

# SmartPlant 3D

## *Setup and Administration for Oracle Course Guide*

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### Process, Power & Marine



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# Course Agenda

## Domain Prep (Simulated)

### Software Installation

- Installing Oracle Server
- Installing Oracle Client
- Installing SmartPlant 3D

### Creating Databases

- Site and Catalog Creation
- Plant Creation

### Permissions and Access Control

- Security access
- SP3D access

### Backup and Restore Procedures

- SmartPlant 3D Backups
- Oracle Server Backups
- Manual file system backups

### Discussion of PDS Project Reference

### Typical Workflows

- Add a new user to the SP3D Plant
- Backup data for Intergraph problem reporting

### Interference Checking

- Database Detect
- Clearance Rule Creation
- Local Detect (to be taught after the Common App portion if possible)

### Common App

#### Plant Organization

- System Hierarchy
- Space Layout
- Work Breakdown Structure

#### Session Templates

#### Filters

- Simple and Compound Filters
- SQL Based Filters

#### Surface Style Rules

### Database Integrity Lab

### Error Logs

- General SP3D Error log
- SP3D Drawings Error log

### Global Work share Overview

# Lab 1: Domain and server settings

## Create users and groups in Windows

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

## Software Installation

1. Install the Oracle software per instructions in the SmartPlant 3D Installation Guide
2. Install Microsoft .Net Framework 1.1 with Service Pack 1.
3. Install “SP3D Reference Data” to Program Files\SmartPlant\3Dref\ folder. Make sure to follow-up the installation by installing the latest Service Pack (if available).
4. Configure the Name Generator if initial creation of the Name Generator fails.
5. Install SP3D Workstation + All optional modules (Project Management, 3D Model Import, Piping Specification Remote Access Server, SmartPlant 3D Server Connectivity, Bulkload Reference Data, Database Interference Detection) to Program Files\SmartPlant\3D\ . Make sure to follow-up the installation by installing the latest Service Pack (if available)
6. (Optional: required if creating rules/symbols) Install Visual Basic 6 with SP5
7. (Optional: required if creating rules/symbols) Install the “Programming Resources” delivery. Located on the installation CD under SmartPlant3D\ProgrammingResources\ProgrammingResources.msi. This should be installed to Program Files\SmartPlant\3Dpres\.
8. Click Start > Settings > Control Panel.

9. Double-click the Network and Dial-up Connection Properties folder.
10. Double-click the Local Area Connection icon, and click Properties on the Local Area Connection Status dialog box.
11. In the Local Area Connection Properties dialog box, select File and Printer Sharing for Microsoft Networks and click Properties.
12. In the File and Printer Sharing for Microsoft Network Properties dialog box, select Maximize data throughput for network application and click OK.

# 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.
3. From the pick list, select your servername (which will be your machine name) for site database server
4. Name the site “Admin\_Site”
5. Enter ‘MyLocation’ (or any other text value) for the Site Database Workshare location
6. Leave Name Rule ID blank.
7. 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.
8. Pick the ... next to the Template file for site schema and pick [Server Data Install Directory]\DatabaseTemplates\AppRepos.dat

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.

Create site database

Site database server: VPC1 Site database name: Admin\_Site

Site database workshare location: MyLocation Name rule ID:

Name generator server for site: VPC1

Paths for site database files

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

Create site schema

Template file to be used to create site schema: C:\Program Files\SmartPlant\3D\3D\DatabaseTemplates\AppRepos.dat

Site schema server: VPC1 Site schema name: Admin\_Site\_SCHEMA

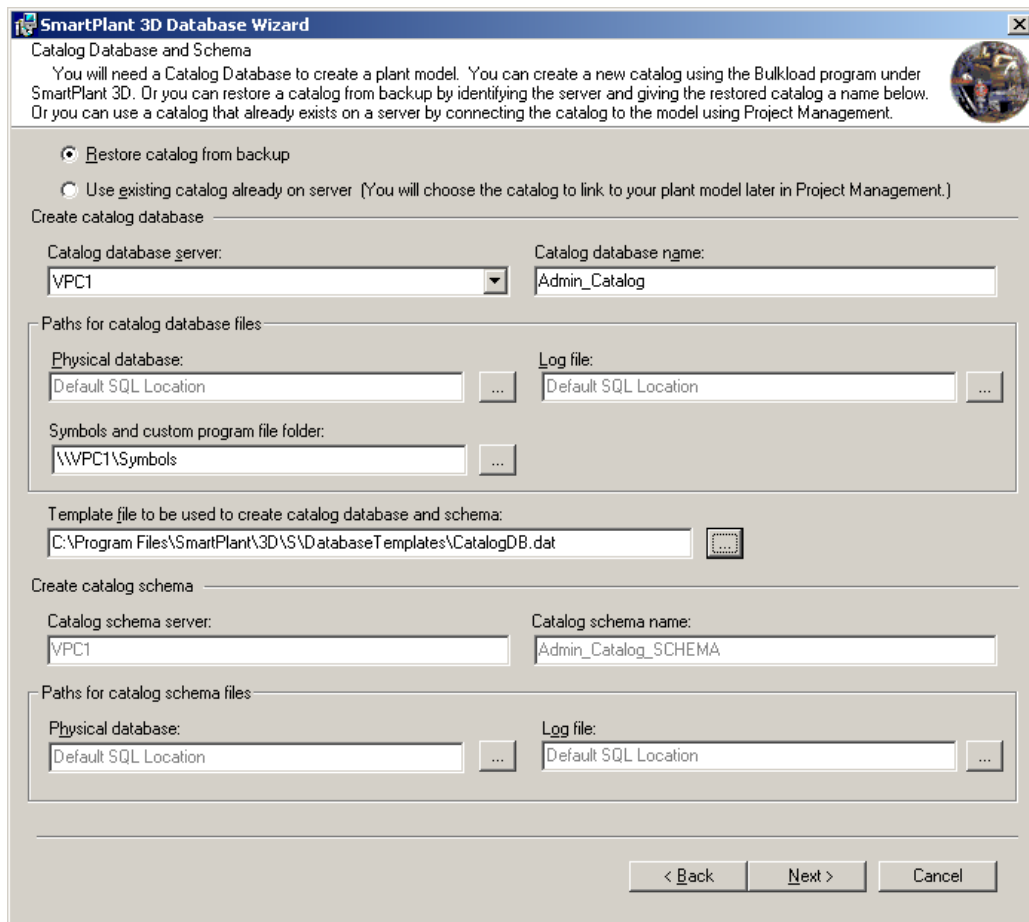
Paths for site schema files

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

< Back Next > Cancel

9. Click Next

10. Select server name for catalog database server
11. Name the catalog “Admin\_Catalog”
12. 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
13. Pick the ... next to the Template file for catalog database schema and pick [Server Data Install Directory]\DatabaseTemplates\CatalogDB.dat



The image shows the 'SmartPlant 3D Database Wizard' dialog box, specifically the 'Catalog Database and Schema' step. The window has a title bar with the SmartPlant logo and a close button. Below the title bar is a descriptive text area explaining the purpose of the wizard. There are two radio buttons: 'Restore catalog from backup' (selected) and 'Use existing catalog already on server'. Below this are two sections: 'Create catalog database' and 'Create catalog schema'. Each section contains fields for 'Catalog database/server' and 'Catalog database/schema name', and a 'Paths for catalog database/schema files' section with 'Physical database' and 'Log file' fields. The 'Template file to be used to create catalog database and schema' field is also present. At the bottom are '< Back', 'Next >', and 'Cancel' buttons.

**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.

☒ 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: VPC1

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: \\VPC1\Symbols

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

Create catalog schema

Catalog schema server: VPC1

Catalog schema name: Admin\_Catalog\_SCHEMA

Paths for catalog schema files

Physical database: Default SQL Location

Log file: Default SQL Location

< Back Next > Cancel

14. Click Next
15. Click CreateDB
16. After process is complete, click Finish

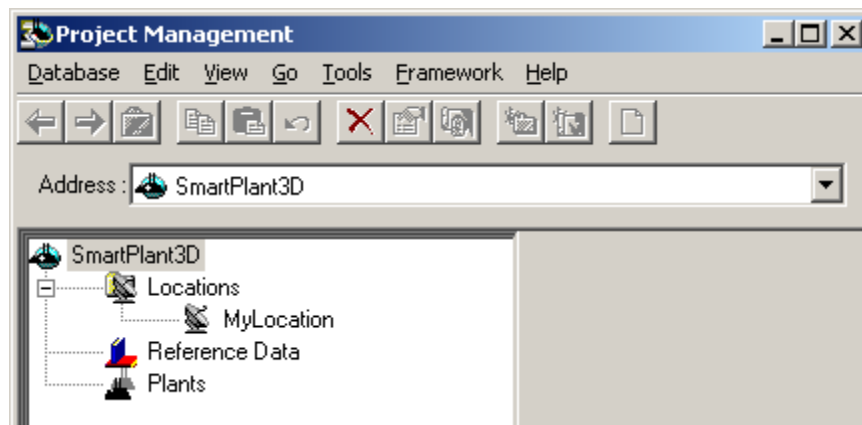


## Verify new site creation

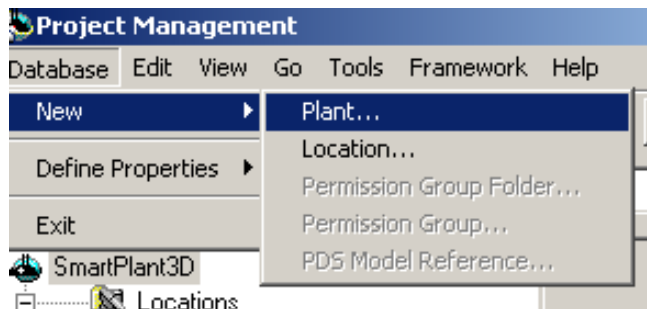
1. Start the Modify Database and Schema Location using Start – Programs – Intergraph SmartPlant 3D – Database Tools – Modify Database and Schema Location
2. Your screen should show the name of your server and site databases

## 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 as below:
  - a. Name Admin\_Plant
  - b. Description Plant Administration Training
  - c. Owner (your company name)

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

4. Fill in the databases tab as follows:
  - a. Click in the first row in the grid in the type column
  - b. From the type pick list pick Catalog
  - c. From server column, pick your server name
  - d. From Name pick list, pick Admin\_Catalog
  - e. Click in second row in grid and pick Model from the type pick list
  - f. From server column, pick your server name
  - g. Click in third row in grid and pick Reports from the type pick list
  - h. From server column, pick your server name
  - i. Input the machine name where the NGS is installed in the location labeled "Name Generator server for Plant:"

**New Plant** [X]

General Databases

Plant databases:

Type	Server	Name
Catalog	VPC1	Admin_Catalog
Model	VPC1	Admin_Plant_MODEL
Reports	VPC1	Admin_Plant_REPORT

Name generator server for plant:

Locations for the model database files

Physical database:  
 ...

Log file:  
 ...

OK Cancel

5. Click OK to create the plant. This process takes 12-15 min.

**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:

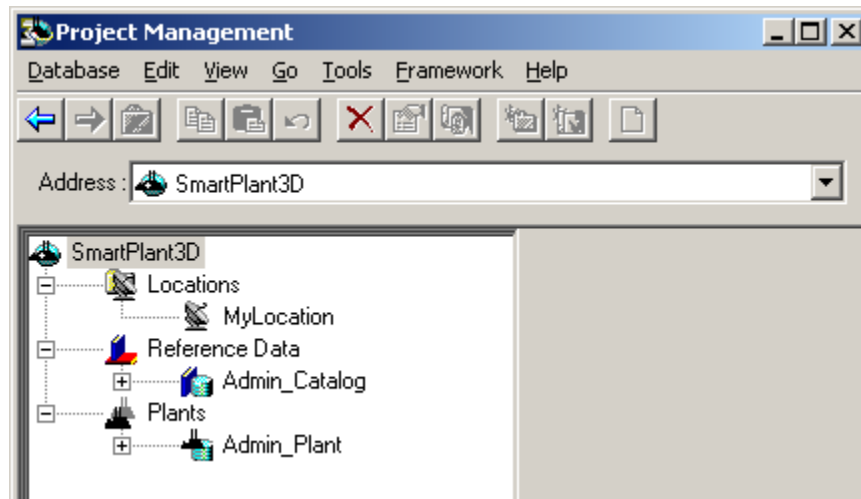
Reports schema server:  Reports schema name:

OK

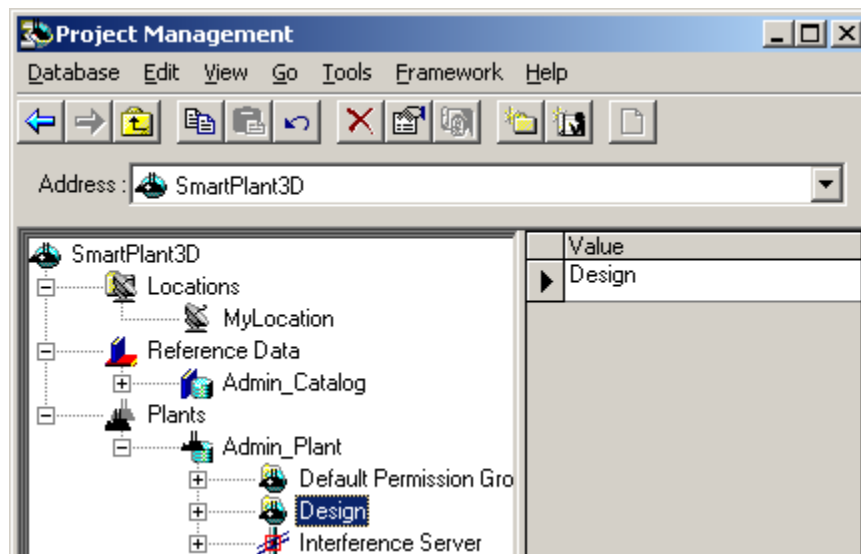
# Lab 3: Create permission groups and assign permissions

## Create Permission Groups

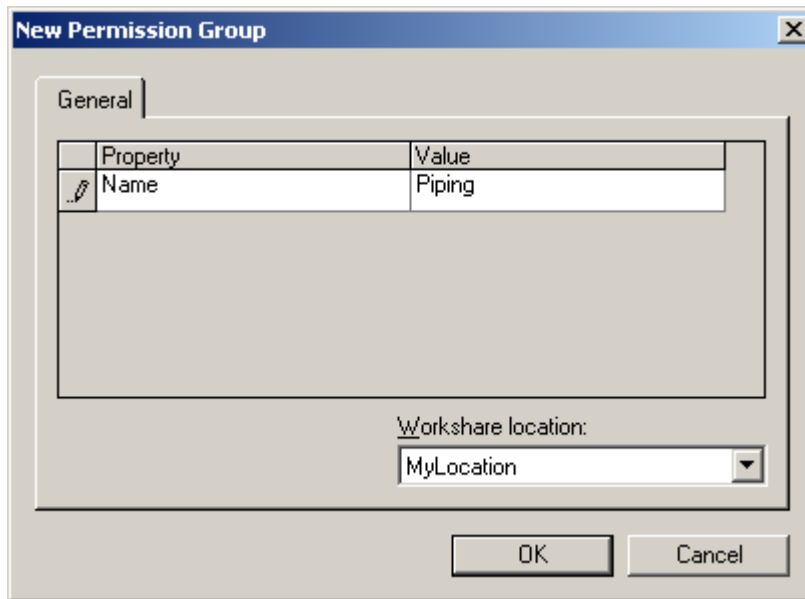
1. If required, enter Project management using Start – Programs – Intergraph SmartPlant 3D – Project Management



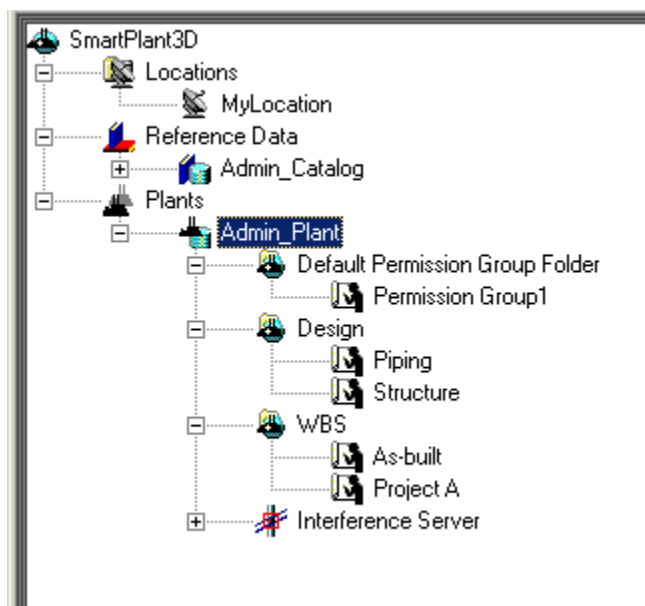
2. Select Admin\_Plant
3. Right-click on “Admin Plant” and select “New Permission Group Folder...”
4. Name the folder ‘Design’
5. Select the folder Design



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



8. Click OK.
9. Create another permission group and name it 'Structure'
10. Similarly create the following hierarchy of permission group folder WBS and permission groups As-Built and ProjectA

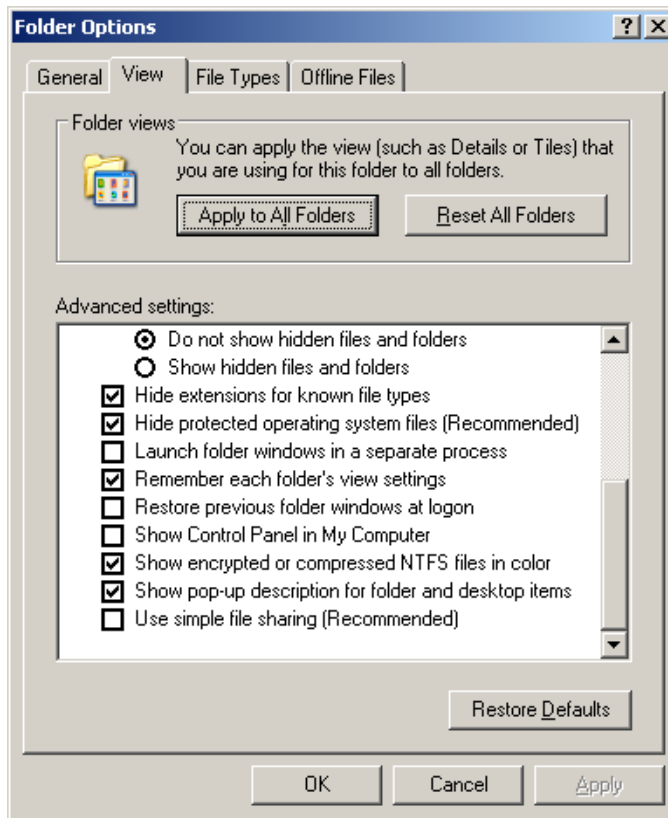


## **Assign permissions in Project Management**

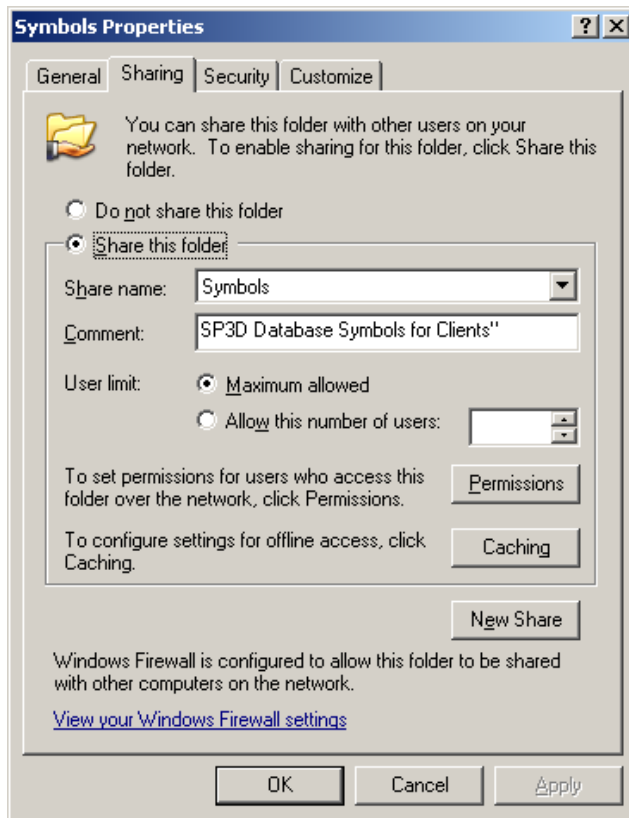
1. Select Permission group Piping
2. Right-click and select Permissions
3. Click the Add button
4. In the list names from dialog, pick your domain server name (your machine name)
5. In the names box, select 'Pipe'
6. In Type of access select 'Write'
7. Click Add button
8. In the names box, select 'Stru'
9. In Type of access select 'Read'
10. Click Add button
11. Click OK to assign the permissions
12. Similarly select the group Structure and assign Write to Stru and Read to Pipe groups
13. Similarly assign Write permissions to ProjectA windows users group in ProjectA permission group

## **Assign permissions in the file system**

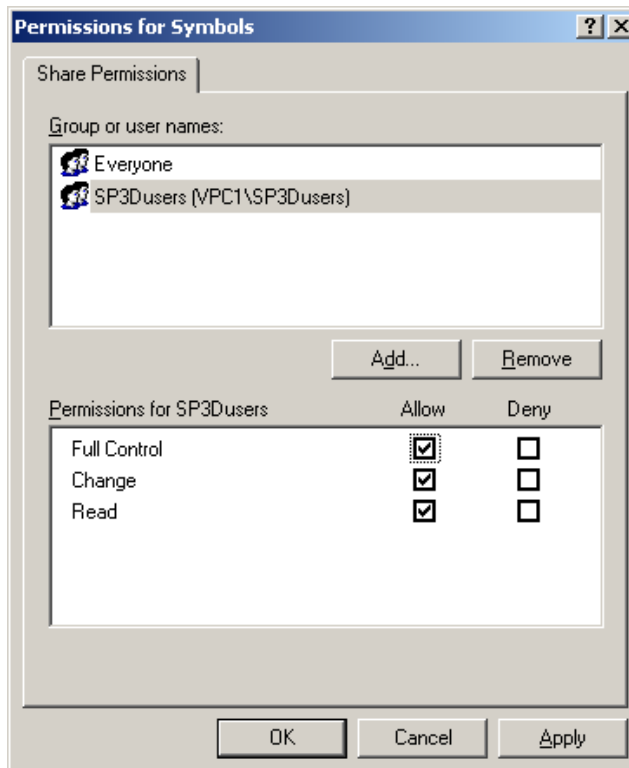
1. Using Windows Explorer open the folder where the symbols share is located. This is the [Server Install Directory]\CatalogData\Symbols folder.
2. Modify permissions on this folder such that the SP3DUsers group has Full Control access.
3. From the Tools menu on the Explorer window, select folder options. 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.

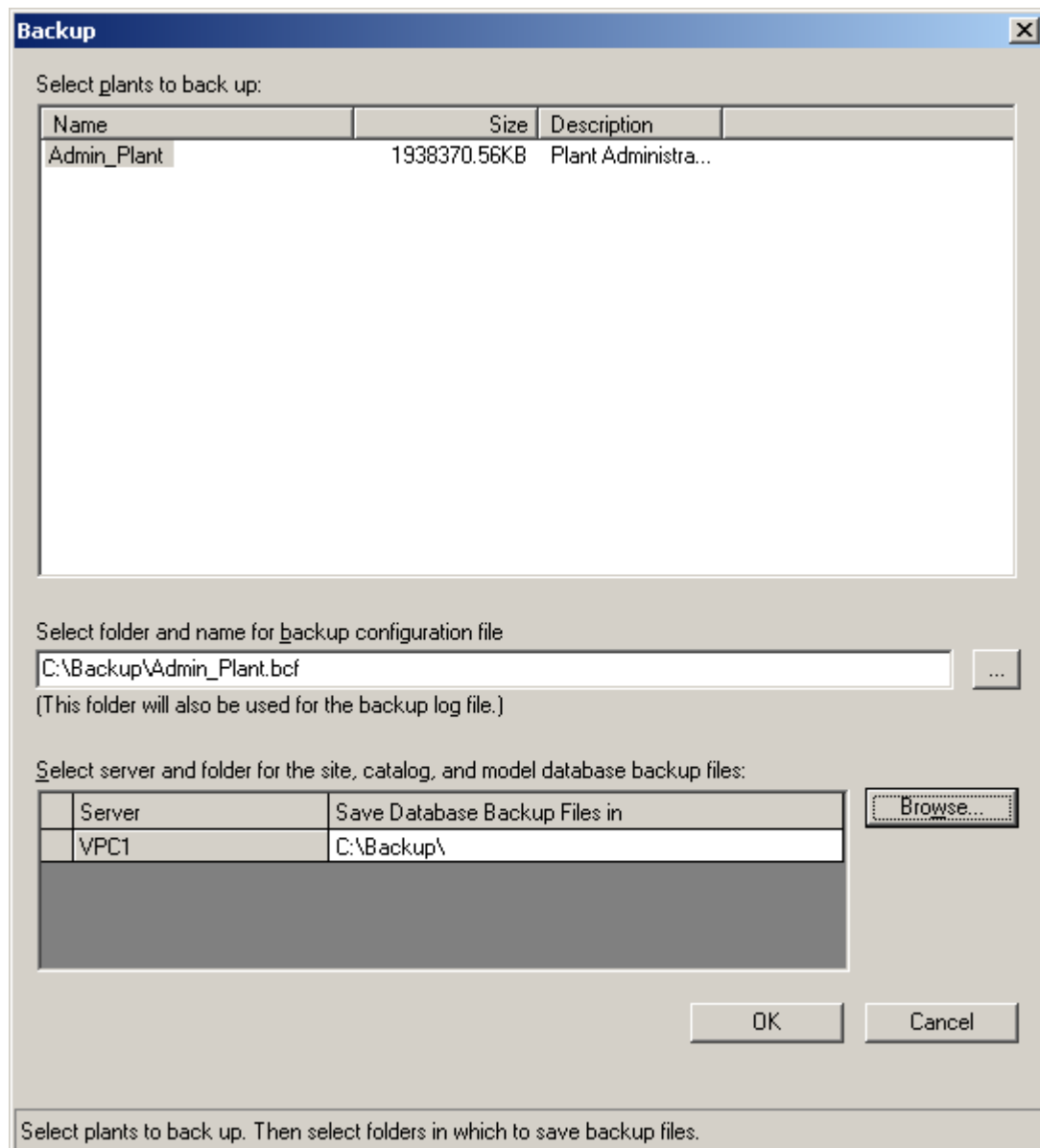




# Lab 6: Backup and restore in project management

## Backup

1. Create a directory named “Backup” on the C drive
2. If required, enter Project management using Start→ Programs → Intergraph SmartPlant 3D → Project Management
3. Select Admin\_Plant
4. Select Tools→ Backup.
5. Select “C:\backup” for the location of bcf file
6. Select “C:\backup” for location to put database backup files



**Backup**

Select plants to back up:

Name	Size	Description
Admin_Plant	1938370.56KB	Plant Administra...

Select folder and name for backup configuration file

C:\Backup\Admin\_Plant.bcf

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

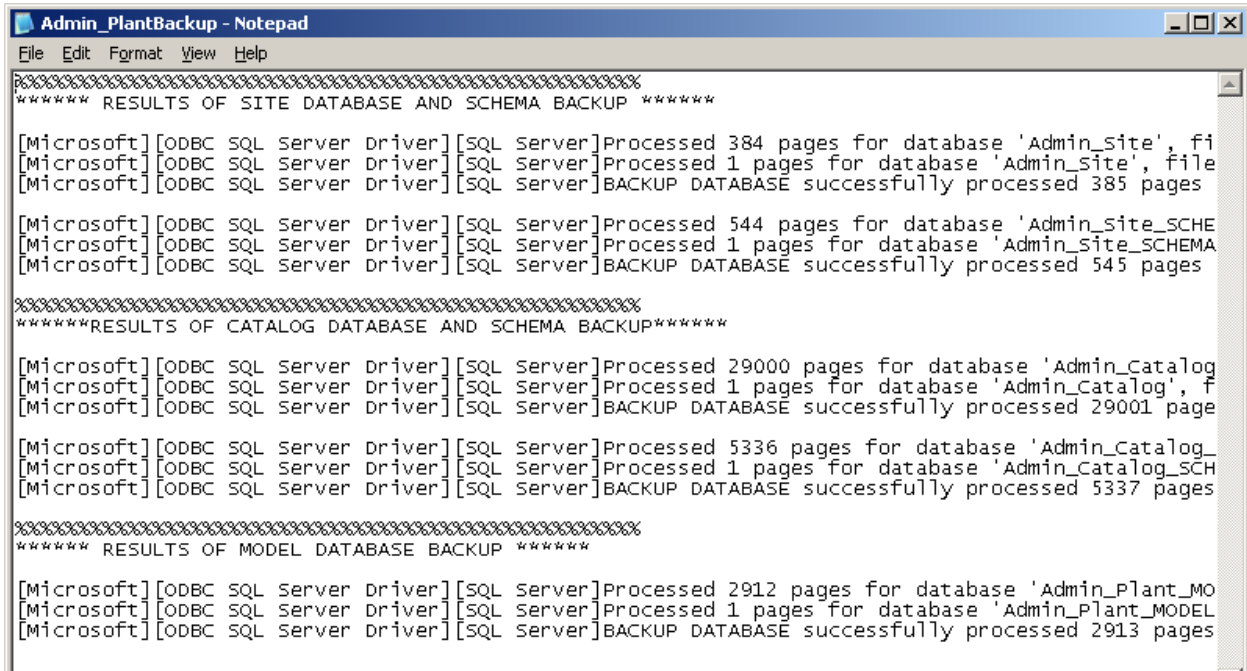
Select server and folder for the site, catalog, and model database backup files:

Server	Save Database Backup Files in
VPC1	C:\Backup\

OK Cancel

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

7. Click “OK” to execute the backup
8. This process takes a couple of minutes and backup is complete.
9. Review the backup log, it should say ‘Backup Successfully Processed’ for all databases.



```

Admin_PlantBackup - Notepad
File Edit Format View Help
***** RESULTS OF SITE DATABASE AND SCHEMA BACKUP *****

[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 384 pages for database 'Admin_Site', fi
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 1 pages for database 'Admin_Site', file
[Microsoft][ODBC SQL Server Driver][SQL Server]BACKUP DATABASE successfully processed 385 pages

[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 544 pages for database 'Admin_Site_SCHE
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 1 pages for database 'Admin_Site_SCHEMA
[Microsoft][ODBC SQL Server Driver][SQL Server]BACKUP DATABASE successfully processed 545 pages

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

[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 29000 pages for database 'Admin_Catalog
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 1 pages for database 'Admin_Catalog', f
[Microsoft][ODBC SQL Server Driver][SQL Server]BACKUP DATABASE successfully processed 29001 page

[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 5336 pages for database 'Admin_Catalog_
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 1 pages for database 'Admin_Catalog_SCH
[Microsoft][ODBC SQL Server Driver][SQL Server]BACKUP DATABASE successfully processed 5337 pages

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

[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 2912 pages for database 'Admin_Plant_MO
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 1 pages for database 'Admin_Plant_MODEL
[Microsoft][ODBC SQL Server Driver][SQL Server]BACKUP DATABASE successfully processed 2913 pages

```

10. Use the windows X button or the Cancel button to close the form.

## Restore (in place)

The purpose of this restore operation is to recover a working plant to an older version.

1. Select the plant “Admin\_Plant” in ProjectManagment that we just backed up.
2. Select Tools → Restore
3. Ensure you have selected “Restore one or more plant databases from backup” and click Next>
4. Fill in the fields in the forms as exemplified below. Be sure to specify 1) the bcf file, 2) the Server (and disk path on the server for the .dat files), 3) the Catalog and Model line items, and 4) the 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:\Backup\Admin\_Plant.bcf Browse...

Plants to restore:

Name	Size	Date of Backup
Admin_Plant	1938370.56KB	8/30/2005 10:59:55 ...

Server and path to existing database backup files:

Server	Database Backup Files Path
VPC1	C:\Backup\

Paths for new databases:

Type	Server	Database Path	Log Path
Catalog	VPC1	C:\Program Files\Microsoft SQL Server\90\Tools\Binn\MSQLSERVER.EXE	C:\Program Files\Microsoft SQL Server\90\Tools\Binn\MSQLSERVER.EXE
Model	VPC1	C:\Program Files\Microsoft SQL Server\90\Tools\Binn\MSQLSERVER.EXE	C:\Program Files\Microsoft SQL Server\90\Tools\Binn\MSQLSERVER.EXE


Symbol and custom program file location:

\\VPC1\Symbols Browse...

Back Finish Cancel

- Click the Finish button.
- The following dialog is shown:

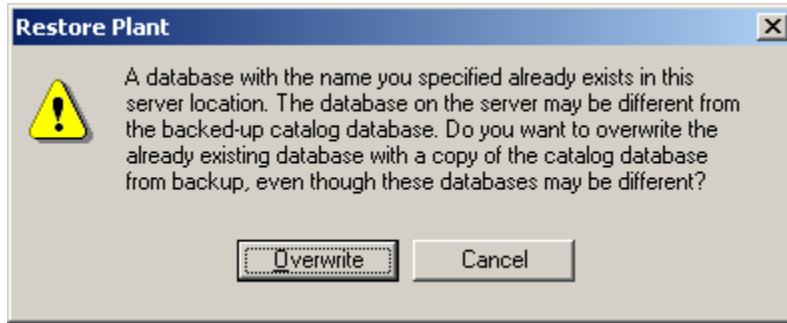
**Restore Plant**

 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?

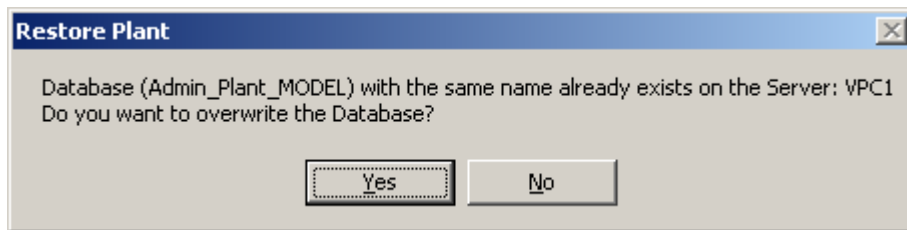
Yes No Cancel

- We would choose yes if there had been updates to the catalog that we wanted to keep but restore to the older version of the model. We will choose to say No. This will restore the version of the catalog in the backup set.

8. Click No.



9. Click Overwrite to replace the DB.
10. A similar dialog is then shown for the plant model. Click Yes to overwrite.



11. A restore log is shown, verify that all restores are complete 100%.
12. A report database need not be regenerated as there is one already in place. However, if this had been a real restore where a difference existed between the restore model/catalog data and the pre-existing data, as a general recommendation you should regenerate the report database.

## Restore As Copy

The purpose of this restore operation is to allow “an older version of the same or different Model to be restored into an existing Site.

1. Start Project Management (if not already started).
2. Run Tools → Restore...
3. Ensure you have selected “Restore plant as copy” and then click “Next>”
4. Complete the form as follows:

**Restore Wizard**

Restore Plant as Copy

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

New plant name:  Description:

Backup configuration file to restore:

Plant to restore:

Name	Size	Date of Backup
Admin_Plant	1938370.56KB	8/30/2005 10:59:55 ...

Server and path to existing database backup files:

Server	Database Backup Files Path
VPC1	C:\Backup\


Paths for new databases:

Type	Server	Database Path	Database Name	Log Path
Catalog	VPC1	C:\Program Files\Micro	Admin_Catalog	C:\Program File
Model	VPC1	C:\Program Files\Micro	RAC_Admin_Pla	C:\Program File

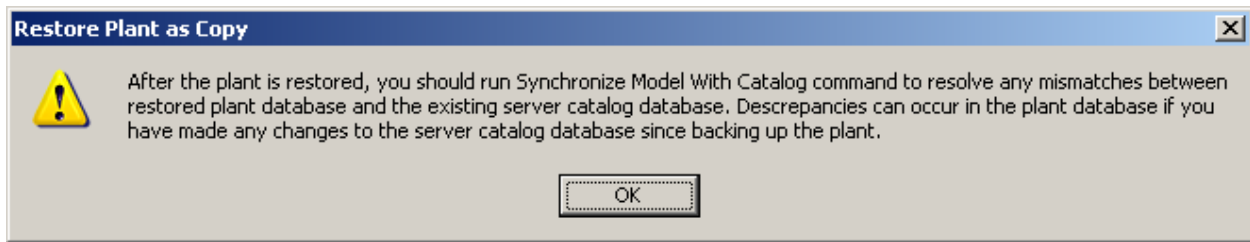
Symbol and custom program file location:

5. Click "Finish"

**Restore Plant as Copy**

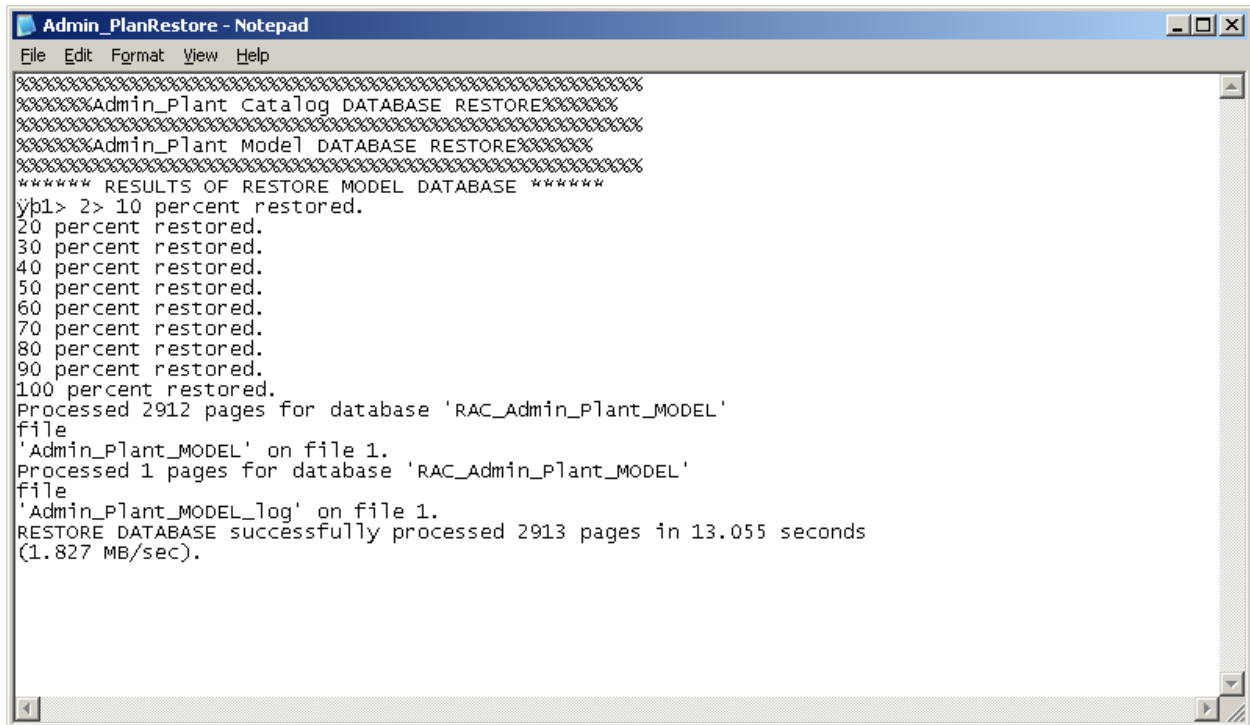
 A catalog database with the name you specified already exists in this server location. The catalog database on the server may be different from the backed-up catalog database. Do you want to link the already existing catalog database with the newly restored plant instead of restoring a catalog database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

6. Click Yes to link to the existing Catalog.

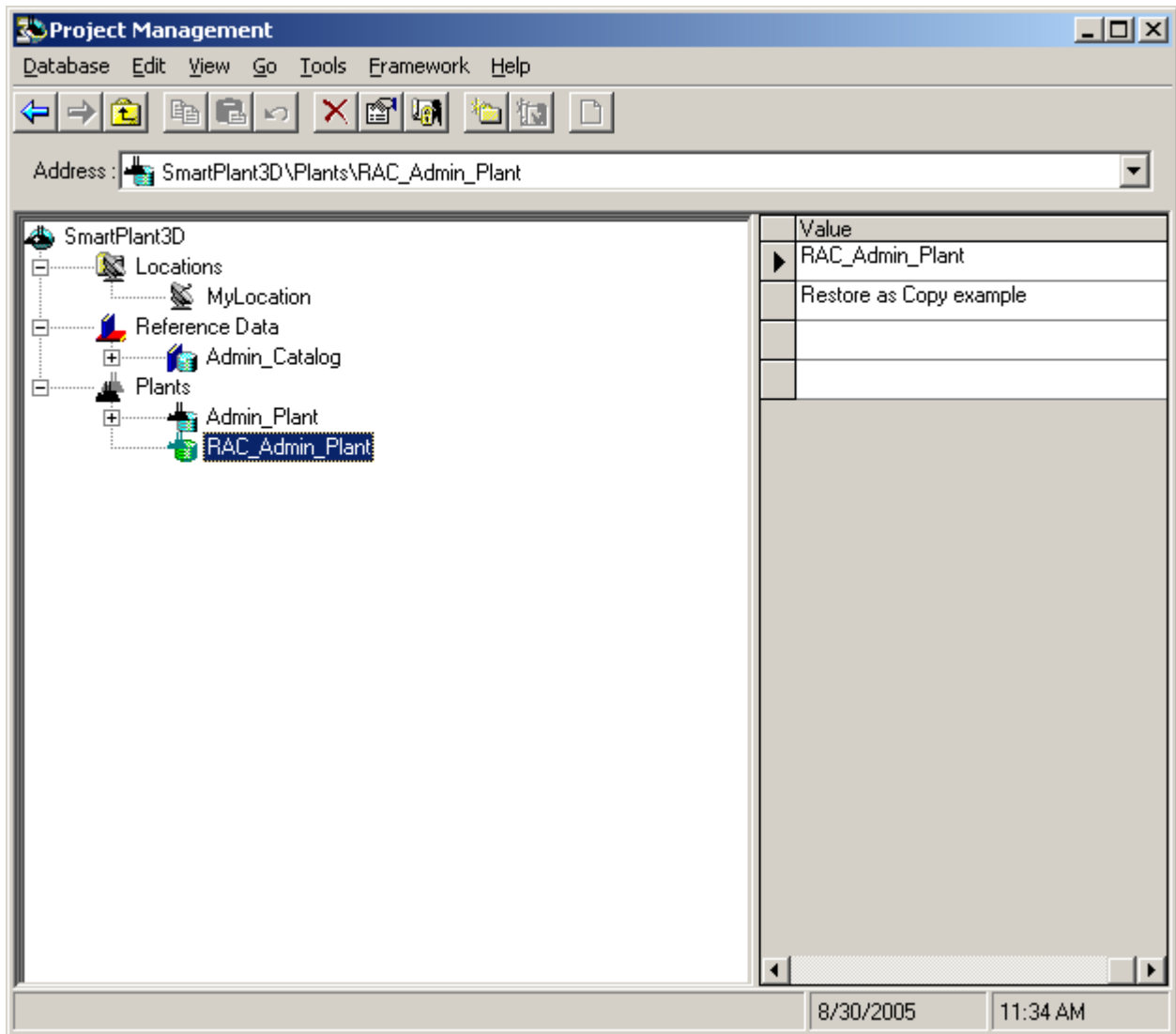


7. Click OK. Since we know that the Catalog is EXACTLY the same, we are not required to following through with the Sync Model with Catalog operation. However, for the purpose of example, we will perform a Sync Model with Catalog operation.

8. Review the Logfile, ensure all databases were processed for Restore.



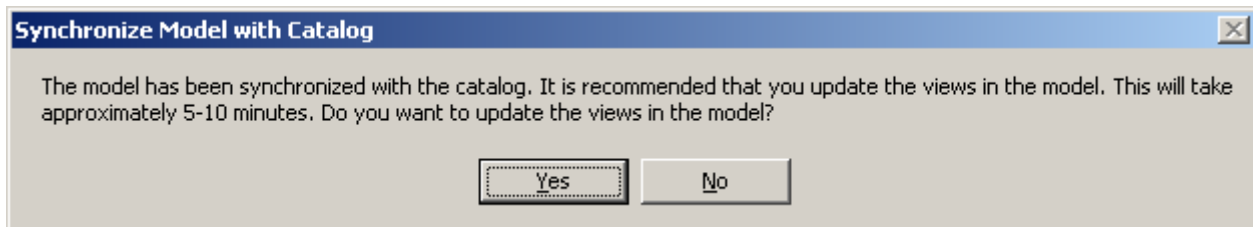
9. Click "Close" to close the Restore Wizard form.

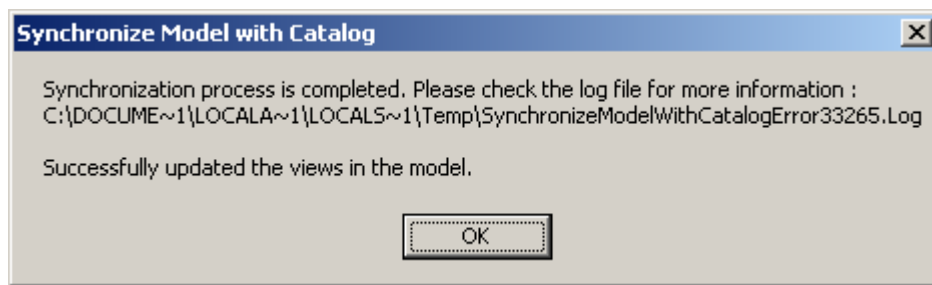


10. Select Tools → Synchronize Model with Catalog....

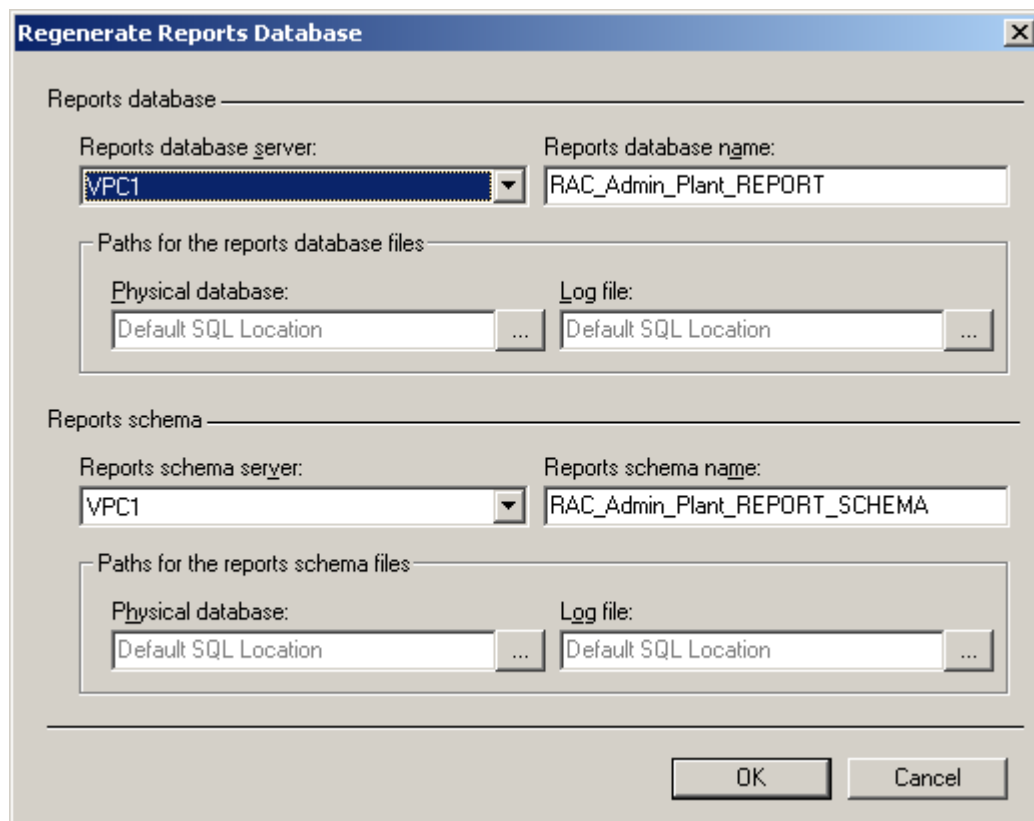
11. Click OK on the form.

12. When prompted to update the view on the Model, click “Yes”





13. After the synchronization process is complete open the log file noted in the dialog above.
14. Click OK.
15. Regenerate the Report Database by right mousing on the “RAC\_Admin\_Plant” in the Project Management tree and selecting Regenerate Report Database.



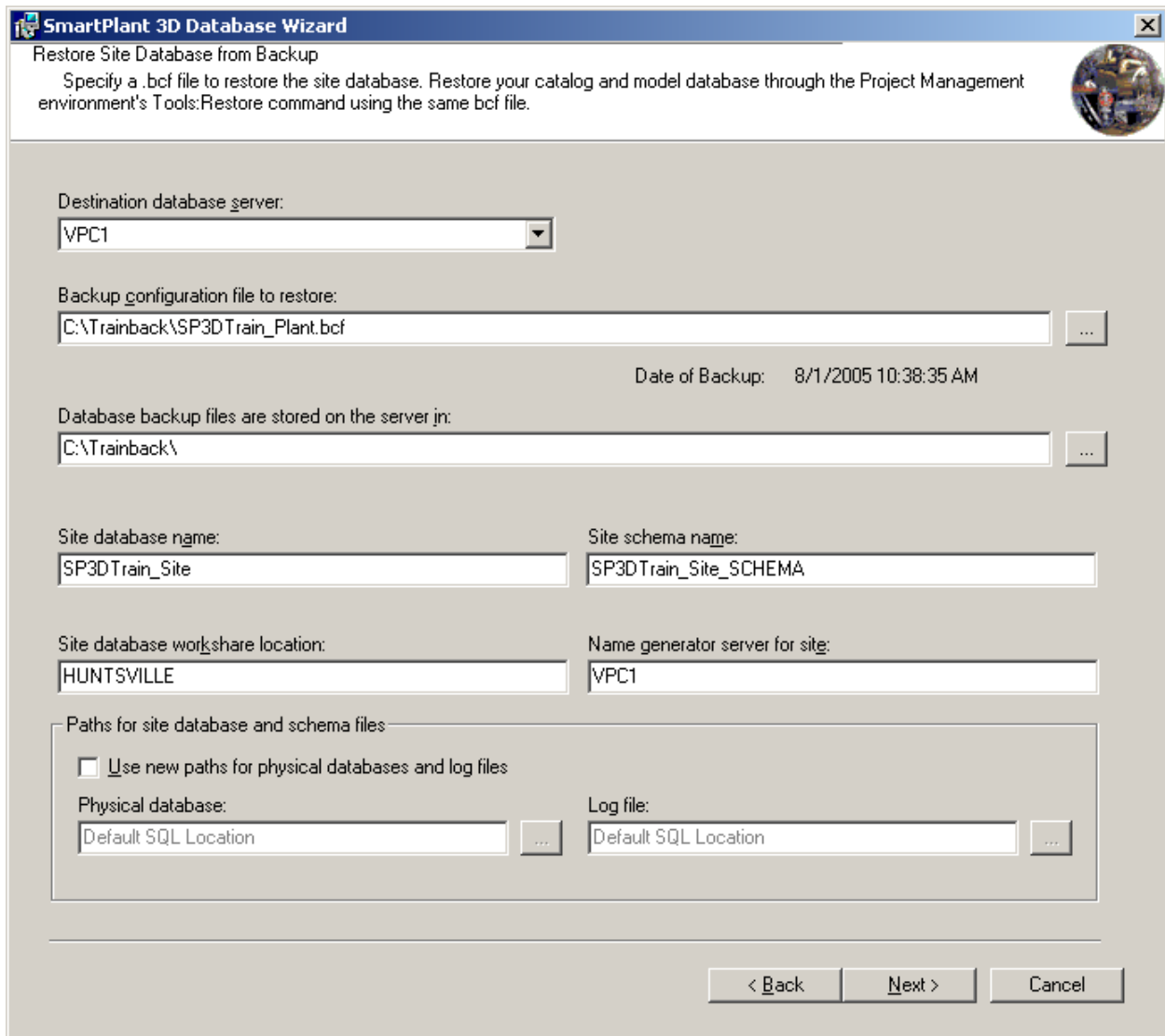
16. Close Project Management when the Report Databases have been regenerated.



## Restore (off-site)

The purpose of this restore operation is to move a plant from one server to another.

1. Unzip the supplied sp3dtrain.exe backup file to the C:\ folder of your server.
2. Start the Database Wizard using Start → Programs → Intergraph SmartPlant 3D → Database Tools → Database Wizard
3. Select the option to “Restore a site from backup set.”
4. Select your server name.
5. Choose c:\sp3dtrain\SP3DTrain\_Plant.bcf as the backup file.
6. Choose c:\sp3dtrain as the database backup files location
7. Set site database workshare location to be HUNTSVILLE



The image shows a screenshot of the 'SmartPlant 3D Database Wizard' window, specifically the 'Restore Site Database from Backup' step. The window has a title bar with the Intergraph logo and the text 'SmartPlant 3D Database Wizard'. Below the title bar, there is a subtitle 'Restore Site Database from Backup' and a descriptive paragraph: '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.' To the right of the text is a small circular icon. The main area of the wizard contains several input fields and buttons. The 'Destination database server' is set to 'VPC1'. The 'Backup configuration file to restore' is 'C:\Trainback\SP3DTrain\_Plant.bcf', with a browse button (...). The 'Date of Backup' is '8/1/2005 10:38:35 AM'. The 'Database backup files are stored on the server in:' is 'C:\Trainback\', also with a browse button (...). The 'Site database name' is 'SP3DTrain\_Site' and the 'Site schema name' is 'SP3DTrain\_Site\_SCHEMA'. The 'Site database workshare location' is 'HUNTSVILLE' and the 'Name generator server for site' is 'VPC1'. A section titled 'Paths for site database and schema files' contains a checkbox 'Use new paths for physical databases and log files' which is unchecked. Below this, there are two input fields: 'Physical database' set to 'Default SQL Location' and 'Log file' set to 'Default SQL Location', both with browse buttons (...). At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.

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.

Destination database server:  
VPC1

Backup configuration file to restore:  
C:\Trainback\SP3DTrain\_Plant.bcf ...

Date of Backup: 8/1/2005 10:38:35 AM

Database backup files are stored on the server in:  
C:\Trainback\ ...

Site database name:  
SP3DTrain\_Site

Site schema name:  
SP3DTrain\_Site\_SCHEMA

Site database workshare location:  
HUNTSVILLE

Name generator server for site:  
VPC1

Paths for site database and schema files

☐ Use new paths for physical databases and log files

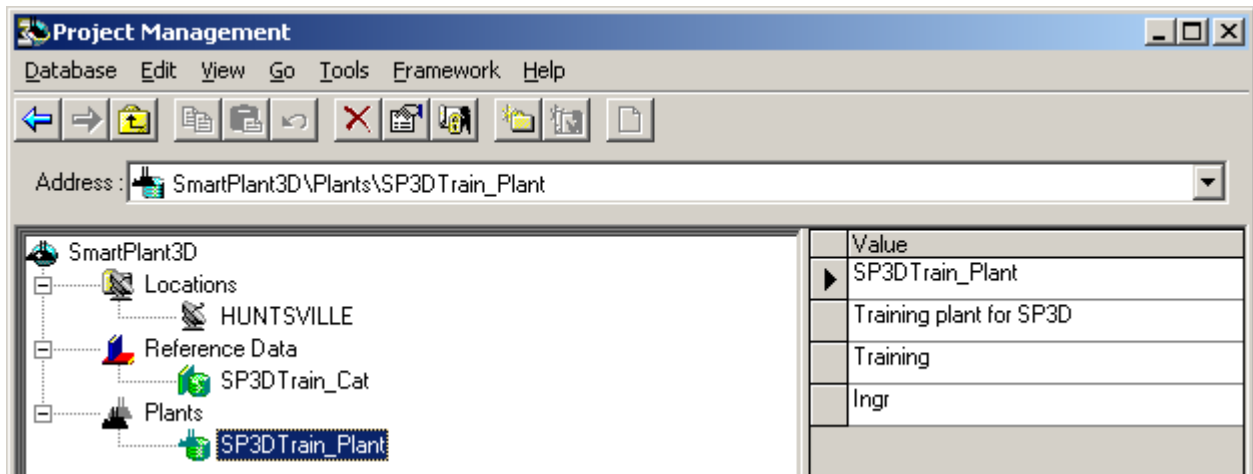
Physical database:  
Default SQL Location ...

Log file:  
Default SQL Location ...

< Back Next > Cancel

8. Click Next and Finish to restore the site.

9. Close the Database Wizard.
10. Now enter Project Management



11. Select the “SP3DTrain\_Plant” Plant.
12. Select Tools → Restore
13. Ensure that you select “Restore one or more plant databases from backup”
14. Click “Next>”

15. Fill in fields as below and click “Finish”

**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:\Trainback\SP3DTrain\_Plant.bcf Browse...

Plants to restore:

Name	Size	Date of Backup
SP3DTrain_Plant	1212047.36KB	8/1/2005 10:39:01 AM

Server and path to existing database backup files:

Server	Database Backup Files Path
VPC1	C:\Trainback\

Browse...

Paths for new databases:

Type	Server	Database Path	Log Path
Catalog	VPC1	C:\Program Files\Microsoft SQL Server\90\Tools\Binn\SQL Enterprise Manager\	C:\Program Files\Microsoft SQL Server\90\Tools\Binn\SQL Enterprise Manager\
Model	VPC1	C:\Program Files\Microsoft SQL Server\90\Tools\Binn\SQL Enterprise Manager\	C:\Program Files\Microsoft SQL Server\90\Tools\Binn\SQL Enterprise Manager\
*			

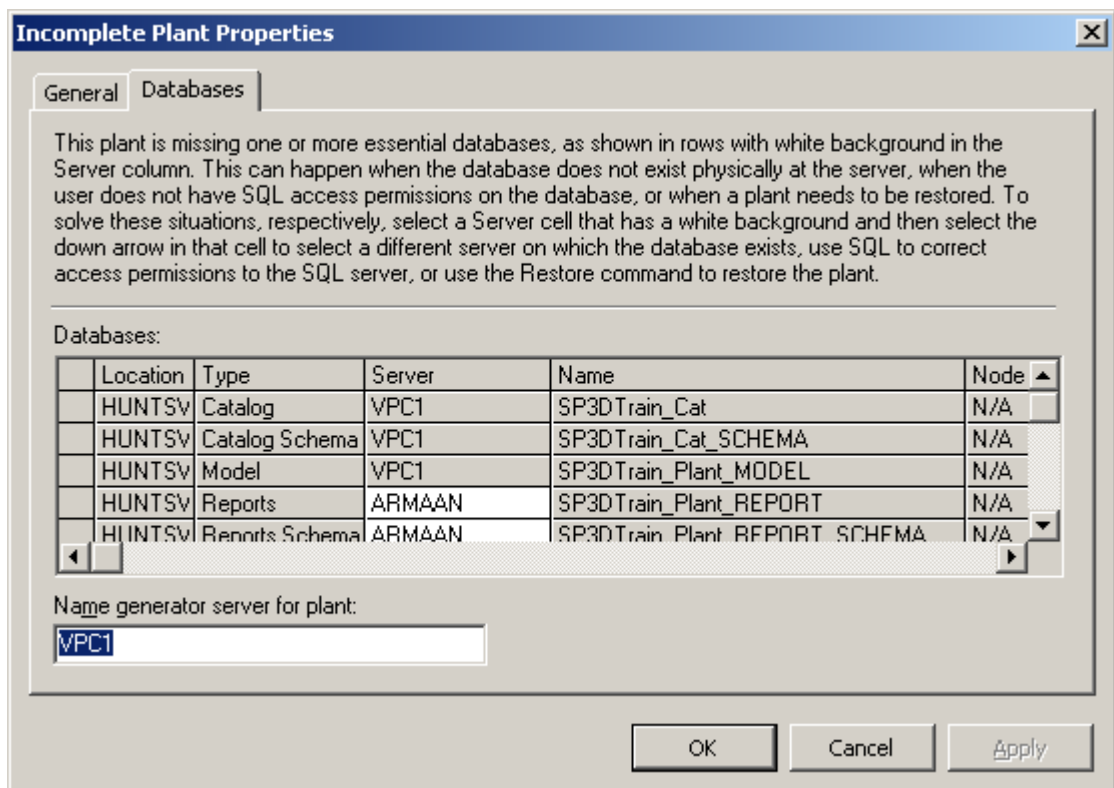
Browse...

Symbol and custom program file location:  
\\VPC1\Symbols Browse...

< Back Finish Cancel

16. After the restore is complete, select the SP3DTrain\_Plant and right click and select “Properties”.

17. On the Databases tab, fill in the correct machine name for the “Name Generator server for plant:”



18. Click OK.

19. Select the SP3DTrain\_Plant and right-click and select Regenerate Reports Database

20. Change the server name to your server name and click OK.

**Regenerate Reports Database**

Reports database

Reports database server: VPC1 Reports database name: SP3DTrain\_Plant\_REPORT

Paths for the reports database files

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

Reports schema

Reports schema server: VPC1 Reports schema name: SP3DTrain\_Plant\_REPORT\_SCHEMA

Paths for the reports schema files

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

OK Cancel

21. This process takes 4-5 minutes to regenerate the reports database. Once done, the backup is successfully restored to the new server.

# Lab 8: Reference a PDS Project

## 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.

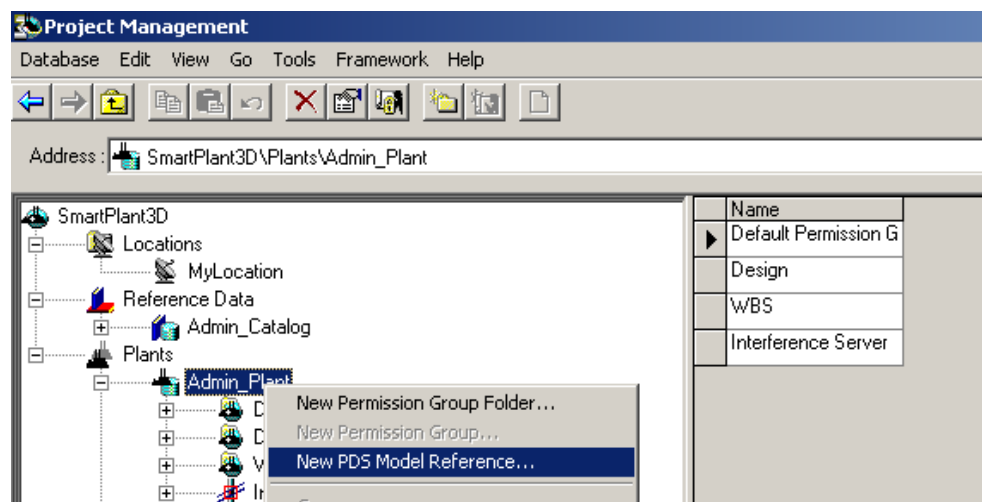
## Software installed

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.



## Do's and don't's

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 9: Typical Workflows

## Add a new user to the SmartPlant 3D plant

### Steps to add a new administrative user

1. Create a Windows login for the new user
2. Add the login to the Windows group SP3DAdmins

Since the SP3DAdmins group has been granted privileges in the SQL Server environment as well as SmartPlant 3D, there is no need to adjust any additional permissions

### Steps to add a new designer user

1. Create a Windows login for the new user (e.g. pipe3)
2. Add the login (pipe3) to the Windows group SP3DUsers
3. Using Project Management task, add the user to the permission groups where the user needs to create design objects, in our example, this will be the Piping permission group

### Steps to promote a designer to lead role

1. Let us assume that we are promoting pipe1 to lead pipe designer
2. Using Project Management task, add the pipe1 user to the Piping permission group with Full Control access.

## Backing up data for troubleshooting

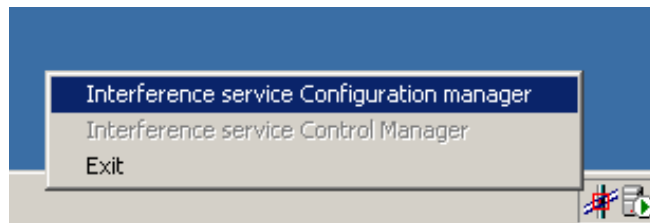
1. Using project management task, backup the plant to be sent for troubleshooting. The backups must be placed in a folder on a drive that is physically attached to the server.
2. Using Windows and some other zip software, backup the entire contents of the Symbols\Drawings, Symbols\Reports, Symbols\Labels and Symbols\CrossSections folders from the server
3. Zip up both 1 and 2 together and you have a package ready to send over.



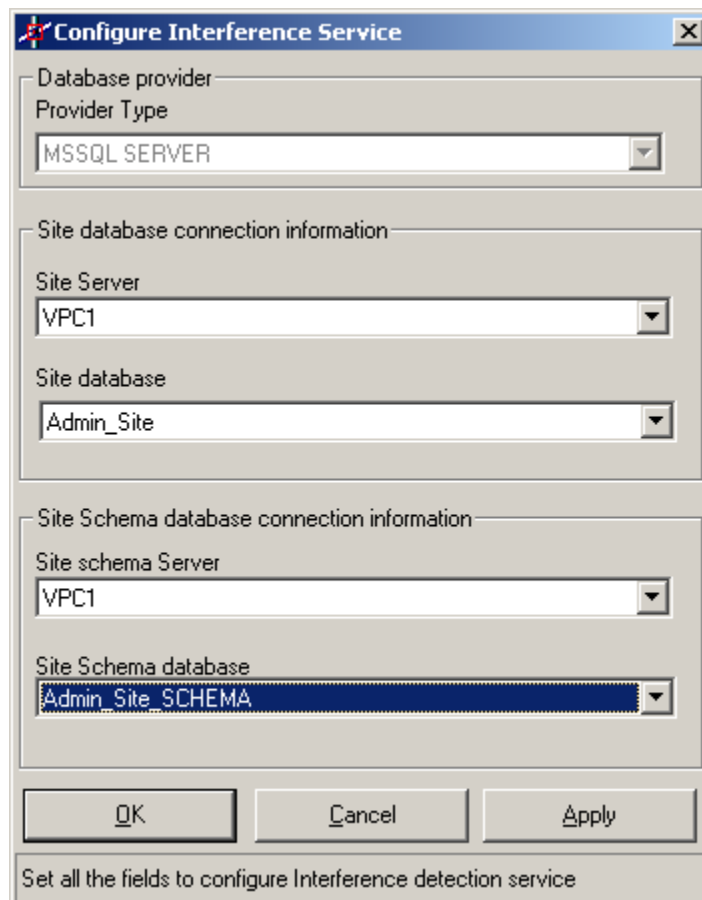
# Lab 10: Interference Checking

## Database Detect

1. Recall that we chose to install the Check Interference Database Detect option. Within your System Tray you will find the Inference Service Configuration Manager link. Right mouse on it and select “Interference service Configuration Manager.

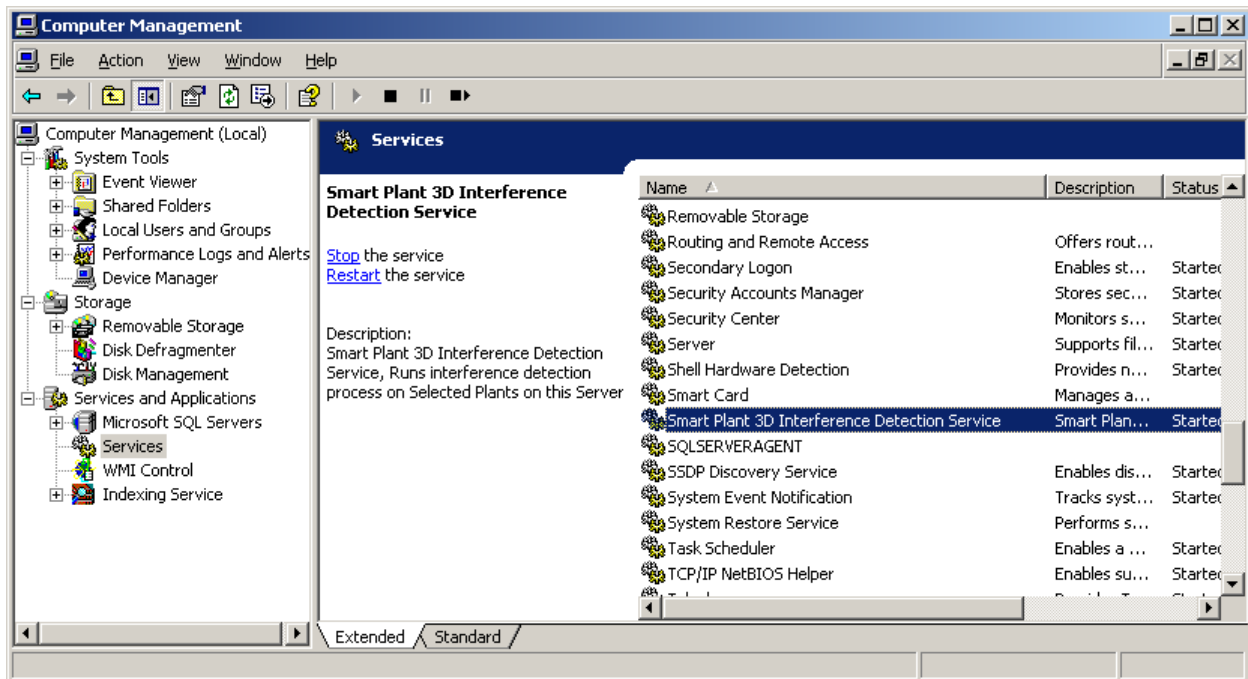


2. Complete the form this time selecting the Admin\_Site and Admin\_Site\_Schema that you made at the beginning of this course.

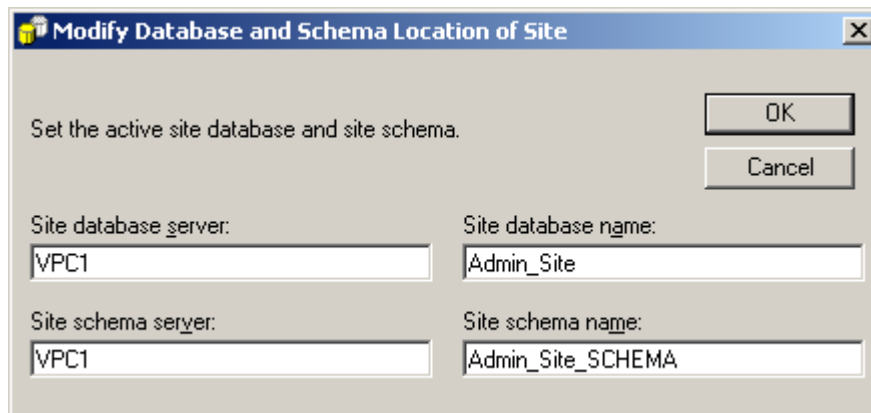
A screenshot of the "Configure Interference Service" dialog box. The dialog has a title bar with a red star icon and the text "Configure Interference Service". It contains three sections: "Database provider" with a "Provider Type" dropdown set to "MSSQL SERVER"; "Site database connection information" with "Site Server" set to "VPC1" and "Site database" set to "Admin\_Site"; and "Site Schema database connection information" with "Site schema Server" set to "VPC1" and "Site Schema database" set to "Admin\_Site\_SCHEMA" (highlighted in blue). At the bottom are "OK", "Cancel", and "Apply" buttons. A status bar at the very bottom reads "Set all the fields to configure Interference detection service".

3. Click OK on the form. This identifies the Site (and ultimately the Plant collection known to that site) for this IFC DB Detect process to eventually process.
4. Verify the Service is installed on the IFC machine and that the Smart Plant 3D Interference Detection Service has been Started and is set to Automatic. To do

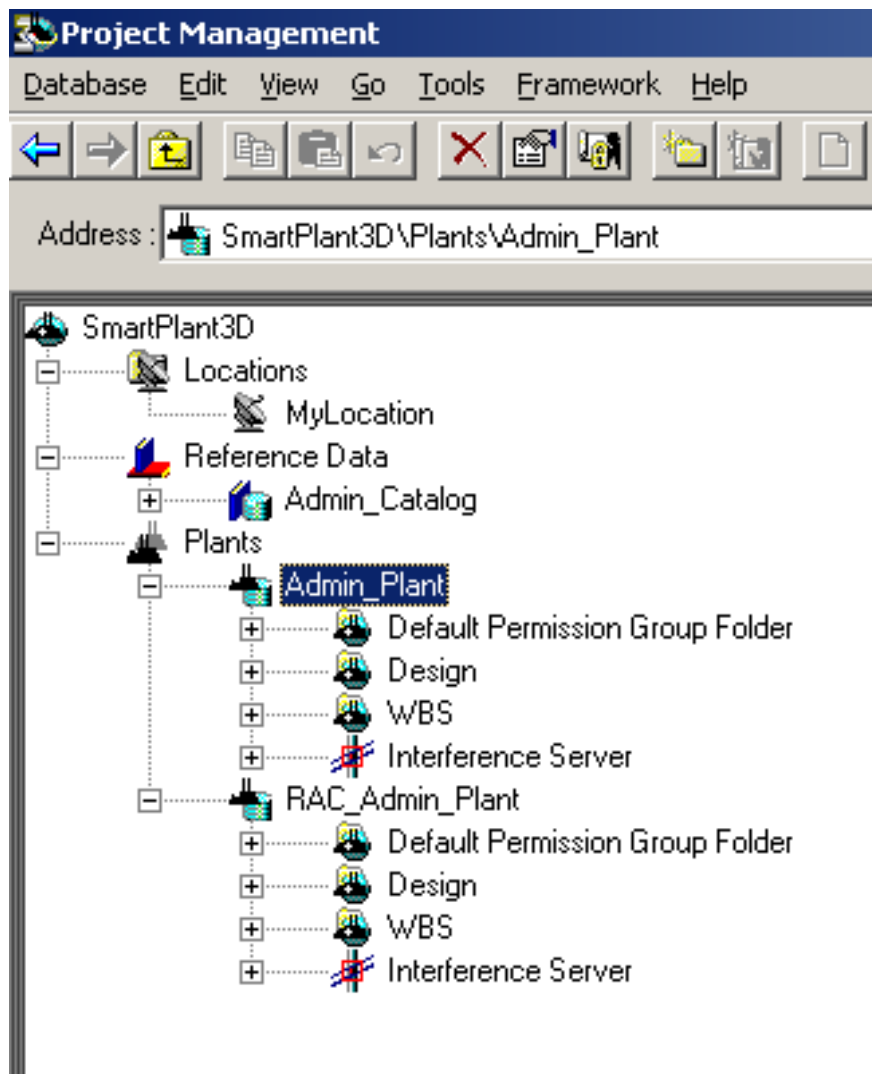
this open Computer Management on the machine, and expand Services and Applications → Services, then scroll down to find the service is started.



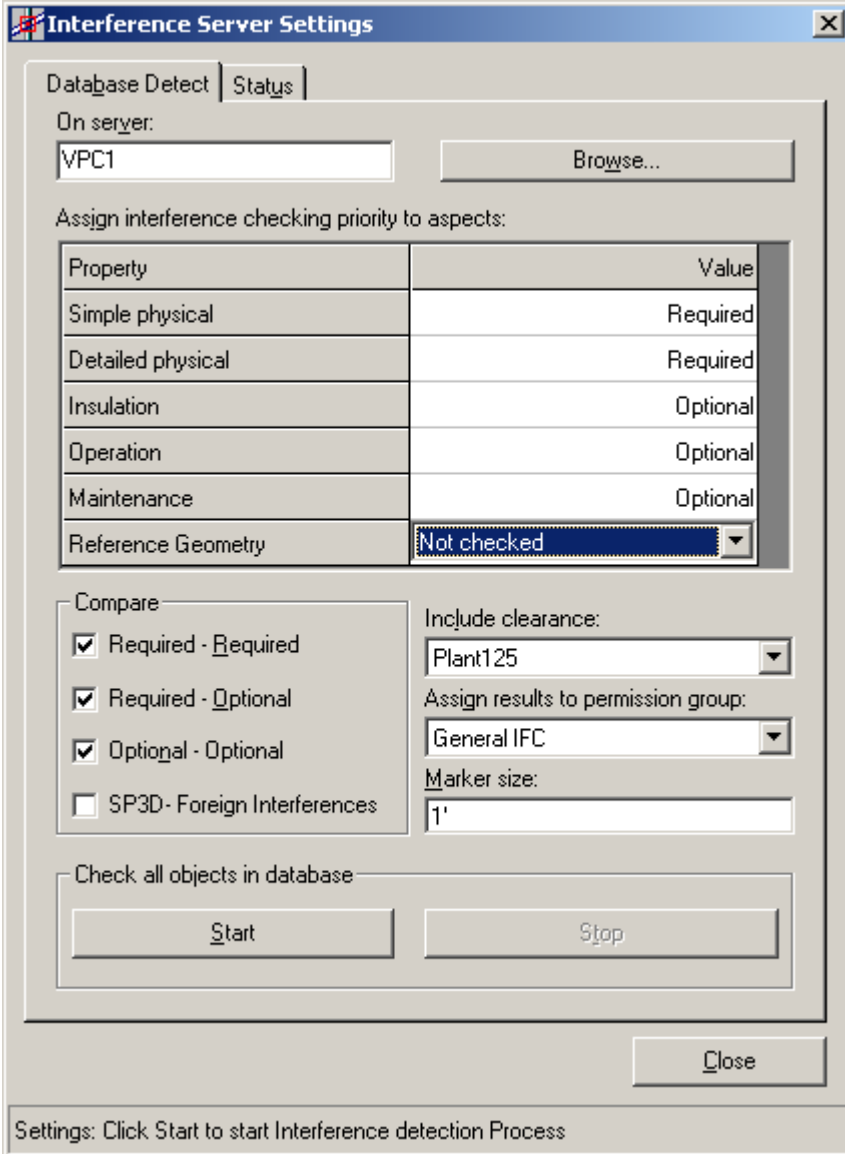
- Now we must point back to the Site and Site\_Schema for the purpose of SmartPlant 3D and Project Management. Change values to be as below and click OK. This points your client back to the site you created.



- Start Project Management and expand the two Plants, note the existence of a node named "Interference Server"



7. Under the Admin\_Plant Plant, create a permission group folder named “IFC”, with a child permission group named “General IFC”
8. Select the Interference Server node. Right mouse and select “Properties” from the fly-out menu.
9. Complete the Database Detect form as follows:



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

**Database Detect Tab:**

- On server:** A text box containing "VPC1" and a "Browse..." button.
- Assign interference checking priority to aspects:** A table with two columns: "Property" and "Value".
 

Property	Value
Simple physical	Required
Detailed physical	Required
Insulation	Optional
Operation	Optional
Maintenance	Optional
Reference Geometry	Not checked
- Compare:** A group box containing four checkboxes:
  - ☒ Required - Required
  - ☒ Required - Optional
  - ☒ Optional - Optional
  - ☐ SP3D- Foreign Interferences
- Include clearance:** A dropdown menu showing "Plant125".
- Assign results to permission group:** A dropdown menu showing "General IFC".
- Marker size:** A text box containing "1".
- Check all objects in database:** A group box containing "Start" and "Stop" buttons.
- Close:** A button at the bottom right.

**Footer:** A status bar at the bottom says "Settings: Click Start to start Interference detection Process".

10. Click the Start button to send the “Start” command to the IFC service.
11. Click Close.
12. You can repeat the same process to include the processing of the 2<sup>nd</sup> plant, RAC\_Admin\_Plant.

## Configuring IFC Clearance Rules

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.

	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		Equipme
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.

A110					
	A	B	C	D	E
61	!				<b>Volume(S)</b>
62	A		Equipment	Simple physical	Interference Volumes
63	!				<b>Structure(S)</b>
64	A		Equipment	Simple physical	Member Part Prismatic
65	A		Equipment	Simple physical	Slab
66	A		Equipment	Simple physical	Footing
67	A		Equipment	Simple physical	Equipment Foundation
68	A		Equipment	Simple physical	Stairs
69	A		Equipment	Simple physical	Ladders
70	A		Equipment	Simple physical	Handrails
71	!				<b>Supports(S)</b>
72	A		Equipment	Simple physical	Pipe Supports
73	A		Equipment	Simple physical	Cable Tray Supports
74	A		Equipment	Simple physical	Duct Supports
75	!				<b>Conduits(S)</b>
76	A		Equipment	Simple physical	Conduit Components
77	A		Equipment	Simple physical	Conduits
78	!				
79	!		<b>Legacy Designed Equipment</b>		<b>Equipment(s)</b>
80	A		Legacy Designed Equipment	Simple physical	Legacy Designed Equipment
81	!				<b>Cableways(S)</b>
82	A		Legacy Designed Equipment	Simple physical	Cableway Turn
83	A		Legacy Designed Equipment	Simple physical	Cableway Straight
84	A		Legacy Designed Equipment	Simple physical	Cable Trays
85	A		Legacy Designed Equipment	Simple physical	Cable Tray Components
86	!				<b>HVAC(S)</b>
87	A		Legacy Designed Equipment	Simple physical	HVAC Components
88	A		Legacy Designed Equipment	Simple physical	Ducts
89	!				<b>Piping(S)</b>
90	A		Legacy Designed Equipment	Simple physical	Piping Welds
91	A		Legacy Designed Equipment	Simple physical	Piping Components

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 (“Admin\_Catalog”) and Catalog\_Schema (“Admin\_Catalog\_Schema”) .
14. Set the Mode to Add/Modify/Delete.
15. Provide a path to the log file (your desktop will be fine”
16. Provide the Symbol Share path

**Bulkload**

Reference data to bulkload

Excel files:

C:\Documents and Settings\LocalAdmin\Desktop\IFCRule\_admin.xls

Add...

Delete

Excel codelist 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 server name: VPC1

Database name: Admin\_Catalog

Schema information

Catalog schema server: VPC1

Catalog schema database: Admin\_Catalog\_SCHEMA

Log file:

C:\Documents and Settings\LocalAdmin\Desktop\Admin\_Catalog.log

Symbol and custom program file location:

\\VPC1\Symbols

17. Click Load.

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

```
Admin_Catalog - Notepad
File Edit Format View Help
Successfully opened Input Log File: C:\Documents and Settings\LocalAdmin\Desktop\Admin_Catalog.1
*****
DATABASE SERVER NAME : VPC1
DATABASE NAME : Admin_Catalog
SCHEMA DATABASE NAME : Admin_Catalog_SCHEMA
CREATE FLAVORS : Disabled
MODE OF OPERATION : Add/Modify/delete
*****

Processing CatalogRoot sheet in C:\Documents and Settings\LocalAdmin\Desktop\IFCRule_admin.xls w
Finished Processing CatalogRoot sheet in C:\Documents and Settings\LocalAdmin\Desktop\IFCRule_ad

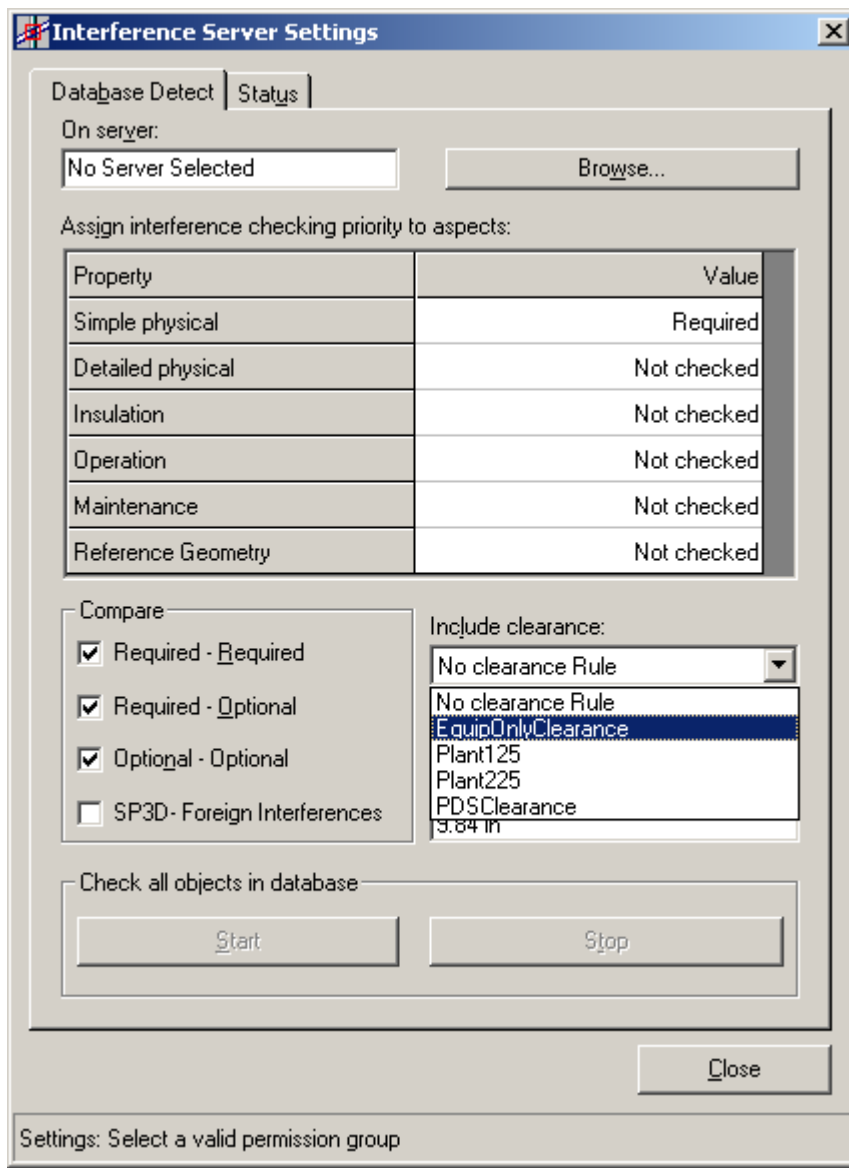
Processing sheet: ClassNodeType in workBook: C:\Documents and Settings\LocalAdmin\Desktop\IFCRu1
Finished processing sheet: ClassNodeType in workbook: C:\Documents and Settings\LocalAdmin\Deskt

Processing sheet: IFCPostProcessorRule in workBook: C:\Documents and Settings\LocalAdmin\Desktop
Finished processing sheet: IFCPostProcessorRule in workbook: C:\documents and Settings\LocalAdmi

Processing sheet: IFCClearanceRule in workBook: C:\Documents and Settings\LocalAdmin\Desktop\IFC
Successfully created the object in row [8]
Successfully created the object in row [9]
Successfully created the object in row [10]
Successfully created the object in row [12]
Successfully created the object in row [13]
Successfully created the object in row [14]
Successfully created the object in row [15]
Successfully created the object in row [17]
Successfully created the object in row [18]
```

19. Start a new Project Management Session.
20. Expand RAC\_Admin\_Plant → Interference Server.
21. Right mouse on Interference Server and select Properties.





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

Under "Database Detect", there is a section "On server:" with a text box containing "No Server Selected" and a "Browse..." button.

Below that is a section "Assign interference checking priority to aspects:" containing a table:

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

Below the table is a "Compare" section with four checkboxes:

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

To the right of the "Compare" section is an "Include clearance:" section with a dropdown menu. The dropdown is open, showing a list of options: "No clearance Rule", "EquipOnlyClearance" (highlighted), "Plant125", "Plant225", "PDS Clearance", and "3.84 in".

Below the "Compare" section is a "Check all objects in database" section with "Start" and "Stop" buttons.

At the bottom right is a "Close" button.

At the very bottom is a status bar that says "Settings: Select a valid permission group".

22. Observe the existence of “EquipOnlyClearance”

23. Complete the form similar to what we did in the previous section, this time selecting the newly created “EquipOnlyClearance”

24. Click Start.

Note: You have now used the same IFC Server to process two Plants with different clearance rules simultaneously. The 2<sup>nd</sup> Plant is being processed with a custom Clearance rule that you created.

## Local Detect

Note: the following portion should be completed after the Common Training.

1. Use Modify DB Schema (Start → Programs → Intergraph SmartPlant 3D → Database Tools → Modify Database and Schema Location) to point back to the SP3DTrain\_Site and SP3DTraing\_Site\_Schema.

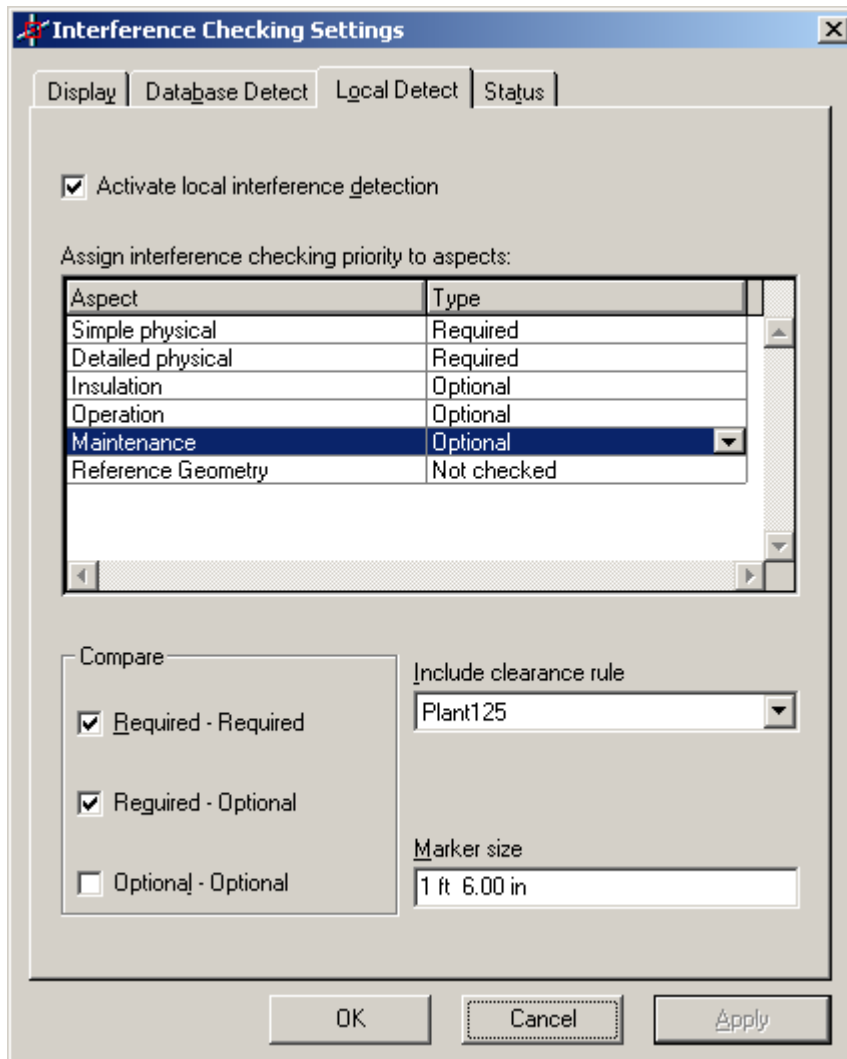
2. Start SmartPlant 3D (Start → Programs → Intergraph SmartPlant 3D → SmartPlant 3D)
3. Define a workspace using the “ALL” filter.
4. From the Tools menu, select Check Interference.
5. The Interference Ribbon Bar will now appear:



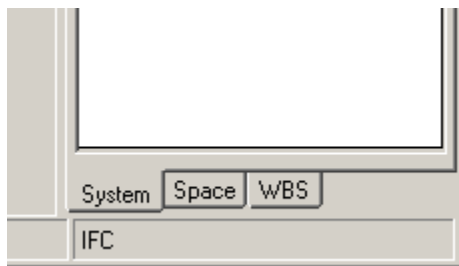
6. Click the left most button for IFC Settings, the following form will display:

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

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



8. Click Apply and then OK.
9. Note that now there is an IFC entry in the bottom left of the SP3D window:



10. Save the session file as "IFC LocalDetect Example.ses"
11. Because this class is presumed to be taken before the Equipment or Piping classes, the instructor will now guide you throw some adhoc simple examples to show that the Local Detect is now working.
12. Pull up the IFC List. Note that Local Detect Entries contain only a name and no additional information.

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

# Lab 11: Database Integrity Exercise

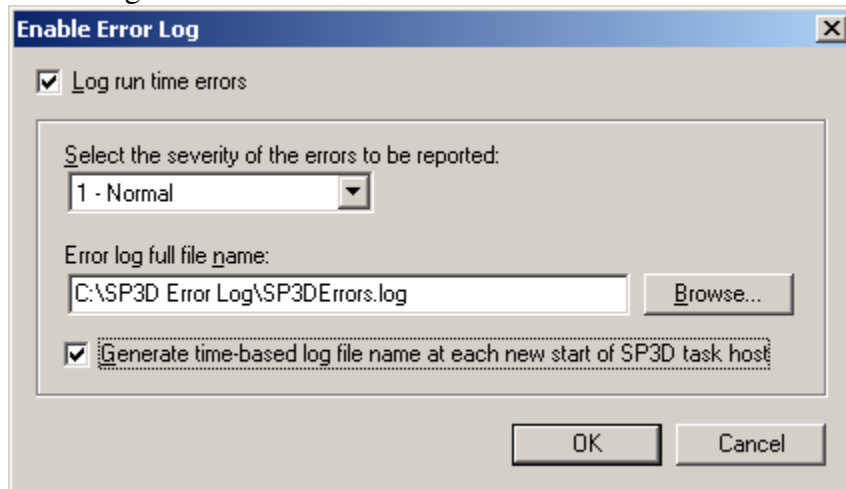
1. Use techniques already learned to restore the database provided to you by your instructor for this lab.
2. Use Check Database Consistency Tool....(Reference DB Integrity.pdf for how to do this as well as the presentation from your instructor.)
3. Run DBIntegrity Reports.....(Reference DB Integrity.pdf for how to do this as well as the presentation from your instructor.)
4. Review DBIntegrity.pdf for correct procedure to use in correcting the problem. Execute those corrective actions.
5. Re-run Check Database Consistency Tool....
6. Re-run DBIntegrity Reports...

# Lab 12: 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 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