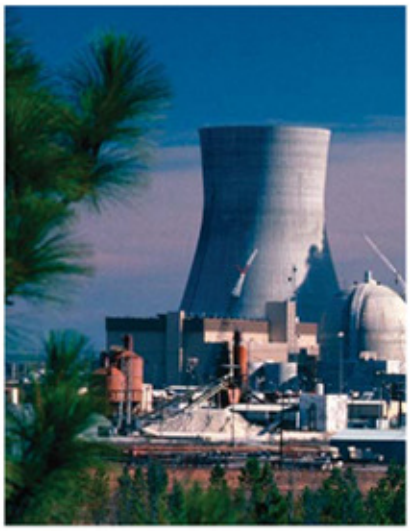
SmartPlant 3D

Setup and Administration for Oracle Course Guide

Process, Power & Marine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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

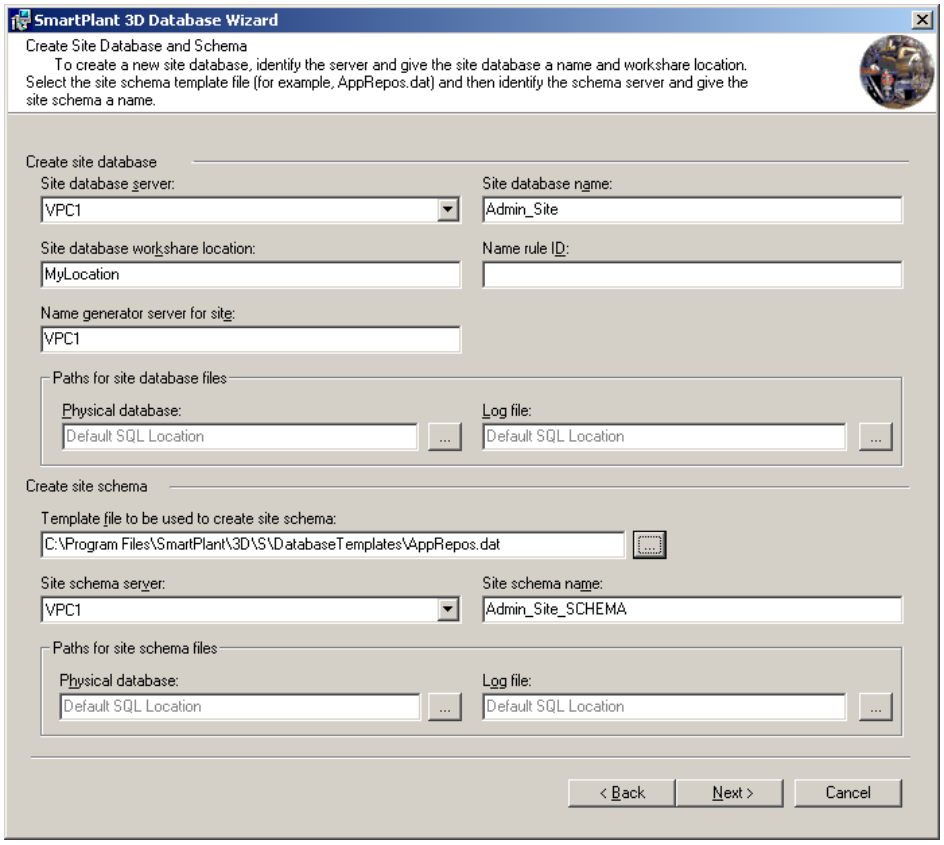
1. Install the Oracle software per instructions in the SmartPlant 3D Installation Guide
2. Install Microsoft .Net Framework 1.1 with Service Pack 1.
3. Install "SP3D Reference Data" to Program Files\SmartPlant\3Dref\ folder. Make sure to follow-up the installation by installing the latest Service Pack (if available).
4. Configure the Name Generator if intial 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

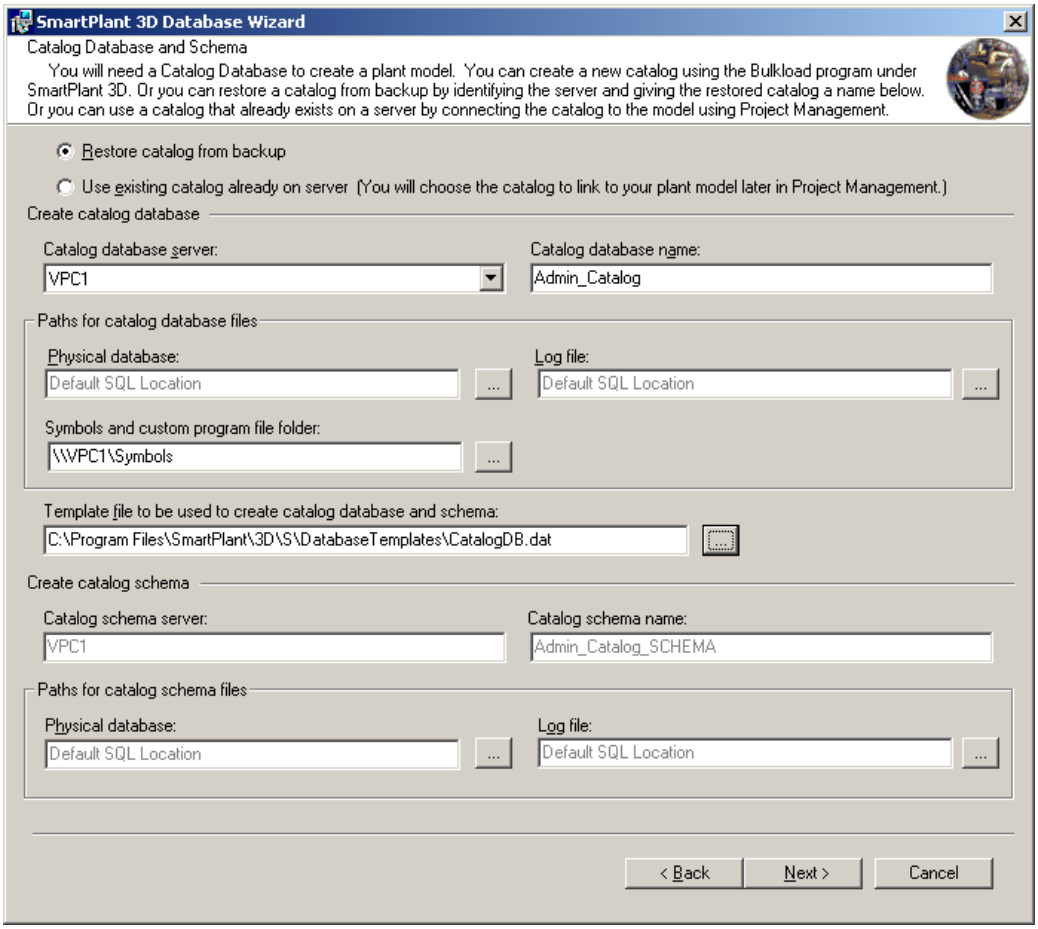
Create new site and catalog

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



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



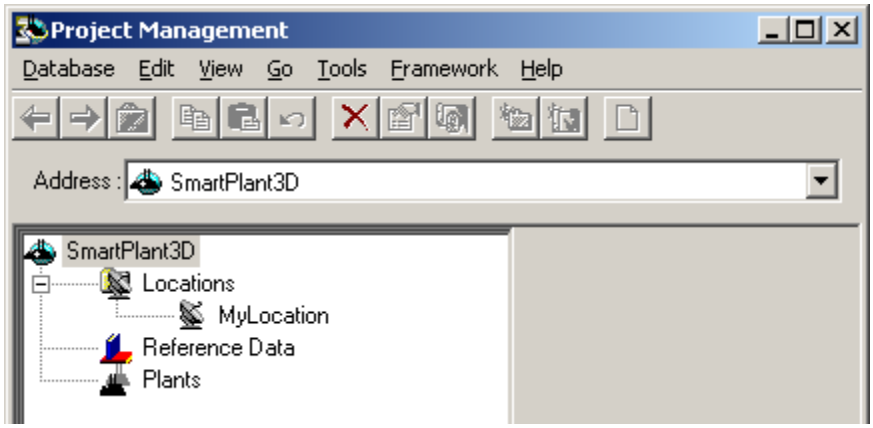
14. Click Next
15. Click CreateDB
16. After process is complete, click Finish

Verify new site creation

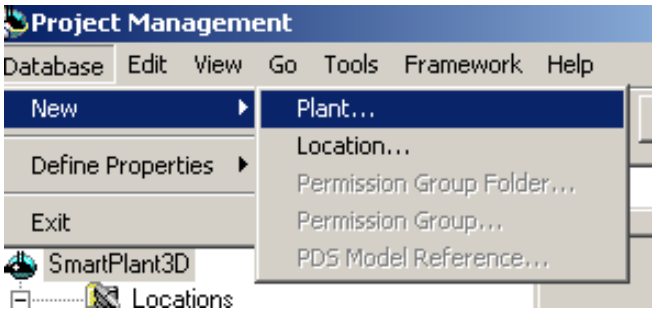
1. Start the Modify Database and Schema Location using Start – Programs – Intergraph SmartPlant 3D – Database Tools – Modify Database and Schema Location
2. Your screen should show the name of your server and site databases

Create new plant

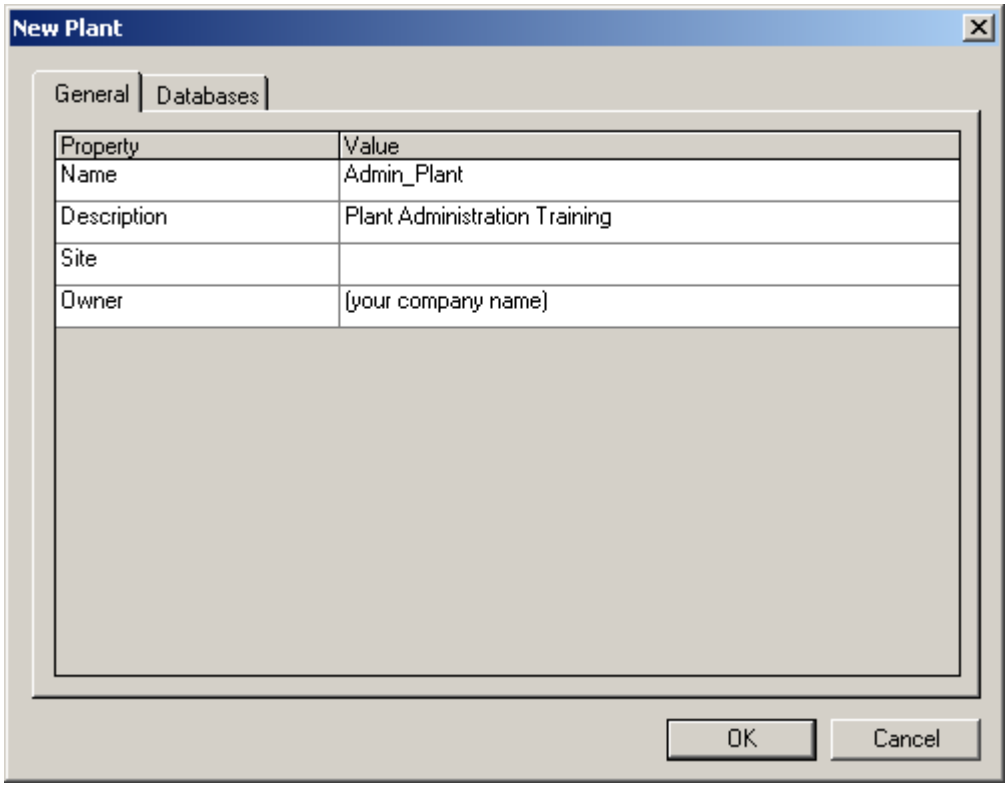
1. Enter Project management using Start → Programs → Intergraph SmartPlant 3D → Project Management



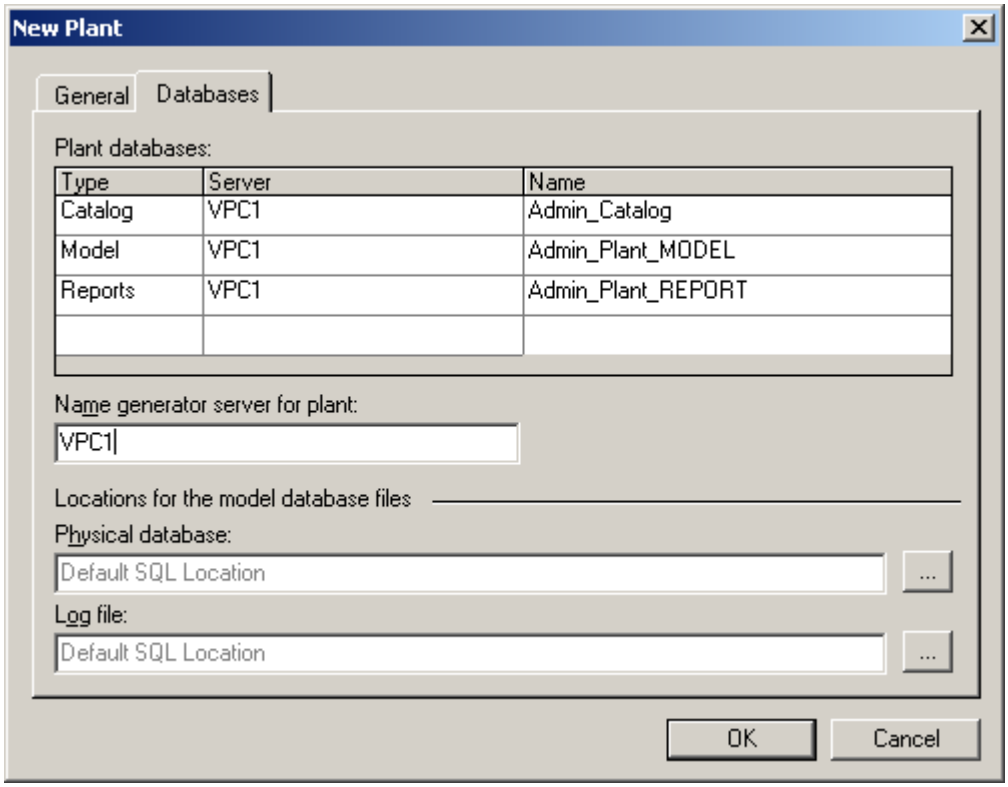
2. From the Database menu, select New → Plant…



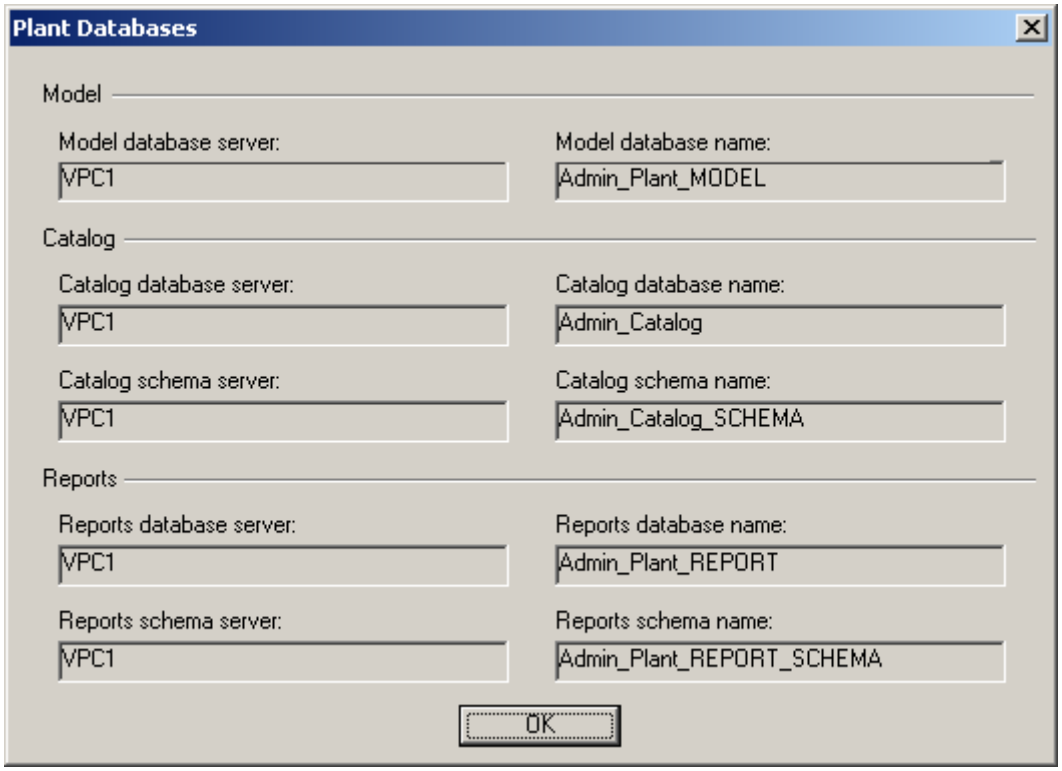
3. Fill in the General tab of the New Plant dialog as below:
   a. Name Admin_Plant
   b. Description Plant Administration Training
   c. Owner (your company name)



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:"



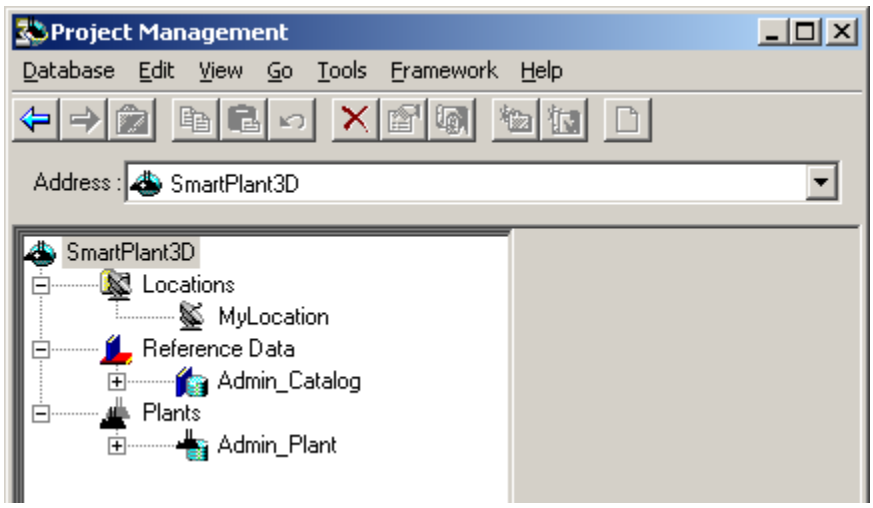
5. Click OK to create the plant. This process takes 12-15 min.



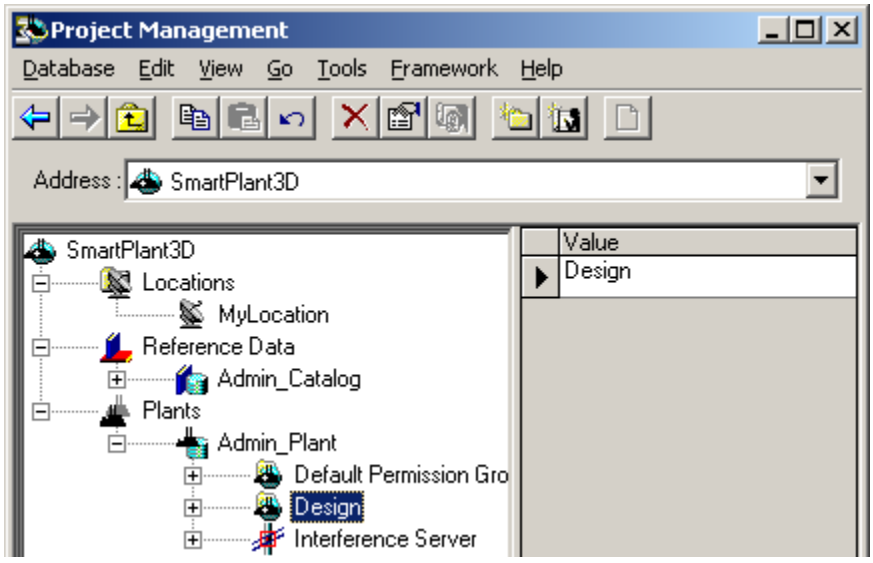
Lab 3: Create permission groups and assign permissions

Create Permission Groups

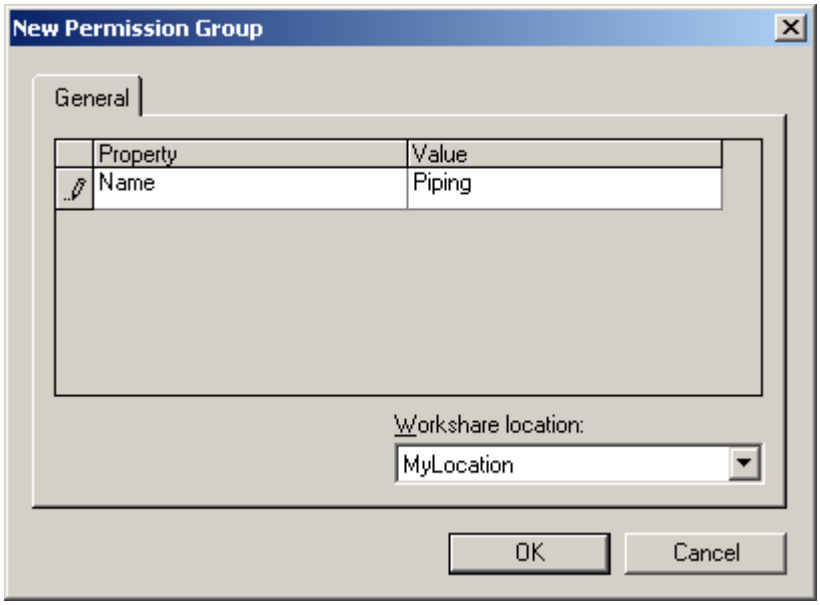
1. If required, enter Project management using Start – Programs – Intergraph SmartPlant 3D – Project Management



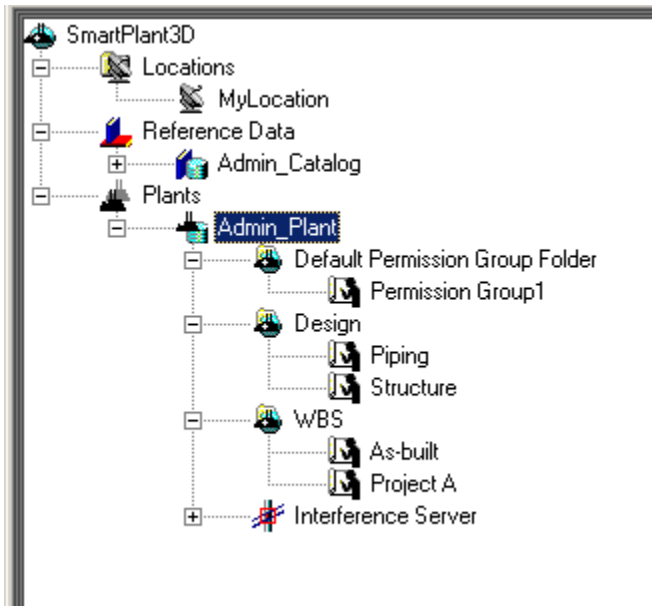
2. Select Admin_Plant
3. Right-click on “Admin Plant” and select “New Permission Group Folder…”
4. Name the folder ‘Design’
5. Select the folder Design



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

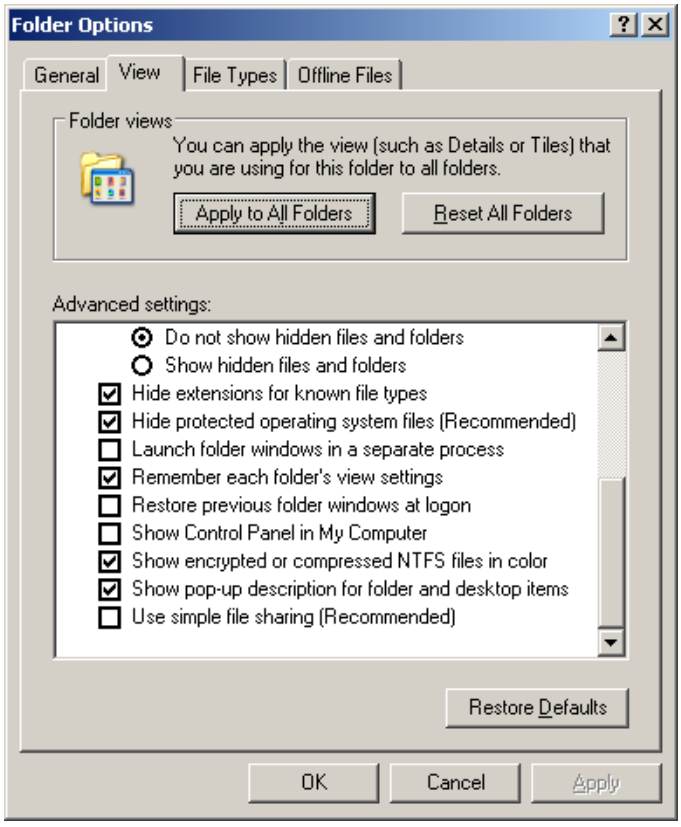


Assign permissions in Project Management

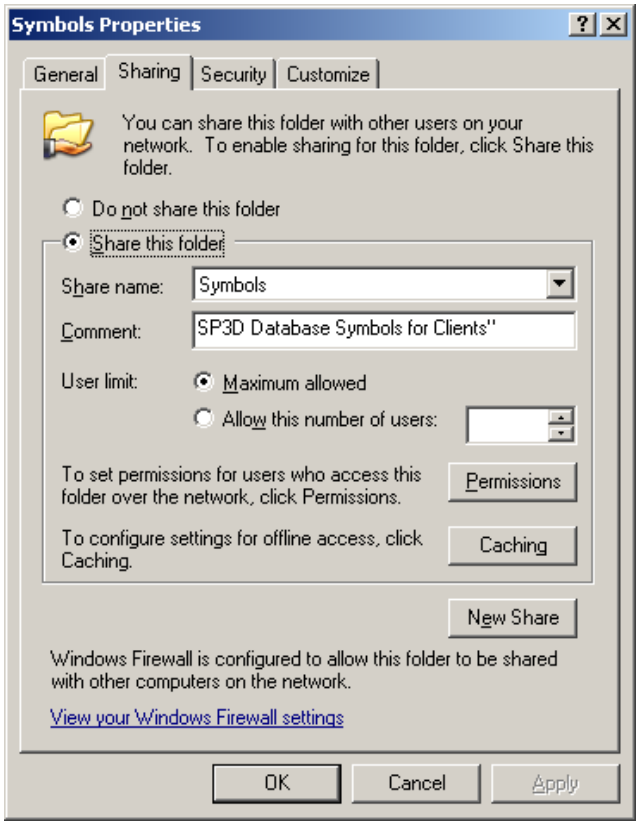
1. Select Permission group Piping
2. Right-click and select Permissions
3. Click the Add button
4. In the list names from dialog, pick your domain server name (your machine name)
5. In the names box, select ‘Pipe’
6. In Type of access select ‘Write’
7. Click Add button
8. In the names box, select ‘Stru’
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

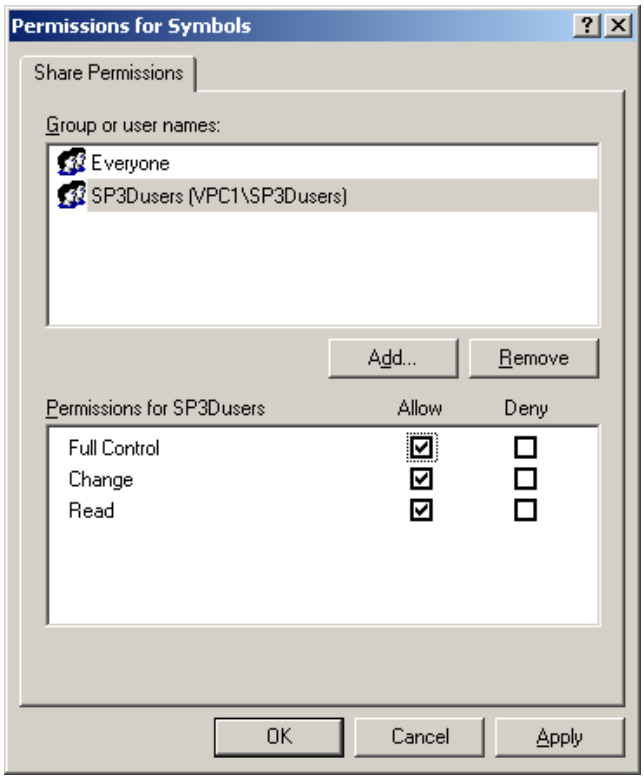
1. Using Windows Explorer open the folder where the symbols share is located. This is the [Server Install Directory]\CatalogData\Symbols folder.
2. Modify permissions on this folder such that the SP3DUsers group has Full Control access.
3. From the Tools menu on the Explorer window, select folder options.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



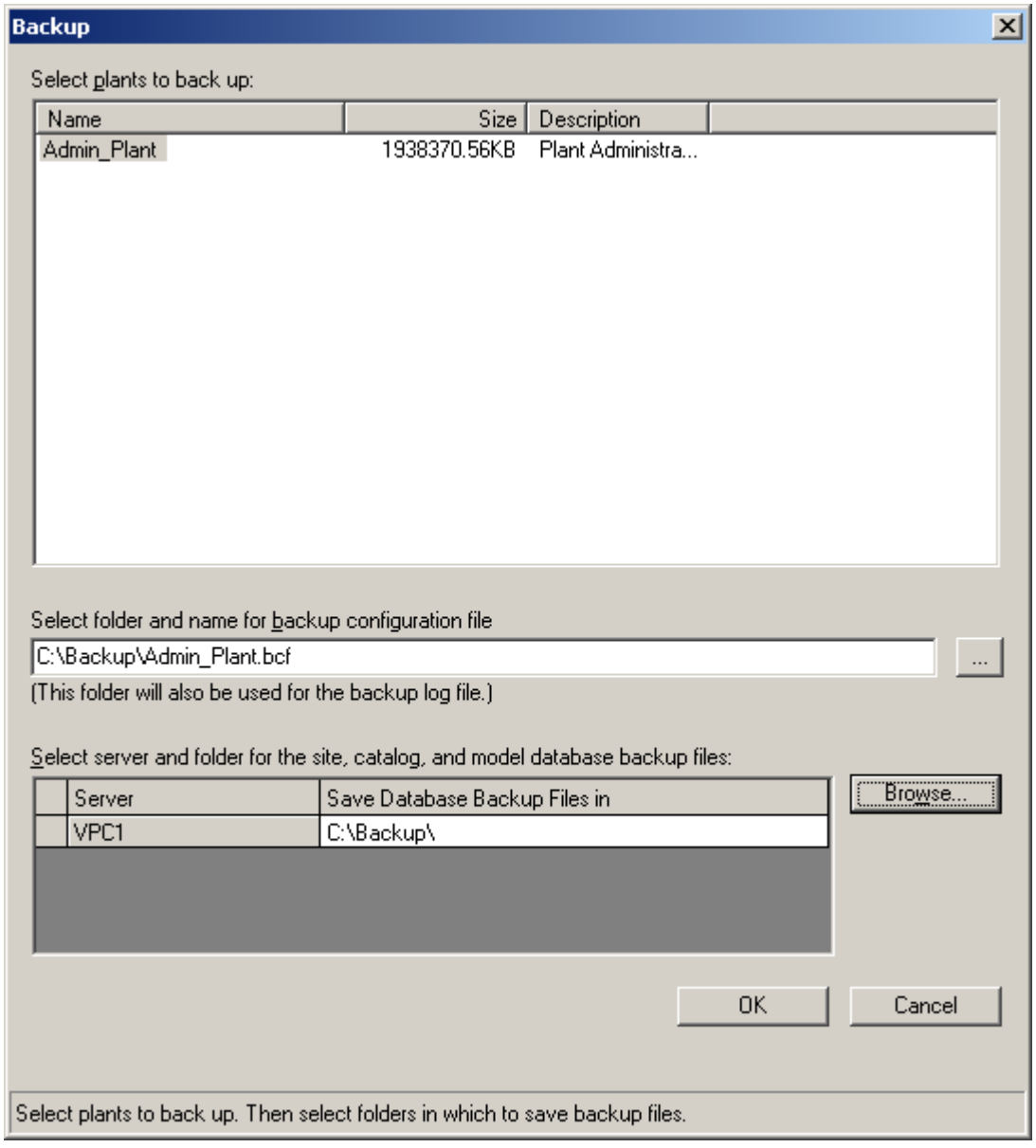
6. Modify share permissions such that the SP3DUsers group has Full Control access.



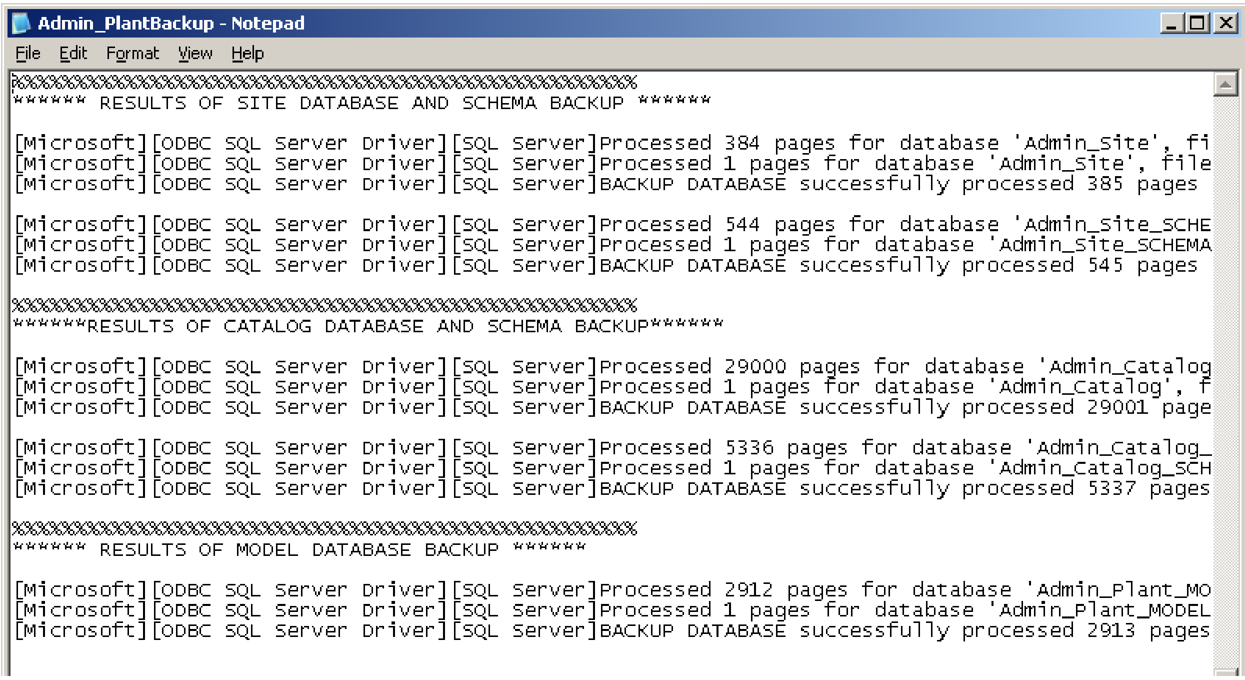
Lab 6: Backup and restore in project management

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



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.

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%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
****** 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 ******

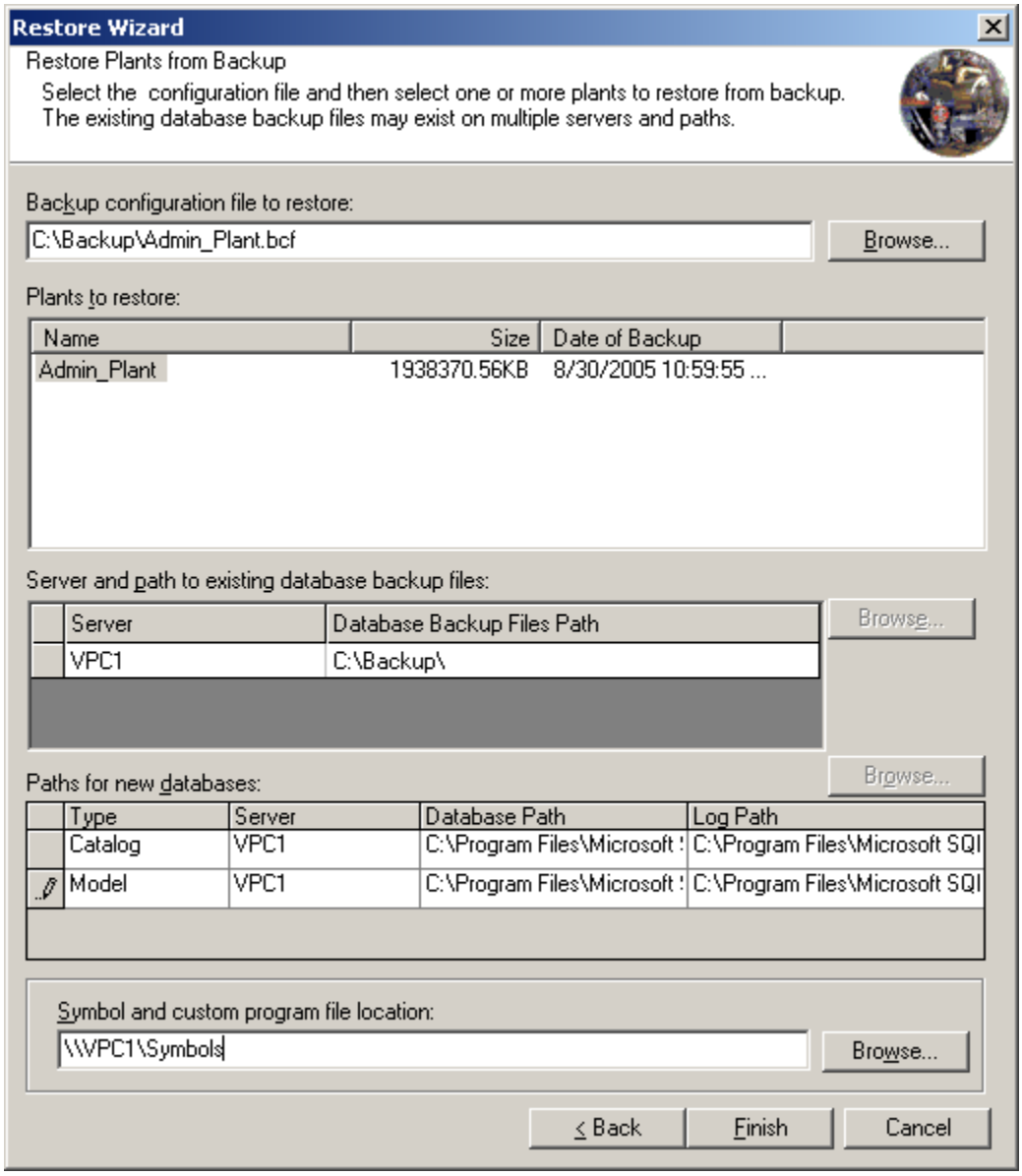
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 2912 pages for database 'Admin_Plant_MO
[Microsoft][ODBC SQL Server Driver][SQL Server]Processed 1 pages for database 'Admin_Plant_MODEL
[Microsoft][ODBC SQL Server Driver][SQL Server]BACKUP DATABASE successfully processed 2913 pages
```

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

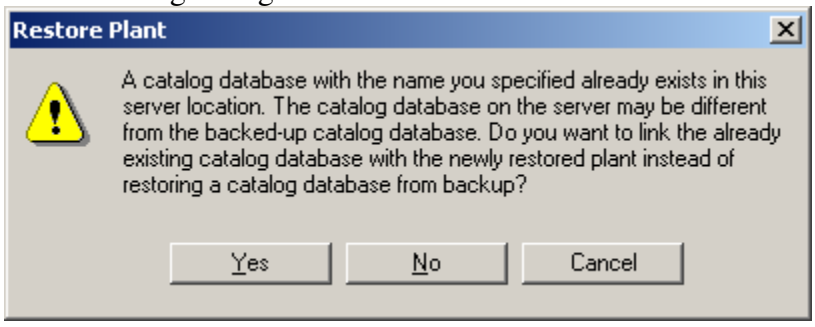
Restore (in place)

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 exampled 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.

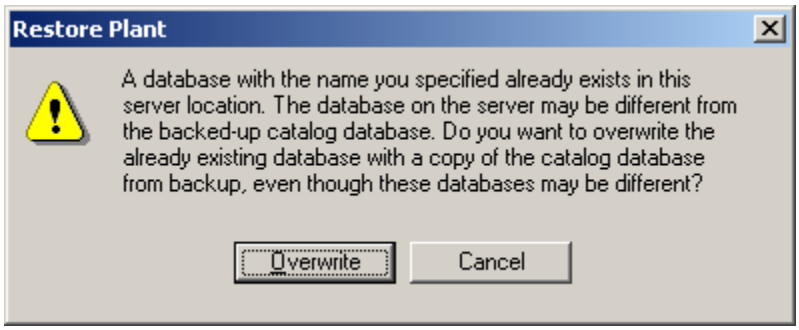


5. Click the Finish button.
6. The following dialog is shown:



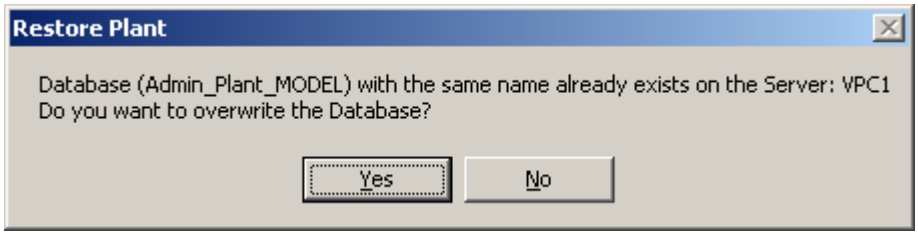
7. We would choose yes if there had been updates to the catalog that we wanted to keep but restore to the older version of the model. We will choose to say No. This will restore the version of the catalog in the backup set.

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.



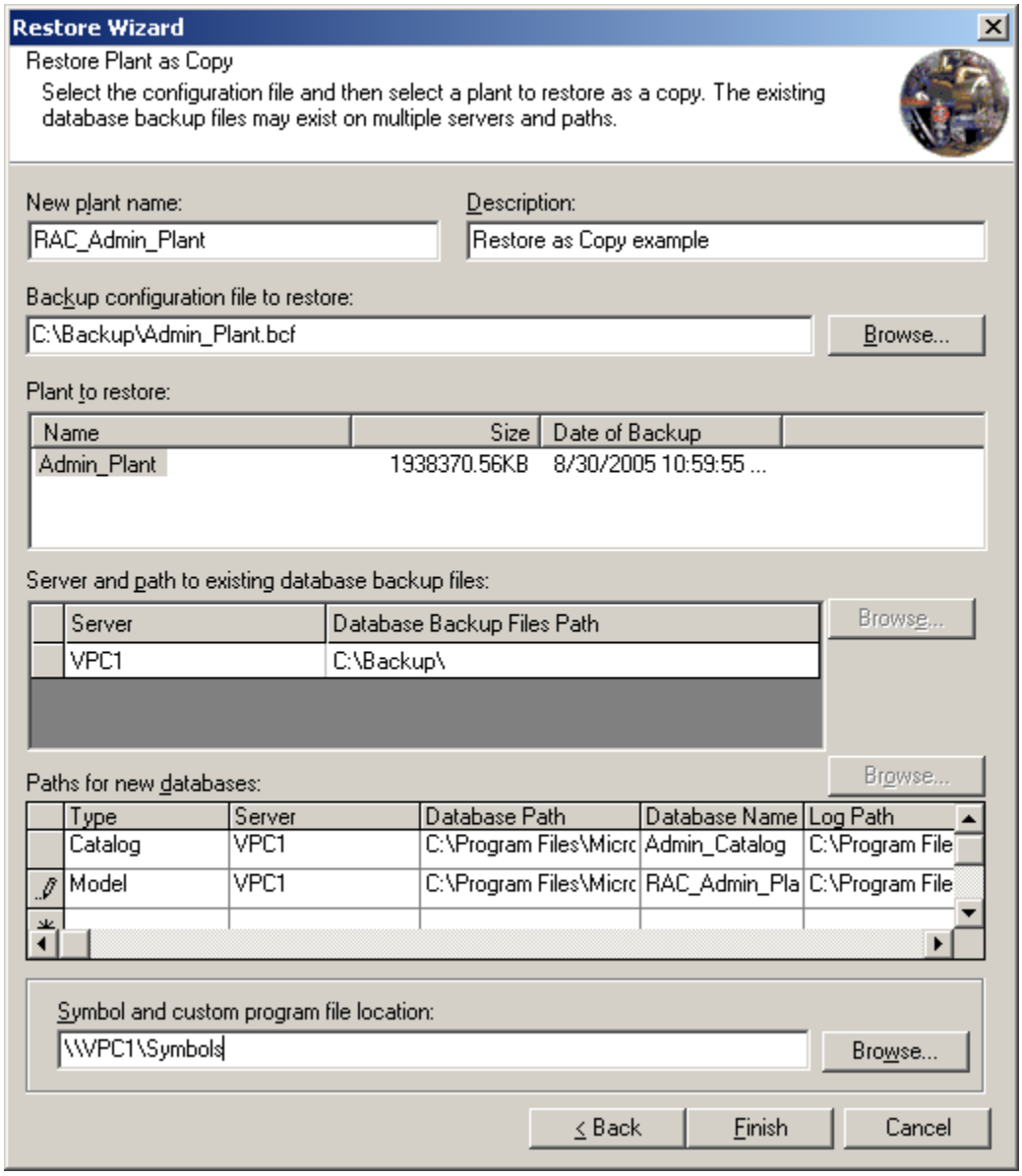
11. A restore log is shown, verify that all restores are complete 100%.

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.

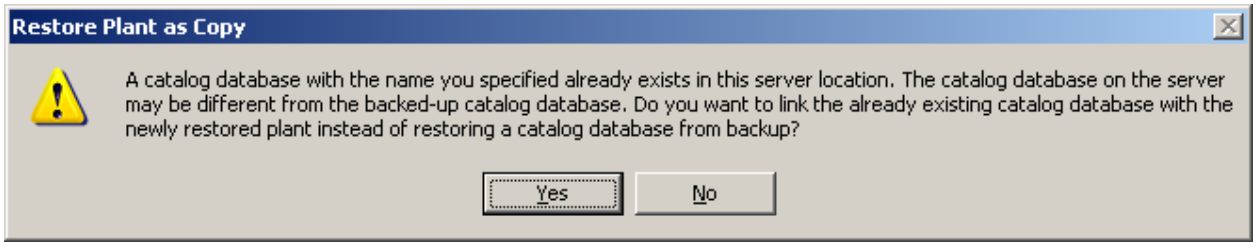
Restore As Copy

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.

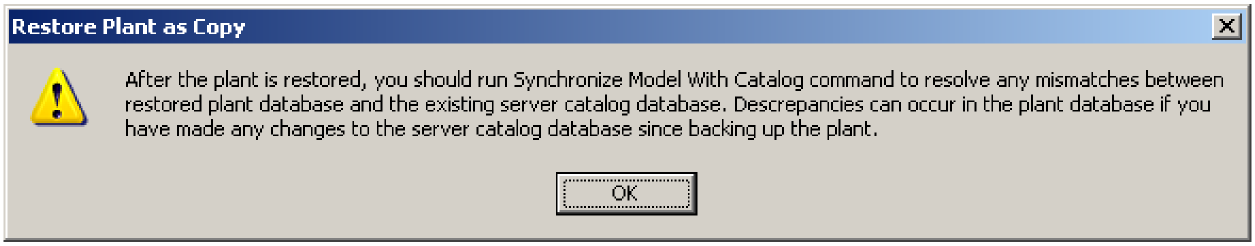
1. Start Project Management (if not already started).
2. Run Tools → Restore…
3. Ensure you have selected "Restore plant as copy" and then click "Next>"
4. Complete the form as follows:



5. Click “Finish”

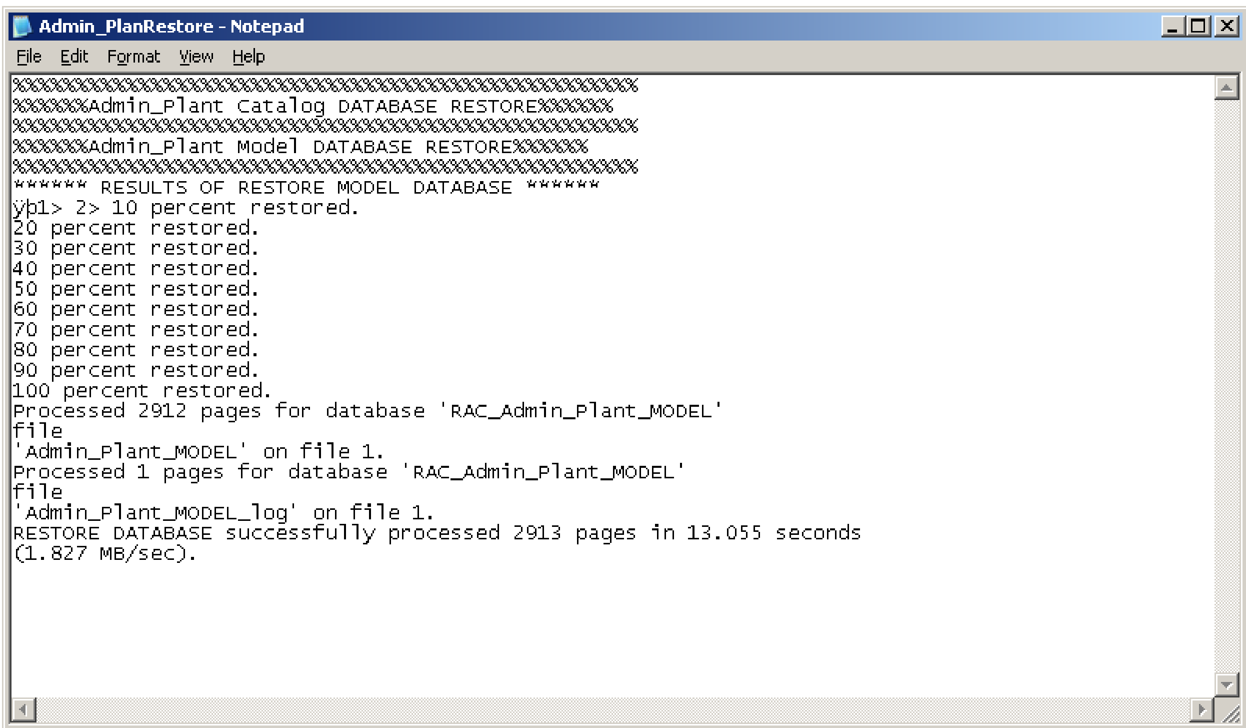


6. Click Yes to link to the existing Catalog.

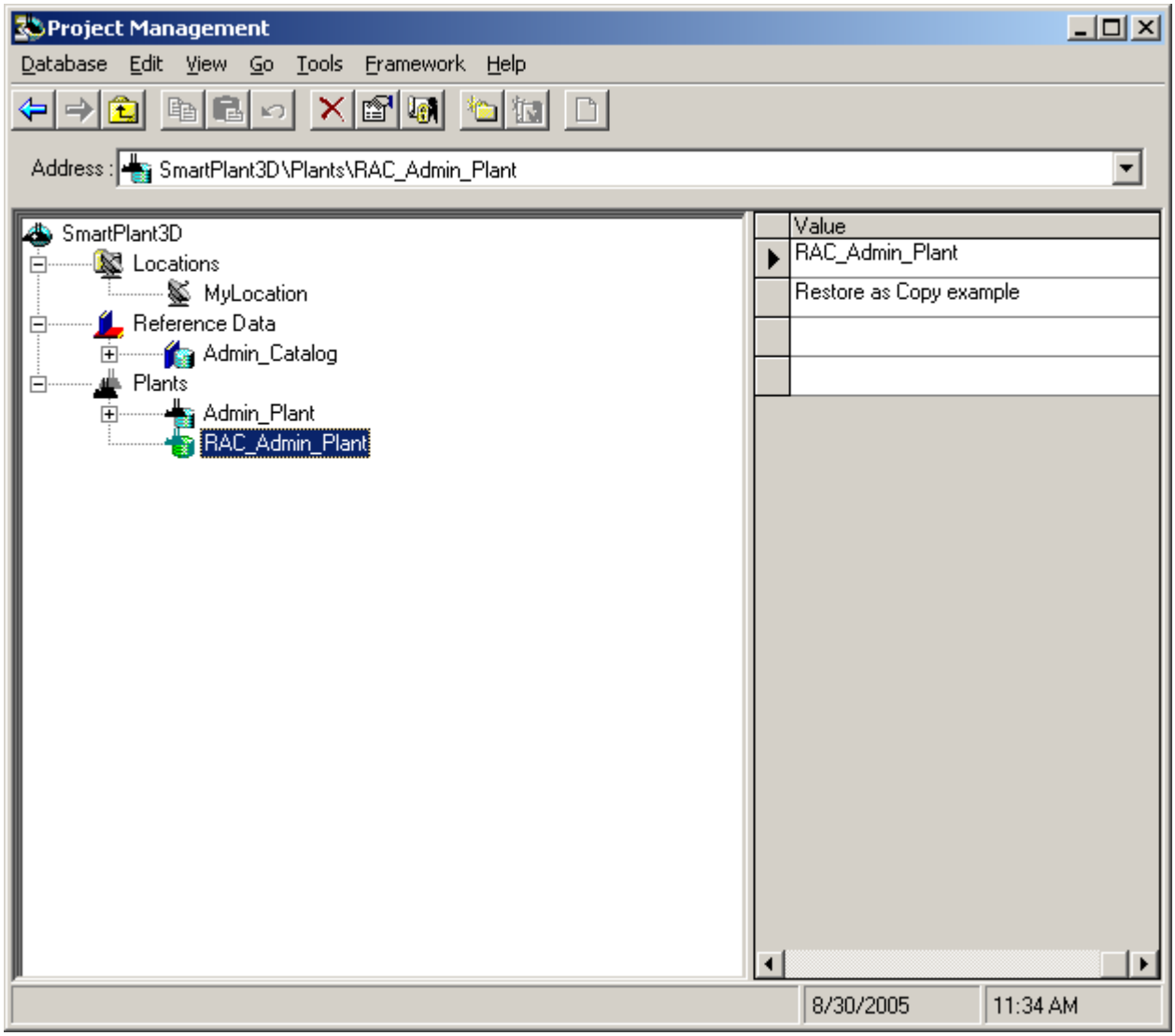


7. Click OK. Since we know that the Catalog is EXACTLY the same, we are not required to following through with the Sync Model with Catalog operation. However, for the purpose of example, we will perform a Sync Model with Catalog operation.

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



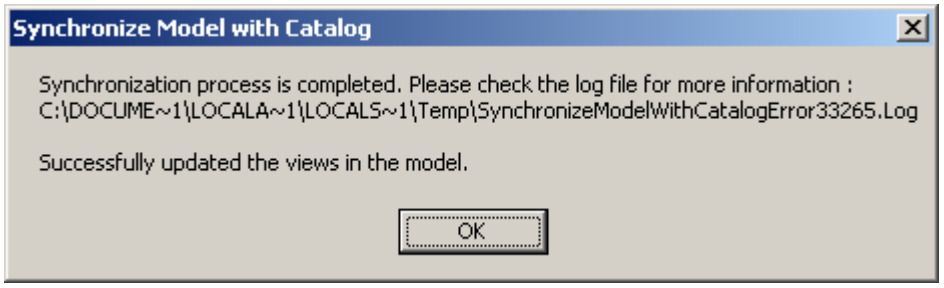
9. Click “Close” to close the Restore Wizard form.



10. Select Tools → Synchronize Model with Catalog….

11. Click OK on the form.

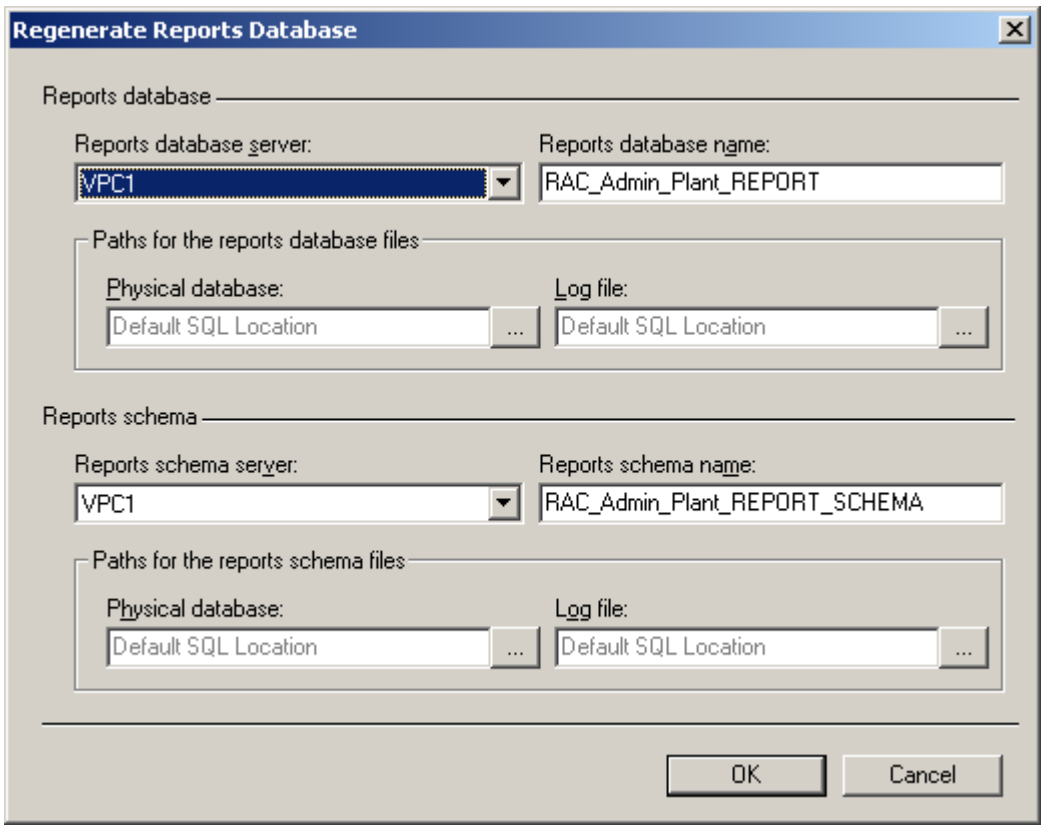
12. When prompted to update the view on the Model, click "Yes"



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.

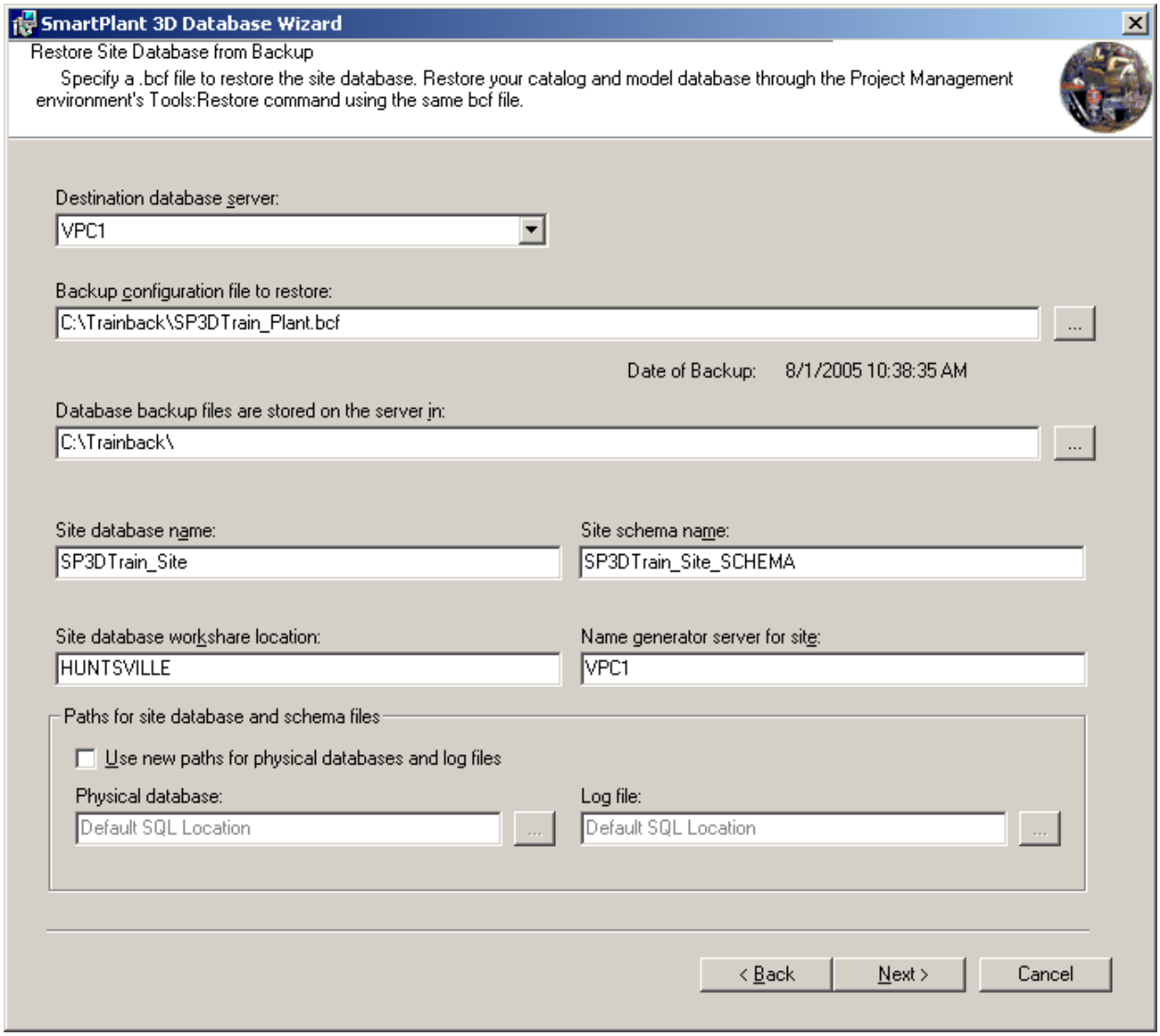


16. Close Project Management when the Report Databases have been regenerated.

Restore (off-site)

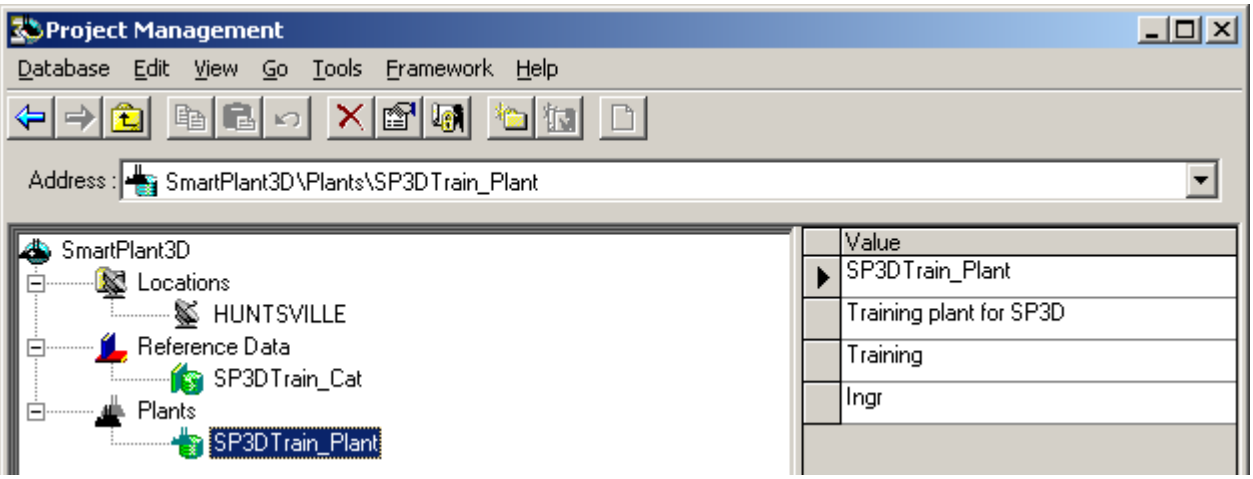
The purpose of this restore operation is to move a plant from one server to another.

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



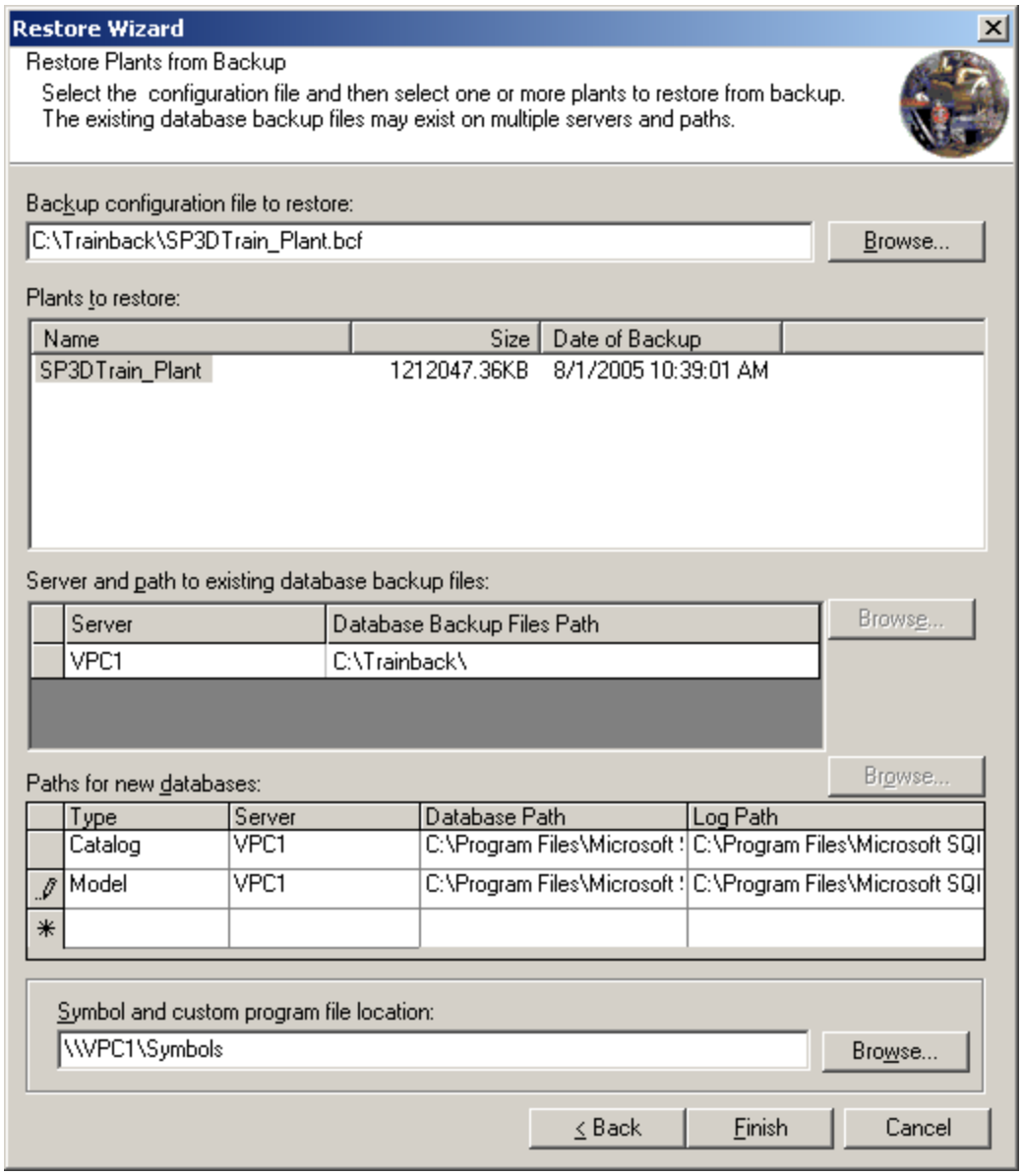
8. Click Next and Finish to restore the site.

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



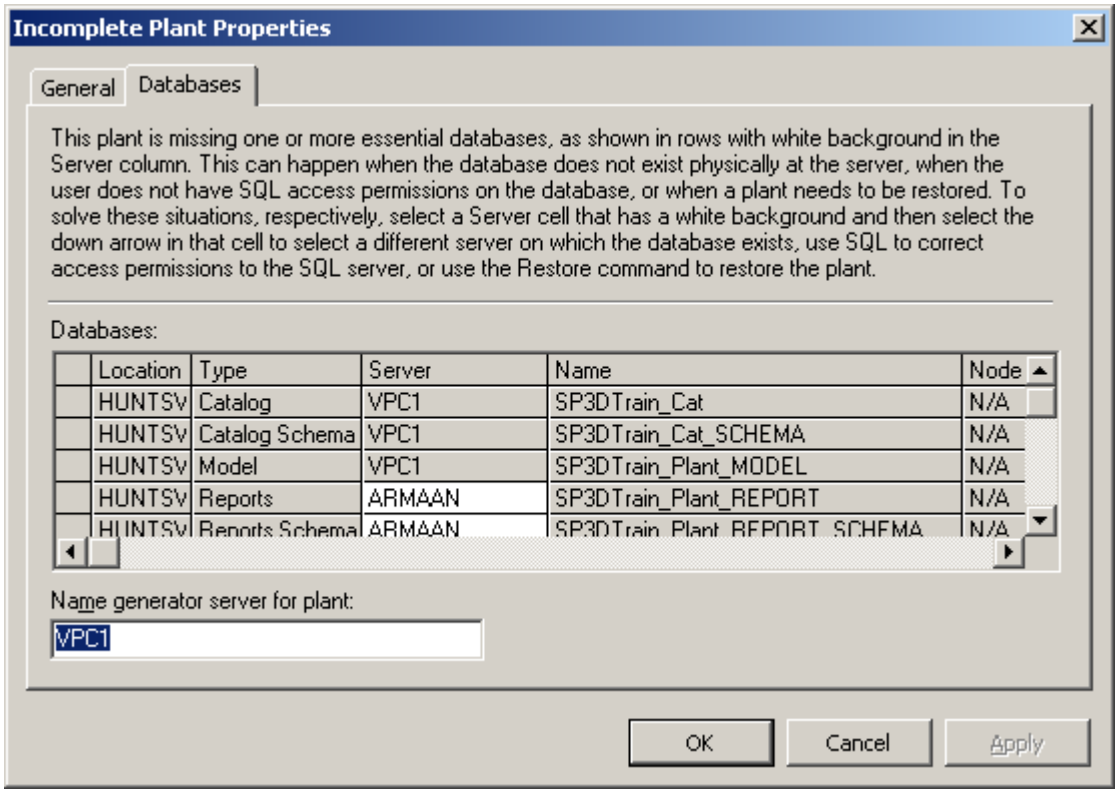
11. Select the "SP3DTrain_Plant" Plant.
12. Select Tools → Restore
13. Ensure that you select "Restore one or more plant databases from backup"
14. Click "Next>"

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



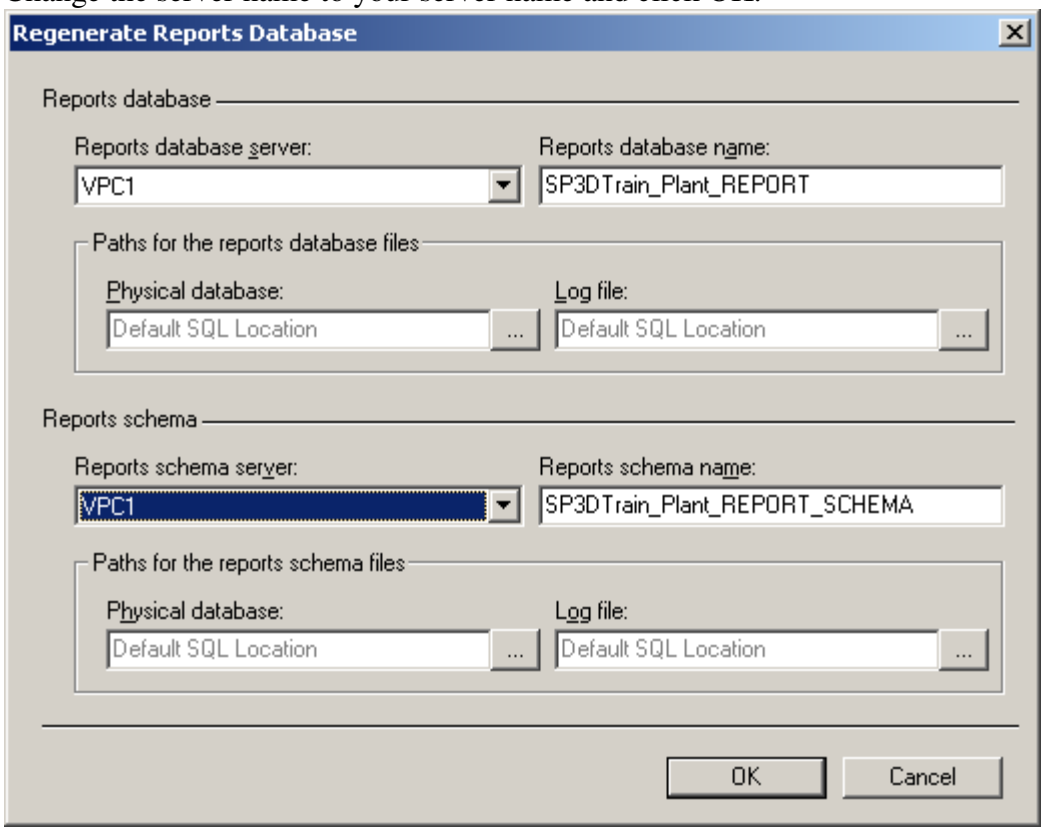
16. After the restore is complete, select the SP3DTrain_Plant and right click and select “Properties”.

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.



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.

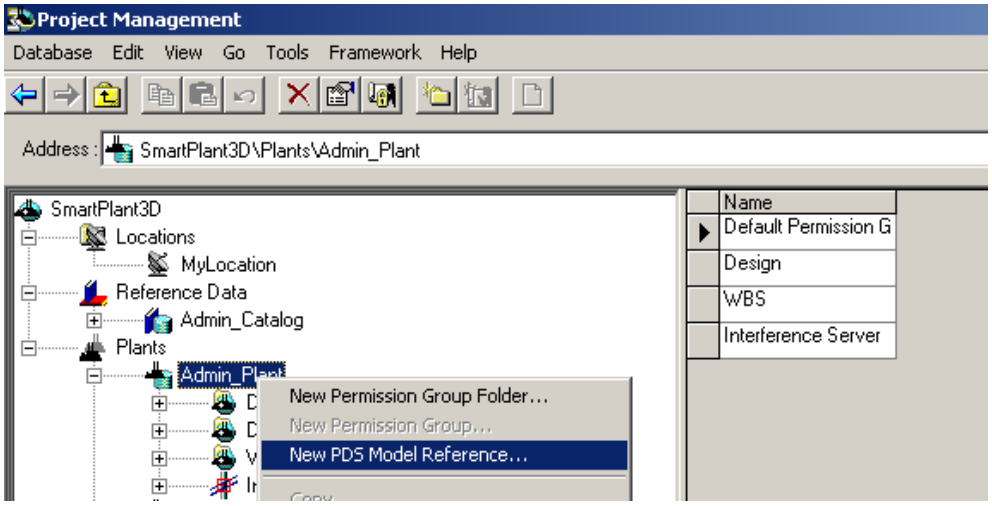
Software installed

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.

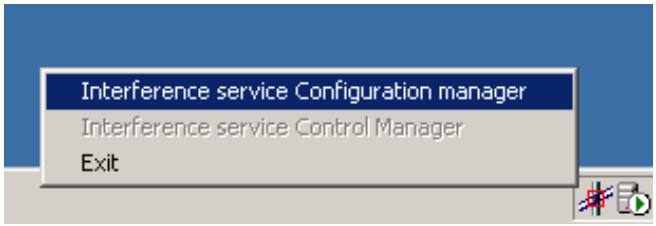
Backing up data for troubleshooting

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.

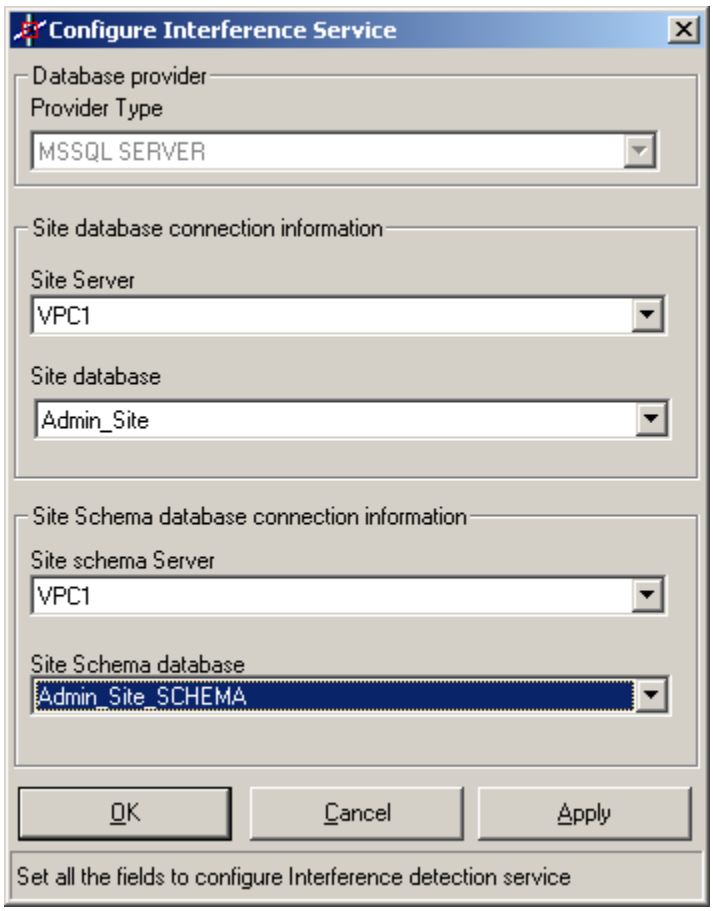
Lab 10: Interference Checking

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.



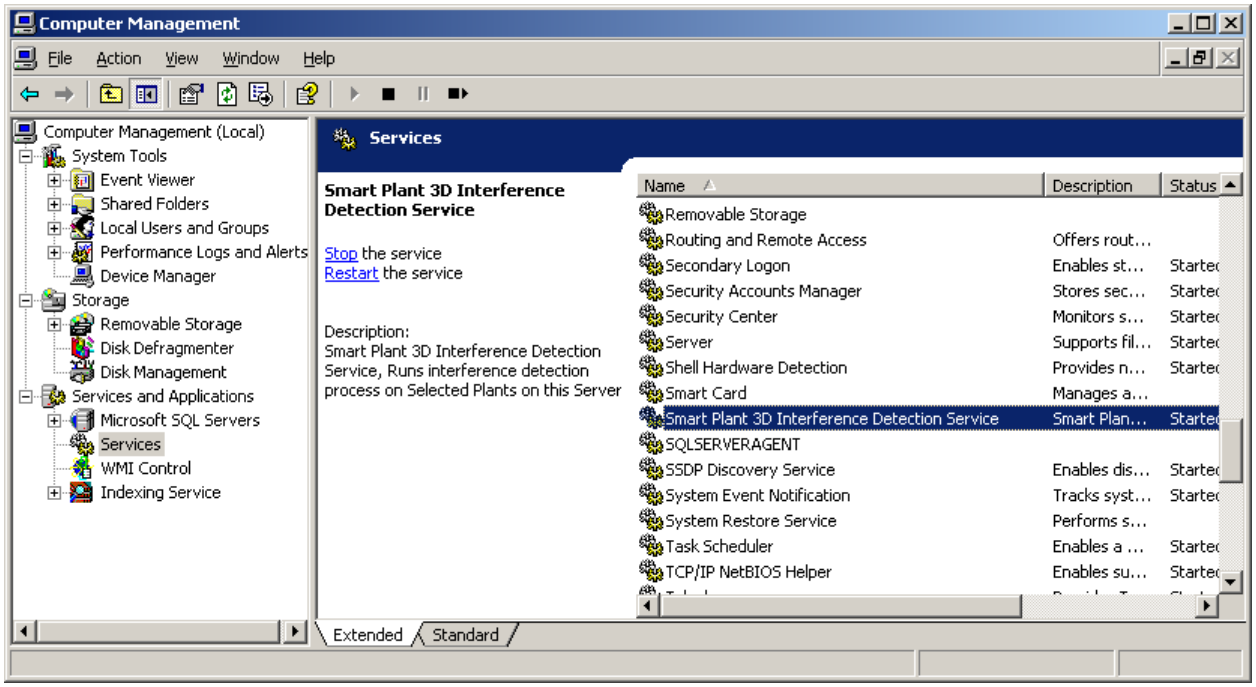
2. Complete the form this time selecting the Admin_Site and Admin_Site_Schema that you made at the beginning of this course.



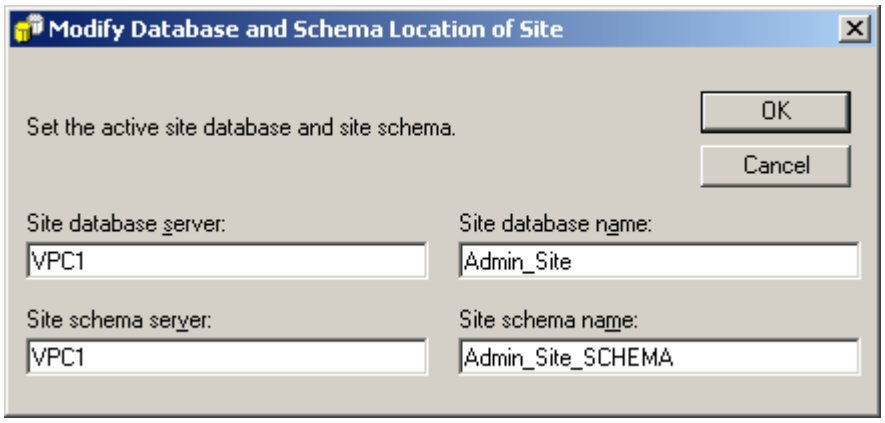
3. Click OK on the form. This identifies the Site (and ultimately the Plant collection known to that site) for this IFC DB Detect process to eventually process.

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

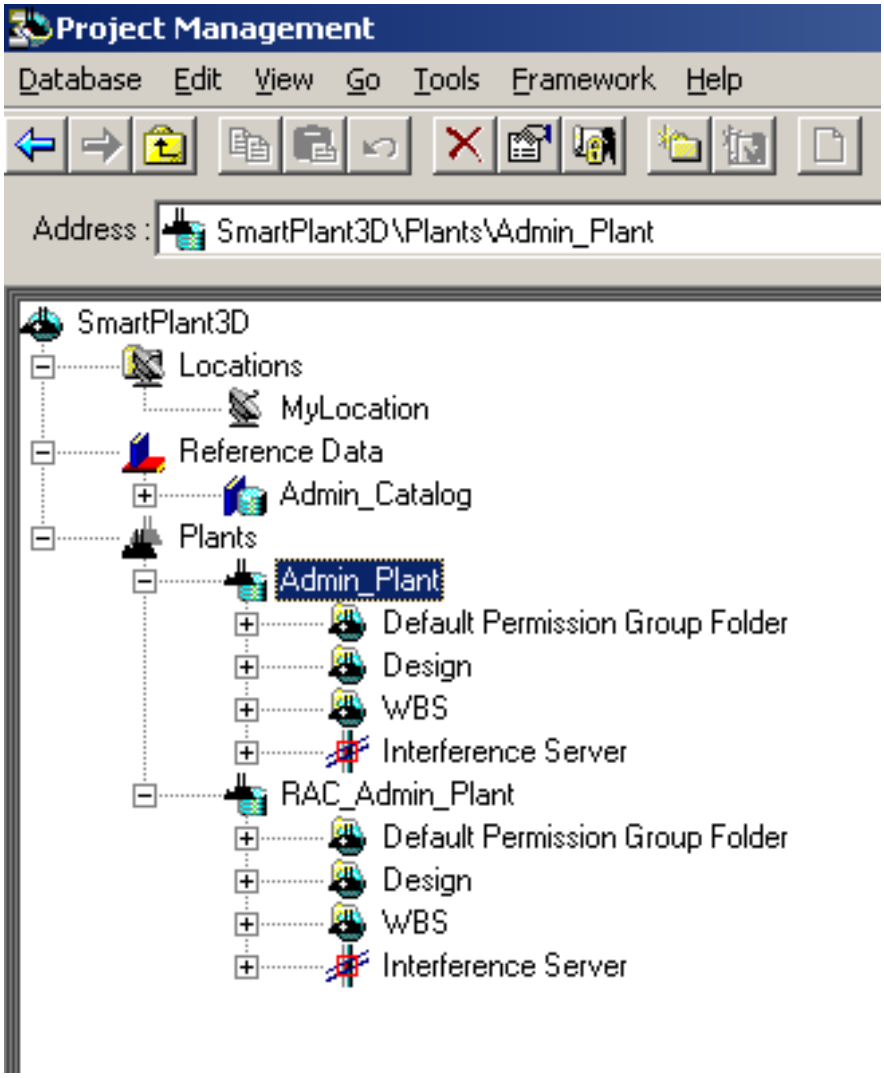
this open Computer Management on the machine, and expand Services and Applications → Services, then scroll down to find the service is started.



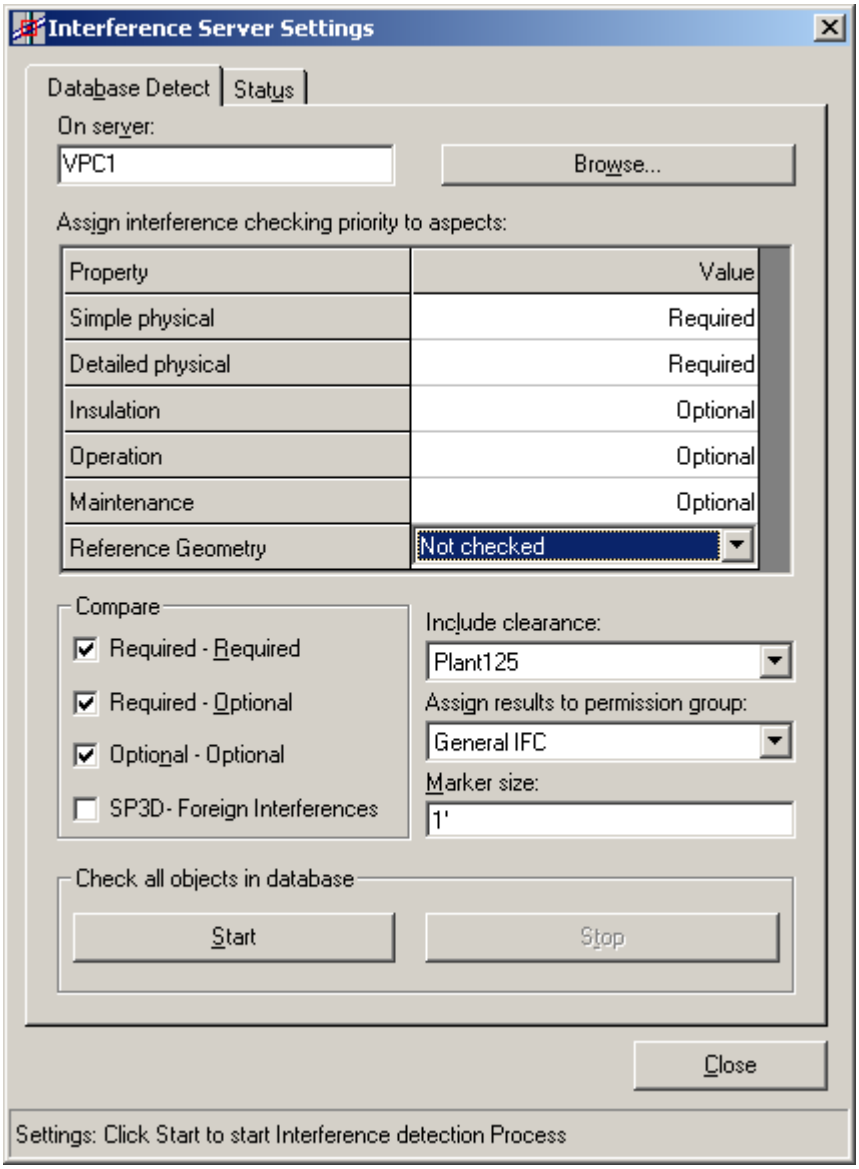
5. Now we must point back to the Site and Site_Schema for the purpose of SmartPlant 3D and Project Management. Change values to be as below and click OK. This points your client back to the site you created.



6. 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:

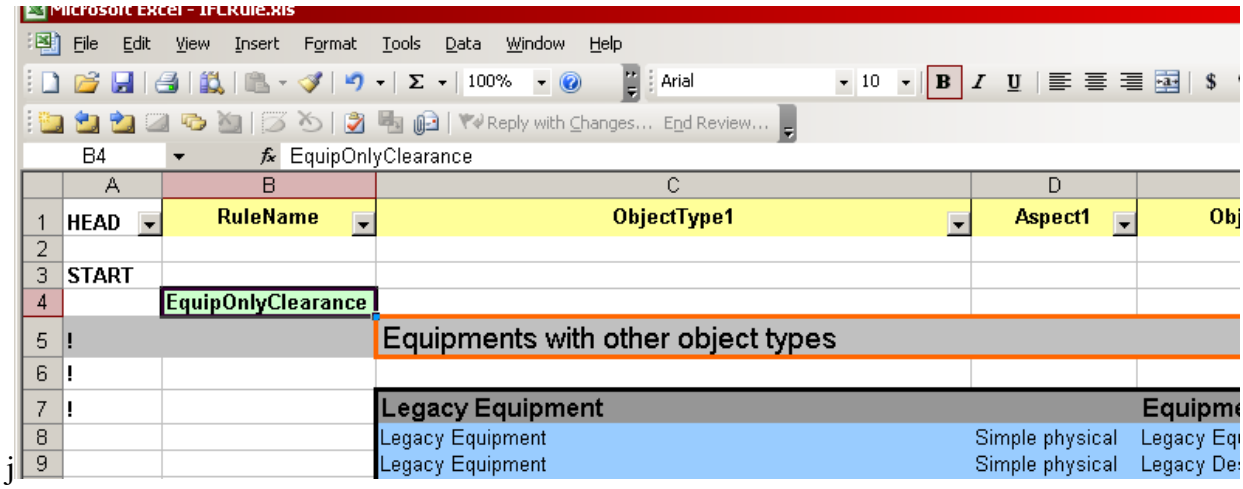


10. Click the Start button to send the "Start" command to the IFC service.
11. Click Close.
12. You can repeat the same process to include the processing of the 2nd plant, RAC_Admin_Plant.

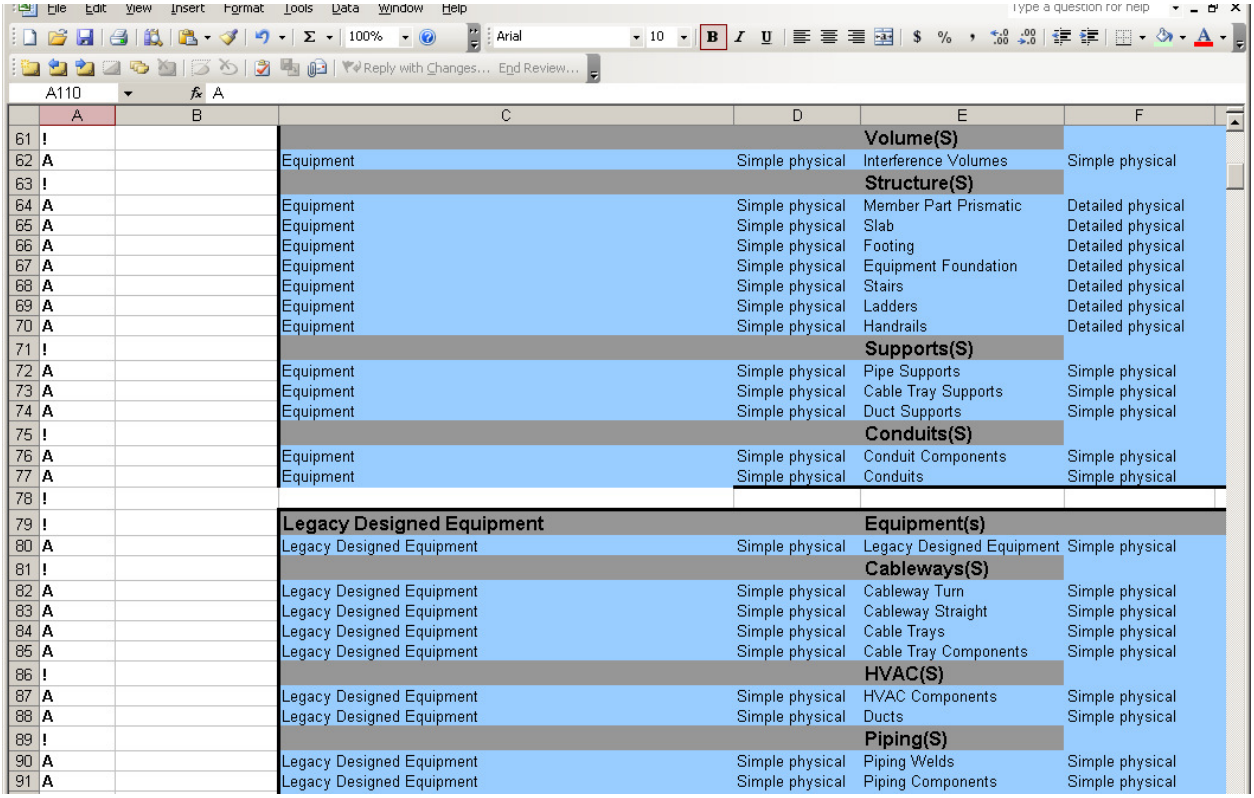
Configuring IFC Clearance Rules

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 if B4. Provide the name EquipOnlyClearance for the new Clearance rule.

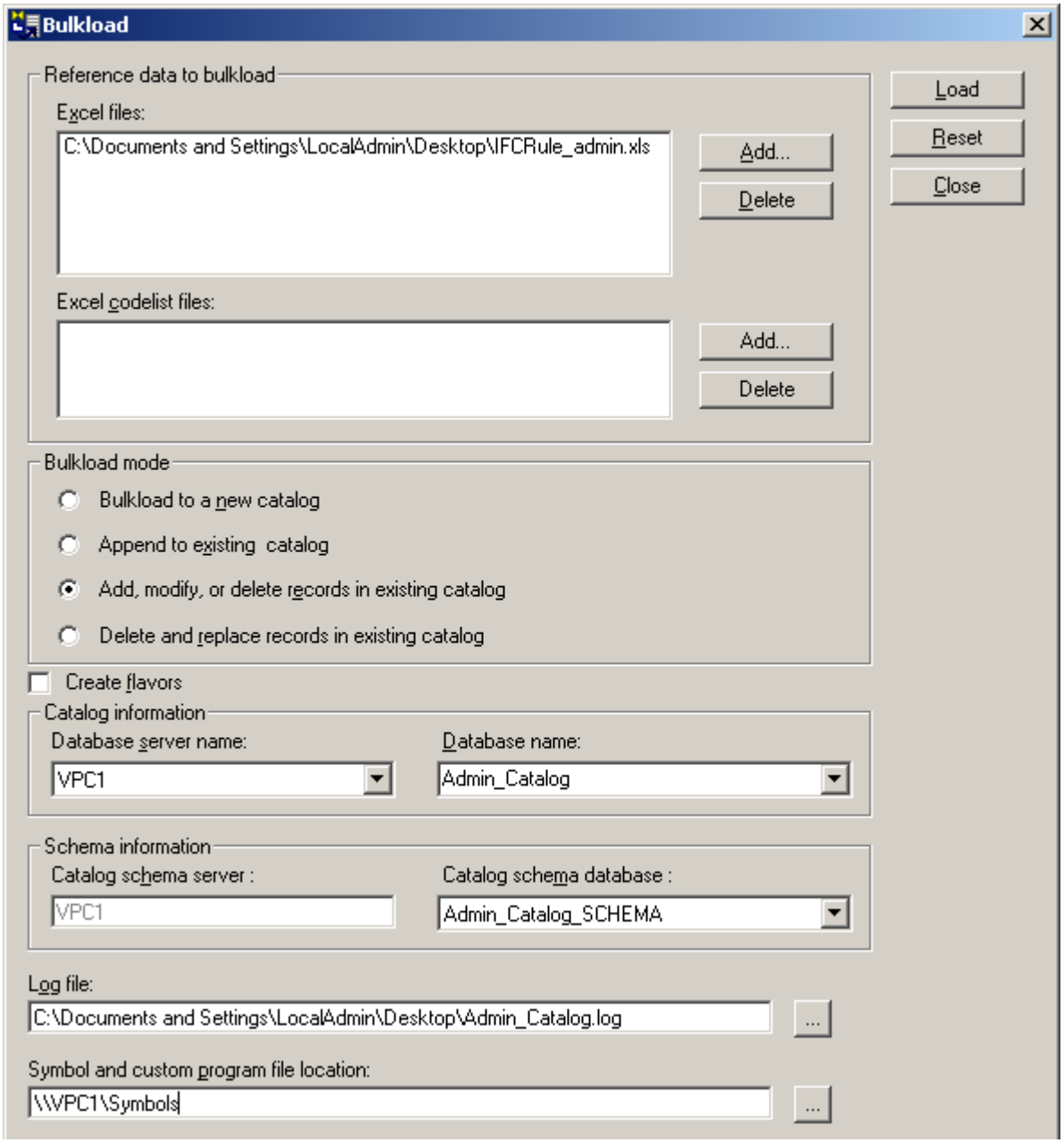


7. Scroll to column G, which is labeled Clearance.
8. Replace all values with "6 in" for the EquipOnlyClearance Rule entries. This will now create a clearance rule of 6" for equipment against all of SP3D objects.
9. In the "A" column, where the value of the A column's cell is not "!" (this is a comment mark and not processed by bulkload" place an "A" for Add so the bulkload will process the row and create the new clearance rule.



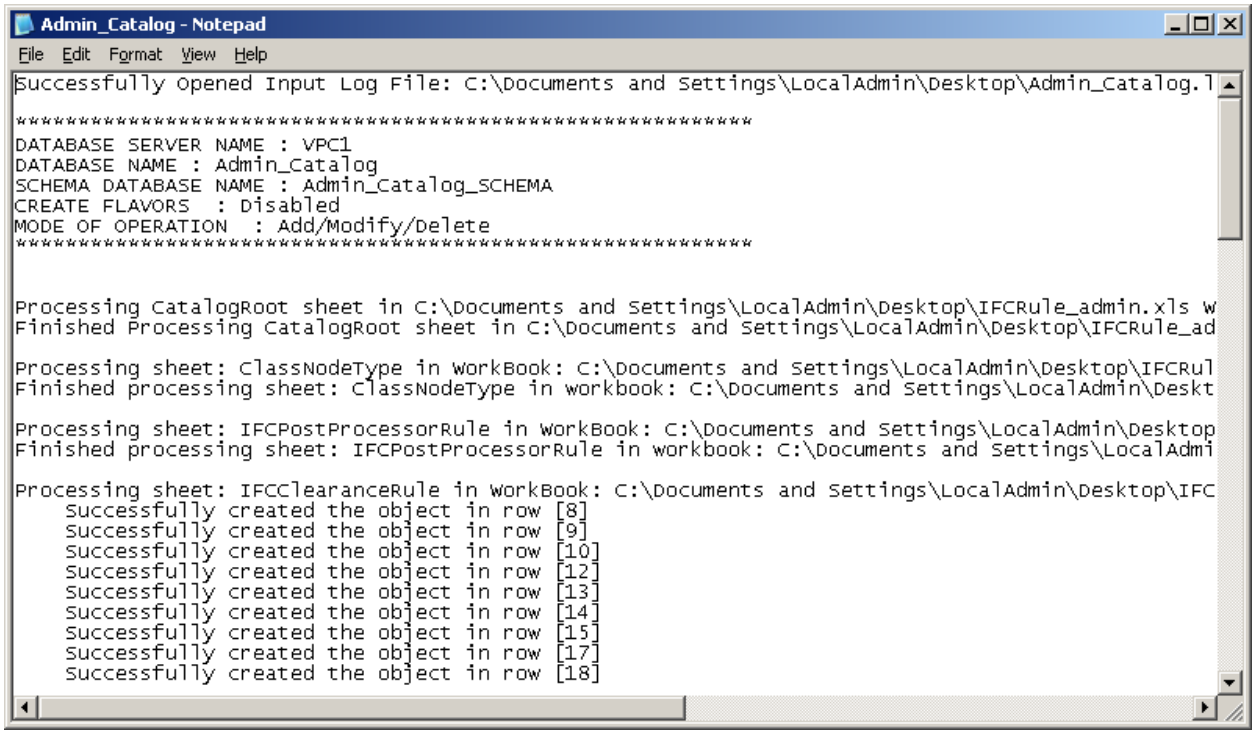
	A	B	C	D	E	F
61	!				**Volume(S)**	
62	A		Equipment	Simple physical	Interference Volumes	Simple physical
63	!				**Structure(S)**	
64	A		Equipment	Simple physical	Member Part Prismatic	Detailed physical
65	A		Equipment	Simple physical	Slab	Detailed physical
66	A		Equipment	Simple physical	Footing	Detailed 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 (“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

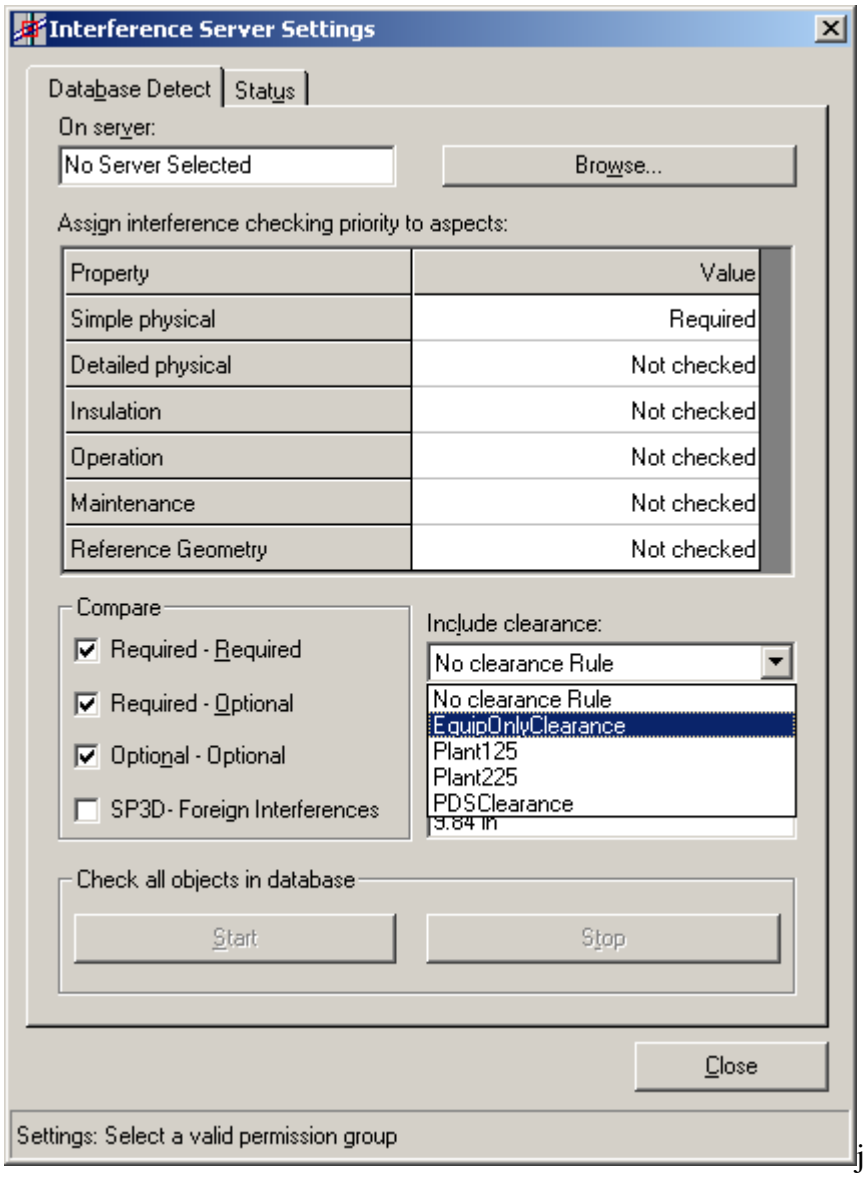


17. Click Load.

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



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



j

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 2nd Plant is being processed with a custom Clearance rule that you created.

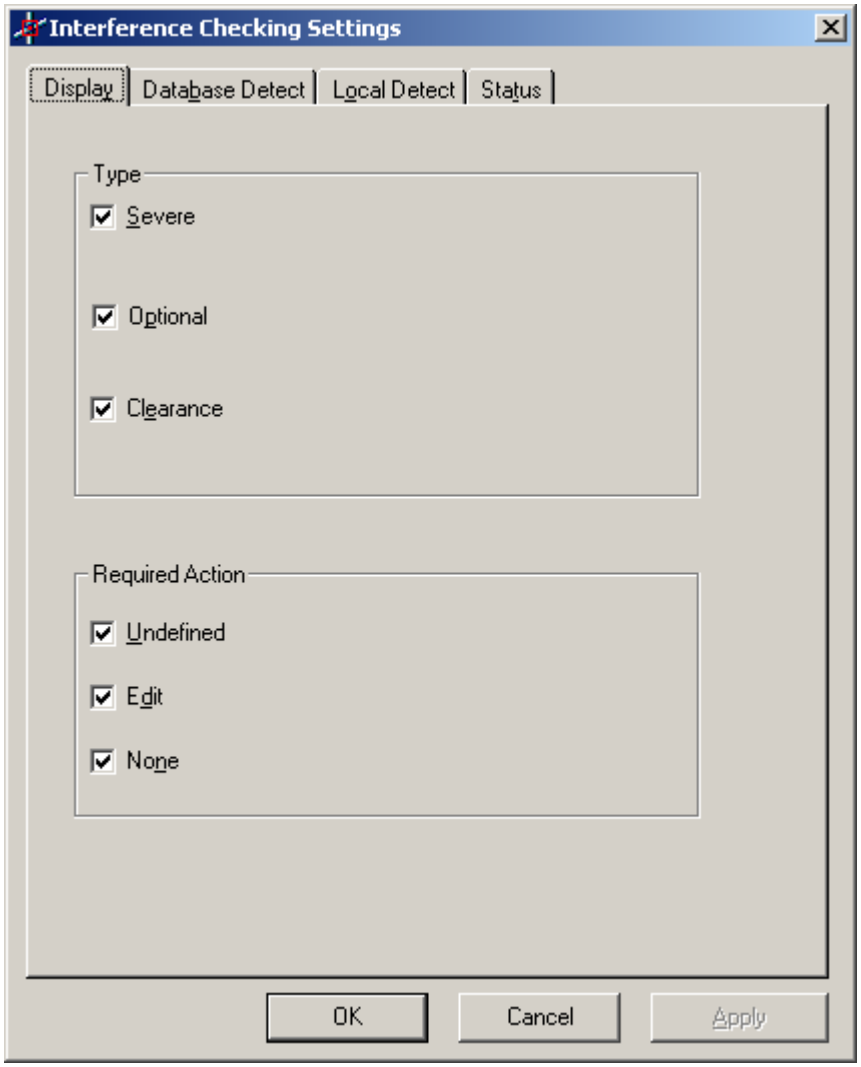
Local Detect

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

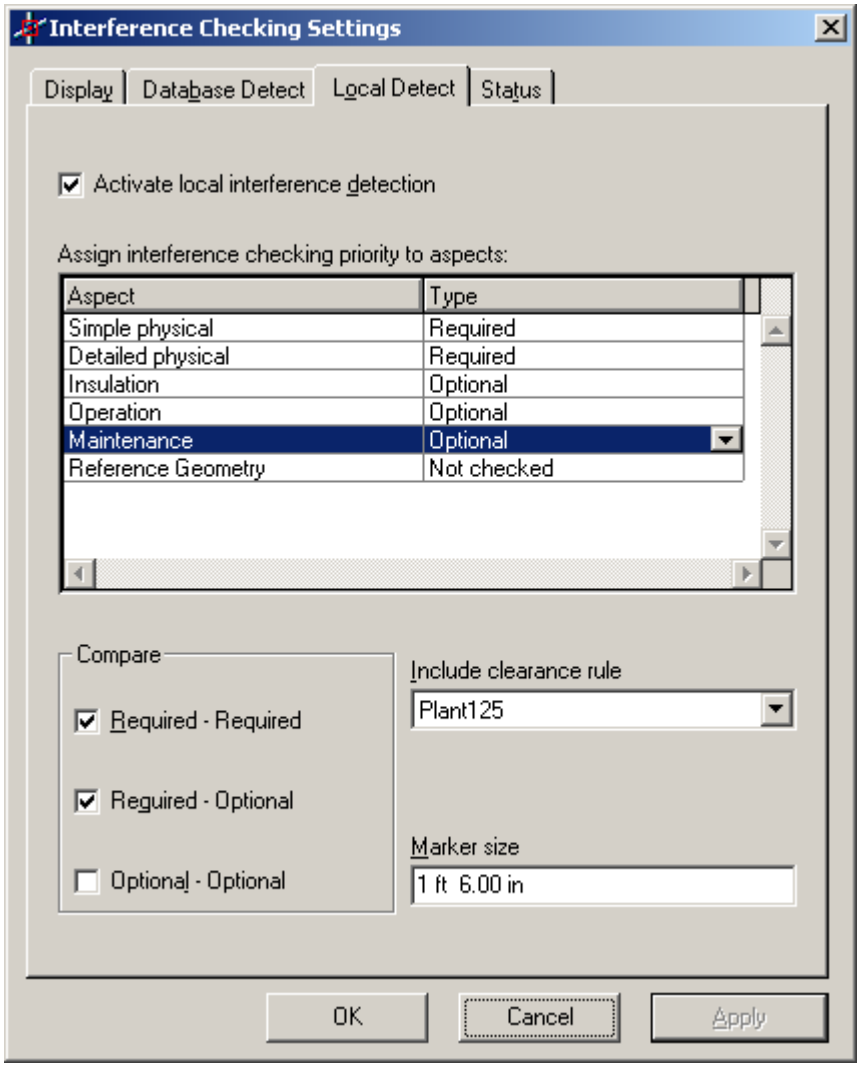
1. Use Modify DB Schema (Start → Programs → Intergraph SmartPlant 3D → Database Tools → Modify Database and Schema Location) to point back to the SP3DTrain_Site and SP3DTraing_Site_Schema.

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:

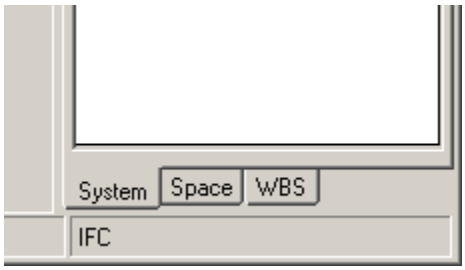
6. Click the left most button for IFC Settings, the following form will display:



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 entriy 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

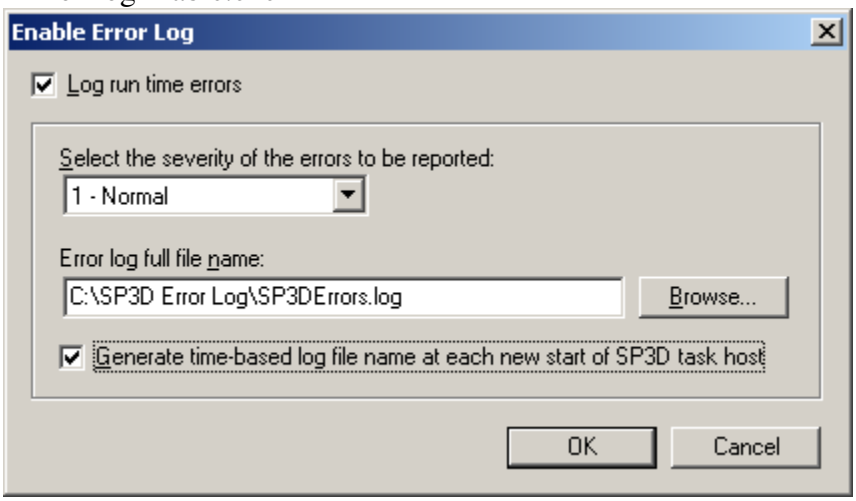
1. Use techniques already learned to restore the database provided to you by your instructor for this lab.
2. Use Check Database Consistency Tool….(Reference DB Integrity.pdf for how to do this as well as the presentation from your instructor.)
3. Run DBIntegrity Reports……..(Reference DB Integrity.pdf 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% direcoty and named Drawings.log