

# SmartPlant 3D

## *Setup and Administration Course Guide*

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Process, Power & Marine



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# Course Agenda

**Domain Prep (Simulated)**

**Software Installation**

**Creating Databases**

**Permissions and Access Control**

**Simple (Single Plant) Backups**

**Three Plant Restoration Methods**

**Deleting a Plant**

**Restoring a Complete Backup (Site, Catalog, Model)**

**Multi-plant Backups and Calculating Backup sizes**

**Synchronizing the Model with the Catalog**

**New Catalog command (Standalone Catalog Creation)**

**Database Maintenance**

**Database Integrity**

**Reference a PDS Project**

**Common Applications of SmartPlant 3D**

**Interference Checking**

**SP3D Error Logs**

**Global Work share Overview**

# 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
2. Create new users named piping1, pipe1, pipe2, stru1, stru2
3. Create new groups named Pipe, Stru, SP3Dadmins, SP3Dusers, ProjectA
4. Assign users to groups as follows

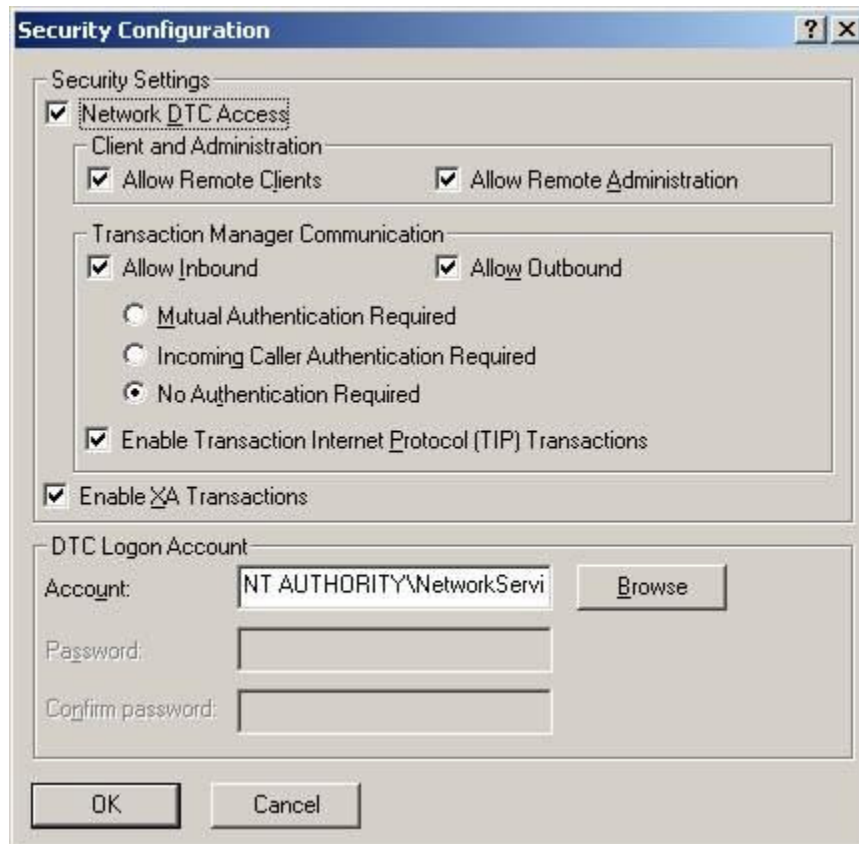
Group	Users
Pipe	pipe1, pipe2
Stru	stru1, stru2
SP3Dusers	pipe1, pipe2, stru1, stru2
SP3Dadmins	pipe1, stru1, administrator
ProjectA	pipe1, stru1

# Install and configure database, prerequisites and SP3D

In class, a functioning database system may already be provided. **Proceed to install and configure required software following the installation guide provided with the SP3D CD.** 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:

Control Panel>Admin Tools>Component Services>Computers>My Computer-Properties-MSDTC-Security Configuration:

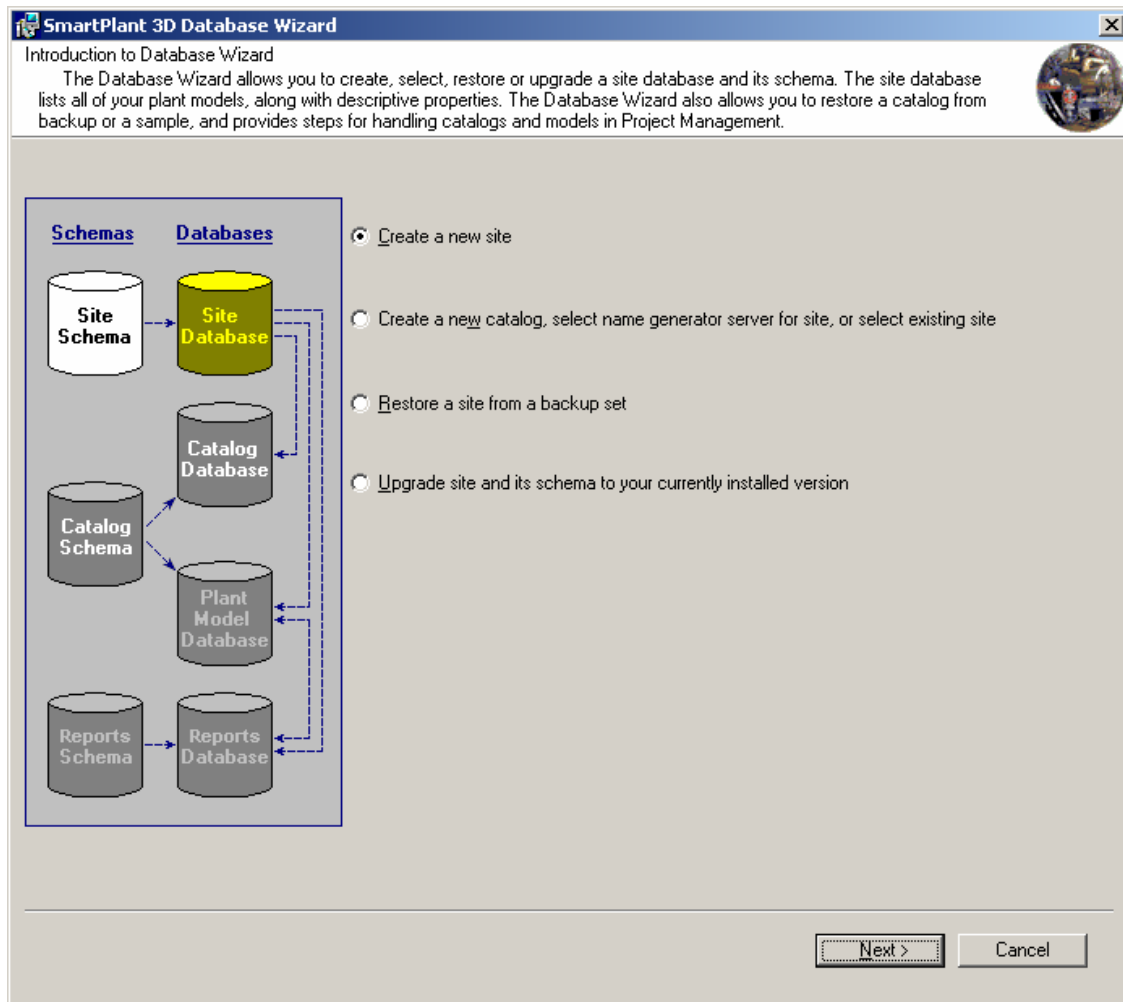


On an entirely stand-alone machine this may not be required for SP3D to function.

# LAB 2: Create new site, catalog and plant

## Create new site and catalog

1. Start the Database Wizard using Start → Programs → Intergraph SmartPlant 3D → Database Tools → Database Wizard



2. Select the option to “Create a new site database”. Click Next.

**SmartPlant 3D Database Wizard**

**Create Site Database and Schema**

To create a new site database, identify the server and give the site database a name and workshare location. Select the site schema template file (for example, AppRepos.dat) and then identify the schema server and give the site schema a name.

Database type:

Create site database

Site database server:

Site database name:

Site database workshare location:

Name rule ID:

Name generator server for site:

Paths for site database files

Physical database:  
 ...

Log file:  
 ...

Create site schema

Template file to be used to create site schema:  
 ...

Site schema server:

Site schema name:

Paths for site schema files

Physical database:  
 ...

Log file:  
 ...

< Back    Next >    Cancel

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

Database type:

Cr Oracle

Site database server:

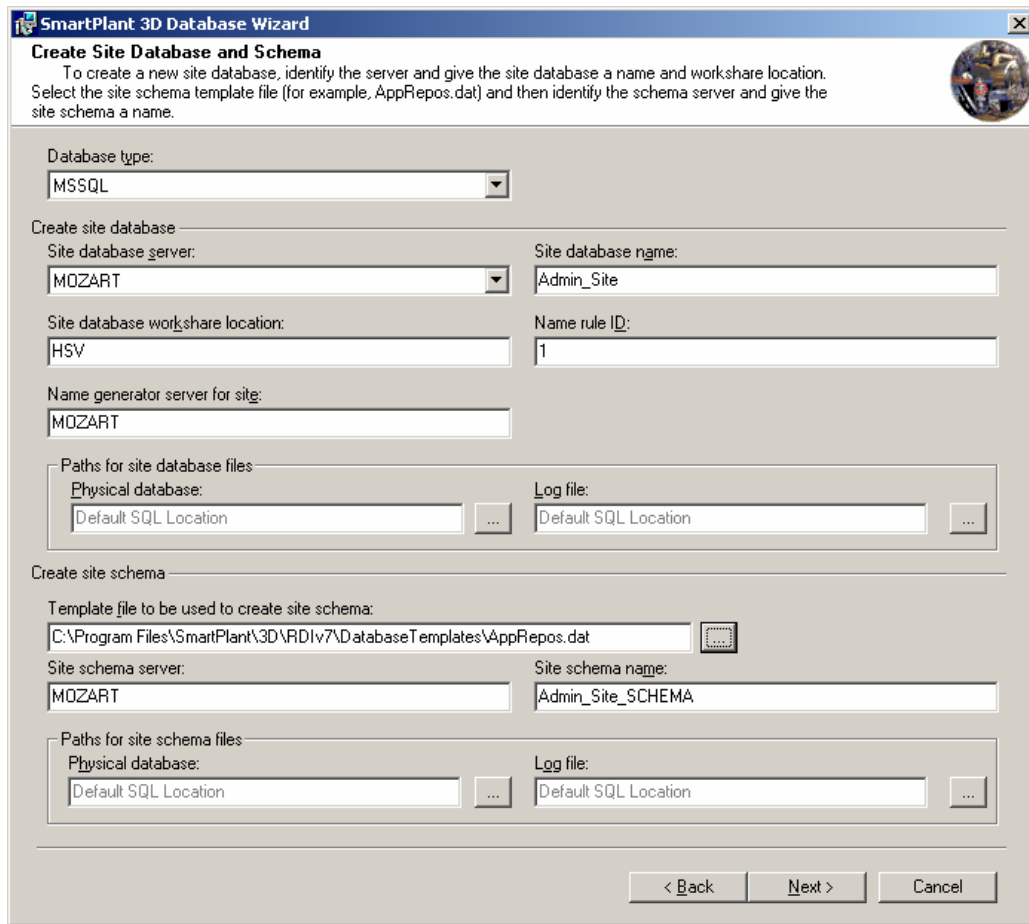
Site

Adi

4. From the pick 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\_Site"
6. Enter 'HSV' (or any other text value) for the Site Database Workshare location
7. In the Name Rule ID type "1".
8. Input the Name Generator Location for Site. This identifies the machine where the Name Generator Service (NGS) COM+ application is installed. In a stand alone setup this will be the machine name of the computer you are working on.



9. Pick the ... next to the Template file for site schema and pick [Server Data Install Directory]\DatabaseTemplates\AppRepos.dat (AppRepos.dmp if Oracle)



The screenshot shows the 'SmartPlant 3D Database Wizard' window, specifically the 'Create Site Database and Schema' step. The window has a title bar with the SmartPlant logo and a close button. Below the title bar is a section titled 'Create Site Database and Schema' with a brief instruction: 'To create a new site database, identify the server and give the site database a name and workshare location. Select the site schema template file (for example, AppRepos.dat) and then identify the schema server and give the site schema a name.'

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

**Create site database section:**

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

**Create site schema section:**

- Template file to be used to create site schema:** A text field containing 'C:\Program Files\SmartPlant\3D\RD1v7\DatabaseTemplates\AppRepos.dat' with a browse button (...).
- Site schema server:** A text field containing 'MOZART'.
- Site schema name:** A text field containing 'Admin\_Site\_SCHEMA'.
- Paths for site schema files:**
  - Physical database:** A text field containing 'Default SQL Location' with a browse button (...).
  - Log file:** A text field containing 'Default SQL Location' with a browse button (...).

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

Note: Screenshot above is assuming an MSSQL setup: principle different is the “Database type:” and “Template file to be used to create site schema”. For MSSQL setups the path is as it would be when read from the Server machine (direct path, not UNC). For Oracle, UNC path can be utilized.

10. Click Next

**SmartPlant 3D Database Wizard**

**Catalog Database and Schema**

You will need a Catalog Database to create a plant model. You can create a new catalog using the Bulkload program under SmartPlant 3D. Or you can restore a catalog from backup by identifying the server and giving the restored catalog a name below. Or you can use a catalog that already exists on a server by connecting the catalog to the model using Project Management.

Database type:

☒ Restore catalog from backup  
☐ Use existing catalog already on server (You will choose the catalog to link to your plant model later in Project Management.)

Create catalog database

Catalog database server:  Catalog database name:

Paths for catalog database files

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

Symbols and custom program file folder:  ...

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

Create catalog schema

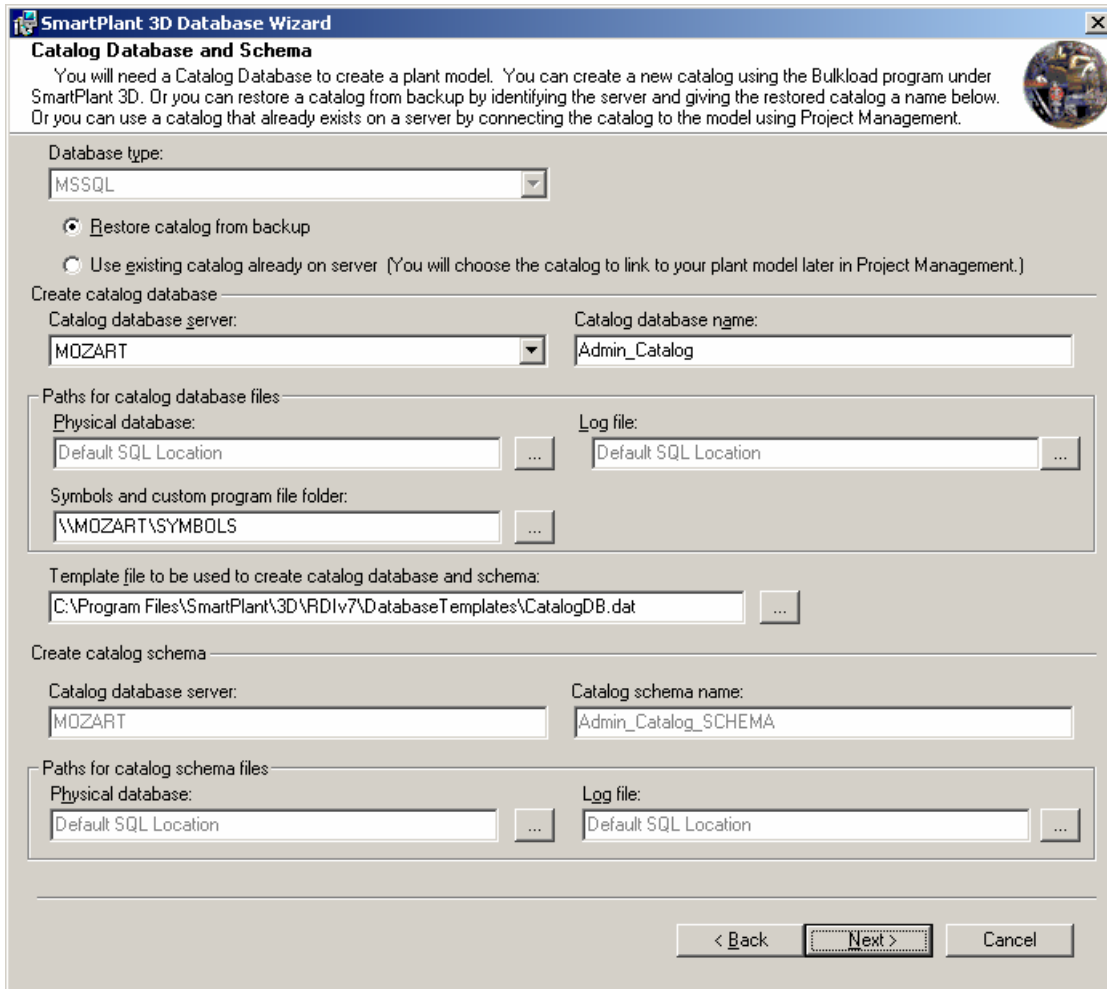
Catalog database server:  Catalog schema name:

Paths for catalog schema files

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

< Back Next > Cancel

11. Select server name for catalog database server
12. Name the catalog "Admin\_Catalog"
13. For the symbols and custom program files location enter \\servername\symbols (if your machine is networked or has loopback adapter installed), if not enter [Server Data Install Directory]\CatalogData\Symbols
14. Pick the ... next to the Template file for catalog database schema and pick [Server Data Install Directory]\DatabaseTemplates\CatalogDB.dat (CatalogDB.dmp if Oracle)



**SmartPlant 3D Database Wizard**

**Catalog Database and Schema**

You will need a Catalog Database to create a plant model. You can create a new catalog using the Bulkload program under SmartPlant 3D. Or you can restore a catalog from backup by identifying the server and giving the restored catalog a name below. Or you can use a catalog that already exists on a server by connecting the catalog to the model using Project Management.

Database type:  
MSSQL

☒ Restore catalog from backup  
☐ Use existing catalog already on server (You will choose the catalog to link to your plant model later in Project Management.)

Create catalog database

Catalog database server: MOZART Catalog database name: Admin\_Catalog

Paths for catalog database files

Physical database: Default SQL Location Log file: Default SQL Location

Symbols and custom program file folder: \\MOZART\SYMBOLS

Template file to be used to create catalog database and schema:  
C:\Program Files\SmartPlant\3D\RD1v7\DatabaseTemplates\CatalogDB.dat

Create catalog schema

Catalog database server: MOZART Catalog schema name: Admin\_Catalog\_SCHEMA

Paths for catalog schema files

Physical database: Default SQL Location Log file: Default SQL Location

< Back Next > Cancel

Note: Screenshot above is assuming an MSSQL setup: principle different is the “Database type:” and “Template file to be used to create site schema”. For MSSQL setups the path is as it would be when read from the Server machine (direct path, not UNC). For Oracle, UNC path can be utilized.

15. Click Next



16. Click CreateDB

**SmartPlant 3D Database Wizard**

**Final Instructions for Completing the Database Wizard**

You have successfully completed the Database Wizard. For informational purposes, the names of the Site and Catalog Databases you created are displayed below. Verify in Explorer that the "Symbols and custom program files location" folder has been shared. Then click "Finish". Use the New Plant command in Project Management to create the remaining databases.

The following databases have been successfully created.

Site database: <input type="text" value="Admin_Site"/>	Site schema: <input type="text" value="Admin_Site_SCHEMA"/>
Catalog database: <input type="text" value="Admin_Catalog"/>	Catalog schema: <input type="text" value="Admin_Catalog_SCHEMA"/>

Verify that the "Symbols and custom program files location" folder, which you declared while defining the catalog, has been shared.

Share name:

Directory folder:

Server name:

Note: Administrator may need to adjust the permissions of this share.

After you click the "Finish" button on this Database Wizard, you must use the Project Management task to create the remaining required databases. For more information about creating the required SmartPlant 3D databases, see the SmartPlant 3D Administrator's Guide, available from the Help > Printable Guides command in the software.

**Finish**

17. After process is complete, click Finish

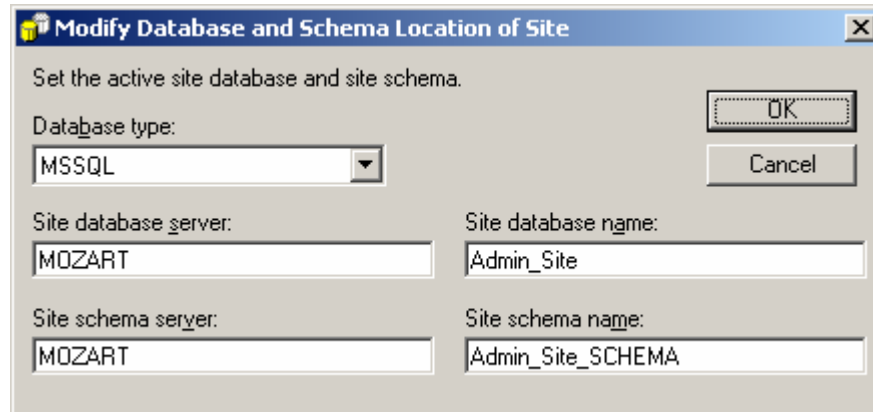
18. Review the log file at %temp%\SQLOutPutFileForRestore.log

SQLOutPutFileForRestore.log - Notepad

```
File Edit Format View Help
[Microsoft][ODBC SQL Server Driver][SQL Server]10 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]20 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]30 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]40 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]50 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]60 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]70 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]80 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]90 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]100 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 40200 pages for database 'Admin_Catalog', file 'catalogdb'
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 4 pages for database 'Admin_Catalog', file 'catalogdb_log'
[Microsoft][ODBC SQL Server Driver][SQL Server]RESTORE DATABASE successfully processed 40204 pages in 14.435 seconds
[Microsoft][ODBC SQL Server Driver][SQL Server]10 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]20 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]30 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]40 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]50 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]60 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]70 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]80 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]90 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]100 percent processed.
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 6824 pages for database 'Admin_Catalog_SCHEMA', file 'APPREPOS'
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 1 pages for database 'Admin_Catalog_SCHEMA', file 'APPREPOS'
[Microsoft][ODBC SQL Server Driver][SQL Server]RESTORE DATABASE successfully processed 6825 pages in 11.688 seconds
```

## Verify new site creation

1. Start the Modify Database and Schema Location using Start → Programs → Intergraph SmartPlant 3D → Database Tools → Modify Database and Schema Location
2. The form will display the location of your Site Database and Site\_Schema:



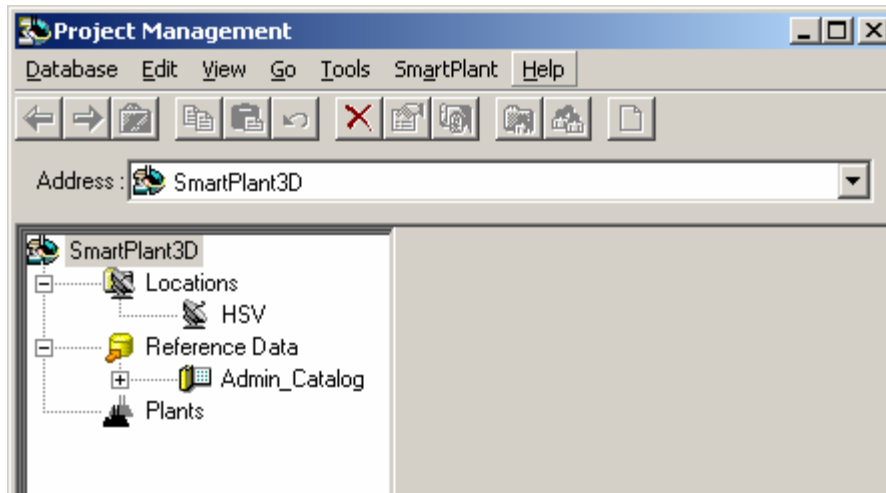
The dialog box is titled "Modify Database and Schema Location of Site". It contains the following fields and controls:

- Database type: A dropdown menu showing "MSSQL".
- Site database server: A text box containing "MOZART".
- Site database name: A text box containing "Admin\_Site".
- Site schema server: A text box containing "MOZART".
- Site schema name: A text box containing "Admin\_Site\_SCHEMA".
- Buttons: "OK" and "Cancel".

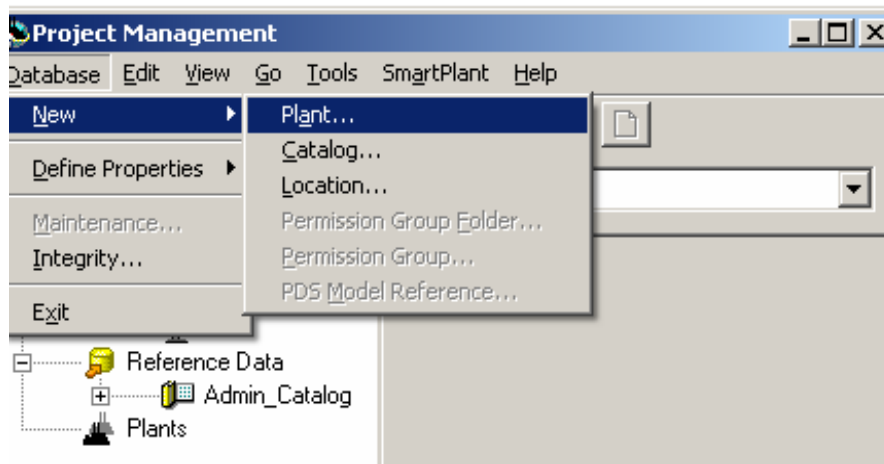
Note: This connection information can be manually entered on Client machines to allow them to connect to this Site DB and the Plants that it will manage.

## Create new plant

1. Enter Project management using Start → Programs → Intergraph SmartPlant 3D → Project Management



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



3. Fill in the General tab of the New Plant dialog, completing the General Tab first.

Property	Value
Name	Admin_Plant
Description	Plant Administration Training
Site	
Owner	your company name

4. Complete Databases tab as follows. Complete each row providing information for the Catalog, Model, and Report Databases. Remember to identify the Name Generator machine as you did previously for the Site Database on the DB Wizard form.

**New Plant** [X]

General | **Databases**

Plant databases:

Type	DB Provider	Server	Name
Catalog	MSSQL	MOZART	Admin_Catalog
Model	MSSQL	MOZART	Admin_Plant_MDB
Reports	MSSQL	MOZART	Admin_Plant_RDB

Name generator server for plant:

Locations for the model database files

Physical database:  
 ...

Log file:  
 ...

OK Cancel

- Click OK to create the plant and then review the result pane when completed.

**Plant Databases** [X]

Model

Model database server:  Model database name:

Catalog

Catalog database server:  Catalog database name:

Catalog schema server:  Catalog schema name:

Reports

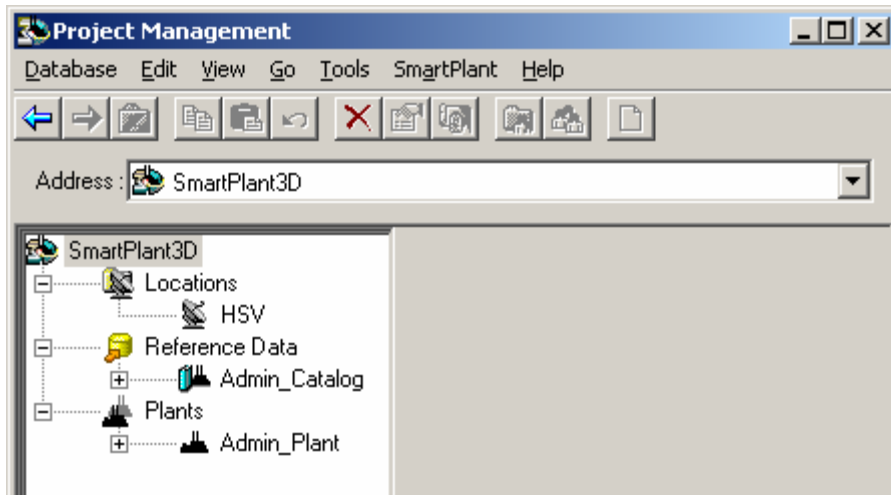
Reports database server:  Reports database name:

Reports schema server:  Reports schema name:

OK



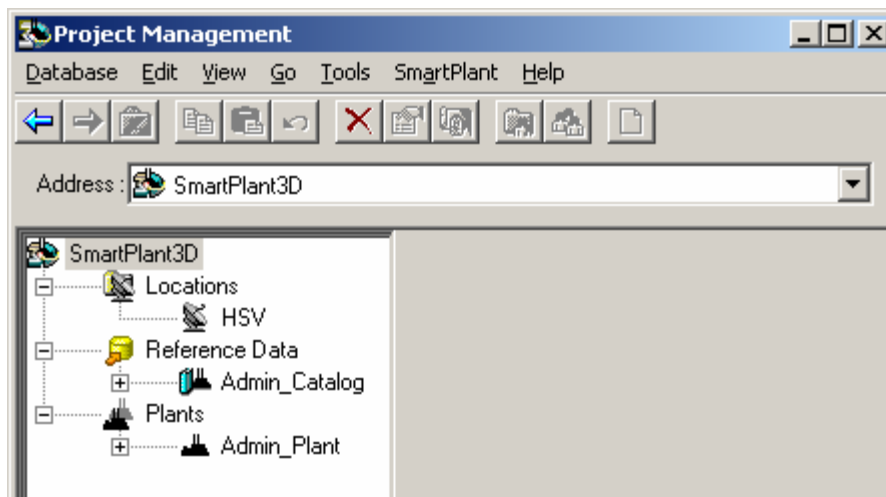
6. Review the Project Management Tree and observe the change in the Icon for the Catalog. This is a result of the Catalog being associated to a Plant database. Before, it was unassigned.



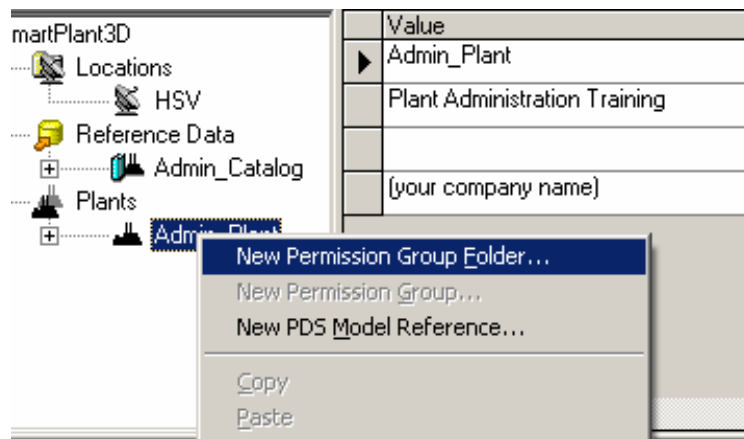
## LAB 3: Create permission groups and assign permissions

### Create Permission Groups

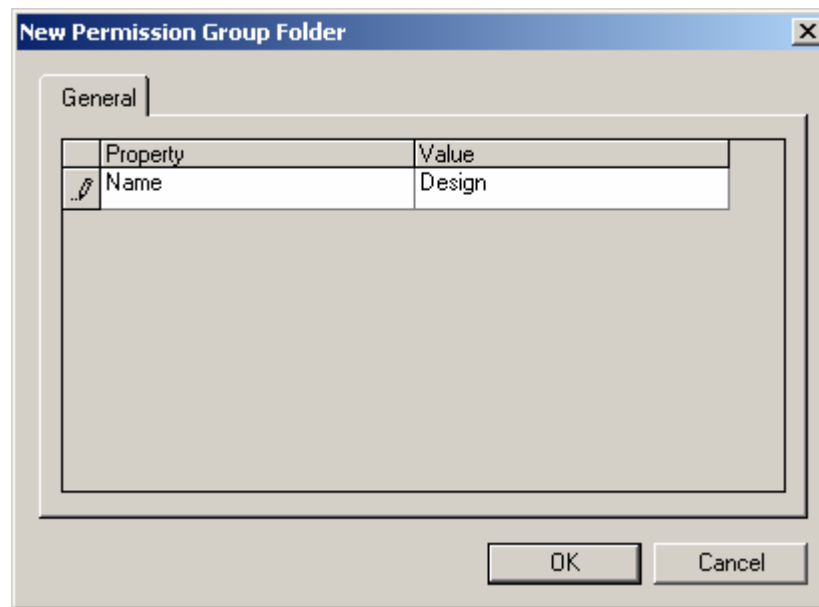
1. If required, enter Project management using Start → Programs → Intergraph SmartPlant 3D → Project Management



2. Select Admin\_Plant
3. Right-click on “Admin Plant” and select “New Permission Group Folder...”

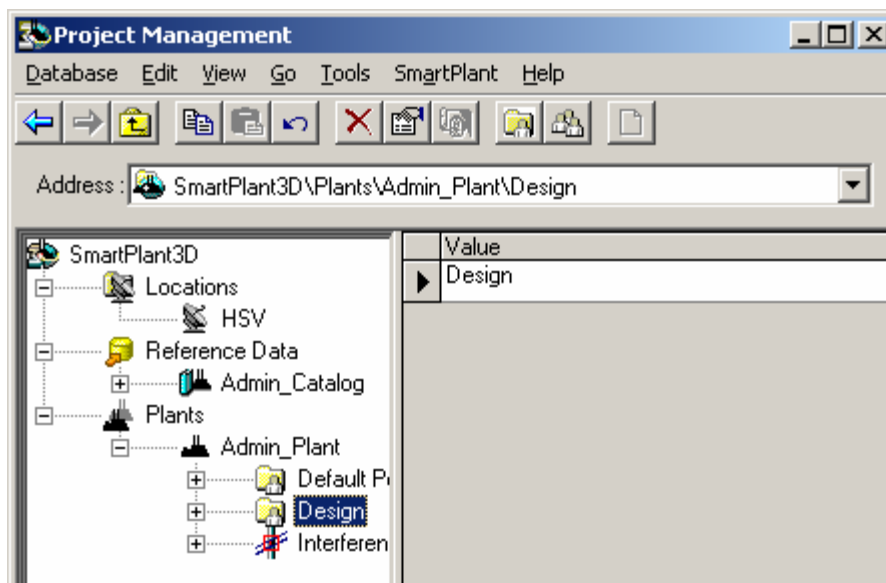


4. Name the folder 'Design'

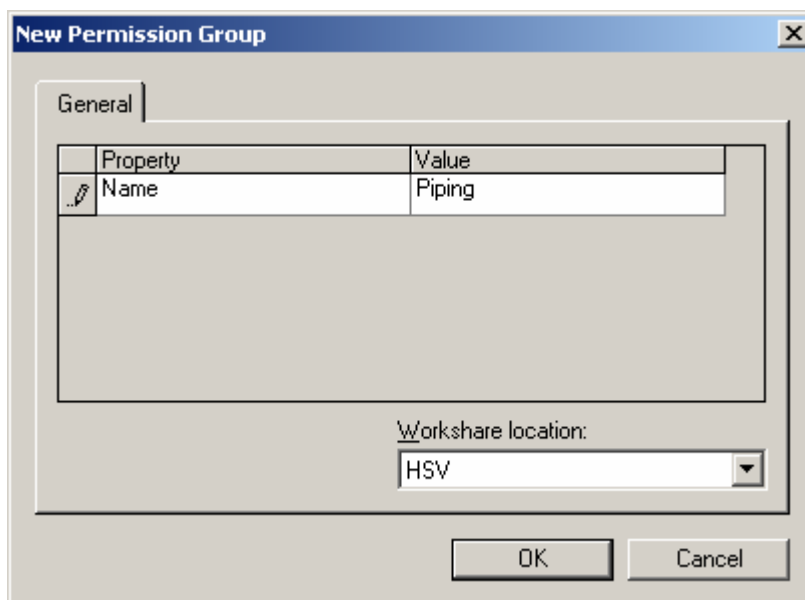


5. Expand the Tree by clicking on the + box to the left of Admin\_Plant.

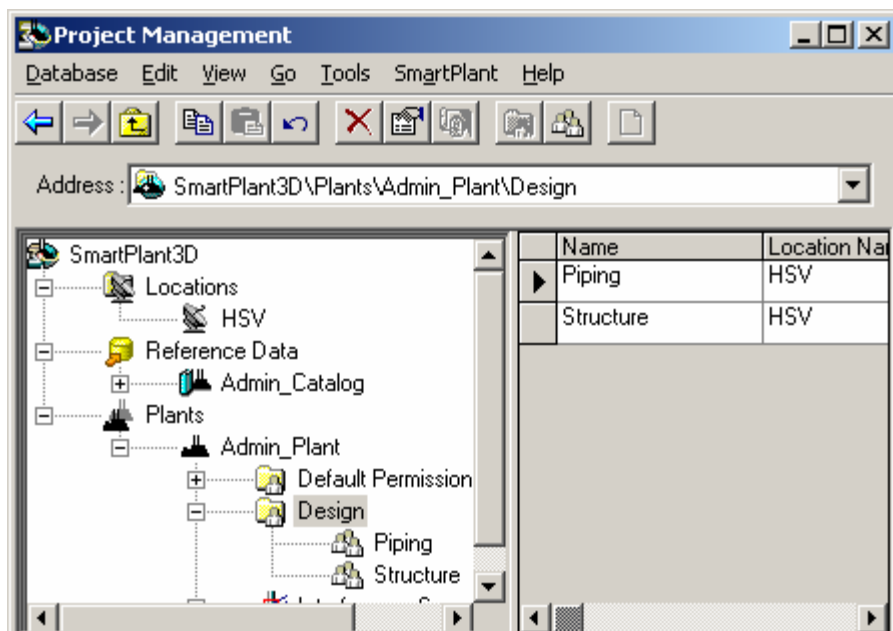
6. Select the folder "Design"



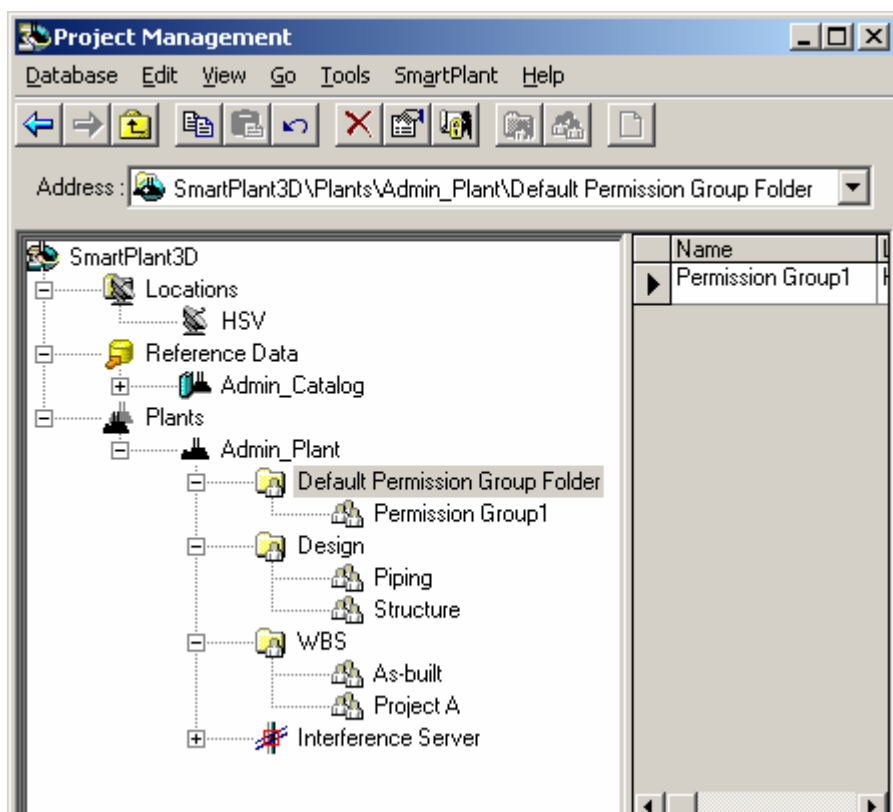
7. Right-click on “Design” and select “New Permission Group”
8. Name the group ‘Piping’



9. Click OK.
10. Create another permission group and name it ‘Structure’

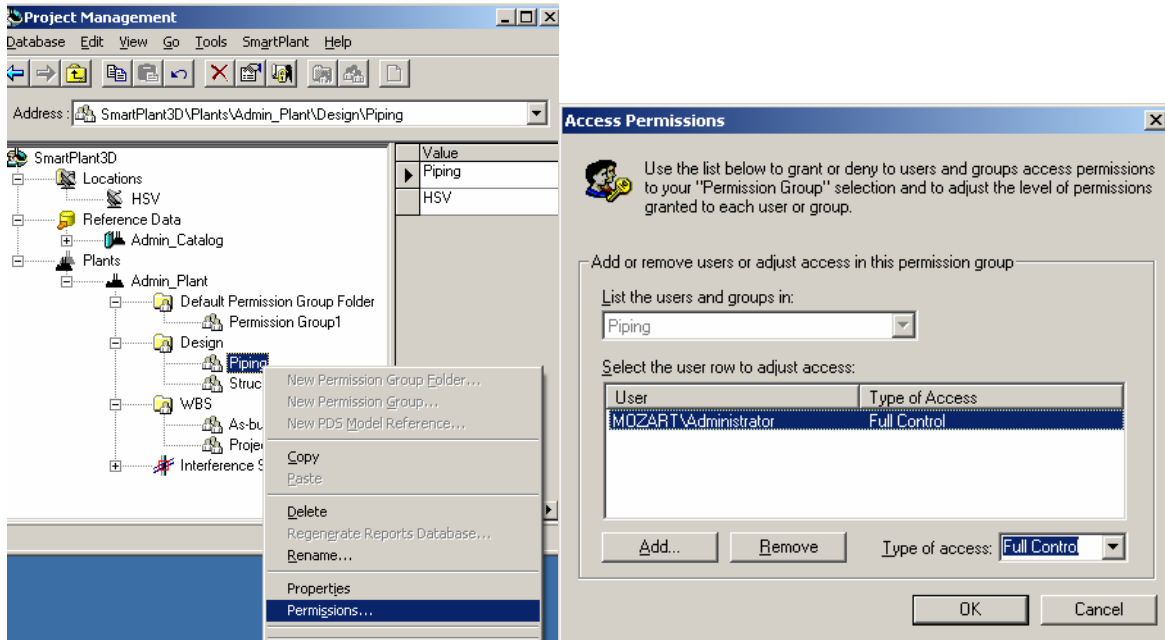


11. Similarly create the following hierarchy of permission group folder WBS and permission groups As-Built and ProjectA

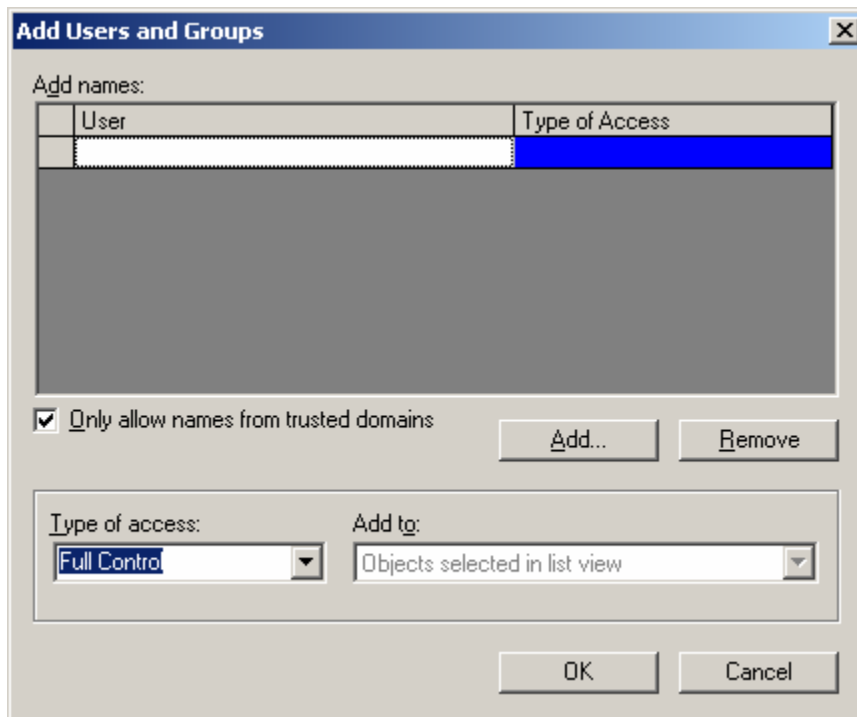


# Assign permissions in Project Management

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



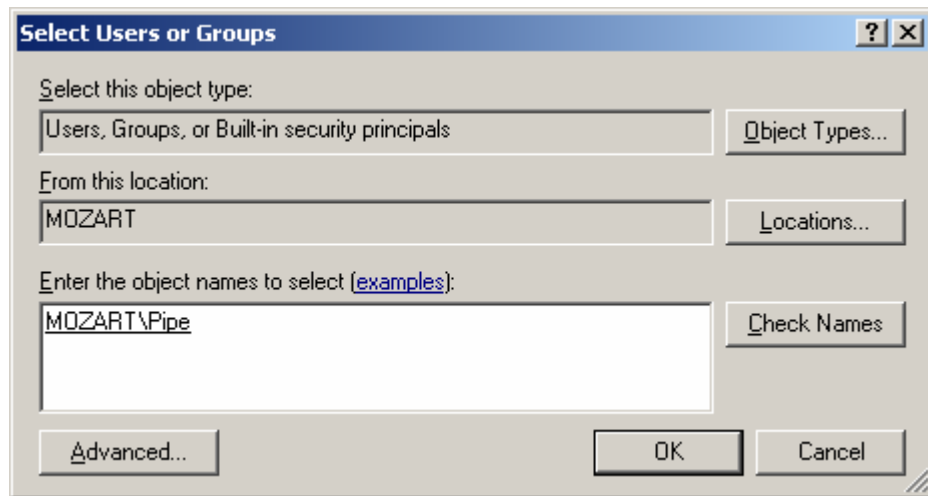
3. Click the Add... button



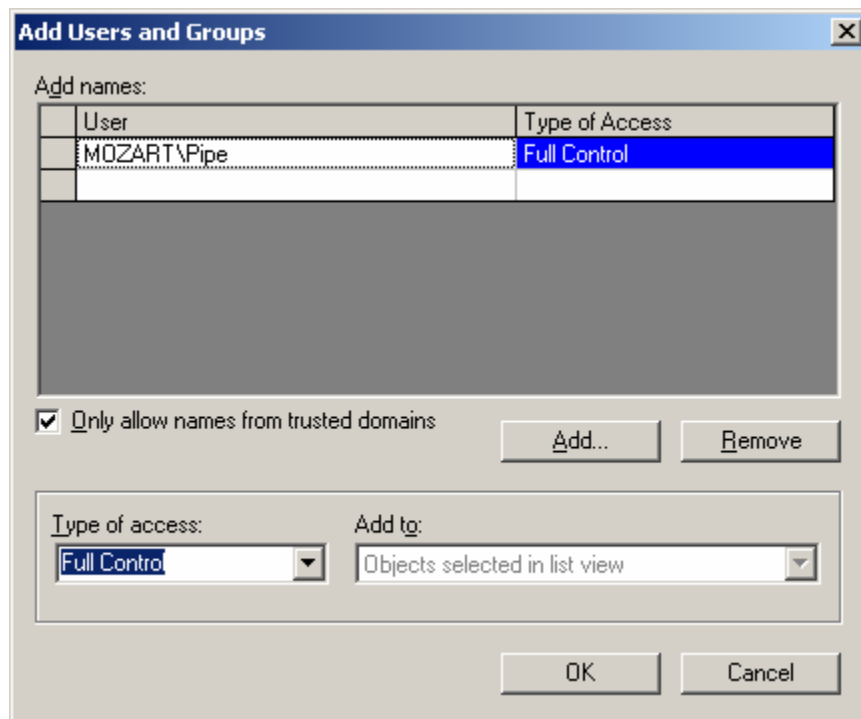
Note: This form can be operated in two modes determined by the checkbox “Only allow names from trusted domains”. If you want the form to verify the existence of the user or group on the domain controller, leave the check box selected. If you want

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.

4. Click the 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 user Pipe.



6. Click OK.



7. Use the Type of access: control to change the permission to write access.

**Add Users and Groups**

Add names:

User	Type of Access
MOZART\Pipe	Write

☒ Only allow names from trusted domains

Permissions for MOZART\Pipe

Type of access:  Add to:

8. Click OK and review the access permissions form.

**Access Permissions**

Use the list below to grant or deny to users and groups access permissions to your "Permission Group" selection and to adjust the level of permissions granted to each user or group.

Add or remove users or adjust access in this permission group

List the users and groups in:

Select the user row to adjust access:

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

Type of access:

9. Use the add... button to return to the Add Users and Groups form. This time we will add a user without verify the existence on the domain.

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

**Add Users and Groups**

Add names:

User	Type of Access
<input type="text"/>	

☐ Only allow names from trusted domains

Type of access:  Add to:

11. In the User field, key in the user Domain\Stru, in the case of this example that would be Mozart\Stru, please adjust accordingly for your setup.

12. Select that user and set the Type of Access to Read.

**Add Users and Groups**

Add names:

User	Type of Access
Mozart\Stru	Read
<input type="text"/>	

☐ Only allow names from trusted domains

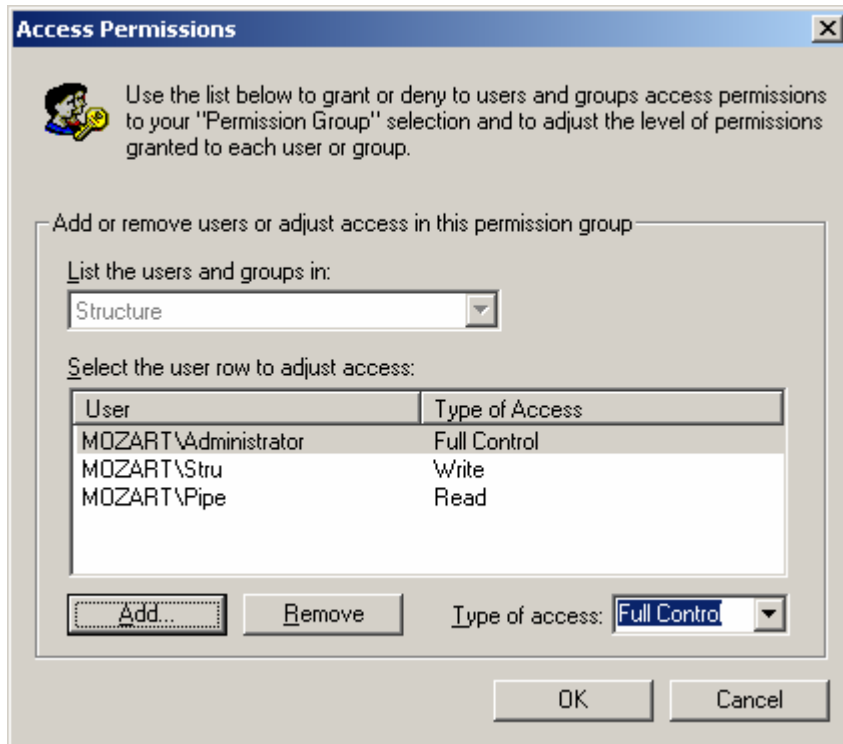
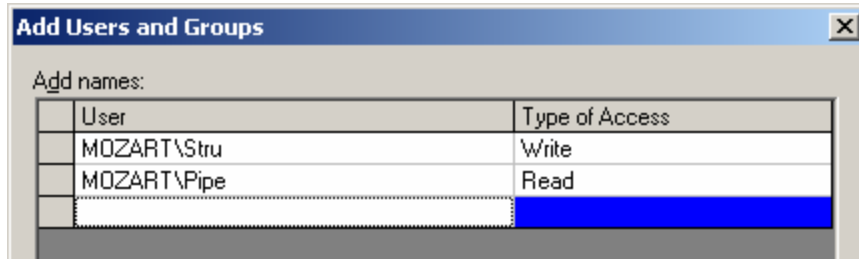
Permissions for Mozart\Stru  
Type of access:  Add to:

13. Click OK.

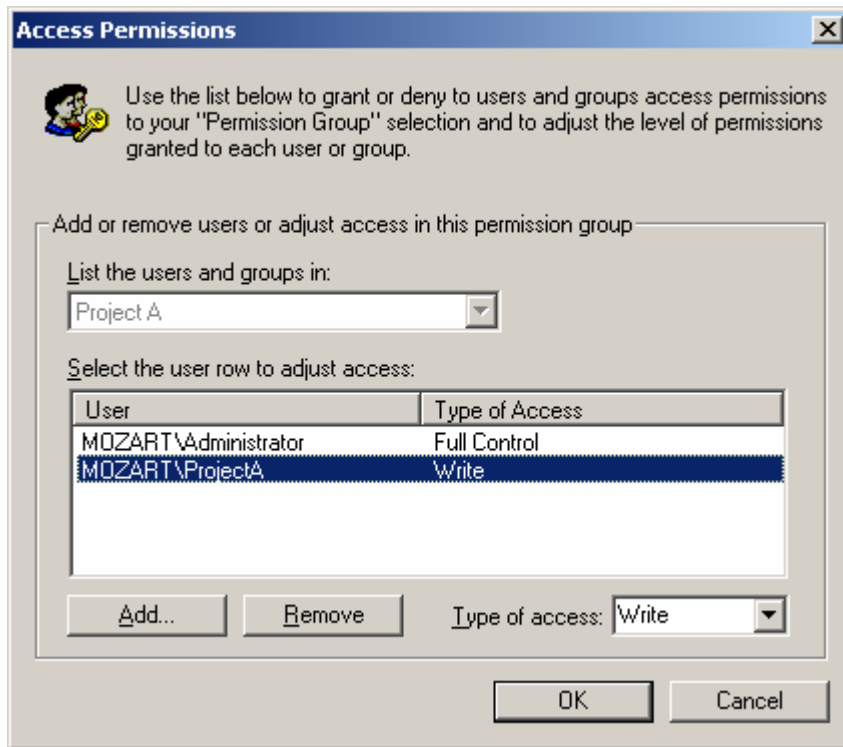
14. Review the settings.



15. Choose the option your prefer (domain verification on/off) and select the Permission Group “Structure” and assign Write to Stru and Read to Pipe groups

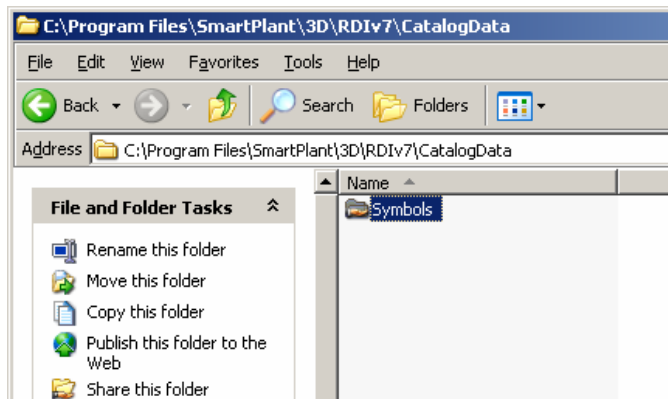


16. Choose the option you do not prefer and assign Write permissions to the ProjectA windows user group in the ProjectA SP3D permission group

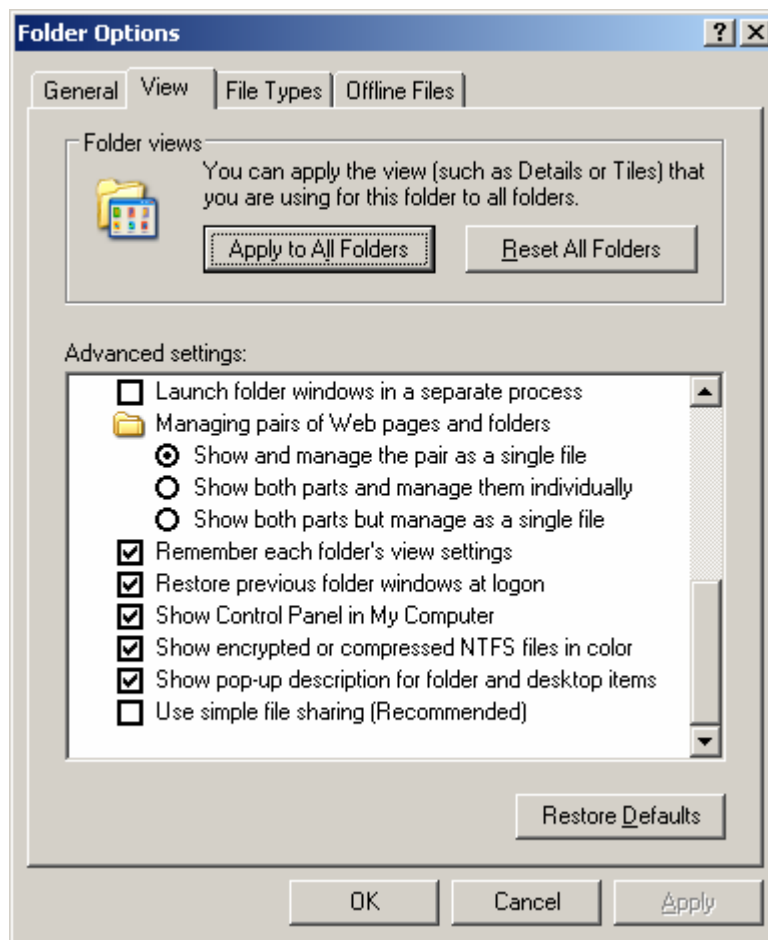


## Assign permissions in the file system

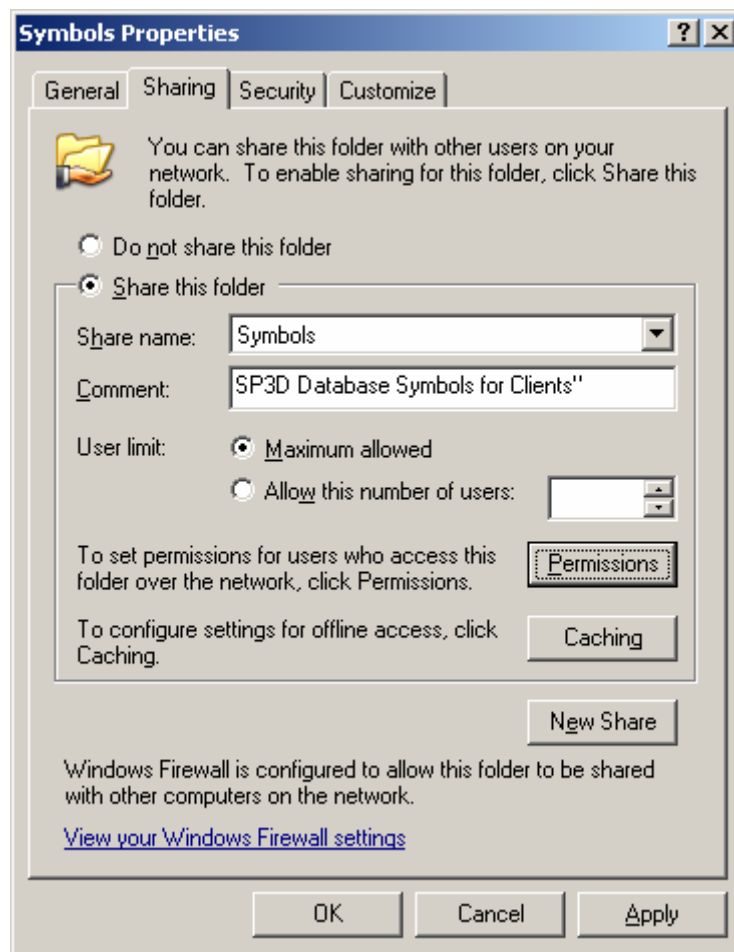
1. Using Windows Explorer open the folder where the symbols share is located. This is the [Server Install Directory]\CatalogData\Symbols folder.



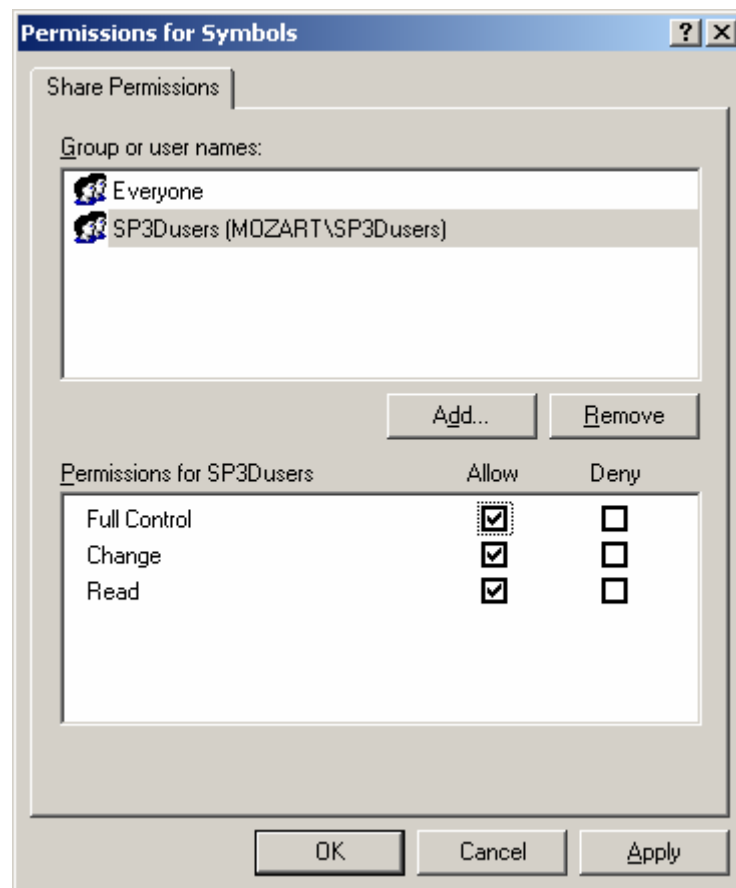
2. Modify permissions on this folder such that the SP3DUsers group has Full Control access.
3. From the Tools menu on the Explorer window, select folder options. On the view tab, ensure that the “Use simple file sharing (recommended)” is unselected.



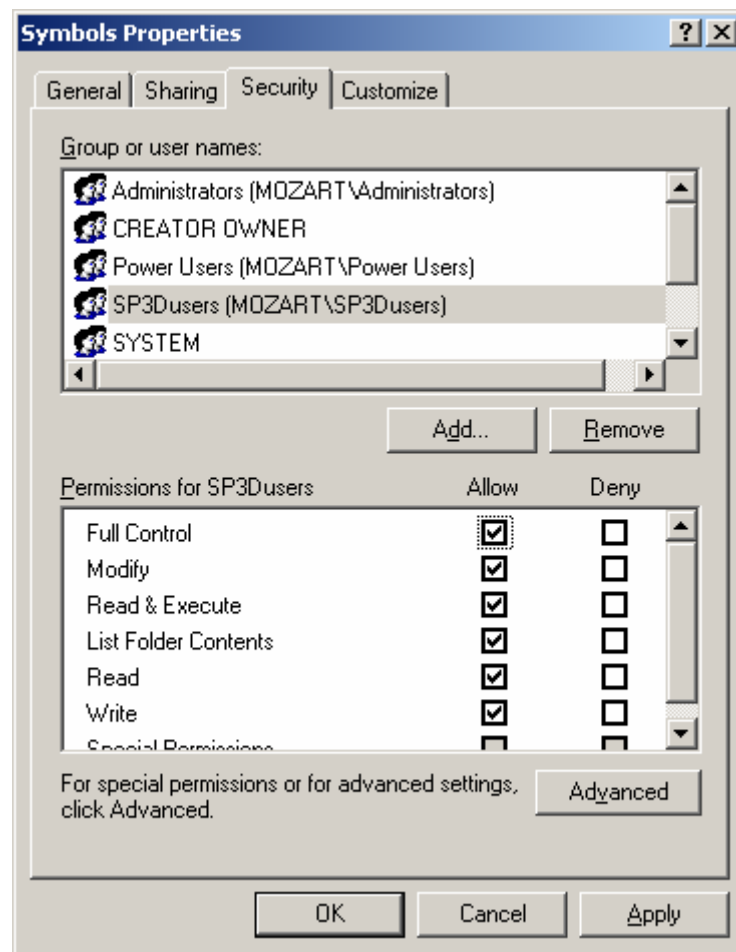
4. Click OK.
5. Right mouse on the “Symbols” folder, and click on the “Sharing” tab. Then Click Permissions.



6. Modify share permissions such that the SP3DUsers group has Full Control access.

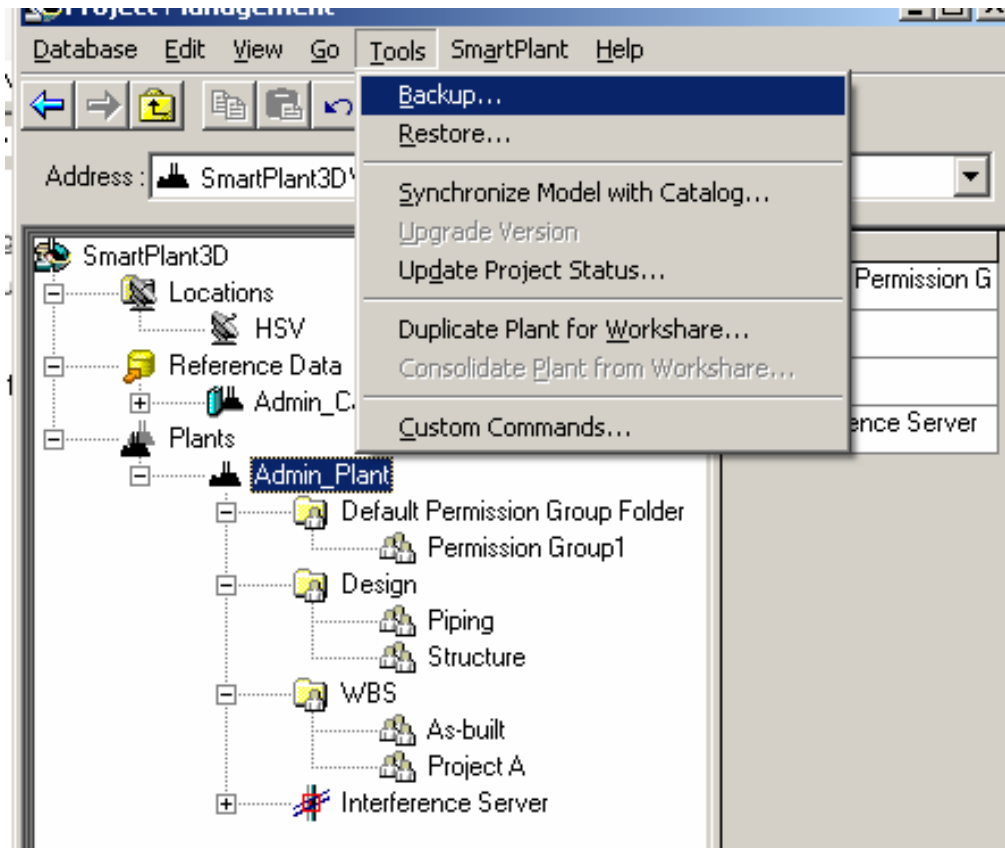


7. Modify the security permissions such that the SP3DUsers group has Full Control.



## LAB 4 Simple Backup

1. Start Project Management.
2. From the Tools menu, select Backup.



3. On the form that appears, use the Calculate Size button to determine the size of the backup:

**Backup** [X]

Select plants to back up:

Name	Size	Description
Admin_Plant	911308.8 KB	Plant Administration Training

Calculate Size

Select folder and name for backup configuration file

 ...

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

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

Server	Save Database Backup Files in
MOZART	

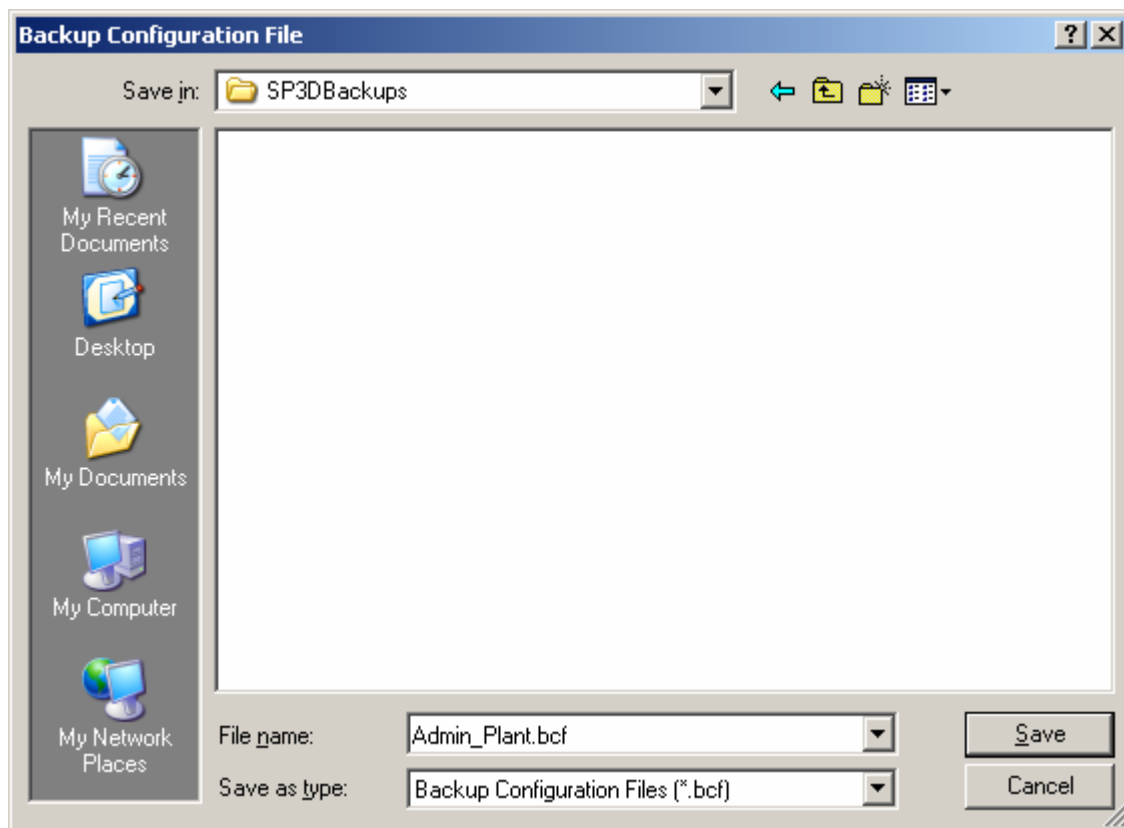
Browse...

OK Cancel

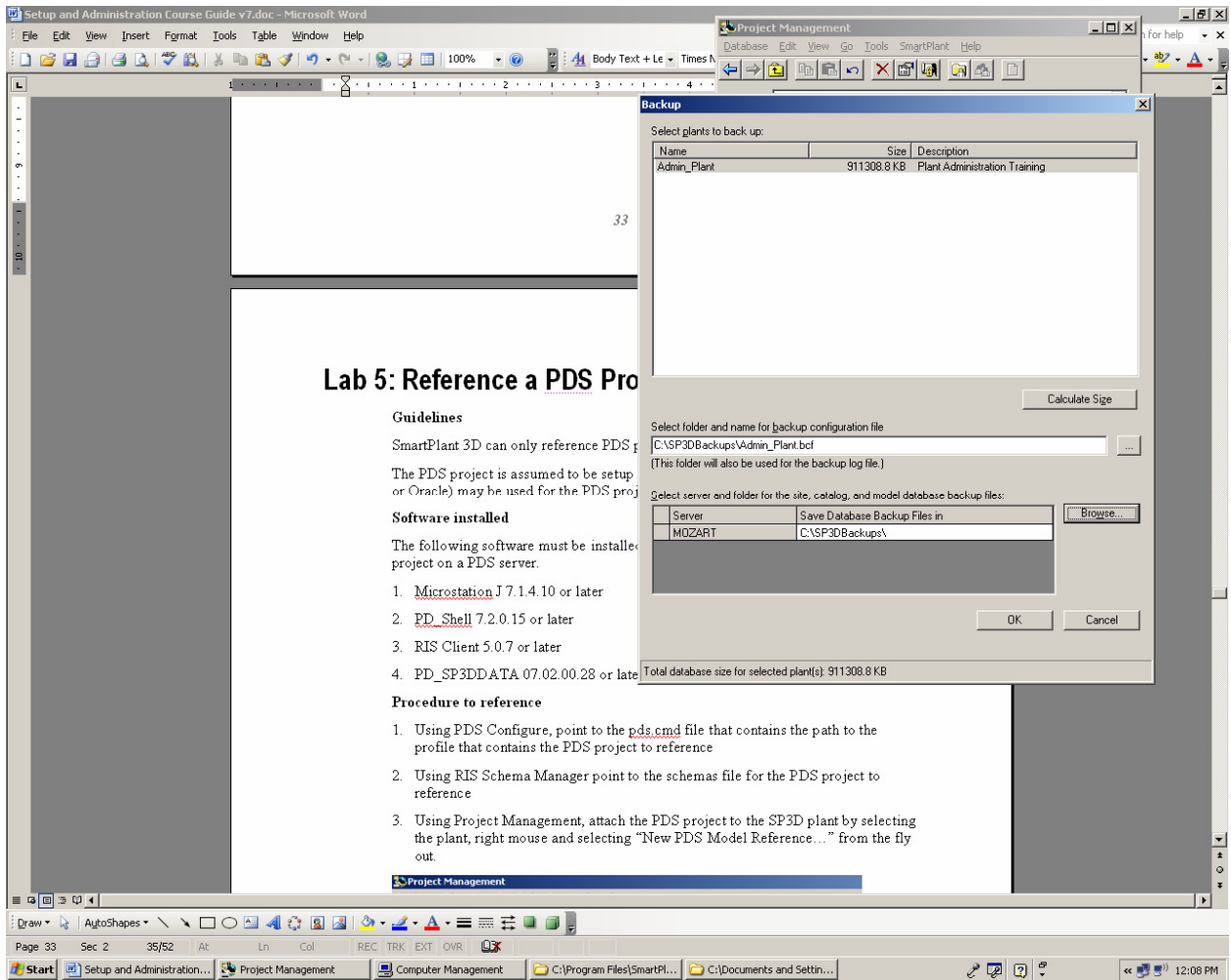
Total database size for selected plant(s): 911308.8 KB

- Click the ellipse button for the Select folder and name for backup configuration file and then create a folder on a drive that has sufficient space to hold the backup. Name the folder SP3DBackups





5. Click Save.
6. Return to the form and use the browse button to determine a location to store the database file backups. If possible, try to place the bcf and the database files together during the backup procedure.



7. Click "OK" and allow the backup to complete.
8. Review the log file (generally errors will come in the backup log file if there is insufficient disk space):

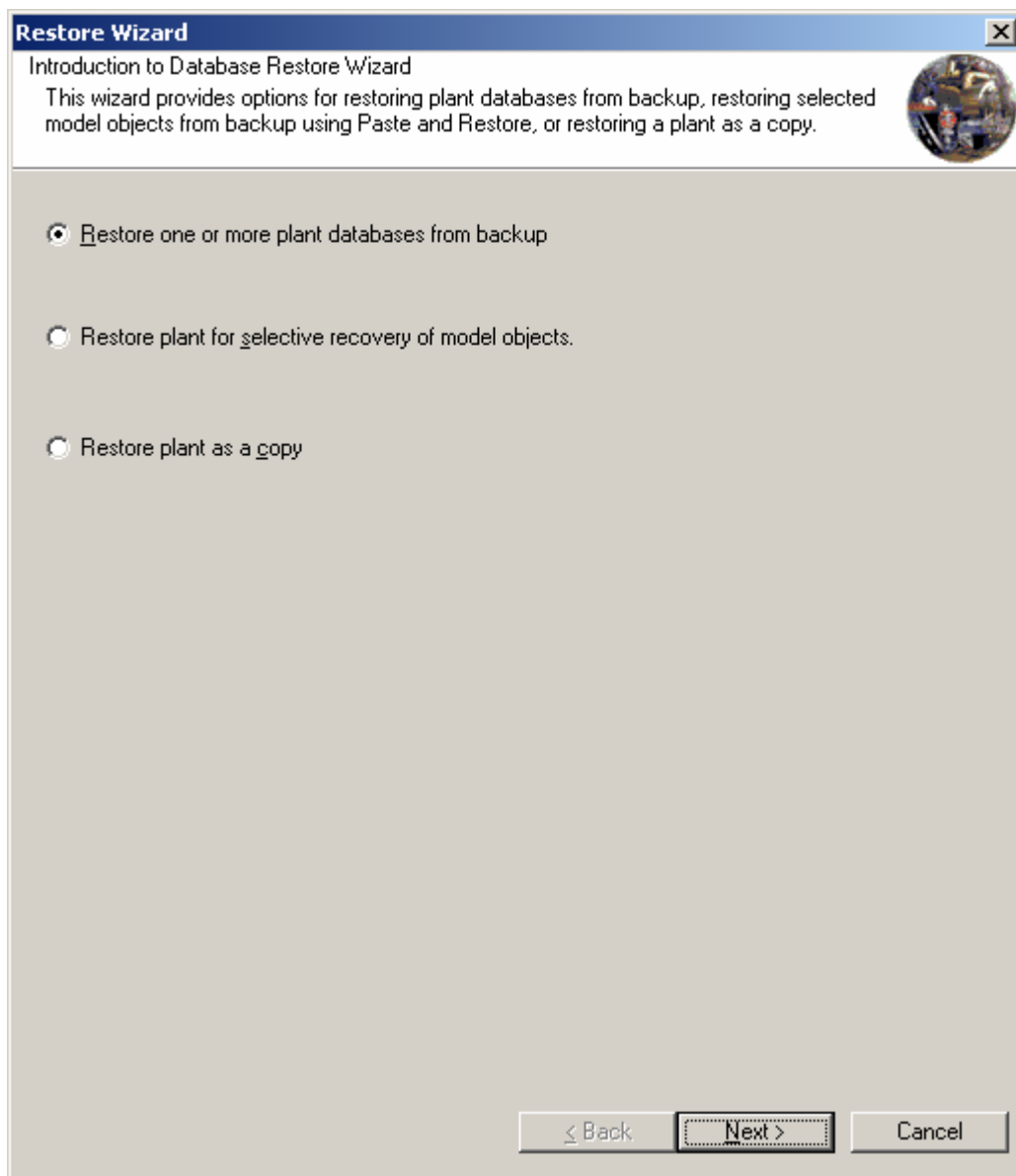
```
Admin_PlantBackup.log - Notepad
File Edit Format View Help
***** RESULTS OF SITE DATABASE AND SCHEMA BACKUP *****
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 552 pages for database 'Admin_Site', file 'Admin_Site' on f
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 4 pages for database 'Admin_Site', file 'Admin_Site_log' on
[Microsoft][ODBC SQL Server Driver][SQL Server]BACKUP DATABASE successfully processed 556 pages in 0.252 seconds (18
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 704 pages for database 'Admin_Site_SCHEMA', file 'APPREPOS'
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 5 pages for database 'Admin_Site_SCHEMA', file 'APPREPOS_lo
[Microsoft][ODBC SQL Server Driver][SQL Server]BACKUP DATABASE successfully processed 709 pages in 0.318 seconds (18
*****RESULTS OF CATALOG DATABASE AND SCHEMA BACKUP*****
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 39736 pages for database 'Admin_Catalog', file 'catalogdb'
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 2 pages for database 'Admin_Catalog', file 'catalogdb_log'
[Microsoft][ODBC SQL Server Driver][SQL Server]BACKUP DATABASE successfully processed 39738 pages in 11.486 seconds
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 6840 pages for database 'Admin_Catalog_SCHEMA', file 'APPREI
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 2 pages for database 'Admin_Catalog_SCHEMA', file 'APPREPOS
[Microsoft][ODBC SQL Server Driver][SQL Server]BACKUP DATABASE successfully processed 6842 pages in 2.238 seconds (2
***** RESULTS OF MODEL DATABASE BACKUP *****
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 3728 pages for database 'Admin_Plant_MDB', file 'Admin_Plant
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 5 pages for database 'Admin_Plant_MDB', file 'Admin_Plant_M
[Microsoft][ODBC SQL Server Driver][SQL Server]BACKUP DATABASE successfully processed 3733 pages in 1.427 seconds (2:
```

9. Click the X or Cancel button on the Backup form to return to Project Management.

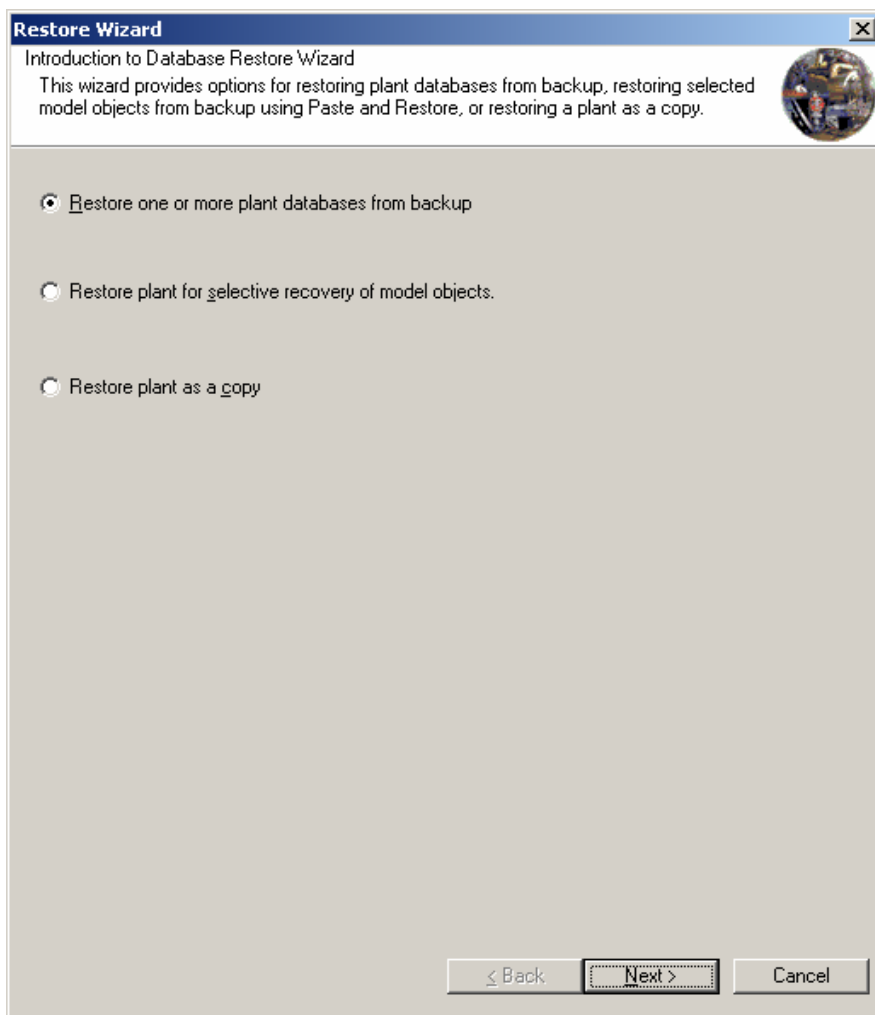
## LAB 5 Restoring a Plant Database (Restore Option 1):

Note: Option 1 is “Restore one or more Plant Database 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
2. From the Tools menu select Restore...



3. Choose the option Restore one or more plant databases from backup. This will restore OVER THE EXISTING plant database. It will only work if the plant already exists in the Site and Site\_Schema.



4. Click Next>
5. Complete the form as depicted below by identifying the BCF, Backup file path, identifying the Catalog and Model names/locations, and Symbol share path:

**Restore Wizard**

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

Backup configuration file to restore:  
C:\SP3DBackups\Admin\_Plant.bcf Browse...

Plants to restore:

Name	Size	Date of Backup
Admin_Plant	889.95KB	1/22/2007 12:08:52 ...

Server and path to existing database backup files:

Server	Database Backup Files Path
MOZART	C:\SP3DBackups\

Paths for new databases:


Type	Server	Database Path	Log Path
Catalog	MOZART	C:\Program Files\Microsoft S	C:\Program Files\Microsoft S
Model	MOZART	C:\Program Files\Microsoft S	C:\Program Files\Microsoft S
*			

Symbol and custom program file location:  
\\MOZART\SYMBOLS Browse...

Back Finish Cancel

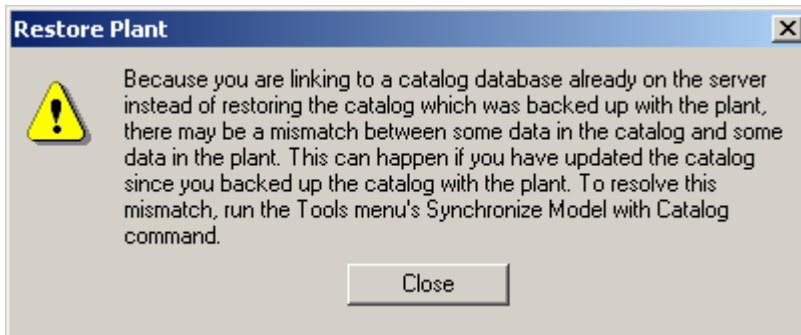
- Click Finish
- Because the Catalog already exists, you have two options in this mode of Restoration. You can either leave the existing Catalog in place (not replace it) or overwrite it from the backup.

**Restore Plant**

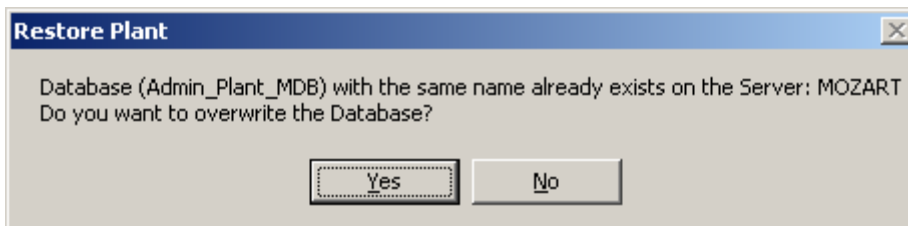
 A catalog database with the name you specified already exists in this server location. The catalog database on the server may be different from the backed-up catalog database. Do you want to link the already existing catalog database with the newly restored plant instead of restoring a catalog database from backup?

Yes No Cancel

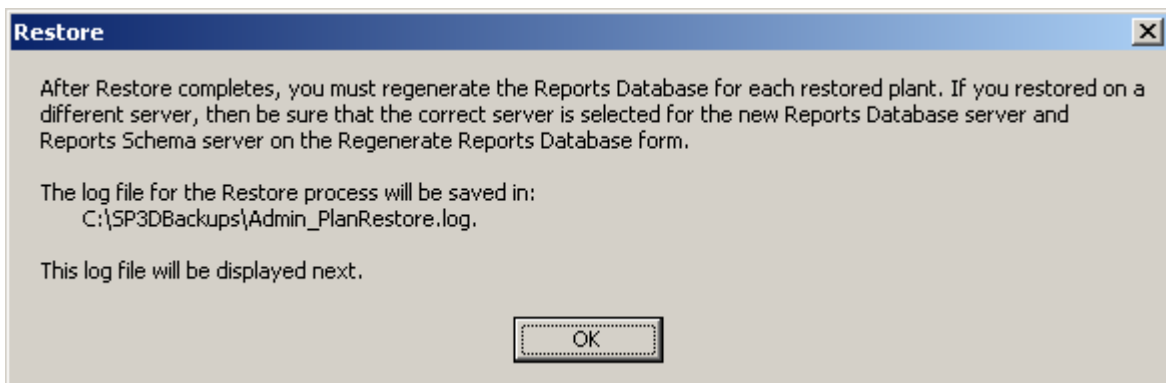
8. Because we have not made any changes to the Catalog the logical choice would be to select Yes and leave the existing Catalog intact. Select Yes. An additional warning message will be displayed.



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



11. Click Yes.

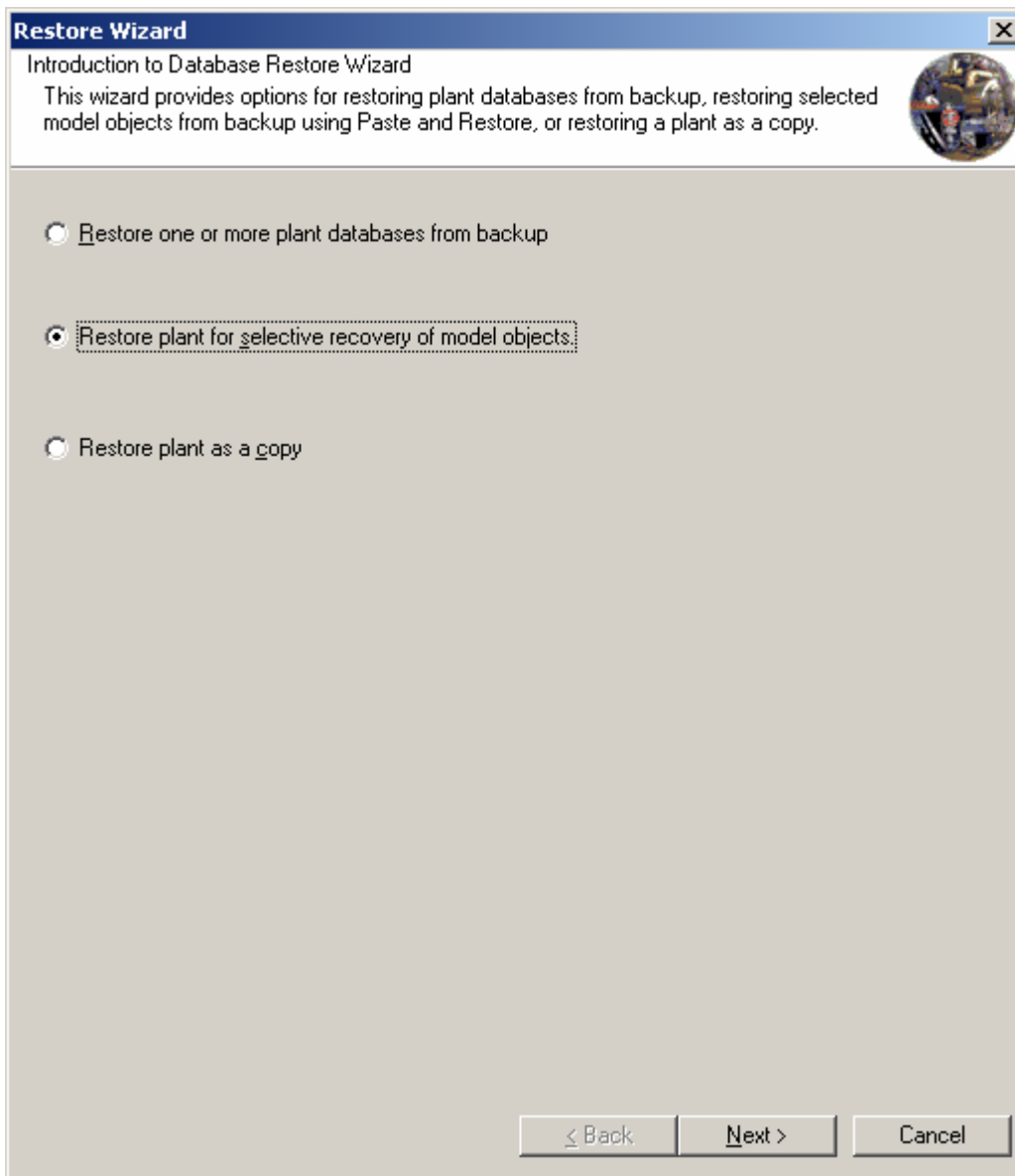


12. When the restore is complete, Click OK and review the log file. Because we only restored the model, the log file will only contain information regarding the model restoration and not the catalog. Click Close on the Restore form to return to Project Management.
13. Repeat this process described in steps 1-12 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 it is not already started.
2. Use the Tools → Restore... command





3. Select the option “Restore plant for selective recovery of model objects”
4. Click Next>
5. Complete the form providing information for the BCF file location, the backup file path, and the Model and Catalog name/location after restore:

**Restore Wizard**

Restore Plant for Selective Recovery of Model Objects

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

Backup configuration file to restore:

C:\SP3DBackups\Admin\_Plant.bcf Browse...

Plant to restore:

Name	Size	Date of Backup
Admin_Plant	889.95KB	1/22/2007 12:08:52 ...

Server and path to existing database backup files:

Server	Database Backup Files Path
MOZART	C:\SP3DBackups\

Browse...

Paths for new databases:

Type	Server	Database Name	Database Path	Log Path
Model	MOZART	Admin_Plant_1_12207	C:\Program Files\Microsoft S...	C:\Progra...
Catalog	MOZART	Admin_Catalog	C:\Program Files\Microsoft S...	C:\Progra...

Browse...

New plant name: Admin\_Plant\_1\_12207

Description: This is my Option 2 restore

Back Finish Cancel

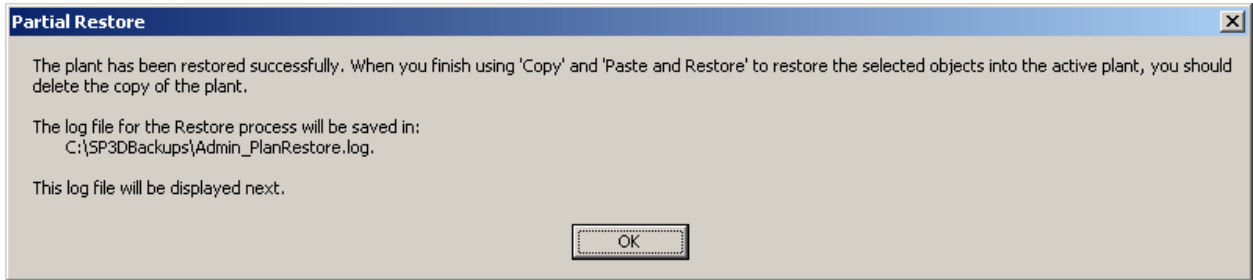
6. Note that the new plant name should contain the date (1-22-2007 in the screenshot above). Provide a description that is meaningful to you.
7. Click Finish

**Restore Plant as Copy**

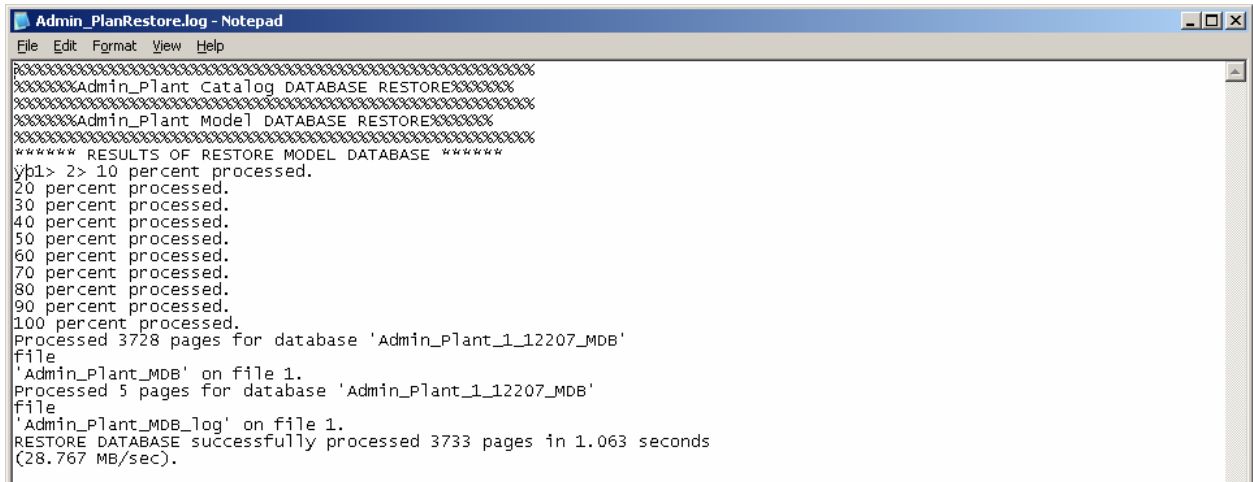
A catalog database with the name you specified already exists in this server location. The catalog database on the server may be different from the backed-up catalog database. Do you want to link the already existing catalog database with the newly restored plant instead of restoring a catalog database from backup?

Yes No

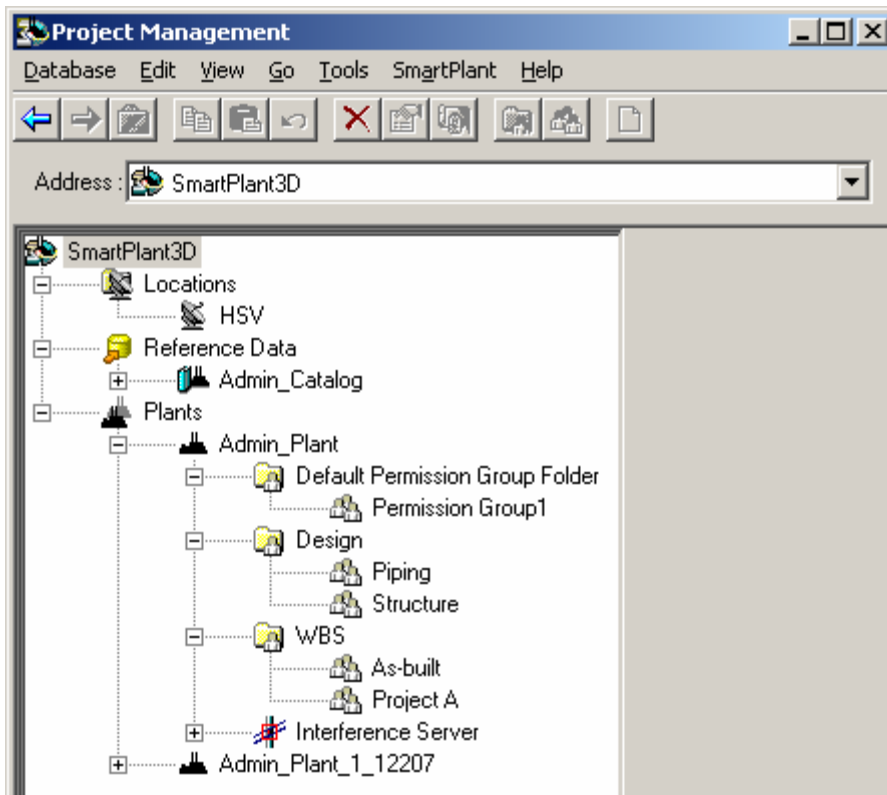
8. Indicate that you would like to link to the existing Catalog by selecting Yes.



9. Click OK and once again you will want to review the log file:



10. Close the Restore Wizard form.
11. Review the 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 on the newly restored plant and select Regenerate Report database (as the restored plant is currently making use of the pre-existing Report database for the current plant).

**Regenerate Reports Database** [X]

Database type:

Reports database

Reports database server:  Reports database name:

Paths for the reports database files

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

Reports schema

Reports schema server:  Reports schema name:


Paths for the reports schema files

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

OK Cancel

14. Click OK and allow the report database to regenerate.
15. The database can now be utilized for “Paste Restore” operations had this been a live project.

**Regenerate Reports Database** [X]

 The Reports Database and Schema have been generated successfully.

Database type:

Reports database server:  Reports database name:

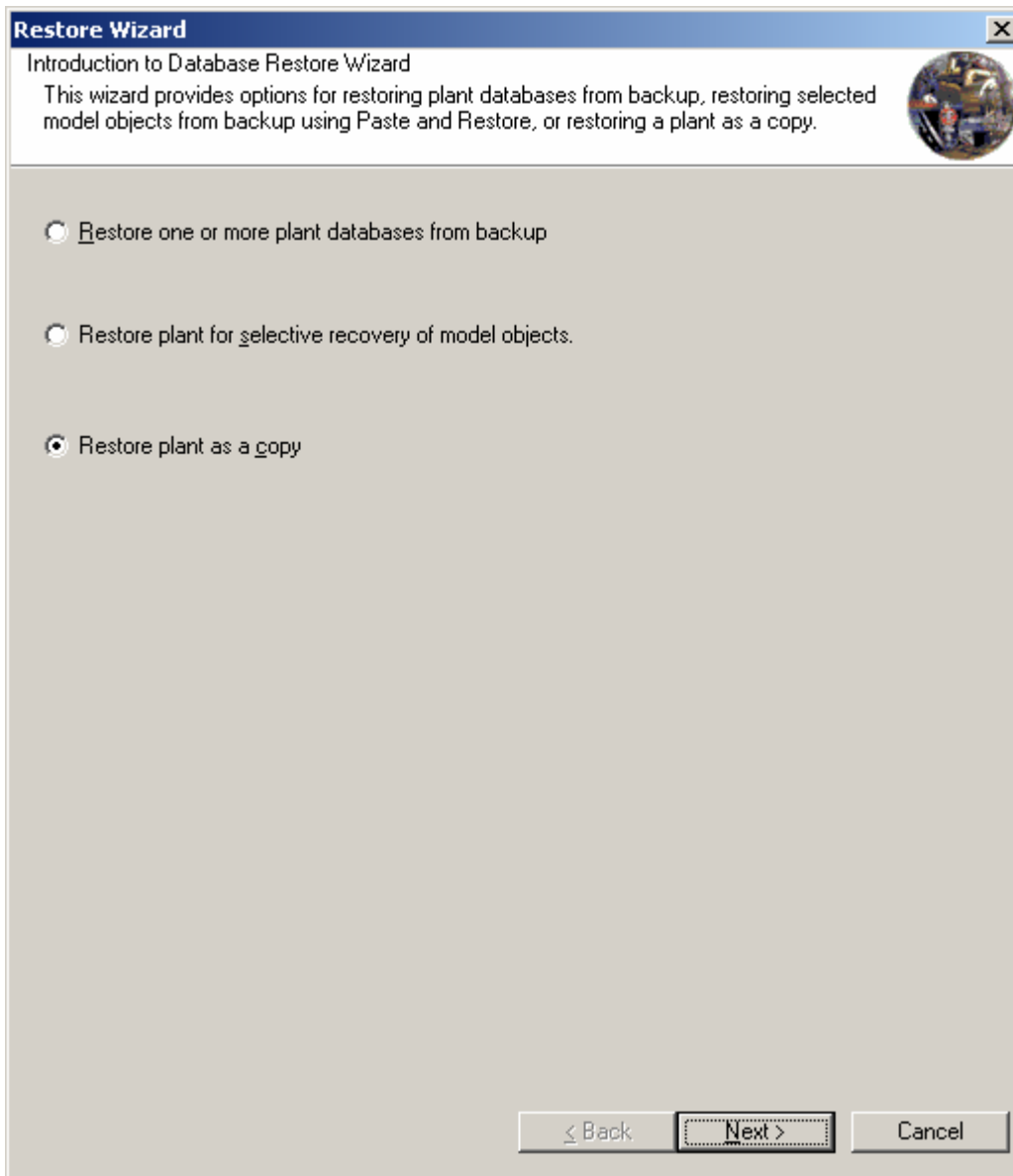
Reports schema server:  Reports schema name:

OK

# LAB 7 Restoring a Plant Database (Restore Option 3):

Note: Option 3 is represented by the restore option “Restore Plant as 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 Option 1, Option 3 does not require an instance of the same Plant to exist in the Site database.

1. Start Project Management
2. From the Tools → Restore command select the third option as captured below:



Note: Your instructor will provide you location of the Training Model bcf and backup files before you continue on to step 3.

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

**Restore Wizard**

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

New plant name: SP3DTrain Description: Restore As Copy example.

Backup configuration file to restore: F:\Datasets\Intergraph Training\Plant\Plant\SP3DTrain.bcf Browse...

Plant to restore:

Name	Size	Date of Backup
SP3DTrain	1335.5KB	1/16/2007 12:07:45 ...

Server and path to existing database backup files:

Server	Database Backup Files Path
MOZART	F:\Datasets\Intergraph Training\Plant\Plant\

Paths for new databases:

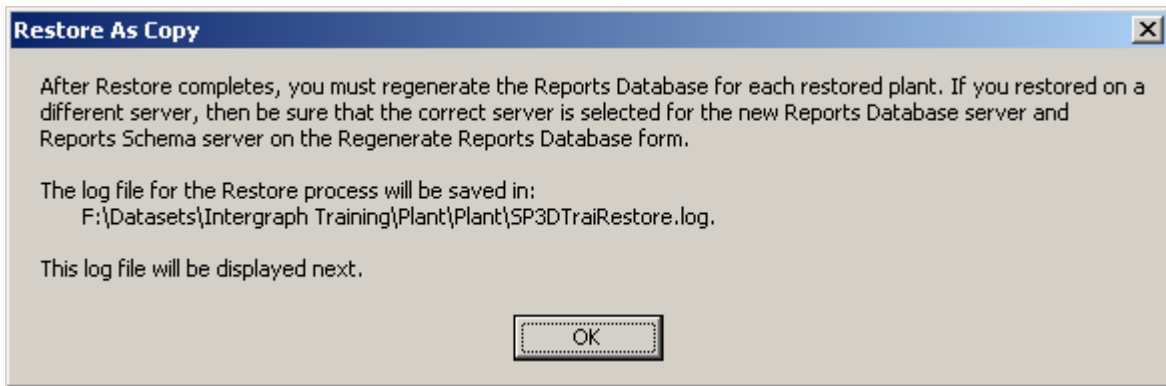
Type	Server	Database Name	Database Path	Log Path
Catalog	MOZART	SP3DTrain_CAT	C:\Program Files\Micros	C:\Program Fil
Model	MOZART	SP3DTrain_MDB	C:\Program Files\Micros	C:\Program Fil

Symbol and custom program file location: \\MOZART\SYMBOLS\ Browse...

< Back Finish Cancel

- Click Finish.

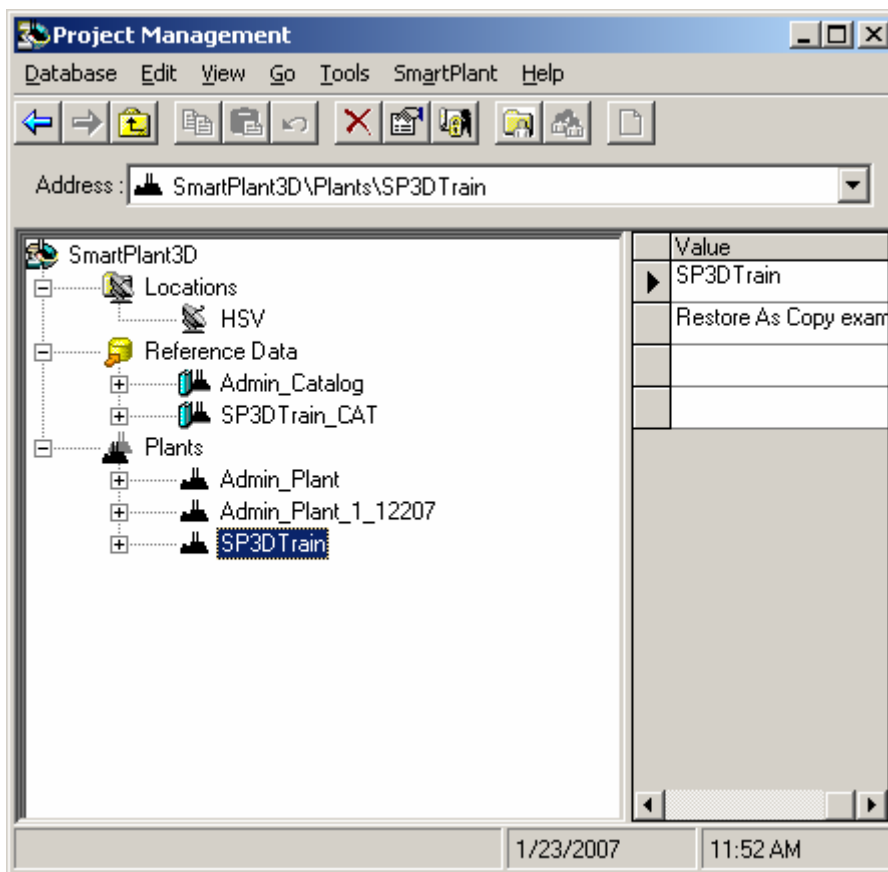
Note: You will not be prompted to link to existing catalog (as this is a separate unique catalog) and you will not be prompted to restore over an existing model (as one does not yet exist on your server).



## 5. Review the log file as you have previous done

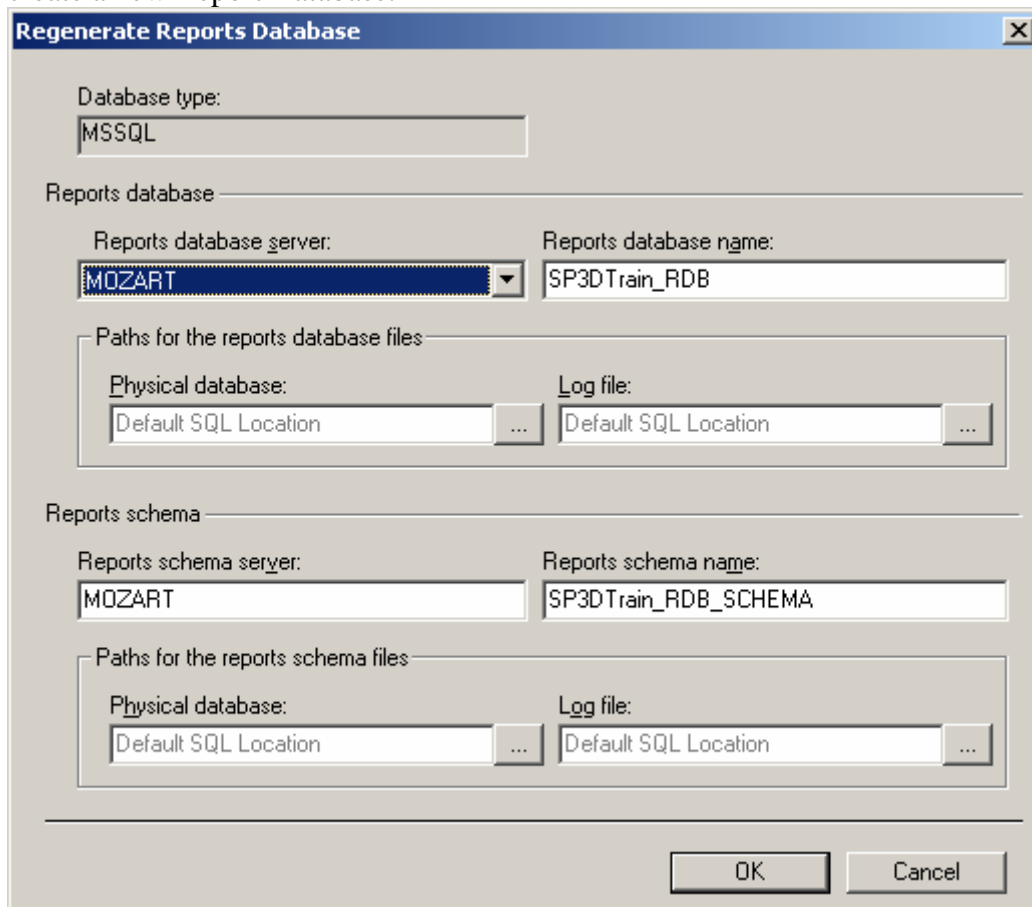


## 6. Close the Restore form when completed.





7. Note that there now exists two catalogs and three models. Right mouse on the Plant and create a new Report Database.

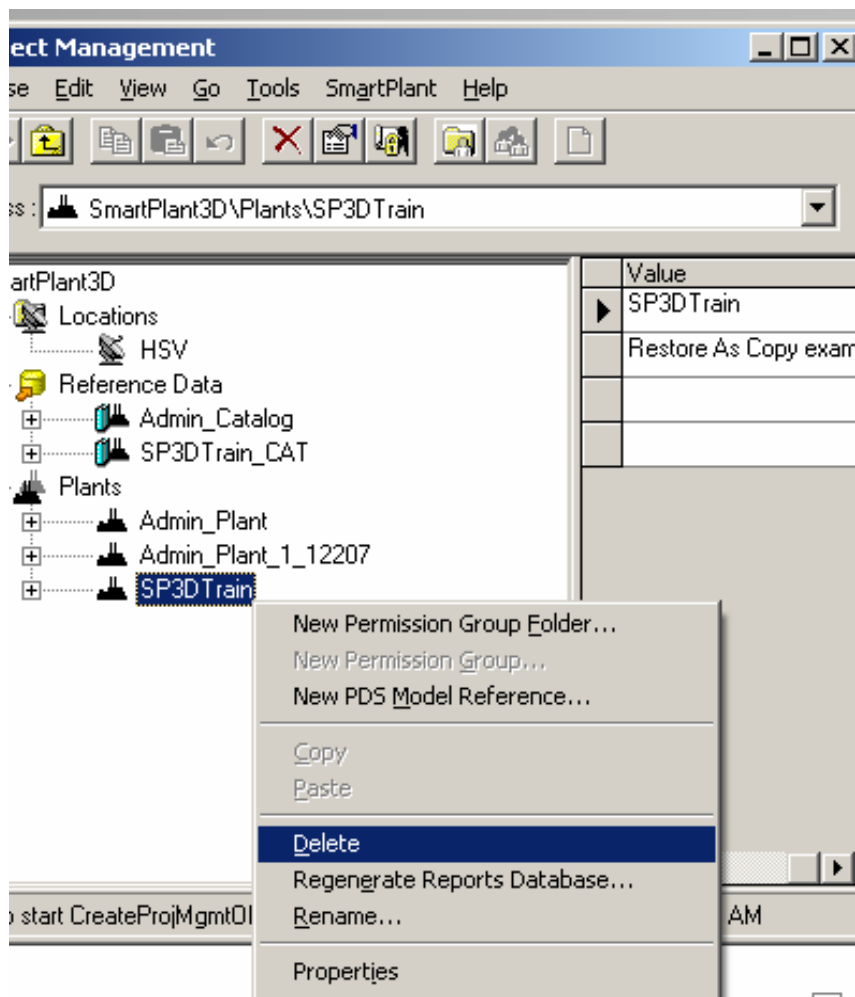


The image shows a 'Regenerate Reports Database' dialog box. It has a title bar with a close button. The dialog is divided into several sections. The first section is 'Database type:' with a text box containing 'MSSQL'. The second section is 'Reports database' with a horizontal line above it. It contains 'Reports database server:' with a dropdown menu showing 'MOZART' and 'Reports database name:' with a text box containing 'SP3DTrain\_RDB'. The third section is 'Paths for the reports database files' with a horizontal line above it. It contains 'Physical database:' and 'Log file:' with text boxes both containing 'Default SQL Location' and a browse button (three dots). The fourth section is 'Reports schema' with a horizontal line above it. It contains 'Reports schema server:' with a text box containing 'MOZART' and 'Reports schema name:' with a text box containing 'SP3DTrain\_RDB\_SCHEMA'. The fifth section is 'Paths for the reports schema files' with a horizontal line above it. It contains 'Physical database:' and 'Log file:' with text boxes both containing 'Default SQL Location' and a browse button (three dots). At the bottom right are 'OK' and 'Cancel' buttons.

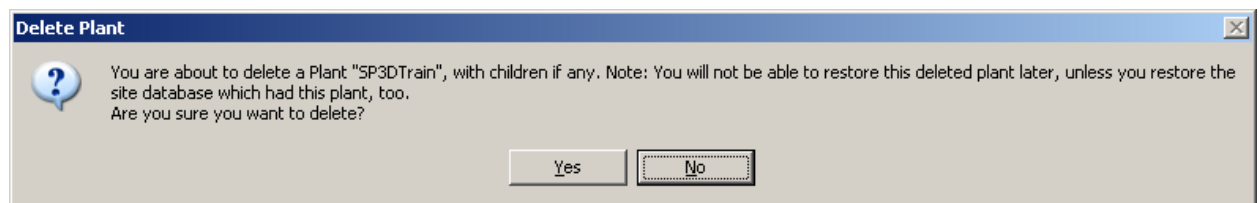
8. Click OK.

## LAB 8 Deleting a Plant

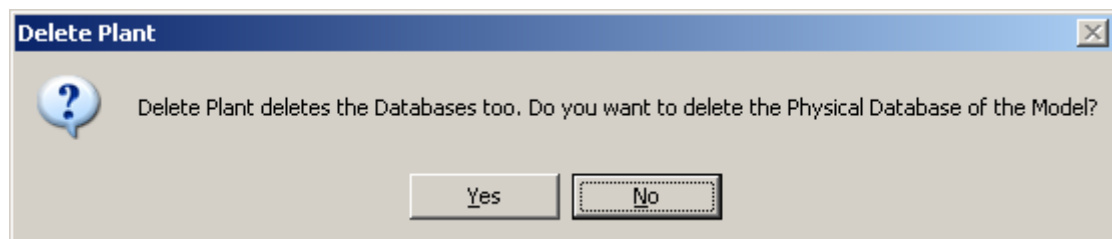
1. Start Project Management.
2. Right mouse on the SP3DTrain Plant and select Delete.



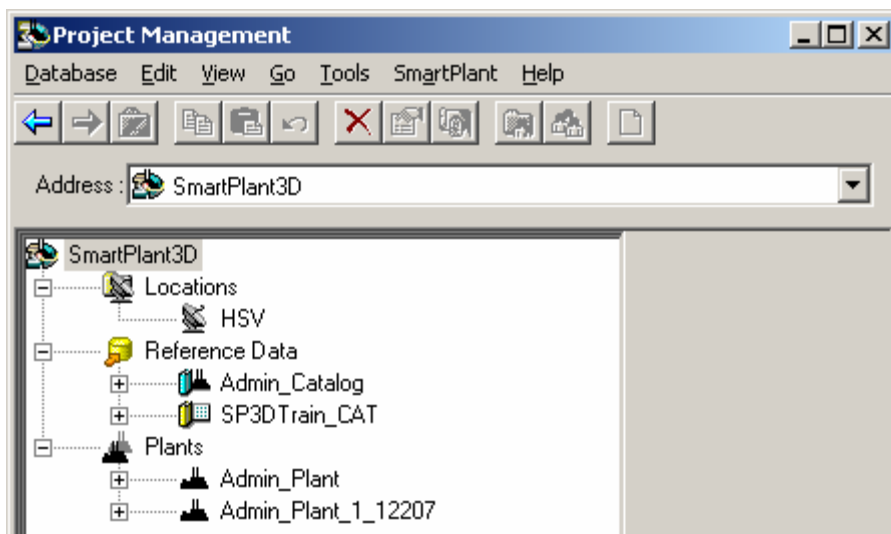
3. The following form will display, select Yes on it.



4. Select Yes on the following form to delete the physical database:



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

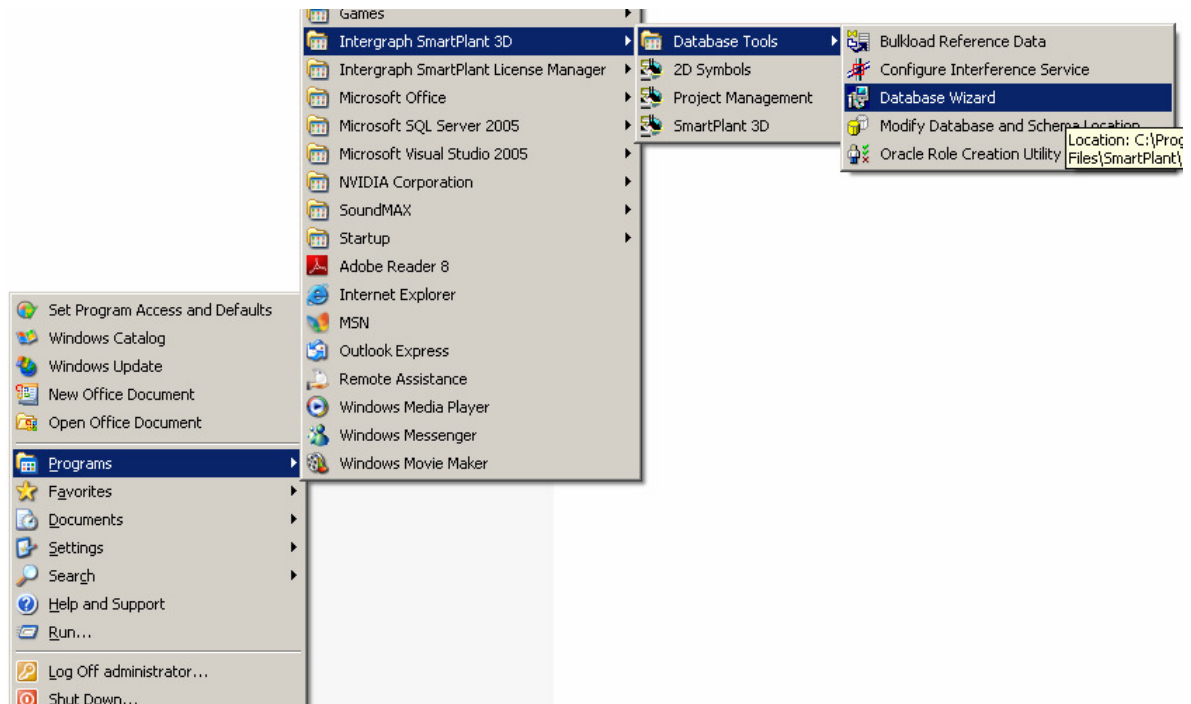


Note that the SP3DTrain\_Cat database still remains; it can be used with a future Plant by running the Database → Plant command.

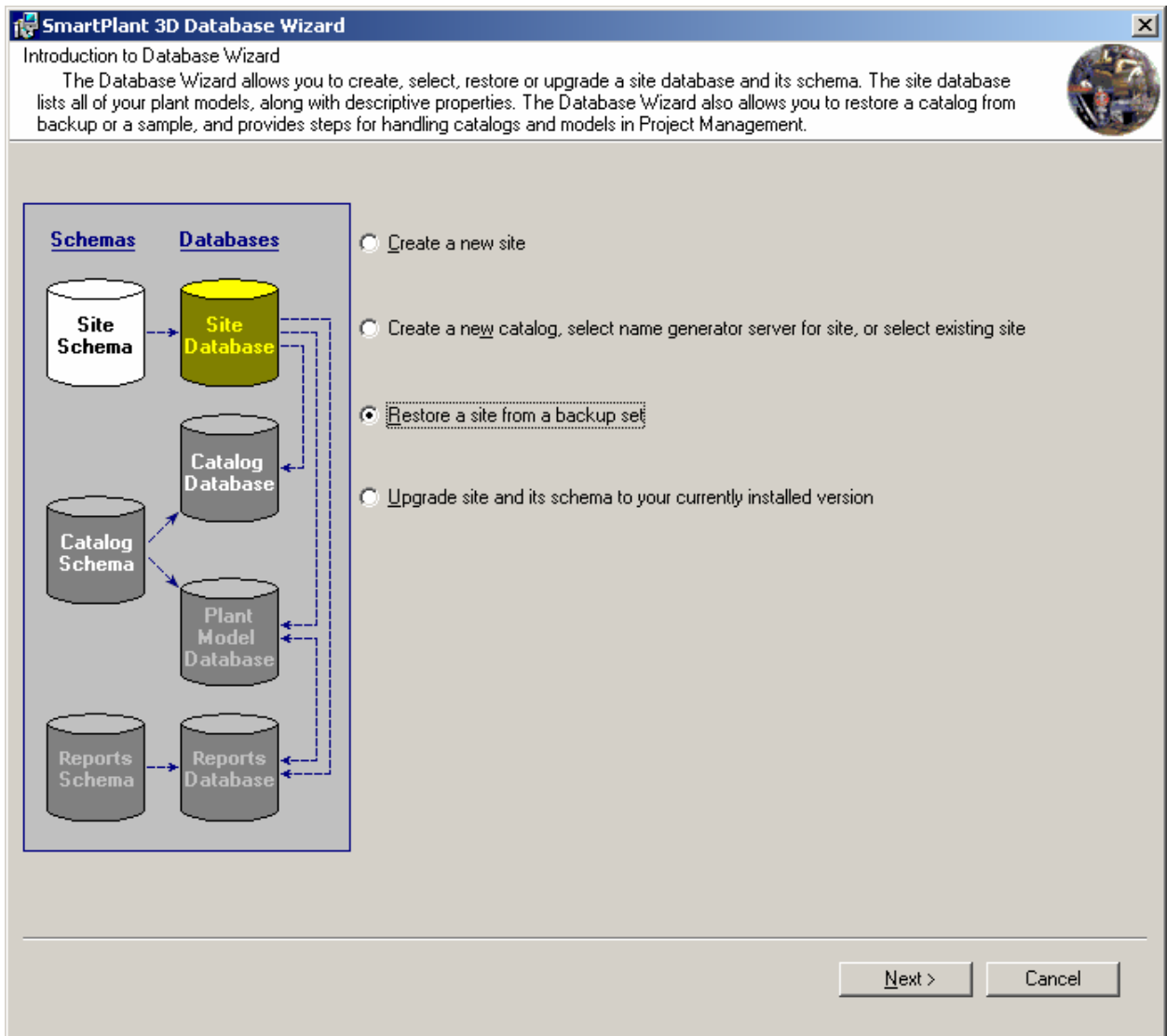
6. Open MSSQL Server or Oracle tools (depending on your setup) and delete all databases that you have made up to this point. Your instructor will help you with this task.

## LAB 9 Restoring a Site Database from Backup

1. Start the DB Wizard from the Start Menu:



2. Select the option “Restore a site database from a backup set”



3. Click Next>

**SmartPlant 3D Database Wizard**

**Restore Site Database from Backup**

Specify a .bcf file to restore the site database. Restore your catalog and model database through the Project Management environment's Tools:Restore command using the same .bcf file.

Database type:  Destination database server:

Backup configuration file to restore:  ...

Date of Backup: 1/16/2007 12:06:55 AM

Database backup files are stored on the server in:  ...

Site database name:  Site schema name:

Site database workshare location:  Name generator server for site:

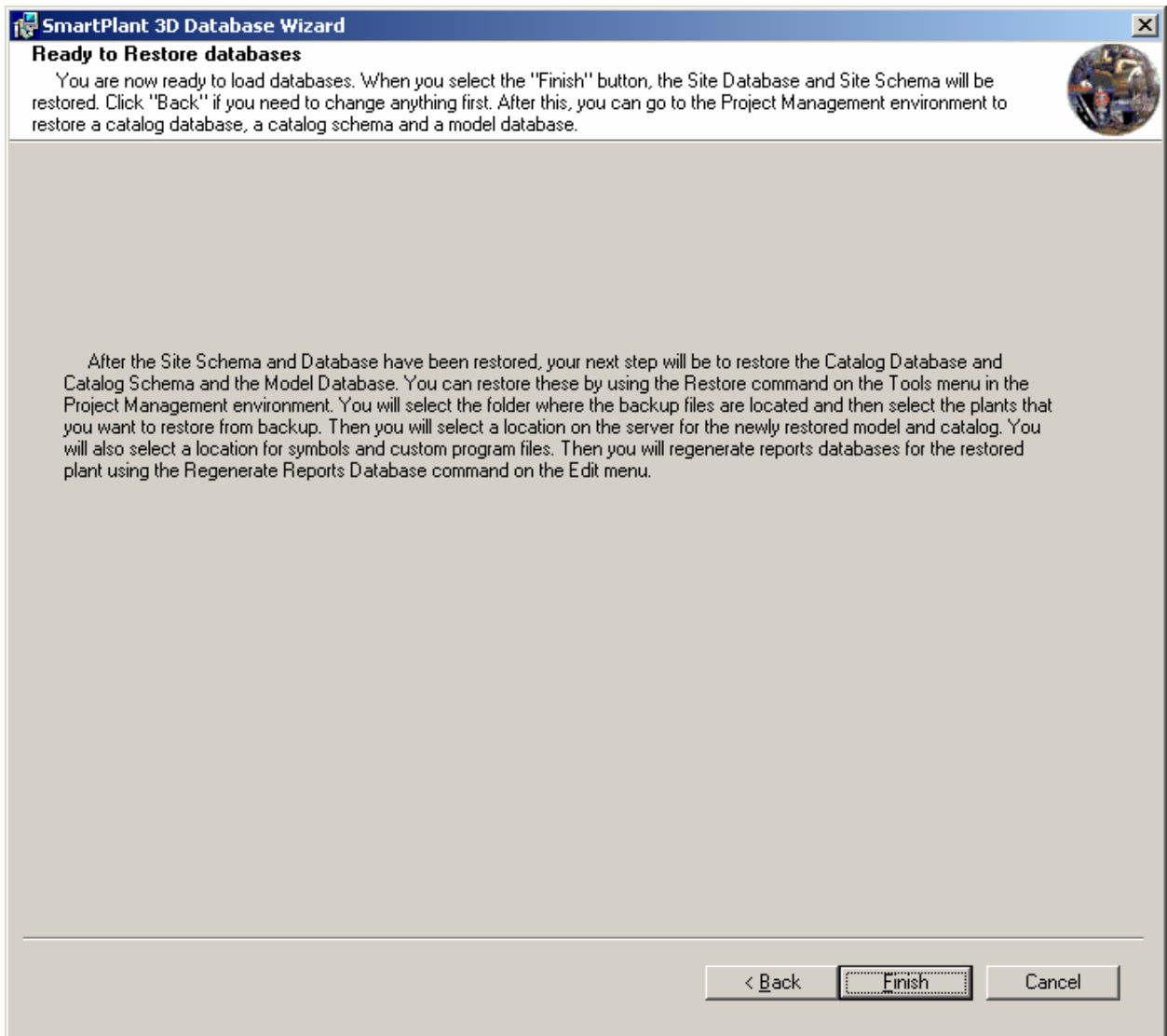
Paths for site database and schema files

☐ Use new paths for physical databases and log files

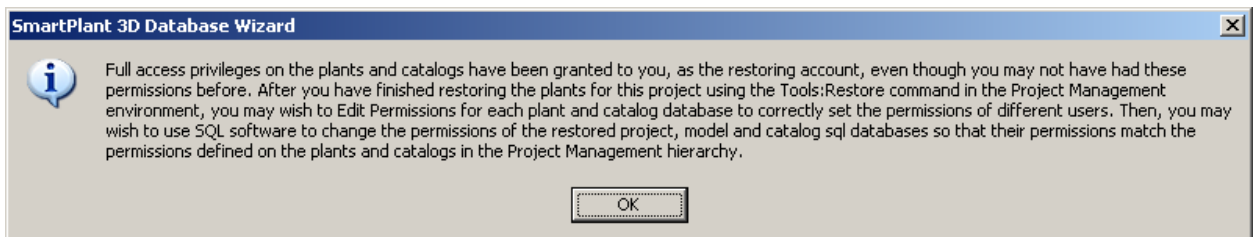
Physical database:  ... Log file:  ...

< Back Next > Cancel

- Complete the form as depicted above. [The Instructor will provide you with the backup file and any additional information about the location of the file.]



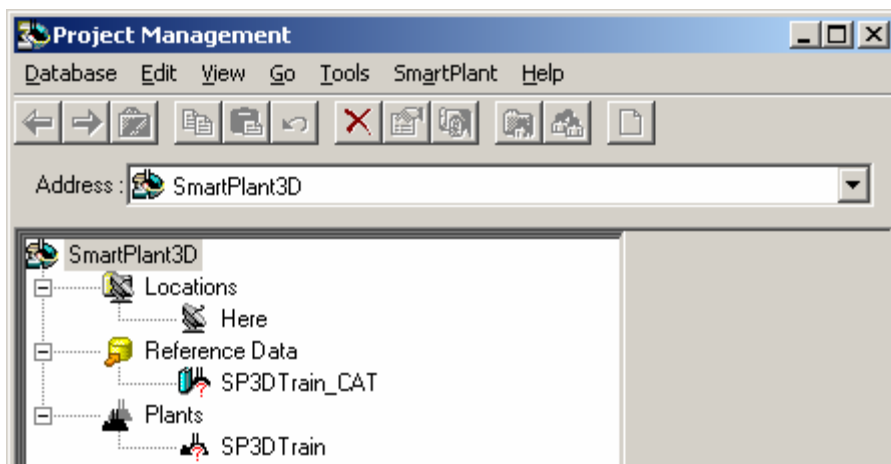
5. Click Finish



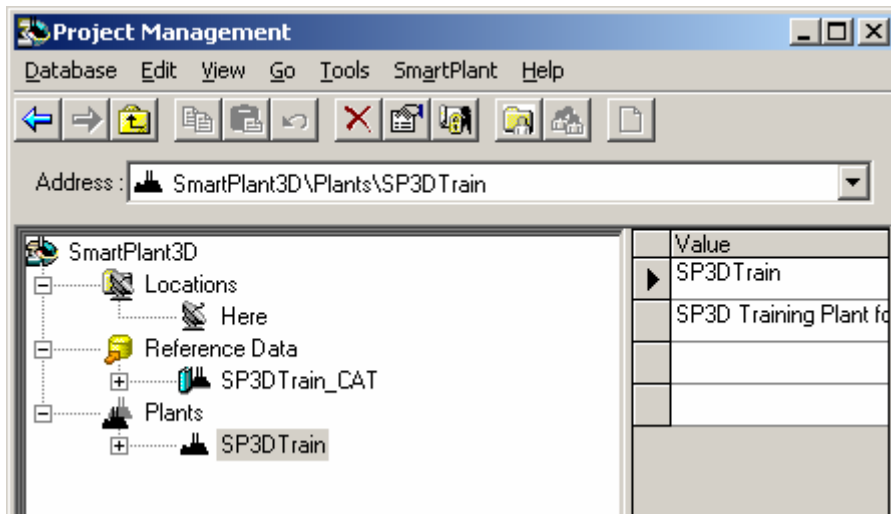
6. Click OK.

7. Then click Close.

8. Start Project Management.



9. The Site database still contains pointers for the Catalog and the SP3DTrain Plant but the databases are absent from the server.
10. Use the “Restore one of more Plant databases from Backup” command (Restore Option 1) that we covered earlier in the document to Restore the Model and Catalog and then proceed with regenerating the Report Database.
11. When done Project Management should show the following:



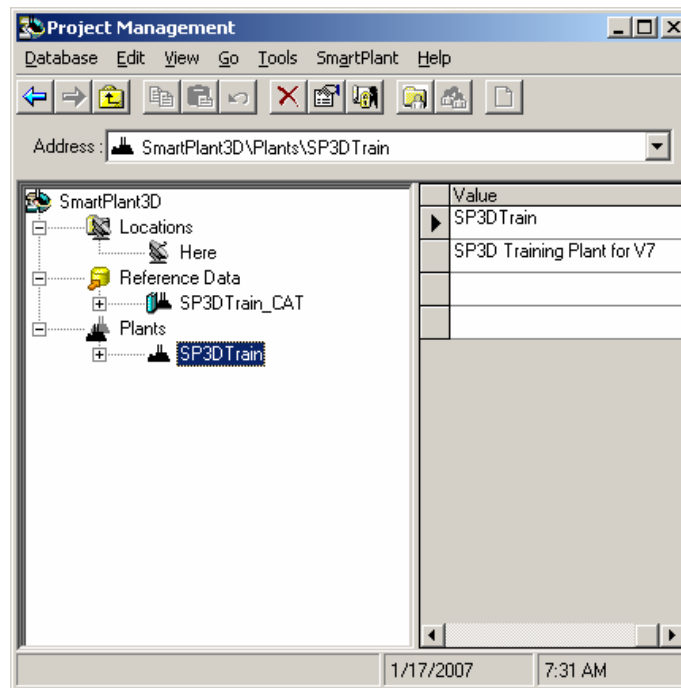
# LAB 10: Calculate Size on Backups

## Objectives

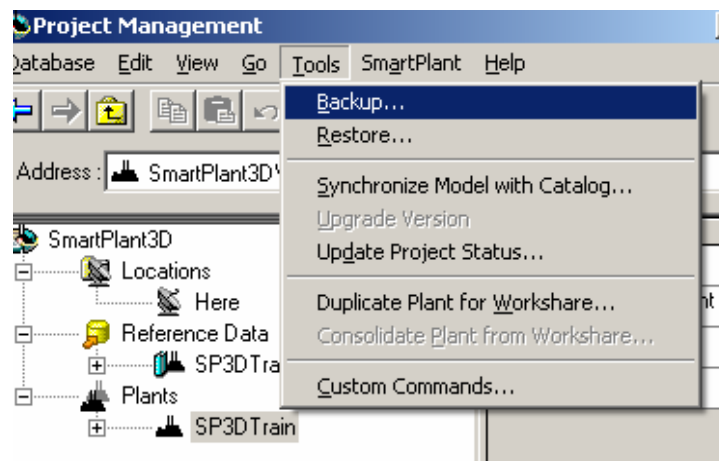
After completing this lab, you will be able to:

- Calculate the size of individual and multi-plant backups before taking the actual backup.

1. Start Project Management exposing the Training Plant:



2. From the “Tools” menu select “Backup...”



3. Note that initially the size displayed in the column is “<not calculated>”



**Backup** [X]

Select plants to back up:

Name	Size	Description
SP3DTrain	<not calculated>	SP3D Training Plant for V7

[Calculate Size]

Select folder and name for backup configuration file

[Text Field] [...]

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

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

Server	Save Database Backup Files in
MOZART	[Text Field]

[Browse...]

[OK] [Cancel]

Select plants to back up. Then select folders in which to save backup files.

4. Use the “Calculate Size” button to update the size estimate

**Backup** [X]

Select plants to back up:

Name	Size	Description
SP3DTrain	1367552 KB	SP3D Training Plant for V7

[Calculate Size]

Select folder and name for backup configuration file

[Text Field] [...]

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

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

Server	Save Database Backup Files in
MOZART	[Text Field]

[Browse...]

[OK] [Cancel]

Total database size for selected plant(s): 1367552 KB

5. Cancel the form.
6. Use the Tools → Restore command, choosing “Restore Plant for Selective Recovery of Model Objects” to restore a copy of the Training Plant but reuse the same Catalog.

**Restore Wizard**

Restore Plant for Selective Recovery of Model Objects

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

Backup configuration file to restore:

F:\Datasets\Intergraph Training\Plant\Plant\SP3DTrain.bcf Browse...

Plant to restore:

Name	Size	Date of Backup
SP3DTrain	1335.5KB	1/16/2007 12:07:45 ...

Server and path to existing database backup files:

Server	Database Backup Files Path
MOZART	F:\Datasets\Intergraph Training\Plant\Plant\

Paths for new databases:

Type	Server	Database Name	Database Path	Log Path
Catalog	MOZART	SP3DTrain_CAT	C:\Program Files\Microsoft S	C:\Progra
Model	MOZART	SP3DTrain_1_11607_	C:\Program Files\Microsoft S	C:\Progra


New plant name: SP3DTrain\_1\_11607

Description:

≤ Back Finish Cancel

7. Click Finish.

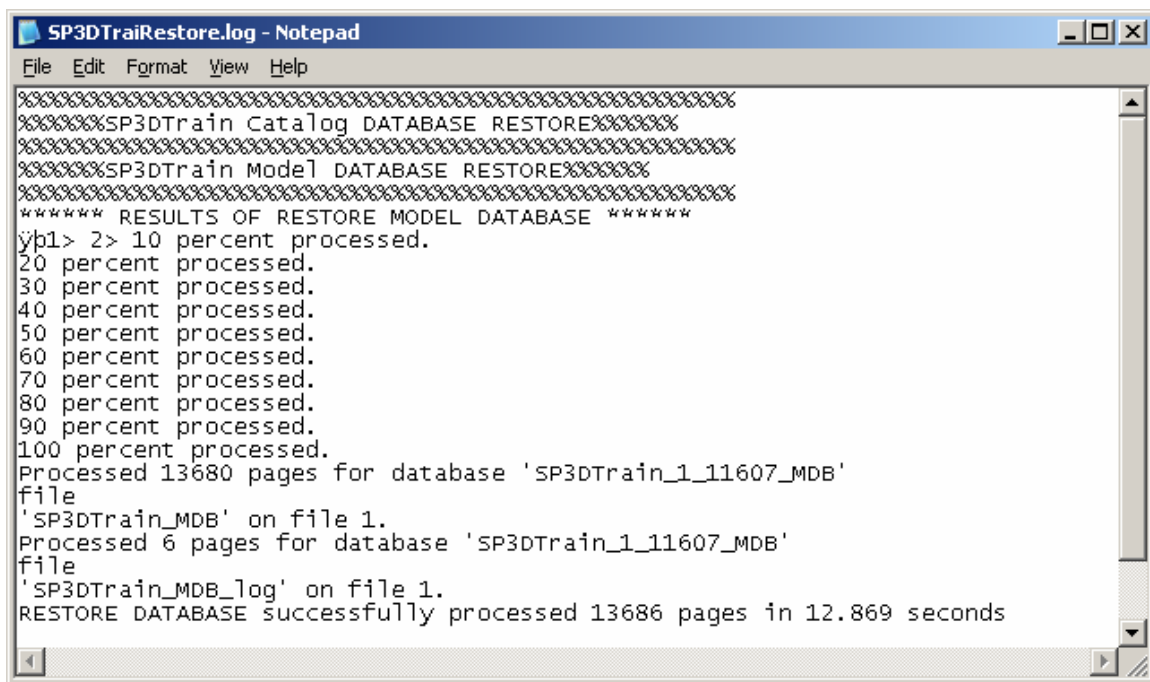
**Restore Plant as Copy**

 A catalog database with the name you specified already exists in this server location. The catalog database on the server may be different from the backed-up catalog database. Do you want to link the already existing catalog database with the newly restored plant instead of restoring a catalog database from backup?

Yes No

8. Select Yes (we wish to reuse the same catalog).

9. Review the restoration log for success:

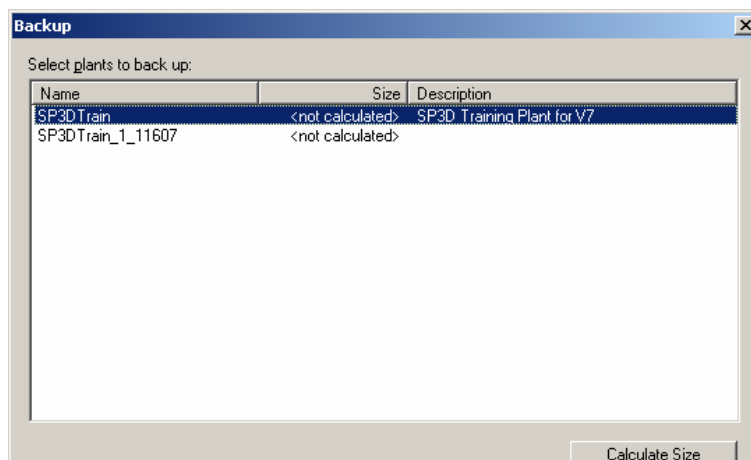


```

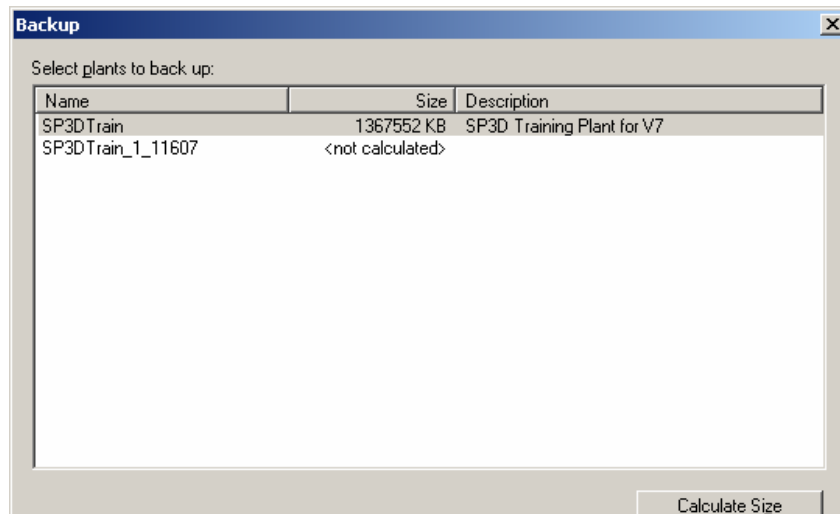
SP3DTraiRestore.log - Notepad
File Edit Format View Help
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
SP3DTrain Catalog DATABASE RESTORE
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
SP3DTrain Model DATABASE RESTORE
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
***** RESULTS OF RESTORE MODEL DATABASE *****
yp1> 2> 10 percent processed.
20 percent processed.
30 percent processed.
40 percent processed.
50 percent processed.
60 percent processed.
70 percent processed.
80 percent processed.
90 percent processed.
100 percent processed.
Processed 13680 pages for database 'SP3DTrain_1_11607_MDB'
file
'SP3DTrain_MDB' on file 1.
Processed 6 pages for database 'SP3DTrain_1_11607_MDB'
file
'SP3DTrain_MDB_log' on file 1.
RESTORE DATABASE successfully processed 13686 pages in 12.869 seconds

```

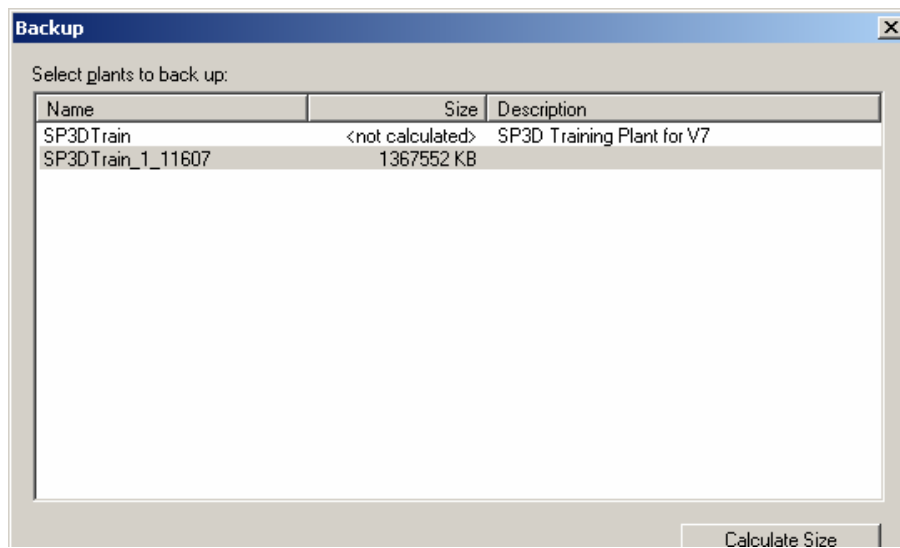
10. And then close the Restore form.
11. Note the existence of the 2nd plant with the date stamp. If we were going to go on and use this 2nd Plant we would want to regenerate the Report Database, but for now let us return to the Backup form:
12. Note that two entries now exist:



13. Recall that there are three possible options here, Backup Plant 1, Backup Plant 2, or a multi-plant backup of both 1 and 2. Since these two plants share the same catalog, in a Multi-plant backup you would see the Catalog only being counted once, but in any individual plant backup the Catalog gets counted 1 time as well.
14. Perform the following operations:
15. Select the first plant in the list and then click Calculate Size:



16. Select the 2nd plant in the list and then click Calculate Size:



17. Select both plants (hold ctrl and click both or use SHFT to select stop and start of a list), and note the reconciliation of the shared Catalog DB in the calculated sizes:

**Backup**

Select plants to back up:

Name	Size	Description
SP3DTrain	1367552 KB	SP3D Training Plant for V7
SP3DTrain_1_11607	579901.44 KB	

Calculate Size

Select folder and name for backup configuration file

...

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

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

Server	Save Database Backup Files in
MOZART	

Browse...

OK Cancel

Total database size for selected plant(s): 1947453.44 KB

## LAB 11: Synch Model w/ Catalog and View Generation

### Objectives

After completing this lab, you will be able to:

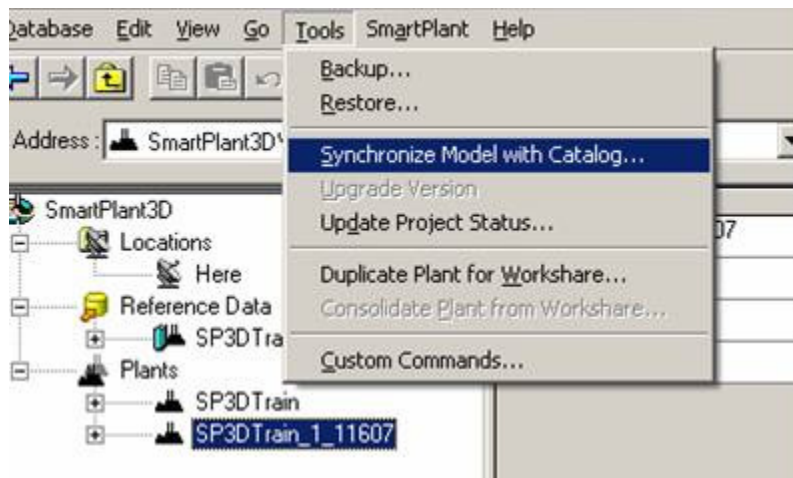
- Actively choose whether to Synchronize the Model with Catalog or Run the View Generator on the Model, or both... from within Project Management.

Notes:

Let us play out the scenario that the Catalog had changed significantly since the backup we just restored was taken. In this scenario we would perhaps run the Synchronize Model with Catalog command on the 2nd model to try and push down those changes and to bring the part definitions inline with the live/current database.

Likely, after the restore you would then go onto Regenerate the Report Database and would be presented with a message saying that some views failed to generate, this would be one indication of where you would use the view generator feature in this command.

1. In Project Management select the plant in the tree that you wish to Synchronize, and then from the Tools menu select Synchronize Model with Catalog.



2. Note the existence of two check boxes:

**Synchronize Model with Catalog**

**Options**

☒ Synchronize model with catalog ☒ Regenerate views

**Catalog**

Model database server: MOZART Model database name: SP3DTrain\_1\_11607\_MDB Version: 7.0.0

**Model**

Catalog database server: MOZART Catalog database name: SP3DTrain\_CAT Version: 7.0.0

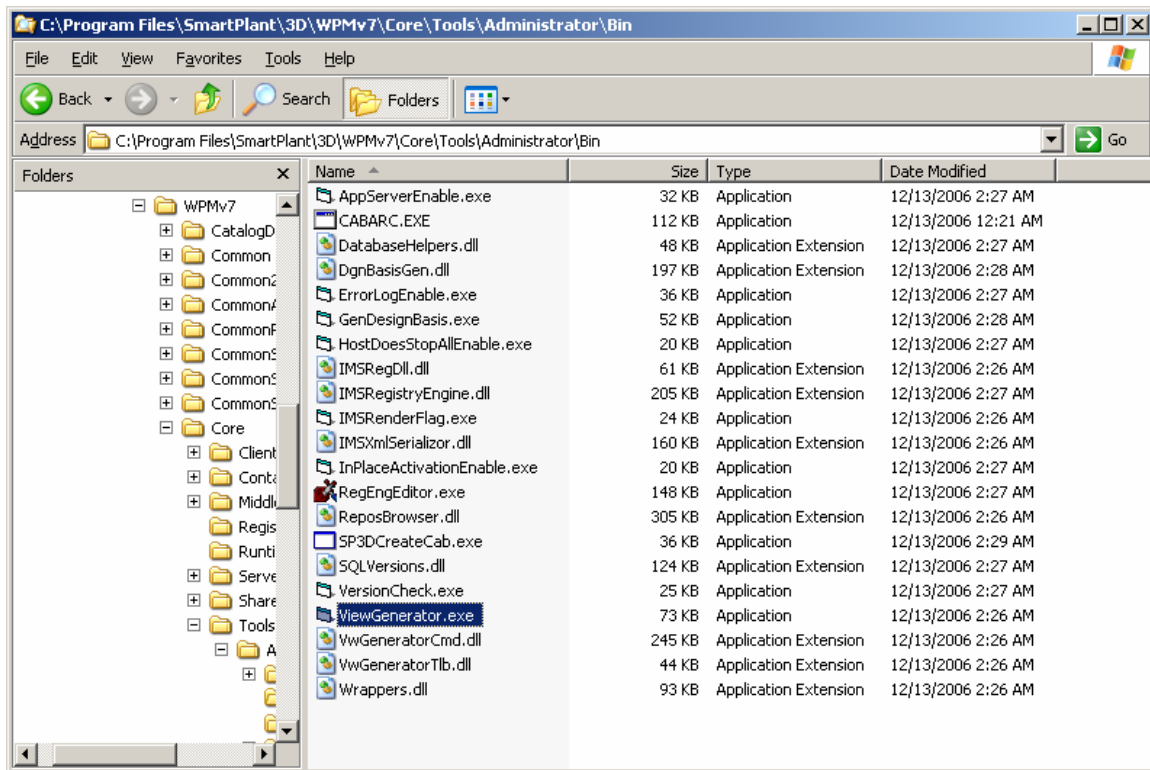
Catalog schema server: MOZART Catalog schema name: SP3DTrain\_CAT\_SCHEMA Version: 7.0.0

OK Cancel

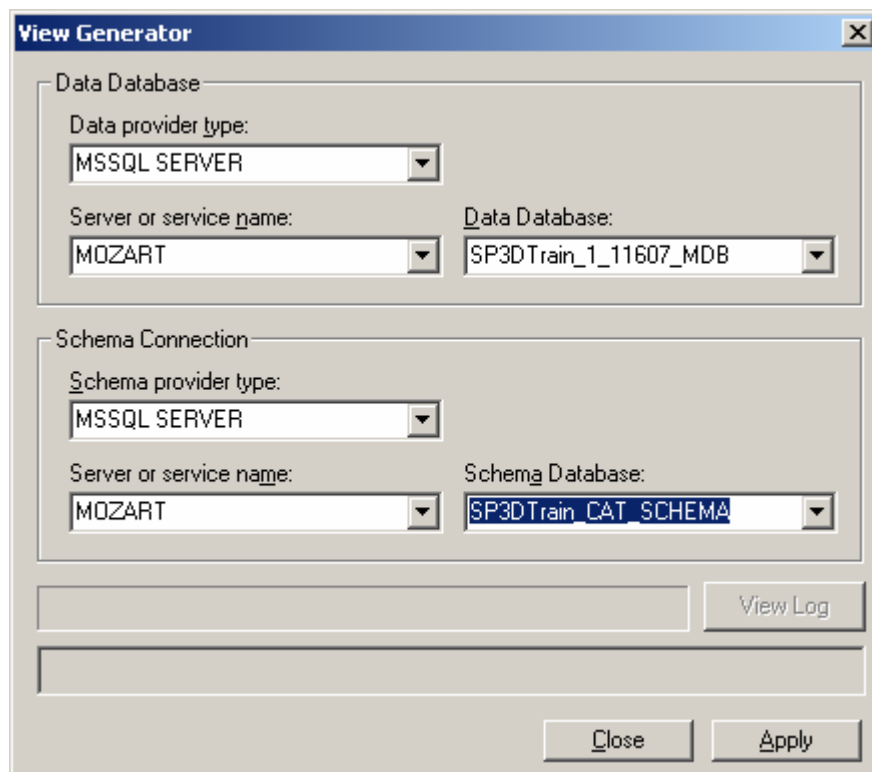
3. Not all Catalog changes require a true synchronization of the data. Perhaps we have added an entirely new part class to the Catalog that did not previously exist, or even a new Interface that did not previously exists. The views associated with this data would perhaps be missing from this restored model, or perhaps columns on prior views would be different.
4. You can actively select the action you want the command to do by selecting the check boxes according to your intent.

Recall that previously users had to manually run the view generator on the Model by executing the exe and completing the form identifying the Model and the Catalog\_Schema.





This method was prone to user error



5. Uncheck the Synchronize Model with Catalog action on the and then allow the command to run.

- Again, in a production or test environment you would then follow this action by regenerating the report database.

**Synchronize Model with Catalog**

Options

☐ Synchronize model with catalog ☒ Regenerate views

Catalog

Model database server: MOZART Model database name: SP3DTrain\_1\_11607\_MDB Version: 7.0.0

Model

Catalog database server: MOZART Catalog database name: SP3DTrain\_CAT Version: 7.0.0

Catalog schema server: MOZART Catalog schema name: SP3DTrain\_CAT\_SCHEMA Version: 7.0.0

OK Cancel

- Click OK and allow it to run to completion.

**Synchronize Model with Catalog**

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

Successfully updated the views in the model.

OK

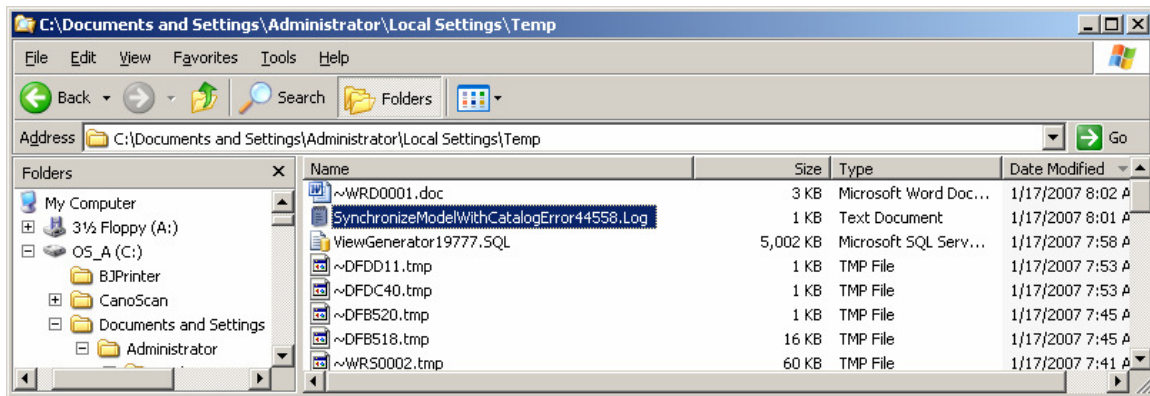
- Click OK

**Synchronize Model with Catalog**

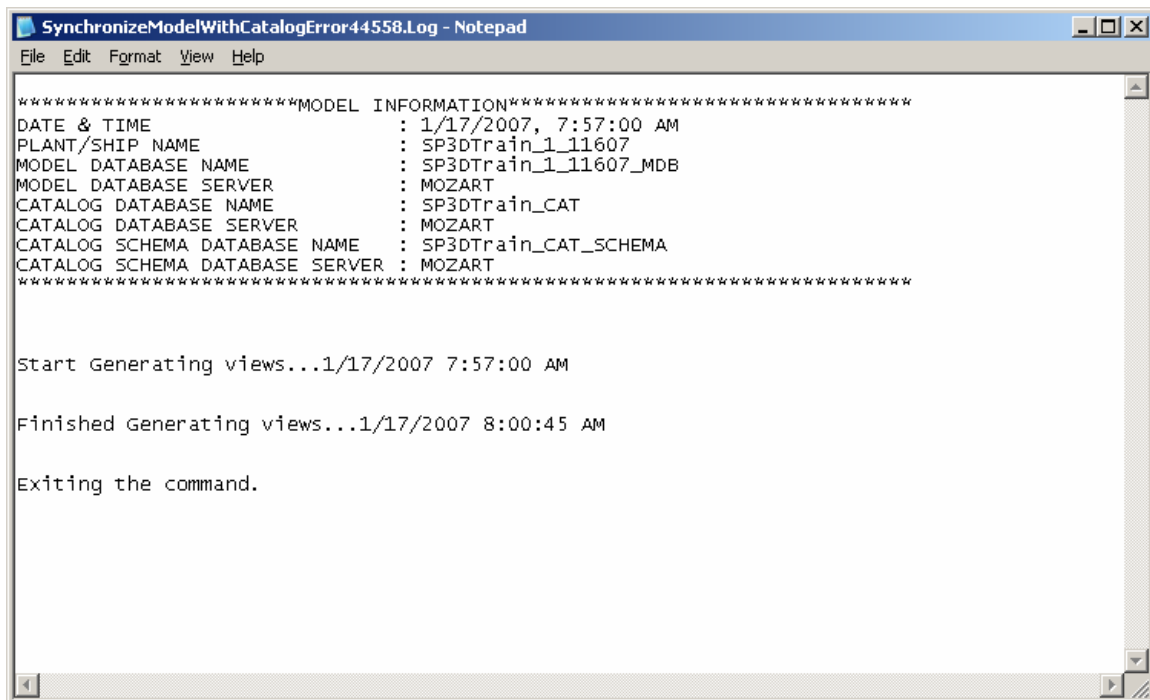
Done.

OK Cancel

- Click OK
- Go review the log file:



Because we only regenerated the views on the model, the log will only contain notes to that effect:



## LAB 12: New Catalog Command

### Objectives

After completing this lab, you will be able to:

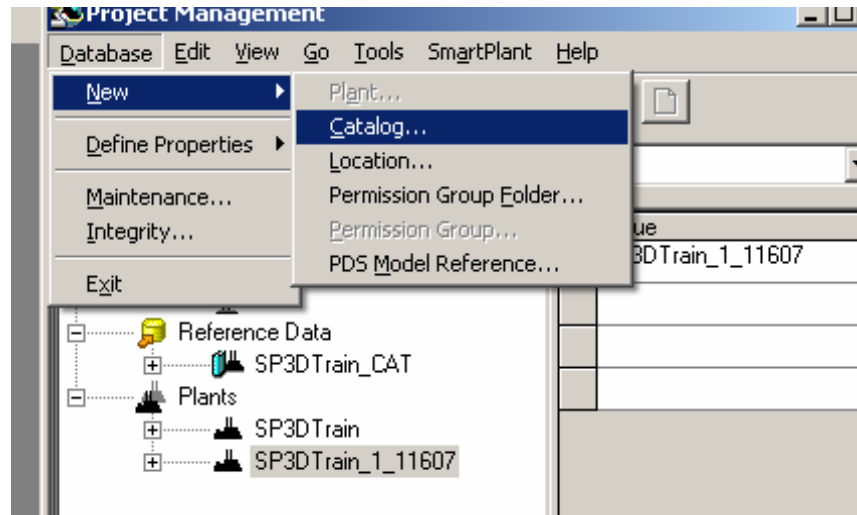
- Create a new Catalog from within Project Management.

Notes:

The New Catalog command allows you to create a new empty catalog without performing a backup load. 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 Workshare configurations this command is only available for use at the Host.

1. Start Project Management and from the Database→New menu select “Catalog...”

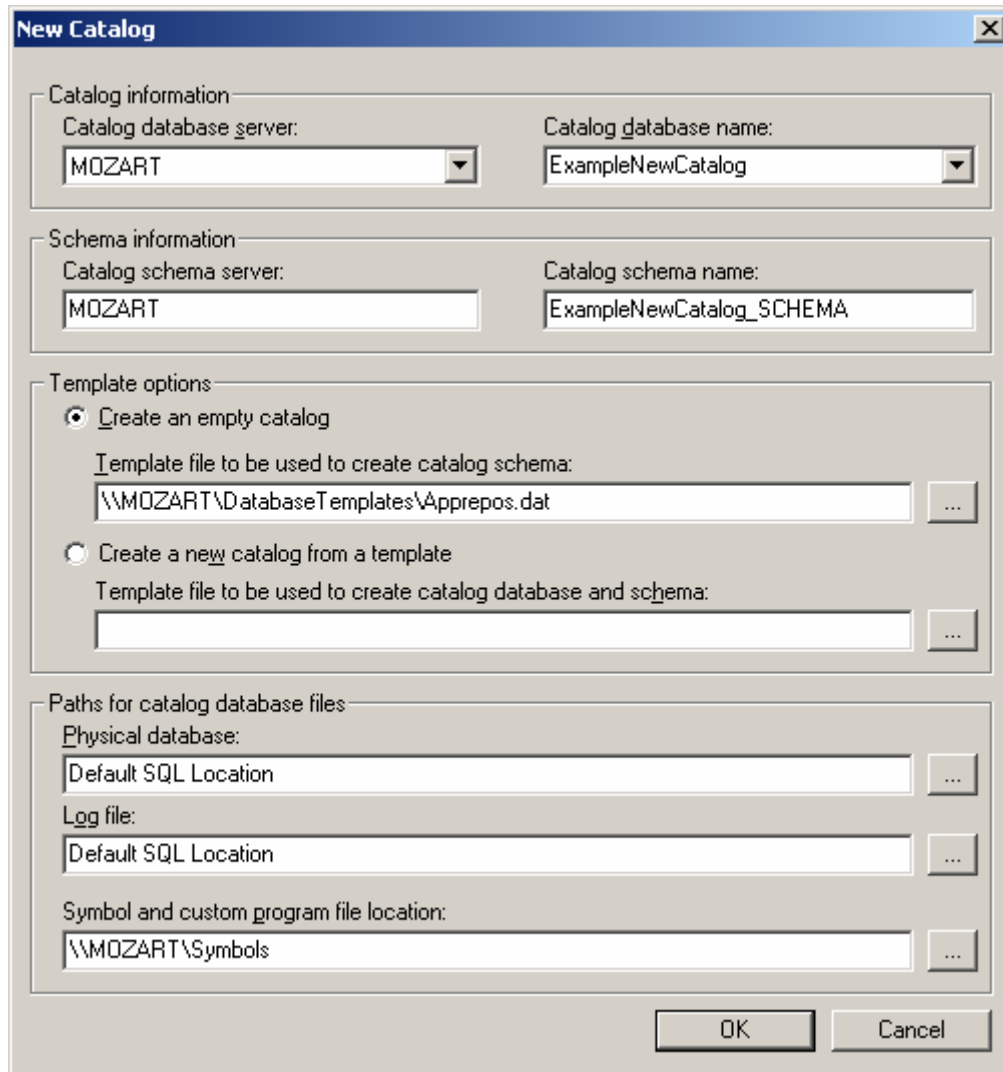


2. The form will appear and you can go ahead and select your server:

The 'New Catalog' dialog box is shown. It has four main sections: 'Catalog information', 'Schema information', 'Template options', and 'Paths for catalog database files'. In 'Catalog information', 'Catalog database server' is a dropdown menu set to 'MOZART', and 'Catalog database name' is an empty dropdown. In 'Schema information', 'Catalog schema server' is a text box with 'MOZART', and 'Catalog schema name' is an empty text box. In 'Template options', 'Create an empty catalog' is selected with a radio button. Below it, 'Template file to be used to create catalog schema:' is a text box containing '\\MOZART\\DatabaseTemplates\\Apprepos.dat'. Below that, 'Create a new catalog from a template' is unselected, and its corresponding text box is empty. In 'Paths for catalog database files', 'Physical database:' is a text box with 'Default SQL Location', 'Log file:' is a text box with 'Default SQL Location', and 'Symbol and custom program file location:' is an empty text box. At the bottom right are 'OK' and 'Cancel' buttons.

Note that some information is filled in for you if possible. If the Apprepose.dat is not at this location, or you wish to use another custom starting template you can specify that in the middle of the form.

3. From the “Catalog database name:” drop-down select <new database>, and then type over that value with something appropriate such as the text string below. Also go ahead and specify the symbol share path:

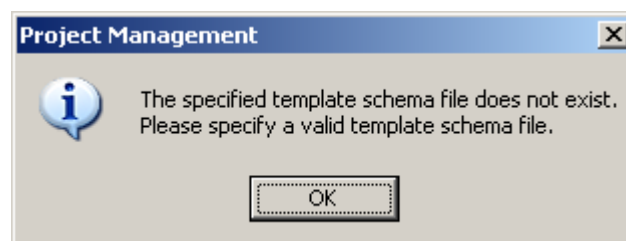


The "New Catalog" dialog box is shown with the following fields and options:

- Catalog information:**
  - Catalog database server: MOZART
  - Catalog database name: ExampleNewCatalog
- Schema information:**
  - Catalog schema server: MOZART
  - Catalog schema name: ExampleNewCatalog\_SCHEMA
- Template options:**
  - ☒ Create an empty catalog
  - Template file to be used to create catalog schema: \\MOZART\DatabaseTemplates\Apprepose.dat
  - ☐ Create a new catalog from a template
  - Template file to be used to create catalog database and schema: (empty)
- Paths for catalog database files:**
  - Physical database: Default SQL Location
  - Log file: Default SQL Location
  - Symbol and custom program file location: \\MOZART\Symbols

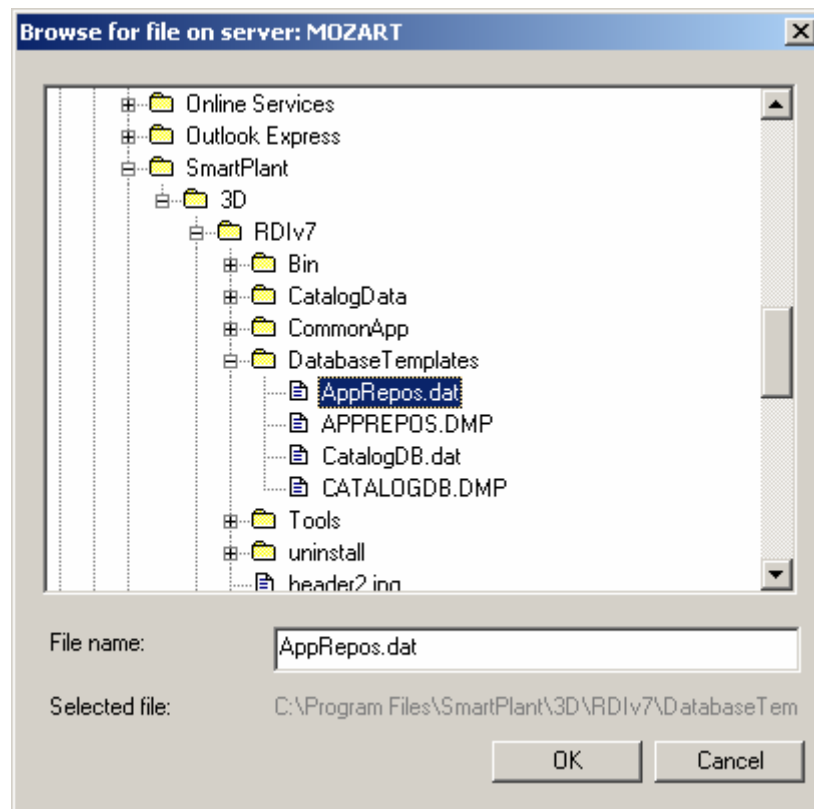
Buttons: OK, Cancel

4. When you have completed the form, click OK

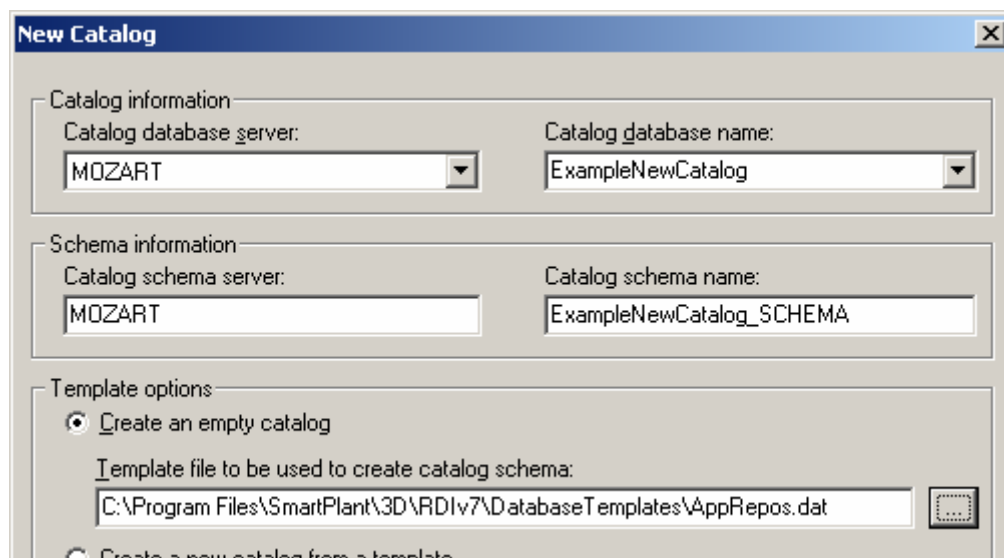


Note that we are using MSSQL and the UNC path cannot be utilized.

- Click OK and then use the ellipse button to specify the location of Apprepos.dat on the server:



- Click OK.



- Review the form and Click OK.

# LAB 13: Database Maintenance

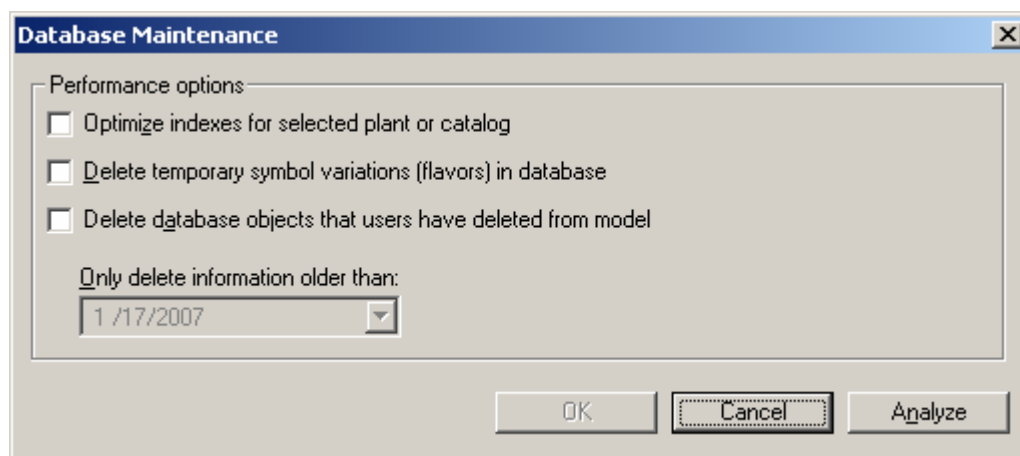
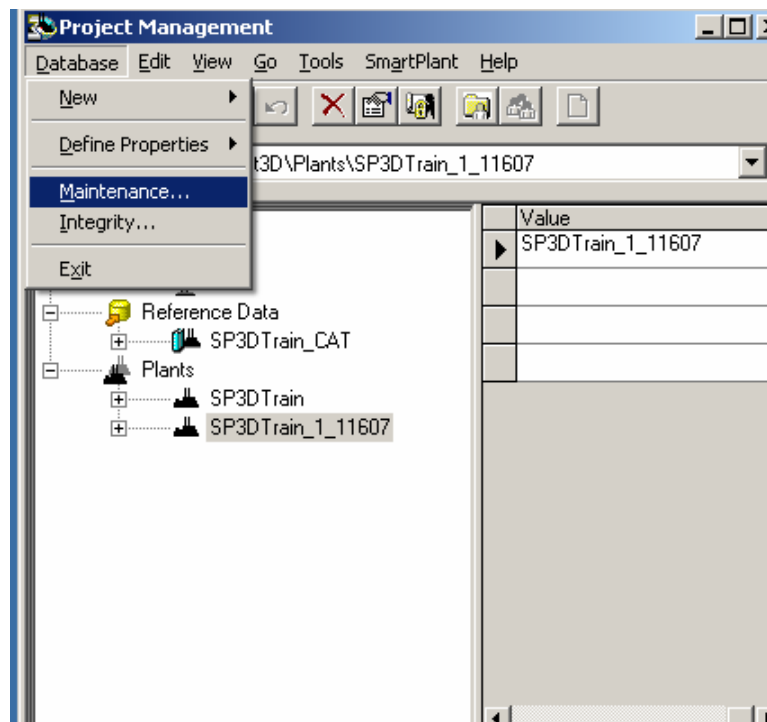
## Objectives

After completing this lab, you will be able to:

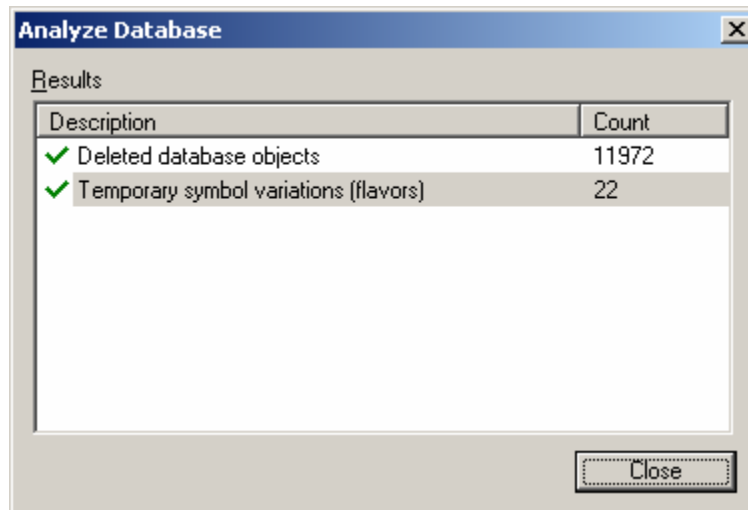
- Access the Maintenance form to perform optimization and cleaning on the database.

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

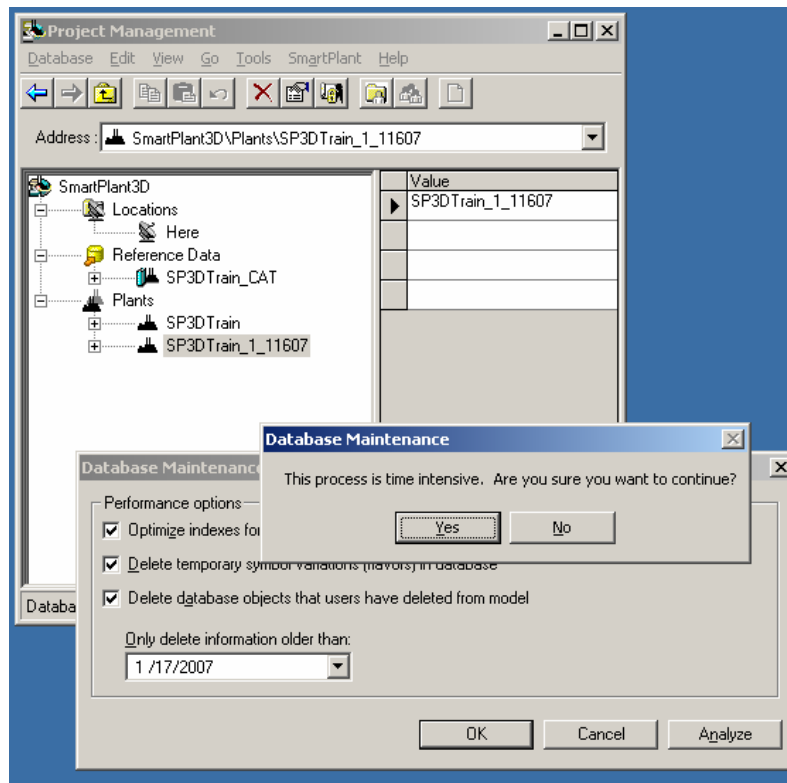
1. Start Project Management and select “Maintenance” from the Database menu:



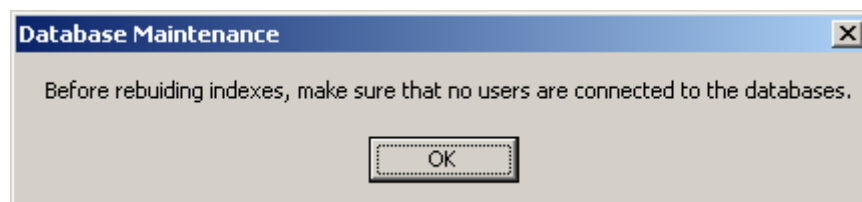
2. Place checkboxes in the three locations and then click on the Analyze button to understand the need:



3. If you wish to proceed with running the command, then click Close on the Analyze form and then click OK on the previous form.



4. Click Yes, thus acknowledging that it may take awhile.





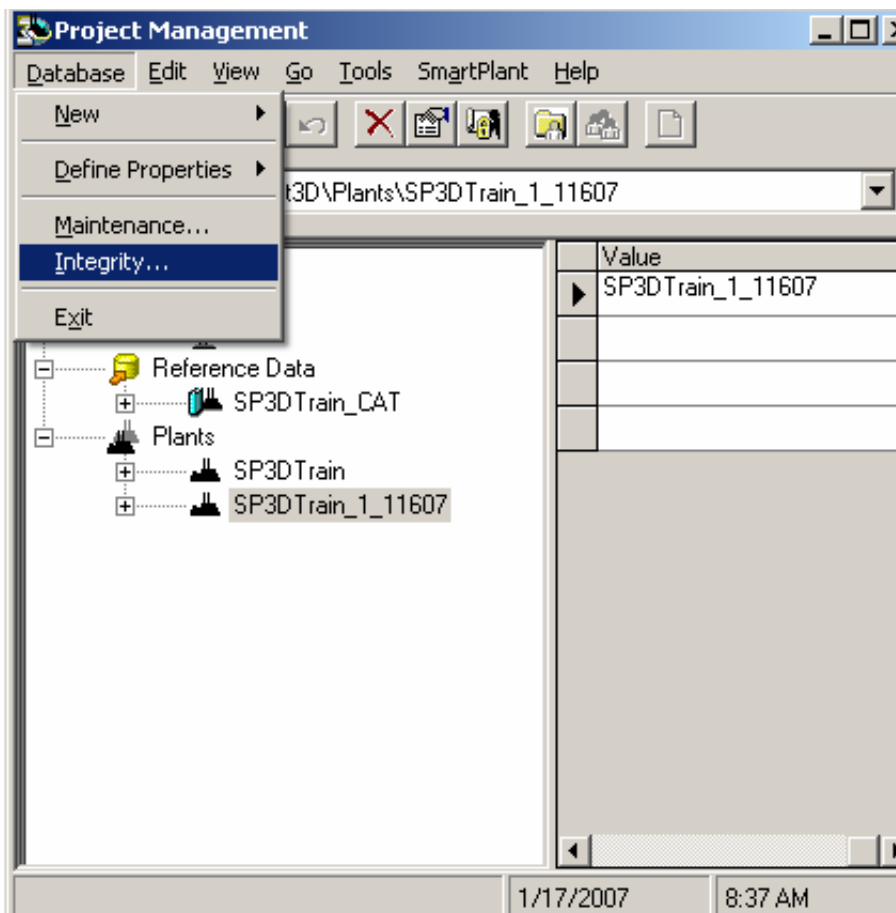
5. Note the warning message and then review the server to ensure that all users followed directions and disconnected from the server before hitting OK.
6. Once it is complete you can close the form by using the X or the Cancel button.

## LAB 14: Database Integrity

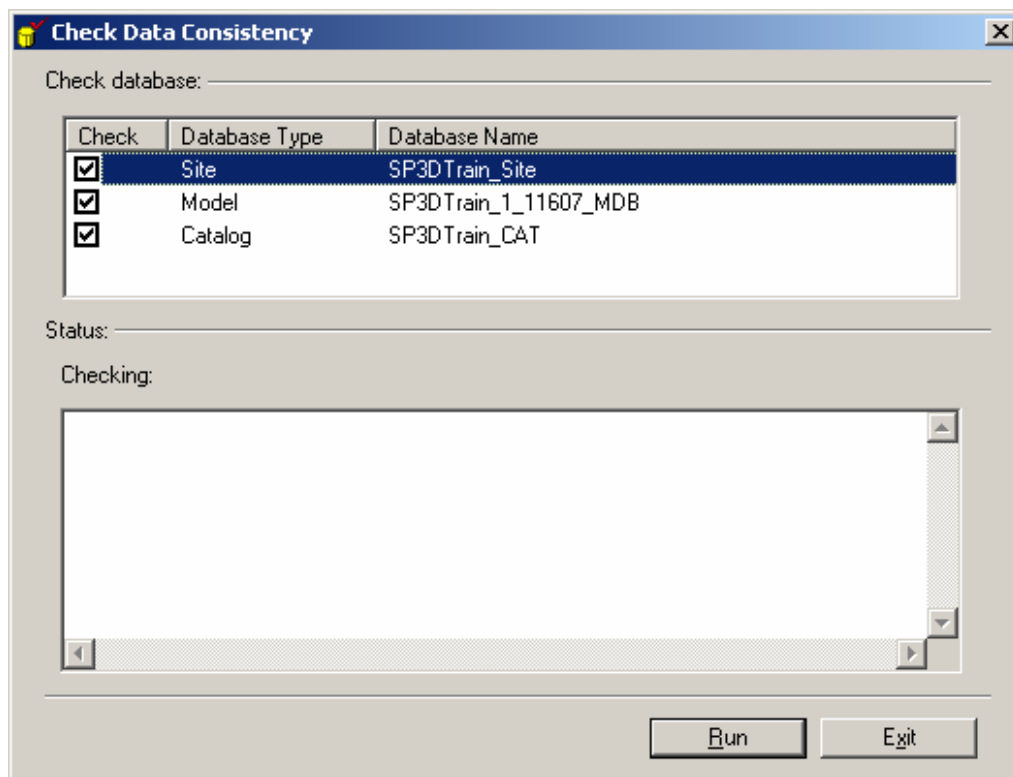
### Objectives

After completing this lab, you will be able to:

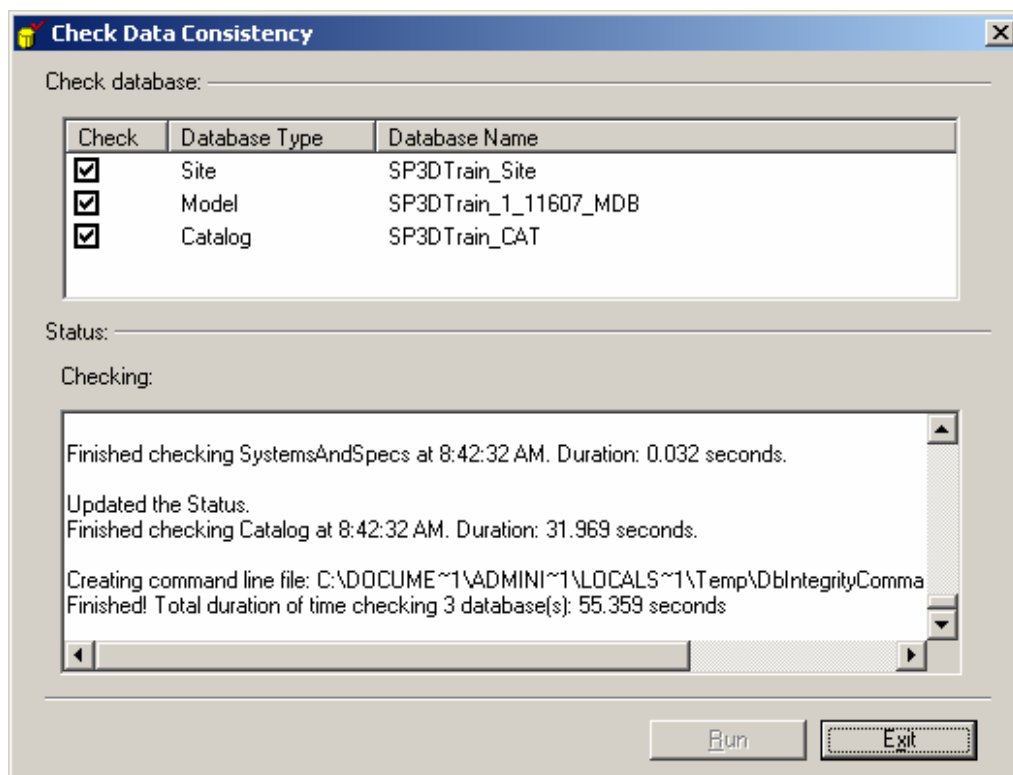
- Run the Database Integrity scripts without using a custom command.
1. Select the Plant you wish to run Integrity checking on, and then activate the Integrity... command from the Database menu.



2. This command was previously only accessible via a custom command add operation. Because of the frequency of use and the need to run the command as part of regular maintenance, it has been added to the Menu, otherwise, the operation of the scripts and form remain the same:



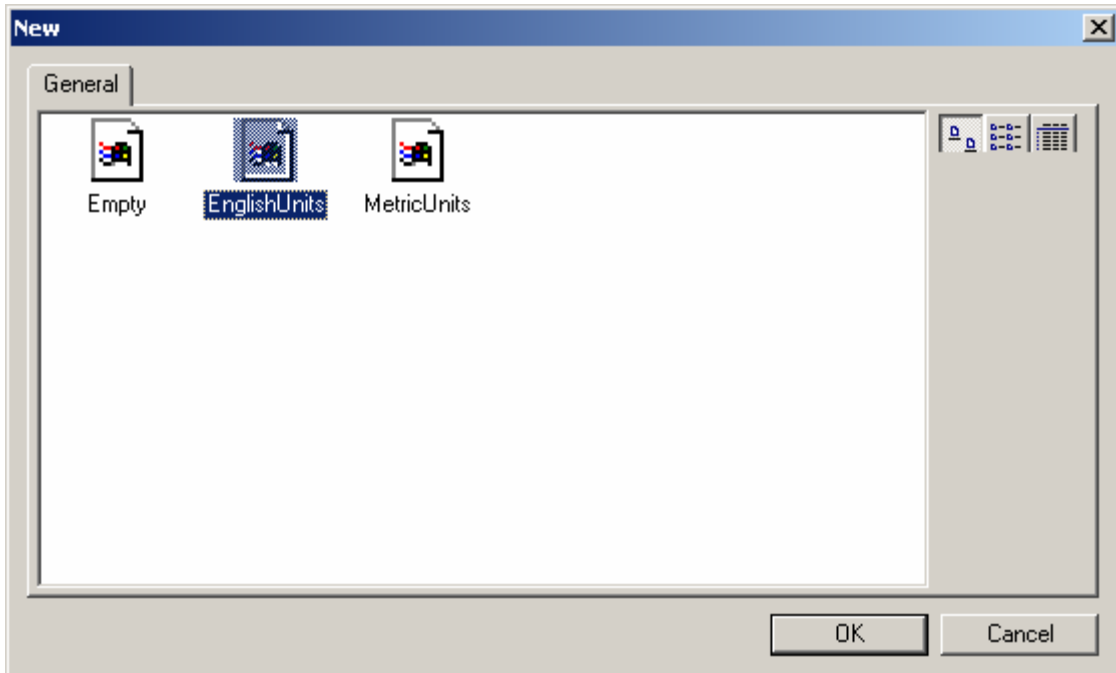
- Place check boxes in the database fields for any database you wish to check, and then select RUN.



4. Review all the scripts that were executed to make sure there were no catastrophic failures and then click Exit.

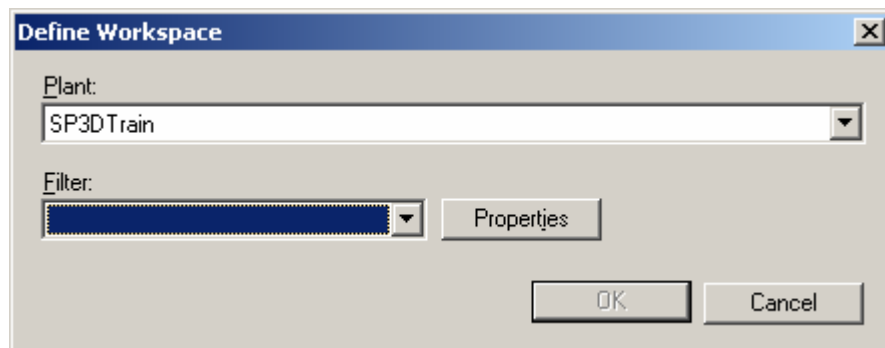
Note: You will still need to use the custom command SP3DCleanDatabaseCmd.CCcheckObj to perform the clean procedure and example of how to access this form in the event that there were items to be cleaned follows.

5. Start SmartPlant 3D and pick the English Session template:

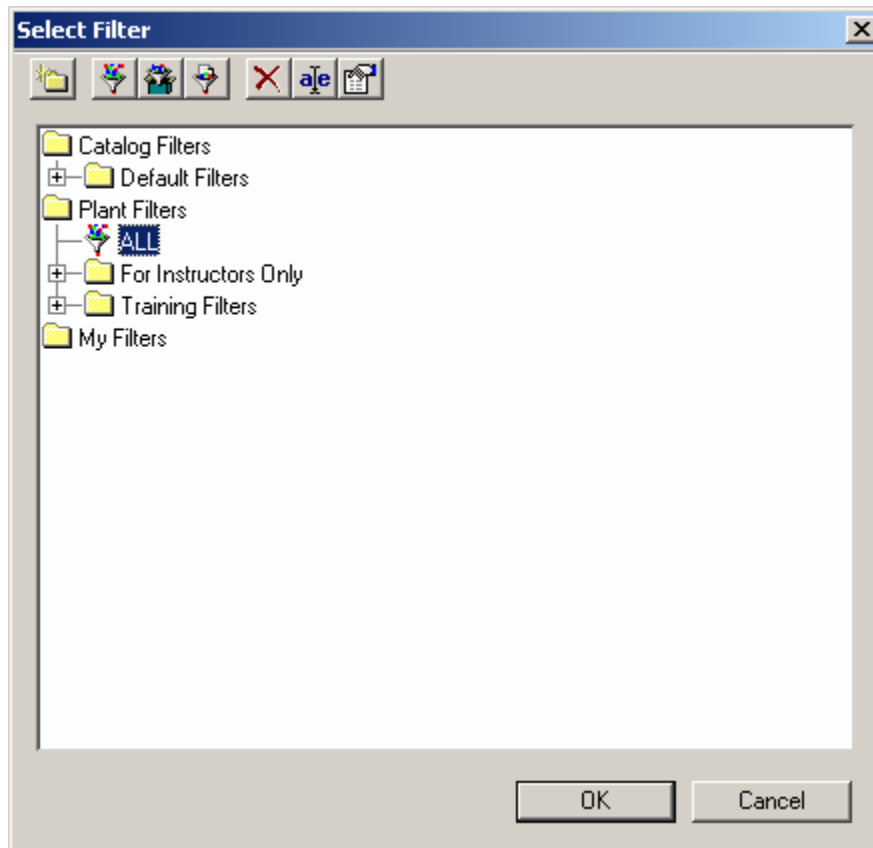


6. Click OK

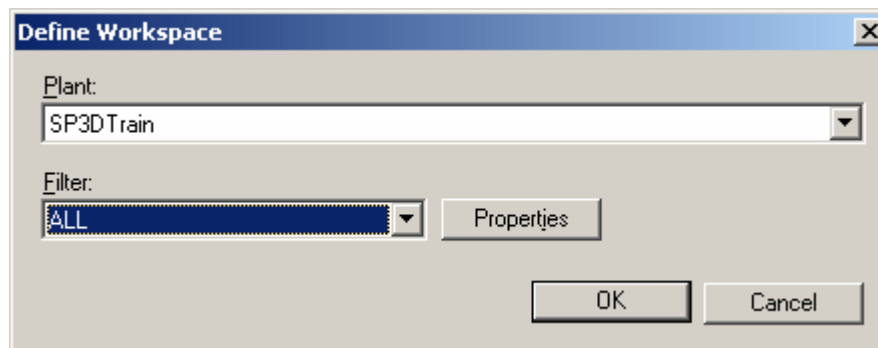
7. Use File → Define Workspace to pick the SP3DTrain plant:



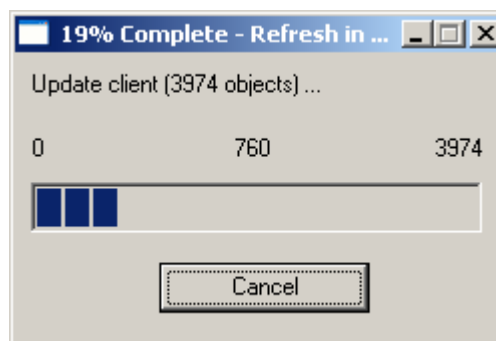
8. From the Filter drop down select “More..” and then pick the ALL filter



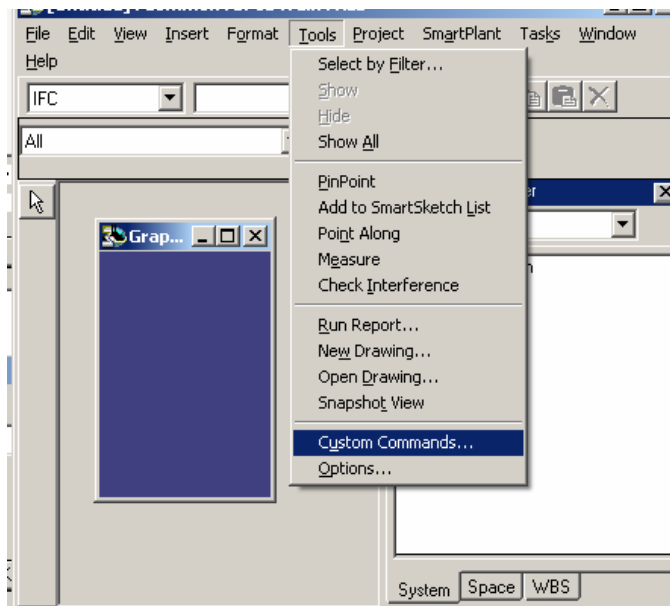
9. Click OK



10. Click OK on the Define Workspace form and allow the Refresh to complete.



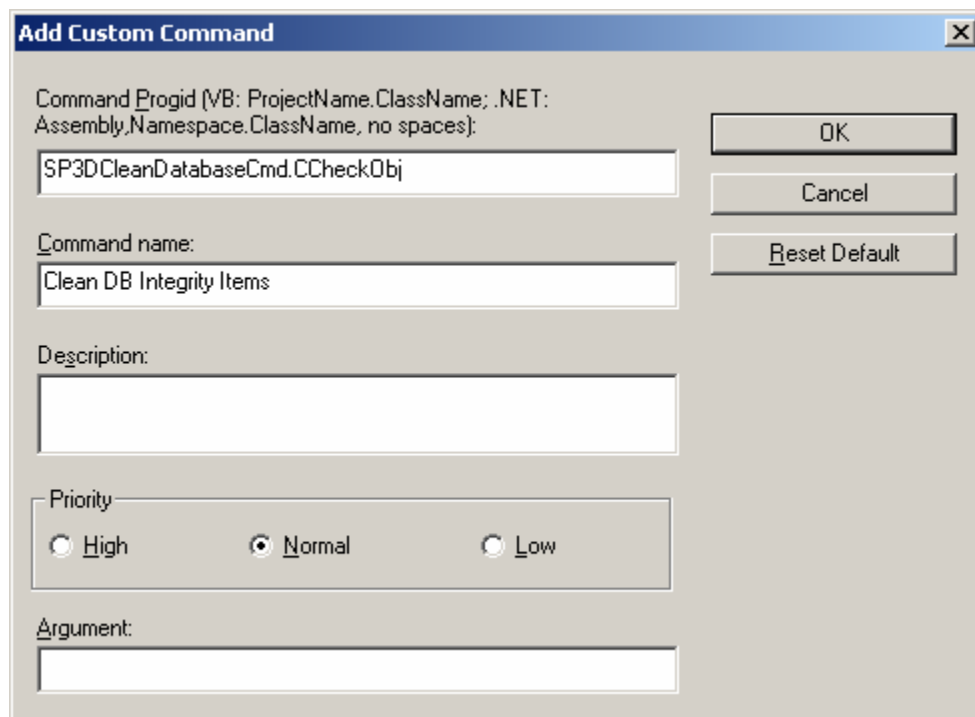
11. From the Tools menu select Custom Command....



12. The following form will be displayed:

 A dialog box titled "Custom Commands" with a close button (X) in the top right corner. It contains a label "Command names:" above a large, empty text input field. To the right of the input field are six buttons: Run, Close, Edit..., Add..., Delete, and Clear. At the bottom of the dialog is a label "Description:" above another empty text input field.

13. Click on the Add... button



**Add Custom Command**

Command Progid (VB: ProjectName.ClassName; .NET: Assembly.Namespace.ClassName, no spaces):

Command name:

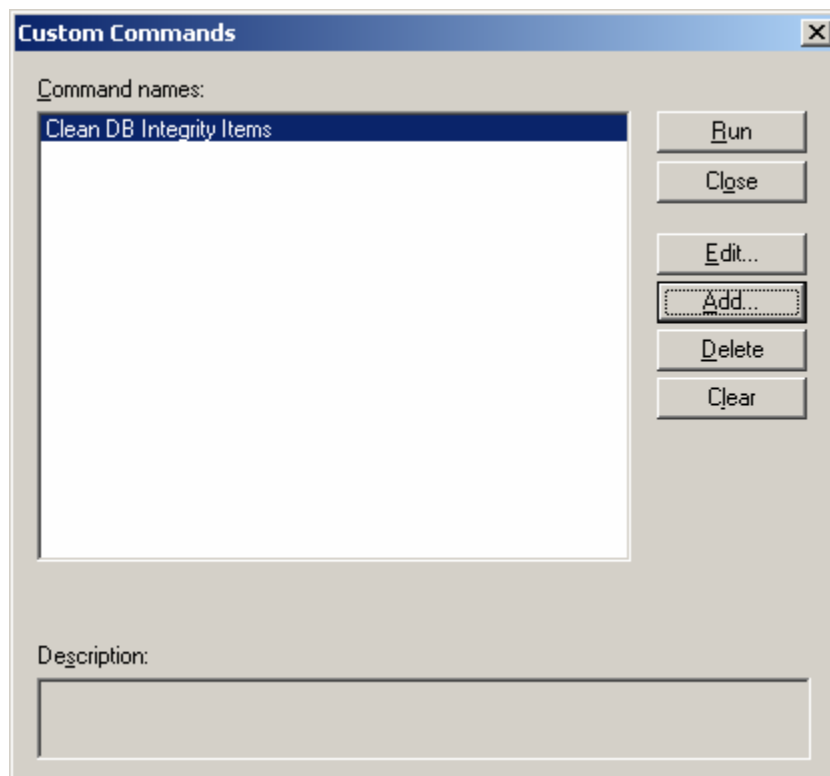
Description:

Priority:  
☐ High ☒ Normal ☐ Low

Argument:

OK  
Cancel  
Reset Default

14. Click OK after completing the form as depicted above.



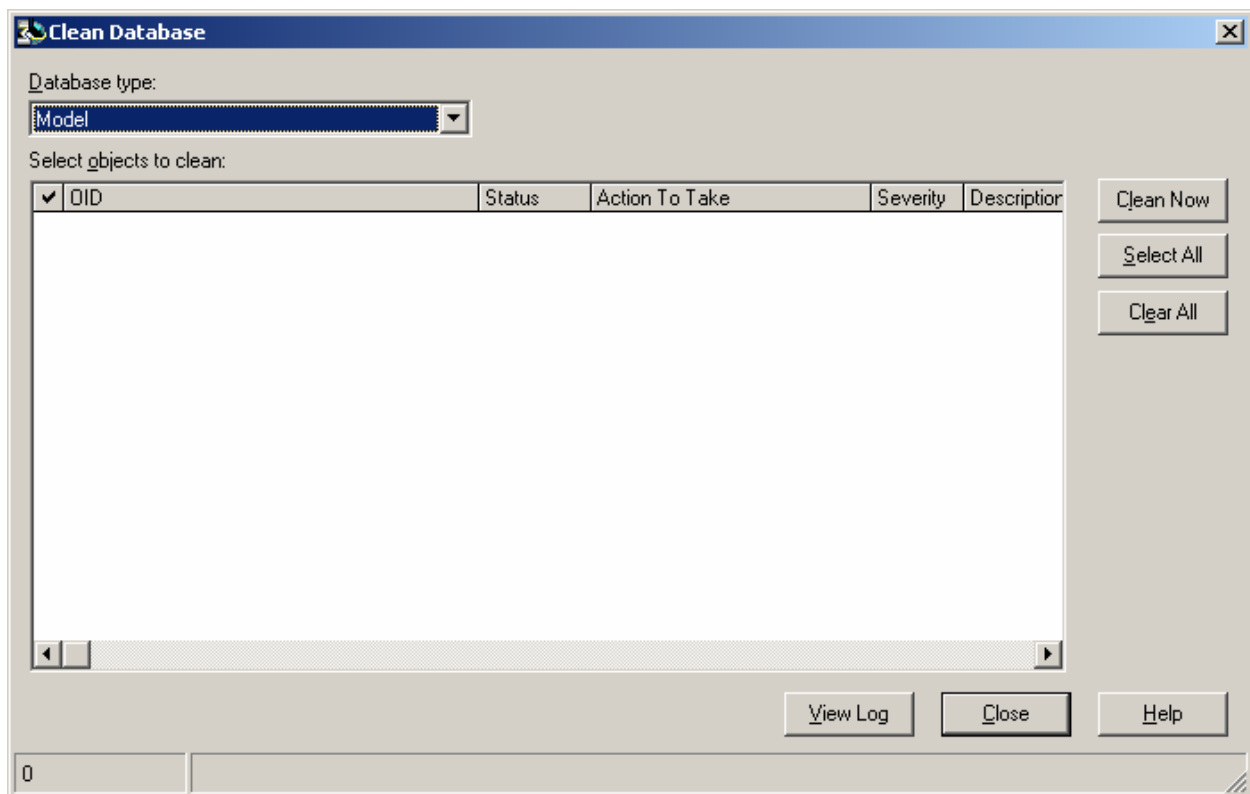
**Custom Commands**

Command names:

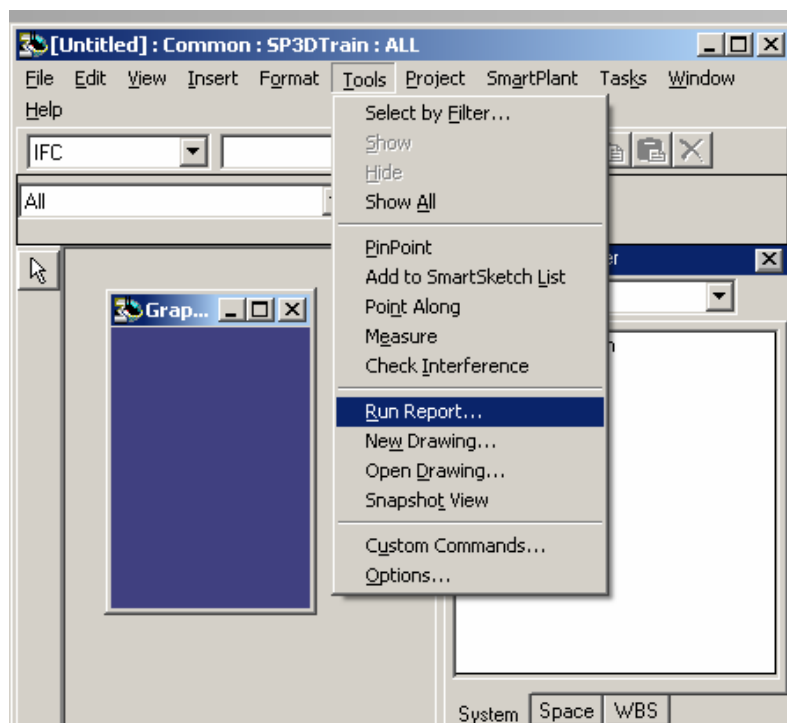
Run  
Close  
Edit...  
Add...  
Delete  
Clear

Description:

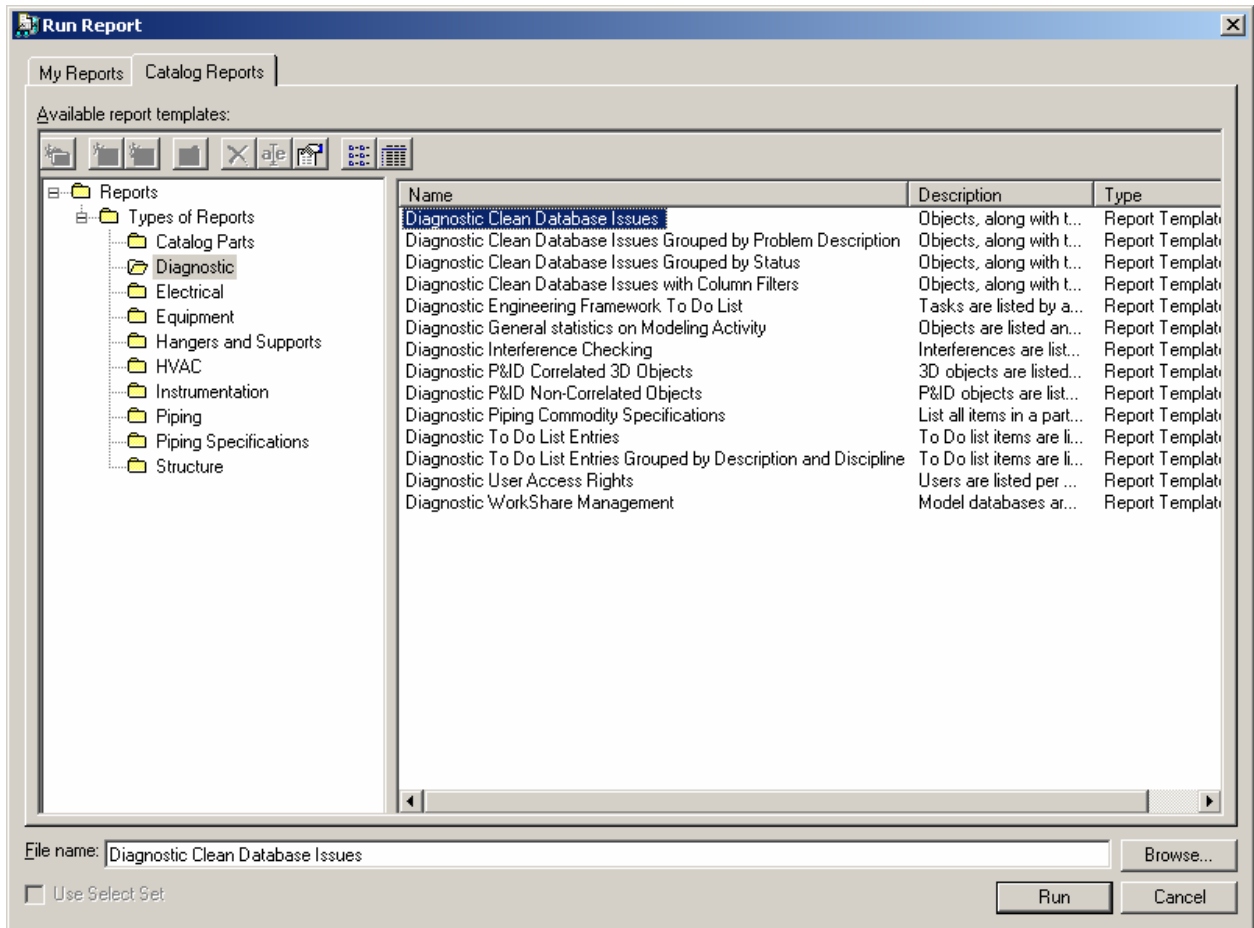
15. Click the Run command.



16. In general, you will use the Form to select any items that appear and then perform a Clean Now operation. Refer to the DBIntegrity help files (located in C:\Program Files\Common Files\Intergraph for more detailed information on specific issues).
17. Close the command and the Custom commands window.
18. From the Tools menu select Run Reports.



19. We will now run a report for the DBIntegrity items. This report could be executed both before and after the Clean command is executed. From the Catalog tab, select the report depicted below and execute it. If there had been any problems found by the Integrity script then this report would reflect it.



20. Click the Run command and an Excel workbook will appear that contains the results of the report.



Microsoft Excel - Diagnostic Clean Database Issues.xls [Read-Only]

File Edit View Insert Format Tools Data Window Help

Type a question for help

A11

	A	B	C	D	E	F
1	Plant Name:	SP3DTrain				
2	User:	MOZARTAdministrator				
3						
4	<b>Diagnostic Clean Database</b>					
5	<b>Note: In normal operation, this report should be empty.</b>					
6	<b>Object</b>					
7	<b>Name (Or Class Name)</b>	<b>DataStore</b>	<b>State</b>	<b>OID</b>	<b>Date Created</b>	<b>Date Deleted</b>
8	<b>First Relations</b>	<b>In Todo List</b>	<b>Approval</b>	<b>Permission Group</b>	<b>Date Modified</b>	<b>Deleted by</b>
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

DB Integrity

Ready NUM

21. Close Excel when through and then Close SP3D. If prompted to save a Session file, select no.

# LAB 15: Reference a PDS Project (Optional)

## Guidelines

SmartPlant 3D can only reference PDS projects version 7.2 or later.

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

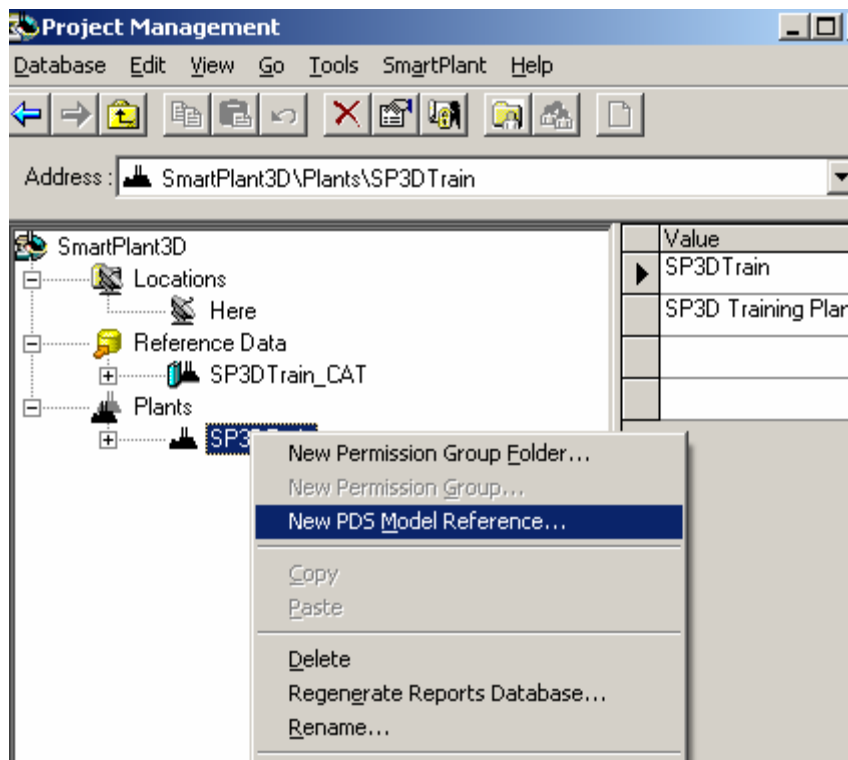
## Software installed

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

1. Microstation J 7.1.4.10 or later
2. PD\_Shell 7.2.0.15 or later
3. RIS Client 5.0.7 or later
4. PD\_SP3DDATA 07.02.00.28 or later (to match version of PDS)

## Procedure to reference

1. Using PDS Configure, point to the pds.cmd file that contains the path to the profile that contains the PDS project to reference
2. Using RIS Schema Manager point to the schemas file for the PDS project to reference
3. Using Project Management, attach the PDS project to the SP3D plant by selecting the plant, right mouse and selecting “New PDS Model Reference...” from the fly out.



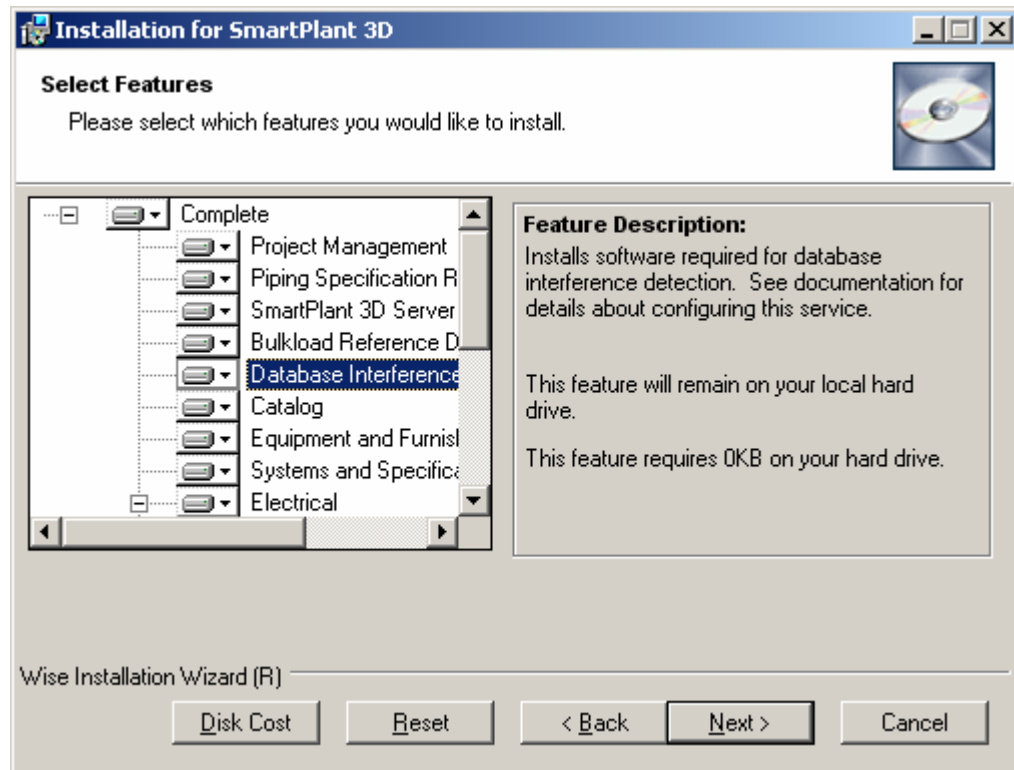
### Dos and don'ts

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.

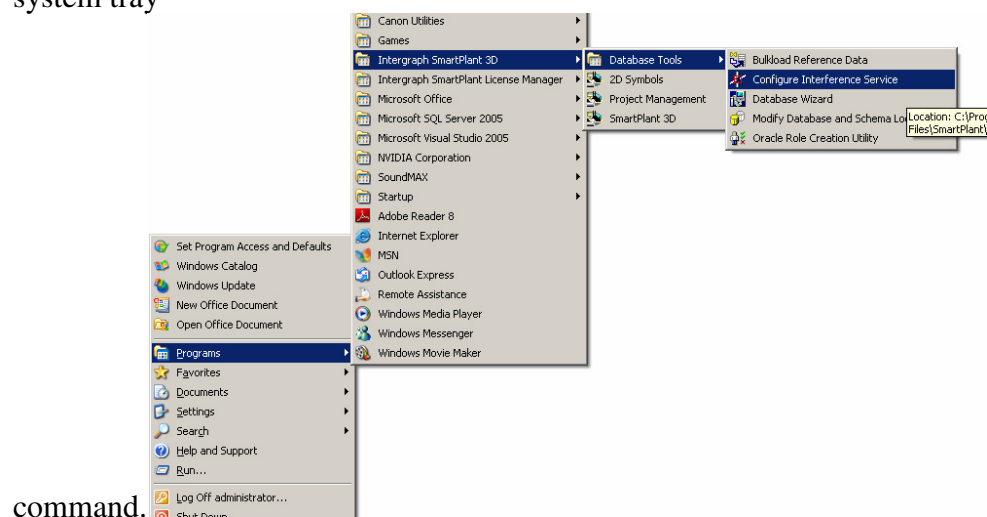
# LAB 16: Interference Checking

## Database Detect


1. During the installation of the software we picked the option “Database Interference Detection Service” Thus making this workstation a potential IFC Server.

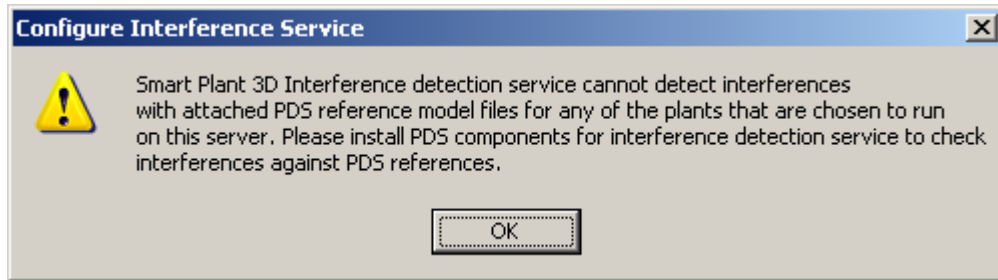


2. Click on the Configure Interference Service if the  icon is missing from your system tray

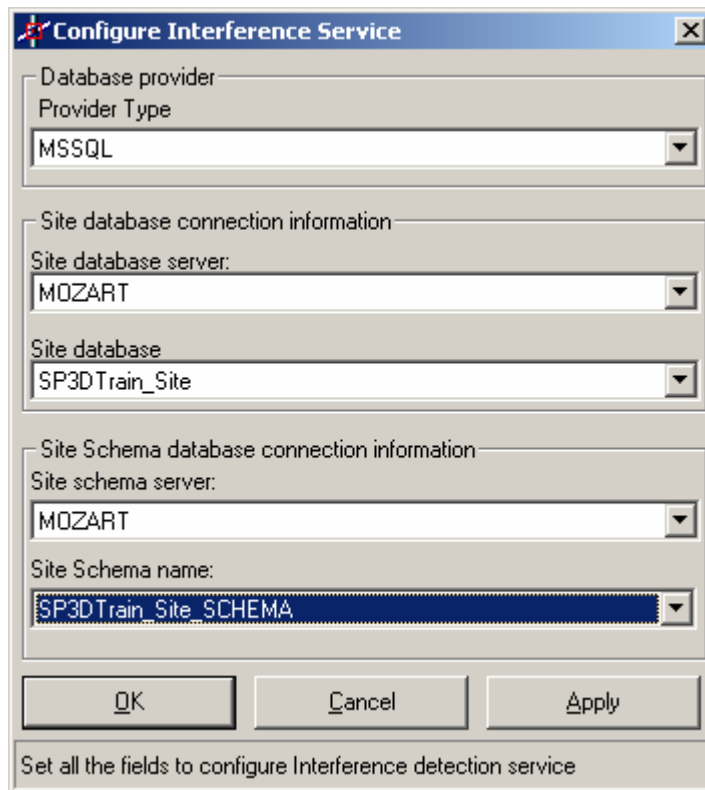


command.

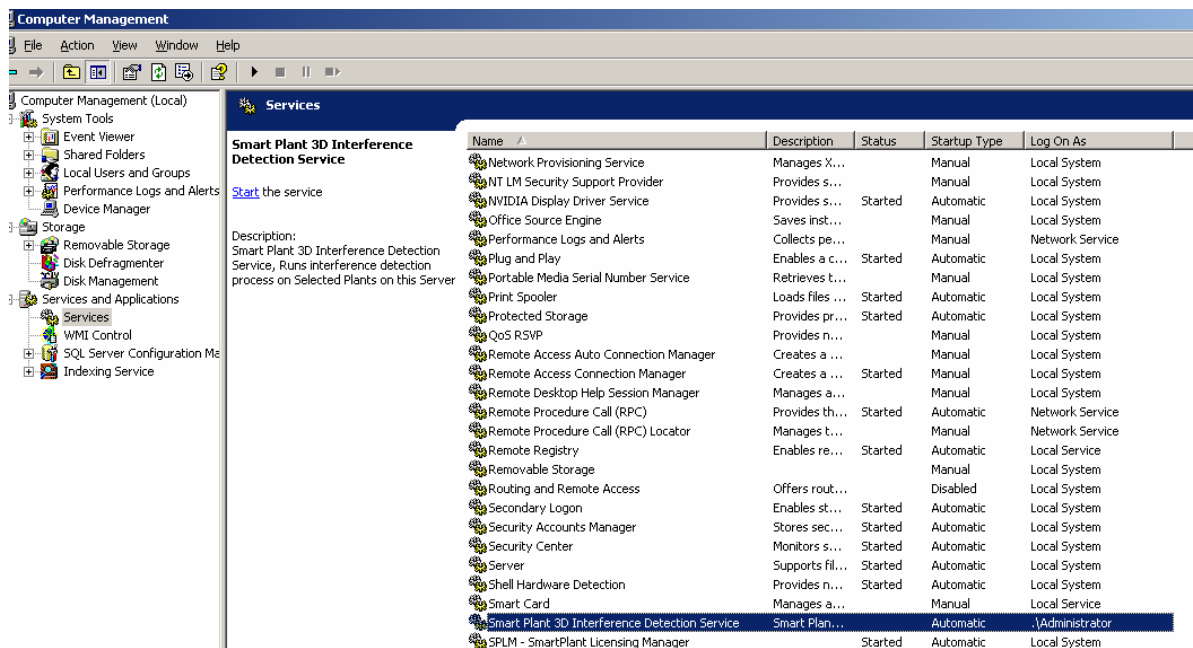
3. There will now appear an icon in your system tray: 
4. Right mouse on this icon and select “Interference Service Configuration Manager”
5. The following message may appear depending upon the configuration of your workstation, if it does, then click OK.



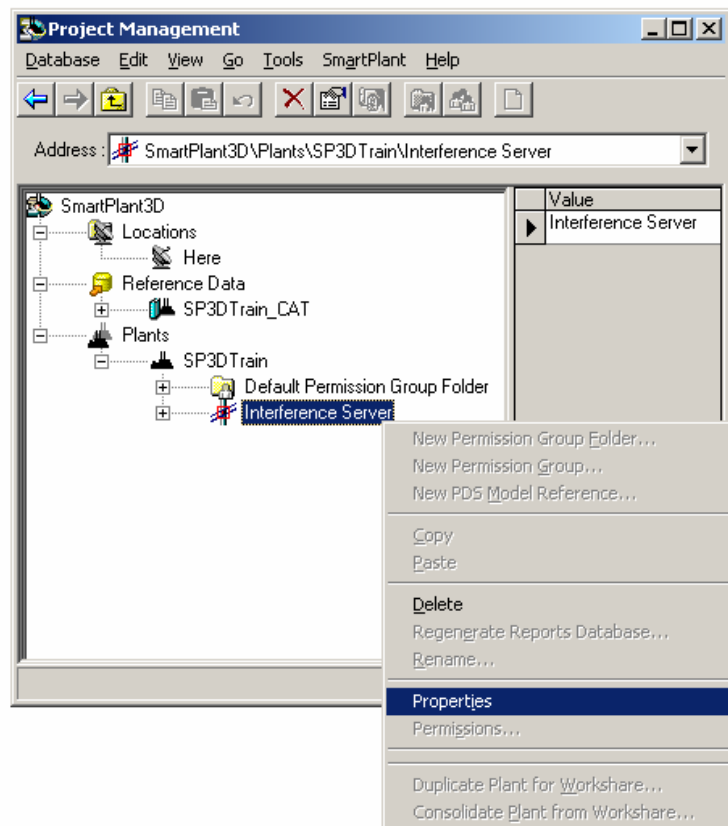
6. Complete the form as depicted below identifying the SP3DTrain\_Site and SP3DTrain\_Site\_SCHEMA. By completing this form in this manner you are indicating that this IFC Server can process any Plant that belongs to this Site Database.

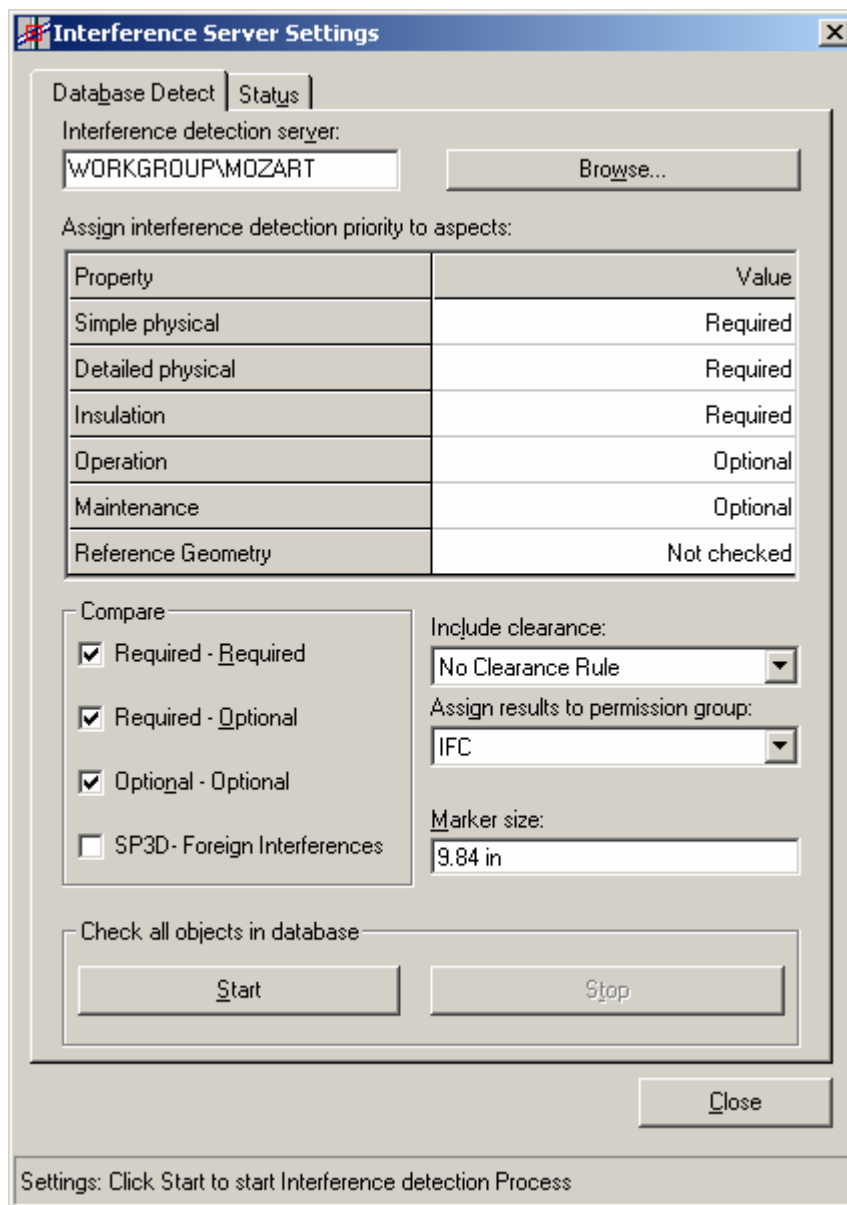


- 7.
8. Click Apply.
9. This may fail if the credentials supplied to the Service have changed or are not adequate for executing this command. Open the Services branch and locate the SP3D Interference Detection Service and Start it.



10. Start Project Management, and expand the SP3DTrain plant. Right mouse on the Interference Server and select Properties.





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

**Interference detection server:**  
 WORKGROUP\MOZART Browse...

**Assign interference detection priority to aspects:**

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

**Compare**

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

**Include clearance:**  
 No Clearance Rule ▼

**Assign results to permission group:**  
 IFC ▼

**Marker size:**  
 9.84 in

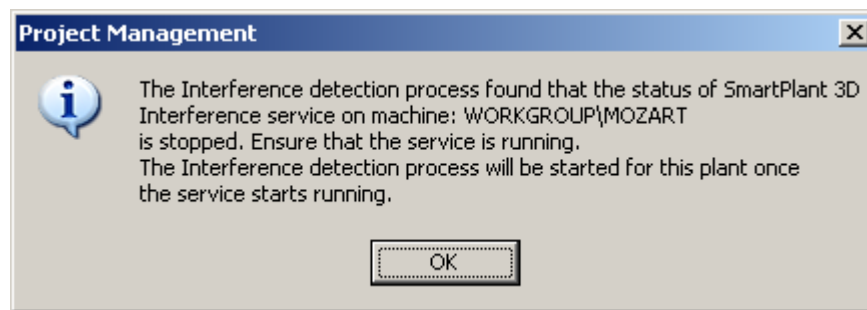
**Check all objects in database**

Start Stop

Close

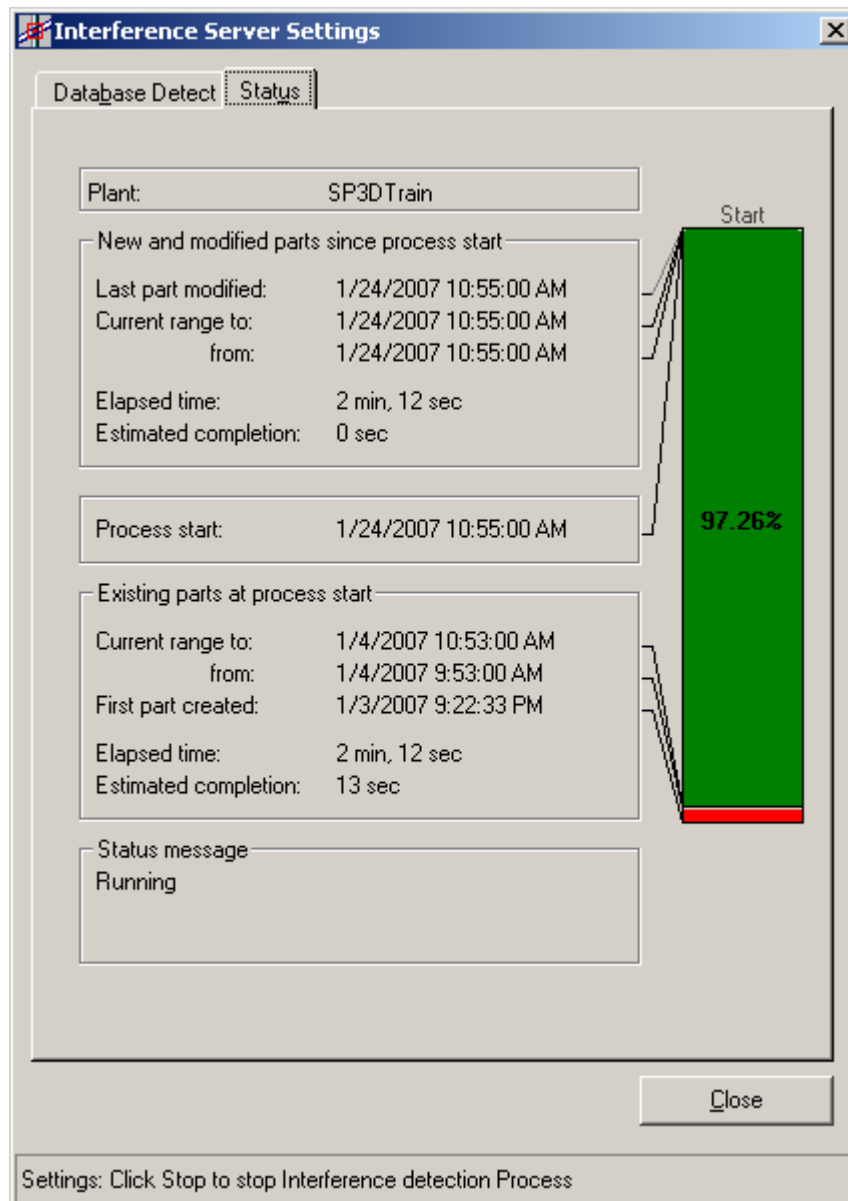
Settings: Click Start to start Interference detection Process

11. Complete the form as depicted above identifying the Domain where the place holder above says "Workgroup" followed by a "\" and the machine name where the IFC Service is loaded. In a production environment this form could be completed from any machine and does not need to be completed from the IFC machine.
12. Click on the Start Button.
13. If the Service was not started step 9 you may be presented with the following message:



14. Close the IFC form.

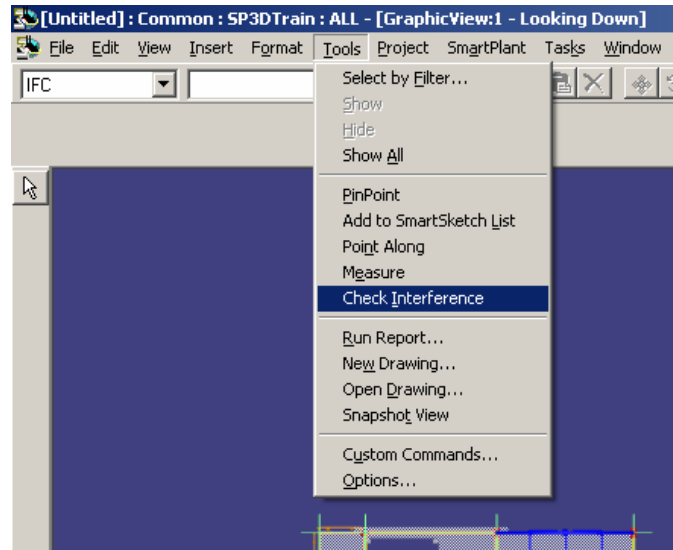
15. It may take up to 4 minutes for the processing to start. When it begins to run, you can review the progress on the Status tab:



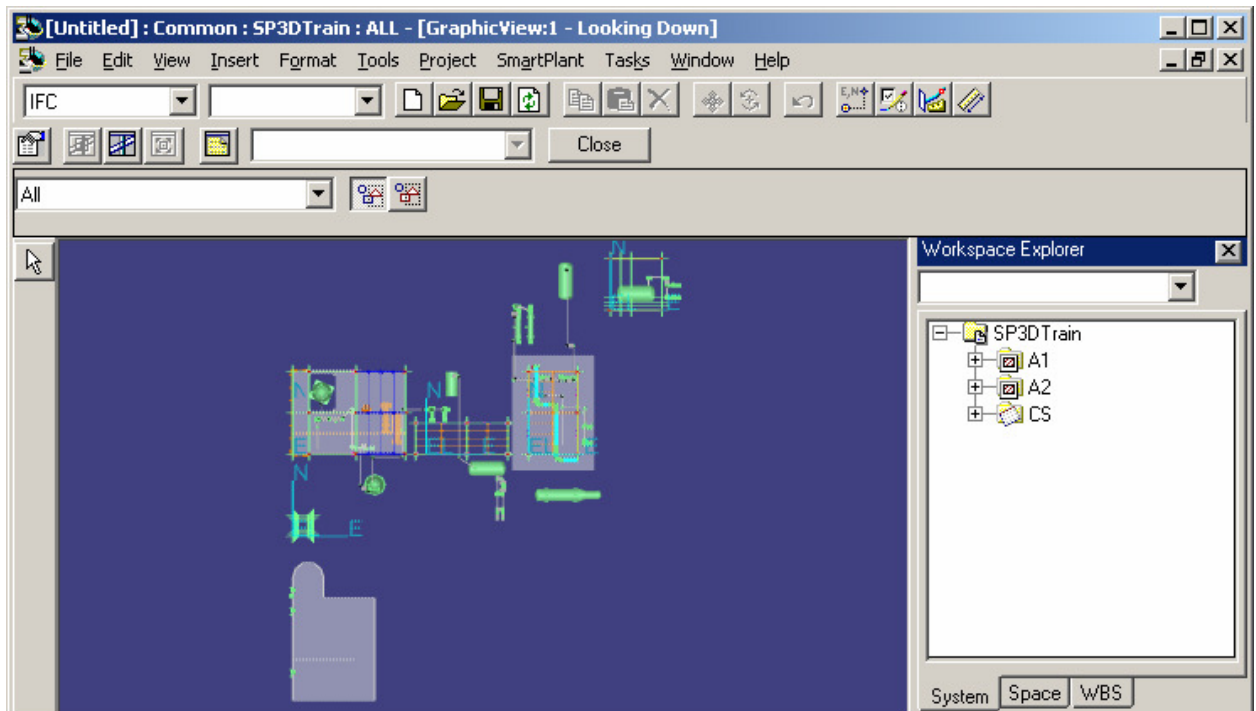
16. When the process reaches 100% start Smart Plant 3D and define the workspace with the All filter like we did in the earlier lab.



17. From the Tools menu select Check Interference



18. A new toolbar will be displayed:



19. Click on the yellow icon to see the Interference List

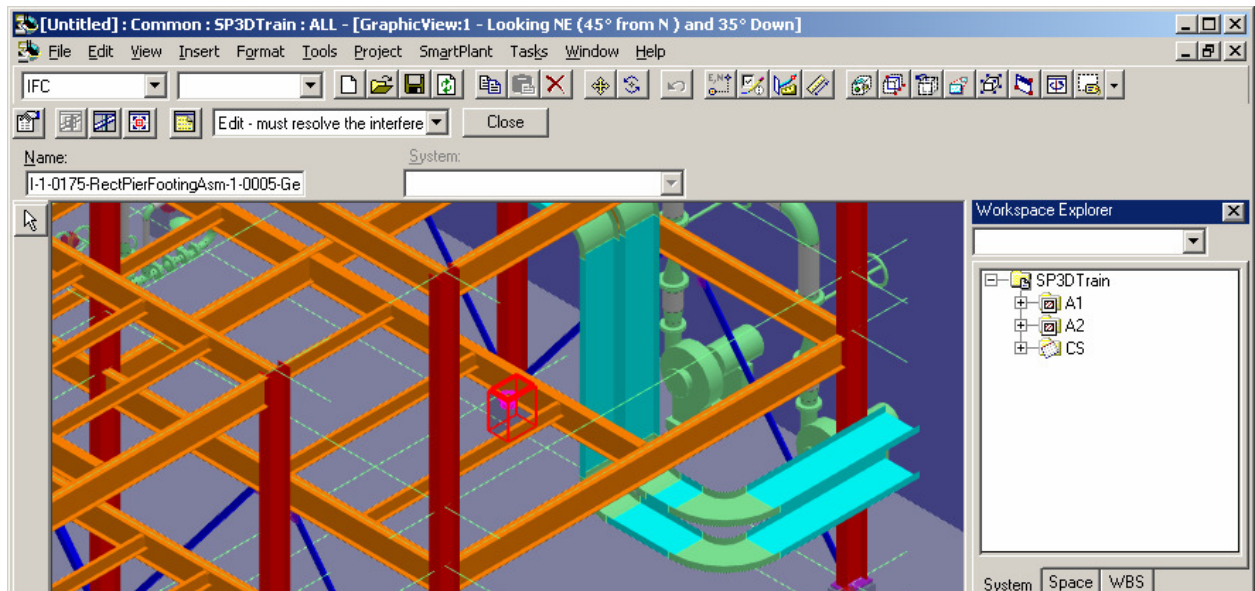
Interference List						
Name	Part A	Part B	Type	Required Action	Last Modified	
I-1-0177-RectPierF...	RectPierFootingsAs...	GenericRectPlate...	Severe	Edit - must resol...	2007-01-24 10:56:18	
I-1-0176-RectPierF...	RectPierFootingsAs...	GenericRectPlate...	Severe	Edit - must resol...	2007-01-24 10:56:18	
I-1-0175-RectPierF...	RectPierFootingsAs...	GenericRectPlate...	Severe	Edit - must resol...	2007-01-24 10:56:18	
I-1-0174-RectPierF...	RectPierFootingsAs...	GenericRectPlate...	Severe	Edit - must resol...	2007-01-24 10:56:18	
I-1-0173-RectPierF...	RectPierFootingsAs...	GenericRectPlate...	Severe	Edit - must resol...	2007-01-24 10:56:18	
I-1-0172-RectPierF...	RectPierFootingsAs...	GenericRectPlate...	Severe	Edit - must resol...	2007-01-24 10:56:18	
I-1-0171-Column-1-...	Column-1-0363	Slab-1-0201	Severe	Edit - must resol...	2007-01-24 10:56:17	
I-1-0170-Column-1-...	Column-1-0363	Slab-1-0202	Severe	Edit - must resol...	2007-01-24 10:56:17	
I-1-0169-Column-1-...	Column-1-0365	Slab-1-0202	Severe	Edit - must resol...	2007-01-24 10:56:17	
I-1-0168-Column-1-...	Column-1-0365	Slab-1-0201	Severe	Edit - must resol...	2007-01-24 10:56:17	
I-1-0167-Column-1-...	Column-1-0366	Slab-1-0203	Severe	Edit - must resol...	2007-01-24 10:56:17	
I-1-0166-Column-1-...	Column-1-0367	Slab-1-0201	Severe	Edit - must resol...	2007-01-24 10:56:17	
I-1-0165-Column-1-...	Column-1-0367	Slab-1-0202	Severe	Edit - must resol...	2007-01-24 10:56:17	
I-1-0164-Column-1-...	Column-1-0368	Slab-1-0203	Severe	Edit - must resol...	2007-01-24 10:56:17	
I-1-0163-Column-1-...	Column-1-0359	Slab-1-0201	Severe	Edit - must resol...	2007-01-24 10:56:17	
I-1-0162-Column-1-...	Column-1-0360	Slab-1-0203	Severe	Edit - must resol...	2007-01-24 10:56:17	
I-1-0161-Column-1-...	Column-1-0361	Slab-1-0201	Severe	Edit - must resol...	2007-01-24 10:56:16	

20. Selecting a row from this list will highlight the IFC object.

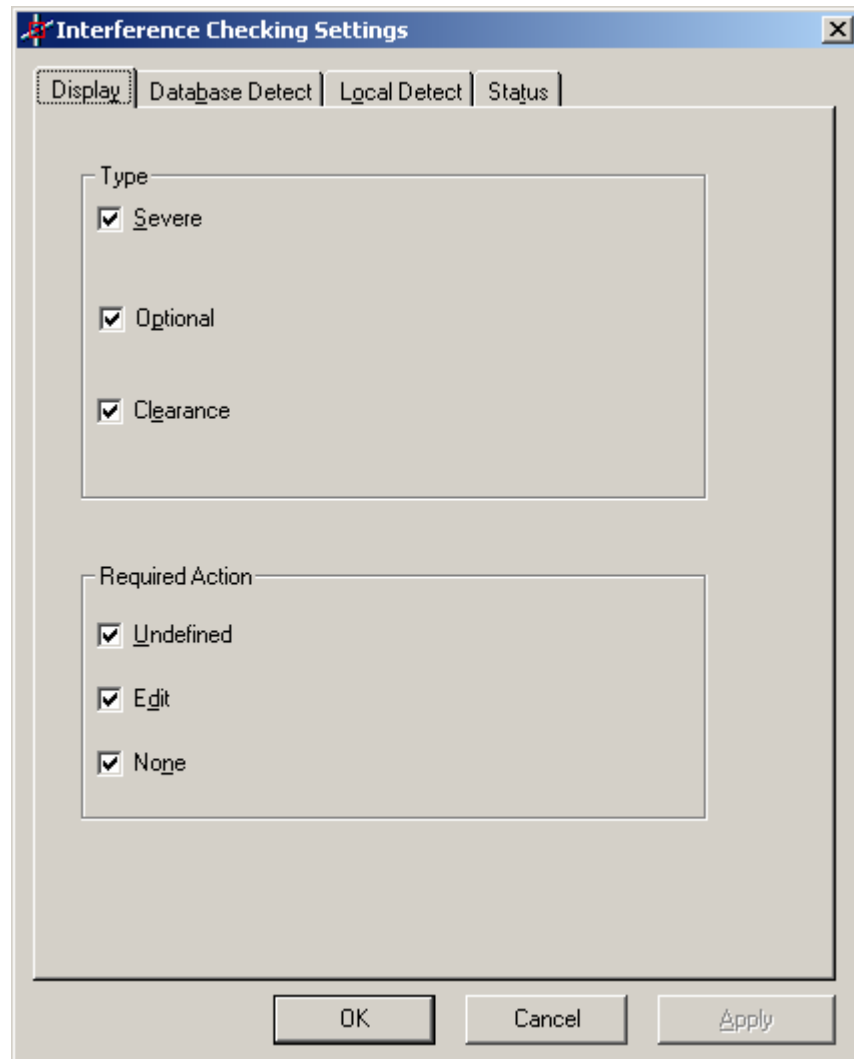


21. Click on the “Fit Interferences” button

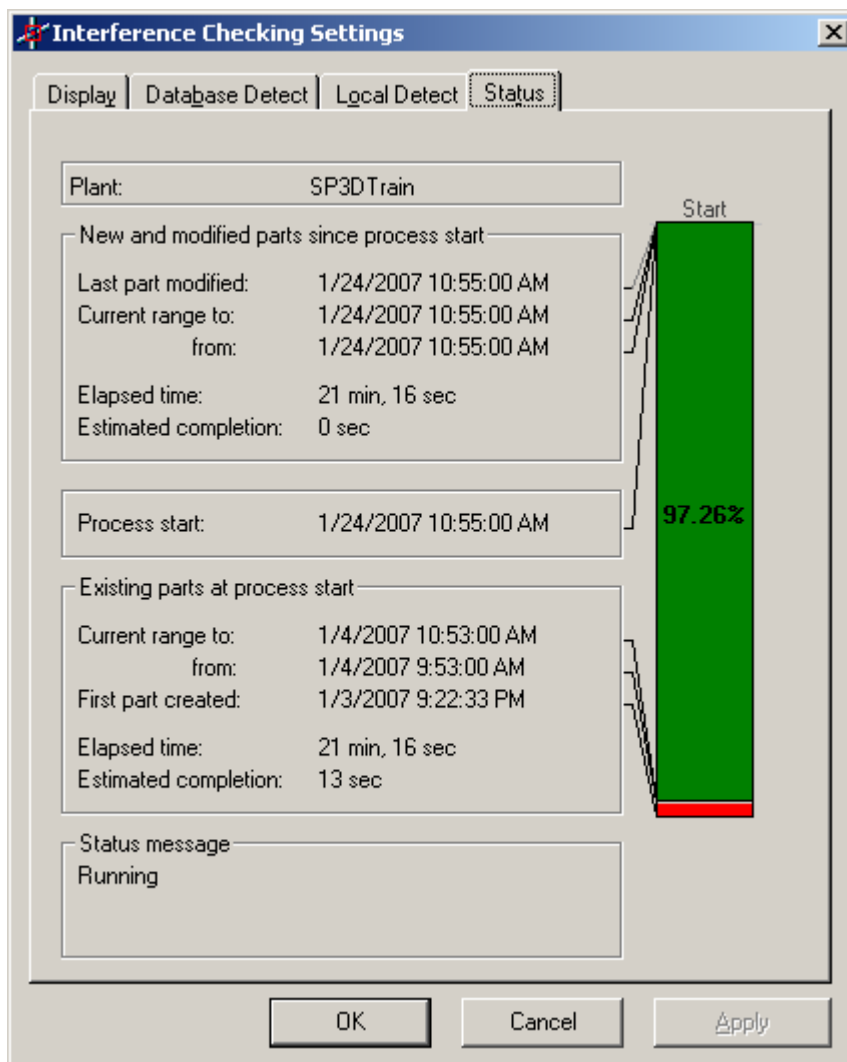
22. The graphic window will zoom you to that interference and the objects involved:



23. User can turn on/off the IFCs that are listed for them (and displayed graphically) by using the Settings button to access the following form:



24. De-selecting the Type or Required Action combinations will hide IFCs from their view (though they will still exist in the database).
25. Users can also review the status tab and see the same information we viewed in project management regarding the progress of the IFC server.



## Configuring IFC Clearance Rules (Optional)

1. Open the Excel workbook "IFCRule.xls", <SP3D Installation Folder>\CatalogData\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 114.
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.

Microsoft Excel - IFCRule.xls

File Edit View Insert Format Tools Data Window Help

100% Arial

B4 EquipOnlyClearance

	A	B	C	D	E
1	HEAD	RuleName	ObjectType1	Aspect1	Obj
2					
3	START				
4		EquipOnlyClearance			
5	!		Equipments with other object types		
6	!				
7	!		Legacy Equipment		
8			Legacy Equipment	Simple physical	Legacy Eq
9			Legacy Equipment	Simple physical	Legacy De

7. Scroll to column G, which is labeled Clearance.
8. Replace all values with “6 in” for the EquipOnlyClearance Rule entries. This will now create a clearance rule of 6” 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 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

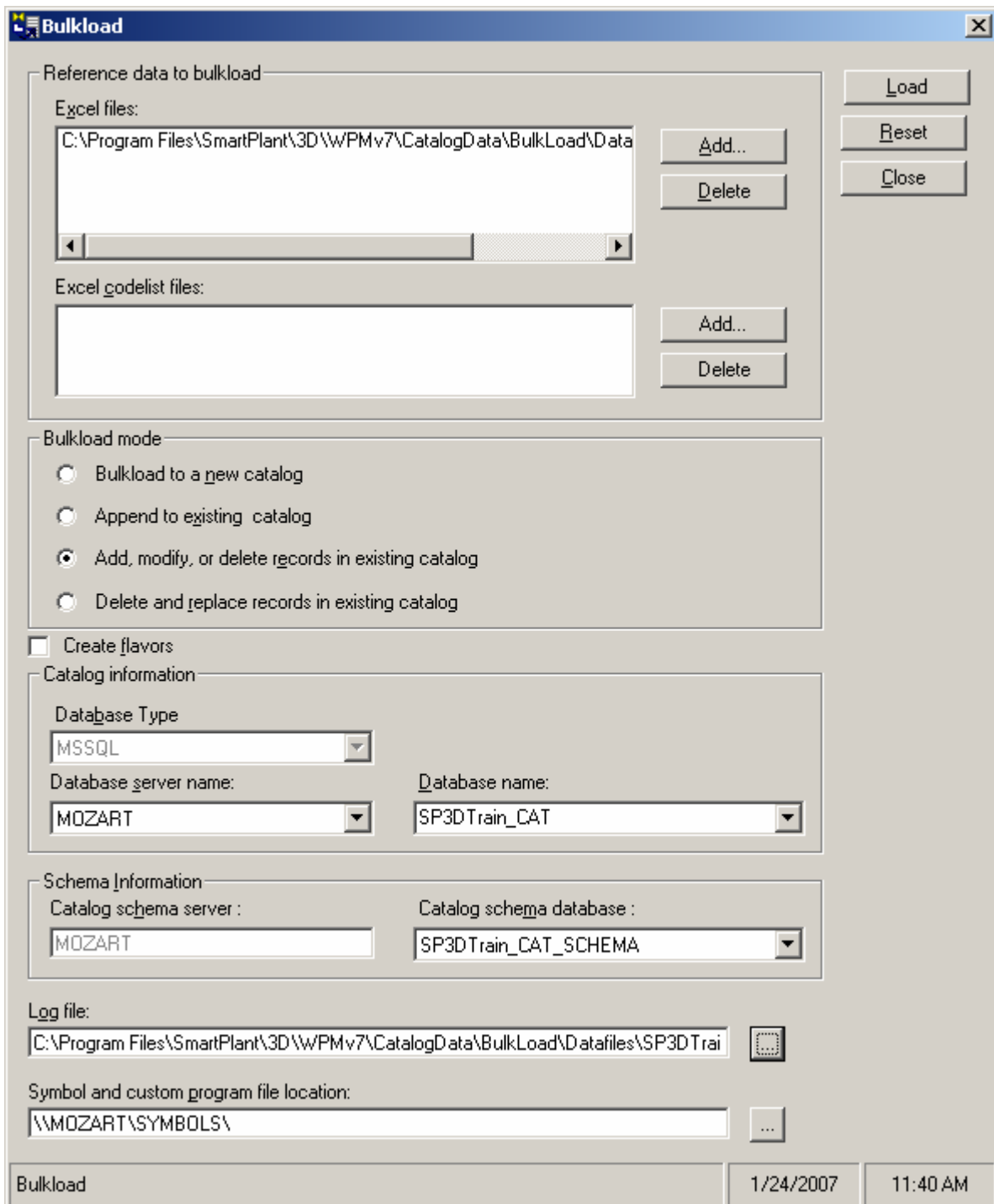
100% Arial

A110 A

	A	B	C	D	E	F
61	!				Volume(S)	
62	A		Equipment	Simple physical	Interference Volumes	Simple physical
63	!				Structure(S)	
64	A		Equipment	Simple physical	Member Part Prismatic	Detailed physical
65	A		Equipment	Simple physical	Slab	Detailed physical
66	A		Equipment	Simple physical	Footing	Detailed physical
67	A		Equipment	Simple physical	Equipment Foundation	Detailed physical
68	A		Equipment	Simple physical	Stairs	Detailed physical
69	A		Equipment	Simple physical	Ladders	Detailed physical
70	A		Equipment	Simple physical	Handrails	Detailed physical
71	!				Supports(S)	
72	A		Equipment	Simple physical	Pipe Supports	Simple physical
73	A		Equipment	Simple physical	Cable Tray Supports	Simple physical
74	A		Equipment	Simple physical	Duct Supports	Simple physical
75	!				Conduits(S)	
76	A		Equipment	Simple physical	Conduit Components	Simple physical
77	A		Equipment	Simple physical	Conduits	Simple physical
78	!					
79	!		Legacy Designed Equipment			Equipment(s)
80	A		Legacy Designed Equipment	Simple physical	Legacy Designed Equipment	Simple physical
81	!				Cableways(S)	
82	A		Legacy Designed Equipment	Simple physical	Cableway Turn	Simple physical
83	A		Legacy Designed Equipment	Simple physical	Cableway Straight	Simple physical
84	A		Legacy Designed Equipment	Simple physical	Cable Trays	Simple physical
85	A		Legacy Designed Equipment	Simple physical	Cable Tray Components	Simple physical
86	!				HVAC(S)	
87	A		Legacy Designed Equipment	Simple physical	HVAC Components	Simple physical
88	A		Legacy Designed Equipment	Simple physical	Ducts	Simple physical
89	!				Piping(S)	
90	A		Legacy Designed Equipment	Simple physical	Piping Welds	Simple physical
91	A		Legacy Designed Equipment	Simple physical	Piping Components	Simple physical

10. Save the Excel Workbook as “IFCRule\_Admin.xls”
11. Start the Bulkload Utility, Start → 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



The image shows a Windows-style dialog box titled "Bulkload". It contains several sections for configuring a bulk load operation. The "Reference data to bulkload" section has two text boxes: "Excel files:" (containing "C:\Program Files\SmartPlant\3D\WPMv7\CatalogData\BulkLoad\Data") and "Excelodelist files:" (empty). Each has "Add..." and "Delete" buttons. To the right are "Load", "Reset", and "Close" buttons. The "Bulkload mode" section has four radio buttons: "Bulkload to a new catalog", "Append to existing catalog", "Add, modify, or delete records in existing catalog" (selected), and "Delete and replace records in existing catalog". Below this is a checkbox for "Create flavors". The "Catalog information" section has a "Database Type" dropdown (set to "MSSQL"), a "Database server name:" dropdown (set to "MOZART"), and a "Database name:" dropdown (set to "SP3DTrain\_CAT"). The "Schema information" section has a "Catalog schema server:" text box (containing "MOZART") and a "Catalog schema database:" dropdown (set to "SP3DTrain\_CAT\_SCHEMA"). The "Log file:" section has a text box (containing "C:\Program Files\SmartPlant\3D\WPMv7\CatalogData\BulkLoad\Datafiles\SP3DTrain") and a browse button. The "Symbol and custom program file location:" section has a text box (containing "\\MOZART\SYMBOLS\"). At the bottom, there is a status bar with "Bulkload", the date "1/24/2007", and the time "11:40 AM".

**Bulkload**

Reference data to bulkload

Excel files:  
C:\Program Files\SmartPlant\3D\WPMv7\CatalogData\BulkLoad\Data

Add...  
Delete

Excelodelist files:

Add...  
Delete

Load  
Reset  
Close

Bulkload mode

☐ Bulkload to a new catalog  
☐ Append to existing catalog  
☒ Add, modify, or delete records in existing catalog  
☐ Delete and replace records in existing catalog

☐ Create flavors

Catalog information

Database Type  
MSSQL

Database server name:  
MOZART

Database name:  
SP3DTrain\_CAT

Schema information

Catalog schema server :  
MOZART

Catalog schema database :  
SP3DTrain\_CAT\_SCHEMA

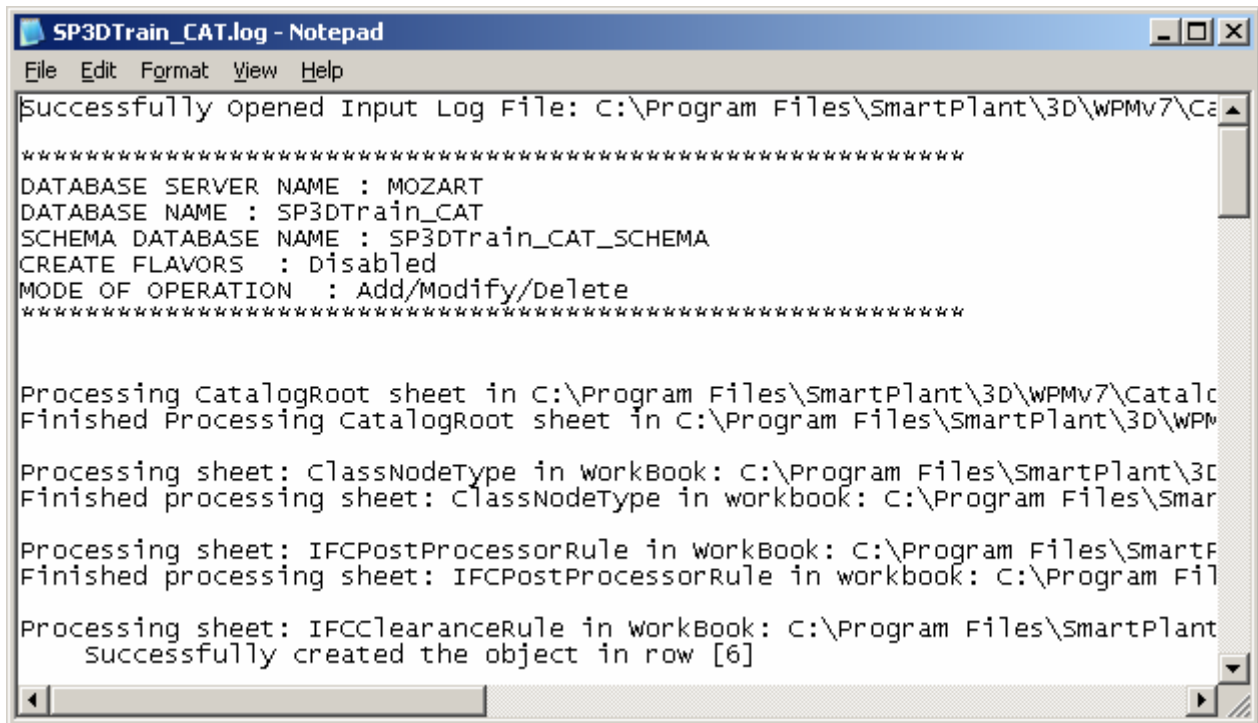
Log file:  
C:\Program Files\SmartPlant\3D\WPMv7\CatalogData\BulkLoad\Datafiles\SP3DTrain

Symbol and custom program file location:  
\\MOZART\SYMBOLS\

Bulkload 1/24/2007 11:40 AM

17. Click Load.

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



The screenshot shows a Notepad window with the title bar 'SP3DTrain\_CAT.log - Notepad'. The menu bar includes 'File', 'Edit', 'Format', 'View', and 'Help'. The text area contains the following log output:

```
Successfully opened Input Log File: C:\Program Files\SmartPlant\3D\WPMv7\Cat
*****
DATABASE SERVER NAME : MOZART
DATABASE NAME : SP3DTrain_CAT
SCHEMA DATABASE NAME : SP3DTrain_CAT_SCHEMA
CREATE FLAVORS : Disabled
MODE OF OPERATION : Add/Modify/Delete
*****

Processing CatalogRoot sheet in C:\Program Files\SmartPlant\3D\WPMv7\Catalog
Finished Processing CatalogRoot sheet in C:\Program Files\SmartPlant\3D\WPMv7\Catalog

Processing sheet: ClassNodeType in workBook: C:\Program Files\SmartPlant\3D\WPMv7\Catalog
Finished processing sheet: ClassNodeType in workbook: C:\Program Files\SmartPlant\3D\WPMv7\Catalog

Processing sheet: IFCPostProcessorRule in workBook: C:\Program Files\SmartPlant\3D\WPMv7\Catalog
Finished processing sheet: IFCPostProcessorRule in workbook: C:\Program Files\SmartPlant\3D\WPMv7\Catalog

Processing sheet: IFCClearanceRule in workBook: C:\Program Files\SmartPlant\3D\WPMv7\Catalog
Successfully created the object in row [6]
```

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.

**Interference Server Settings**

Database Detect | Status

Interference detection server:

Assign interference detection priority to aspects:

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

Compare

☒ Required - Required

☒ Required - Optional

☒ Optional - Optional

☐ SP3D - Foreign Interferences

Include clearance:

No Clearance Rule

**EquipOnlyClearance**

PDSClearance

Plant125

Plant225


marker size:

Check all objects in database

Settings: Click Start to start Interference detection Process

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, click Yes.

**Project Management**

 Changing the Interference detection process criteria will require rechecking the entire Model for Interference. Clicking Yes will continue with rechecking, clicking No rolls back all the changes that have been made. Do you want to continue with the changes ?

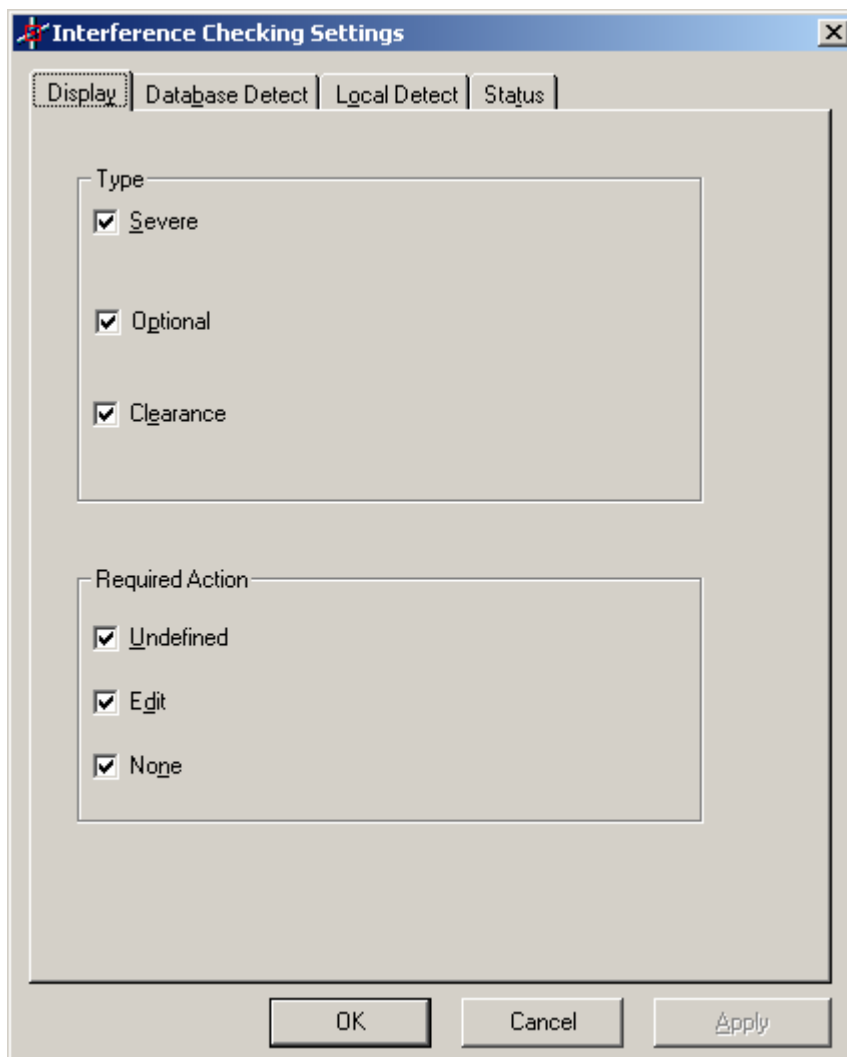


## Local Detect

1. Start SmartPlant 3D (Start → Programs → Intergraph SmartPlant 3D → SmartPlant 3D)
2. Define a workspace using the “ALL” filter.
3. From the Tools menu, select Check Interference.
4. The Interference Ribbon Bar will now appear:



5. Click the left most button for IFC Settings, the following form will display:

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

6. On the Local Detect Tab, complete the form as follows:

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

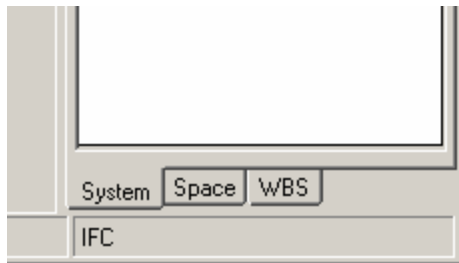
- ☒ Activate local interference detection
- Assign interference checking priority to aspects:

Aspect	Type
Simple physical	Required
Detailed physical	Required
Insulation	Optional
Operation	Optional
Maintenance	Optional
Reference Geometry	Not checked
- Compare:
  - ☒ Required - Required
  - ☒ Required - Optional
  - ☐ Optional - Optional
- Include clearance rule: Plant125
- Marker size: 1 ft 6.00 in

Buttons at the bottom: OK, Cancel, Apply.

7. Click Apply and then OK.

8. Note that now there is an IFC entity in the bottom left of the SP3D window:



9. Save the session file as "IFC LocalDetect Example.ses"

10. Because this class is presumed to be taken before the Equipment or Piping classes, the instructor will now guide you through some ad hoc simple examples to show that the Local Detect is now working.

11. Pull up the IFC List. Note that Local Detect Entries contain only a name and no additional information.

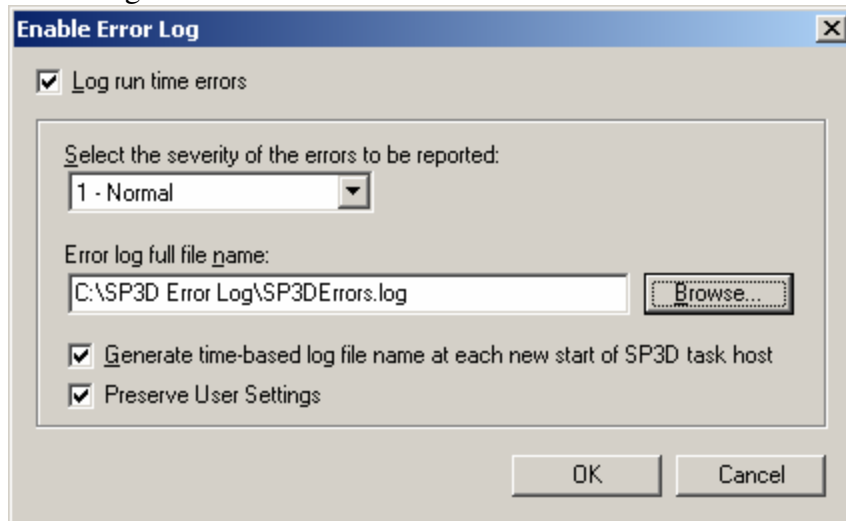
12. Click the Refresh on the workspace and note that Local Detect(s) disappear(s), while Database Detect IFC(s) (if any) remain.

# LAB 17: SP3D Error Logs

## SP3D General Error Log

Note: When you experience problems with SP3D often times Support personnel will request a log file. Please try to reproduce the problem with the log file option on to capture some additional information that may be useful in rectifying the problem.

1. Open a Windows Explorer window and navigate to <SP3D Installation Directory>\Core\Tools\Administrator\Bin and double click on “ErrorLogEnable.exe”



2. Ensure that the path you provide on the form is writable by all users (if it is not, then SP3D will have problems starting for these users because it will not be able to write to the specified location).
3. In General 1-Normal will usually be sufficient, but there may be times when the support person working a problem you are reporting will have you adjust this value.
4. You will need to close SmartPlant 3D and start it once again (potentially from an already saved session file) before these setting will take effect.

## SP3D Drawings Error Log

1. Start RegEdit.exe
2. Traverse the registry until you reach  
HKEY\_Local\_Machine\Software\Intergraph\Applications\Environments\Drawings\ErrorLog.
3. Locate the key named “Level” and note that the value by default should be “1”  
Note: This setting will capture only errors deemed fatal.
4. From time to time, you may be asked to capture more data when reporting a problem to Intergraph; you can use the following value to capture more data: 101.

Note: The error log is written to the %temp% directory and named Drawings.log

