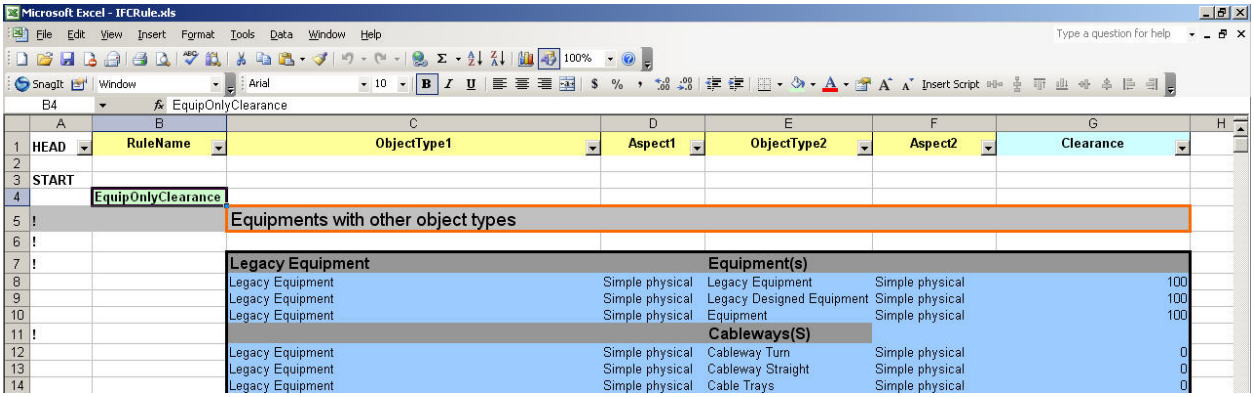
11. Do a **Refresh** to the workspace and note that local detect markers disappear, while database detect IFC markers (if any) remain.



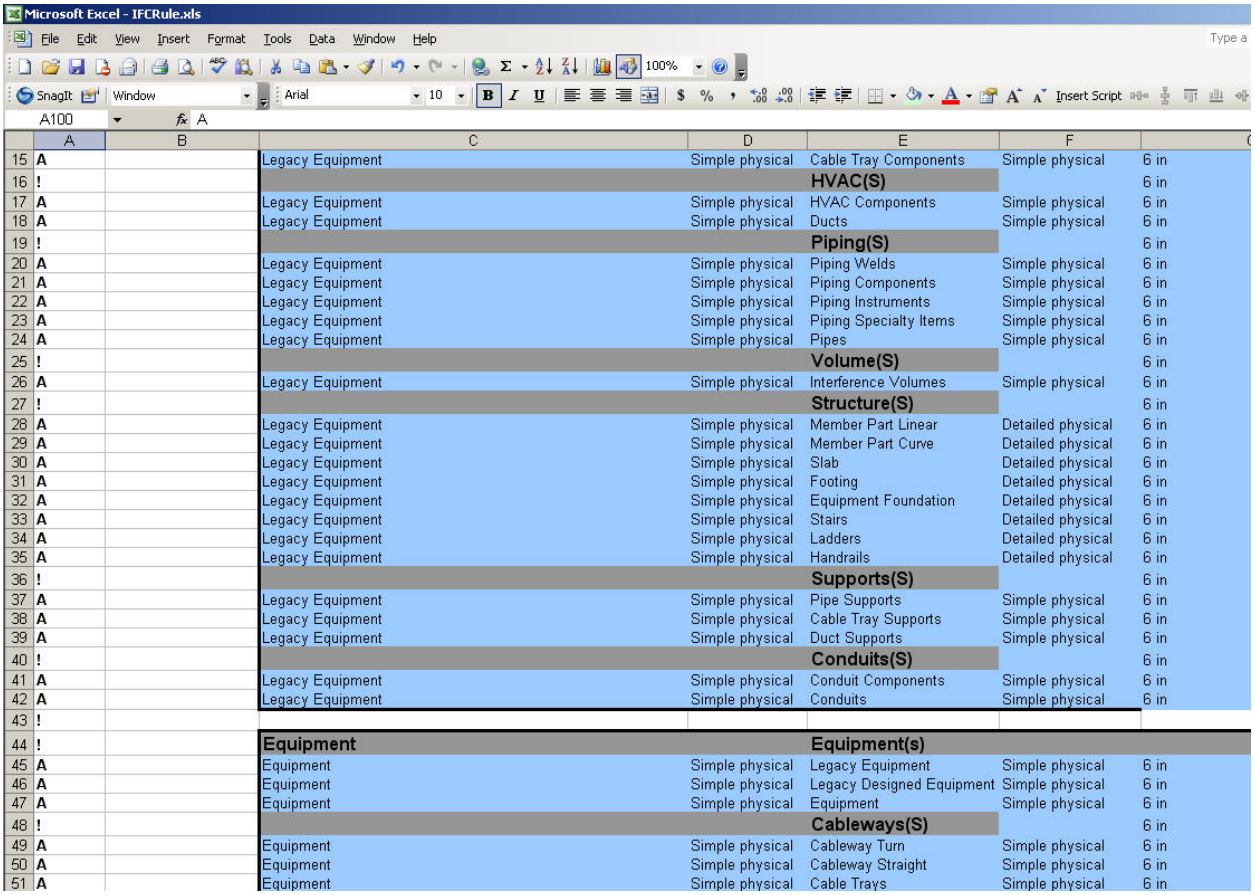
12. Try to create one of each clash type (hard, soft and clearance) depending on the rules previously set when enabling local detect.

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.



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.



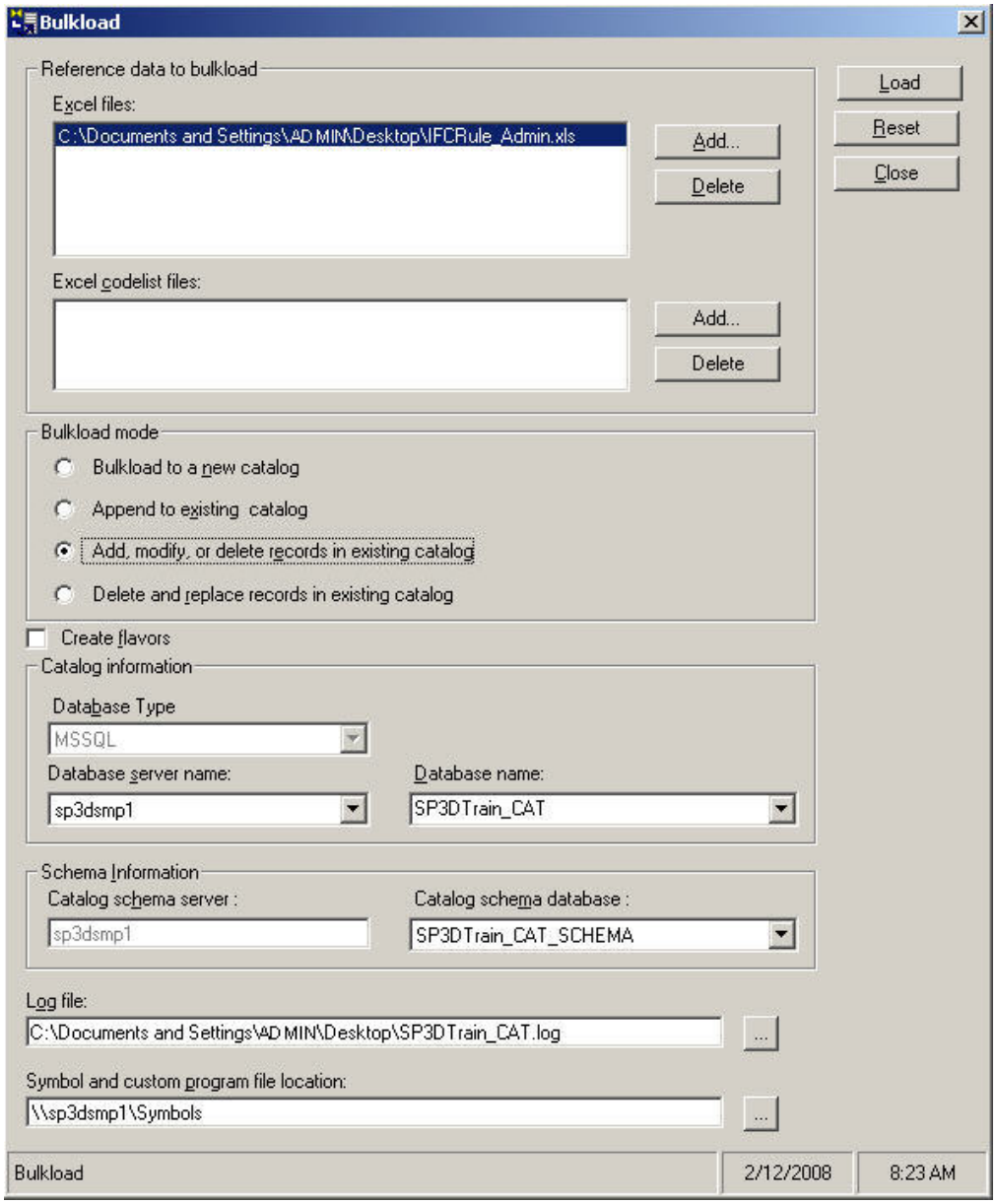
Microsoft Excel - IFCRule.xls

File Edit View Insert Format Tools Data Window Help

A100 A

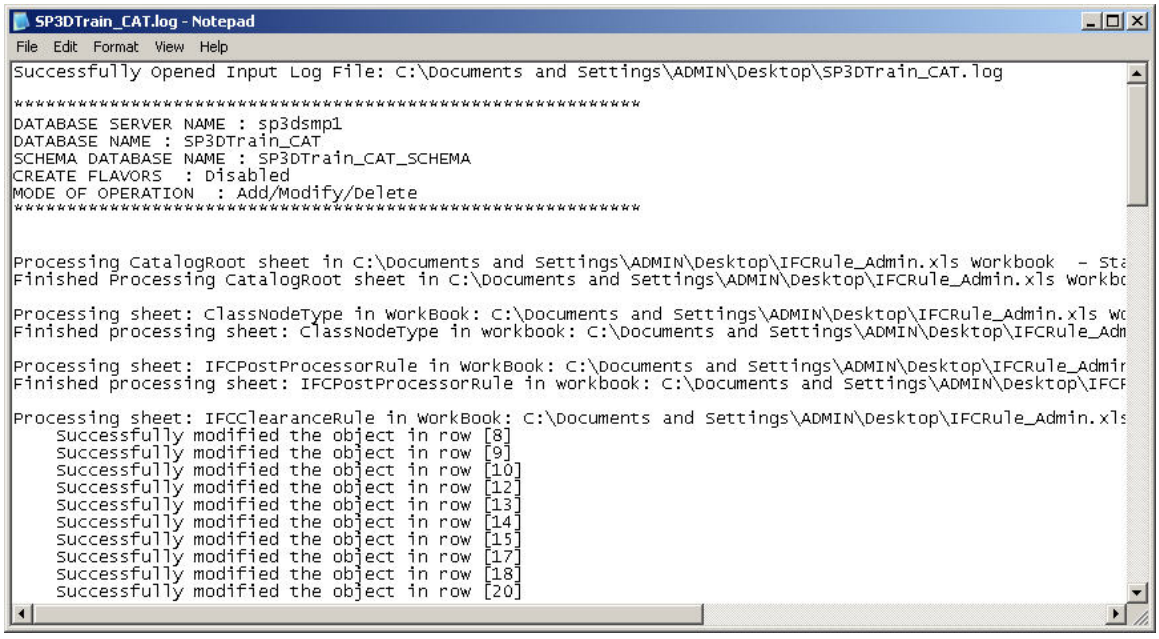
	A	B	C	D	E	F	
15	A		Legacy Equipment	Simple physical	Cable Tray Components	Simple physical	6 in
16	!				**HVAC(S)**		6 in
17	A		Legacy Equipment	Simple physical	HVAC Components	Simple physical	6 in
18	A		Legacy Equipment	Simple physical	Ducts	Simple physical	6 in
19	!				**Piping(S)**		6 in
20	A		Legacy 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	Footing	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

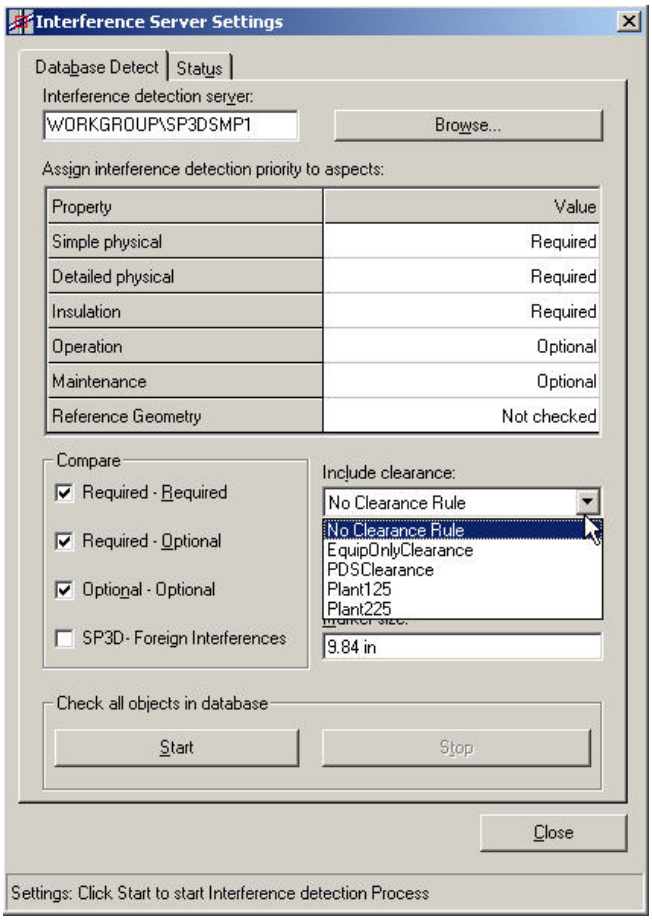


17. Click Load.

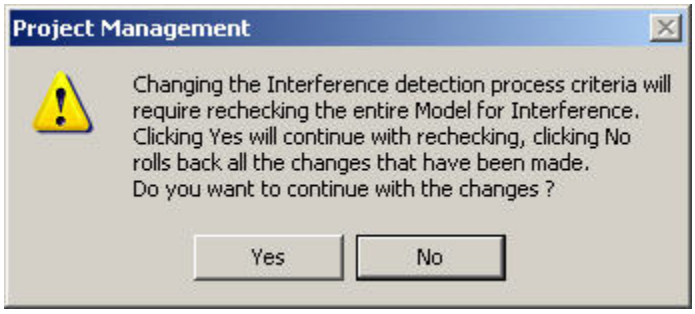
18. Review the log file for any errors. Correct as necessary.



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.