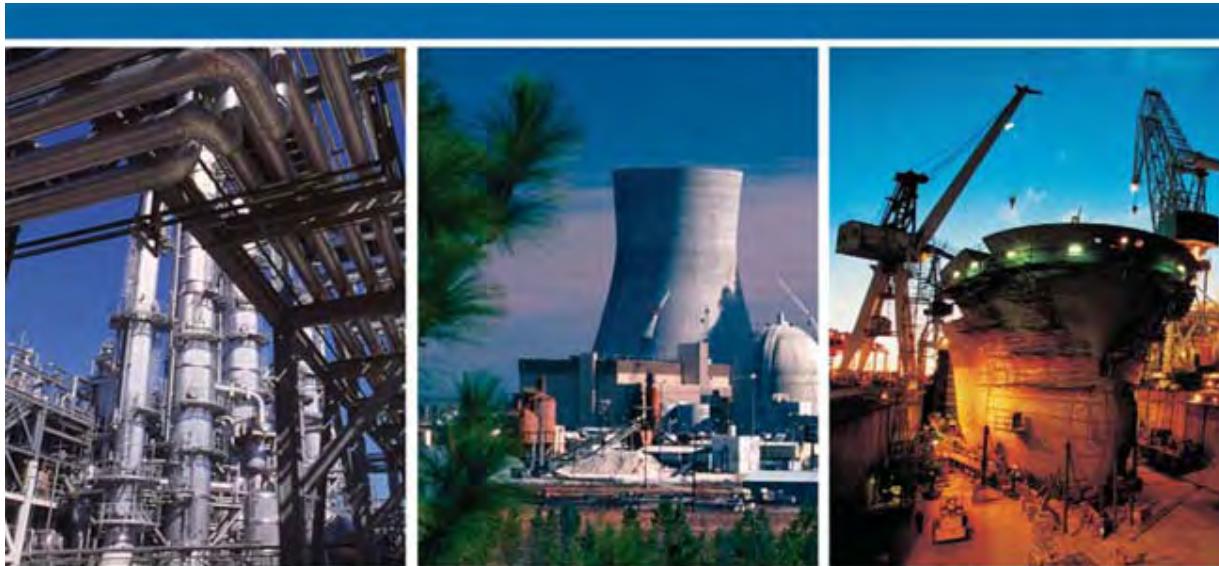


SmartPlant Foundation 2008 (4.2) Introduction and Administration I *Course Guide Volume 2*



Process, Power & Marine



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SmartPlant Foundation 2008 (4.2)

Introduction and Administration I

Course Guide Volume 2

November 2008

Version 4.2.1

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This courseware was developed by Roni Carpenter, Rodney Grady and Mitch Harbin, PPM-PIM Training, Huntsville, Alabama.

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10

C H A P T E R

SmartPlant Foundation License Management

10. SmartPlant Foundation License Management Overview

Each user that is going to access the server must have a license. With SmartPlant Foundation you must have token licenses.

Token License Manager licenses and controls user access to all token-based applications. You gain access to token-based applications by activating a token. All tokens have a timed access period that predefines the system access time. Tokens are available to all system users by way of a token pool. This token pool is part of the Token License Manager and resides on the primary SmartPlant Foundation Server.

Two categories of tokens are available: daily and perpetual. Daily tokens are available to all system users. They have a predefined timed access period of 1 workday (12 consecutive hours). Perpetual tokens are available only to a select group (which you define) of system users and do not expire.

Note:

- While the software does keep track of what node tokens were checked out on, tokens are NOT tied to a host name. There are no restrictions to link tokens to specific hosts.

Token License Manager uses a third-party application developed by Globetrotter Software. This software includes **Flexlm License Manager** and **FlexMeter**. Flexlm handles general check out/check in functions necessary for licensing. It also keeps track of information about the checked out license, such as user name, time remaining, and so on. FlexMeter keeps track of the number of daily licenses that are available in the license pool.



License Management

SPF requires **License Management** in order to run the SPF client interfaces.

The licensing model is centered on the concept of a **token** license. The license manager will handle two categories of tokens:

- Perpetual Tokens**
- Daily Tokens**

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The license manager will handle two categories of tokens: perpetual and daily. The SmartPlant Foundation server module performs the checkout and checkin of the licenses. License checkin/checkout is automatic and invisible to the system users.



Perpetual and Daily Tokens

- Perpetual** licenses (token) will be based on a username/password combination and do not expire.
- Daily** tokens provide “timed access” to the system software.
 - Daily tokens are valid for a duration of 12 consecutive hours after the initial client login.

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Other options exist with the licensing model that are variations on the perpetual and daily tokens. These are Site Tokens, Basic Integrator Tokens, and Web Portal Tokens.



Other License Options

Other options exist with the licensing model that are variations on the perpetual and daily tokens.

- Site Tokens**
- Basic Integrator Tokens**
- Web Portal Tokens**

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Other License Options

- Site** tokens are an uncounted license feature similar to the daily token, except that there is no daily token pool that is depleted on license checkout.
- Basic Integrator** tokens are a license feature similar to the daily token, except that only one license is available to the user and the token is only consumed by interactive login from the SmartPlant Foundation Desktop Client.

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Other License Options

- Web Portal** tokens are an uncounted license feature similar to the daily token, except that there is no daily token pool that is depleted on license checkout. Unlike a site license, though, it only allows a limited view-only functionality of web portal.

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Token License Manager

Token License Manager uses a third-party application developed by Globetrotter Software. This software includes **Flexlm License Manager** and **FlexMeter**.

- Flexlm** handles general check out/check in functions necessary for licensing. It also keeps track of information about the checked out license, such as the user name of the user, the time remaining, and so on.
- FlexMeter** keeps track of the number of daily licenses that are available in the license pool.

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10.1 Perpetual Tokens

Perpetual license tokens are based on a username/password criterion and do not expire. The user name associated with each perpetual token will be placed in the license option file (perpet.dat). Once the user logs into the SmartPlant Foundation system, which is done by providing a unique user name/password from one of the SmartPlant Foundation clients, the SmartPlant Foundation server checks the perpet.dat file to see if that user has access to a perpetual. If so, that license is checked out to the node where the user is working. If the user does not have access to a perpetual license, then a daily token will be checked out.

Flexlm will keep track of the username, node, and time that the license was checked out for each perpetual license. The user will be able to check out a perpetual license from any node in the network providing the same user is not already using a perpetual license. Only one simultaneous, identical logon is allowed for each perpetual license.

You are allowed to configure the license file with the exact number of perpetual token licenses purchased. You must define a user for each purchased perpetual license. If you purchased extra perpetual tokens (more than you currently have users who need them), then you may assign perpetual tokens to non-existent users, so long as each perpetual token is assigned to some user name. You are able to update the license file with additional licenses, if subsequently ordered.



Perpetual Tokens

- Perpetual licenses (token) are based on a username/password criterion and do not expire.**
- When the user logs into the SPF system, the system checks to see if that user is assigned a perpetual token. If so, the server checks out that token.**
- Only one simultaneous, identical logon is allowed for the Perpetual License.**
- Flexlm will keep track of the username, node, and time that the license was checked out for the perpetual license.**
- The user will be able to check out a perpetual license from any node in the network, providing the same user is not already using a perpetual license on another machine.**

10.2 Daily Tokens

If the user logging in to an SPF client has not been assigned a perpetual license, then they will check out a daily license token. This category of license is valid for a duration of 12 consecutive hours after the initial client login. A user cannot simultaneously log in to the system on multiple machines using the same token. However, if the token has been checked out, but it is not active, the same token can be reused by the same user at other times within the 12 hour period.

If the user is not actively using the system, or if the user logs out, time is still being consumed until it expires 12 hours after the initial checkout.

When a daily license token is checked out, a token will be depleted from the daily token file. If there are no tokens left in the daily token file, then access will be denied.

This type of license does not require that the daily license have a particular user associated with it in the license file in the same way as the perpetual license. Any user who is not assigned a perpetual token can check out a daily token.

FlexMeter will track the number of these daily licenses.

The daily token file is tied to a hostid, which provides input to the tool used to create the daily token file. Relating the daily token file to a hostid is a security measure so that the daily token file cannot be copied and used on other license server systems.

The daily token file can be used only on a license server system that has the same hostid that was put in the daily token file on creation. Daily token license files are created only by the Intergraph order-processing center.

Note: Upon exhaustion of the 12-hour daily token period, no notification will be displayed to the user, but another daily token will be checked out if the user is logged into the system at the time of expiration.



Daily Tokens

- Daily tokens are valid for a duration of 12 consecutive hours after the initial client login.
- If the token has been checked out but is not active, the same token can be reused by the same user again within the initial 12 hours.
- If the users are not actively using the system or the user logs out, time is still being consumed until it expires 12 hours after initial checkout.
- When a daily license token is checked out, one token is depleted from the daily token file.
- If there are no tokens left in the daily token file, then access will be denied to all daily token users. Access to the system is restricted to those using perpetual tokens.

10.3 Token Pool

The token pool is an accumulation of perpetual and daily tokens. These tokens are an accumulation of data stored in the license file and the meter file. An example of the Flexlm license file is provided below:



Token Pool

The **Token Pool** is an accumulation of perpetual and daily tokens. These tokens are an accumulation of data stored in the license file and the meter file. The following is an example of the Flexlm license file:

```
----- Begin tknpool.dat -----
SERVER aimtrnr DISK_SERIAL_NUM=7d10a12 8575
      host-name          port-number
DAEMON Token D:\LicenseManager\Token.exe D:\LicenseManager\perpet.dat
      Token-daemon-path-including-name   path-to-perpet.dat
FEATURE SPF_perpetual Token 1.000 1-jan-0 5 EC1E489F1DFAD5296FC0 \
      SIGN=5554C1ECB1126594
FEATURE SPF_daily Token 1.000 1-jan-0 16000 4CAEE86F95008CE5F387 \
      SIGN=00E69E4E38DC6DB4
----- End tknpool.dat -----
```

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One perpetual license will be delivered with each token manager to allow for installation of the software. The user associated with the initial perpetual license will be “super_user”. Flexlm cannot handle spaces in usernames, so the license checkout and checkin routines will replace any spaces in username with an underbar “_”. Any additional perpetual licenses will have to be ordered and will be placed in the license file as an INCREMENT line.

The daily token pool consists of a single encrypted file that holds the number of available tokens, serial number of the file, and the current lock number of the counter. The lock number and serial number are used in the generation of the update keys used to initialize/update the token file. The actual number of daily licenses that will be checked out is controlled by the vendor daemon (daily.exe) and will be dependant on the number of daily tokens available in the daily token license file (daily.dat).

10.3.1 License Option File

The license option file (perpet.dat) is a file where the valid users for the perpetual license are kept. You modify this file to assign perpetual tokens to specific users. The number of users specified in this file should match the total number of perpetual licenses specified in the license file (tknpool.dat). The total number of perpetual licenses is an accumulation of the number of licenses specified in the FEATURE and INCREMENT lines for the perpetual feature in the license file.



Licenses Option File

An example license option file (perpet.dat), where you define which users will use perpetual tokens:

```
----- Begin perpet.dat -----
# First define the group 'Perpetual'
GROUP SPF_perpetual adminuser
GROUP SPF_perpetual updateuser
GROUP SPF_perpetual user0
GROUP SPF_perpetual bill
GROUP SPF_perpetual mitch
# Then INCLUDE the group
INCLUDE SPF_perpetual GROUP SPF_perpetual
----- End perpet.dat -----
```

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In this example there are five users that are specified as being able to use a perpetual license: *adminuser*, *updateuser*, *user0*, *bill* and *mitch*. Any request for a perpetual license by a user other than those defined here will be denied.

10.4 Obtaining SmartPlant Foundation User Licenses

A license file containing licenses to cover **all** users who will be using the SmartPlant Foundation system must be obtained before configuring the license manager server.



License File

Before using License Management with SPF, a license file must exist.

Once you have your license file, you can proceed with the implementation of the *FLEXIm* product, which is used to administer and enforce SPF license limits.

SPF customers may call a toll-free number to request an SPF Token license file:

1- 800 - 766 - 7701

This information should be included on an information sheet provided with your software kit.



License File

To obtain your Token License file after initial order of your Token Application software or to re-order, you must complete the Token File Request form found at the following location:

[http://www.intergraph.com/pds/worksheet/
spfdntokens/](http://www.intergraph.com/pds/worksheet/spfdntokens/)

Submit the completed form to Intergraph Customer Services for processing.

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License File

Intergraph employees can point their web browser to the following URL for full instructions on requesting an SPF license:

[http://ppm-omsc.intergraph.com/SWDelivery/
directa%20spf.asp](http://ppm-omsc.intergraph.com/SWDelivery/directa%20spf.asp)

The form must be completed, and a note included with the request to indicate the number of perpetual and daily licenses that are needed.

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Obtaining Your SmartPlant Foundation Token License File

To obtain your SmartPlant Foundation Token License file after the initial order of your SmartPlant Foundation Application software, you must complete the SmartPlant Foundation Token File Request form and submit it to Process, Power & Offshore Order Management and Service Center for processing. The e-mail address and fax number can be found on the request form. Normal turn-around time for processing the request and your receipt of the SmartPlant Foundation Token License file is five (5) business days or less.

All information on this form should be completed, if possible. The form information designated in **bold text** is mandatory. If you have questions or require assistance in completing this form, feel free to call Process, Power & Offshore Order Management and Service Center at 1-800-766-7701, or your local Intergraph office.

How To Re-Order SmartPlant Foundation Tokens

To order additional SmartPlant Foundation Tokens, whether Perpetual and/or Daily, a SmartPlant Foundation Token File Request form must be completed in conjunction with your software order and must be submitted to Process, Power & Offshore Order Management and Service Center for processing. The e-mail address and fax number can be found on the request form. You may contact your Intergraph Sales Representative, or call Process, Power & Offshore Order Management and Service Center at 1-800-766-7701 for assistance in your re-ordering needs.

All information on this form should be completed, if possible. The form information designated in **bold text** is mandatory. If you have questions or require assistance in completing this form, feel free to call Process, Power & Offshore Order Management and Service Center at 1-800-766-7701, or your local Intergraph office.

A new SmartPlant Foundation Token License file will be delivered from Intergraph to match the SmartPlant Foundation Token requirements contained in your order. Normal turn-around time for processing the request and your receipt of the SmartPlant Foundation Token License file is five (5) business days or less.

How To Change The Host ID For Your SmartPlant Foundation Token License File

The SmartPlant Foundation Token License file is matched to the Host ID number of the hardware server on which this file resides. If this file is moved to another hardware server, it will not be recognized. If you want to move the SmartPlant Foundation Token License file to another hardware server, you must obtain a new License file that is matched to the new Host ID for that server. To accomplish this, a SmartPlant Foundation Token File Request form must be completed and submitted to the Process, Power & Offshore Order Management and Service Center for processing.

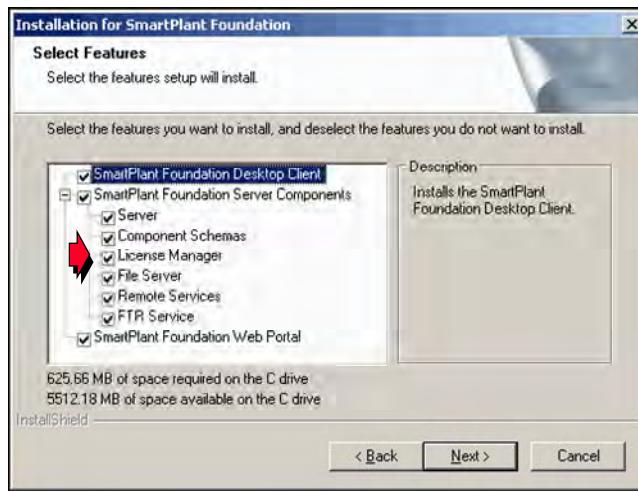
A new SmartPlant Foundation Token License file will be delivered from Intergraph to match the SmartPlant Foundation Token requirements contained in your order. Normal turn-around time for processing the request and your receipt of the SmartPlant Foundation Token License file is five (5) business days or less.

Note: In the following examples, we are going to demonstrate setting up a new installation of a SmartPlant Foundation license server.

License File



- During installation, select the **License Manager** option.

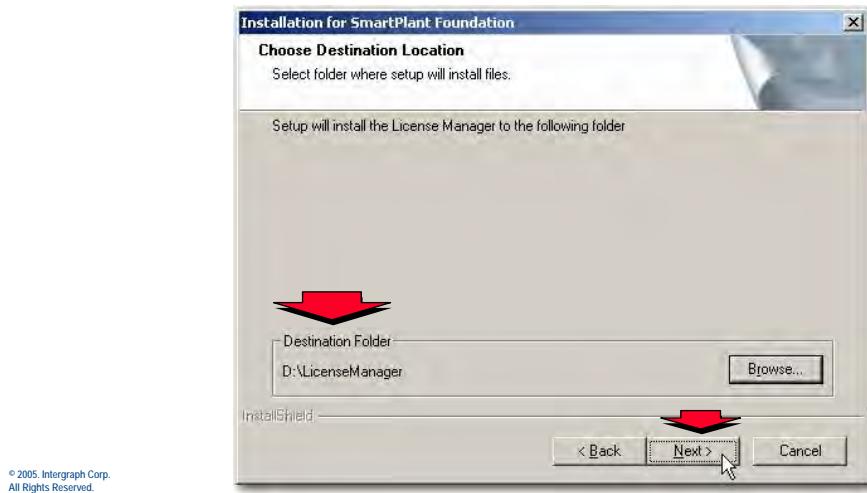


During the installation of the SmartPlant Foundation server, the option to install the SmartPlant Foundation License Manager can be selected.



License File

- Once the License Manager folder location has been set, the necessary files are copied during the installation.

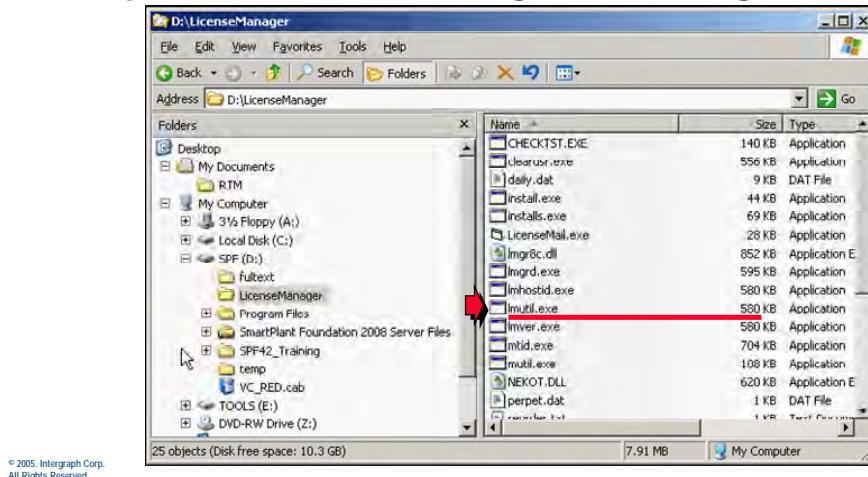


During the installation of the License Manager software, the files are placed in the specified license manager folder.



License File

The FLEXlm License Utility (**lmultil.exe**) is one of the files that is placed in the LicenseManager folder during installation.



In order to obtain a SmartPlant Foundation User License, you must specify the License Manager Host Identification (*lmhostid*) number for the host where the license server will be installed. One of the files placed in the License Manager folder is the License Manager Utility (*lmutil*). This utility is used to determine the *lmhostid* for the current host (server) machine.



License File

- Open a Command Prompt (DOS) window, change directory to the License folder, and execute ***lmutil***.

The screenshot shows a Microsoft Windows 2000 Command Prompt window. The title bar reads "Command Prompt". The window displays the following text:

```
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\>d:
D:\>cd LicenseManager 1
D:\LicenseManager>lmutil lmhostid 2
lmutil - Copyright (c) 1989-2003 by Macrovision Corporation. All rights reserved
.
The FLEXlm host ID of this machine is "0004764de53f" OR
D:\LicenseManager>lmutil lmhostid -vsn [REDACTED] 2
lmutil - Copyright (c) 1989-2003 by Macrovision Corporation. All rights reserved
.
The FLEXlm host ID of this machine is "DISK_SERIAL_NUM=7d10a12"
D:\LicenseManager>
```

Annotations with red numbers and arrows point to specific parts of the command line and output:

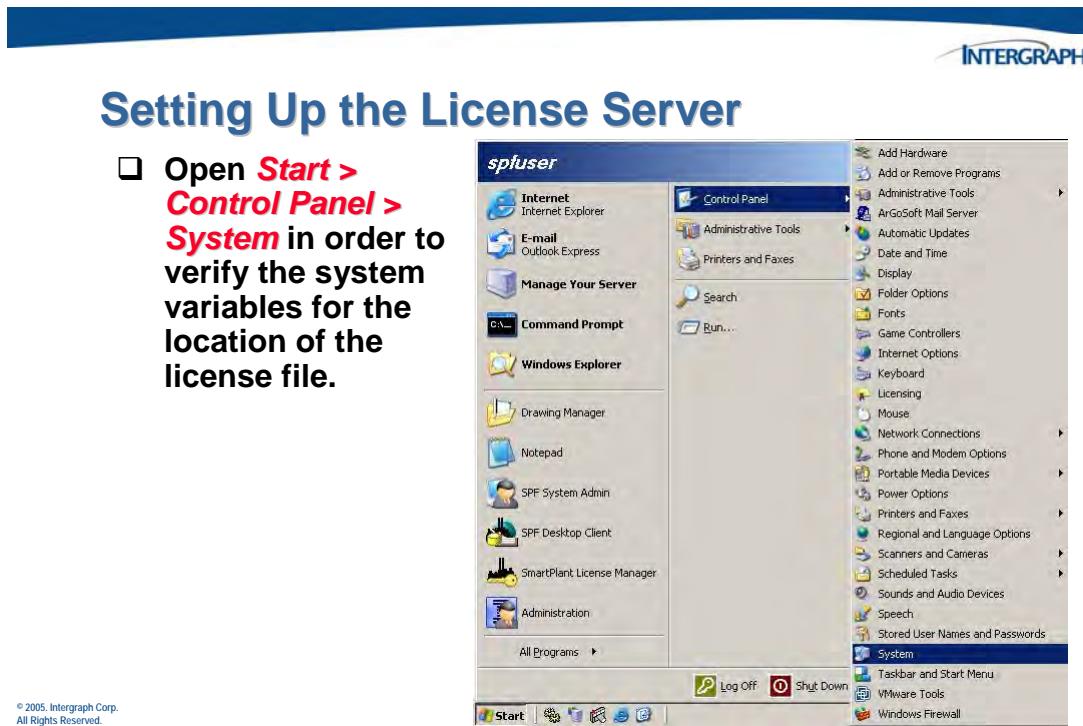
- Annotation 1 points to the command `cd LicenseManager`.
- Annotation 2 points to the command `lmutil lmhostid` and its output "0004764de53f".
- Annotation 3 points to the command `lmutil lmhostid -vsn` and its output "DISK_SERIAL_NUM=7d10a12".

If the server uses a single network card, the command syntax *lmutil lmhostid* will return the *lmhostid*, which is equivalent to the network card MAC address. However, if the server has multiple network cards, then the command syntax *lmutil lmhostid –vsn* will return the disk serial number for the drive.

Once the *lmhostid* has been identified, include it as part of the request for your SmartPlant Foundation Token License.

10.5 Setting Up the License Server

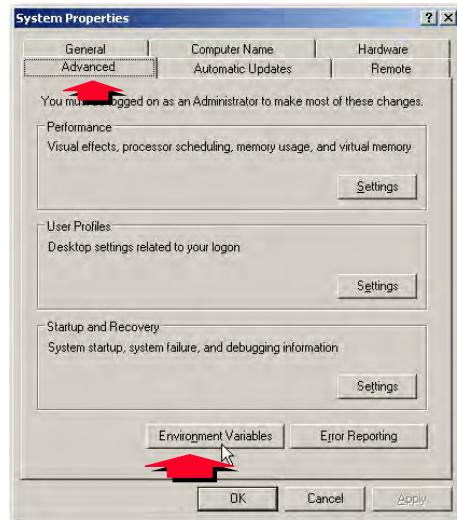
Before starting the license server, a system level variable indicating the location of the license file must be verified. This variable is set automatically, but you should confirm that the proper location was set.





Setting Up the License Server

- Select the **Advanced** tab and then click the **Environment Variables** button.

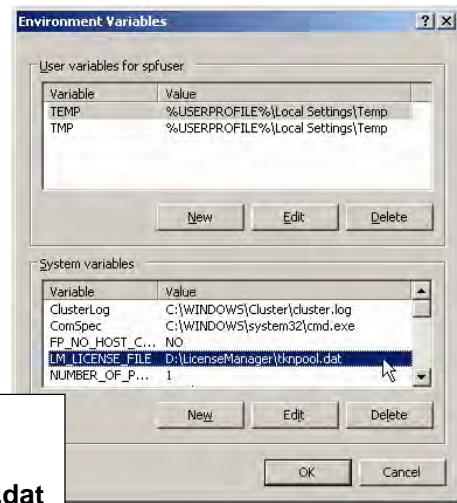


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Setting Up the License Server

- Verify that the system variable, **LM_LICENSE_FILE**, points to the tknpool.dat file.



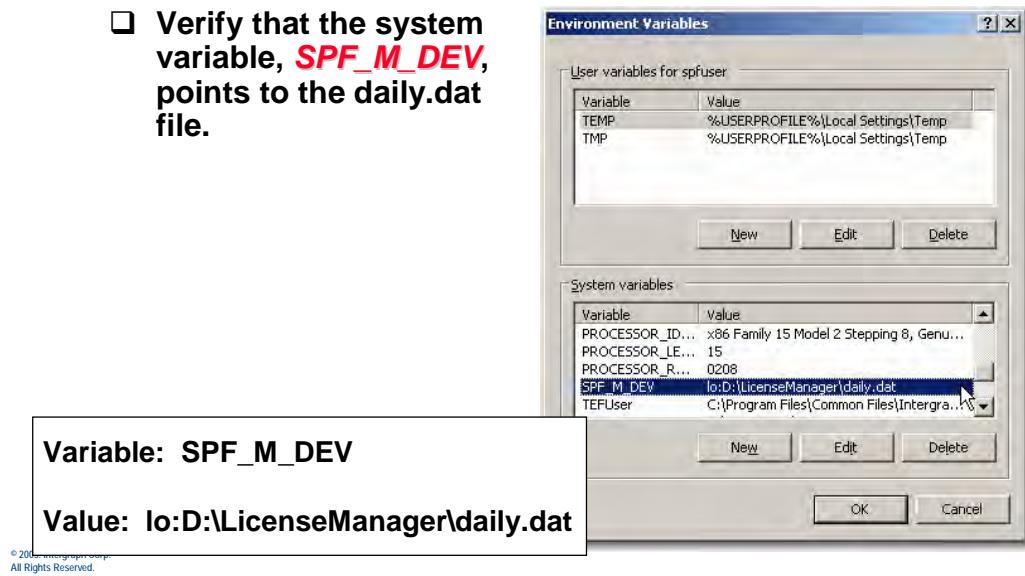
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Note: The variable value for LM_LICENSE_FILE should point to the location where you saved your license file.



Setting Up the License Server

- Verify that the system variable, **SPF_M_DEV**, points to the daily.dat file.

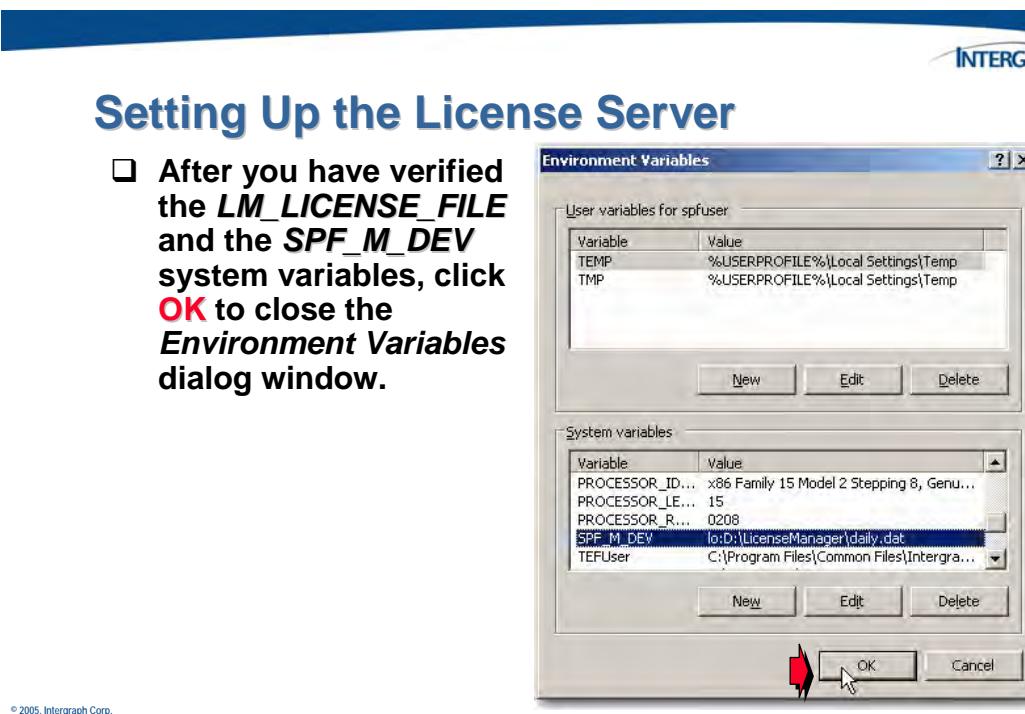


Also make sure the variable SPF_M_DEV specifies the location of the daily token file, **daily.dat**.



Setting Up the License Server

- After you have verified the **LM_LICENSE_FILE** and the **SPF_M_DEV** system variables, click **OK** to close the **Environment Variables** dialog window.



10.5.1 Token Exhaustion

Once you have completely depleted your daily token pile, no users will be able to log into an SPF Client application unless they have been assigned a perpetual token. To prevent this, the software allows you to set up two warnings that will be fired off when the pool is depleted to certain points. These points are defined through entries in the registry.



Token Exhaustion

The following token variables are defined in the *registry* file:

- LOG** – The location of the log file that stores information about token usage that is parsed by the token report utility and token recall utility.
- TOKEN1** – The number of tokens in the pool when the first notification will be sent.
- TOKEN2** – The number of tokens in the pool when the second notification will be sent.



Token Exhaustion

The following token variables are defined in the *registry* file:

- USER** – The name of the system administrator or user, maybe someone in purchasing, who will receive the notification e-mail that will be sent by the application. Email is sent via the mailsend.exe, located in %MTI_ROOT%\bin.
- FILE** –The location and the name of the file to be mailed to the specified system administrator or user.

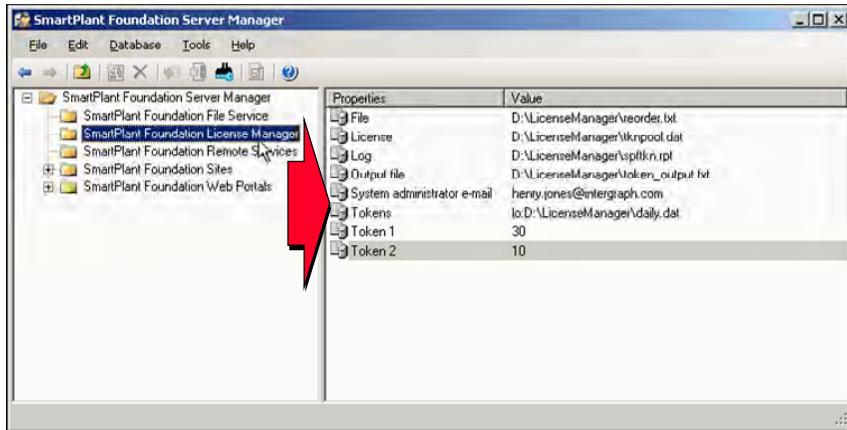
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The variables **LOG**, **TOKEN1**, **TOKEN2**, **USER**, and **FILE** must be set in the system registry. This can be done using the SmartPlant Foundation Server Manager.



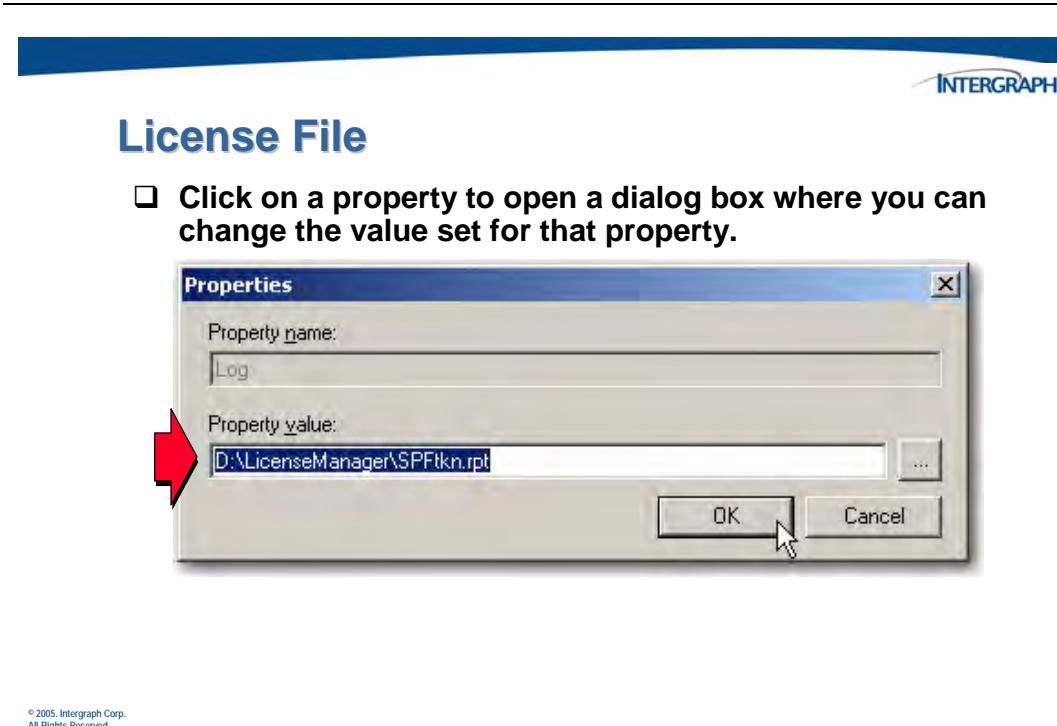
License File

- These settings can be modified from within the SmartPlant Foundation Server Manager.



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To make changes to the values displayed in the Server Manager interface, double-click on the property name to open a dialog box, like the one shown below.



10.5.2 Activate the License Files

Next, you must decrypt the files that Intergraph sends you.



Activate License Files

- After you send Intergraph the license request form, Intergraph will send you two encrypted files that you will need to use the License Manager.**
 - Tknpool.dat
 - Daily.dat
- You will need to decrypt these files with a serial number in order to use them.**

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Use the SmartPlant Foundation Server Manager application to decrypt the files delivered by Intergraph. Once decrypted, you will need to edit portions of the Tknpool.dat file.

Never edit the daily.dat file that is delivered by Intergraph.



Activate License Files

- ❑ In the SmartPlant Foundation Server Manager application, select **SmartPlant License Manager**, and click on the **Activate License Files** command on the toolbar.

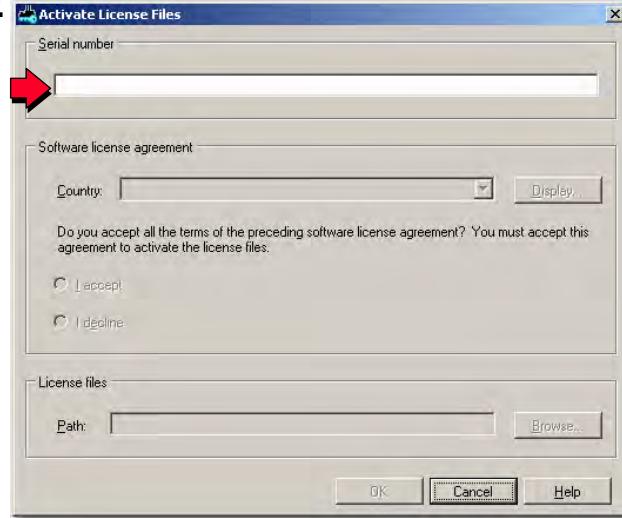


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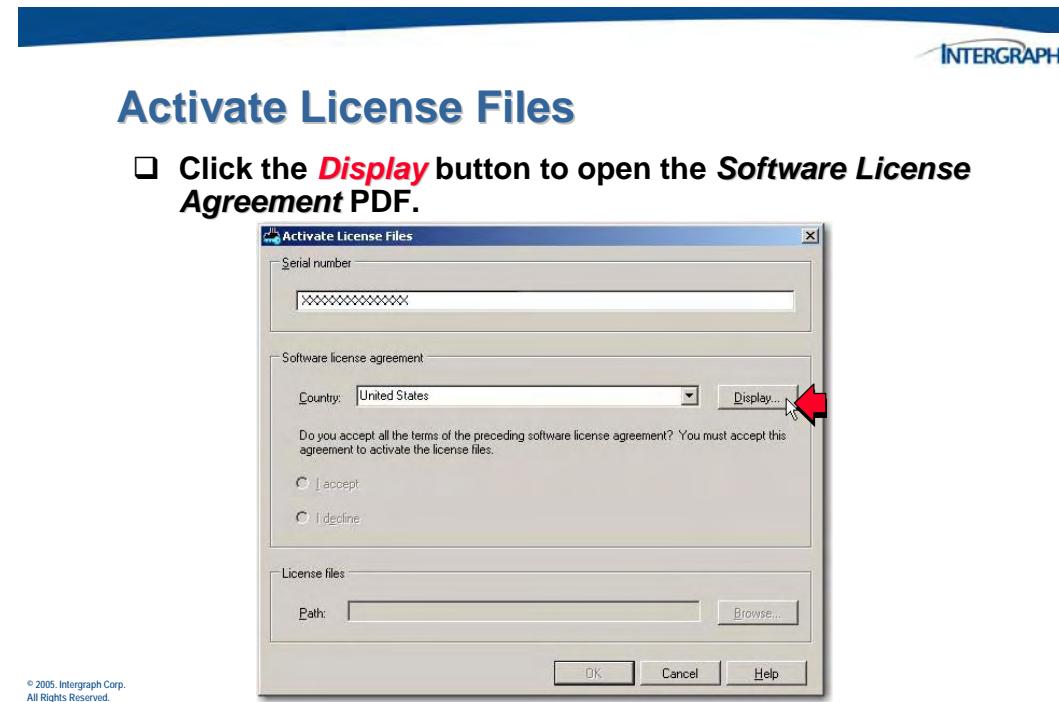
Activate License Files

- ❑ In the Activate License Files dialog box, enter your **serial number**.

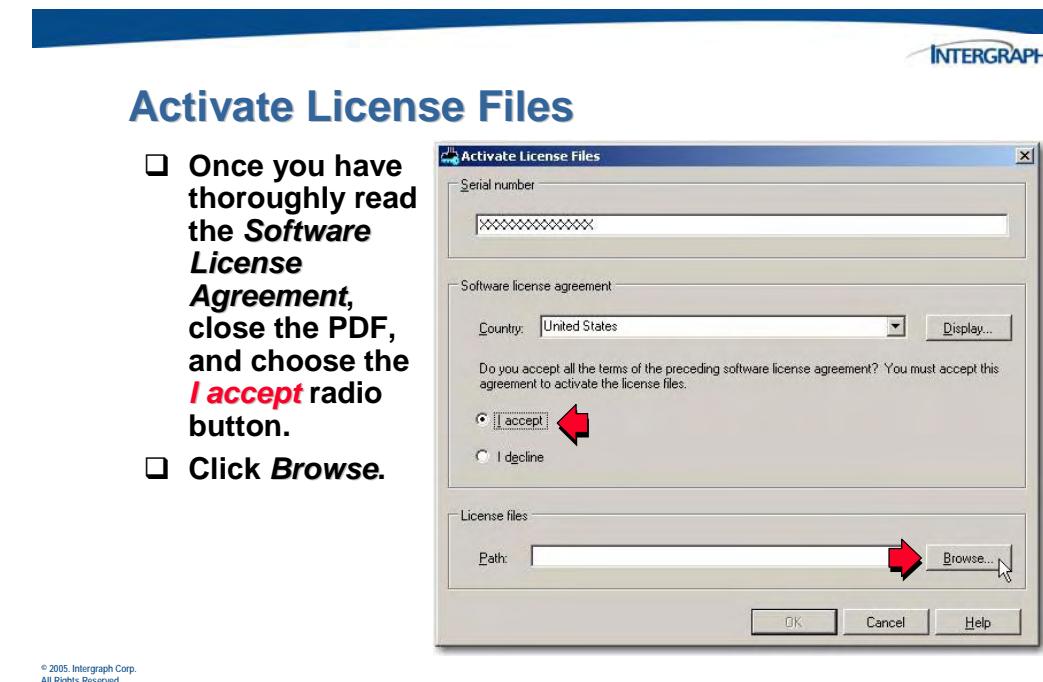


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Once you have entered a serial number, the **Country** field is activated. Choose the applicable country, and then click the **Display** button to open the **Software License Agreement** in a PDF format.



If you agree to the terms, choose **I accept**, and then click the **Browse** button.



Find the location where you installed the License Manager files.



Click **OK** to start decrypting the files.



10.5.3 Editing License Files

A sample *perpet.dat* file is delivered in the license manager folder. Edit this delivered file to match the number of perpetual licenses that have been ordered. The number of perpetual licenses has been encrypted into the license file (tknpool.dat).



Setting Up the License Server

- Edit the contents of the *perpet.dat* file to add the users that will be perpetual users.**

```
# First define the group 'Perpetual'  
GROUP SPF_perpetual adminuser  
GROUP SPF_perpetual updateuser  
GROUP SPF_perpetual user0  
GROUP SPF_perpetual bill  
GROUP SPF_perpetual mitch  
# Then INCLUDE the group  
INCLUDE SPF_perpetual GROUP SPF_perpetual
```

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The preferred method for software delivery to send license information is in an electronic format, either e-mail or floppy. This makes it easy for the license information to be cut and pasted into the correct file and the necessary edits to be made.



Setting Up the License Server

- Edit the contents of the license file (**tknpool.dat**) you received from Intergraph to include your host name and a unique port-number that you are assigned.
- Change the token-daemon-path to point to the **daily.exe** and the **perpet.dat** file in your license folder.

```
SERVER host-name DISK_SERIAL_NUM=7d10a12 port-number  
  
DAEMON Token token-daemon-path-including-name path-to-  
perpet.dat  
  
SERVER aimtrnr DISK_SERIAL_NUM=7d10a12 8575  
DAEMON Token D:\LicenseManager\Token.exe  
D:\LicenseManager\perpet.dat
```

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In the example above, the entry is shown before the edits are made and then below that, after the edits have been made.



Setting Up the License Server

Token License File (con't)

```
FEATURE SPF_perpetual Token 1.000 1-jan-0 5 EC1E489F1DFAD5296FC0 \  
SIGN=5554C1ECB1126594  
FEATURE SPF_daily Token 1.000 1-jan-0 16000 4CAEE86F95008CE5F387 \  
SIGN=00E69E4E38DC6DB4  
FEATURE SPF_ens Token 1.000 1-jan-0 0 0C5E482F35C879F44213  
HOSTID=ANY  
FEATURE SPF_cm Token 1.000 1-jan-0 0 1C6EC88F4A3D22AE3B94 HOSTID=ANY  
FEATURE SPF_structure Token 1.000 1-jan-0 0 3CAE685FC8773C93FA15 \  
HOSTID=ANY  
FEATURE SPF_2D Token 1.000 1-jan-0 0 4CEEF87F336C22AE73AB HOSTID=ANY  
FEATURE SPF_3D Token 1.000 1-jan-0 0 4CDEF88F336D22AE72AB HOSTID=ANY  
FEATURE SPF_docs Token 1.000 1-jan-0 0 3C8E689F4E4E3669FBEF \  
HOSTID=ANY
```

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Below, you will see an example of a complete license file after it has been edited (edits are shown as bold text).

Example:

```

SERVER aimtrnr DISK_SERIAL_NUM=7d10a12 8575

DAEMON Token D:\LicenseManager\Token.exe D:\LicenseManager\perpet.dat

FEATURE SPF_perpetual Token 1.000 1-jan-0 5 EC1E489F1DFAD5296FC0 \
SIGN=5554C1ECB1126594

FEATURE SPF_daily Token 1.000 1-jan-0 16000 4CAEE86F95008CE5F387 \
SIGN=00E69E4E38DC6DB4

FEATURE SPF_ens Token 1.000 1-jan-0 0 0C5E482F35C879F44213 HOSTID=ANY

FEATURE SPF_cm Token 1.000 1-jan-0 0 1C6EC88F4A3D22AE3B94 HOSTID=ANY

FEATURE SPF_structure Token 1.000 1-jan-0 0 3CAE685FC8773C93FA15 \
HOSTID=ANY

FEATURE SPF_2D Token 1.000 1-jan-0 0 4CEE87F336C22AE73AB HOSTID=ANY

FEATURE SPF_3D Token 1.000 1-jan-0 0 4CDEF88F336D22AE72AB HOSTID=ANY

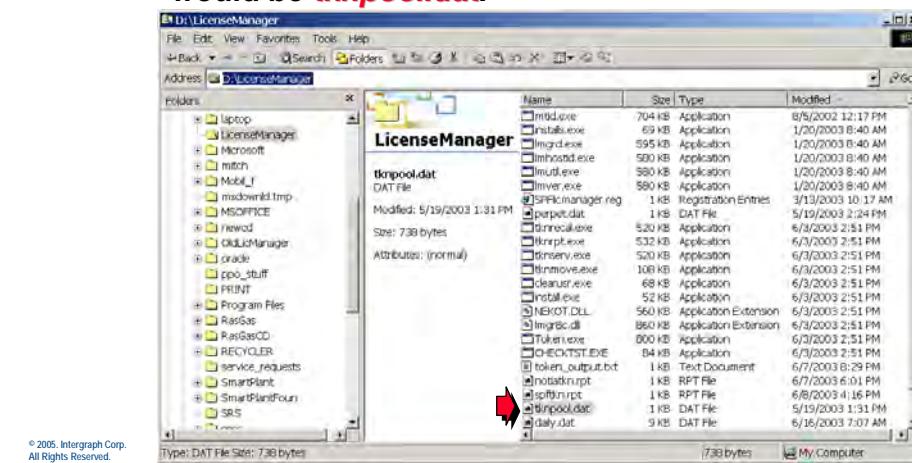
FEATURE SPF_docs Token 1.000 1-jan-0 0 3C8E689F4E4E3669FBEF \
HOSTID=ANY

```



Setting Up the License Server

- Save the changed license information as a file in the license folder (\LicenseManager). An example file name would be **tknpool.dat**.

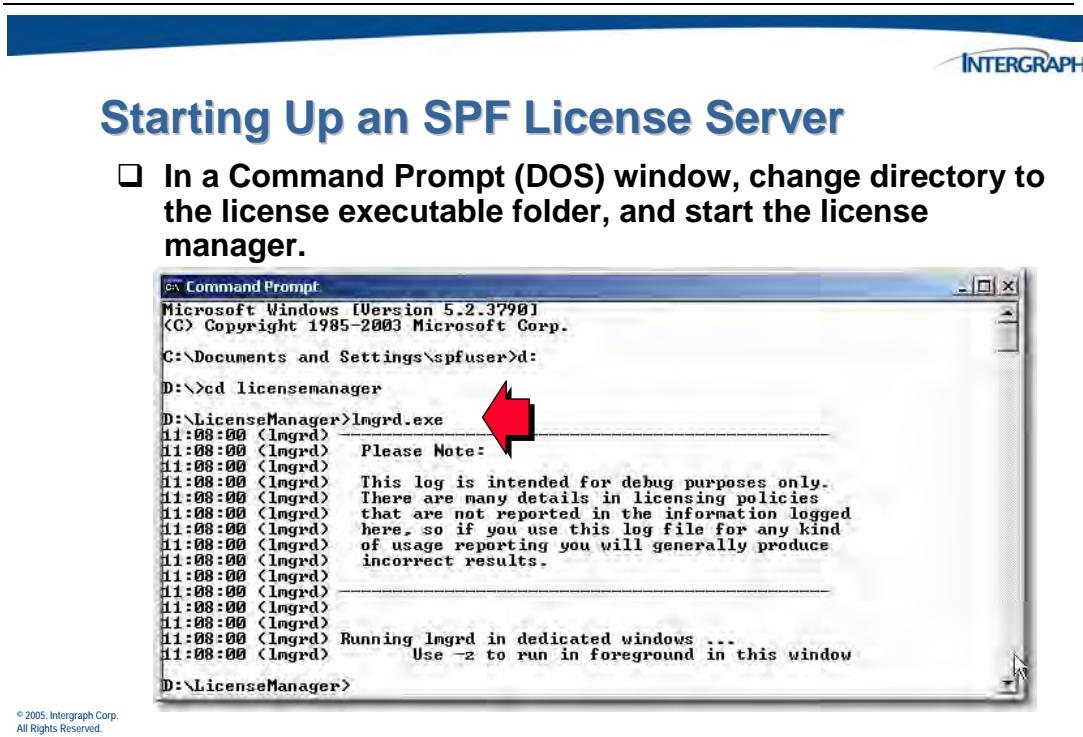


10.6 Starting the SmartPlant Foundation License Server

You are now ready to start the license manager server. You should first start the server from a **Command Prompt** (DOS) window interactively, to test that the software is configured properly. The license server will run as long as this window stays open, but it will terminate when this window is closed.

After using the interactive command to start the license server and verify that it is running, you should configure the license server to start automatically as an NT service whenever the host is booted. This procedure is discussed later in this section.

After a Command Prompt window has been opened, change directory to the folder that contains all the license server executables and DLLs (LicenseManager).



The command to manually start the license server is:

D:\LicenseManager>Lmgrd.exe

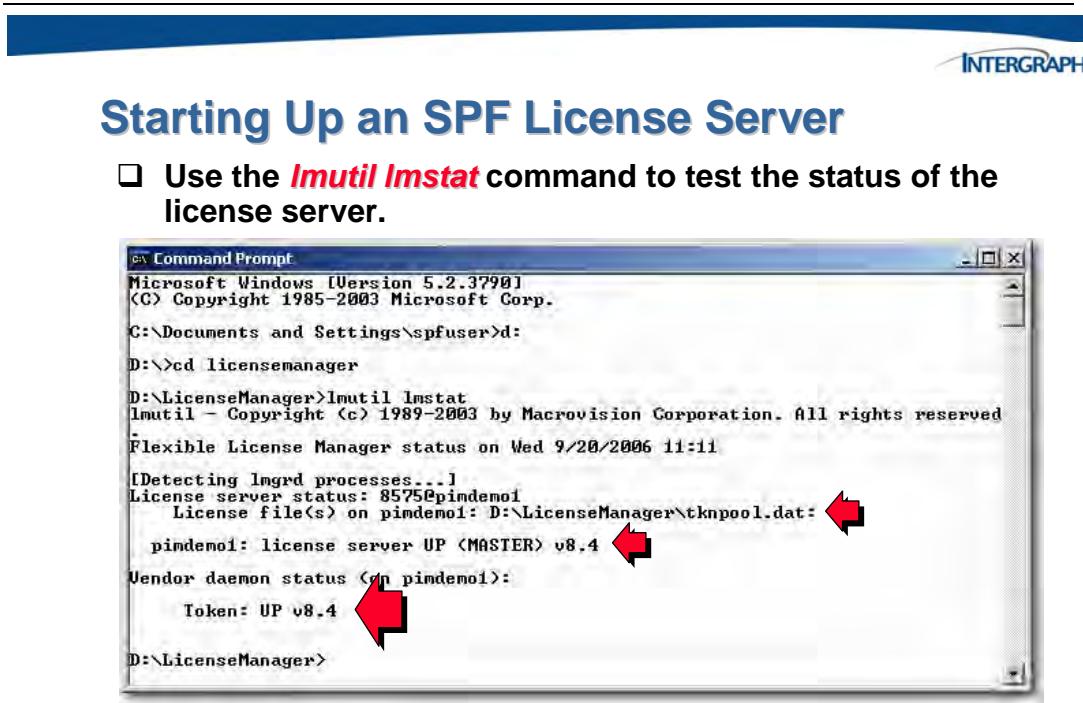
Note: In these examples, we are assuming that the License Manager files were installed in a folder called LicenseManager on the D drive. If you have selected a different location to install the software, your commands will look different.

If the license manager server starts successfully, the output will be similar to the following:

```
15:51:36 (lmgrd) Please Note:  
  
15:51:36 (lmgrd)  
  
15:51:36 (lmgrd) This log is intended for debug purposes only.  
  
15:51:36 (lmgrd) There are many details in licensing policies  
15:51:36 (lmgrd) that are not reported in the information logged  
15:51:36 (lmgrd) here, so if you use this log file for any kind  
15:51:36 (lmgrd) of usage reporting you will generally produce  
15:51:36 (lmgrd) incorrect results.  
  
15:51:36 (lmgrd)  
  
15:51:36 (lmgrd) -----  
  
15:51:36 (lmgrd)  
  
15:51:36 (lmgrd)  
  
15:51:36 (lmgrd) pid 1936  
  
15:51:37 (lmgrd) Done rereading  
  
15:51:37 (lmgrd) FLEXlm (v8.4a) started on aimtrnr (IBM PC) (6/16/2003)  
  
15:51:37 (lmgrd) Copyright (c) 1988-2003 by Macrovision Corporation. All  
rights reserved.  
  
15:51:37 (lmgrd) US Patents 5,390,297 and 5,671,412.  
  
15:51:37 (lmgrd) World Wide Web: http://www.macrovision.com  
  
15:51:37 (lmgrd) License file(s): D:\LicenseManager\tnkpool.dat  
  
15:51:37 (lmgrd) lmgrd tcp-port 8575  
  
15:51:37 (lmgrd) Starting vendor daemons ...  
  
15:51:37 (lmgrd) Started Token (pid 2052)  
  
15:51:37 (lmgrd) Token using TCP-port 3022  
  
15:51:37 (Token) FLEXlm version 8.4a  
  
15:51:37 (Token) Using options file: "D:\LicenseManager\perpet.dat"  
  
15:51:37 (Token) Server started on aimtrnr for: SPF_perpetual  
  
15:51:37 (Token) SPF_daily      SPF_ens      SPF_cm  
  
15:51:37 (Token) SPF_structure  SPF_2D       SPF_3D  
  
15:51:37 (Token) SPF_docs  
  
15:51:37 (Token) INCLUDE USER_GROUP SPF_perpetual SPF_perpetual
```

```
15:51:37 (Token) Using the following variables:  
15:51:37 (Token) TOKEN_NOTIFY_ONE : 50  
15:51:37 (Token) TOKEN_NOTIFY_TWO : 20  
15:51:37 (Token) TOKEN_NOTIFY_USER : alexb@ingr.com  
15:51:37 (Token) TOKEN_NOTIFY_FILE : D:\LicenseManager\reorder.txt  
15:51:37 (Token) TOKEN_LOG_FILE : D:\LicenseManager\spftkn.rpt  
15:51:37 (Token) SPF daily token file : <lo:D:\LicenseManager\daily.dat>
```

You can use the **lmutil** command to verify that the *lmgd* license manager server is running.



The command to manually test the license server is:

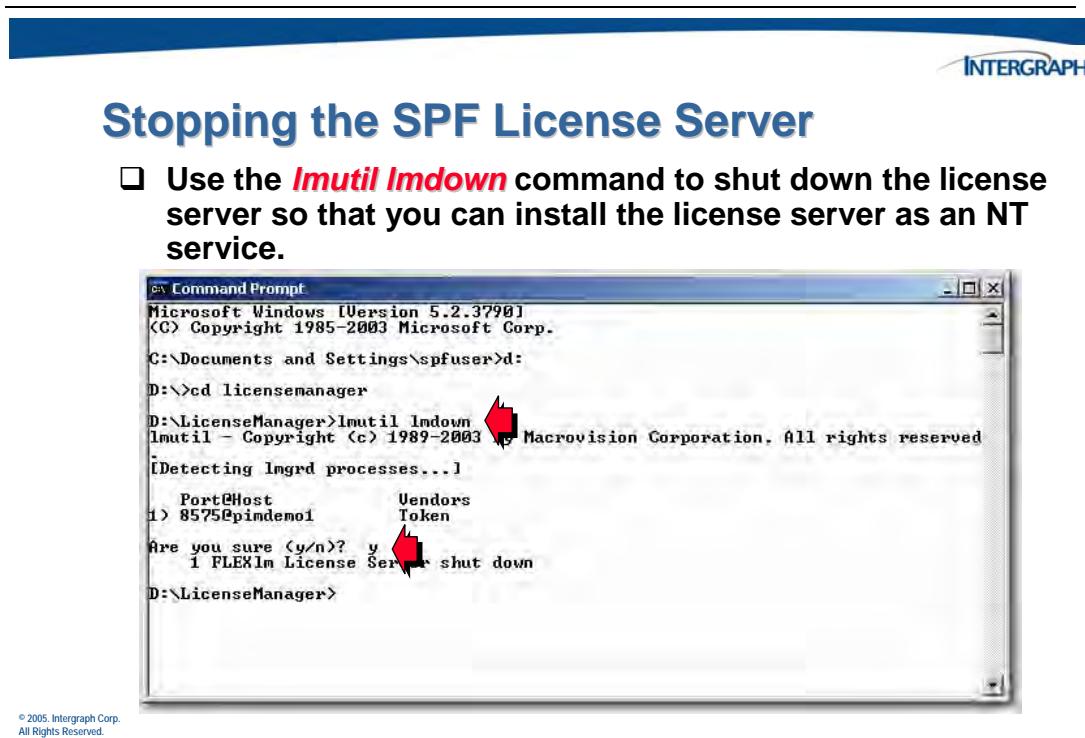
D:\LicenseManager>**lmutil lmstat**

10.6.1 Stopping the SmartPlant Foundation License Server

The *lmutil* utility can also be used to shut down the license server once you have tested it from the Command Prompt window. This needs to be done before you register the license server as an NT service.

The command to manually shut down the license server is:

D:\LicenseManager>**lmutil lmdown**

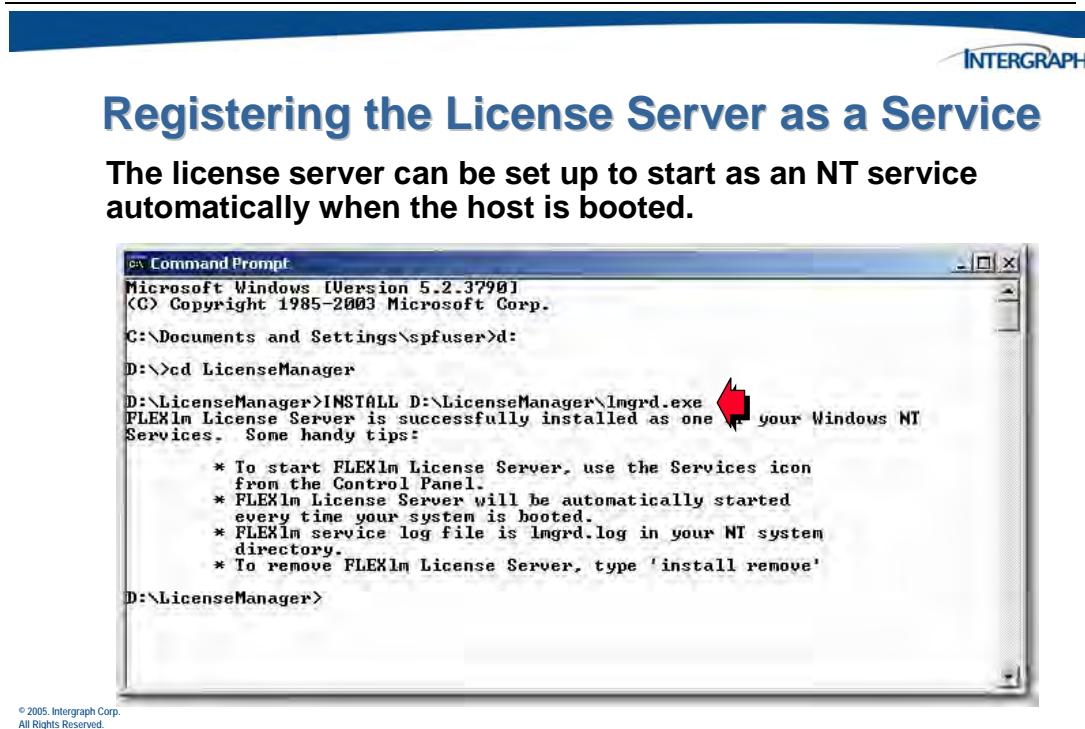


10.7 Registering the License Server as a Service

After you have verified that the license server can be started manually, you should set the lmgrd server to start as an NT service. This way, you won't have to worry about keeping a *Command Prompt* window open with the server running.

An *install.exe* file has been delivered as one of the 18 files that were unzipped to the install folder and can be used to set up your license server as an NT service.

Step 1, open a *Command Prompt* window and change the directory (cd) to the *LicenseManager* folder, which is the path specified in the SmartPlant Foundation install.



Step 2, key in the following command from the *LicenseManager* folder (substituting your directory path where the lmgrd executable is located):

```
D:\LicenseManager>INSTALL <path>lmgrd.exe
```

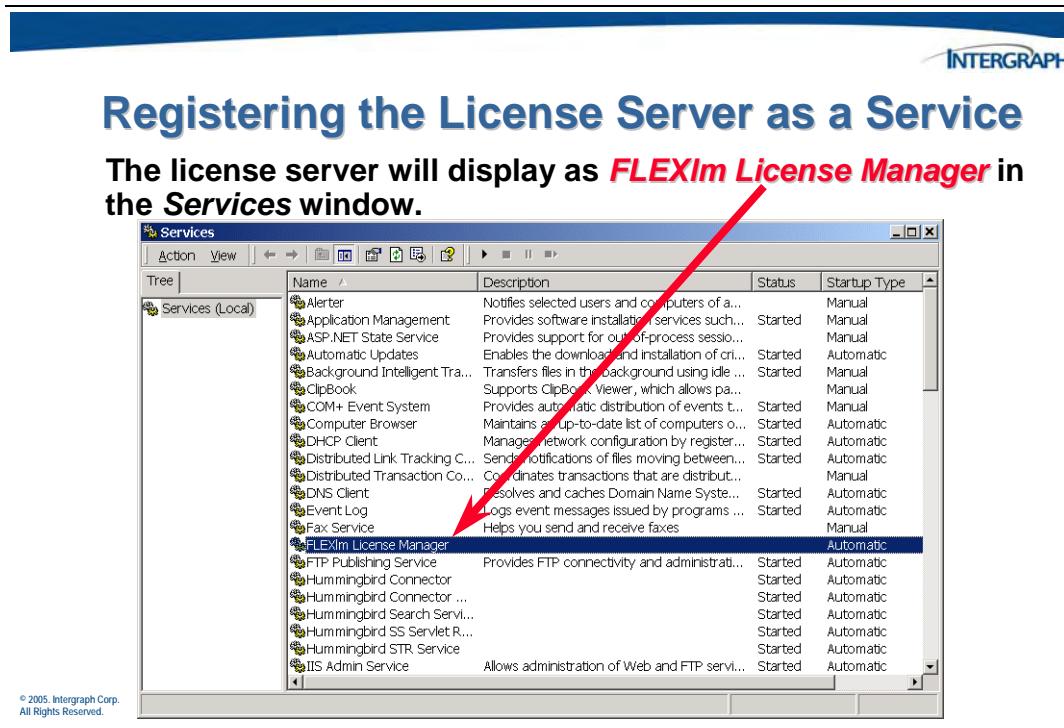
In our example, this would look like the following statement:

```
D:\LicenseManager>INSTALL D:\LicenseManager\lmgrd.exe
```

To remove the license server service, enter the following command from the *install* folder:

```
D:\LicenseManager>install remove
```

You will have to manually start the license server the first time. It will start automatically after that each time the system is rebooted.



10.8 License Manager Termination

In the event that Flexlm terminates in any fashion (system crash, manual shutdown, etc.) the licenses that are lingering are recoverable through the contents of the daily token log file (specified in config.cfg). A utility, “tknrecal.exe”, is provided that will parse the log file and determine what licenses should be checked out again based on how much of the linger period is left. This “tknrecal.exe” utility will have to be run immediately after license manager startup. Any daily license that is re-checked out after being released with the tknrecal.exe should not consume additional tokens from the token meter.



License Manager Termination

In the event that Flexlm is terminated accidentally, the licenses that are lingering are recoverable using the contents of the daily token log file.

- The **tknrecal.exe** utility will parse the log file and determine what licenses should be released so they can be checked out again.
- This utility will have to be run immediately after license manager server is started.
- The utility **tknserv.exe**, which is **tknrecal.exe** instantiated as a NT service, is delivered with the software.
- The NT service name will be **Token License Manager token recall**.

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There is also a utility (tknserv.exe) delivered that is tknrecal.exe instantiated as a NT service. The NT service name will be “Token License Manager token recall”. Usage for this utility is described here:

D:\LicenseManager>tknserv

Token License Manager token recall service

tknserv -install to install the service

tknserv -remove to remove the service

10.9 Reporting

The License Management software includes a reporting tool to allow you to keep track of your tokens. You can report on use over a period of time, at the current moment, or even determine how many daily tokens are remaining in your token pool.



Reporting

- When a daily token is checked out, the username and date (including the time) is written to the token log file.
- The name of this log file is controlled through a registry variable (TOKEN_LOG_FILE).
- The log file can be used as input to the token reporter.
- The token reporter is a command line utility ("tknrpt") that will accept a date range on which to report.
- This utility will examine the history of daily and perpetual tokens.
- The **tknrpt.exe** gets its input from the report file.

10.9.1 Token Report File

When a daily token is checked out, the username and date (including time) is written to the token log file. This name of this log file is controlled via a *registry* variable TOKEN_LOG_FILE. The log file can then be used as input to the token reporter: **tknrpt.exe**.

Below is an example of the report file:

abburns	10/23/2002 10:00
abburns	10/24/2002 11:00
abburns	10/25/2002 12:00
test1	10/23/2002 14:00
test2	10/23/2002 14:00
test3	10/23/2002 15:00
abburns	10/30/2002 16:00
test1	10/30/2002 17:00
test2	10/30/2002 18:00
test3	10/30/2002 19:00

10.9.2 Daily Token License Usage History

The token reporter is a command line utility (“tknrpt.exe”) that will accept a date range to report on. This utility will examine the history of daily tokens only. This utility gets its input from the report file. The syntax of tknrpt.exe is provided here:

D:\LicenseManager>tknrpt -n <from_date> <to_date>

<from_date> is the beginning date in MM/DD/YYYY format

<to_date> is the ending date in MM/DD/YYYY format



Reporting

The following is an example output of tknrpt:

```
D:\LicenseManager>tknrpt -n 05/05/2005 05/09/2005
DAILY TOKEN USAGE REPORT FOR 05/05/2003 TO 05/09/2003
USER           NODE      TOKENS USED
alex_d          tdd305    4
alex_b          tdb305    4
alex_f          tdf305    4
adminuser       aiminst   3
alex_a          tda305    1
alex_e          tde305    1
Total number of days in period: 4
Total tokens used:               17
Average tokens used per day:     4
```

10.9.3 Licenses In Use

The number of licenses in use, along with expiration times and dates of daily license can be displayed with a command line executable; tknrpt.exe -cn. An example of the format of the output is provided below:



Reporting

The following is an example output of tknrpt.exe -cn:

D:\LicenseManager>tknrpt.exe -cn

DAILY Licenses:

The current number of available daily tokens is : 10975

Total number of allocated daily licenses: 1

USER	NODE	CHECKED OUT	EXPIRES	TIME LEFT	IN USE
alex_a	tda306	05/08/03 09:32	05/08/03 21:32	(11:52)	TRUE

PERPETUAL Licenses :

Total number of allocated perpetual licenses: 1

USER	NODE	CHECKED OUT	EXPIRES	IN USE
adminuser	tdd305	05/08/03 09:32	unexpiring	TRUE

10.10 Clearing Token IN USE Status

When a client is terminated it must tell the license manager that it is done with the license. If the client terminates abnormally, it is not able to tell the license manager that it is finished using the license.

To allow subsequent client logins for the same user when the client has terminated abnormally, a utility, *clearusr.exe*, is provided to reset the status.

Use the following syntax to use this feature:

```
D:\LicenseManager>clearusr -u <user> -h <host>
```



Clearing Token IN USE Status

In the event that the client has been terminated abnormally, the “IN USE” status for the token will remain “TRUE”.

A utility (*clearusr.exe*) is provided that will set the “IN USE” status back to FALSE.

clearusr -u <user> -h <host> -t <license type>

Where <user> is the user name of the user who has the license checked out, <host> is the host name of the machine on which the license was checked out, and <license type> is S for SPF or D for Directa.

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Use “*tknrpt.exe -cn*” to verify the status of the “IN USE” status fields for the licenses.

10.11 Using the License Server Remotely

You can use one *License Server* to service multiple SmartPlant Foundation Servers within a LAN. Use this information in this section to set up a remote License Manager Server.



Using the License Server Remotely

Use the following steps to set up one License Server to service multiple SPF Servers.

- Create the following directory on the remote host:**
c:\LicenseManager
- Define the following system environment variable on the local host:**

LM_LICENSE_FILE=8575@tdb305

Where 8575 is the port number of the remote host and tdb305 is the host name of the machine where the license service is being run.



Using the License Server Remotely

- If you would like to verify that the local machine can access the License Server, do the following things:
 - Create a **LicenseManager** folder on the local machine.
 - Install the **Imutil.exe** file in that folder.
 - From a DOS prompt, navigate to that **LicenseManager** folder, and run the ***Imutil Imstat*** command.

10.12 License Management with SmartPlant Basic Integrator

SmartPlant Basic Integrator is another way to use the SmartPlant environment for integration. Customers who choose to use the SmartPlant Basic Integrator will have access to the functionality that SmartPlant Foundation provides for integrating authoring tools, but will not have access to the features available through SmartPlant Foundation, such as the Desktop Client.

The Basic Integrator is used as an integration point to allow information to pass through from one tool to another, but the general user never accesses the Desktop Client or other SmartPlant Foundation application directly.

As a result of this modified functionality, licensing works differently with SmartPlant Basic Integrator.

The Basic Integrator does not use perpetual tokens at all. All users use daily tokens to publish and retrieve information though the Basic Integrator. The daily.dat file must be in place for the functionality to work, but it does not matter how many tokens are provided in the file. The Basic Integrator comes with unlimited daily tokens to be used for publish and retrieve commands from the authoring tools. No matter how many times users publish and retrieve, the token pool never diminishes, and you never run out of tokens.

Since this application is not using SPF to view and modify information from the tools, most users will never actually access SPF utilities like the Desktop Client. Therefore, only one token at a time may be used to log into the DTC. That means that only one user at a time may access that application for administrative tasks.

11

C H A P T E R

SmartPlant Foundation/SmartPlant Installation

11. SmartPlant Foundation/SmartPlant Installation

You can install SmartPlant Foundation as a stand-alone application or as part of the SmartPlant environment. When you install SmartPlant Foundation as a stand-alone product, all the standard SmartPlant Foundation data management functionality is available to you, but SmartPlant-specific authoring tool integration is not available.

Before installing SPF, you should make sure the OS user accounts **IWAM** and **IUSR** have been added to the Administrators (NT) Group.

In this chapter, you will find illustrations of the screens and dialog boxes you will use to install and configure SmartPlant Foundation.

11.1 SmartPlant Foundation System Requirements

Before beginning an installation of SmartPlant Foundation, confirm that the system requirements have been met.

Database Server

The database server software can be loaded on a separate machine. Below are the requirements for the database server.



System Requirements

To install SmartPlant Foundation, the following hardware/software is required:

Database Server

Hardware Requirements

- Dual 3 GHz processor
- 4 GB RAM

Software Requirements

- Microsoft Windows Server 2003 Service Pack 2 (32 bit)
- Microsoft Windows Server 2003 R2 Service Pack 2 (32 &64 bit)
- Microsoft SQL Server 2005 Service Pack 2
or
- Oracle Enterprise or Standard Edition 10g Release 2 (10.2.0.3)

SmartPlant Foundation Server

The SmartPlant Foundation server software can be loaded on a separate machine or on the same machine as the database server. Listed below are the requirements for the SmartPlant Foundation server.



System Requirements

Hardware/software requirements (con't):

SmartPlant Foundation Server

Hardware Requirements

- Dual 3 GHz processor recommended
- 4 GB RAM recommended
- 5 GB free disk space recommended
- 1 GB virtual memory recommended

Software Requirements

- Microsoft Windows Server 2003 SP2 with IIS 6.0 (32 bit) or
- Microsoft Windows Server 2003 R2 SP3 with IIS 6.0 (32 & 64 bit)

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System Requirements

Hardware/software requirements (con't):

SmartPlant Foundation Server

Software Requirements

- Microsoft SQL Server 2005 Service Pack 2 or
- Oracle Enterprise Edition 10g Release 2 (10.2.0.3)
- Microsoft Data Access Components (MDAC) 2.8 SP1
- Internet Explorer 6.0 or later
- Microsoft XML (MSXML) 6.0
- Microsoft .NET Framework 2.0 and 3.5

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System Requirements

Hardware/software requirements (con't):

SmartPlant Foundation Server

Software Requirements

- Adobe Acrobat Reader 8.0 or higher**
- Microsoft Excel 2003**
- Simple Object Access Protocol (SOAP) 3.0**
- SmartPlant Markup 3.8 (required for reference file functionality)**

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System Requirements

Hardware/software requirements (con't):

SmartPlant Foundation Server

Other Software

- SmartSketch 2007 or later – For automatic hotspotting with the SmartConverter**
- GhostScript or Adobe Distiller – For PDF generation**

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SmartPlant Foundation Workstation

Finally, the following requirements apply to machines that will be acting only as workstations for SmartPlant Foundation.



System Requirements

Hardware/software requirements (con't):

SmartPlant Foundation Workstation

Hardware Requirements

- 2.8 GHz Pentium 4 processor or higher recommended
- 2 GB RAM minimum
- 80 MB free disk space recommended

Software Requirements

- Microsoft Windows XP Professional Service Pack 2
or
- Microsoft Vista Business Service Pack 1 (32 bit)

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System Requirements

Hardware/software requirements (con't):

SmartPlant Foundation Workstation

Software Requirements

- Internet Explorer 6.0 or later
- Microsoft XML (MSXML) 6.0
- Microsoft Data Access Components (MDAC) 2.8 SP1
- Microsoft .NET Framework 2.0
- Microsoft Excel 2003 or later
- SmartPlant Markup 3.8 (required for reference file functionality)

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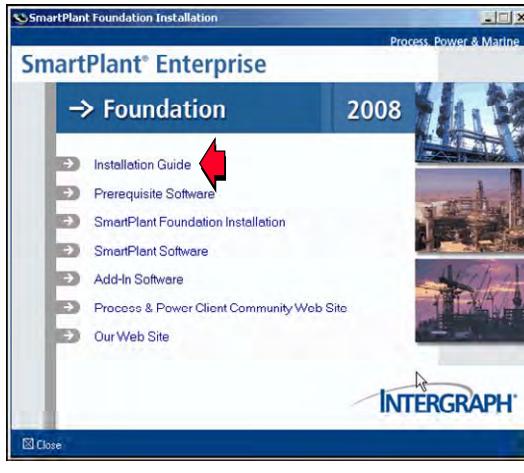
11.2 Reference Documentation

SmartPlant Enterprise products now include installation guides for installation and configuration. The SmartPlant Foundation Installation and Setup Guide provides detailed steps for all procedure you will use to install the software and setup the basic functionality.



Documentation

- To access the documentation, click the **Installation Guides** link on the autoplay screen.



The PDF version of the guide will open in Adobe Reader.

11.3 Installing Database and Prerequisite Software

Before installing SmartPlant Foundation, load the Relational Database Management System (RDBMS) database networking component software on your database server. In the following example, **Oracle** will be used for the database server.



Prerequisite Software

Load the Relational Database Management System (RDBMS) database networking component software on your database server.

- For Oracle databases, you must install Oracle10g Server and Client on the database server.
- On Oracle database servers, use Oracle Net Manager to create a database alias that SmartPlant Foundation can use to communicate with the database.

11.4 Installing SmartPlant Foundation

Once the your database software is installed, you are ready to install the prerequisite software and then SmartPlant Foundation.

Notes:

- The **.NET framework** software is required for the SPF Desktop Client and must be loaded before installing SPF.
- If the FTR component is going to be selected as part of the installation, the **FTR Runtime** engine must also be loaded first.

Insert the SmartPlant Foundation CD into your CD-ROM drive or connect to the remote share containing the delivery media.



SmartPlant Foundation Installation

The following instructions will guide you through the installation of SmartPlant Foundation.

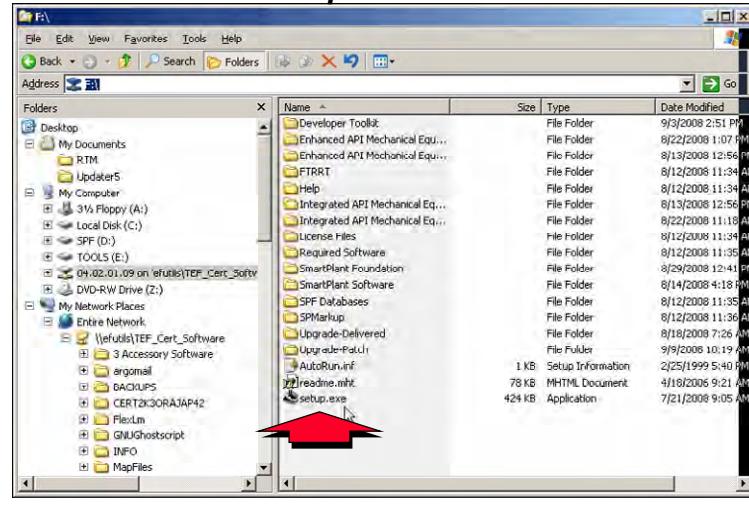
If the autoplay screen does not appear when you load the software CD, use the following steps to access the autoplay.

1. Start Microsoft Windows and open Windows Explorer.
2. Locate the file **setup.exe** from the software delivery media.



SmartPlant Foundation Installation

- Double-click on setup.exe.

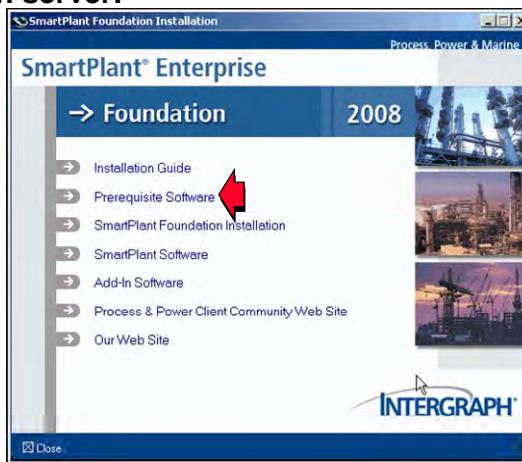


The SmartPlant Foundation installation screen will appear.



Prerequisite Software

Load the additional prerequisite software on the SmartPlant Foundation server:



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Several applications are required on machines that will function as a SmartPlant Foundation server, however, most of these are delivered on the SPF CD.



Prerequisite Software

Load the additional prerequisite software on the SmartPlant Foundation server:

- Windows Installer 2.0 *
- Microsoft .NET Framework 3.5 *
- Microsoft XML 6.0 *
- Microsoft Data Access Components (MDAC) 2.8 *

* available on the SmartPlant Foundation CD

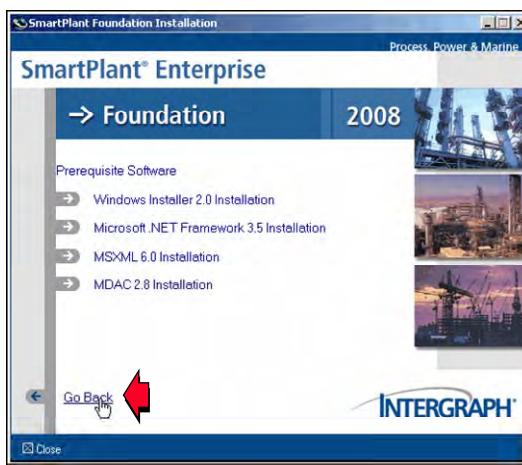
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Once the prerequisite software has been loaded, you are now ready to install SPF.



Prerequisite Software

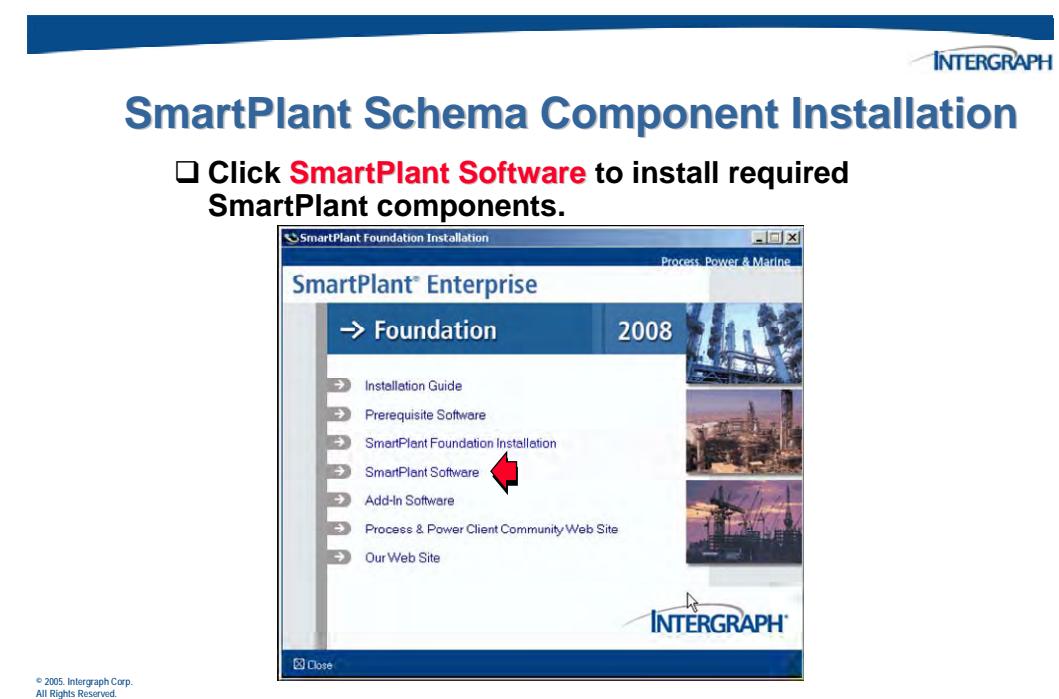
- Click **Go Back** once you have installed the prerequisite software.



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11.4.1 Schema Component Installation

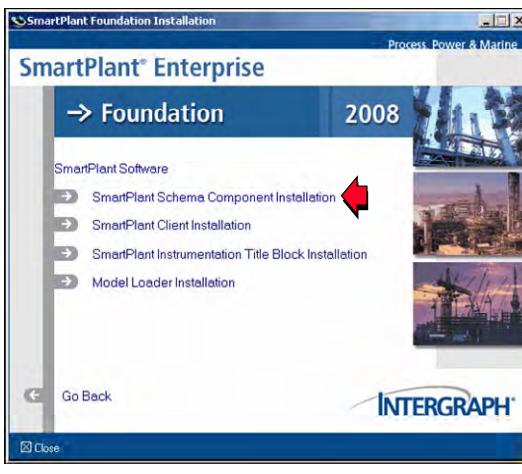
Prior to installing SmartPlant Foundation, the **SmartPlant Schema Component** must be installed. If you attempt to install the SPF software without first installing the SmartPlant Schema Component, you will encounter a warning message.





SmartPlant Schema Component Installation

- ❑ Click **SmartPlant Schema Component Installation** to install the SmartPlant schema and the Schema Editor.

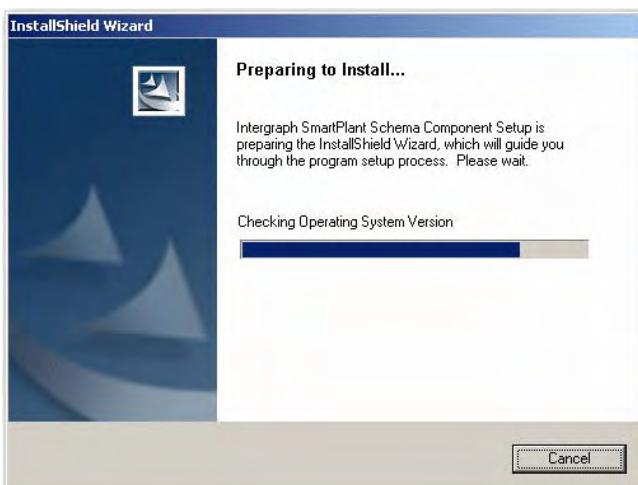


The *SmartPlant Schema Component* Installer screen appears, and the InstallShield Wizard starts.



SmartPlant Schema Component Installation

The **SmartPlant Schema Component** InstallShield Wizard starts the installation.



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SmartPlant Schema Component Installation

- The **Welcome** screen is displayed. Click **Next** to proceed with the installation.

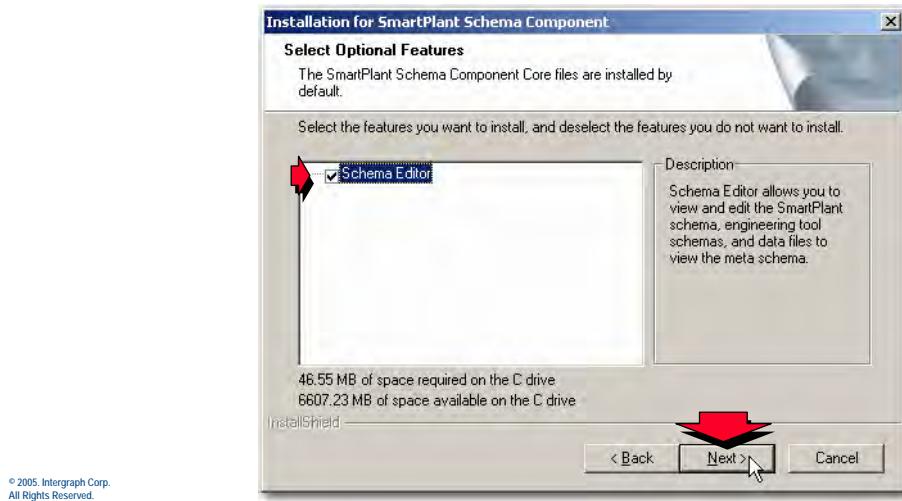


The **Select Optional Features** dialog box appears. You want to install the Schema Editor.

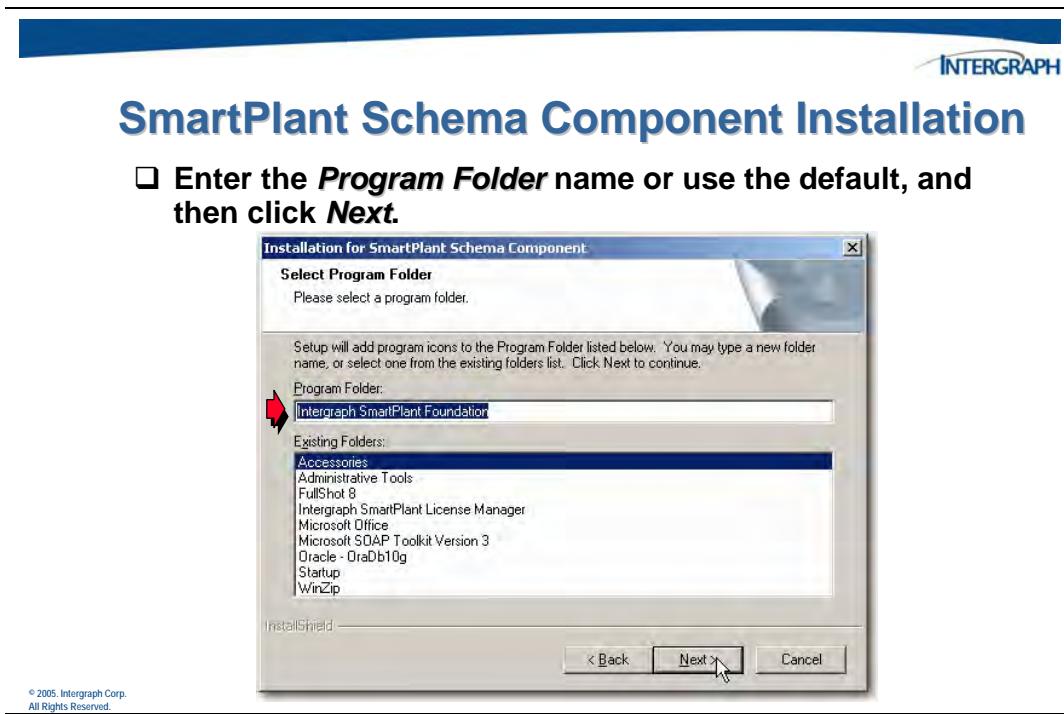


SmartPlant Schema Component Installation

- Select the **Schema Editor** check box to include the Schema Editor in the installation.

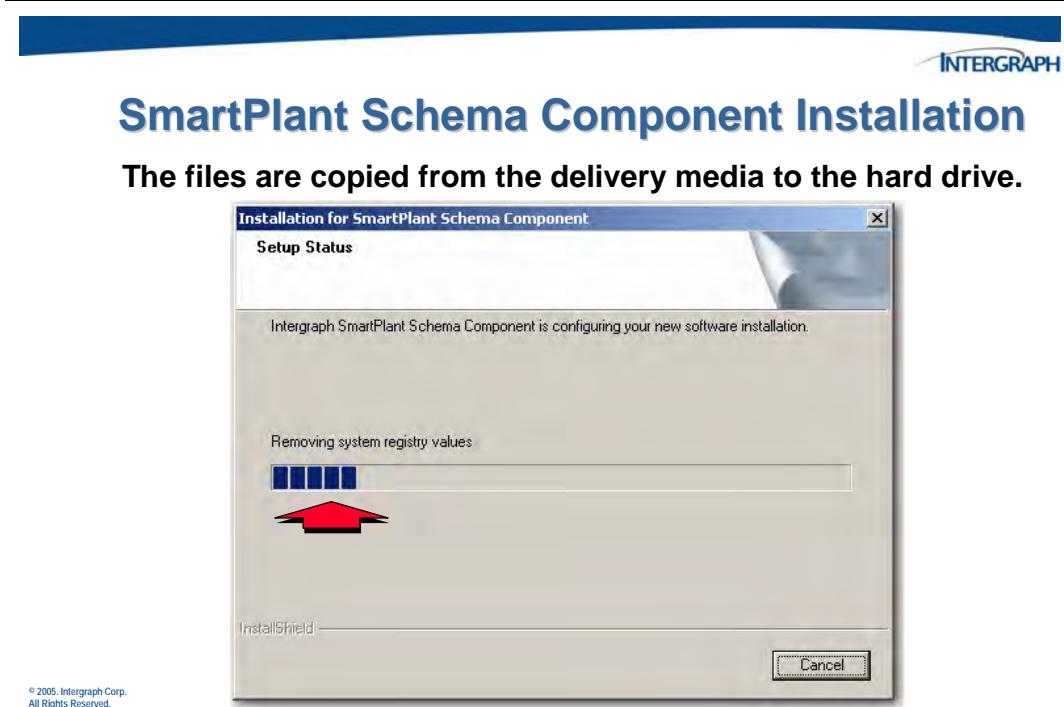


Choose a Program folder.

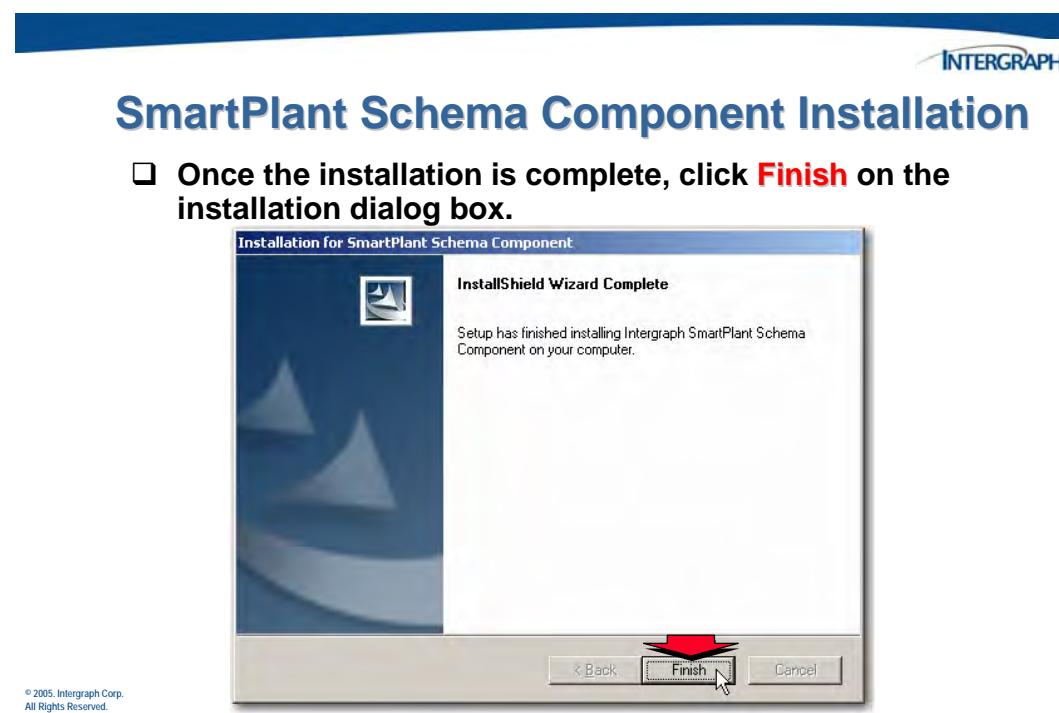


The Schema Editor, which allows you to view and author Schema, Tool Schema, mapping, and data, is installed with the Schema Component.

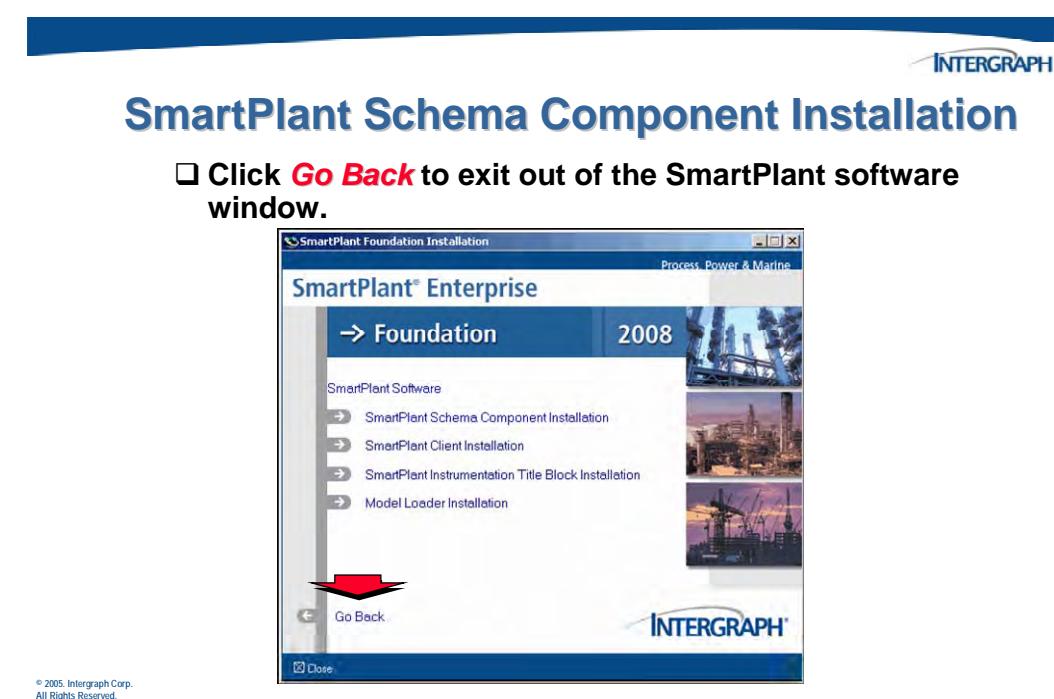
The *InstallShield Wizard* is now ready to start copying files to the defined location.



When the installation is finished, the **InstallShield Wizard Complete** dialog box appears.



After the Schema Component has been installed, use the **Go Back** option to return to the main installation menu.

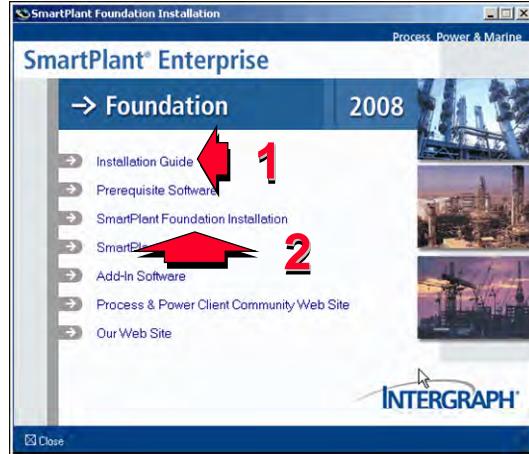


11.4.2 SmartPlant Foundation Installation Steps

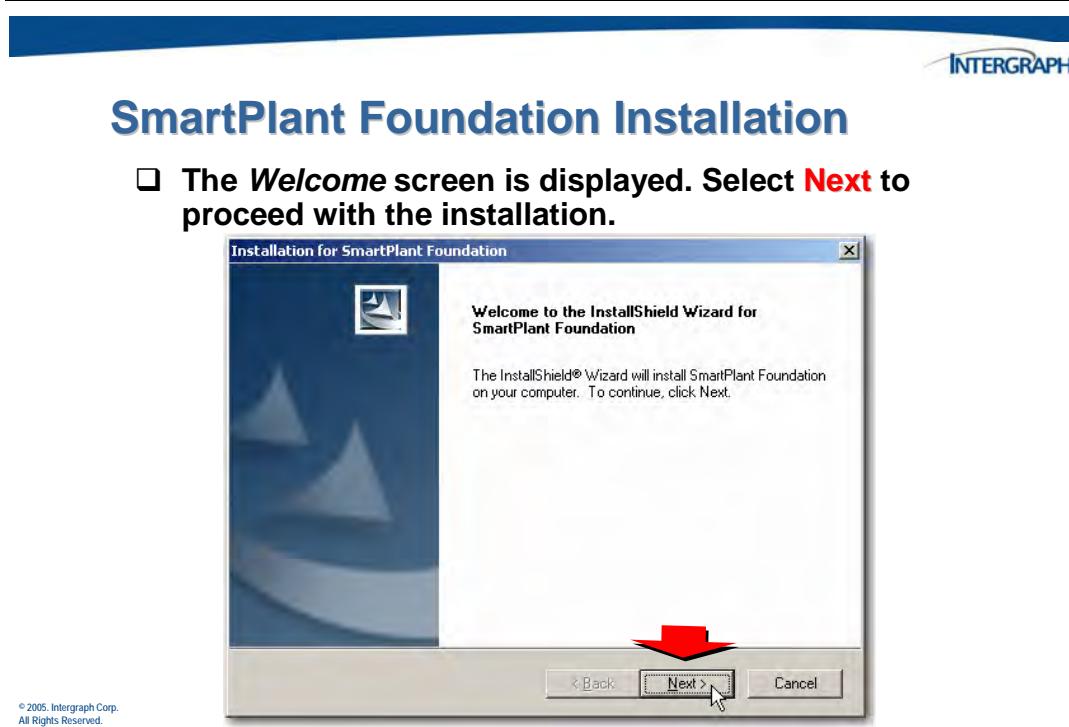
After backing out of the SmartPlant Software menu, the SmartPlant Foundation Installation main menu will appear once more.

SmartPlant Foundation Installation

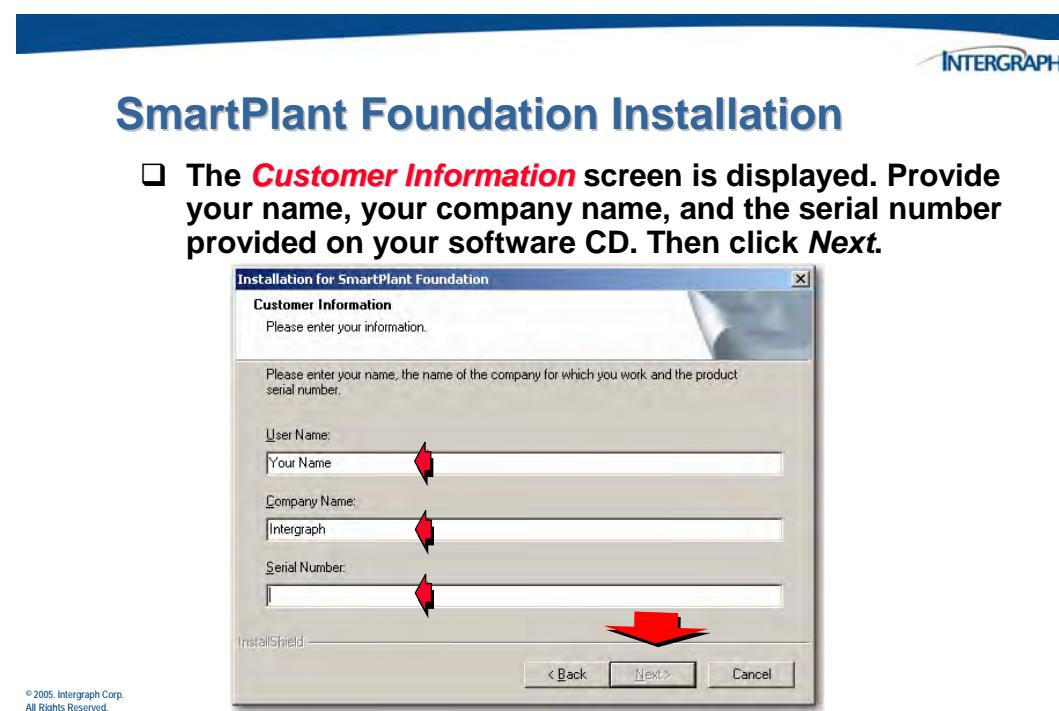
- Before starting the installation, we recommend that you **Print** and **Read** the installation guide.
- Click on **SmartPlant Foundation Installation**.



The *SmartPlant Foundation* InstallShield Wizard starts.



Provide the requested customer information. The serial number should be provided with your installation CD.





SmartPlant Foundation Installation

- ❑ Confirm the information for your name, your company name, and the serial number. If the information is correct, click Yes.



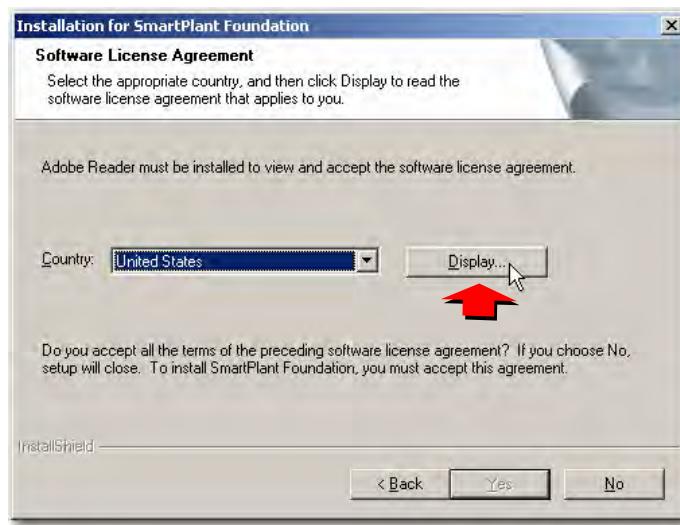
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Confirm your information and serial number, and then click Yes to continue.



SmartPlant Foundation Installation

- ❑ Click **Display** to open the Software License Agreement.

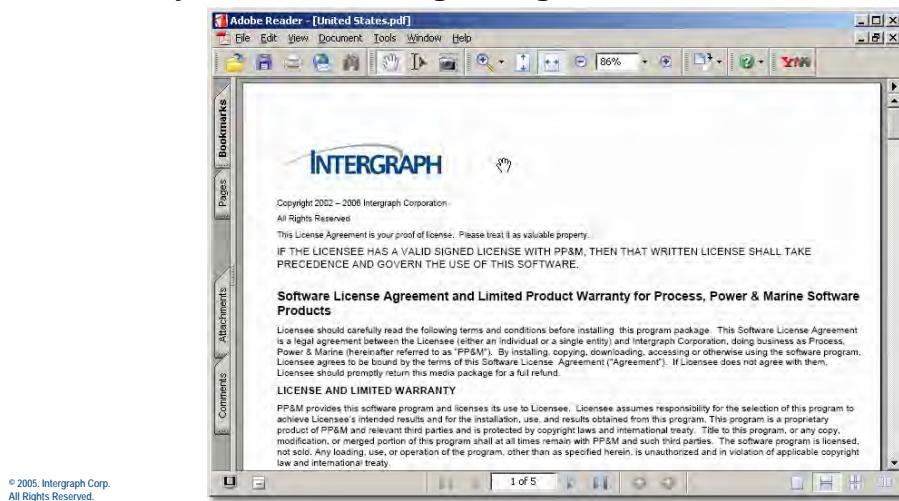


You must have Adobe Reader to view the Software License Agreement.



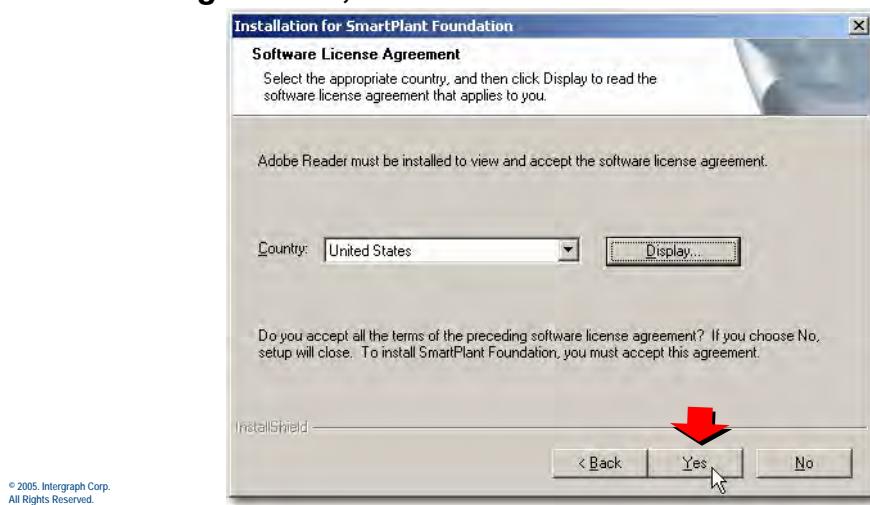
SmartPlant Foundation Installation

- Thoroughly read the **Software License Agreement**. Once you finish reading the agreement, close the PDF window.



SmartPlant Foundation Installation

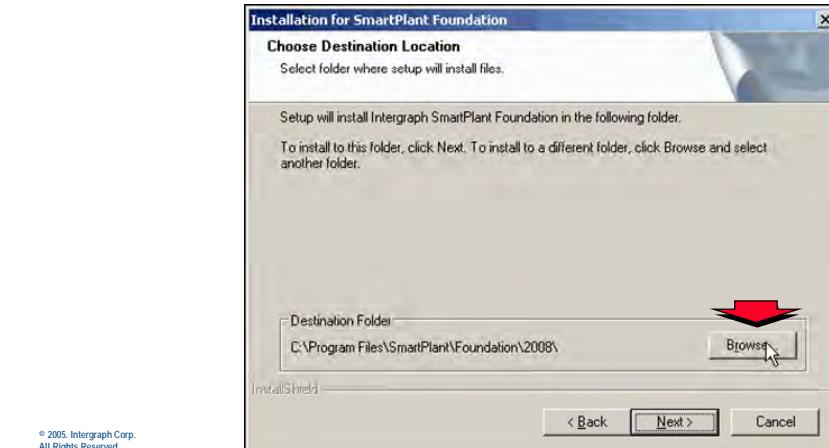
- If you agree to the terms of the **Software License Agreement**, click Yes.





SmartPlant Foundation Installation

- The default destination location is **C:\Program Files\SmartPlant\Foundation\2008**. Click **Browse** to select a different location.

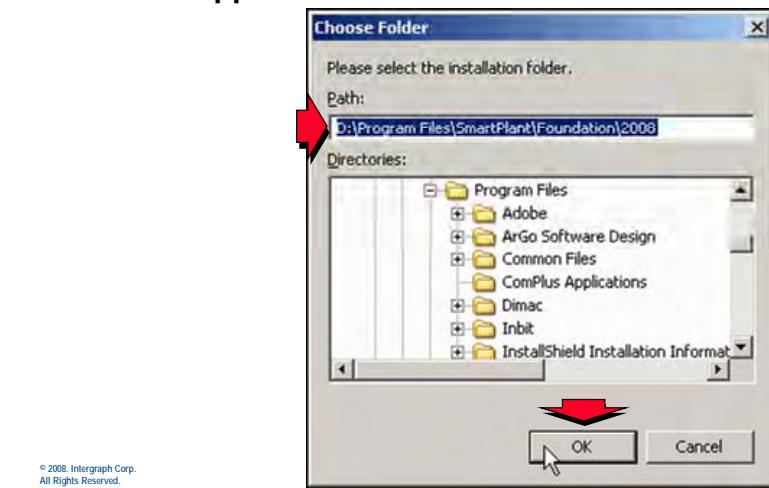


Choose the location where you want to install the SmartPlant Foundation software.



SmartPlant Foundation Installation

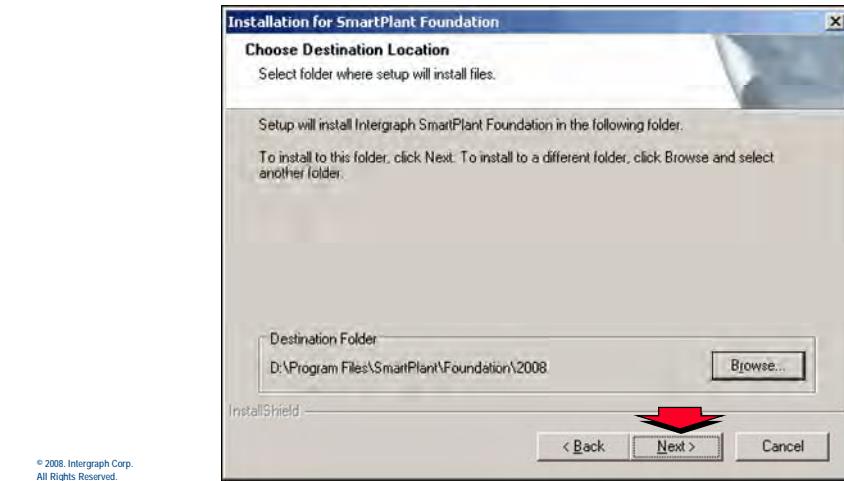
- Choose a folder where you want to install the application.





SmartPlant Foundation Installation

- Once you have selected the *Destination Location*, click **Next** to continue.

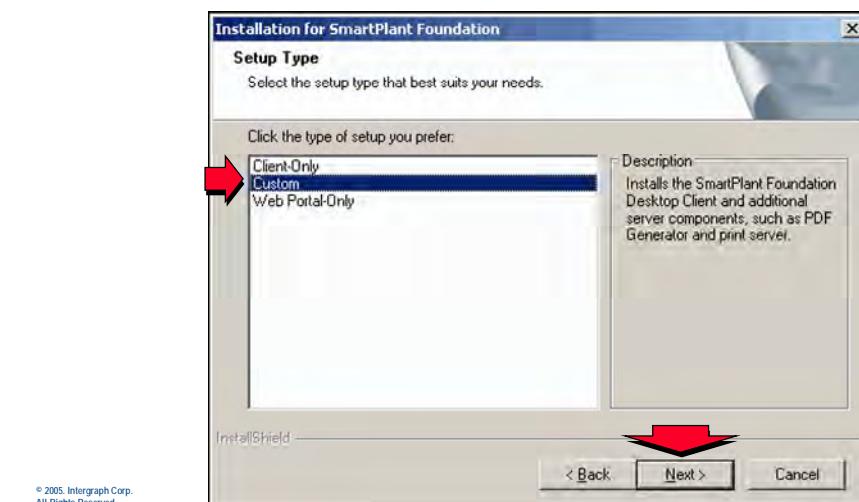


To load only the client software, select *Client-Only*. The *Custom* option is used to load the server components. The *Select Components* dialog will appear.



SmartPlant Foundation Installation

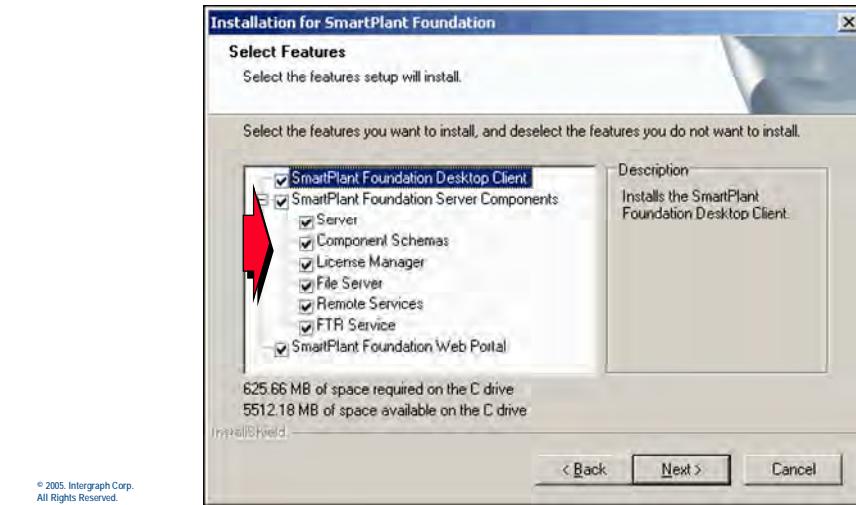
- Select **Custom** to choose the options to be installed.





SmartPlant Foundation Installation

- Select the server components to be installed.



The following describes the server components available in the *Select Components* dialog:

- **SmartPlant Foundation Desktop Client** – Installs the Desktop Client which provides the SmartPlant Foundation functionality on the user's local computer. For the Desktop Client to work properly, you must also install SmartPlant Foundation Server..

SmartPlant Foundation Server Components

- **Server** – Loads the server utilities that allow the system administrator to create and maintain basic software elements and control the access and functionality provided to each SmartPlant Foundation user.
- **Component Schemas** – Installs the schema files for SmartPlant components.
- **License Manager** – Component of SPF that uses a third-party product developed by Globetrotter Software (Flexlm License Manager and FlexMeter) to manage both perpetual and daily tokens. The Flexlm product handles the general checkout and checkin of licensing as well as tracking information about the checked out license, such as user name and remaining access time. The FlexMeter product is used to keep track of the number of daily licenses that are available in the license pool.
- **File Server** – SPF file service that handles direct file transfer between vaults and the client.
- **Remote Services** – Installs a set of web services that perform tasks such as printing and titleblocking.

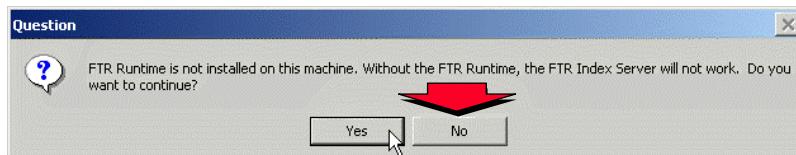
- FTR Service** – Installs the Full-Text Retrieval module, which allows you to store, index, and search for text contained in or associated with objects managed by SmartPlant Foundation.
- SmartPlant Foundation Web Portal** – Installs the Web Portal, which provides a web based interface for accessing SmartPlant Foundation data.

The following messages **may** appear if needed software components are not loaded.

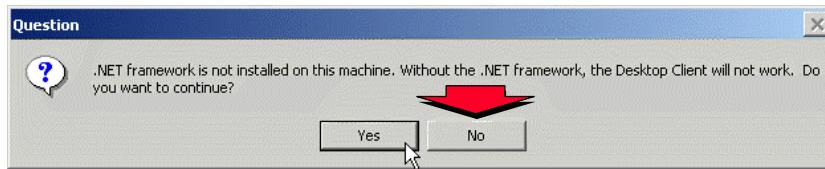


SmartPlant Foundation Installation

- If the FTR component is selected but not loaded, a warning dialog is displayed.**



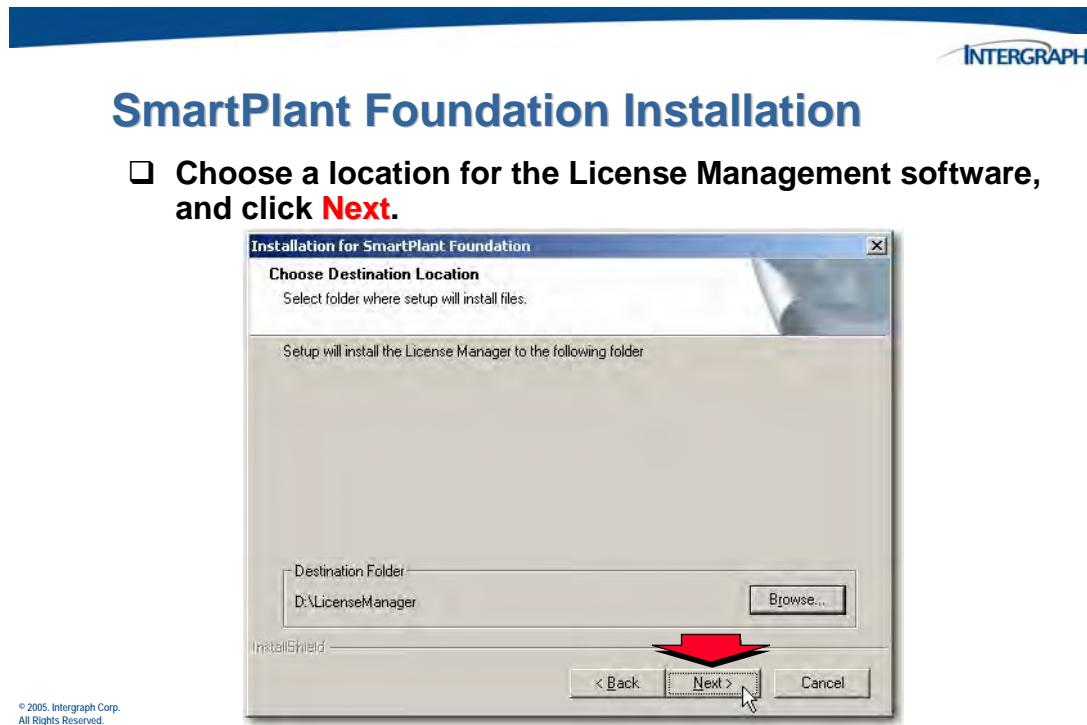
- The .NET framework component is required and if not detected, a warning dialog is displayed.**



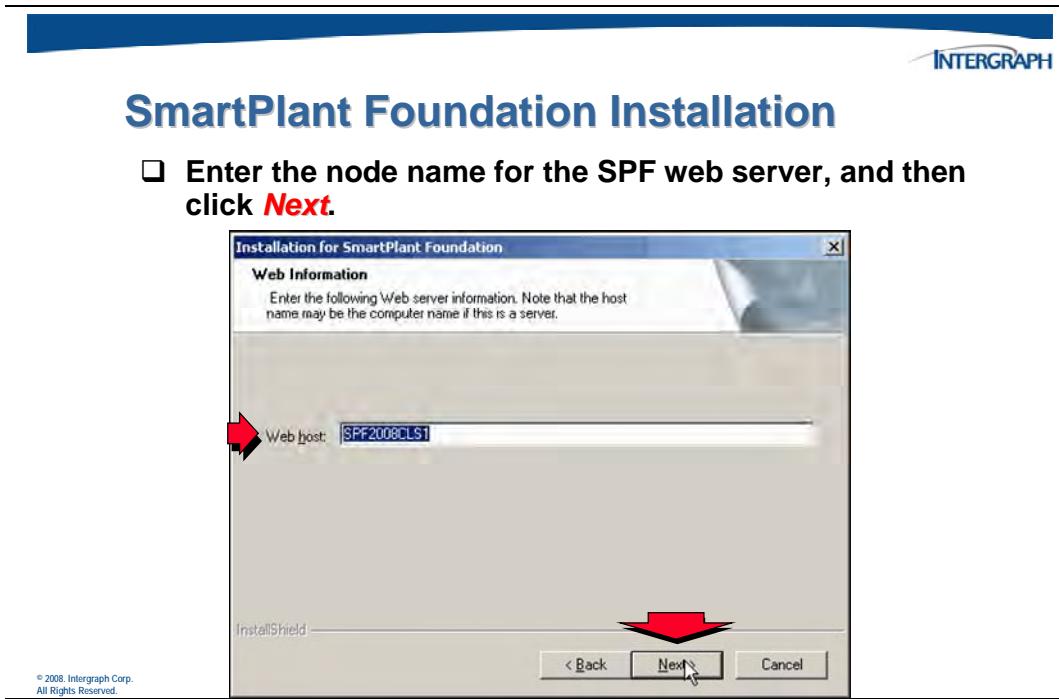
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If you selected to install the License Management software on the *Select Component* dialog box, the *Choose Destination Location* dialog for the **License Manager** component will appear. Use the **Browse** button to select a folder path.

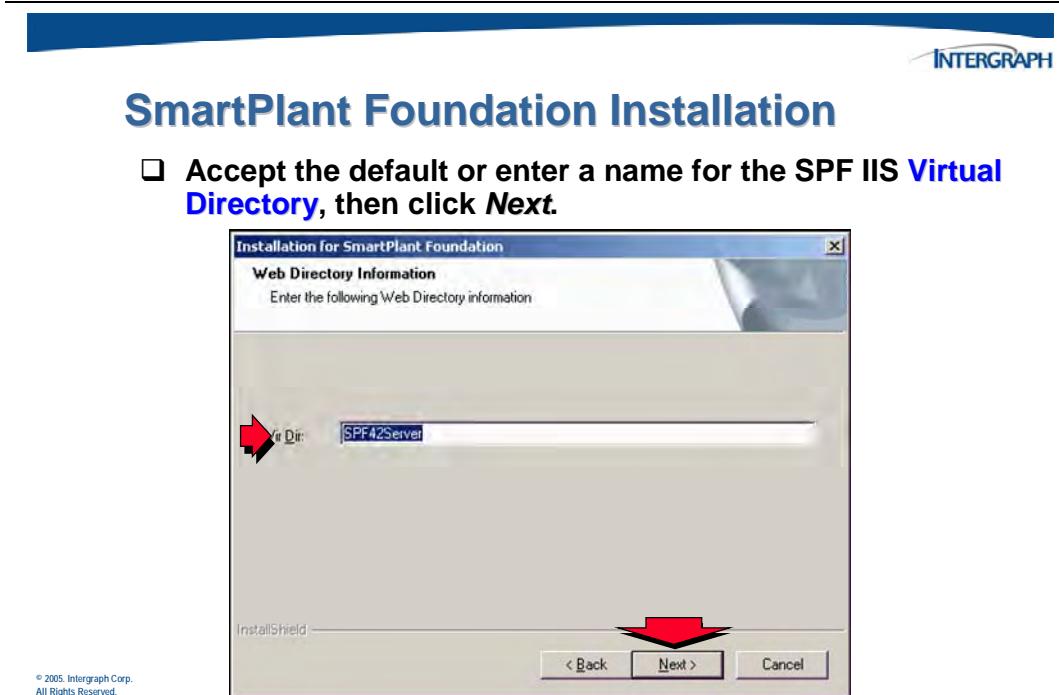
Choose or enter the folder path where the license software is to be loaded.



The *Web Information* dialog will appear.



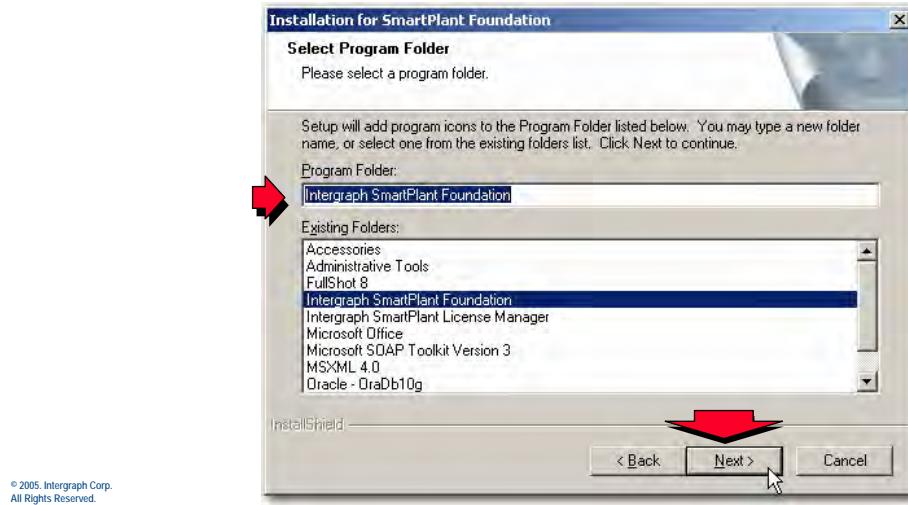
The default virtual web directory that will be mapped to the physical folder that contains the .asp pages will be displayed next.





SmartPlant Foundation Installation

- ❑ Enter a Program Folder name or use the default, and then click **Next**.

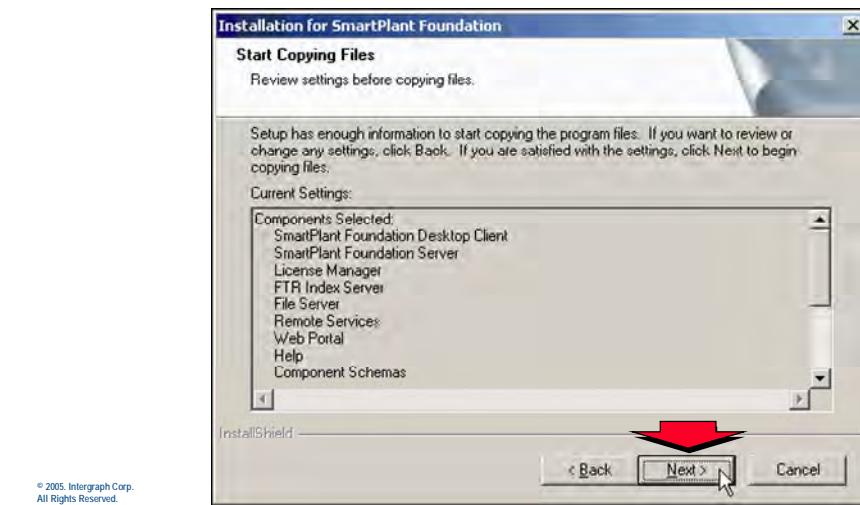


The *InstallShield Wizard* is now ready to start copying files to the defined location.



SmartPlant Foundation Installation

- ❑ Review your selected settings, and then click **Next**.

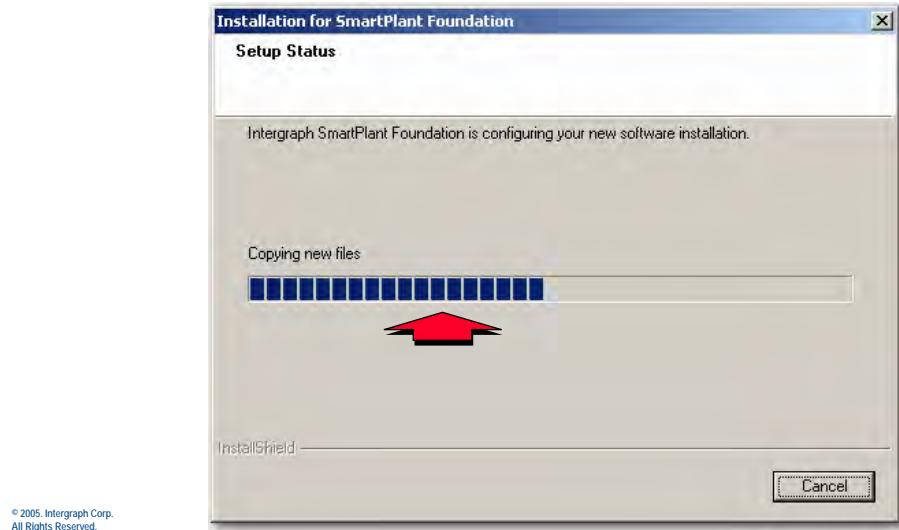


The installation will copy the necessary files onto the local hard drive.



SmartPlant Foundation Installation

The files are copied from the delivery media to the hard drive.

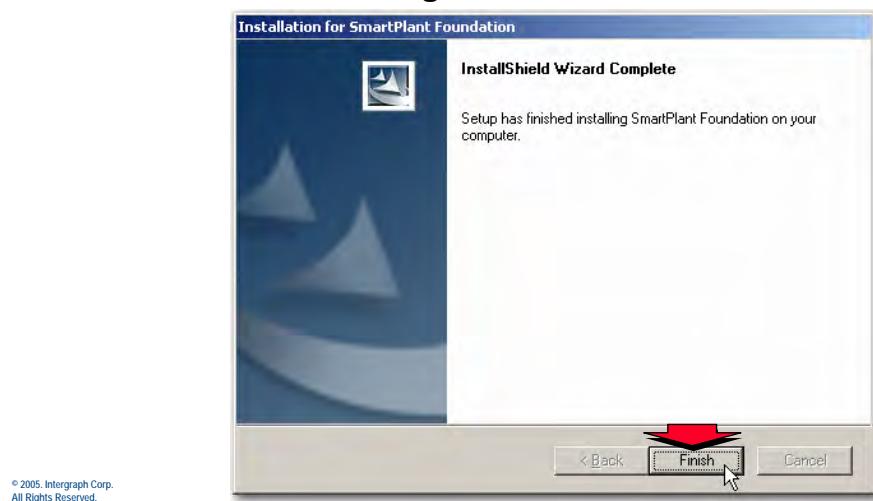


When the installation finishes, the *InstallShield Wizard Complete* dialog will appear.



SmartPlant Foundation Installation

- Once the installation is complete, click **Finish** on the installation dialog.



If the SmartPlant components **will not** be installed, click the **Close** option.



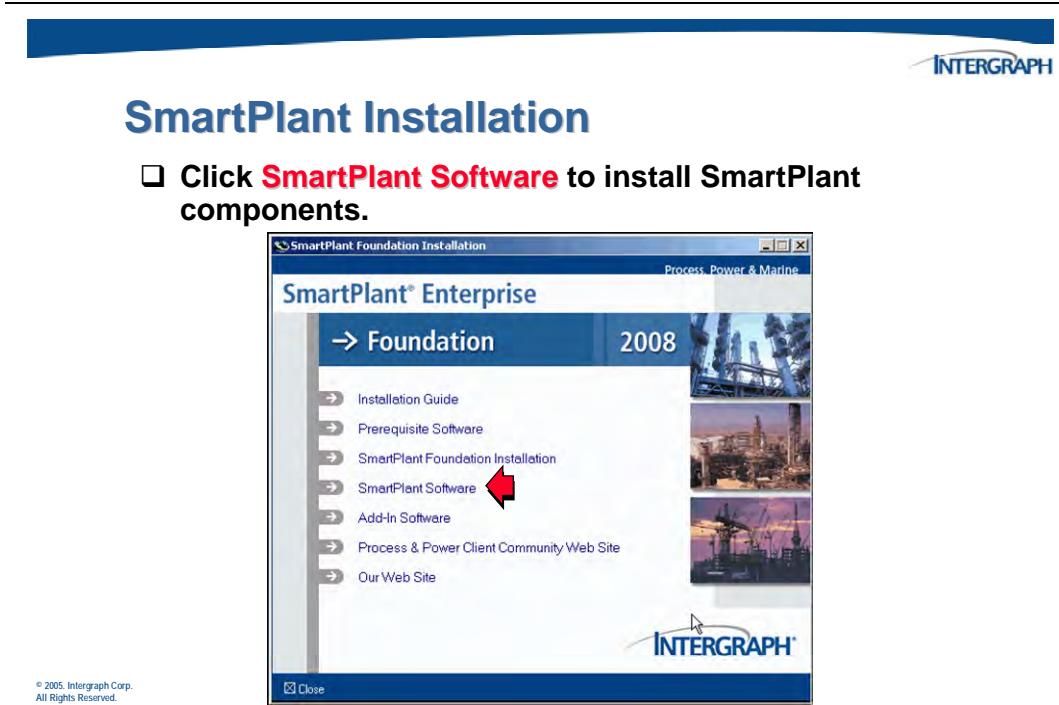
SmartPlant Foundation Installation

- If you are performing a **standalone SPF installation**, you have completed software installation, and you are ready to configure a new site.

- If you are planning to use **SPF** in a full SmartPlant environment, you are ready to install the **SmartPlant Components**.

11.5 Installing SmartPlant Components

After you install the SmartPlant Foundation software on the SPF/SmartPlant server, you can install the SmartPlant Server components. SmartPlant Foundation must always be installed first.



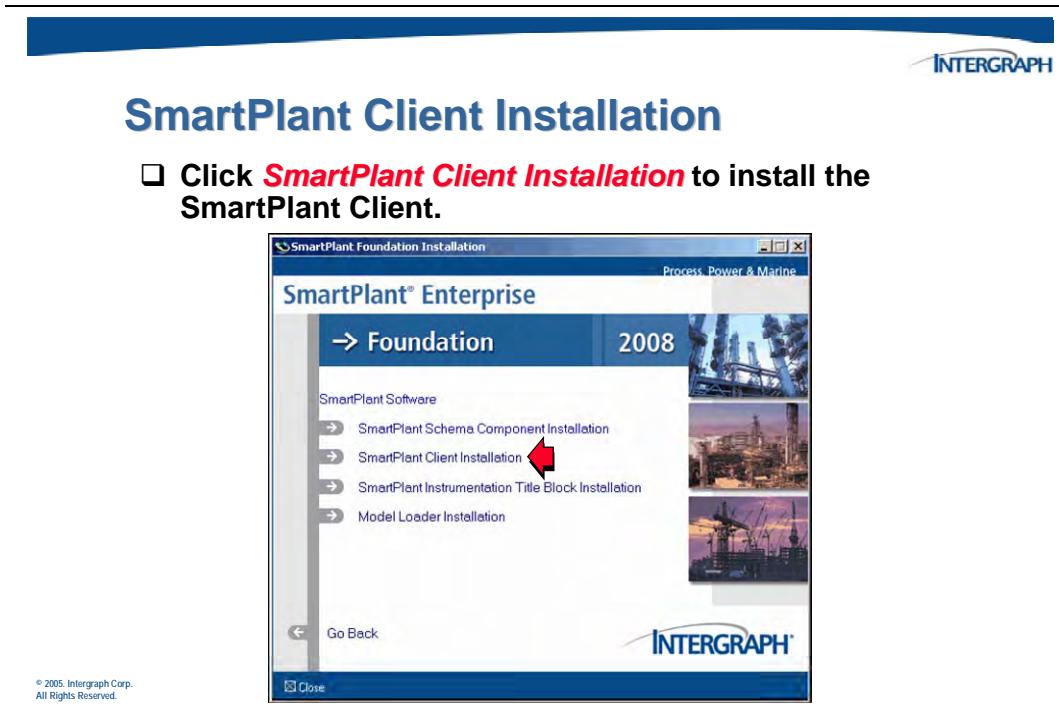
The SmartPlant schema, which is a large .xml file, describes all data that passed into and out of SmartPlant. There is a copy of the SmartPlant schema on the SmartPlant server and every client. The SmartPlant schema describes the format of the data, as well as many rules that apply to the data. To validate data and enforce the rules in a consistent manner, the SmartPlant Schema Component is provided. The SmartPlant Schema Component is a set of .DLLs that provide common functionality, including the following:

- Parsing
- Validation
- Comparison
- Mapping
- Navigation
- Authoring (create, modify, delete, relate)

11.5.1 SmartPlant Client Installation

The **SmartPlant Client** controls all communications between SmartPlant applications and the SmartPlant Server. It consists of several components; the most visible of which is the common user interface (UI), which provides a consistent look and feel to SmartPlant operations within those authoring tools that choose to use it. The SmartPlant Client is also built on the SmartPlant Schema Component.

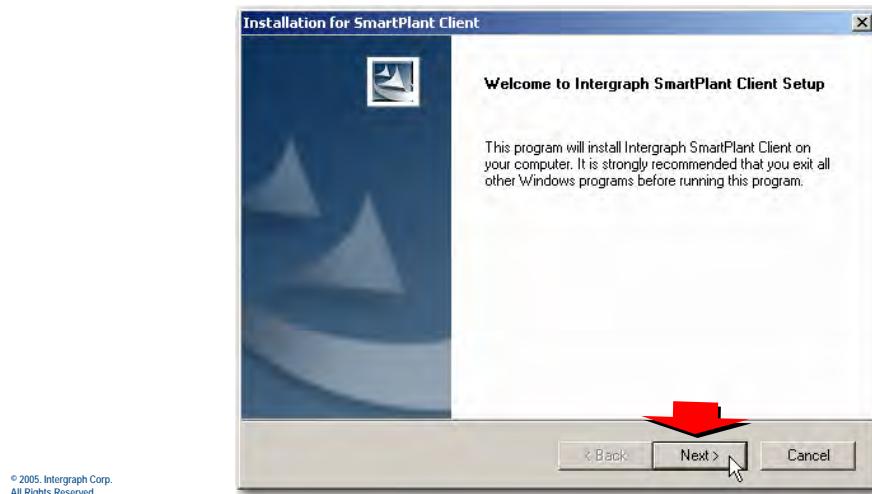
The SmartPlant Client must be installed on all client computers that will publish to or retrieve from SmartPlant. The SmartPlant Client requires that the SmartPlant Schema Component be installed first.



The *SmartPlant Client* Installer appears, and the InstallShield Wizard starts.

SmartPlant Client Installation

- ❑ The *Welcome* screen is displayed. Click **Next** to proceed with the installation.



The *Choose Destination Location* dialog box appears.

SmartPlant Client Installation

- ❑ After you select the *Destination Location*, click **Next** to continue.





SmartPlant Client Installation

- ❑ Enter a **Program Folder** name or use the default, and click **Next**.

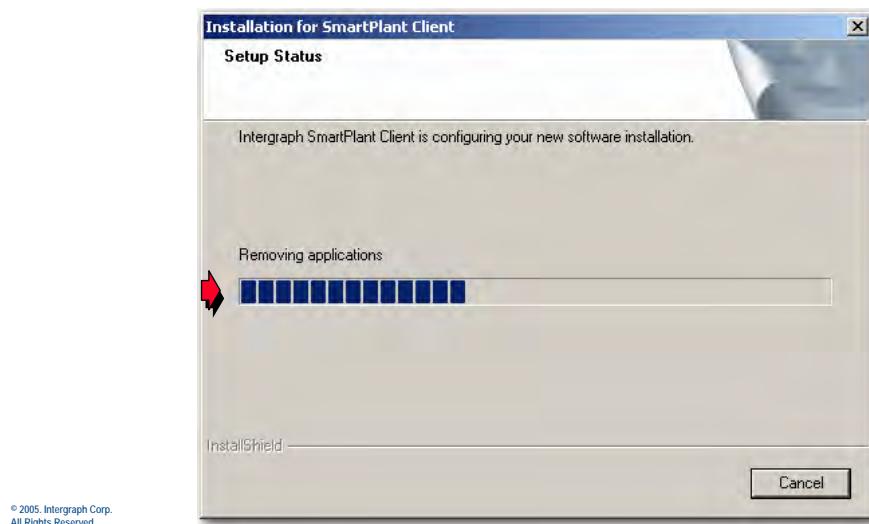


The *InstallShield Wizard* is now ready to start installing files to the defined location.

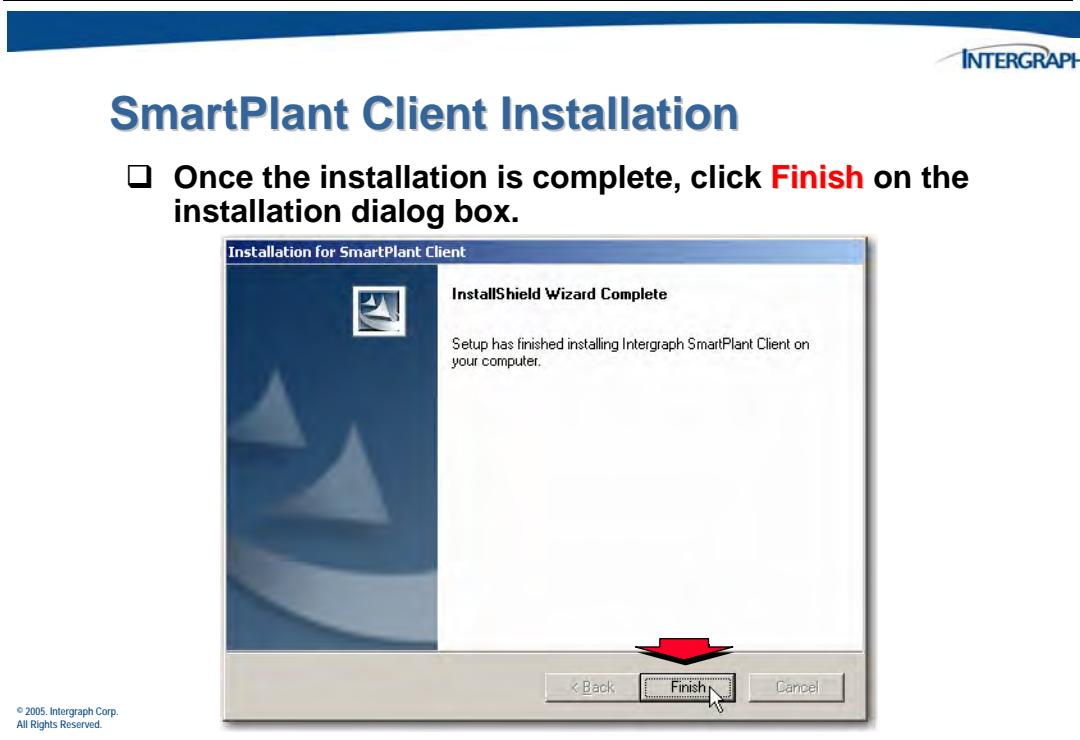


SmartPlant Client Installation

The setup operations run for the SmartPlant Client setup.



When the installation finishes, the **InstallShield Wizard Complete** dialog box appears.



Once all of the SmartPlant Software has been installed, exit the SmartPlant setup.



- Click **Go Back** to exit out of the SmartPlant software.

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Then, exit the SmartPlant Foundation setup.



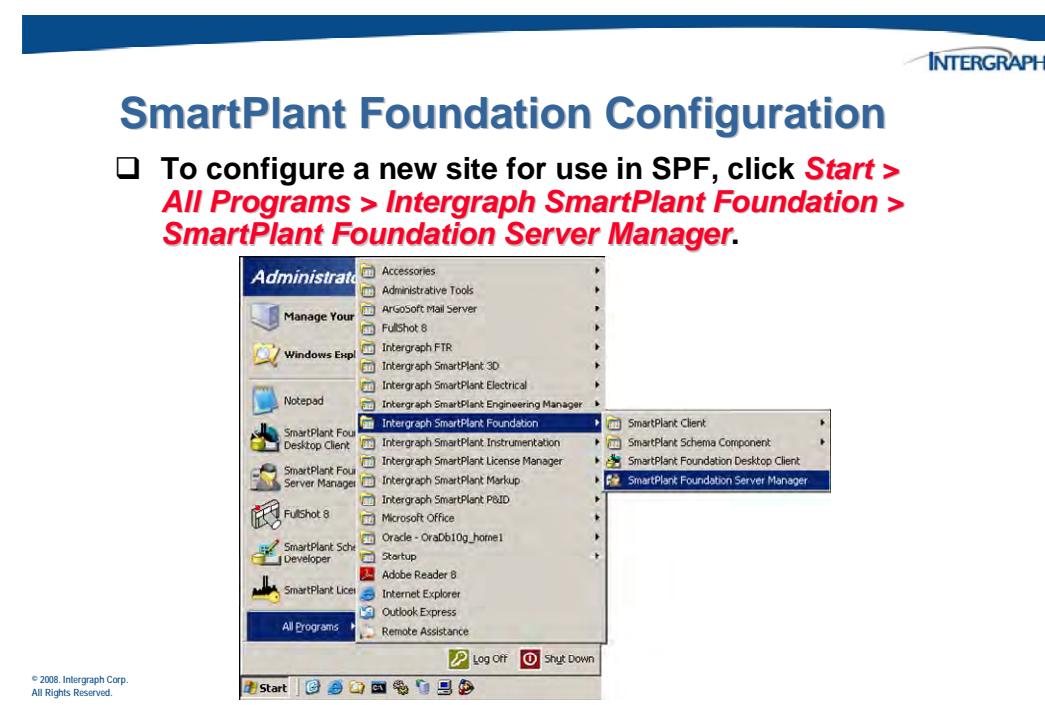
- Click **Close** to terminate the SmartPlant Foundation setup.

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11.6 Configuring the SPF Installation

While the steps in the previous section walked you through the process of installing the SmartPlant Foundation software, you are not quite ready yet to run the software. You must first perform a number of steps to configure the installation and prepare to run the applications.

Most of the remaining steps are performed in the new SmartPlant Foundation Server Manager application.



The first time you open the Server Manager application, you are prompted to select a root directory. The next time you open the application, it will return to the same root directory.

SmartPlant Foundation Configuration

- The first time you open the Server Manager application, you will encounter the following message. Click OK.



Using the **Browse** button, select the location where you installed your software.

SmartPlant Foundation Configuration

- Click the **Browse** button to choose a default location, and then click **OK**.



Note: The software can create a new location for you, if the directory you specify does not already exist, but you must provide write access to that new directory.

SmartPlant Foundation Server Manager

The SmartPlant Foundation Server Manager has several options that allow you to configure different aspects of the SmartPlant Foundation software.

SmartPlant Foundation File Service - Used to configure the settings used by the SmartPlant Foundation File Server. These settings are displayed from the SmartPlant Foundation File Service web.config file located in the SmartPlant Foundation installation folder. This node contains no sub-nodes.

SmartPlant Foundation License Manager - Used to configure various registry keys and environment variables used by the License Manager. This node contains no sub-nodes.

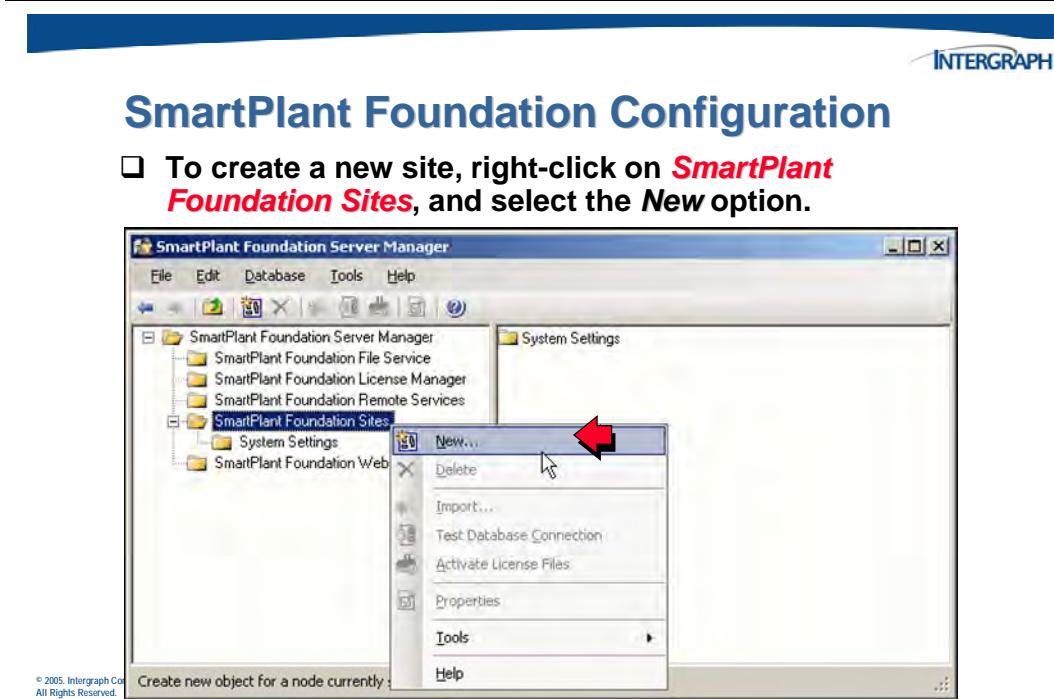
Remote Services Used to configure a set of web services that perform tasks such as printing and titleblocking.

SmartPlant Foundation Sites - Displays the SmartPlant Foundation sites created using Server Manager and allows you to upgrade existing sites and to create new sites. This node contains a **System Settings** node, used to configure server registry settings, and can contain any number of sub-nodes, each representing a site. The **Settings** node under each site node contains configuration information for that site, and the **Vaults** node under each site contains any vaults defined for the site.

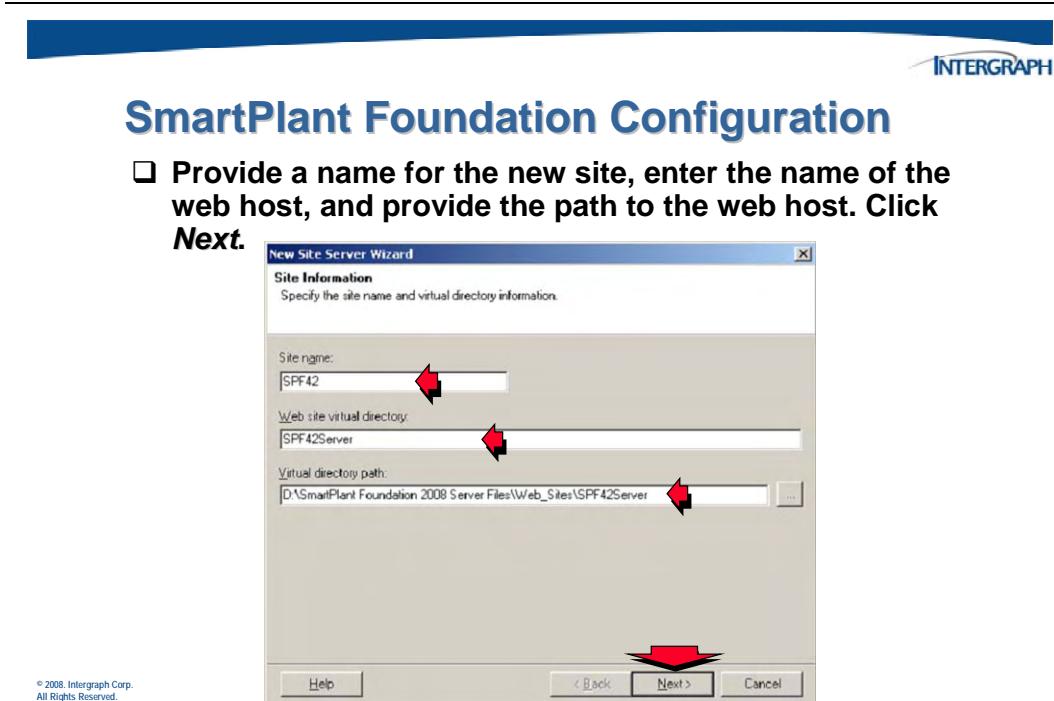
SmartPlant Foundation Web Portal – Configures the Web Portal, which provides a web based interface for accessing SmartPlant Foundation data.

11.6.1 Create a New Site

The right-click menu on the *SmartPlant Foundation Sites* option allows you to create a new site. There you can create vaults and tablespaces and set specific settings for the site.



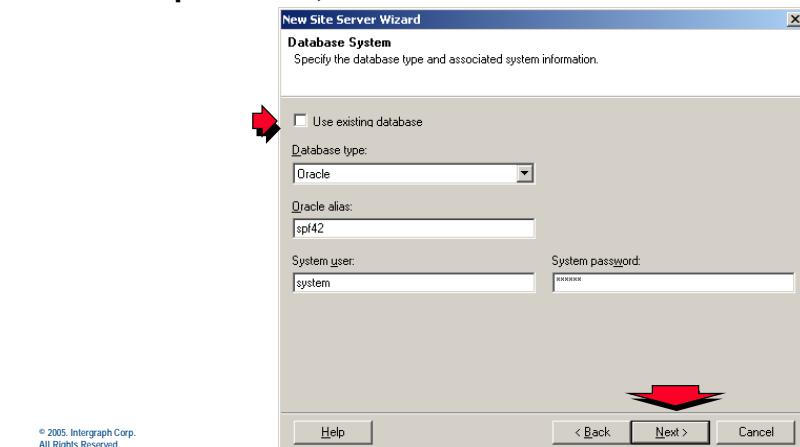
Provide a name for your site, provide the name of the web site virtual directory, and then provide the path to the virtual directory.





SmartPlant Foundation Configuration

- Indicate that you will not be using an existing database.
Provide the database alias, system user name, system password, and then click **Next**.



Create a new table space for the SPF database.

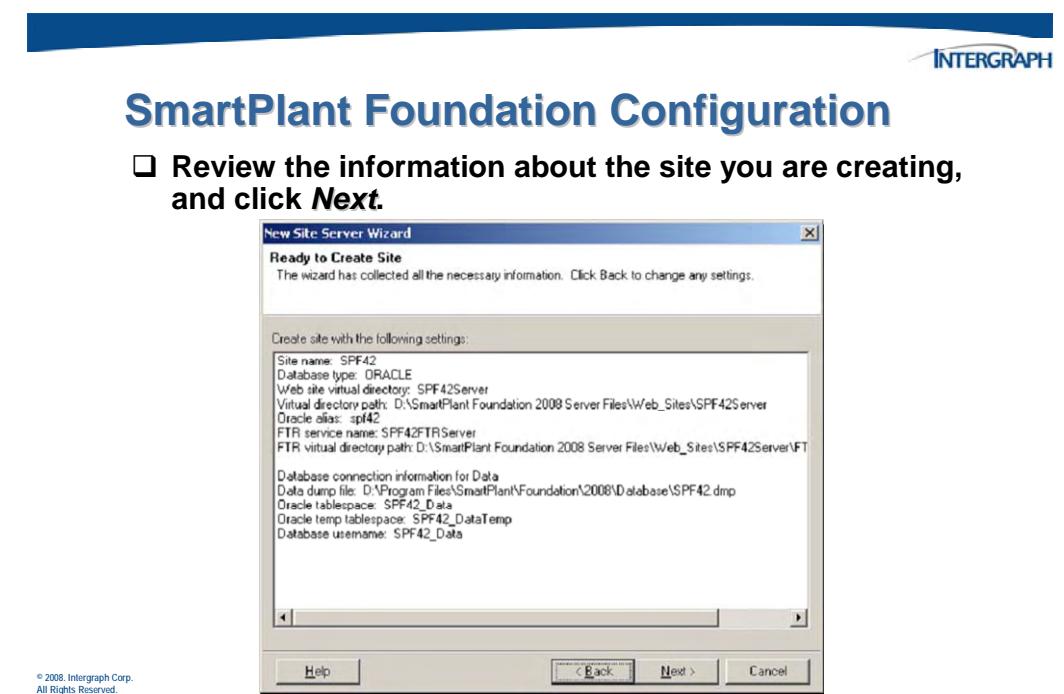


SmartPlant Foundation Configuration

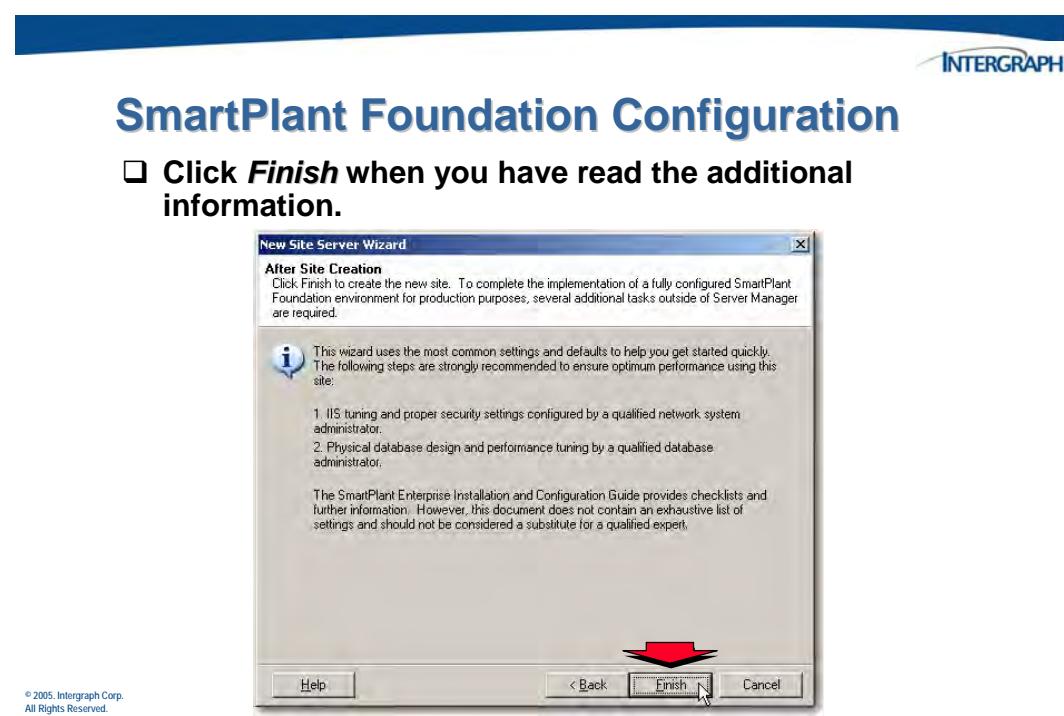
- If you wish, you can change the name of the new admin database or select a different dump file. Click **Next**.



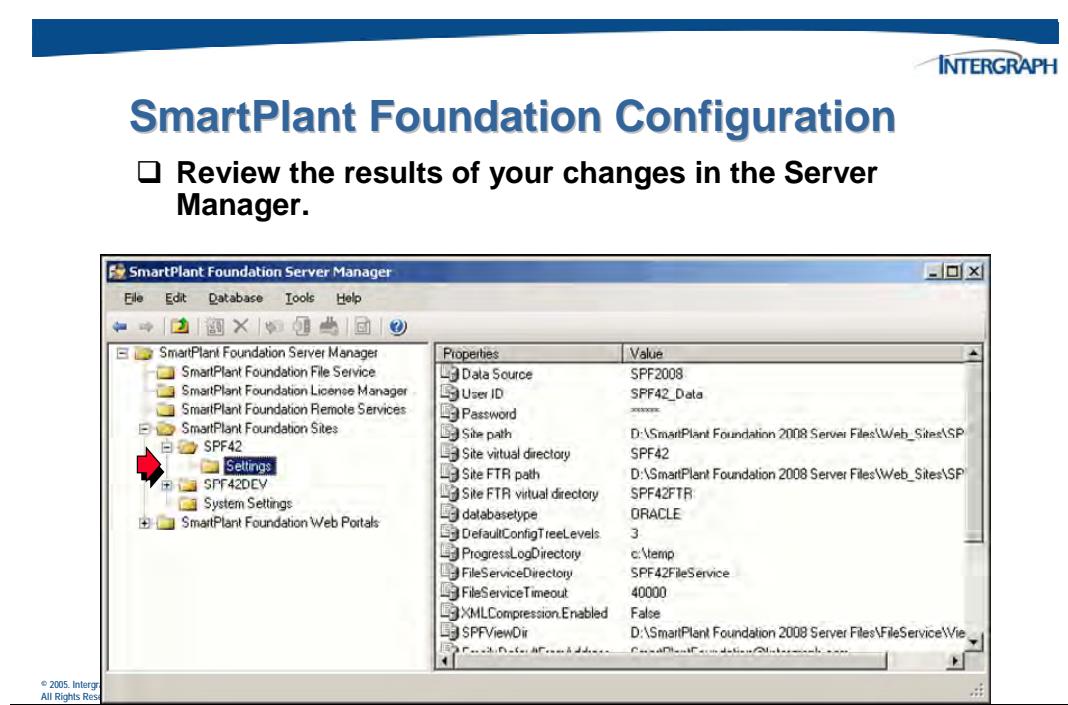
Review the information about the site you are creating.



The following dialog box appears to remind you of other things you will need to do to run the SPF software.

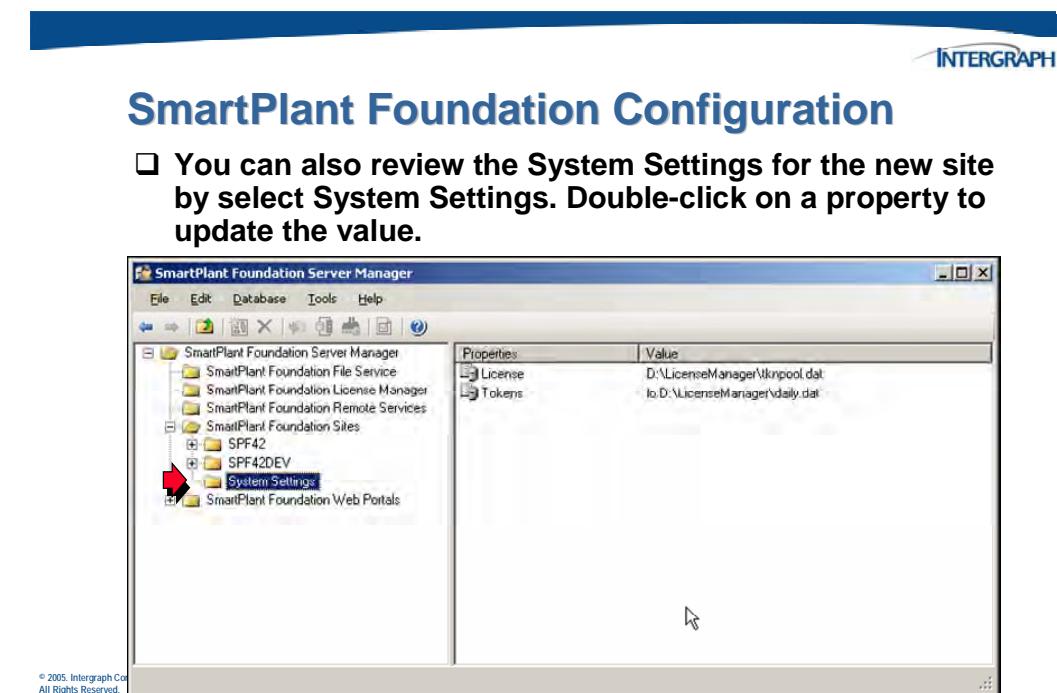


You can review the information about the site you created.



11.6.2 Review and Update System Settings

You can also review the *System Settings* from this window.

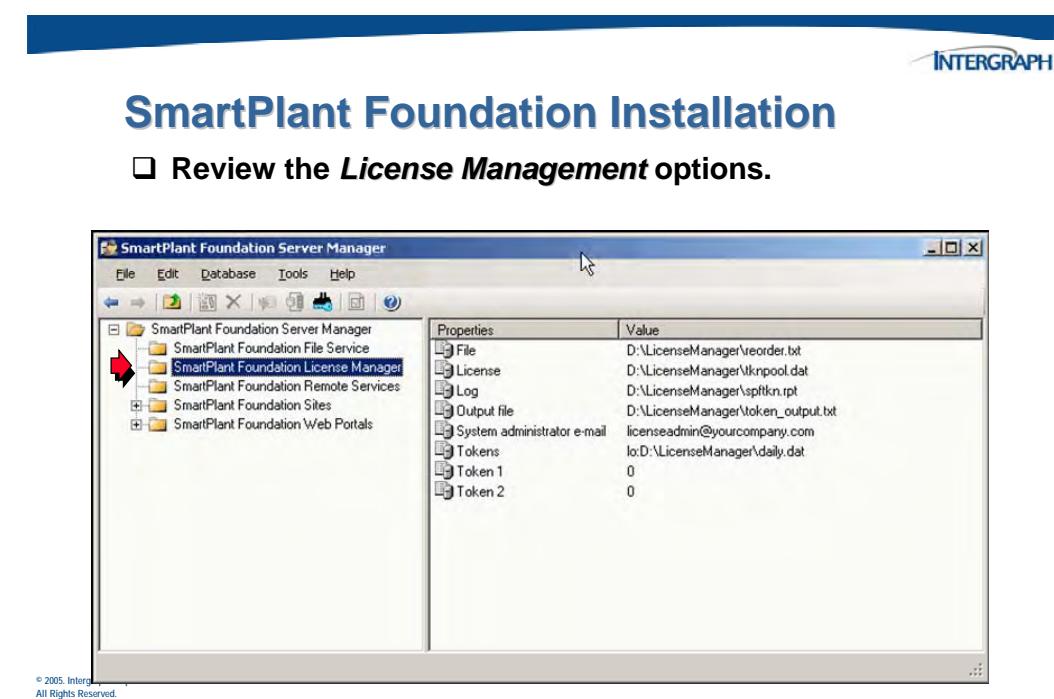


License - Location of the token pool license file (tnpool.dat). If License Manager is installed on another server, enter the port number on the License Manager server, followed by @, and the name of the License Manager server computer (for example, **8575@SPFLicenseServer**).

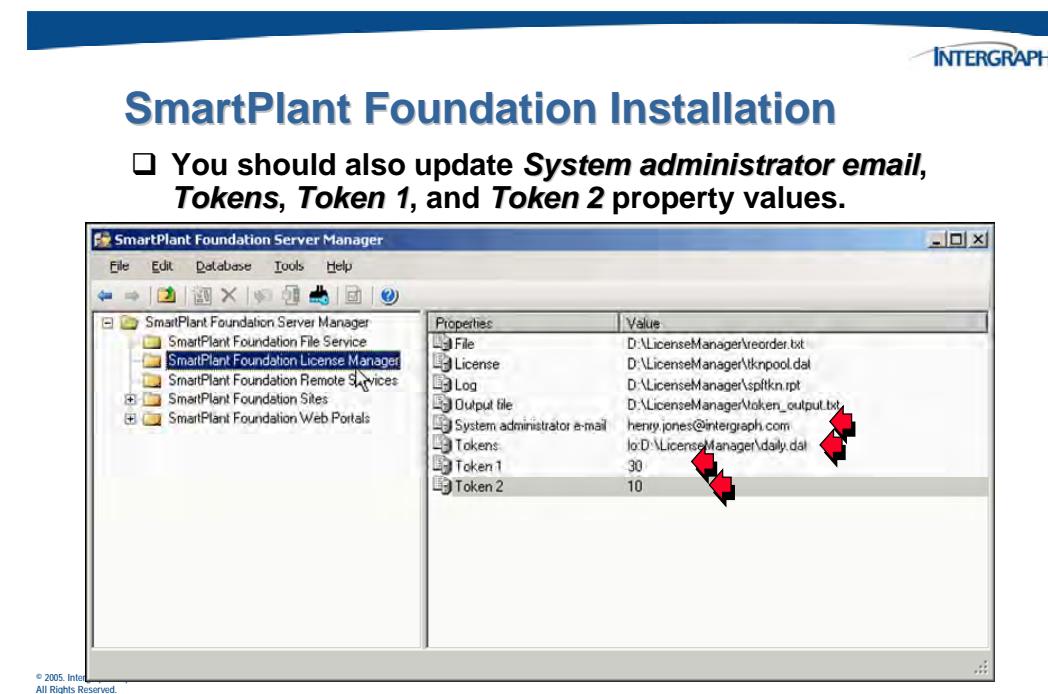
Tokens - Location of the daily token file (daily.dat).

11.6.3 Review or Update License Manager Settings

Review the License Manager settings. To update any of the values, click on the property name, and update the information in the property dialog box that appears.



You should specifically update the email address, the email text file, and the thresholds for sending warning emails.



Refer to the previous chapter for additional information about configuring and activating the license management software.

11.6.4 Additional Considerations

Before you use the software, you should also review your virtual directory settings and ensure that your License Management Service is running so that you can check out tokens.



SmartPlant Foundation Installation Additional Considerations

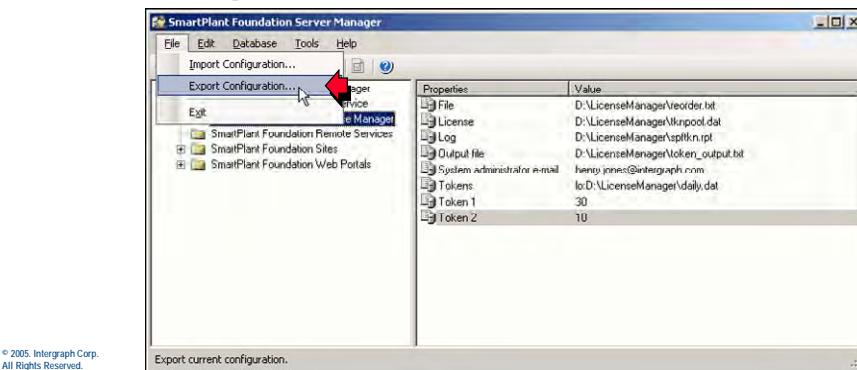
- Before you run the software, you should also review the following configuration points:**
 - Virtual directories
 - License Management Service

11.7 Exporting the Configuration

After you have configured the site information, you may want to save out that configuration as a config file. You can do this using the *File > Export Configuration* command.

Exporting the Configuration

- Once you have configured the software, you should export the configuration so that it is available for upgrades or emergencies.
- From the SPF Server Manager, click ***File > Export Configuration***.



Once the configuration is exported, you can save it in a safe location. From there, you can re-import the configuration later, if you upgrade or re-install the software.



Exporting the Configuration

- Save the resulting configuration (config) file to a safe location.**
- It is then available to import again when you upgrade the software later.**



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11.7.1 Choosing the Active Site

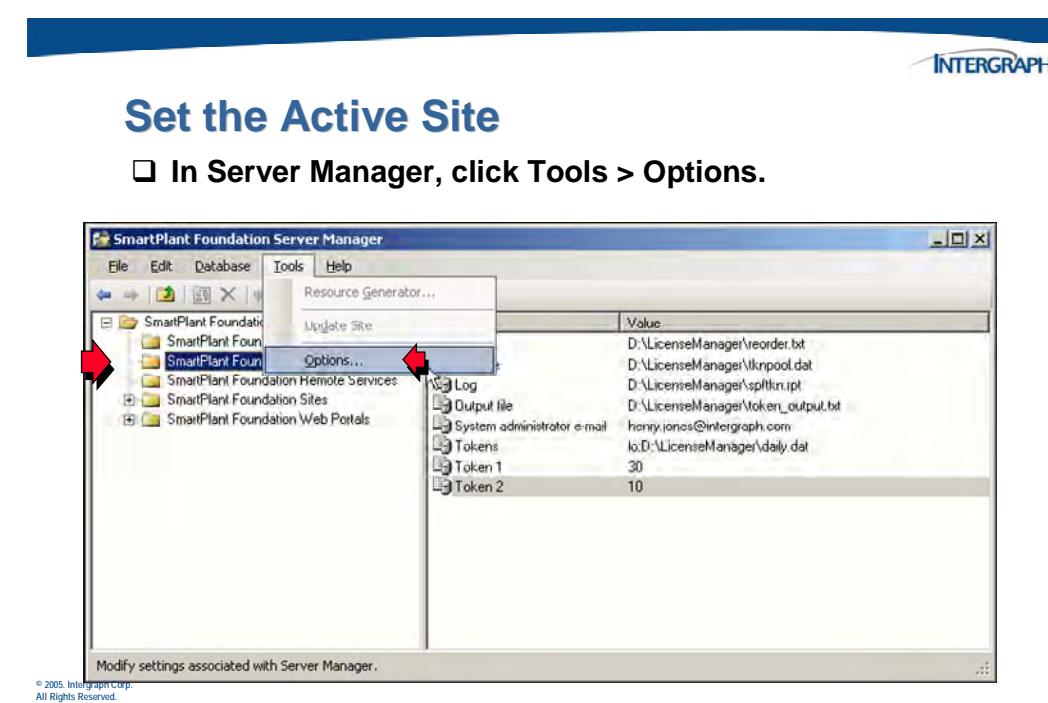
With the new Server Manager, it is easier than ever to have multiple sites configured within your SmartPlant Foundation installation – each using its own database.

When you log into the Desktop Client, the login screen allows you to choose which site you want to connect to and use. You choose by selecting a server from the Server field. This server name is actually a name that represents a server/virtual directory combination.

However, when you log into other applications, such as the System Administration or Change Management utilities, or even the SmartPlant Foundation Loader, you are not prompted to specify which site to which you want to connect. These applications use the information specified in the registry to determine what database to which to connect.

Previously, you had to modify the information in the registry to indicate which database to use for these applications, but the new Server Manager utility allows you to specific which site you want to be the active site. By choosing an active site, you populate the registry settings with the information applicable to the site you want to use.

To choose an active site, open the Server Manager application, and use the *Tools > Options* command.



The **Options** dialog box will appear.



Set the Active Site

- The **Active site** list box contains a list of all the sites defined through the Server Manager.



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Choose the site you wish to make active, and click **OK**.

C H A P T E R

12

SmartPlant Foundation Web Portal

12. Web Portal Overview

The SmartPlant Foundation Web Portal is a highly-configurable Internet Explorer interface that you may implement to allow users to access information in your SPF database from the web, without having to have the full Desktop Client utility installed on the local machine.



SmartPlant Foundation Web Portal

The Web Portal feature of SmartPlant Foundation allows you to perform the following functions through an easy-to-deploy Internet Explorer web browser:

- Search for objects in the SPF database**
- View information about objects or kinds of objects**
- View drawings and 3D models**
- View the history of objects**
- View relationships between objects**

It is important to remember, however, that the SPF Web Portal is a view-only tool. From this interface is it not possible to create new objects in the database or update information for existing objects.



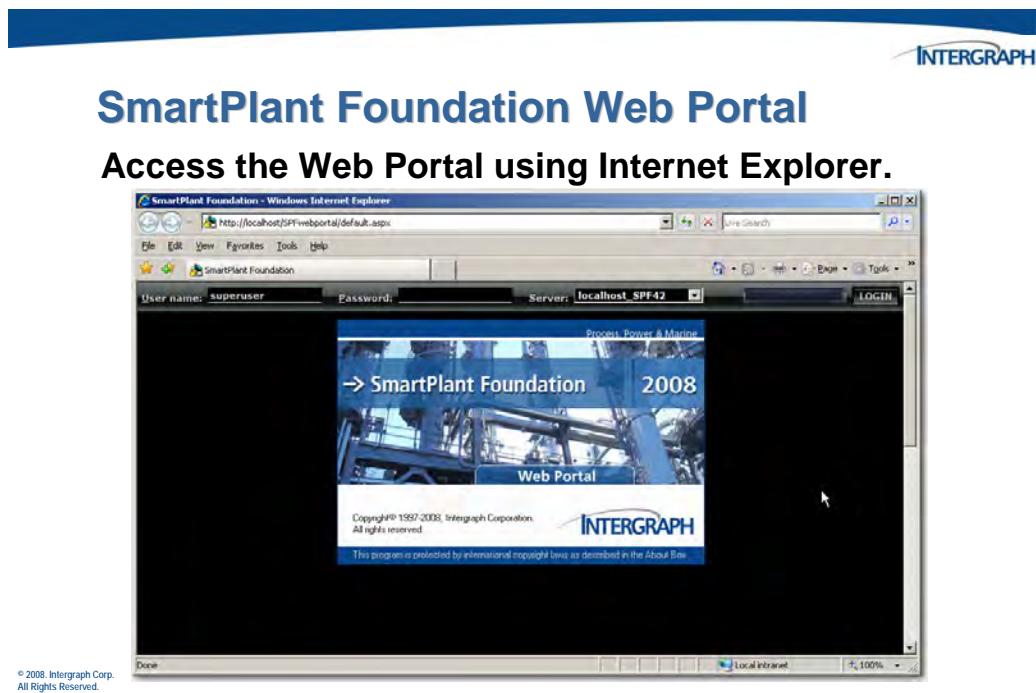
SmartPlant Foundation Web Portal

When deploying the Web Portal, keep in mind the following limitations:

- The commands available to you in the Web Portal are determined by user privileges (roles assignments).**
- The Web Portal is a tool for viewing information in the SPF database and vaults. It does not provide the ability to add or update objects in the database.**
- A base configuration is delivered with the software, but you may personalize or configure the Web Portal as much or as little as you wish.**

To launch the Web Portal, use a standard IE window and use an address that looks at the default.aspx file on the SPFWebPortal virtual directory on your SPF server. The following is an example of a path to the delivered Web Portal file, using default values at setup:

<http://localhost/SPFWebPortal/default.aspx>



At the login screen, provide your username and password. From the server field, choose the [server_site] value that represents the database to which you want to connect. Click Login to connect using the provided information.



SmartPlant Foundation Web Portal

Provide the following:

- Username**
- Password**
- Site to access**

A screenshot of the SmartPlant Foundation Web Portal login page. It shows three input fields: "User name:" containing "superuser", "Password:" (empty), and "Server:" containing "localhost_SPF42". To the right of the server field is a dropdown arrow. On the far right is a blue "LOGIN" button.

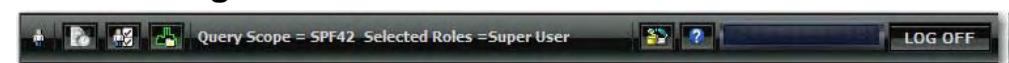
Then click **Login** to connect to the selected database.

12.1 Web Portal User Interface

The user interface of the Web Portal is highly configurable. You may choose which windows to see, how they should appear, and where they will be located. However, as an introduction to the functionality, this section will describe the pieces that make up the delivered, out-of-the-box configuration. Just remember that your environment may be very different from what is described here.



The Web Portal interface includes a toolbar, which contains information and basic commands for the following:



- Viewing the current user, scope, and role selections.**
- Opening the *About* window and online help.**
- Setting the effective date or user preferences.**
- Changing the Active Scope.**
- Logging out of the Web Portal.**

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The standard toolbar delivered with the Web Portal contains the following buttons and information for the user:



When you move your cursor over this **User** icon, the tooltip will tell you the username under which you are currently logged into the Web Portal.



The **Effective Date** command opens the **Effective Date** dialog box where you can set the time (an historical point or current) at which you want to look at data in the database.



The **User Preferences** command opens the **Change User Preferences** dialog box where you can choose personal options for how you want the interface to behave.



The **Set Active Scope** command opens the **Set Active Scope** dialog box, where you can choose the plants or projects in which you want to look at data and the role you want to play while working in that configuration.

Query Scope = SPF42 Selected Roles = Super User

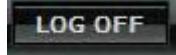
The middle section of the toolbar displays for you the configuration in which you are currently working and the role you are currently playing in that configuration.



The **About** command opens the **About SmartPlant Foundation** window where you can read information about the currently-installed version of the software, find the server URL being used, and access links to technical support.



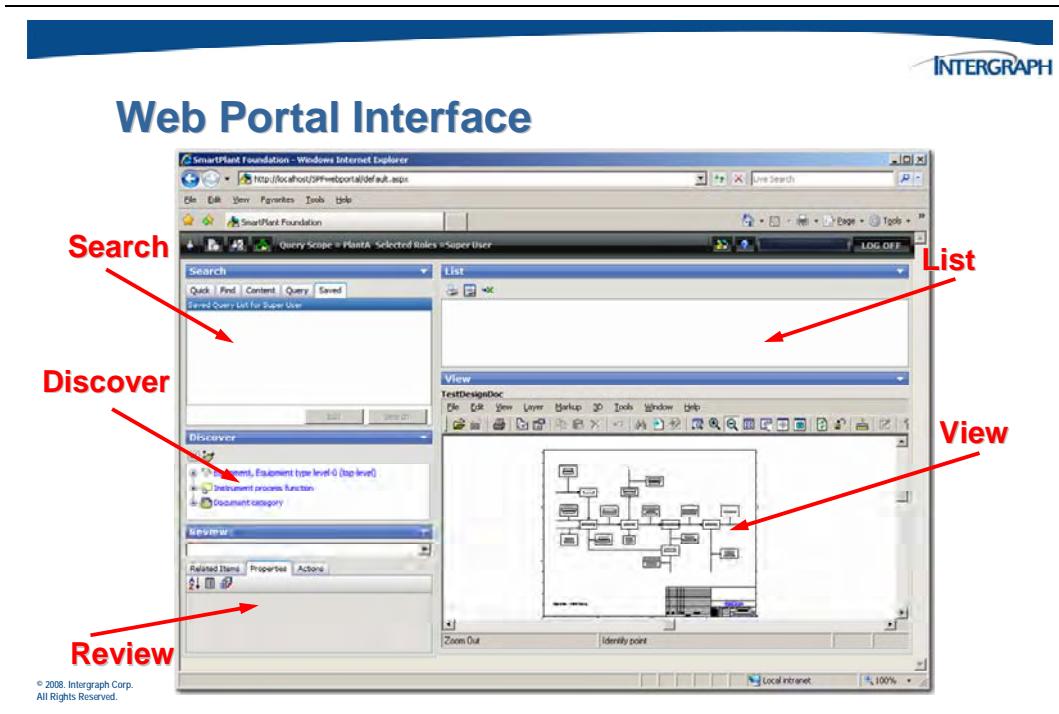
The **Help** command opens the online help for SmartPlant Foundation.



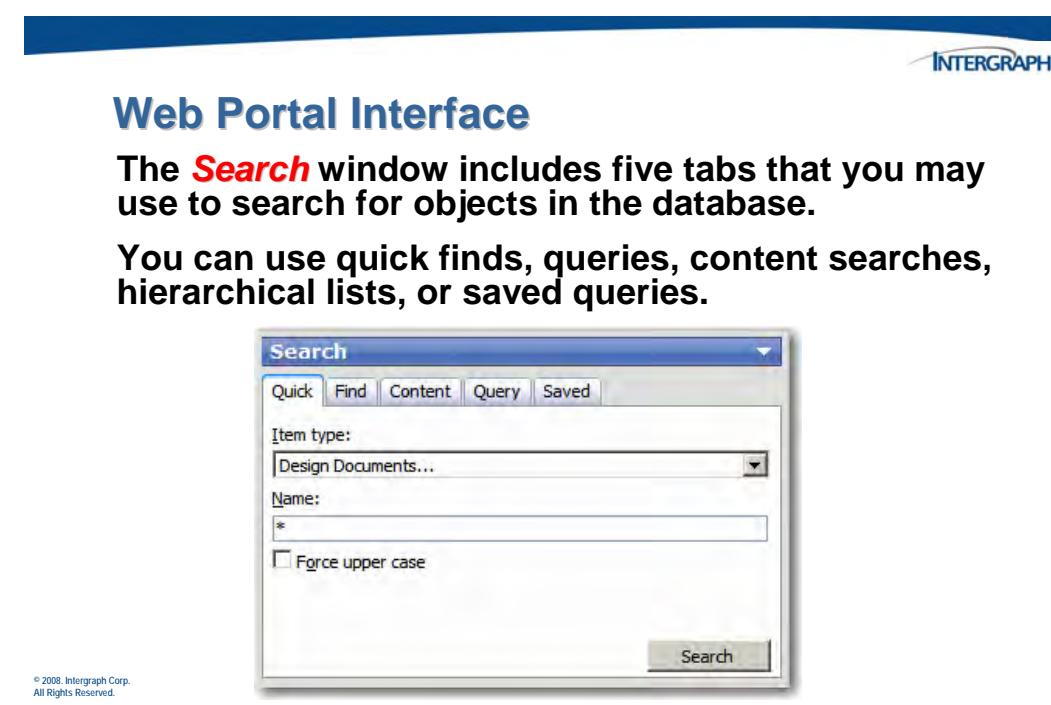
Once you are logged into the system, the **Login** button you used to connect becomes a **Log Off** button you can use to sever your connection to the database.

12.1.1 Web Portal Interface Windows

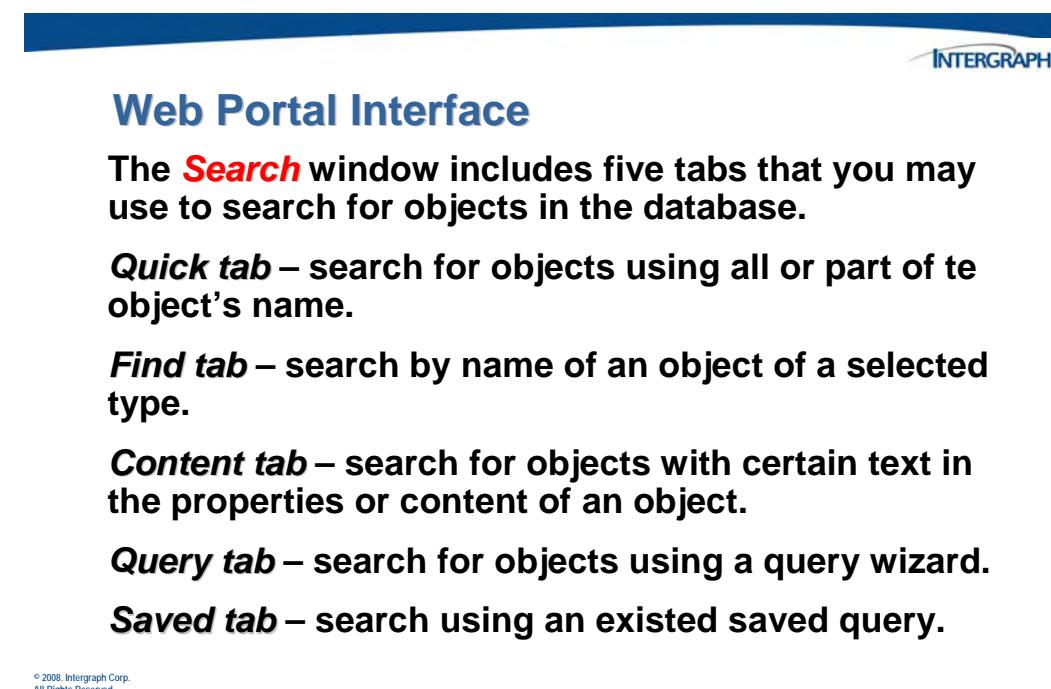
The following is an illustration of the default Web Portal configuration that is delivered out-of-the-box. By default, the following windows appear as part of the display. You may choose which of these you want to use in your configuration.



The **Search** window provides a number of tabs you can use to find objects in your SPF database.



Each tab is described briefly here:



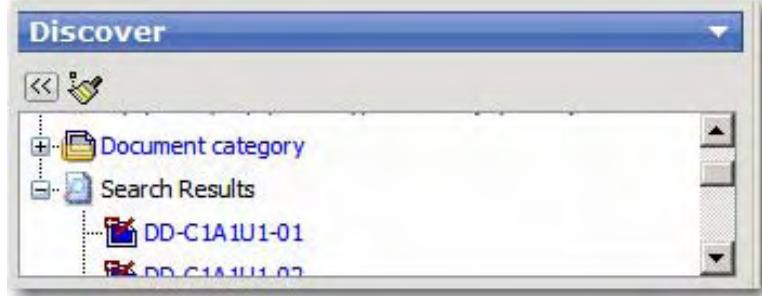
The **Discover** window allows you to view the data in the configuration using a hierarchical display, similar to the Tree window in the Desktop Client. This tree also includes a section where results of the last find operation are displayed.

 INTERGRAPH

Web Portal Interface

The **Discover** window replaces the Tree window of the Desktop Client.

Once a search or query has been performed, the results will appear in this tree in the **Search Results** section.



The screenshot shows the 'Discover' window interface. At the top is a toolbar with icons for back, forward, and search. Below the toolbar is a title bar labeled 'Discover'. The main area is a tree view. It starts with a 'Document category' node, which is expanded to show a 'Search Results' node. Under 'Search Results', there are two items: 'DD-C1A1U1-01' and 'DD-C1A1U1-07'. A copyright notice at the bottom left of the window reads: '© 2008, Intergraph Corp. All Rights Reserved.'

The **Collapse All** command will collapse any expanded items in the tree, or the **Clear Tree** command will close all expanded items in the tree and remove the **Search Results** section from the display.

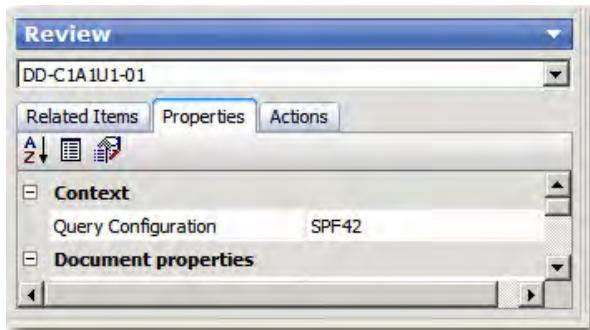
The tabs of the **Review** window allow you to view information about the selected objects.



Web Portal Interface

The **Review** window displays the selected object.

Using these tabs, you can view information about the objects, view its relationships with other objects, and performs actions on the object.



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The use of each of the three tabs is described below:



Web Portal Interface

The **Review** window displays the selected object.

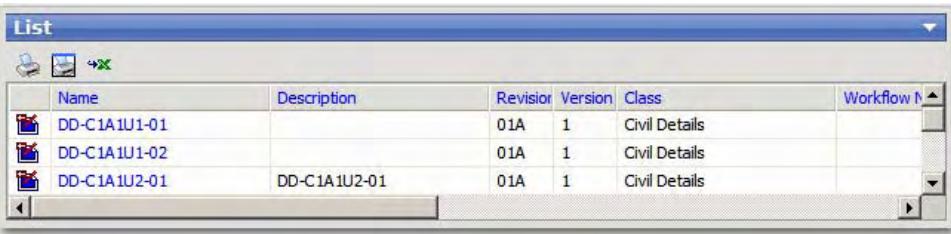
Related Items tab – display a list of relationships for this object. Use the tree to see the objects related to this item.

Properties tab – like the **Properties** grid in the Desktop Clients, this tab displays properties defined for the selected object.

Actions tab – displays methods that may be initiated against the selected object.

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The **List** window displays a list of the objects returned by a search or query. Select items in this window to see information about them in the **Review** window or to view them in the **View** window.



The screenshot shows a window titled "List" with a toolbar at the top containing icons for New, Open, Save, and Close. The main area is a table with the following data:

Name	Description	Revisor	Version	Class	Workflow M
DD-C1A1U1-01		01A	1	Civil Details	
DD-C1A1U1-02		01A	1	Civil Details	
DD-C1A1U2-01	DD-C1A1U2-01	01A	1	Civil Details	

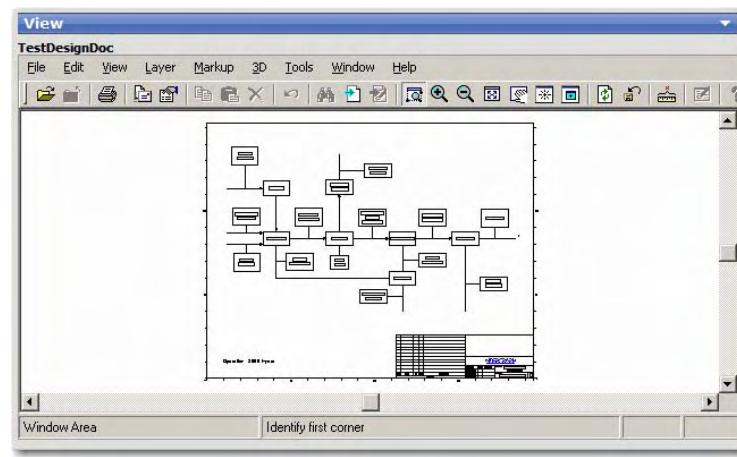
The names of the objects in this list are hyperlinks. Select an object to view its information in the **Review window.**

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The **View** window is where you will view drawings, documents or models.

Web Portal Interface

The **View window displays drawings, models, and other documents.**



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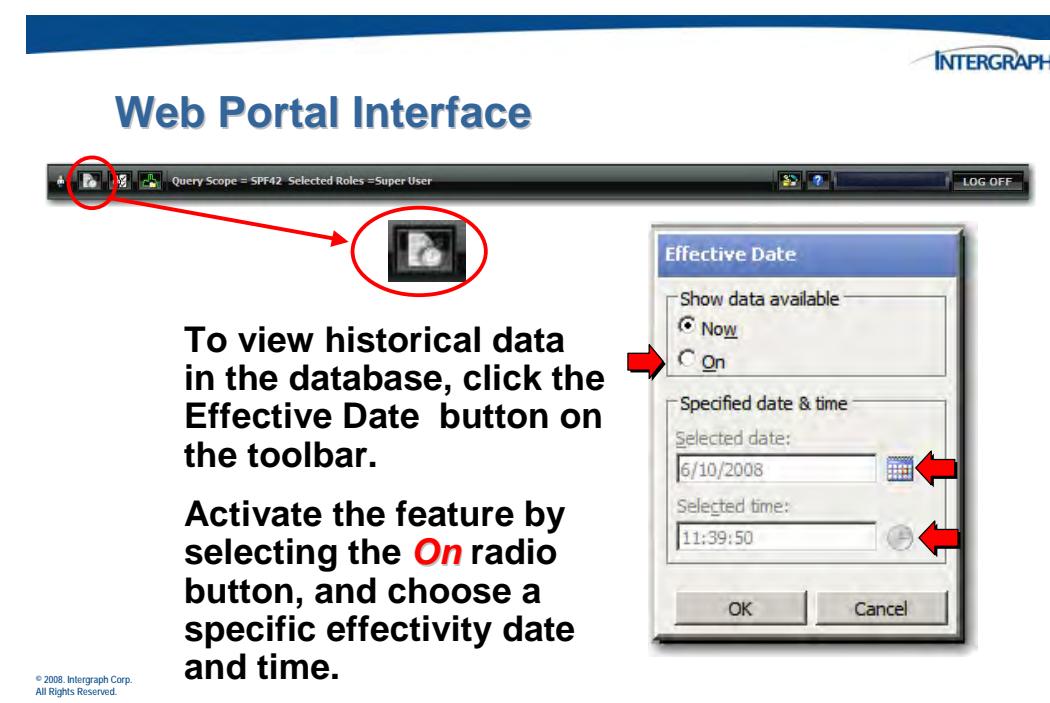


Web Portal Interface

- SmartPlant 3D and PDS models display using the SmartPlant Foundation 3D View Control.**
- You may choose to view 3D models in SmartPlant Review if you wish, and if SmartPlant Review is installed on the local machine.**
- Other files are displayed using SmartPlant Markup, unless you use the View in Native command, which uses the native application when it is installed locally.**
- To use SmartPlant Markup, that application must be installed on the local machine.**

12.1.2 Effectivity Date

To specify at what point in time you want to view the data in the database, use the **Effective Date** command on the toolbar.



To set a different effectivity date, click the **Effective Date** command on the toolbar. On the **Effective Date** dialog box, click the **Now** button to see the current data in the database or the **On** button to choose a different date and time.

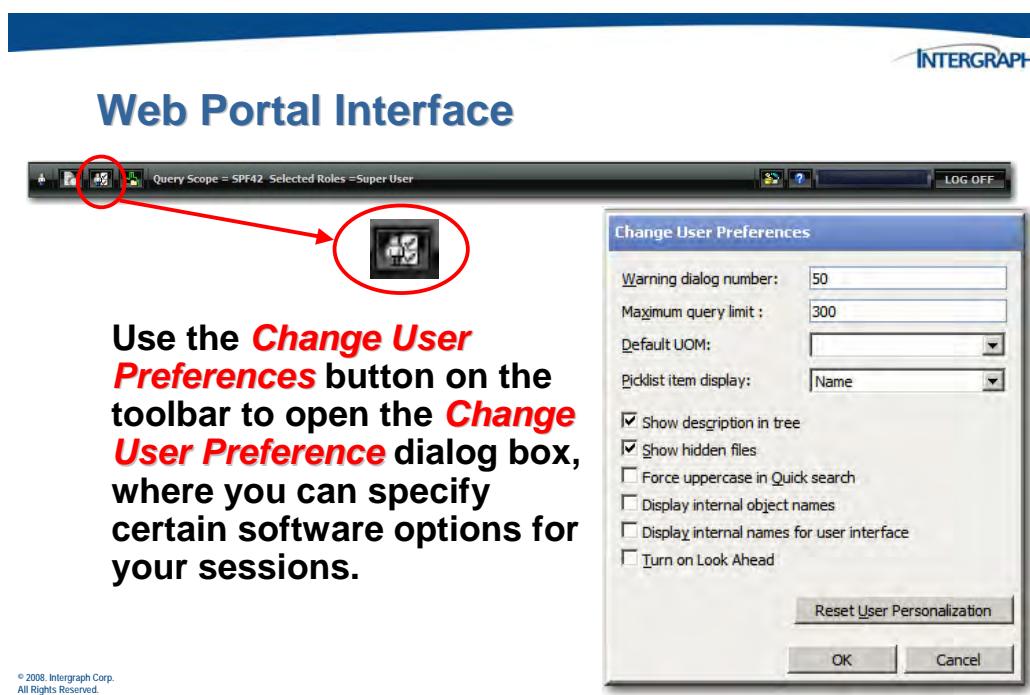
Once the **On** radio button is selected, use the calendar control beside the **Selected date** field to choose a date for which to view data.

Use the clock control beside **the Selected time** field to choose a time for which to view the data.

Click **OK** to set the effectivity date to the selected values.

12.1.3 User Preferences

Use the User Preferences command on the toolbar to open the Change User Preferences dialog box, from which you can choose personal settings for your sessions.



The following fields can be configured on the *Change User Preferences* dialog box:

- ❑ **Warning dialog number** - Sets the number of results to find in a query before it displays a warning. Example, if this value is set at 20. You will receive a warning message if 20 or more items will be returned by a query.
- ❑ **Maximum query limit** - Sets the upper limit for the number of items found in a query that will be returned. Example, if this value is set at 100. You will receive in your list of returned items only the first 100 items found by the query. If there are 150 items in the database that match that query, only the first 100 encountered will appear in your list.
- ❑ **Default UOM** - Sets the default unit of measurement set. Select a unit of measurement set from the list.
- ❑ **Picklist item display** - Specifies whether item names, descriptions, or both display when picklist values are available in the user interface.
- ❑ **Show description in tree** - Specifies whether item descriptions display in the tree view.
- ❑ **Show hidden files** – Toggle on or off the display of hidden files.

- Force Uppercase in Quick search** – Automatically types information you enter into the Quick search field in the uppercase format.
- Display internal object names** – By default, data objects are presented to the user using the display name text taken from the object definition or the internationalization resource file. This option allows you to identify objects by their internal names.
- Display internal names for user interfaces** – Sets the application to display internal names when displaying user interfaces.
- Turn on Look Ahead** – Activates the Look Ahead feature. With this tool active, the system will provide information in the display concerning the number of instances of relationships objects have with other objects.

12.1.4 Active Scope

The *Set Active Scope* command open the *Set Active Scope* dialog box where you may choose a configuration in which to work and the role you want to play in that configuration.



To change the configuration against which are you querying or the role that you are playing in that configuration, click the **Set Active Scope** button on the toolbar.

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You may choose the configuration in which you want to work and then choose from a list of roles available to you in that configuration, or you may first choose the role you want to play and then choose from a list of configurations in which you may play that role. The radio button at the top of the *Set Active Scope* dialog box determines the order.

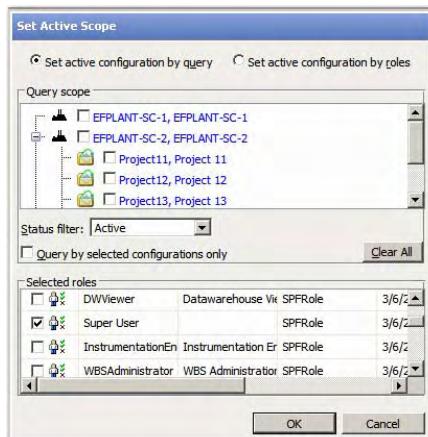


Web Portal Interface

Select the **Set active configuration by query** radio button.

Choose one or more plants or projects in which you want to search.

Then, choose the role that you want to play when working in the selected configuration.



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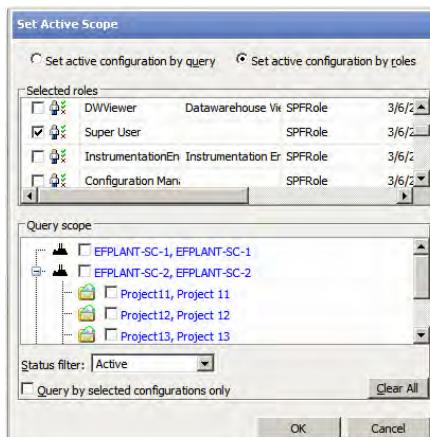


Web Portal Interface

Alternately, you can select the **Set active configuration by role** radio button.

Choose the role that you will be playing to perform your tasks.

Then, choose the plants or projects in which you want to work.



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12.1.5 Other Commands Supported in the Web Portal

Because the Web Portal is a tool for viewing the information in the database only, and does not support the creation or change of data in the database, many of the commands that are part of the Desktop Client are not supported in the Web Portal. The following lists, however, describe some of the things that you can do with data when viewing it through the Web Portal.



SmartPlant Foundation Web Portal

While the Web Portal is for viewing information in the database only (read-only access), the following commands are available from within the tool (*Review* window), depending on user role assignments and system configuration:

- View Details**
- View History**
- Print**
- Save Target As**
- Convert for Navigation**
- View and Markup**

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These commands work just like the commands with the same name from the Desktop Client, with the exception of the View and Markup command.

While you can view files and drawings in the Web Portal using the SmartPlant Markup tool, assuming that SmartPlant Markup has been installed on the client machine from which you are working, you cannot make annotations, or redlines, to the file using SmartPlant Markup. Markup layers are saved in the database and related to the file to which the annotations apply, and the creation of these layers involves adding the layers and relationships to the database. This operation must be done from the Desktop Client application.

12.2 Customizing the Web Portal

The Web Portal is built using common web-based components and practices, making it customizable by those with the proper knowledge and experience. The following methods can be used to customize the look and feel of the web portal.



Customization Options

- Modification of the look and feel using cascading style sheets, skins, and themes.**
- Personalization of behavior and display per user.**
- Advanced options.**

12.2.1 Themes and Skins

Themes and skins are used to collect many types of resources into one entity. Treating the resource collection as a single entity allows numerous aspects of a web document to be changed easily.



Themes and Skins

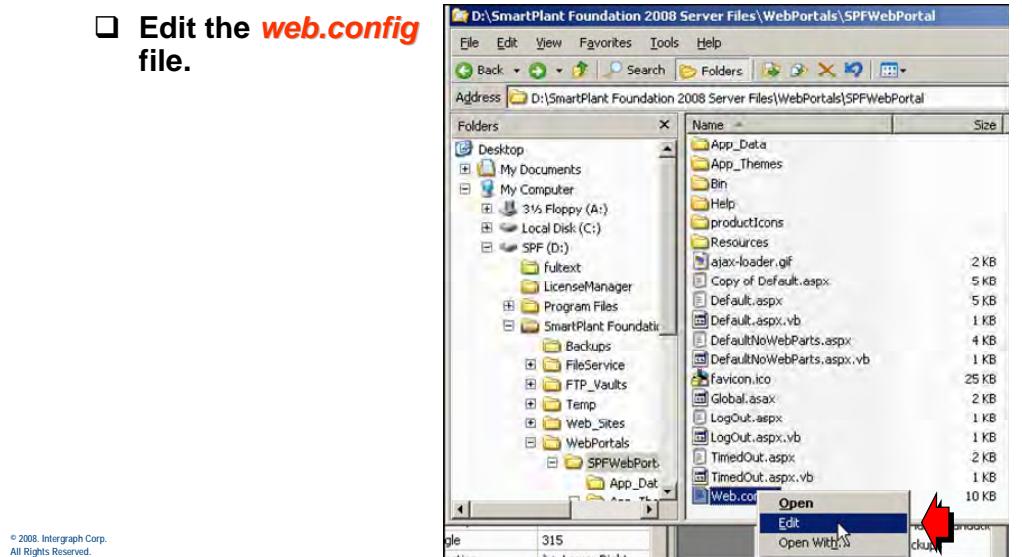
- Themes are made up of property settings, including cascading style sheets, images, skins, and other resources.
- Skins contain property settings for individual web controls such as buttons, labels, or text boxes.
- These customization features make it easy to apply changes across the site or specific single elements.
- Web Portal theme is declared in the web.config for easy modification.

Two themes are delivered with the Web Portal. They are the *SPFDefault* theme and the *SPFVista* theme.

Themes are changed in the Web Portal by editing the *web.config* file.

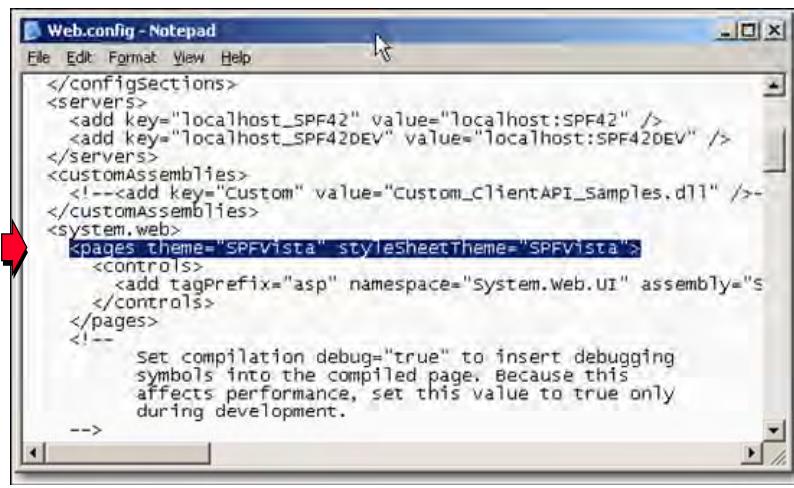
Changing the Theme

- Edit the *web.config* file.

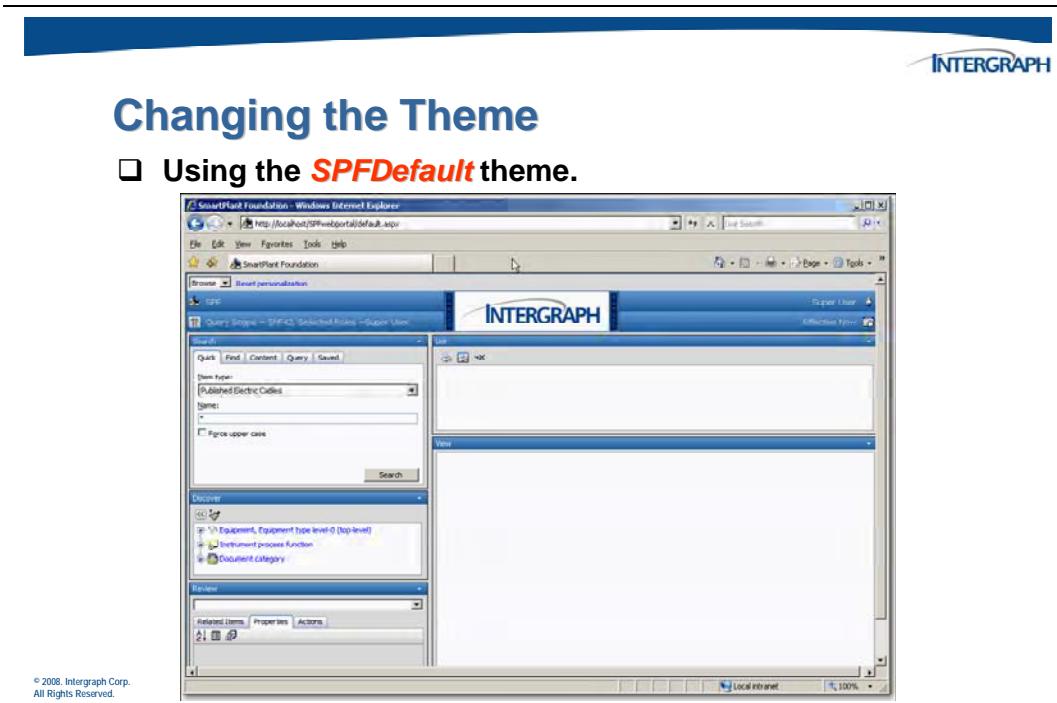


Changing the Theme

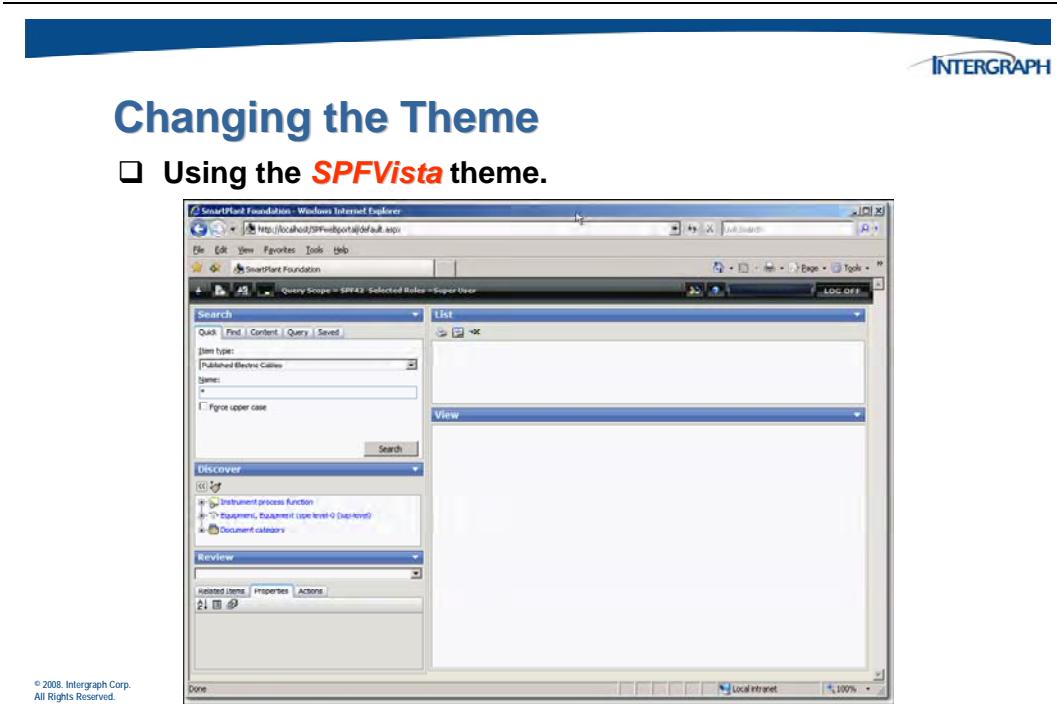
- Alter the settings to reflect either **SPFDefault** or **SPFVista**.



Many display and layout features are altered with this simple change. The following image displays Web Portal using the SPFDefault theme.



The following illustration displays the Web Portal using the SPFVista theme.



12.2.2 Cascading Style Sheets (CSS)

Cascading Style Sheets are designed to add style elements to web documents without affecting the content or base functionality. Web Portal uses CSS to control display and layout of web elements and for those familiar with working with CSS, it provides many opportunities for customizing the display of the web portal.



Cascading Style Sheets (CSS)

- Describes how HTML elements are presented on screen.
- Controls elements such as color, fonts, and layout.
- Separates presentation elements from content.
- Works with themes to further alter appearance.

The following StyleSheet.css files are delivered with the Web Portal:

- StyleSheet.css for the Default theme** - Contains the CSS for use with the default theme. It is delivered in *SmartPlant Foundation 2008 Server Files\WebPortals\SPFWebPortal\App_Themes\SPFDefault*.
- StyleSheet.css for the Vista theme** - Contains the CSS for use with the vista theme. It is delivered in *SmartPlant Foundation 2008 Server Files\WebPortals\SPFWebPortal\App_Themes\SPFVista*.
- StyleSheet.css sample** - Contains sample modification including the implementation of the Web Part Editor for personalization. It is delivered in the SmartPlant Foundation Installation directory
... \Foundation\2008\Samples\WebPortal\WebPartEditor.

12.2.3 Personalizing the Web Portal

Themes, skins, and style sheets alter the appearance of the Web Portal for all users, but the preferences of all users are not the same. The *Web Part Editor* enables personalization of the Web Portal on a user-specific basis.



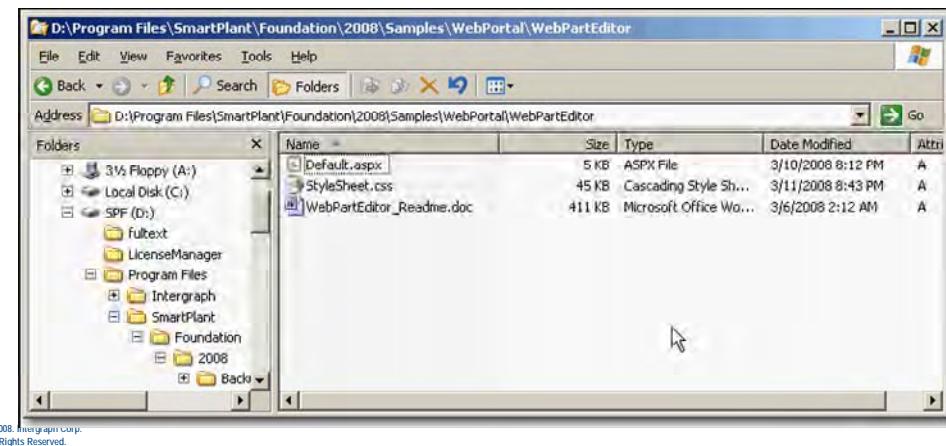
Personalizing the Web Portal

- Once implemented, personalization allows for custom settings on a user-specific basis.
- Personalization can specify what web parts are displayed.
- Personalization can specify where web parts appear on the screen.
- Personalization can specify other property settings specific to each web part.

The *Web Part Editor* is not enabled out of the box, but sample files are delivered with the Web Portal to help with implementation. A Word document is also delivered providing specific details about implementing the feature. The files are delivered in the SPF install directory ...\\Foundation\\2008\\Samples\\WebPortal\\WebPartEditor.

Personalizing the Web Portal

- Sample files are delivered in the product installation directory. The samples include documentation on implementing the personalization functionality.



Implementing personalization involves editing Web Portal Files.



Personalizing the Web Portal

- Implementing personalization involves editing the style sheet to display the **Web Portal Editor**. Comment out the display line. Save the file.

```

StyleSheet.css - Notepad
File Edit Format View Help
float:left;
height:100%;
}
div.footer
{
    display:none;
    clear:both;
    width:100%;
    background-color:#ECE9DB;
}
a
{
    color:blue;
}
a:hover
{
    text-decoration:underline;
}

StyleSheet.css - Notepad
File Edit Format View Help
float:left;
height:100%;
}
div.footer
{
    /*display:none;*/
    clear:both;
    width:100%;
    background-color:#ECE9DB;
}
a
{
    color:blue;
}
a:hover
{
    text-decoration:underline;
}

```

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Personalizing the Web Portal

- Edit the **Default.aspx** file and locate the section describing the web parts.

```

Default.aspx - Notepad
File Edit Format View Help
<div id="pagecontent" class="content">
    <table cellspacing="0" cellpadding="0" border="0" >
        <tr style="vertical-align:top">
            <td>
                <asp:webPartZone ID="LeftWebPartZone" runat="server" SkinID="leftZone" >
                    <zoneTemplate>
                        <spf:Search ID="theSearch" runat="server" SkinID="SPFSearch" />
                        <spf:Discover ID="theDiscover" runat="server" SkinID="SPFDiscov" />
                        <spf:Review ID="theReview" runat="server" SkinID="SPFReview" />
                    </zoneTemplate>
                </asp:webPartZone>
            </td>
            <td>
                <asp:webPartZone ID="RightWebPartZone" runat="server" SkinID="rightZone" >
                    <zoneTemplate>
                        <spf:List ID="theList" runat="server" SkinID="SPFList" />
                        <spf:View ID="theView" runat="server" SkinID="SPFView" />
                    </zoneTemplate>
                </asp:webPartZone>
            </td>
        </tr>
    </table>
</div>

```



Personalizing the Web Portal

- Add the **AllowClose** information to the **Default.aspx** file for each web part.

The screenshot shows a Windows Notepad window titled "Default.aspx - Notepad". The code inside the window is as follows:

```
<asp:Content ID="Content1" runat="server" ContentPlaceHolderID="MainContent">
    <div class="content">
        <table border="1" cellpadding="0" cellspacing="0" style="width: 100%; border-collapse: collapse; vertical-align: top;">
            <tr>
                <td style="width: 25%; vertical-align: top; padding: 5px;">
                    <asp:WebPartZone ID="LeftWebPartZone" runat="server" SkinID="leftZone">
                        <ZoneTemplate>
                            <asp:Search ID="theSearch" runat="server" SkinID="SPFSearch" AllowClose="True" AllowEdit="True"/>
                            <asp:Discover ID="theDiscover" runat="server" SkinID="SPFDiscuss" AllowClose="True" AllowEdit="True"/>
                            <asp:Review ID="theReview" runat="server" SkinID="SPFReview" AllowClose="True" AllowEdit="True"/>
                        </ZoneTemplate>
                    </asp:WebPartZone>
                </td>
                <td style="width: 75%; vertical-align: top; padding: 5px;">
                    <asp:WebPartZone ID="RightWebPartZone" runat="server" SkinID="rightzone">
                        <ZoneTemplate>
                            <asp:List ID="theList" runat="server" SkinID="SPFList" AllowClose="True" AllowEdit="True"/>
                            <asp:View ID="theView" runat="server" SkinID="SPFView" AllowClose="True" AllowEdit="True"/>
                        </ZoneTemplate>
                    </asp:WebPartZone>
                </td>
            </tr>
        </table>
    </div>
</asp:Content>
```

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Continue the process for each of the listed web parts. See the following for the complete entries.

```
<asp:Search ID="theSearch" runat="server" SkinID="SPFSearch" AllowClose="True" AllowEdit="True"/>
```

```
<asp:Discover ID="theDiscover" runat="server" SkinID="SPFDiscuss" AllowClose="True" AllowEdit="True"/>
```

```
<asp:Review ID="theReview" runat="server" SkinID="SPFReview" AllowClose="True" AllowEdit="True"/>
```

```
<asp:List ID="theList" runat="server" SkinID="SPFList" AllowClose="True" AllowEdit="True"/>
```

```
<asp:View ID="theView" runat="server" SkinID="SPFView" AllowClose="True" AllowEdit="True"/>
```



Personalizing the Web Portal

- Add the **EditorZone** information to the **Default.aspx** file.
Insert after the last **WebPartZone**. Save the file.

```
<asp:View ID="theview" runat="server" SkinID="SPFView" AllowClose="True" AllowEdit="Tru
    </ZoneTemplate>
</asp:WebPartZone>
</td>
</td>
<div class="editor">
    <asp:EditorZone ID="EditorZone1" runat="server" SkinID="topzone">
        <ZoneTemplate>
<asp:AppearanceEditorPart ID="AppearanceEditorPart1" runat="server" SkinID="topzone" />
<asp:BehaviorEditorPart ID="BehaviorEditorPart1" runat="server" SkinID="topzone" />
<asp:LayoutEditorPart ID="LayoutEditorPart1" runat="server" SkinID="topzone"></asp:LayoutEditorPart>
<asp:PropertyGridEditorPart ID="PropertyGrideditorPart1" runat="server" SkinID="topzone" /></asp:Pro
    </ZoneTemplate>
</asp:EditorZone>
<asp:CatalogZone ID="CatalogZone1" runat="server">
    <ZoneTemplate>
<asp:PageCatalogPart ID="PageCatalogPart1" runat="server" />
    </ZoneTemplate>
</asp:CatalogZone>
</div>
</td>
</tr>
</table>

```

The following is the complete example of the added text.

```
<div class="editor">

<asp:EditorZone ID="EditorZone1" runat="server" SkinID="topZone">
<ZoneTemplate>
<asp:AppearanceEditorPart ID="AppearanceEditorPart1" runat="server"
SkinID="topZone"/>

<asp:BehaviorEditorPart ID="BehaviorEditorPart1" runat="server" SkinID="topZone"/>

<asp:LayoutEditorPart ID="LayoutEditorPart1" runat="server"
SkinID="topZone"></asp:LayoutEditorPart>

<asp:PropertyGridEditorPart ID="PropertyGridEditorPart1" runat="server"
SkinID="topZone"></asp:PropertyGridEditorPart>

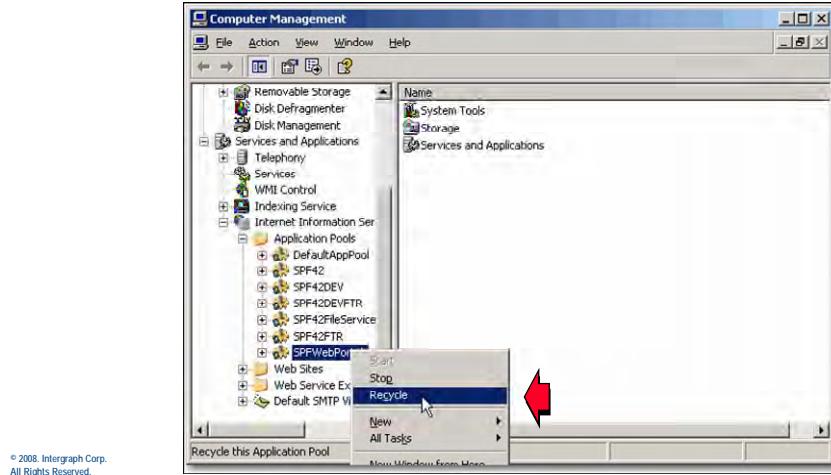
</ZoneTemplate>
</asp:EditorZone>

<asp:CatalogZone ID="CatalogZone1" runat="server">
<ZoneTemplate>
<asp:PageCatalogPart ID="PageCatalogPart1" runat="server" />
</ZoneTemplate>
</asp:CatalogZone>
```

Before the changes are available in the Web Portal, the application pool must be restarted.

Personalizing the Web Portal

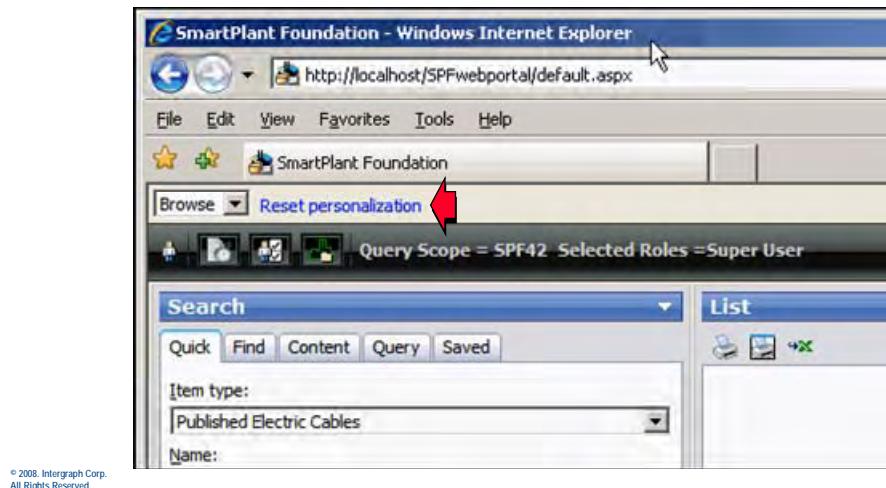
- From the Computer Management window, **recycle** the **SPFWebPortal** Application Pool.



Note: Once you have made changes to the personalization, clicking the reset personalization option will remove those changes and restore the default settings.

Personalizing the Web Portal

- The Web Part Editor is now available.



Use the Web Part Editor, to make user specific changes to the layout.



Using the Web Part Editor

- **Browse mode is the default mode and does not allow modifications.**
- **Design mode allows modification of the layout by dragging web part to different places on the screen.**
- **Edit mode allows the modification of properties, behavior, and layout.**
- **Catalog mode allows addition of web parts that were previously disabled.**
- **Reset Personalization resets all settings to the default values.**

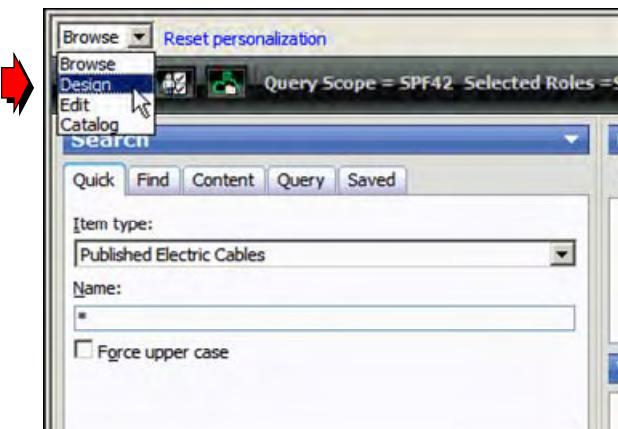
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To change the location of web part, choose to work in the **Design** mode.



Using the Web Part Editor

- **From the list menu, click *Design*.**



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You may then drag and drop web parts to different locations.

The screenshot shows the SmartPlant Foundation Web Portal's Web Part Editor. The interface is divided into two main zones: LeftWebPartZone and RightWebPartZone. In the LeftWebPartZone, there is a 'Search' web part. The search bar has 'Published Electric Cables' selected as the item type and 'Search' entered in the name field. Below the search bar, there is a checkbox for 'Force upper case'. In the RightWebPartZone, there is a 'List' web part. The title bar of the browser window indicates 'Query Scope = SPF42 Selected Roles = Super User'. The bottom left corner of the screenshot contains the copyright notice: '© 2008, Intergraph Corp. All Rights Reserved.'

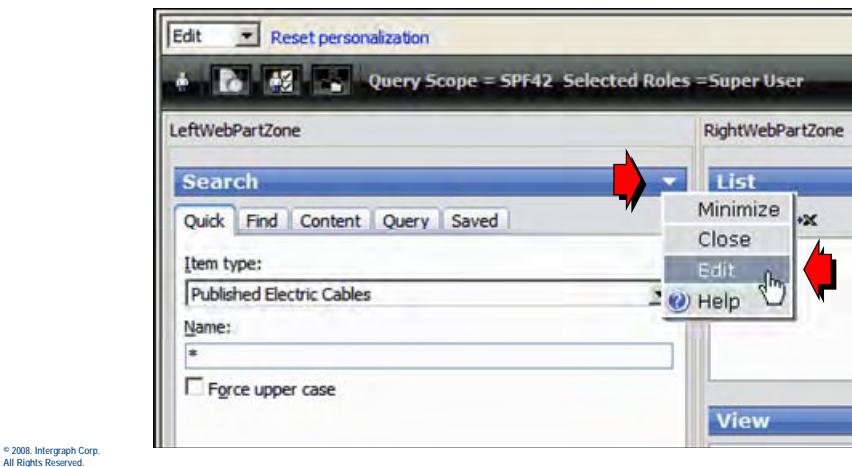
Using the Web Part Editor

- Drag and drop a web part to change the layout.

To change how the web parts appear or behave, choose the **Edit** mode. Once in the **Edit** mode, to change properties about a web part, click the down arrow on the web part title bar, and choose the **Edit** option.

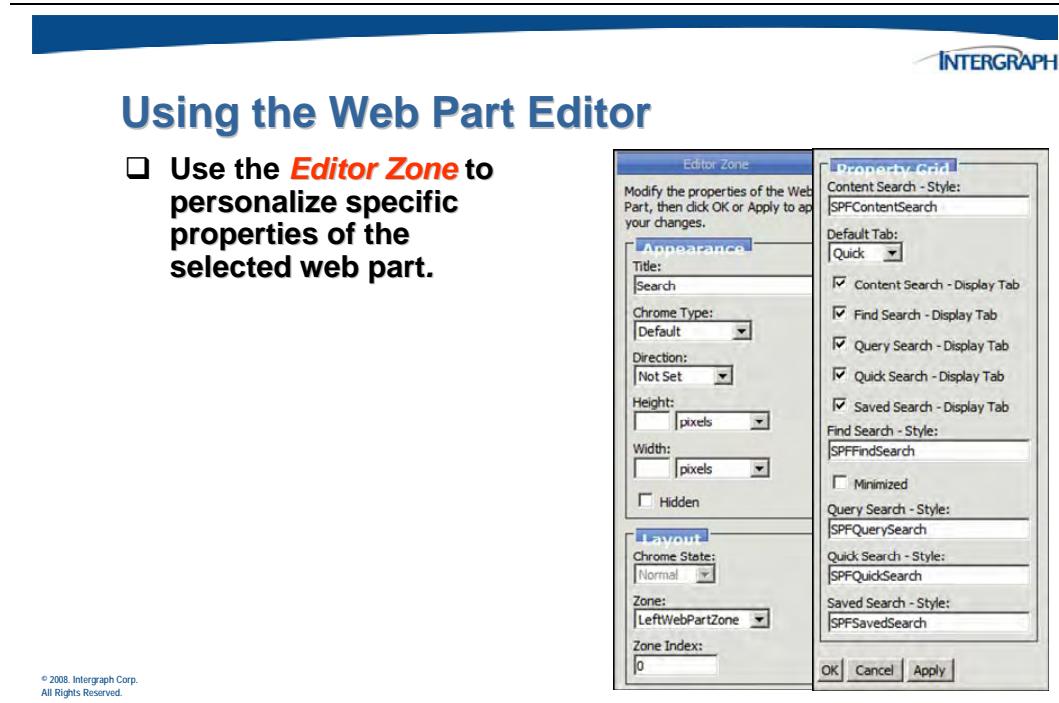
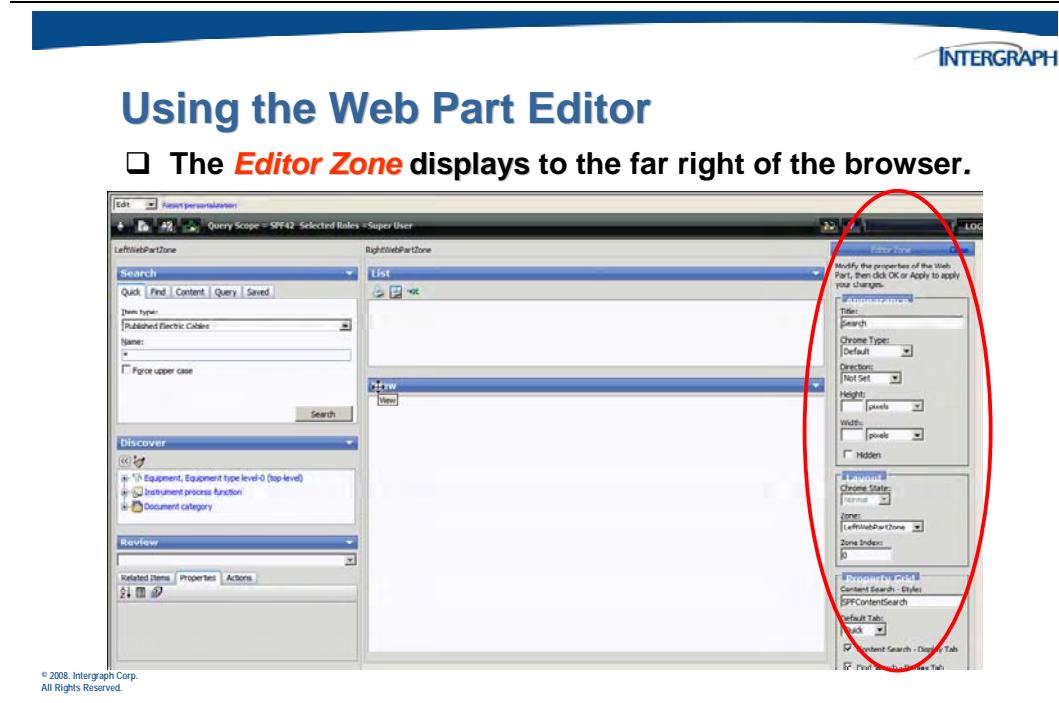
Using the Web Part Editor

- From the list menu, click **Edit**. Click the down arrow on a web part and select **Edit**.



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The ***Editor Zone*** window appears. Use those fields to change the way a web part appears or behaves. The properties that appear in this window vary according to the web part you are editing.

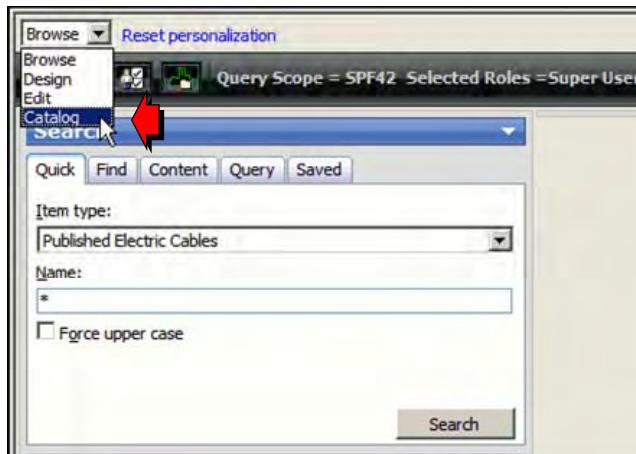


To display previously hidden web parts, activate the *Catalog* mode.



Using the Web Part Editor

- ❑ From the list menu, click **Catalog**.

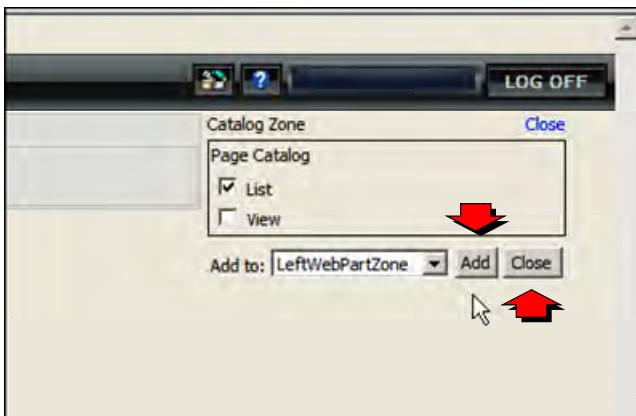


Choose any web part to enable, and click *Add*.



Using the Web Part Editor

- ❑ Check any disabled parts to add back to the layout. Click **Add**. Click **Close**.



Notes:

- ❑ If you wish to undo your personalization and restore the default settings again, click the Reset Personalization option.
- ❑ Additionally, using the Reset User Profile option in the SPF Desktop Client to reset the view in that tool will also reset the personalization of the Web Portal for that user.

12.2.4 Advanced Customization Options

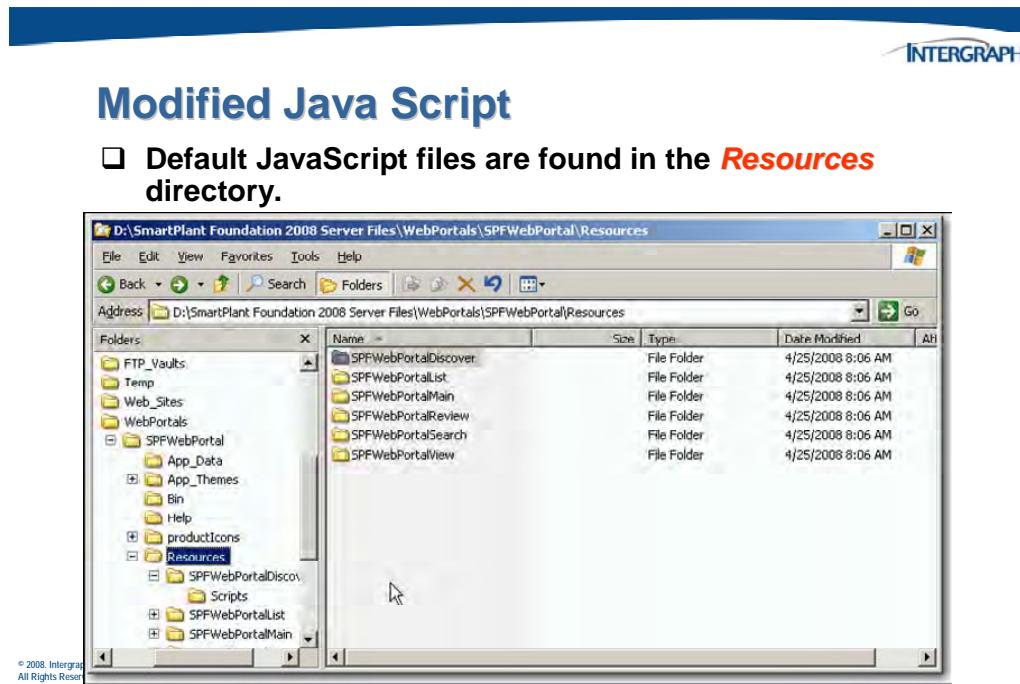
Other more complex customization options are possible that involve programming skills and advanced knowledge of web-based technology.



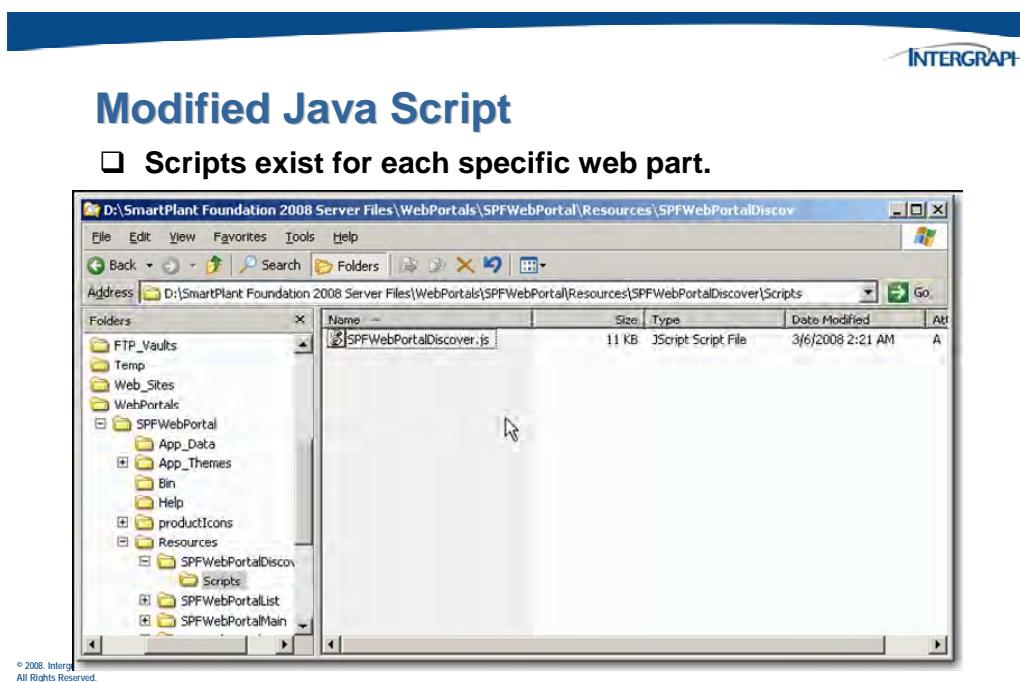
Advanced Customization Options

- Modified Java Script.**
- New custom commands.**
- Modified or custom web parts.**
- Custom ASP.NET pages.**

JavaScript files are delivered in the *Resources* directory under the Web Portal directory.



Separate folders exist for each web part. Each part can be set to use the embedded script or the files found in this directory.



It is also possible to create new custom commands for use in the Web Portal. To create customer commands, the code must be created in a custom DDL in Visual Studio. Once the command is created, you must create a load file to load the new information in the SPF database, and then add the custom code information to the web.config file.



New Custom Commands

- Code a new command/custom DLL in Visual Studio.**
- Create a load file to load the information into the SPF database.**
- Add custom code information to the web.config file to link in the custom command/custom DLL.**

Similar steps are used to create custom Web Parts for use with the Web Portal.



Custom Web Parts

- A sample custom Web Part, **SPFWebPortalSpy**, is delivered as an example. It displays event information.
- Web part project templates are delivered to the samples directory.
- Sample projects can be unzipped and used with Visual Studio to create custom web parts.

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Custom ASP.NET pages

- Detailed customization is possible using ASP.NET.
- Minimum code requirements must be met to ensure all default web parts work.

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12.3 Activity – Web Portal

Complete the **Chapter 12 – Activity** in the SmartPlant Foundation 2008 (4.2) Introduction and Administration I activity workbook.

13

C H A P T E R

SPF Authoring

13. SmartPlant Foundation 2008 Data Warehouse and Authoring

SmartPlant Foundation can be set up to behave like any other authoring tool; that is SPF can be set up to *edit*, *publish* or *retrieve* data to another SmartPlant Foundation system (or in some cases the same SmartPlant Foundation system) acting as a data warehouse. Communications with the warehouse are performed using the SmartPlant Client and because of this, SmartPlant Foundation authoring can register itself to a completely different instance of SmartPlant Foundation.

13.1 Introduction to SPF Authoring

Authoring is effectively a temporary storage area for work-in-progress prior to it being published in the data warehouse. The authoring schema may hold more information than the data warehouse schema (that is, it holds information that you do not want to publish.)



Introduction to SPF Authoring

- **Domain technology allows multiple disciplines to concurrently work on shared engineering data.**
- **Each disciplines ‘view of the truth’ is different and naturally inconsistent.**
- **Arbitrarily enforcing consistency across an engineering enterprise is not the answer.**
 - Data warehouse technologies typically aggregate and consolidate data from multiple disparate sources, overwriting data as they go.



Introduction to SPF Authoring

- With ‘Domain’ technology, each disciplines’ content is isolated from change by others while available to all, and without the need for it all to be initially consistent.
 - Each application publishes data into a central data repository; however, each application has a dedicated section within the repository for its data.
 - Same as relationships are created between the data as engineers perform their work.
 - This structure is leveraged to create consistency check reports.
- Intergraph refers to this as **Managed Inconsistency**

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With the use of domains, it is possible to set up one instance of SmartPlant Foundation to behave as a tool and as a data warehouse.



Introduction to SPF Authoring

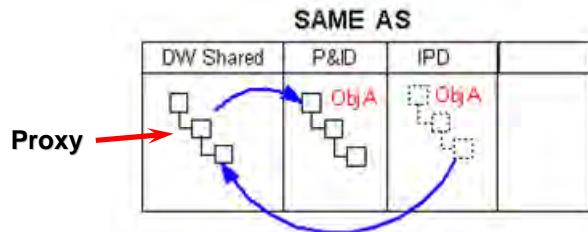
- Domains provide data segregation
 - separate the data published by the tools
 - separate the working and published data in SPF
- Configurations run across domains
 - Providing Project As Built support for SPF stand alone systems
 - Providing Project As Built support for integrated systems in the future
- Roles
 - Control domain visibility
 - Role assignments control access within Plants and Projects

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Introduction to SPF Authoring

In order to prevent duplicating data between SmartPlant Foundation used for authoring and SmartPlant Foundation used for data warehousing, there are a number of domains that can be considered as “shared” domains.



A proxy (or shared) object is created in the data warehouse domain and is related to the tool specific domain. Similar objects from other domains are also associated.

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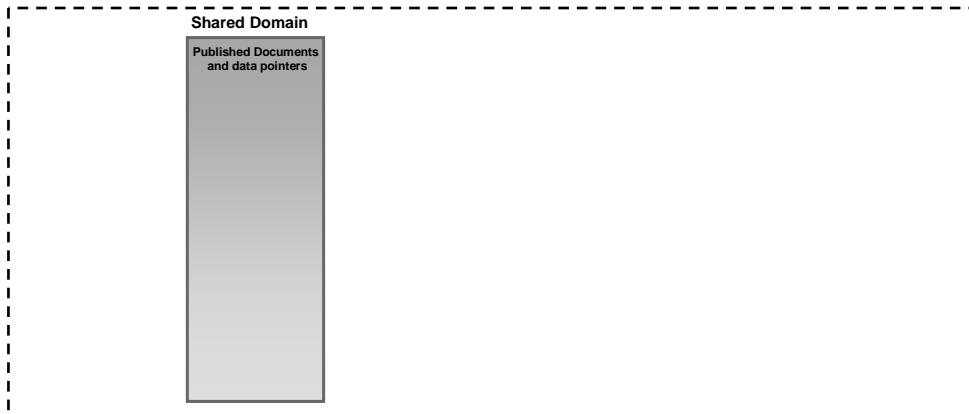
The **Shared Domain** can be considered the *core* domain of the data warehouse and is used to store all published documents and hold all of the shared objects (or proxy objects) that point to all of the data that resides in the published domains.



Tools and data warehouse overview

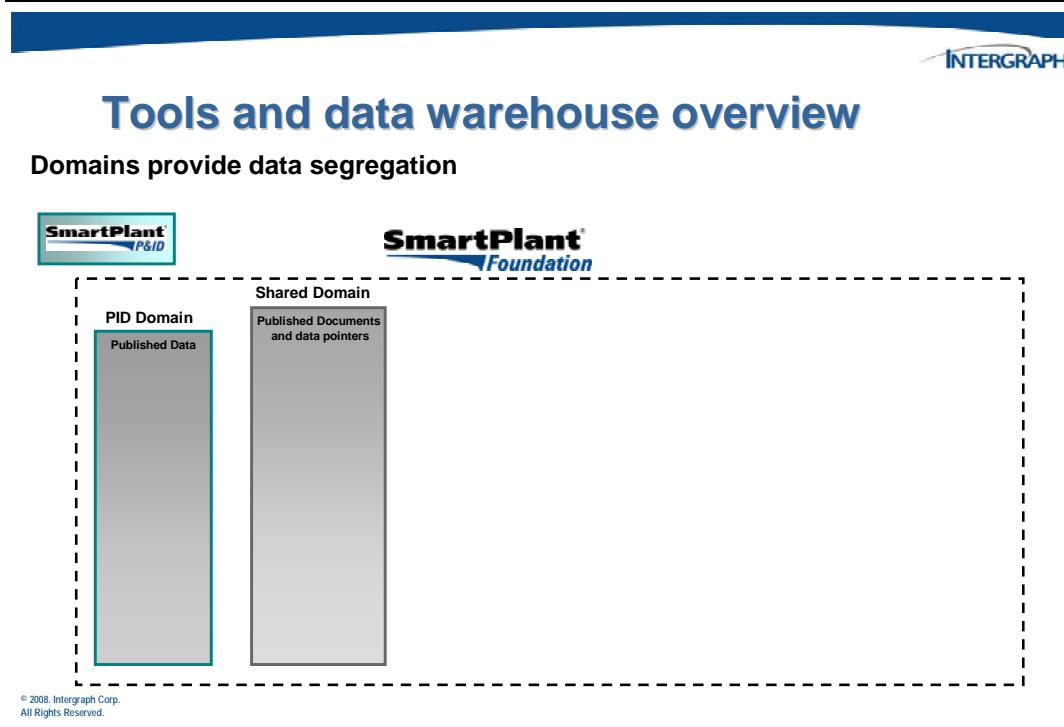
Domains provide data segregation

SmartPlant®
Foundation



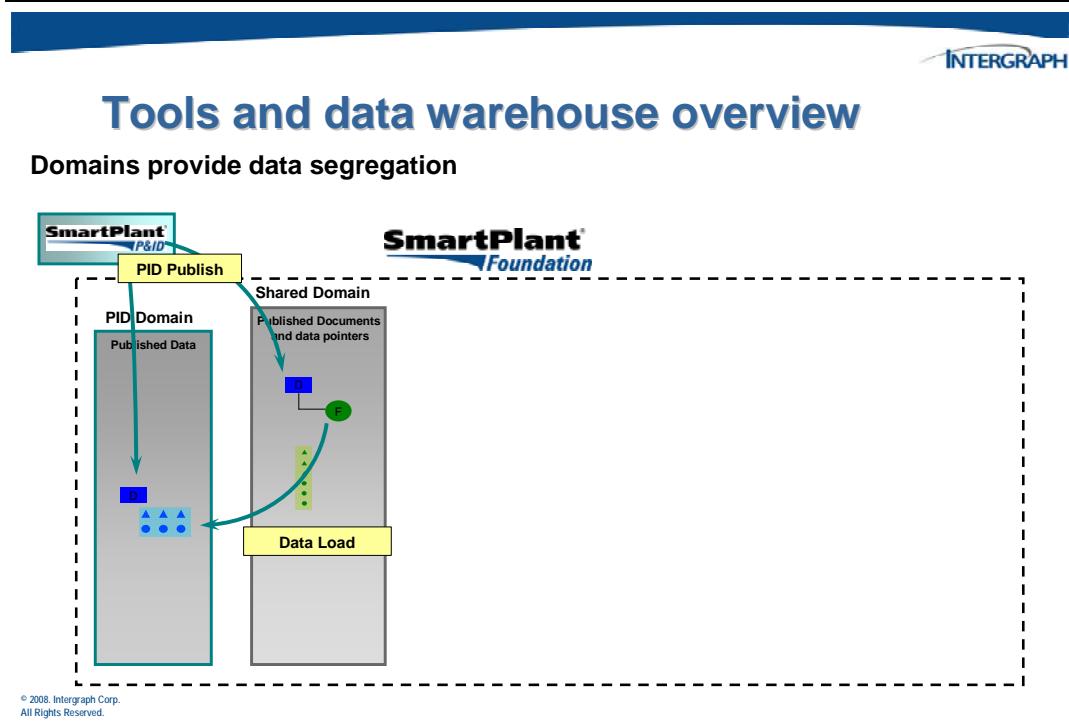
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Each tool that publishes data into SmartPlant Foundation has a domain set up for it. The publish domain is used to store approved and unapproved published data.



In this diagram the *Shared Domain* and the *PID Domain* is depicted.

When a tool publishes data, then a document is created in this domain in the specified configuration. Any files that are associated are also attached in this domain.



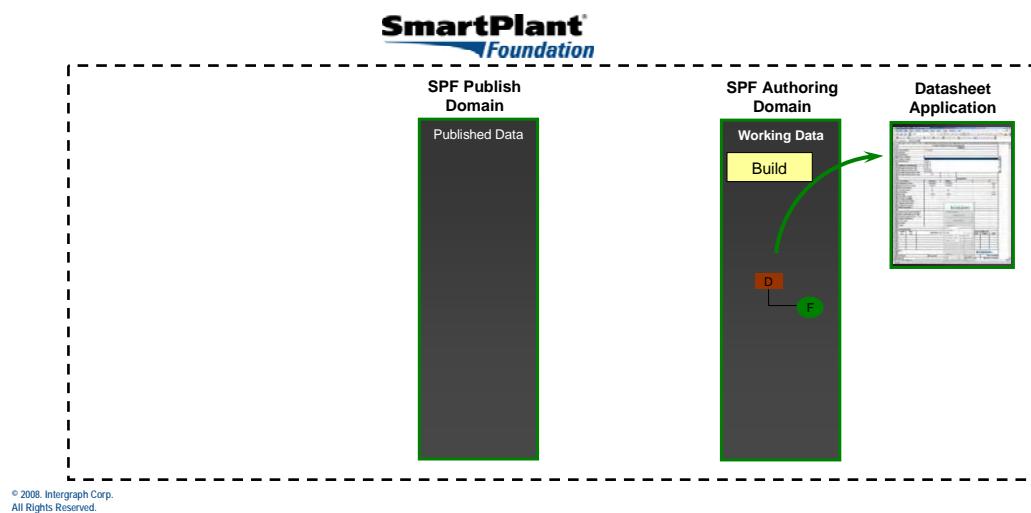
The result of this publish is that a SmartPlant Foundation three tier document (Document Master, Document Revision, and Document Version) is created in the Shared domain. However, in the PID Domain only a Document Master is created.

For each tool that publishes data to the data warehouse, including SmartPlant Foundation authoring, a separate domain is needed. The data from each tool is loaded into the appropriate area.



Tools and data warehouse overview

Domains provide data segregation

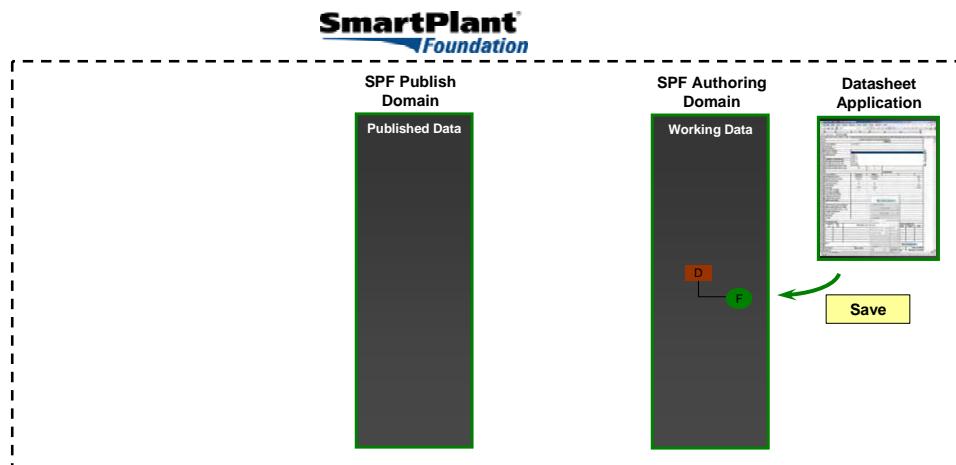


For example, a datasheet application could be used to manipulate data and then save the changes back to the *SPF Authoring Domain*.



Tools and data warehouse overview

Domains provide data segregation



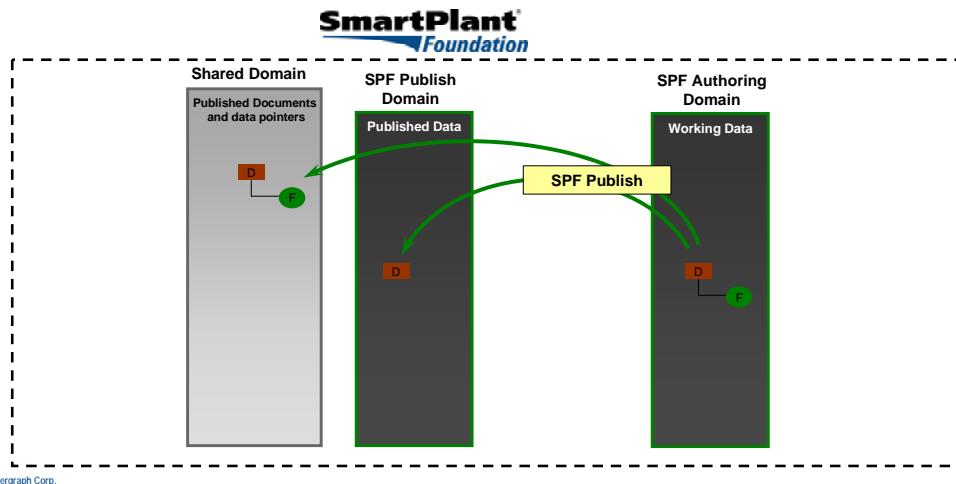
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Once the SPF-authored data is ready to be shared, it can be published



Tools and data warehouse overview

Domains provide data segregation



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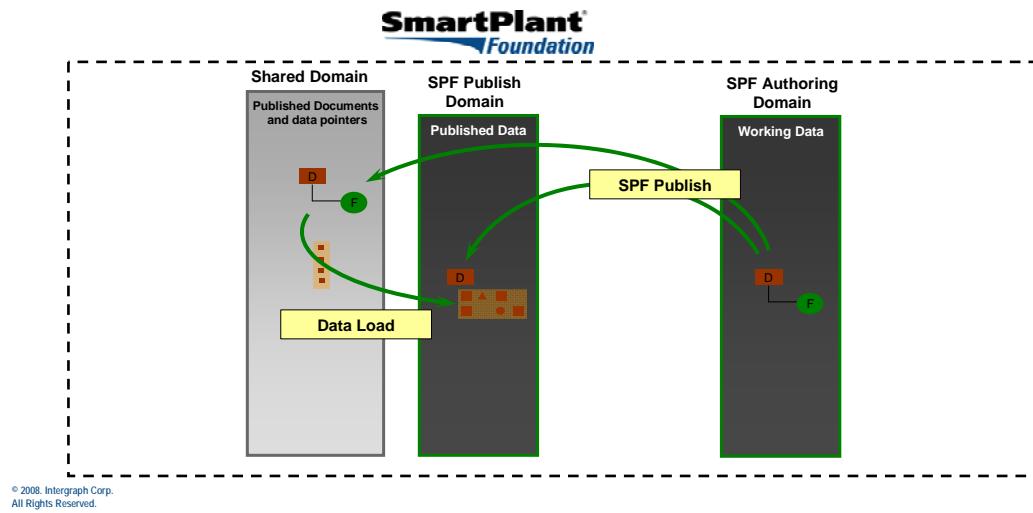
This will cause the authoring data to be published to the data warehouse. Again, a three-tier document is created in the Shared domain but a one-tier document is created in the *SPF Publish* domain.

There is an optional step in the workflow that could be used to load the data into a sub configuration in the tool publish domain so that data can be approved.



Tools and data warehouse overview

Domains provide data segregation



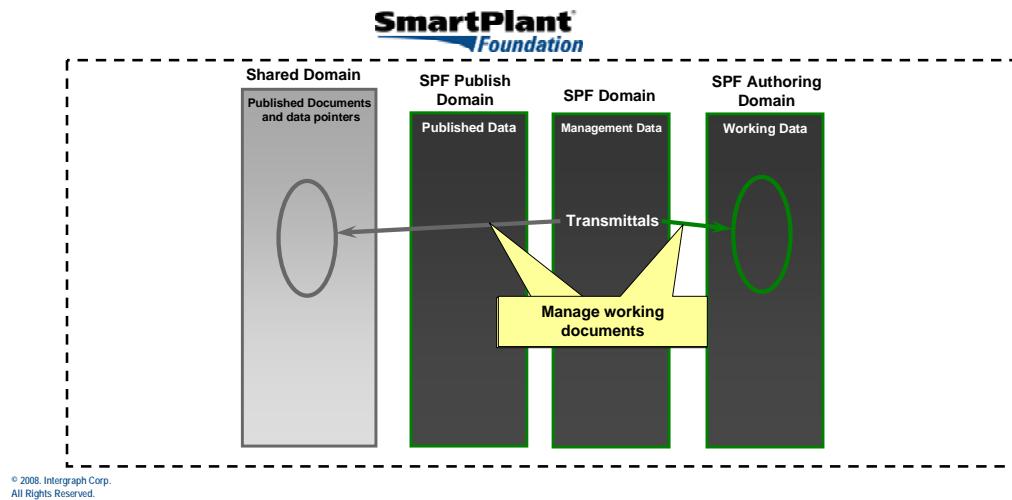
In the SPF 2008 architecture, the server layer now performs the data load.

The transmittal function will allow for working documents to be managed in either the authoring domain or the shared domain.



Tools and data warehouse overview

Domains provide data segregation

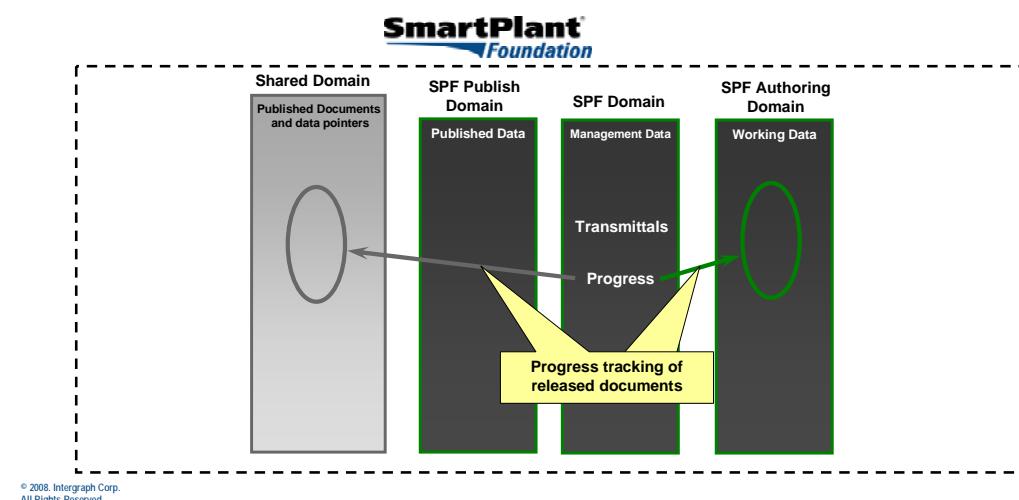


The **Progress** module will be able to track the progress of released documents in either the authoring domain or the shared domain.



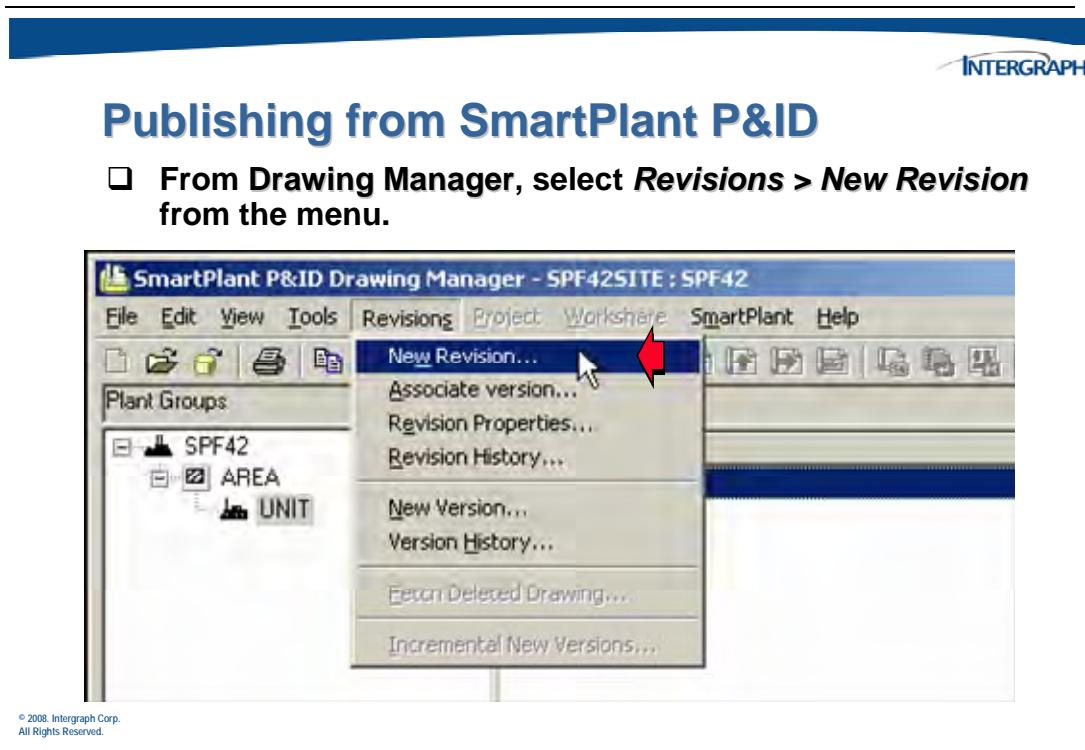
Tools and data warehouse overview

Domains provide data segregation

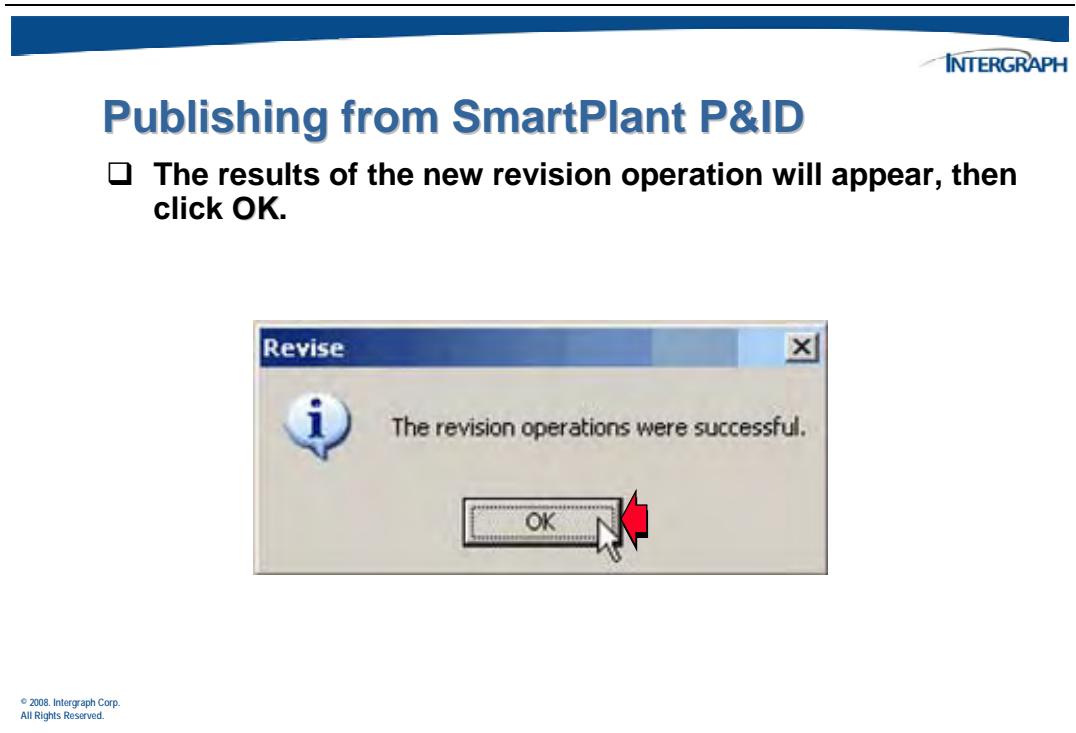
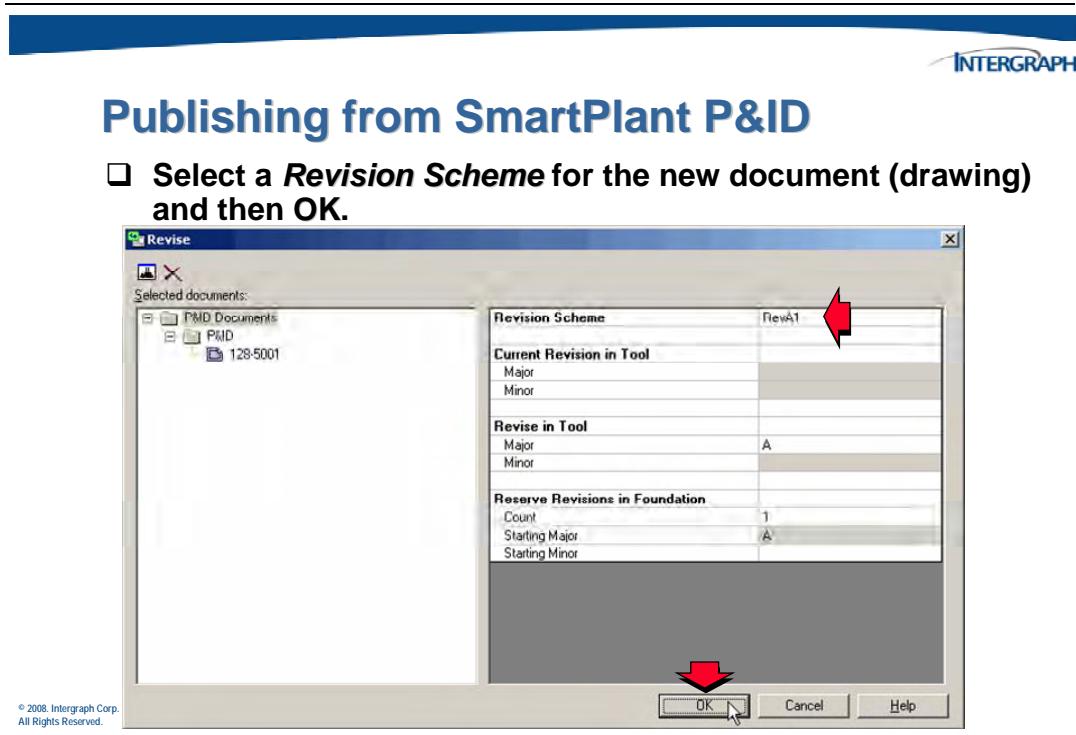


13.2 Publishing from SmartPlant P&ID

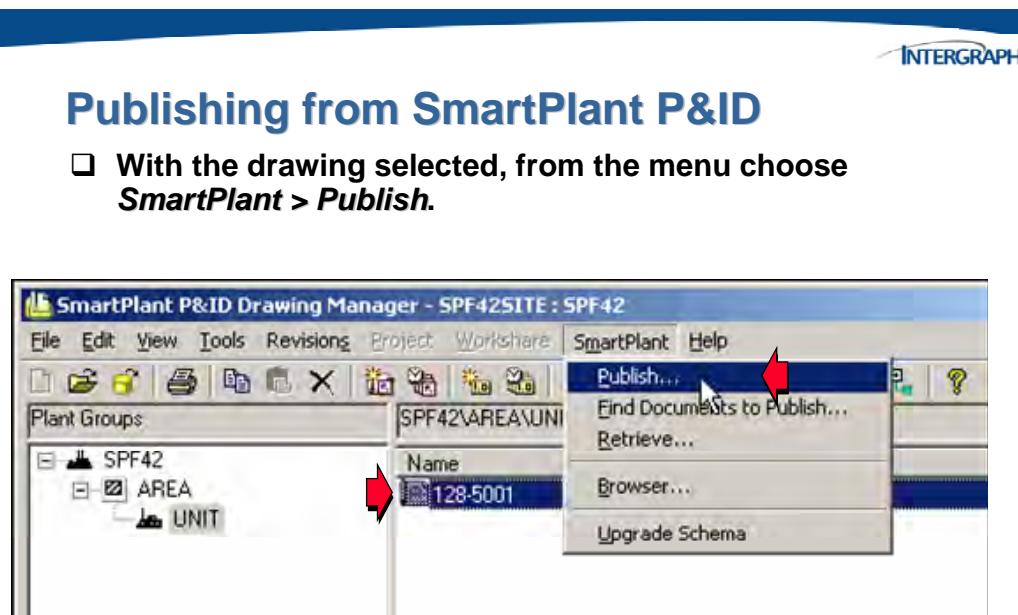
Each registered authoring tool can publish documents and associated data to the SmartPlant Foundation database. During a publish, an object is created in SmartPlant Foundation with a view file and associated data. In this example, a new revision of a new P&ID drawing containing instruments (along with other components) will be published from SmartPlant P&ID.



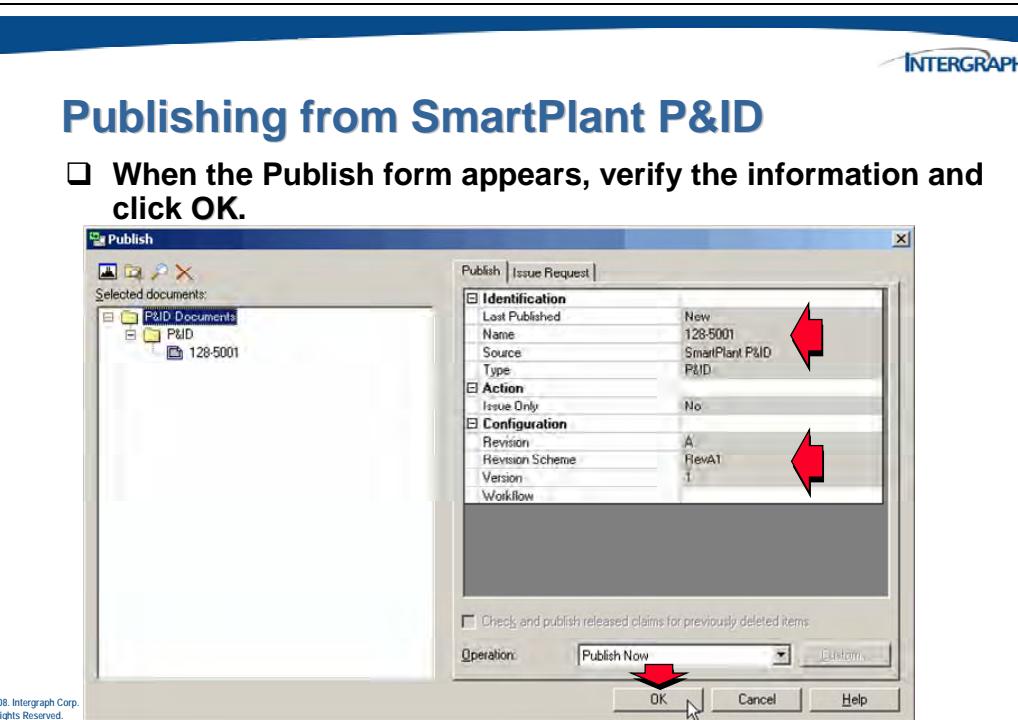
The *Revise* form will appear.



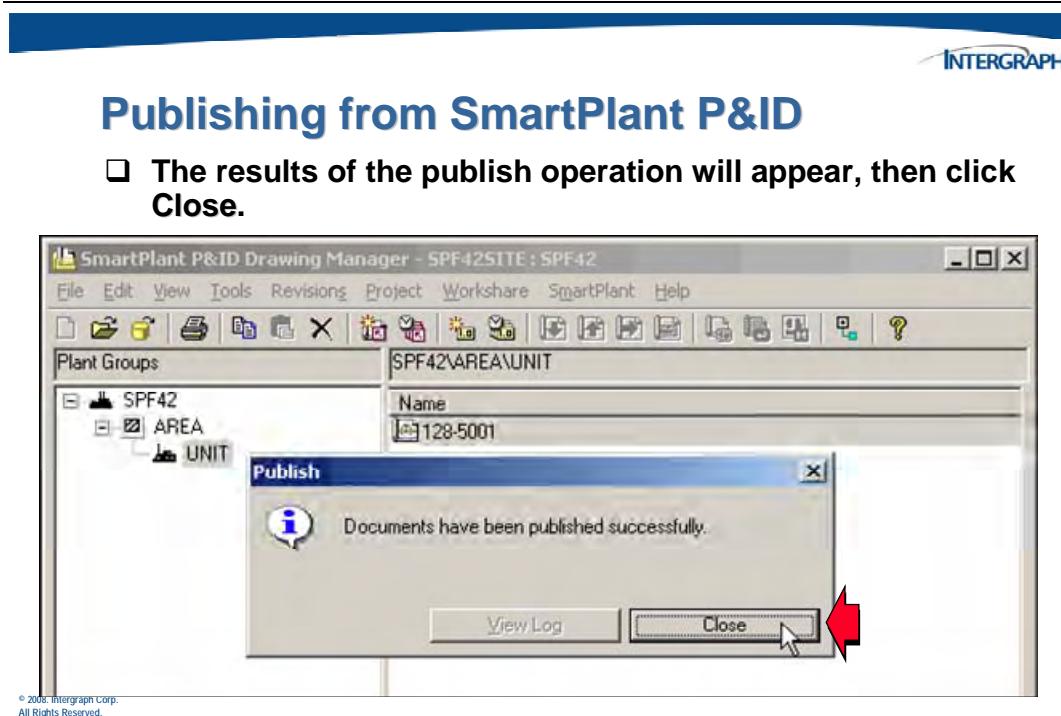
The next step is to publish the first revision of P&ID drawing 128-5001 to the PID domain in the SPF DataWarehouse. The *SmartPlant P&ID Drawing Manager* window will display. The registered plant to be used for the publish operation is **SPF42**.



To perform a publish operation; use the **Publish** command from SmartPlant P&ID or from Drawing Manager.



A dialog box will display after some time to report success or failure of the publish.



Now that the document has been successfully published, exit from SmartPlant P&ID,

13.3 Activity 1 – Authoring Data in SmartPlant Foundation

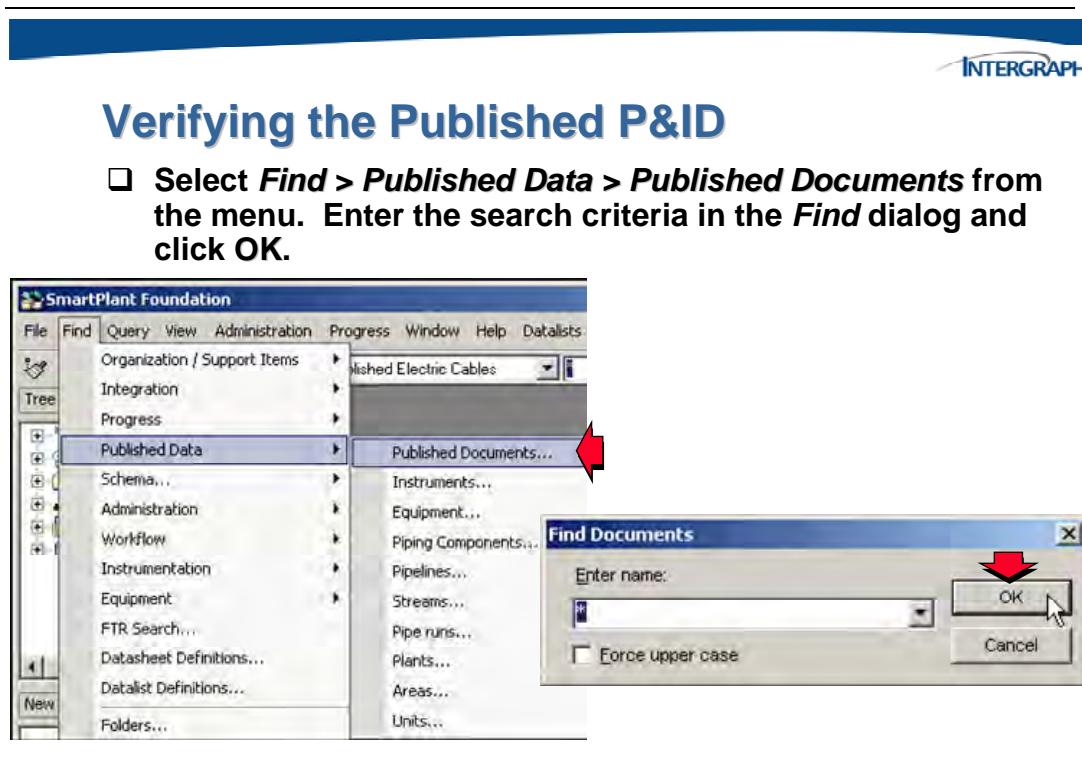
Complete the **Chapter 13 – Activity 1** in the SmartPlant Foundation 2008 (4.2) Introduction and Administration I activity workbook.

13.4 Finding and Viewing Published Data

After a tool (including SmartPlant Foundation) has registered itself with the SmartPlant Foundation data warehouse, data can then be exchanged with it using the publish and retrieve options that are available within the SmartPlant Client.

The tool using the SmartPlant Client will publish a document that will then be stored within the *DW Shared Domain* of the data warehouse until the appropriate action to load it is taken. Once the document has reached this state, it is marked as now being retrievable by other tools. Providing the other tools have been registered and have the correct access to the document types set up, then other tools can start retrieving this document (and the associated data) to then be consumed by them.

In the following examples, a search will be performed for the published P&ID drawing (document) just to have a look to see if the data has been loaded.



A list view window will display the results of the **Find**.

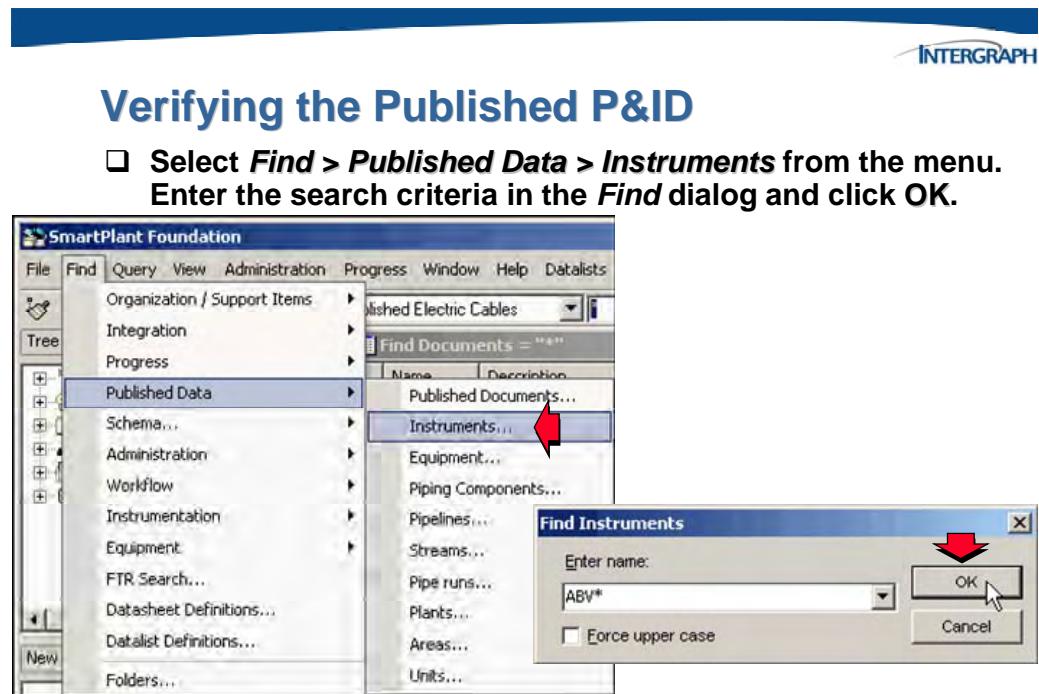
The screenshot shows the INTERGRAPH Desktop Client interface. On the left, the 'Find Documents' dialog is open, displaying two results: '128-5001 New P&ID Drawing for SPFAuthoring (Revision A Version 1)' and 'SPF42 Revision A Version 1'. A red arrow labeled '1' points to the '128-5001' entry. On the right, the 'Properties' window is open for the selected document. A red arrow labeled '2' points to the 'Scheduler task' section, which contains the message 'The document was successfully loaded'. Other sections visible in the Properties window include 'Revision properties', 'Version properties', and 'Workflow item'.

Listed is the data that has already been published, two items that have been published; one SPF document and one P&ID drawing.

The P&ID drawing has got a status, shown on the right-hand side of the Desktop Client. Note the results of the **Scheduler task** in the *Properties* window indicating that the published P&ID was **successfully loaded**.

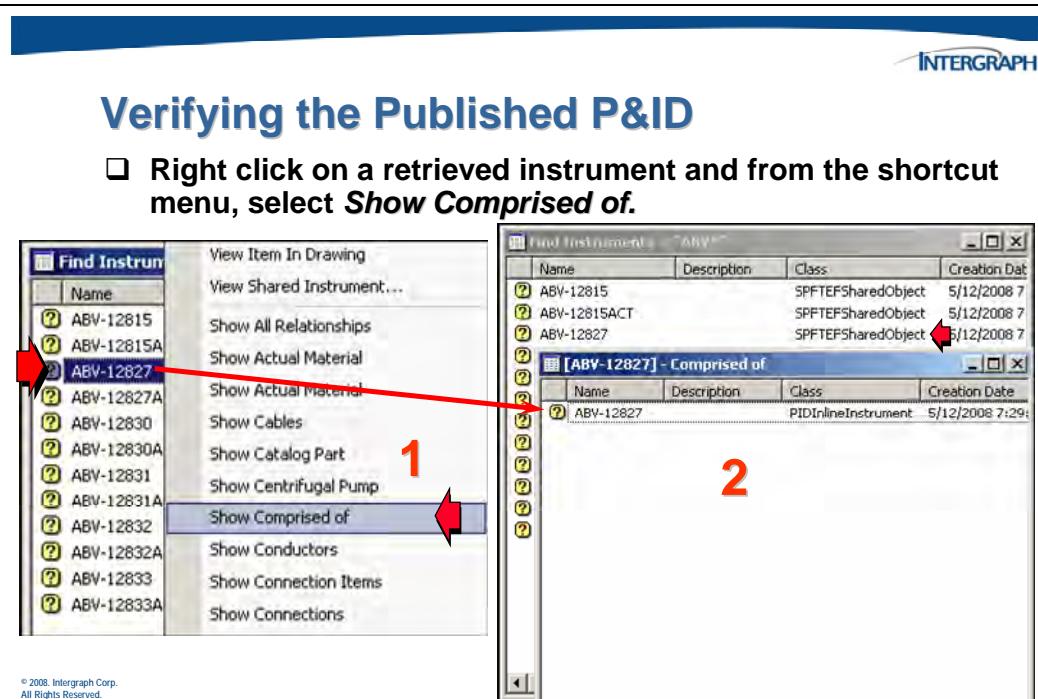
Now view related data that has been loaded from that particular drawing. Within the published data, there is an option to look at *Instruments*.

Perform a search to look at all instruments beginning **ABV***.



There are a number of items that have already been published that represent the shared objects.

Whenever data is consolidated into a tool domain, such as PID, then a proxy object (or shared object) is created in the central DWShared domain. This object will only instantiate one or two key interfaces and rely on a relationship (SPFComprisedOf) to point to the real data.

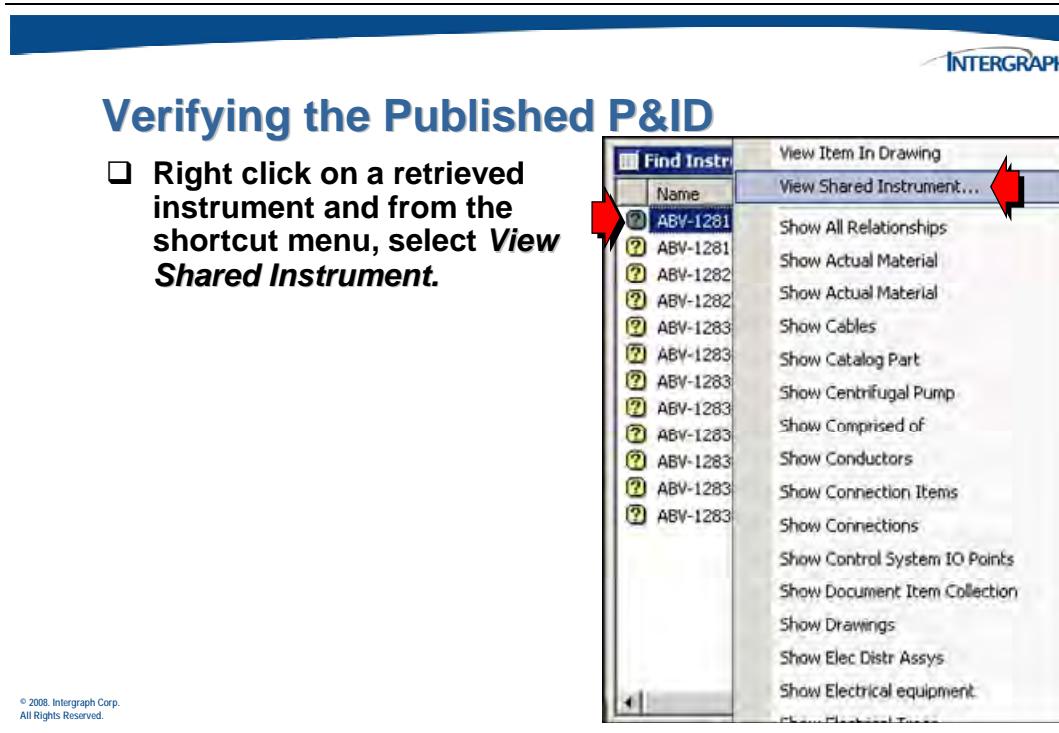


You can see by using the comprised relationship by itself it points to *PIDInlineInstrument*.

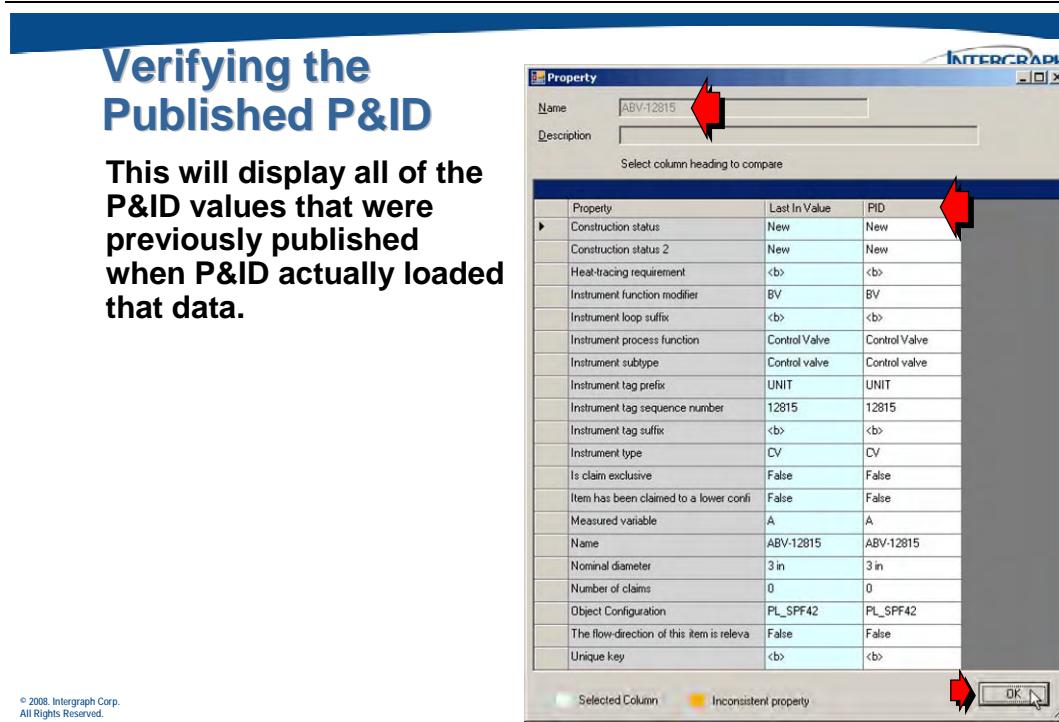
For each tool that publishes data to the data warehouse, a separate domain is needed. The data from each tool is loaded into the appropriate area and a link to the DW Shared domain is created.

Where an object is deemed to be the same as another item, the tool object is linked an existing proxy object (or Shared Object).

Also, have a look at that item by using the *View Shared Instrument* option.



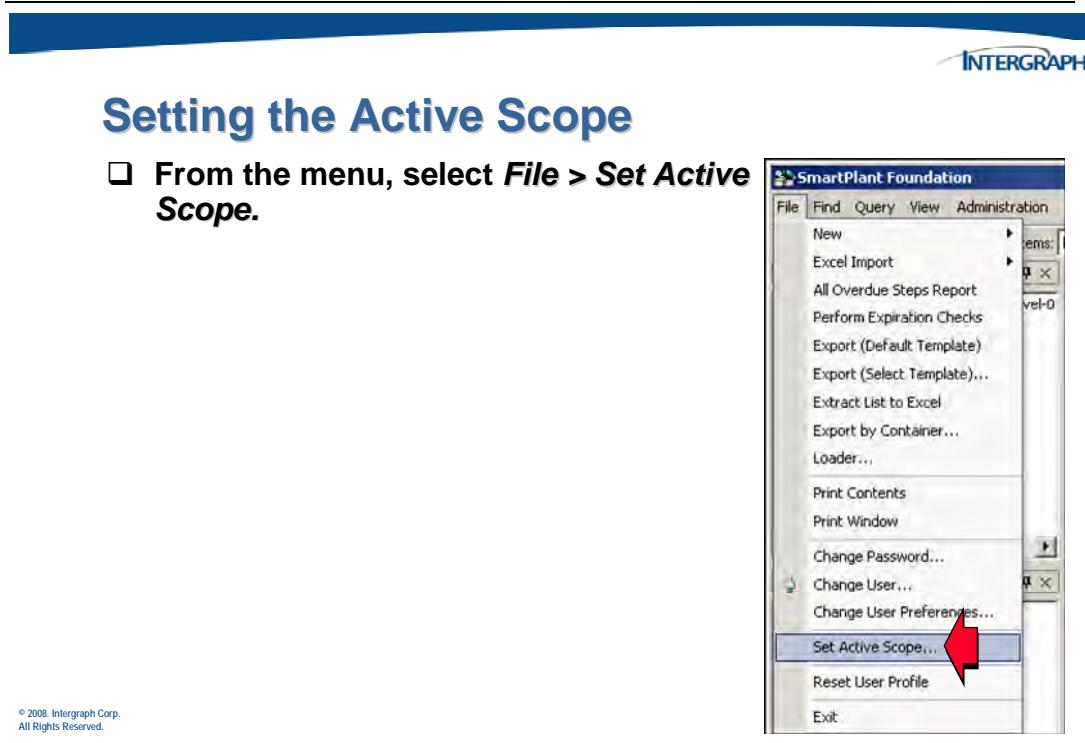
That is going to display all of the P&ID values that were previously published.



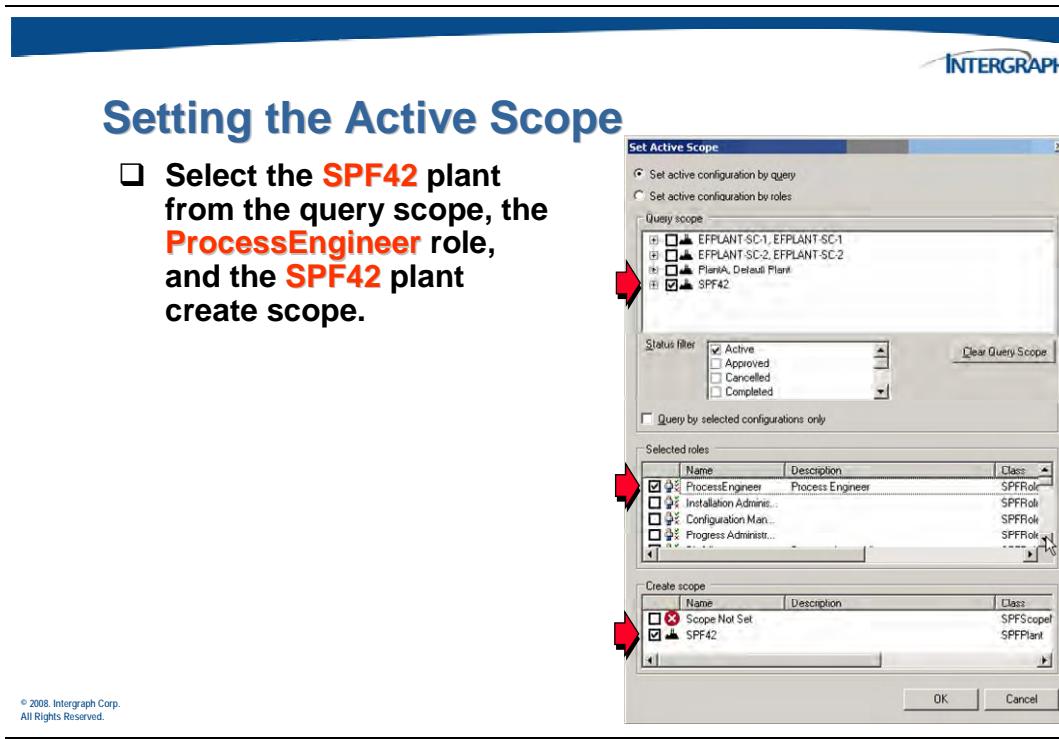
13.5 Retrieving Data into an Authoring Domain

The next step is to retrieve an instrument into an authoring domain. Once it has been retrieved, changes can be made and then the instrument re-published. After the SPF publish, you would see another entry that can be used to view any inconsistencies and compare the data after future publishes.

Since the existence of the data has been confirmed in the data warehouse, change the role setting to the *ProcessEngineer*.



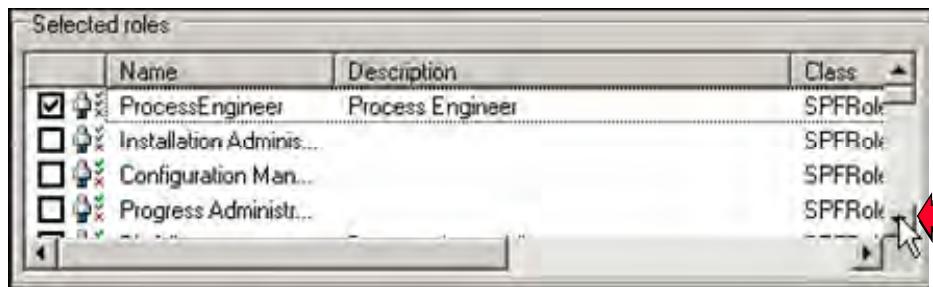
The *Set Active Scope* form will appear.



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Setting the Active Scope

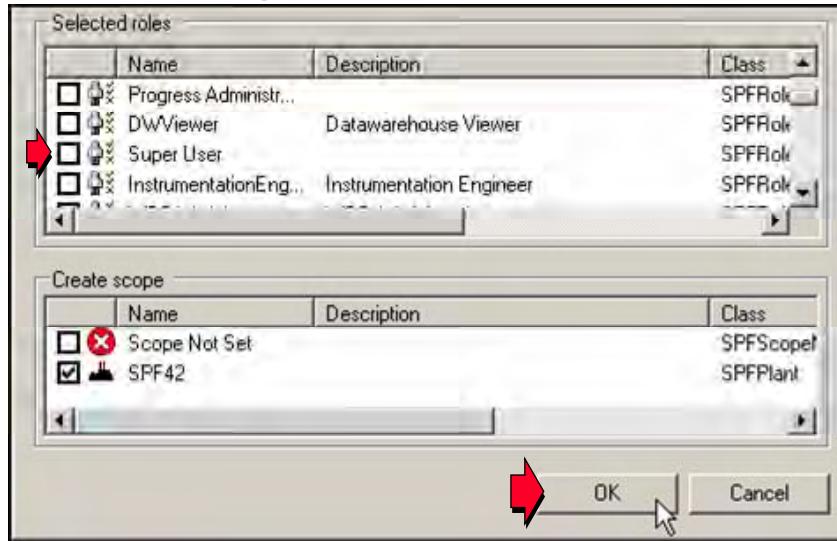
- Scroll down in the *Selected roles* section.



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Setting the Active Scope

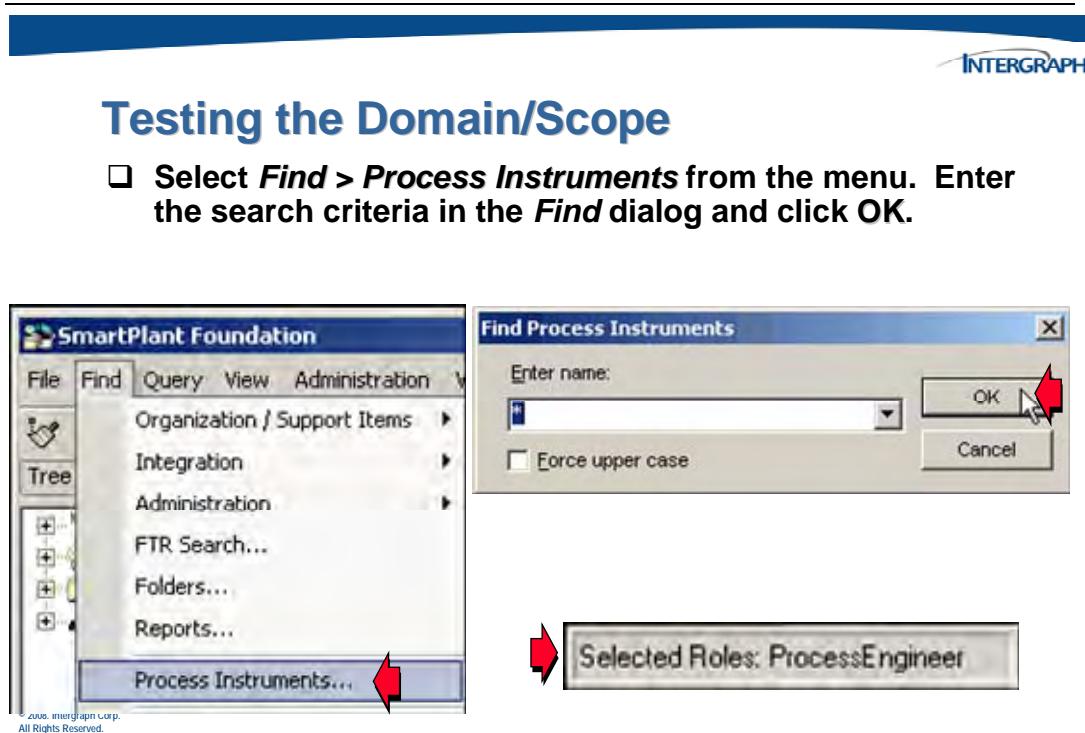
- Turn off the **Super User** role and click OK to set the scope.



There are two domains within the authoring environment, the *Instrumentation* domain and the *ProcessEngineering* domain along with a couple of other domains that can be viewed. We will be working in the authoring environment for the *Process Engineer* domain.

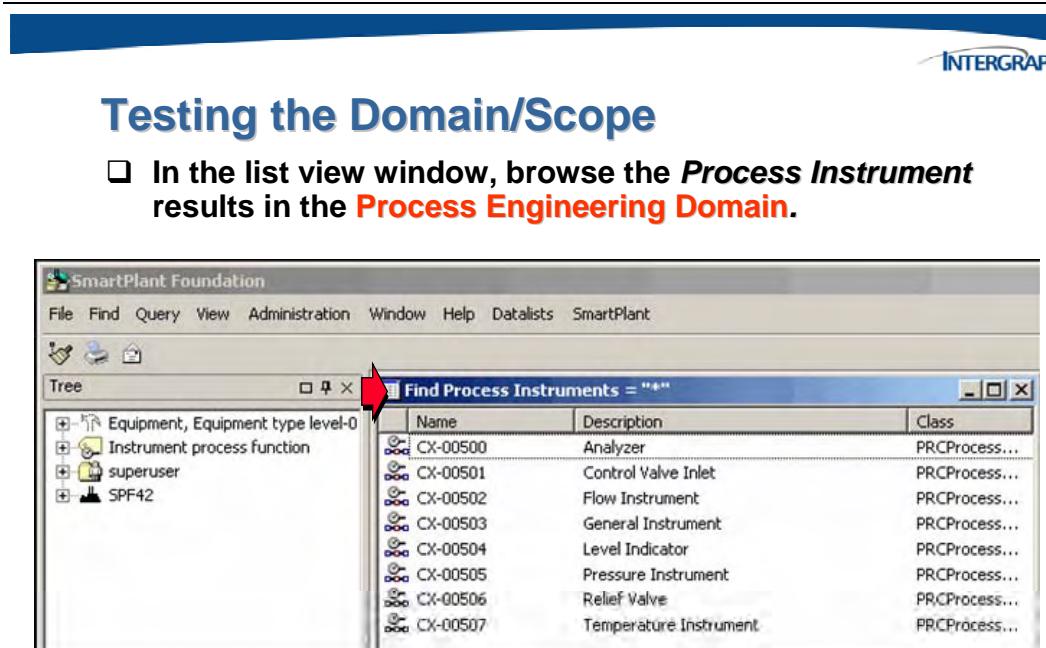
As a *ProcessEngineer*, a user can view the *Process Engineering* domain, the *Schema*, and the *Admin* domains. However, if a user logs in as an *Instrument Engineer*, they would be able to view the *Instrumentation* domain, the *Schema* and the *Admin* domains. As an *Instrument Engineer*, there would be no access to the *Process Engineering* domain, and as a *Process Engineer*, there would be no access to the *Instrumentation* domain.

When viewing data loaded in the *Process Engineering* domain notice that the number of menu options has changed from the *superuser*. The superuser had twenty or more commands available but as a *ProcessEngineer*, there are only seven commands. One of those commands is for searching Process Instruments.



The superuser had twenty or more commands available but as a *ProcessEngineer*, there are only seven commands. One of those commands is for searching Process Instruments.

When the *list view window* appears, about eight instruments that were previously loaded will display.

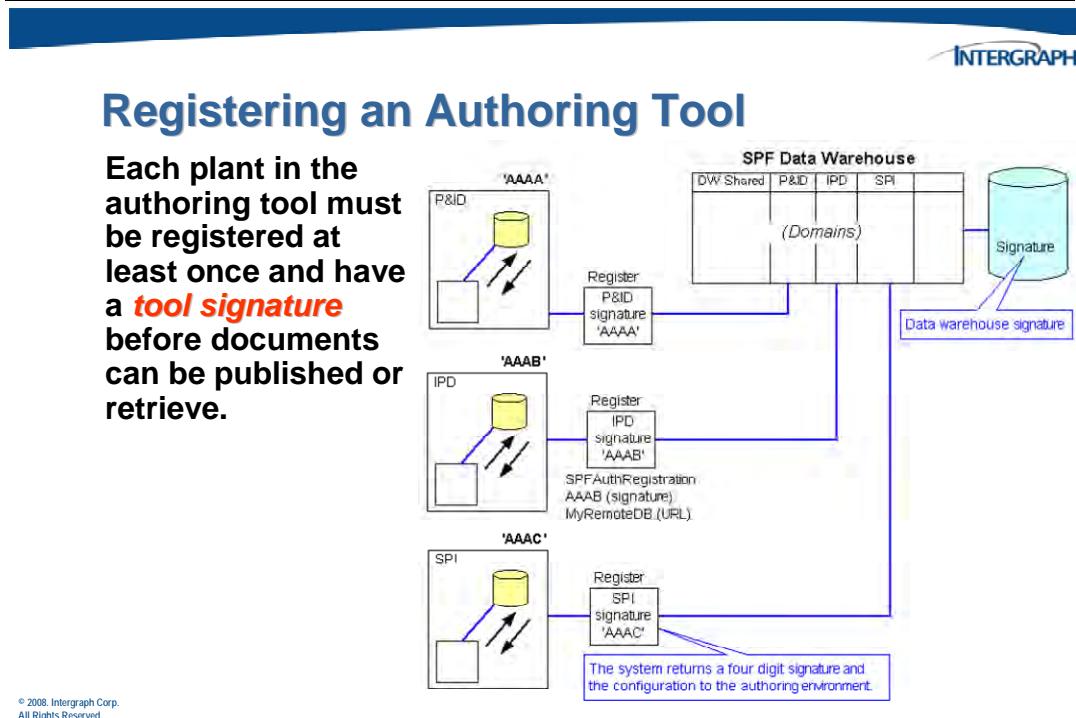


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Each one of these instruments represents the different types of datasheet available in the system. Next, we will try to retrieve information from the data warehouse and load the information from the previously published P&ID (128-5001). This will load that data into the Process Engineering domain.

13.5.1 Registering an Authoring Tool

The SmartPlant Registration maps the authoring tool's plant and all its projects to a SmartPlant Foundation URL, which points to one SmartPlant Foundation plant, and returns a unique signature for the tool and plant combination being registered.



The registration process also compares the authoring tool's schema release number against the list of supported release numbers on the SmartPlant Foundation server. If the tool schema is compatible, the tool is granted registration.

First, register the ProcessEngineering tool in order to use the *Publish* and *Retrieve* commands.



Registering an Authoring Tool

- Select **SmartPlant > Process > IPDs > Register** from the menu to register the *Authoring tool for Process Engineers*.



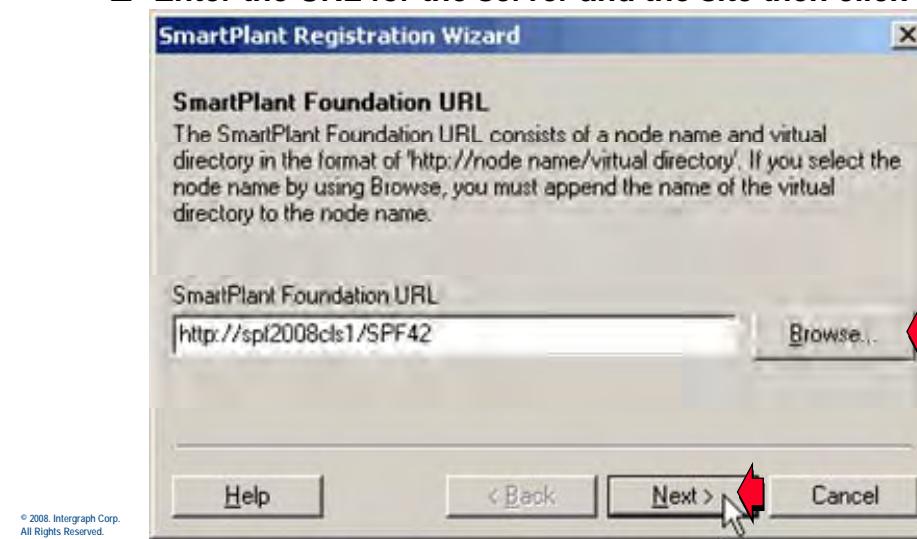
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Specify a URL so that when a user publishes and retrieves, the system knows exactly which site to connect to and retrieve or publish data.



Registering an Authoring Tool

- Enter the URL for the server and the site then click **Next**.



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The software will now connect to that site, look at and display all the possible plants that against which the user could register.



Registering an Authoring Tool

- Select the **SPF42** Plant name from the list.

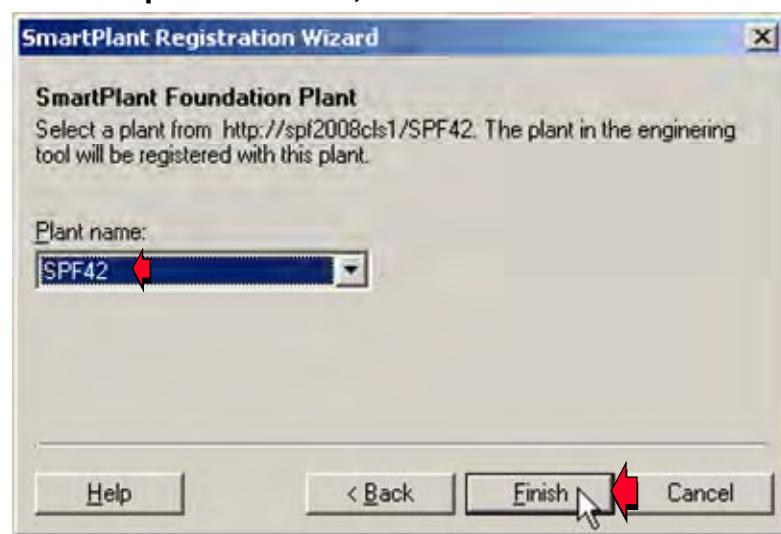


The plant of interest is **SPF42** so select that from the list

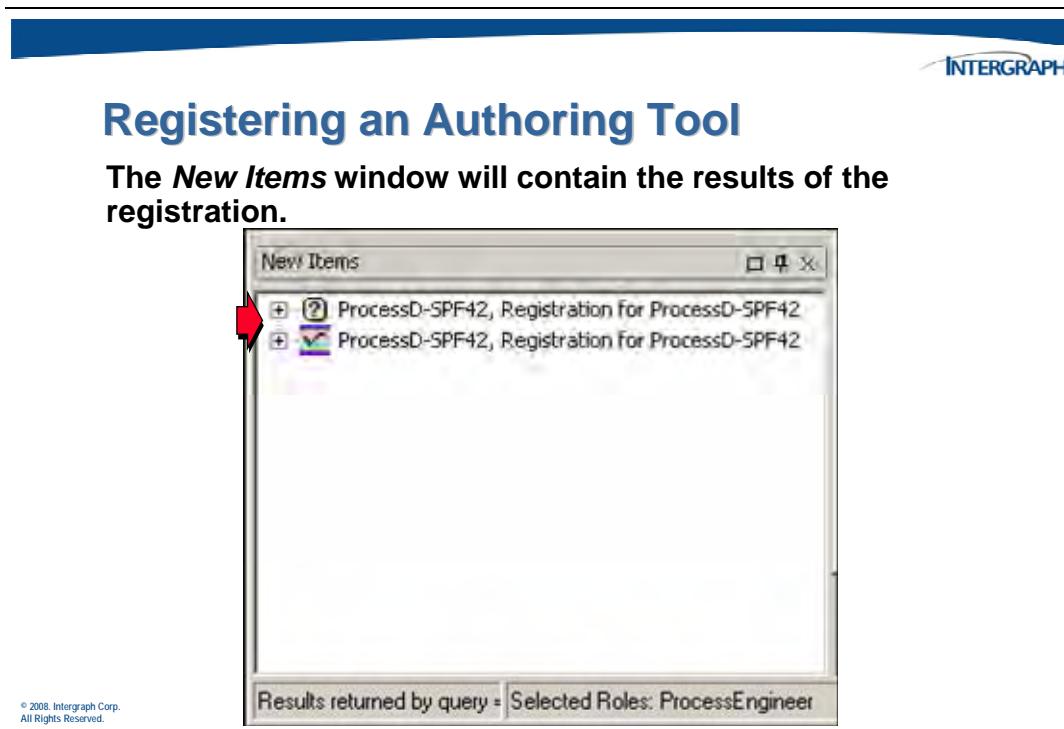


Registering an Authoring Tool

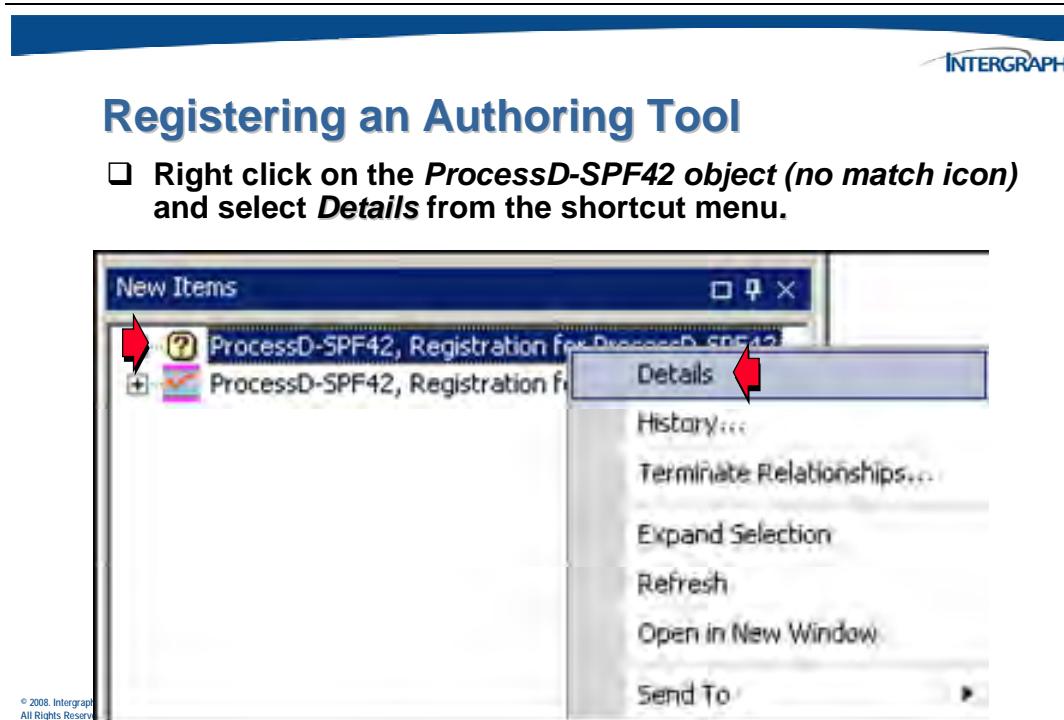
- With the plant selected, click Next.



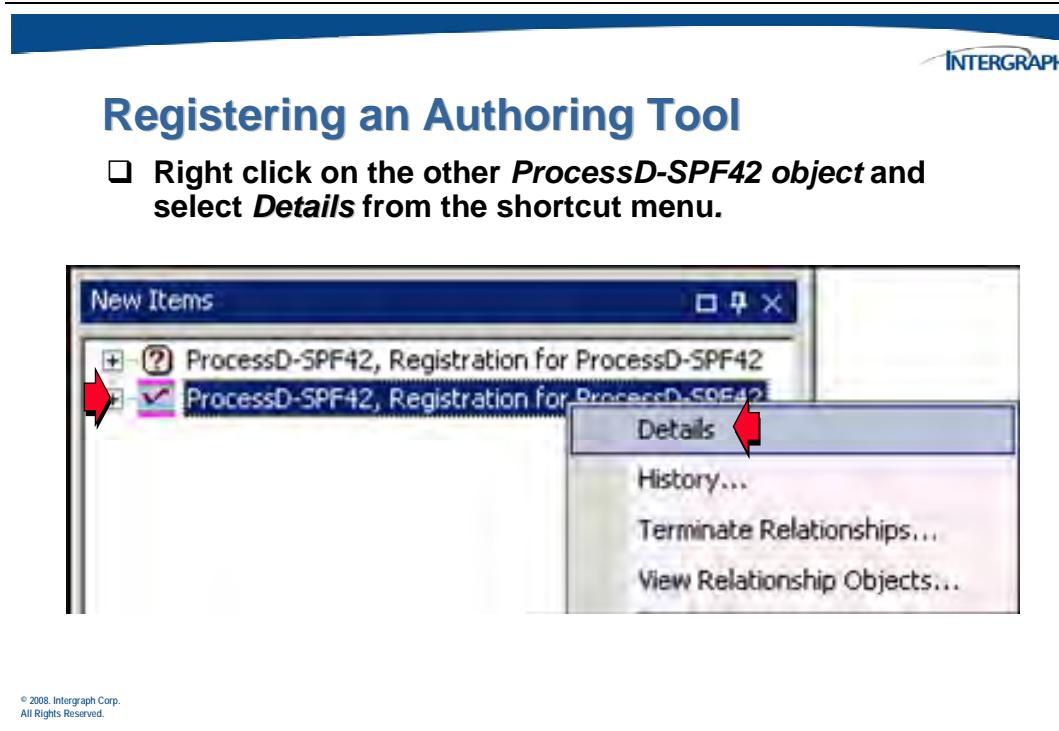
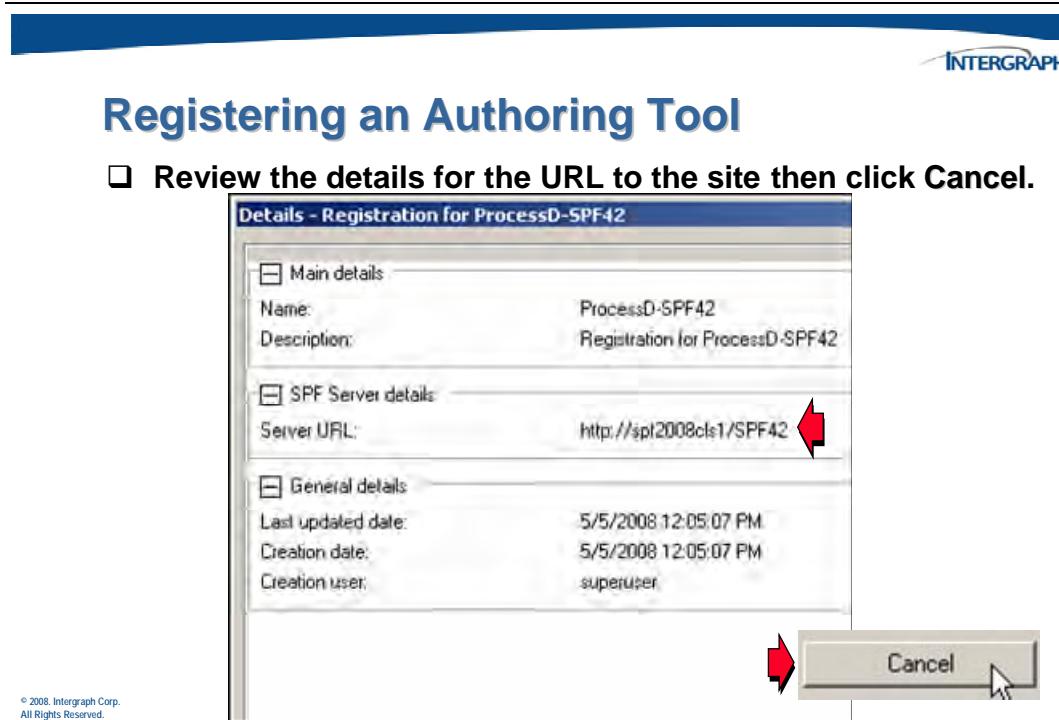
After selecting the **Finish** button, two objects will be returned as results.



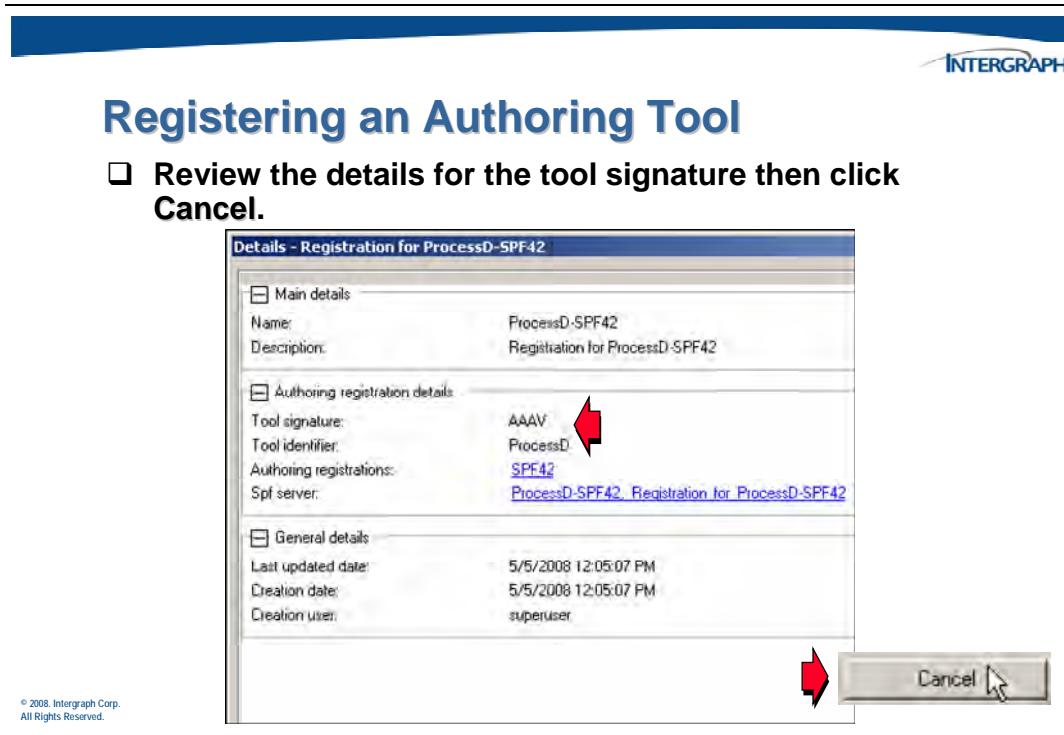
In reality, using the registration command results in three objects being created; a registration object, which is on the data warehouse side of things and is not visible at the moment and two objects on the authoring side.



One of the objects is a authoring registration, which is a copy of the actual signature that is generated in the data warehouse site.



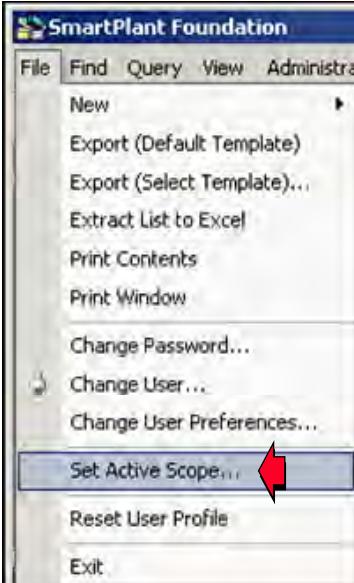
The second object created is a copy of the registration so that the software does not have to continually go to the server to get that information. It is called an authoring registration object and it contains a copy of the tool signature, AAAV, that was assigned over on the data warehouse side.



13.5.2 Configuring Authoring Roles

Once the authoring tool has been registered, one more task needs to be completed before a user can retrieve data or publish data.

That involves configuring security on the data warehouse side. So although the tool has been registered, there is a need to go log back in as *superuser* in order to have access to the data warehouse side. This will permit an administrator the ability to give permissions to a Process Engineer to enable them to be able to publish and retrieve.



The image shows a screenshot of the SmartPlant Foundation application window. The title bar reads "SmartPlant Foundation". A red arrow points to the "Set Active Scope..." option in the "File" menu, which is highlighted with a blue background. The "File" menu also contains other options like "New", "Export (Default Template)", "Print Contents", and "Exit". The rest of the window is mostly blank, showing a large white area.

Configuring Authoring Roles

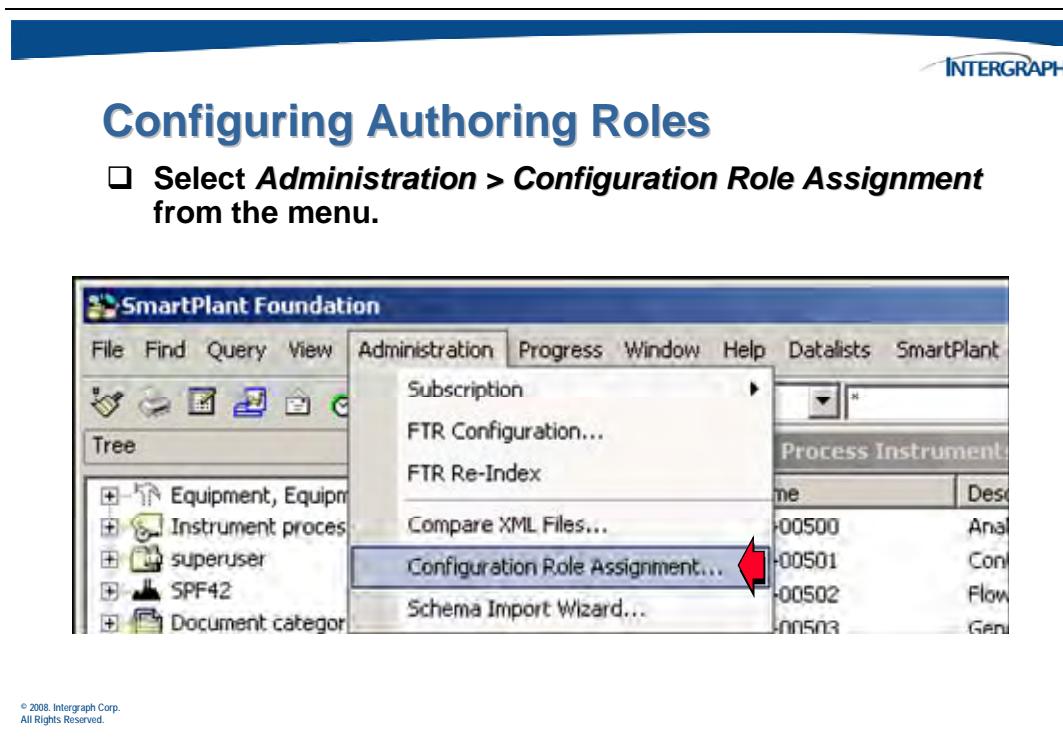
- From the menu, select **File > Set Active Scope**.

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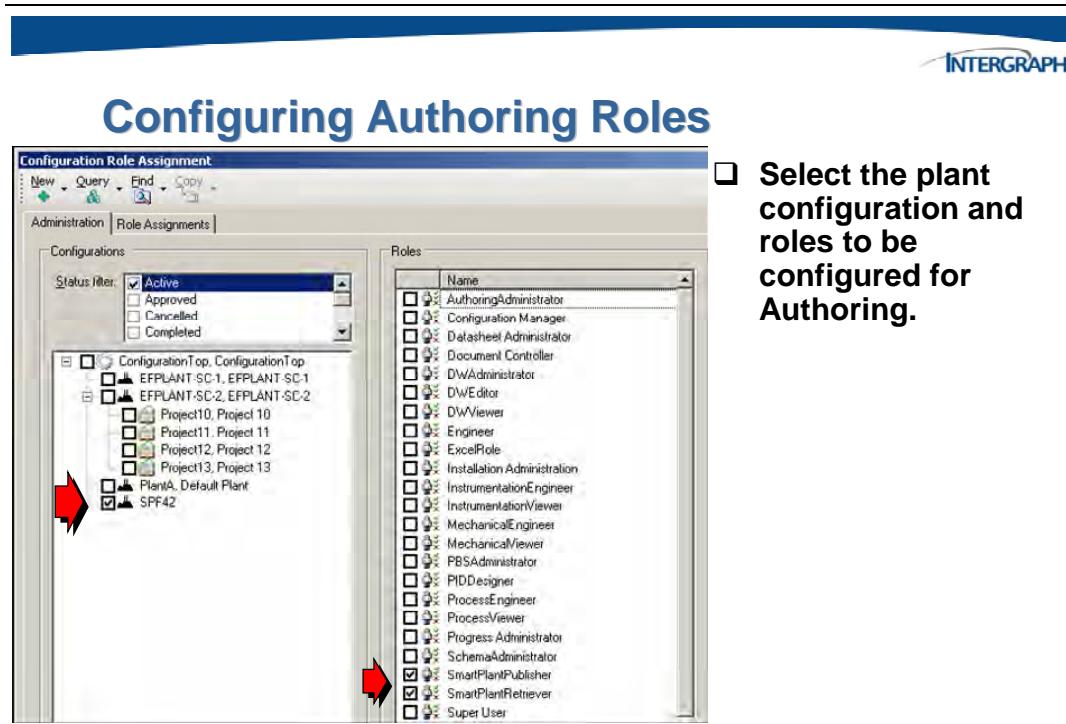
In the *Set Scope* form, find the *superuser* role.



Once more in the authoring and data warehouse environment, configure some additional permissions.

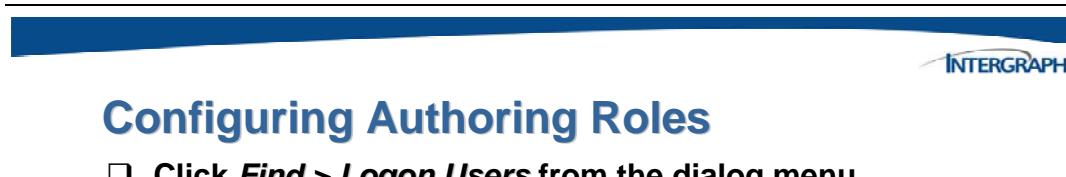


Select the **SPF42** plant and two more role options, **SmartPlantPublisher** and **SmartPlantRetriever**.



- ❑ Select the plant configuration and roles to be configured for Authoring.

In order for any user to be able to publish and retrieve, they must have access to these roles.



Configuring Authoring Roles

- ❑ Click **Find > Logon Users...** from the dialog menu.



Search to find the *ProcessEngineer* login user, which is the user of interest.



Configuring Authoring Roles

- Enter the criteria “**Pr***” to search for the *ProcessEngineer* user and click **OK**.

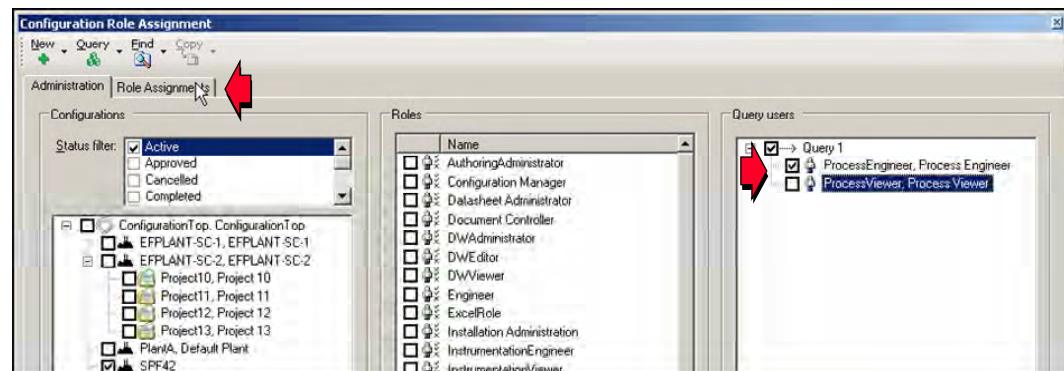


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Configuring Authoring Roles

- Enable the *ProcessEngineer* toggle and click the **Role Assignments** tab to configure the roles for this user.



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Give the role assignments of both publish and retrieve to the *ProcessEngineer*.

The screenshot shows the 'Configuration Role Assignment' dialog box. At the top, there are tabs for 'Administration' and 'Role Assignments'. The 'Role Assignments' tab is selected. On the left, there is a list of configurations: 'SPF42' (selected), 'SPF41', 'SPF40', and 'SPF39'. Below this, there are three radio buttons: 'Configuration' (selected), 'Role', and 'User'. To the right of these are buttons for 'Multi-Update' (disabled), 'Key', 'Clear All', 'Set All to True', and 'Set All True with Include in Sub-Configurations'. The main area shows a grid of roles for the selected configuration. The columns are 'ProcessEngineer', 'SmartPlantPublisher', and 'SmartPlantRetriever'. The 'SmartPlantPublisher' and 'SmartPlantRetriever' checkboxes are checked. At the bottom right is an 'OK' button.

While in the data warehouse also set the environment for the *InstrumentationEngineer* as well.

The screenshot shows the 'Find User' dialog box. It has a text input field labeled 'Enter name' containing 'I*'. There is a checkbox 'Force upper case' which is unchecked. At the bottom are 'OK' and 'Cancel' buttons. A red arrow points to the 'Enter name' field, and another red arrow points to the 'OK' button.



Configuring Authoring Roles

- Enable the *InstrumentationEngineer* toggle and click the **Role Assignments** tab to configure the roles for this user.

1

2

Go back into role assignments to assign publish and retrieve option rights to that particular engineer (InstrumentationEngineer).



Configuring Authoring Roles

- Enable the toggle in the matrix to assign the *InstrumentationEngineer* user to a publish and retrieve roles within this configuration.

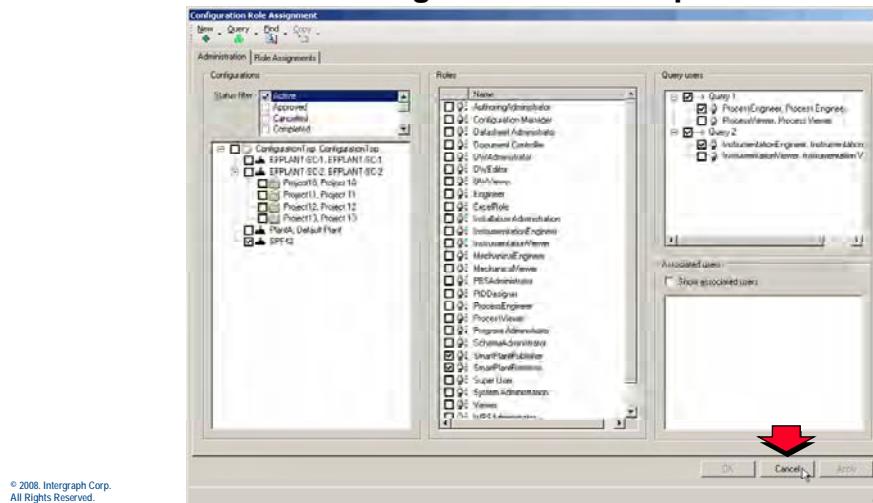
	SmartPlantPublisher	SmartPlantRetriever
InstrumentationEngineer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ProcessEngineer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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Configuring Authoring Roles

- Select Cancel to exit the *Configuration Role Assignment* once the role assignments are complete.

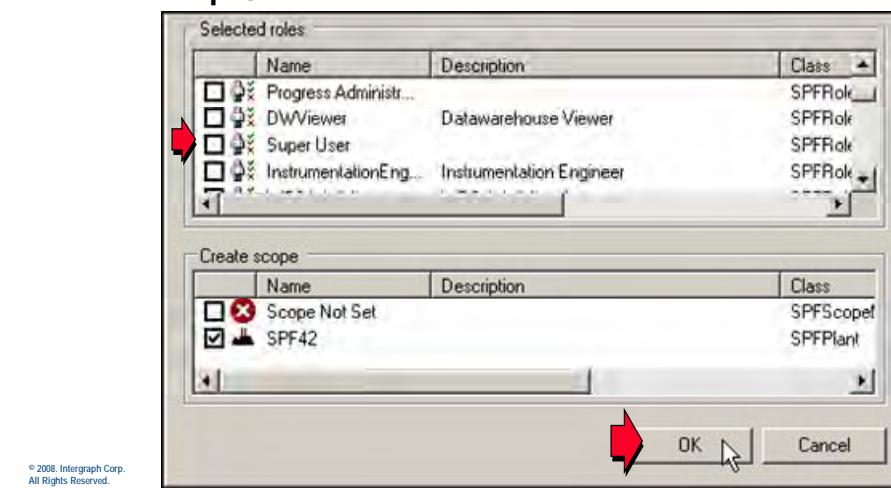


Switch off the *superuser* who has rights to view both data warehouse and authoring, and set the role as a ProcessEngineer once more, who has access only to the authoring environment.



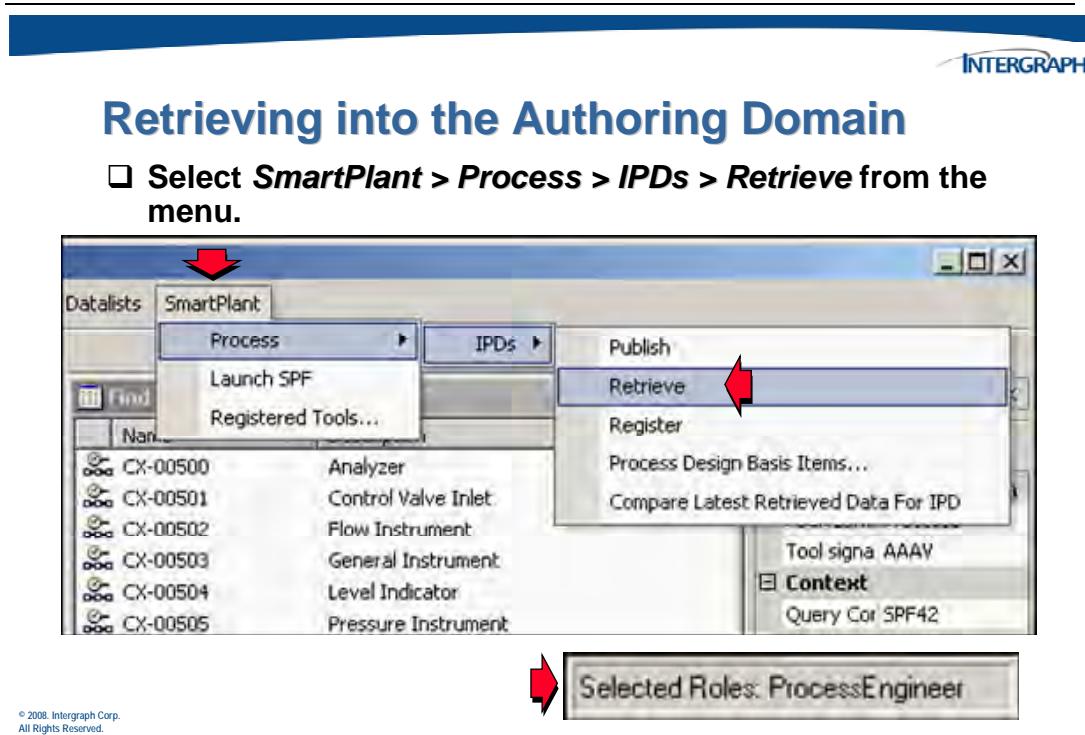
Retrieving into the Authoring Domain

- Turn off the **Super User** role and click OK to set the scope.



13.5.3 Retrieving a Published Instrument

The authoring tool has now been registered, the security has been set for the authoring domain and now published data can be retrieved.

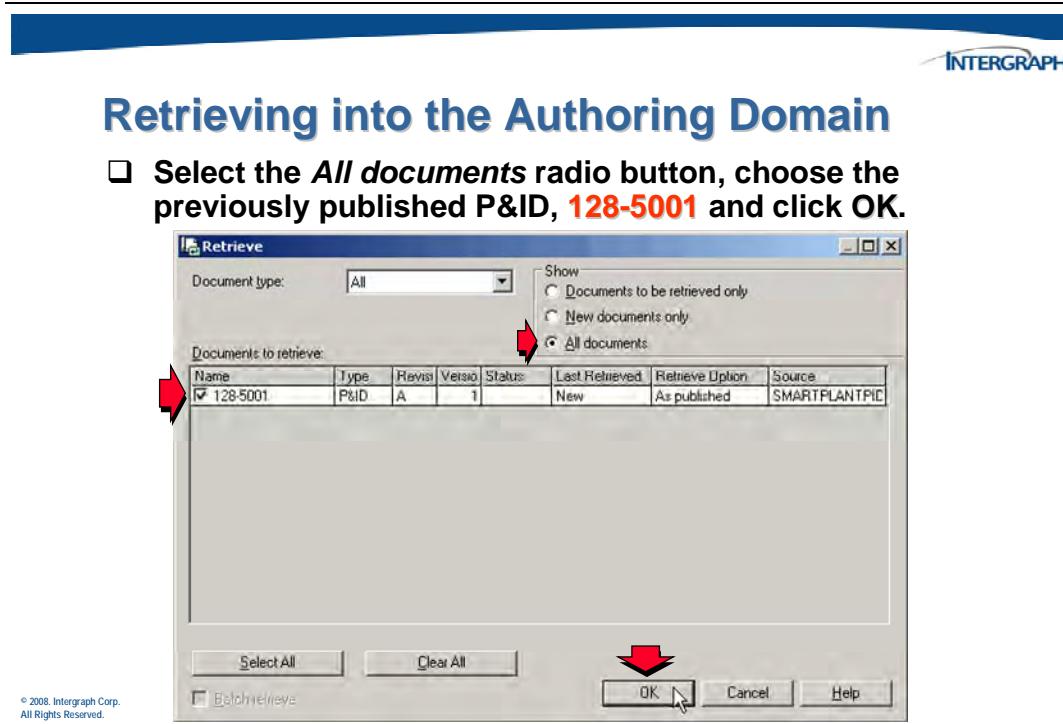


Due to the role configuration performed earlier, note the current role for the user performing the retrieve.

Once the retrieve command has been selected, the software is channeling off to the configured remote site and gathers together all of the documents that can possibly be retrieved. These documents are controlled by a file that is stored in the database.

When retrieving data, there are two files that need to be retrieved to the clients. There is a *tool map file* and there is a *companion* file. If these are not located on the client, then the server has to fetch these from the database and put a local copy onto the client that is doing the publish or retrieve operation.

Once the SmartPlant client displays, the documents that are allowed to be retrieved are displayed.



Initially when viewing the data warehouse, there were two documents shown. However, as a ProcessEngineer, only access to retrieve information from the P&ID is available, and that is the document that is displayed.

What happens now is that the data, the P&ID, is now mapped to an object that is familiar in the client. What was a P&IDIInstrument or PIDInlineInstrument, will now become a PRC process instrument in the authoring domain, PRC standing for Process Engineer.



Retrieving into the Authoring Domain

- Once the published document has been retrieved successfully, click Close.



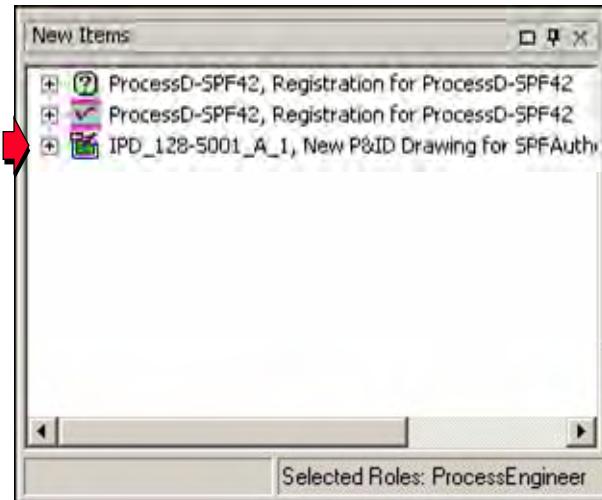
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At this point, nothing has been instantiated into the database apart from a document object that has a number of attached files.



Retrieving into the Authoring Domain

The retrieved P&ID will be displayed in the New Items window.



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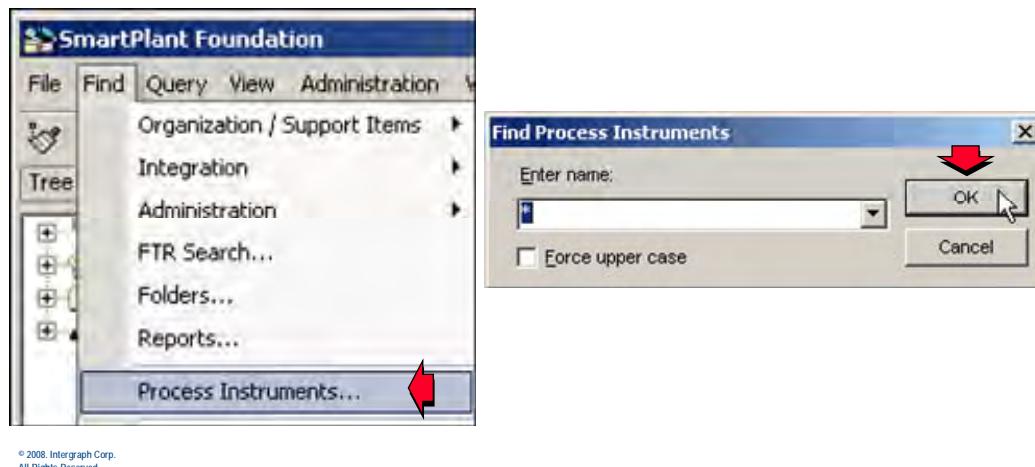
The P&ID has now been retrieved into this design basis document, **IPD_128-5001**, and into a vaulted area. The attached file is used as a temporary storage that can be used to load into the *Compare* dialog. Then an engineer can start comparing information from the

data that has been retrieved and associated with this file to the data that is in the database. Because this is the first time that the data has been retrieved then everything should be new. After the retrieve, to show the data segregation, once again perform a search for Process Instruments.



Loading Retrieved Instruments

- ❑ Select **Find > Process Instruments** from the menu. Enter the search criteria in the *Find* dialog and click OK.

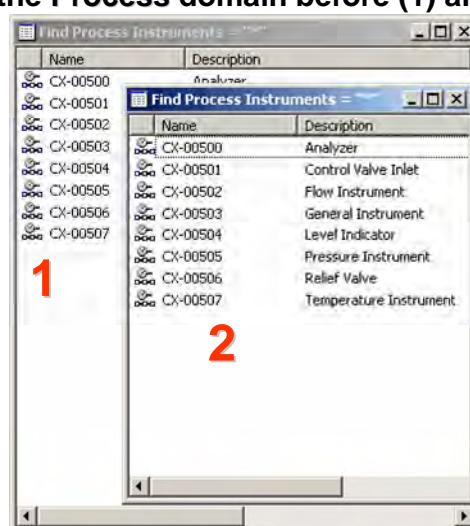


Note that the results of the search before and after the retrieve are the same.



Loading Retrieved Instruments

- ❑ Compare the results of the Process domain before (1) and after (2) the retrieve.



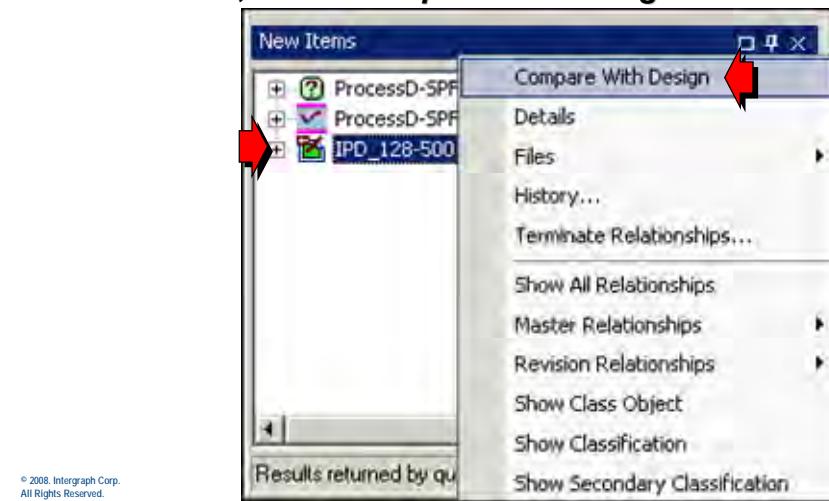
13.5.4 Loading Retrieved Data

The retrieved instrument data will need to be loaded into the correct configuration. Because the approval steps are optional, the starting point of the load is from the published document. To begin the load process, select the design basis document to compare with design.



Loading Retrieved Instruments

- Right click on the retrieved P&ID and from the shortcut menu, select **Compare With Design**.



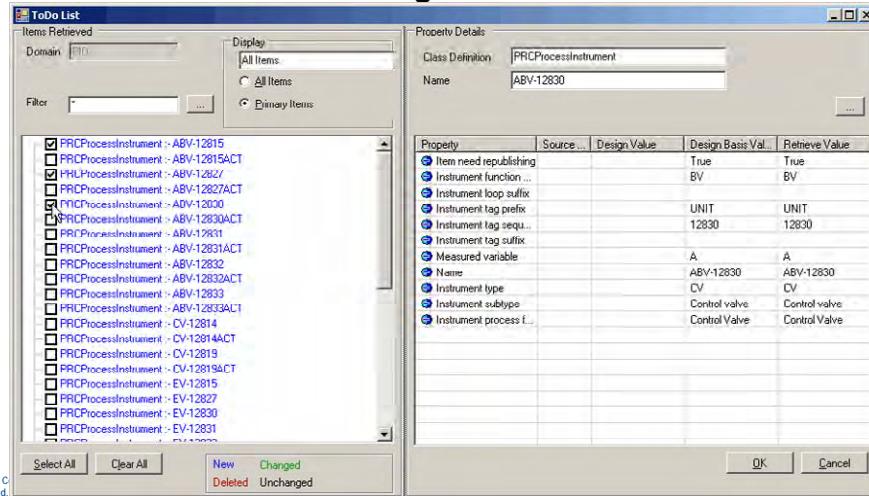
What is happening now is the data that is held in the temporary file attached to the design basic document will be compared with the database within the authoring environment.

What is shown in the *To Do List* is all of the objects that are new to the authoring environment. The **blue** color indicates that these objects are new.



Loading Retrieved Instruments

- Enable the toggles for the retrieved instruments to be loaded into the authoring domain.

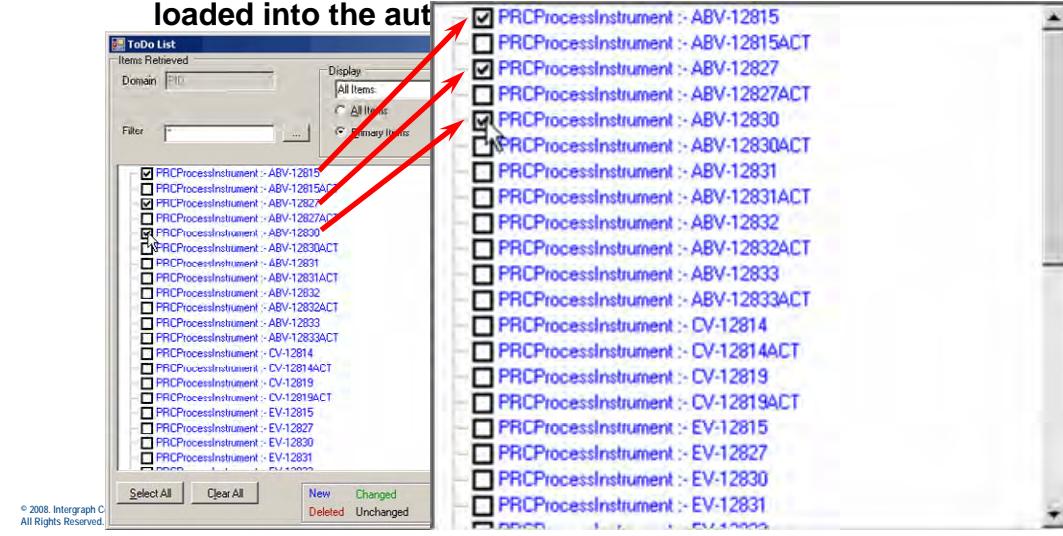


Select a few of these objects to be loaded into the authoring environment (domain).

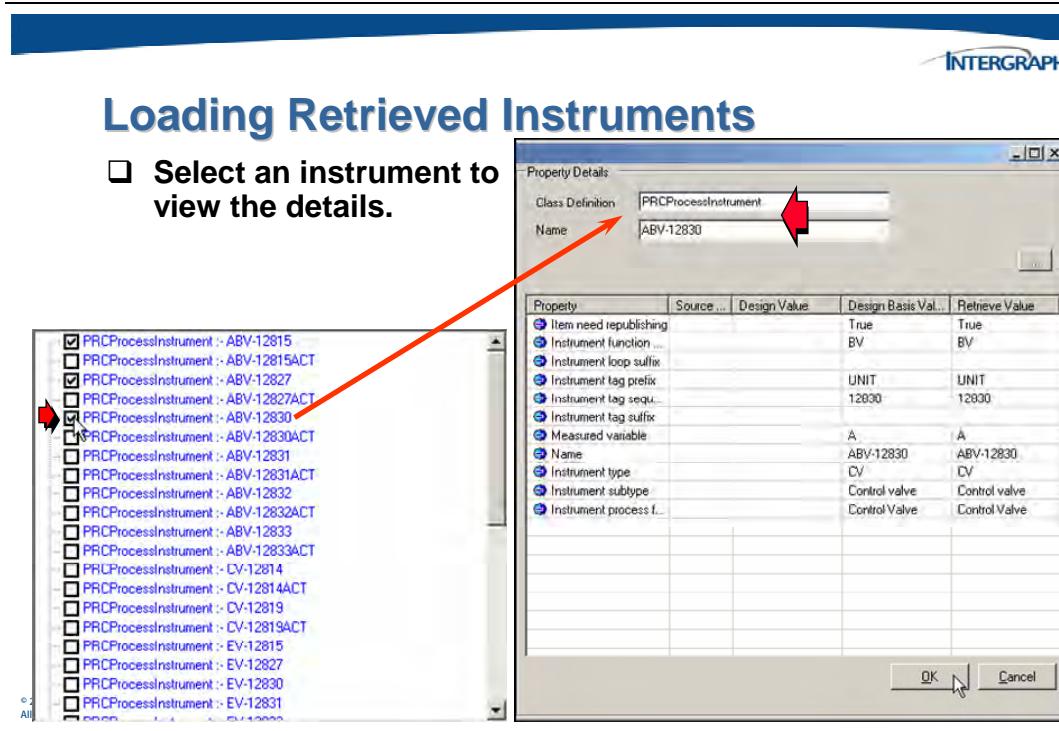


Loading Retrieved Instruments

- Enable the toggles for the retrieved instruments to be loaded into the aut...



As instruments are highlighted, the information that is held about that object is displayed in the right-hand pane.



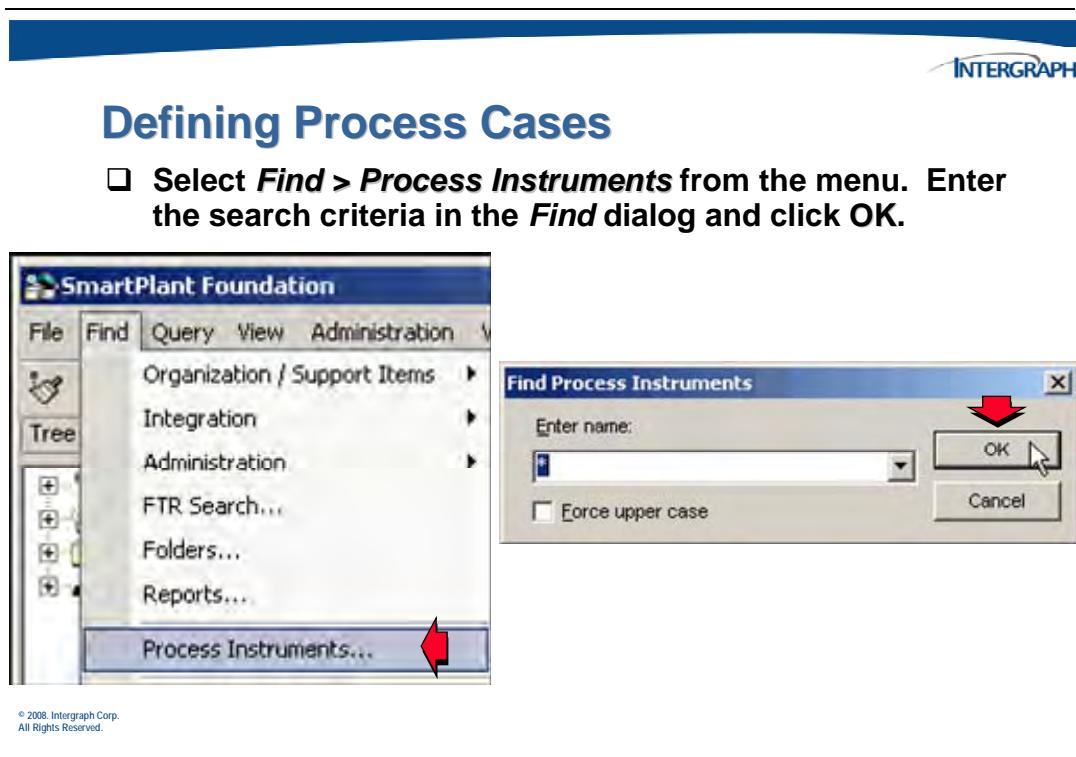
The property, its design basis value and what value will actually be retrieved for the selected instruments will be loaded when the **OK** button is selected.

13.5.5 Defining Process Cases

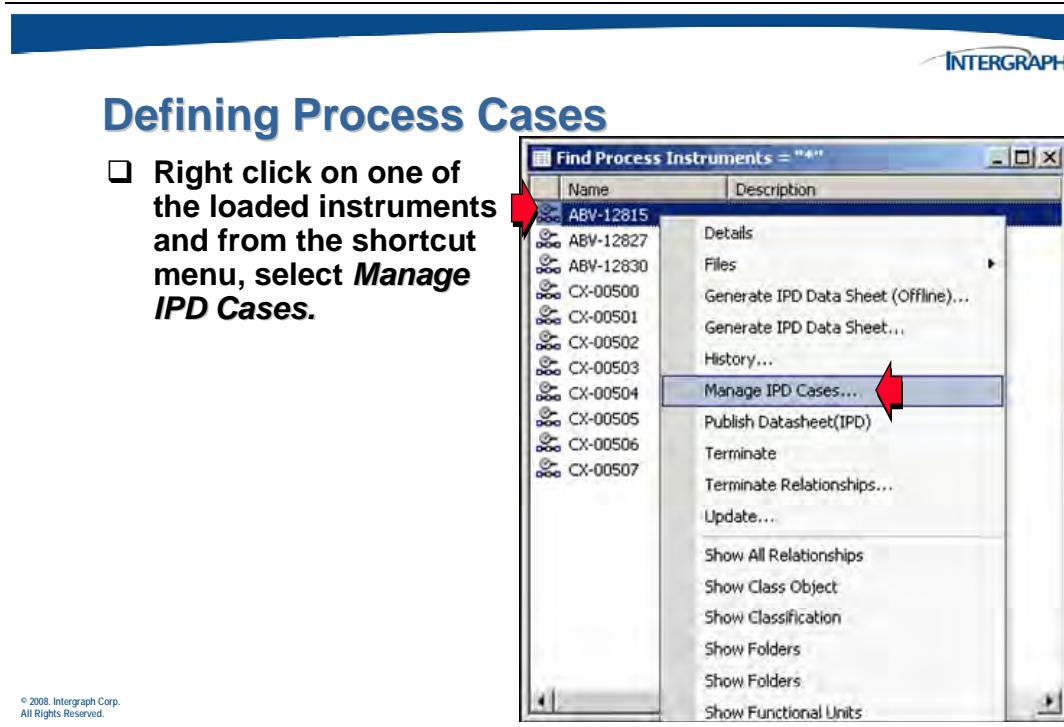
With the authoring work that is needed, a datasheet will be used to populate the retrieved data with more information.

However, before doing that, the data that will be instantiated is referred to as a **Structured Instrument** that includes a *Process Point*. A process point can have different process cases attached to it; *Startup*, *Winter*, *Shutdown* and *Summer* for example.

Perform a **Find** command to view the loaded instruments.

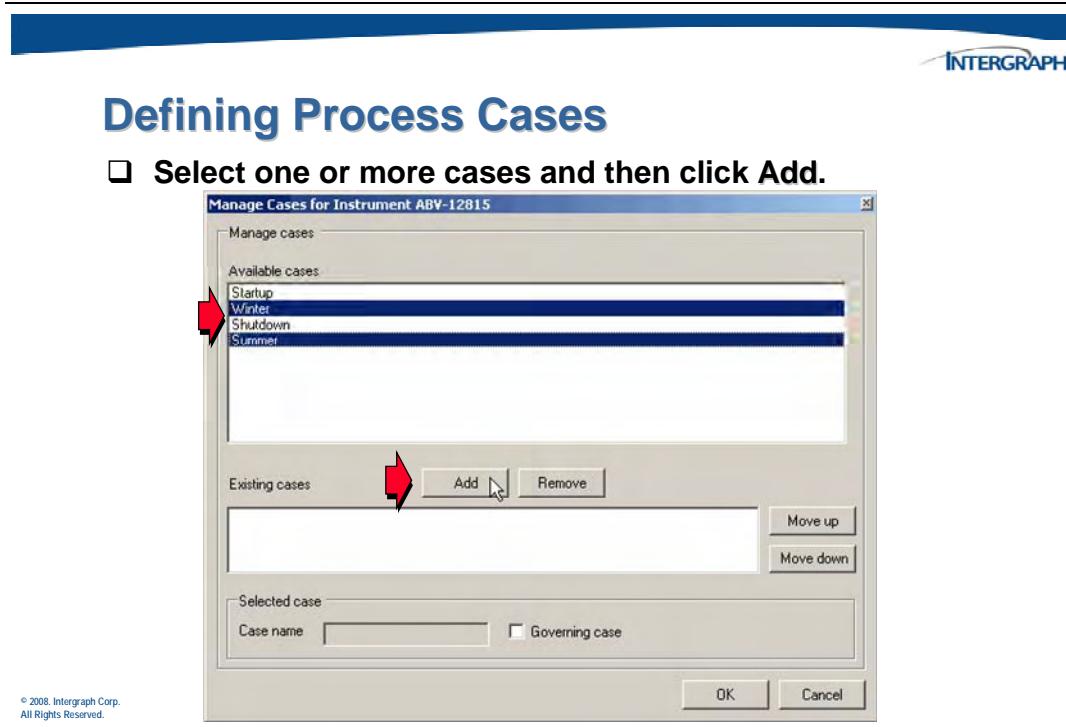


In the Find results *list view window* for *Process Instruments* three additional objects will now be displayed. What will be viewed is the bare minimum information retrieved from the P&ID.

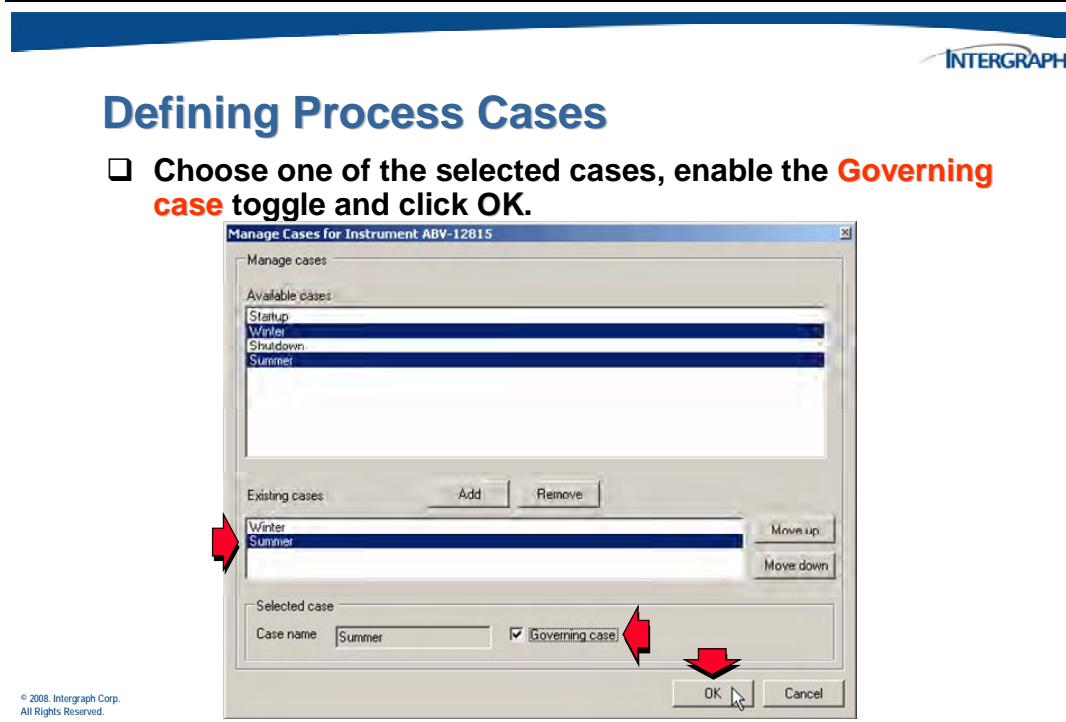


The structure of the *Process Point* will be shown in more detail, once a command called **Manage IPD Cases** has been executed.

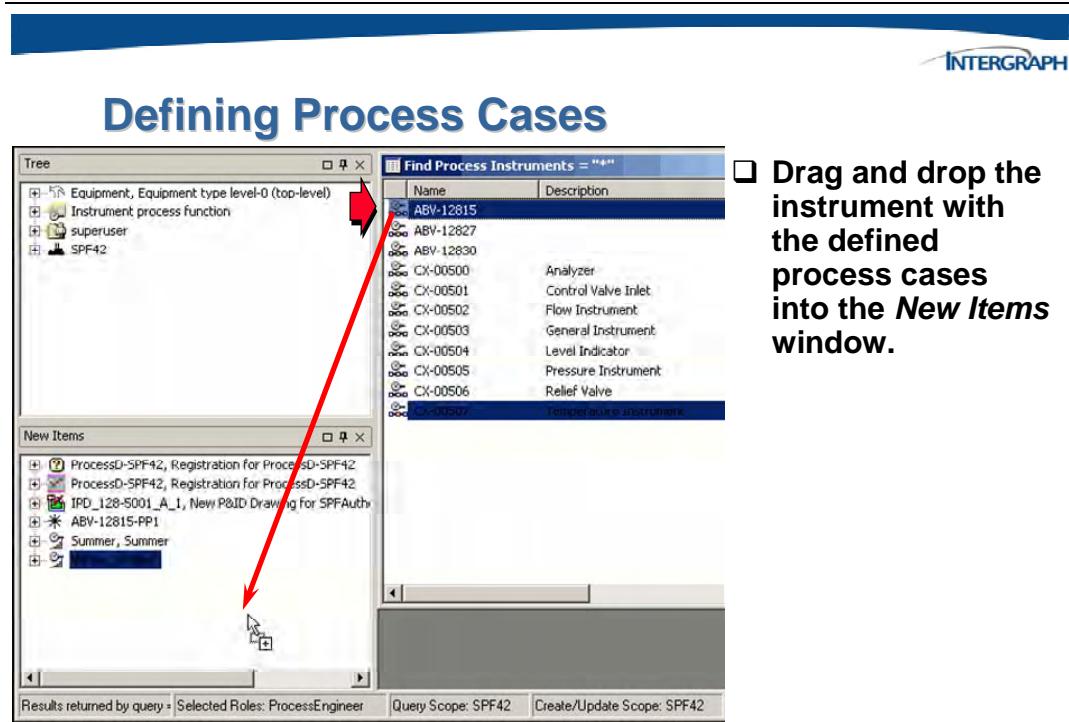
The manage cases are objects that are created in the database so it is easy to extend this short list of cases.



In this example, two cases are selected and added to the *Existing cases*. **Summer** will be highlighted and made the **governing case**.

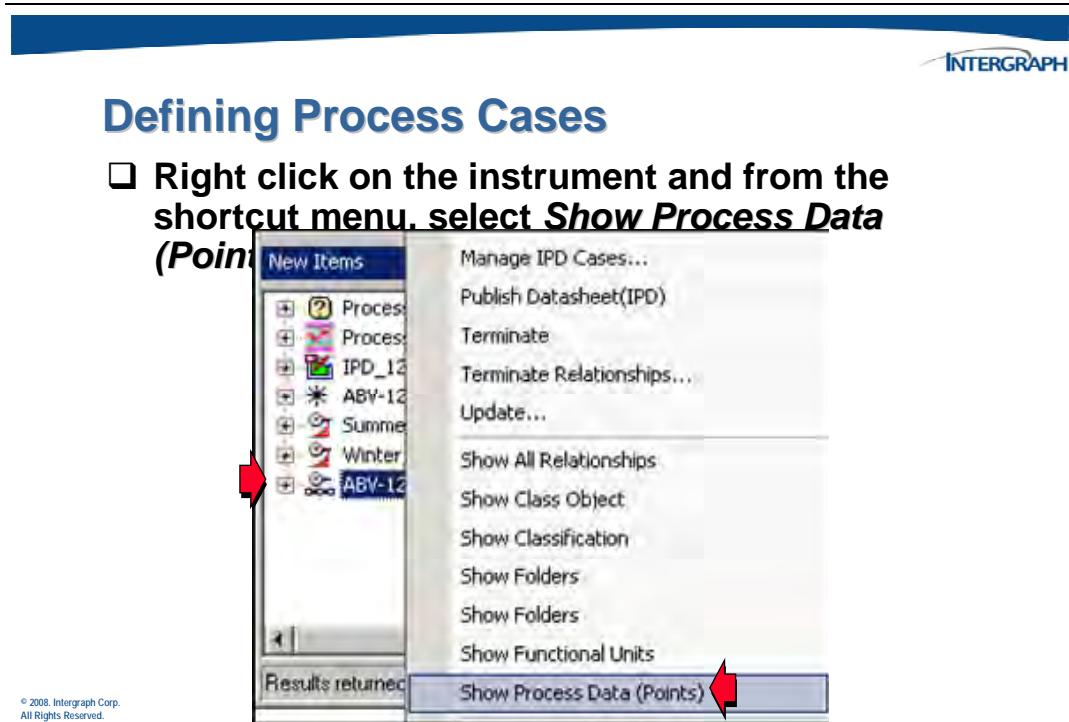


In the *New Items* window, the software has instantiated this process point in a number of case objects.



- Drag and drop the instrument with the defined process cases into the *New Items* window.

Expand and view the instrument that was originally selected, but in more detail in the structure.



Defining Process Cases

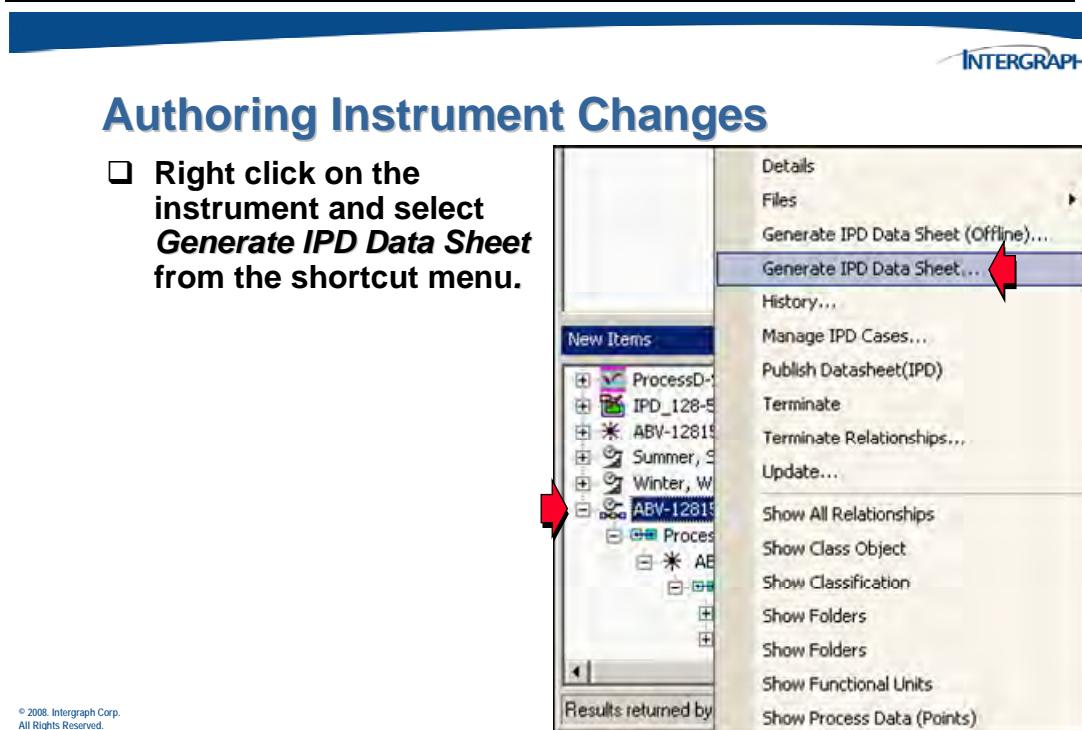
- Next, right click on the Process Data Point and from the shortcut menu, select **Show Process Point Cases**.



The object should now have one process point and it should have two process point cases. The total number of objects which constitute this one particular instrument object is two cases, one process point, one instrument, and there are four relationships between the various objects to make up this single object.

13.5.6 Authoring Data Changes

When the P&ID drawing was initially created, it was populated with the bare minimum of information. This minimal property information is what was retrieved from the P&ID into the data warehouse. By loading the retrieved P&ID information into an authoring domain, additional property values can be added to the object in a couple of different ways. One option is to bring up one of the instrument objects in a datasheet and author any value added data.



The software will load the right datasheet based on the classification of object retrieved and selected. In this example, a *Control Valve* instrument has been selected. The software will access the database on the server, extract the template that deals with control valves and then display it on the client machine.

The software will then launch Microsoft Excel on the client machine to display information about the selected control valve and the related process cases.

Authoring Instrument Changes

- Select a cell, **Seat Leakage** for example, and choose a value from the displayed list.

Some fields such as *Fluid Name*, *Seat Leakage* and *Failure Action* are on the process instrument itself. If a field has a picklist, allowed values will be populated from the schema and database which have been installed in the background of the datasheet.

Authoring Instrument Changes

Zoomed in view of the Control Valve Process Datasheet.

For a Unit of Measure field, select the appropriate UOM first and then enter the correct value.



Authoring Instrument Changes

- Continue to set the UoM's and update the datasheet values.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Control Valve Process Datasheet														
GENERAL DETAILS														
3 Tag number														ABV-12815
4 Service														
5 Fluid Name														Water
6 Seat Leakage														ANSI I
7 Failure Action														Close
8 Handwheel														
9														
GENERAL PROPERTIES														
11 Design pressure	Min							4						bar
12	Max							50						Torr
13 Design temperature	Min													at
14	Max													atm
15														bar
16 Case Name														barg
17														cmH2O_40C
18 Fluid State	Min													cmHg_0degC
19	Norm													dyn/cm^2
20	Max													
21	Min													
Control Valve														

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If the UoM is changed, the corresponding value will also change to reflect the selected UoM based on the conversions that are being done in the background.



Authoring Instrument Changes

- Zoomed in view of the Control Valve Process Datasheet showing the ongoing changes.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Control Valve Process Datasheet														
GENERAL DETAILS														
3 Tag number														ABV-12815
4 Service														
5 Fluid Name														Water
6 Seat Leakage														ANSI I
7 Failure Action														Close
8 Handwheel														
9														
GENERAL PROPERTIES														
11 Design pressure	Min							4						barg
12	Max							50						
13 Design temperature	Min							0						C
14	Max							50						
15														
PROPERTIES														
16 Case Name								Winter						
17														
18 Fluid State	Min													
19	Norm													
20	Max													
21	Min													
Control Valve														

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Enter data for the different cases by populating information in the appropriate column in the datasheet.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
11					Min		4															
12					Max									barg								
13					Design temperature									Min		0						
14					Max									Max		50						
15																						
16																						
17																						
18																						
19																						
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31																						
32																						

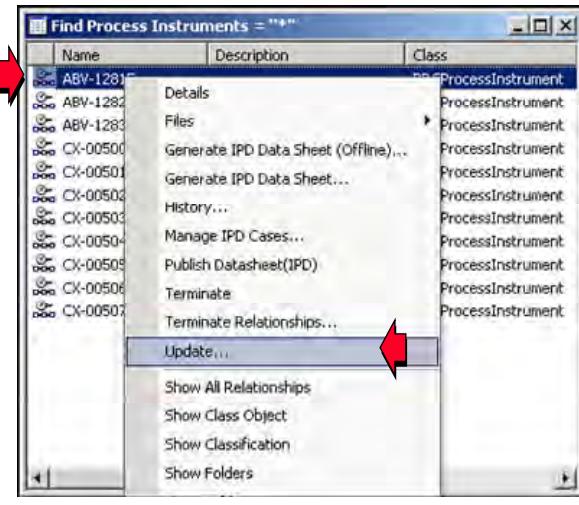
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The updated property values will then be saved back into the database. Remember to move the cursor out of the last cell that was updated before selecting the *Save* button.

1

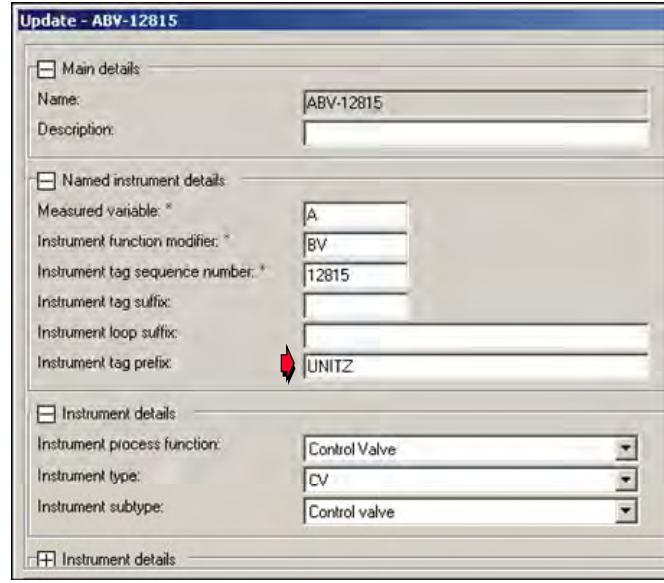
2

Another option is to use the form instead of a datasheet to author any additional data.



The screenshot shows the 'Find Process Instruments' dialog box with a list of instruments. A right-click context menu is open over the instrument 'ABV-12815'. The menu items include: Details, Files, Generate IPD Data Sheet (Offline)..., Generate IPD Data Sheet..., History..., Manage IPD Cases..., Publish Datasheet(IPD), Terminate, Terminate Relationships..., Update..., Show All Relationships, Show Class Object, Show Classification, and Show Folders. The 'Update...' item is highlighted with a red arrow pointing to it from the left.

In the following example, the *Instrument tag prefix* field will be changed.



The screenshot shows the 'Update - ABV-12815' dialog box. In the 'Named instrument details' section, the 'Instrument tag prefix' field is currently set to 'UNITZ'. A red arrow points to this field. To the right of the dialog, a list item is described:

- Use the form to make any necessary property changes.

Any additional fields can be added or existing values changed.

Continue using the form to make property changes.

Once the additions and/or modifications are complete, save the form changes.

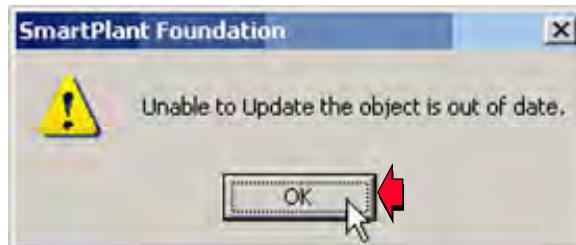
To update the instrument with the changes, select the **Finish** button.

Because the instrument has already been updated by the previous datasheet operation, an error message may display. The datasheet update has made the instance of the instrument in the list view window “out of date”. To prevent this issue, use the ***Auto refresh on RHM click*** setting in ***User Preferences***.



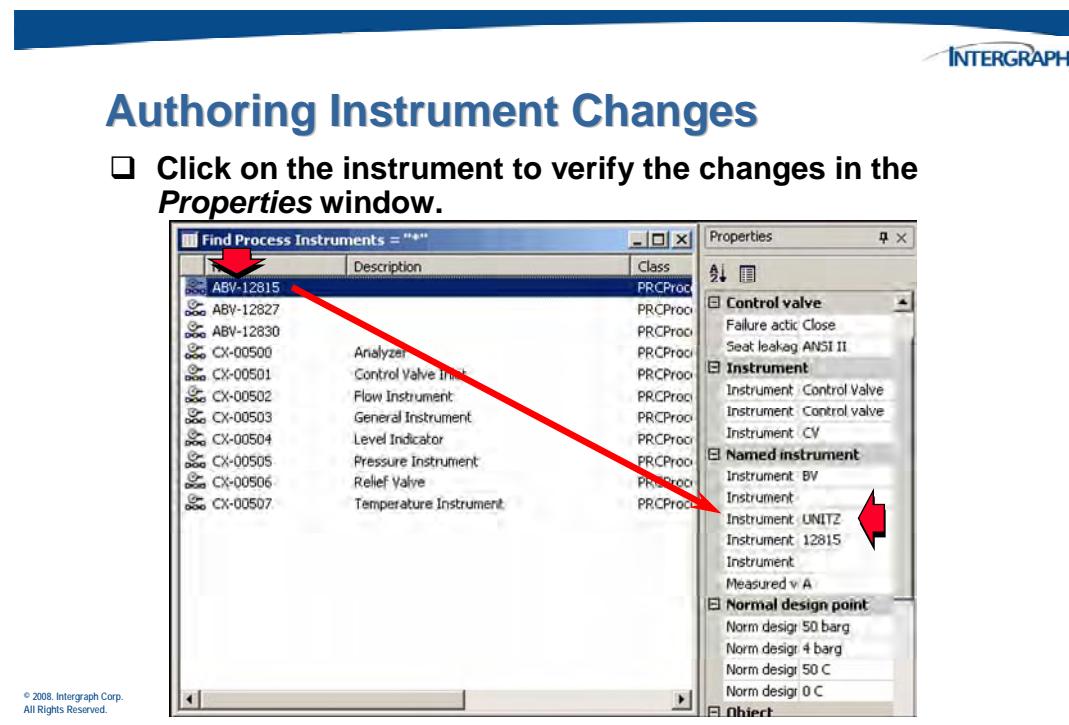
Authoring Instrument Changes

- If an error occurs, select OK to make corrections and try the update again. You can use the ***Auto refresh on RHM click*** setting to avoid this error.

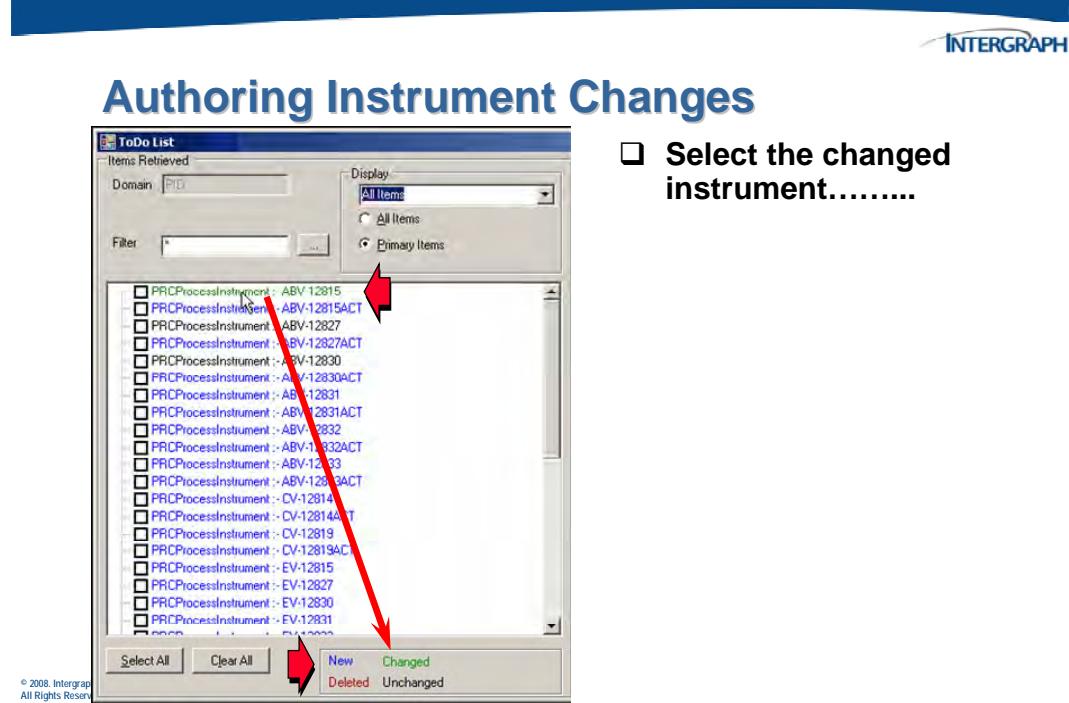
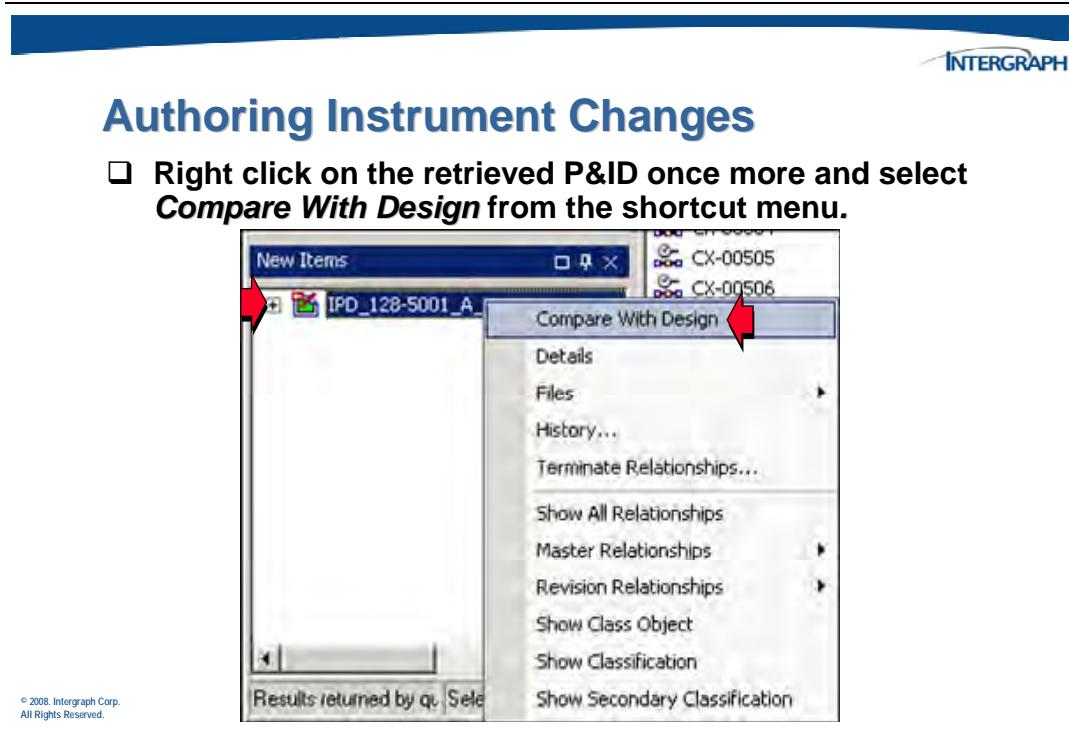


13.5.7 Verifying Authoring Changes

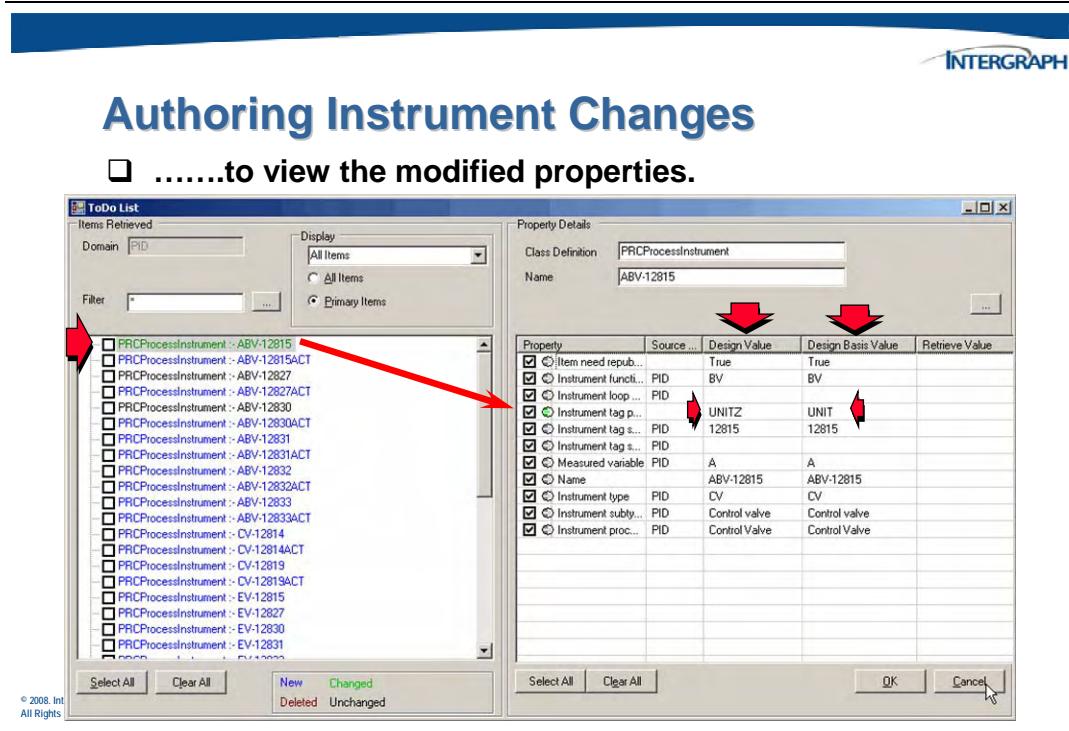
As a result of the change, the *Instrument tag prefix* property has been modified.



Before publishing the changes, the ***Compare with Design*** command can be used to view the modifications.

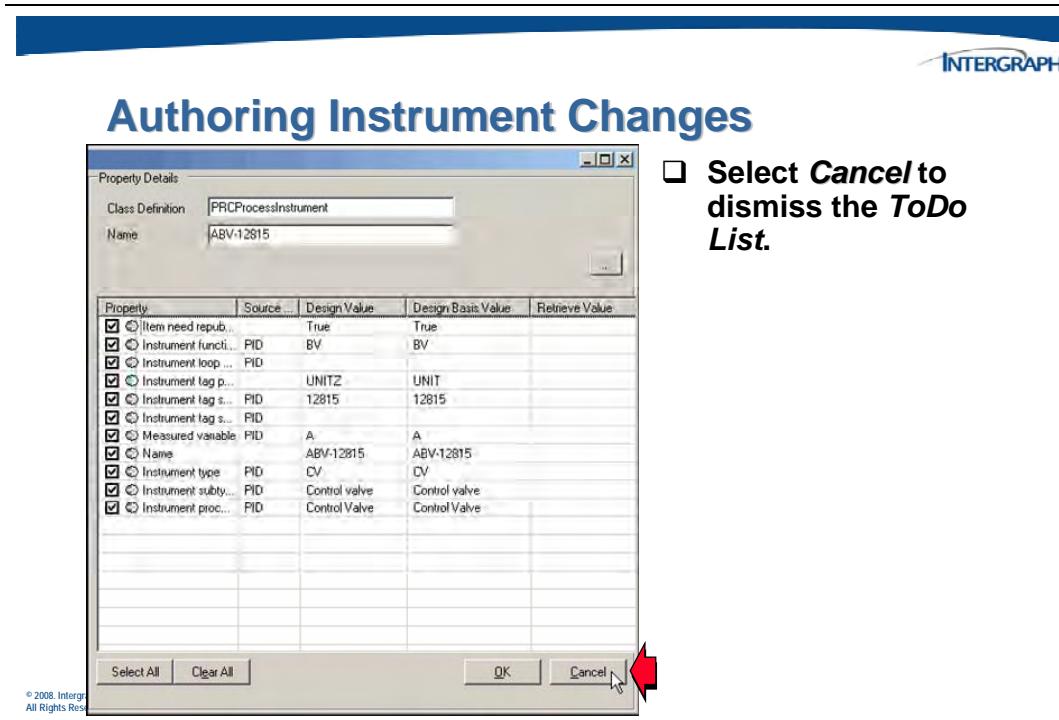


The instrument **ABV-12815** now shows as a green color to indicate that it has been **Changed**. The other loaded instruments remain a black color to indicate that they remain **Unchanged**.



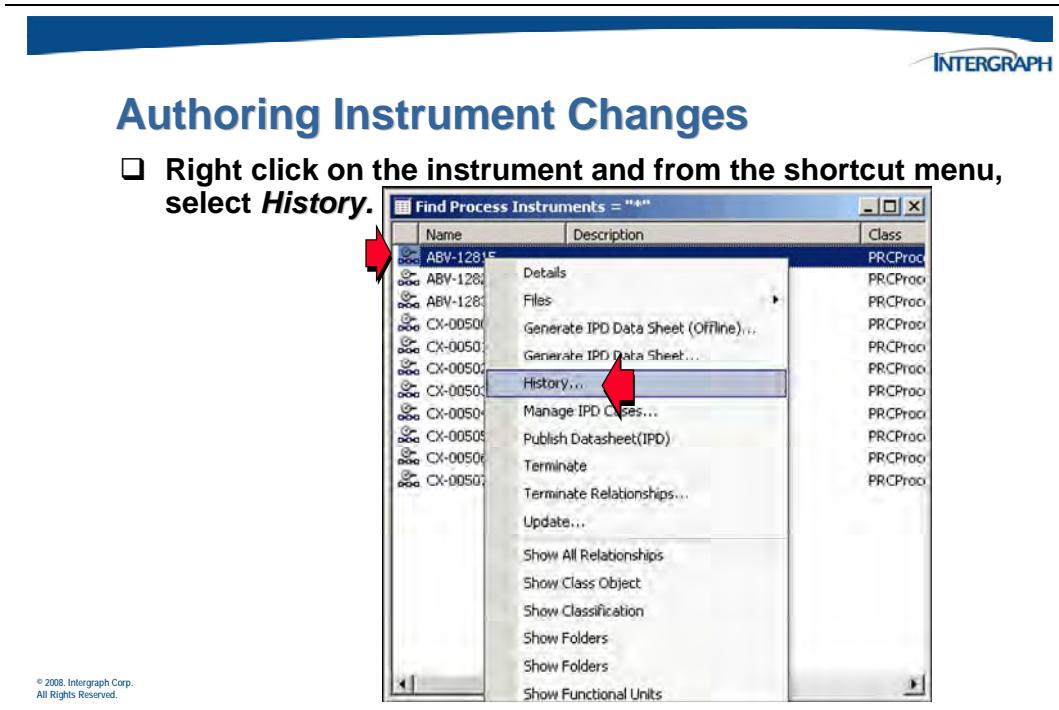
The value inside the authoring domain for the *Instrument tag prefix* is **UNITZ** while the value in the DW Shared domain is **UNIT**.

As a result of the change, the *Instrument tag prefix* field also displays a green icon to indicate that there is a data inconsistency between the data warehouse and the authoring environment.

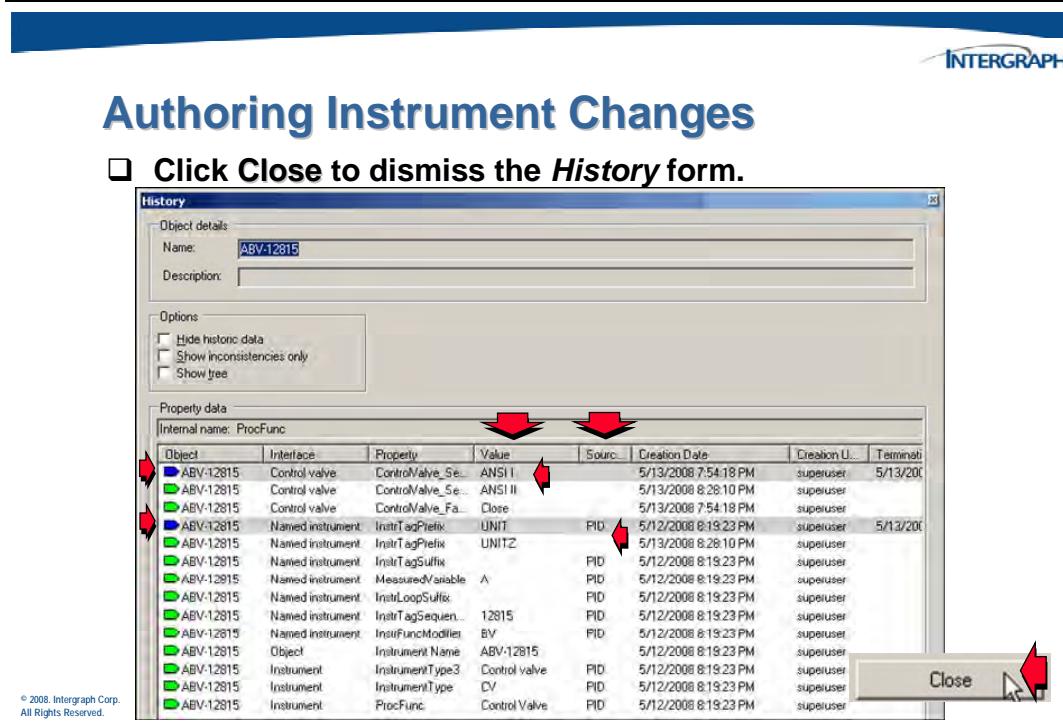


- Select **Cancel** to dismiss the *ToDo List*.

The *Cancel* will prevent the changed value from being overwritten by reloading the data again from P&ID.



The *History* form will show the changed properties in blue and the source of the original value as well as the changed value. A blank indicates that the value came from SPF.



This form is very useful for engineers to be able to see where the data values have come from. In addition, it gives the engineer some confidence about the data being held in the authoring environment (domain).

13.6 Publishing Data from SPF

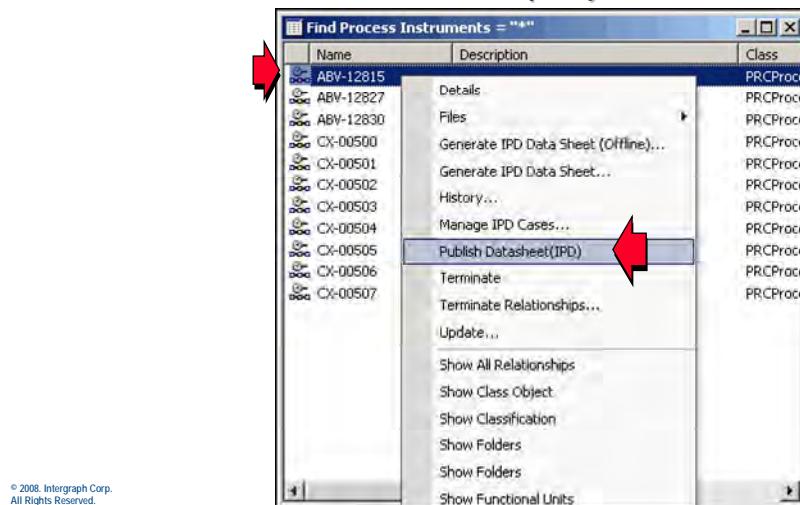
When data is ready to be published from SmartPlant Foundation from the authoring domain back into the data warehouse, this can be accomplished in a couple of ways:

- By clicking **Publish** on the SmartPlant menu. This will display all the documents in the tool that are available for publishing.
 - Use the **Publish** shortcut menu command on certain objects. This will only display the documents for the selected object.
-



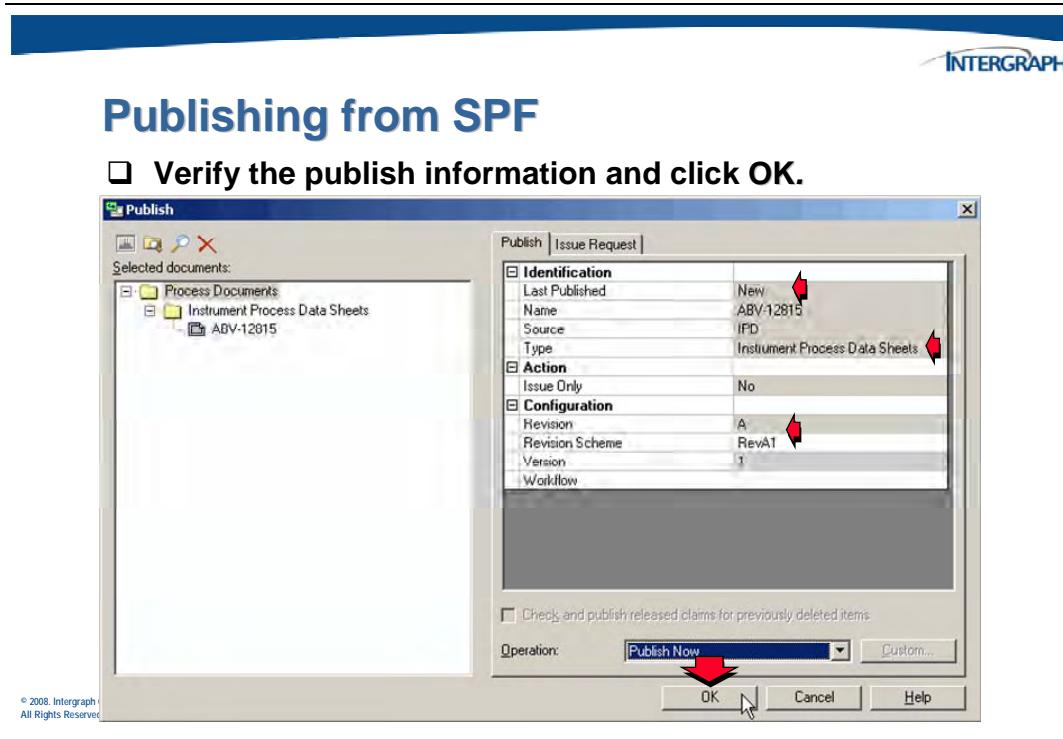
Publishing from SPF

- Right click on the instrument and from the shortcut menu, select **Publish Datasheet (IPD)**.



In order to have a view file with all the latest data on it, SPF needs to re-generate the datasheet. So this command is used to actually re-generate the datasheet. Once the datasheet has been re-generated, the SmartPlant Client will display the *Publish* form.

The *Publish* form will display the selected IPD document. Behind the scenes a new document has been created, **ABV-12815**, which is identical to the instrument being published. A new revision scheme will need to be selected in order to publish.



The *Publish* tab displays properties of the selected document or documents. If only one document is selected in the tree view, the properties displayed on this tab are the properties of that one document. If multiple documents are selected, only the properties with the same value for all documents are displayed. Any properties with varying values across the documents appear as blank values in these fields.

The following fields are displayed in the *Publish* form:

Identification

Last Published The date on which the document or documents were last published.

Name The name of the document.

Source The authoring tool in which the document was created.

Type Type of document or documents selected

Action

Issue Only Allows you to issue request documents without, necessarily, republishing them. Use this option when no changes were made to a document, but you want to add the document to a transmittal.

Configuration

Revision

Revision Scheme Select revision scheme from drop down list.

Version

Workflow Select workflow from drop down list. Options are:

AutoLoadPublish

Correlate

Publish

Publish with DocLoad

Operation Publish Now

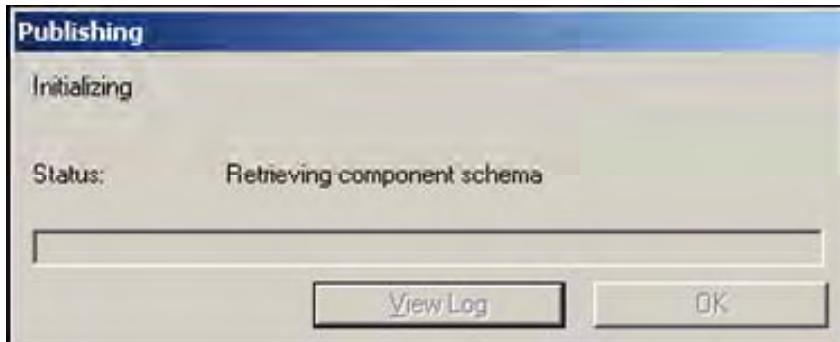
Background Publish

The data will be extracted from the authoring environment and converted to a format that is acceptable into the data warehouse.



Publishing from SPF

The SPF tool adapter will retrieve the component schema the same as any other authoring tool.

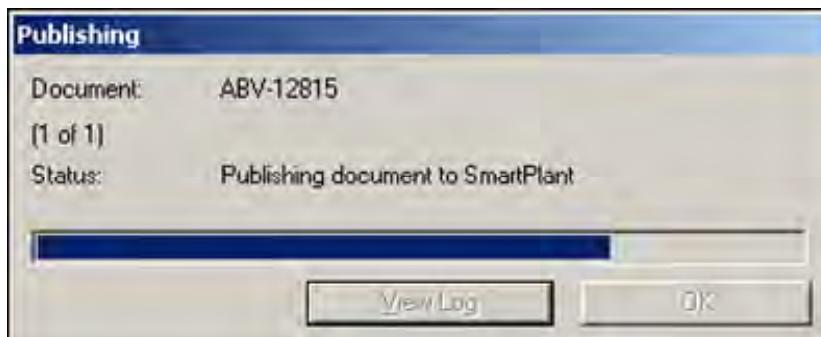


A copy of the published data will be generated and stored in the data warehouse.



Publishing from SPF

The SPF tool adapter will create an XML file and push it to the vault.



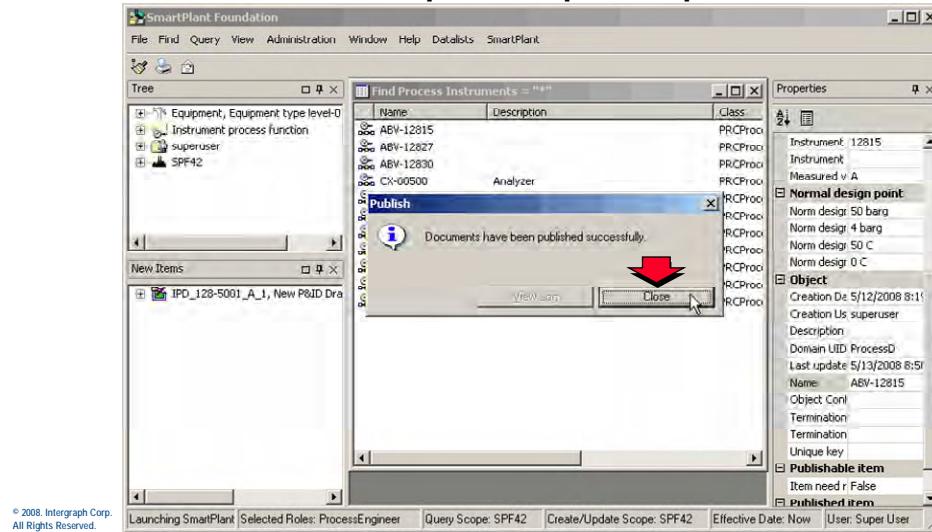
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The instrument data will be transferred and attached to the **ABV-12815** document object.



Publishing from SPF

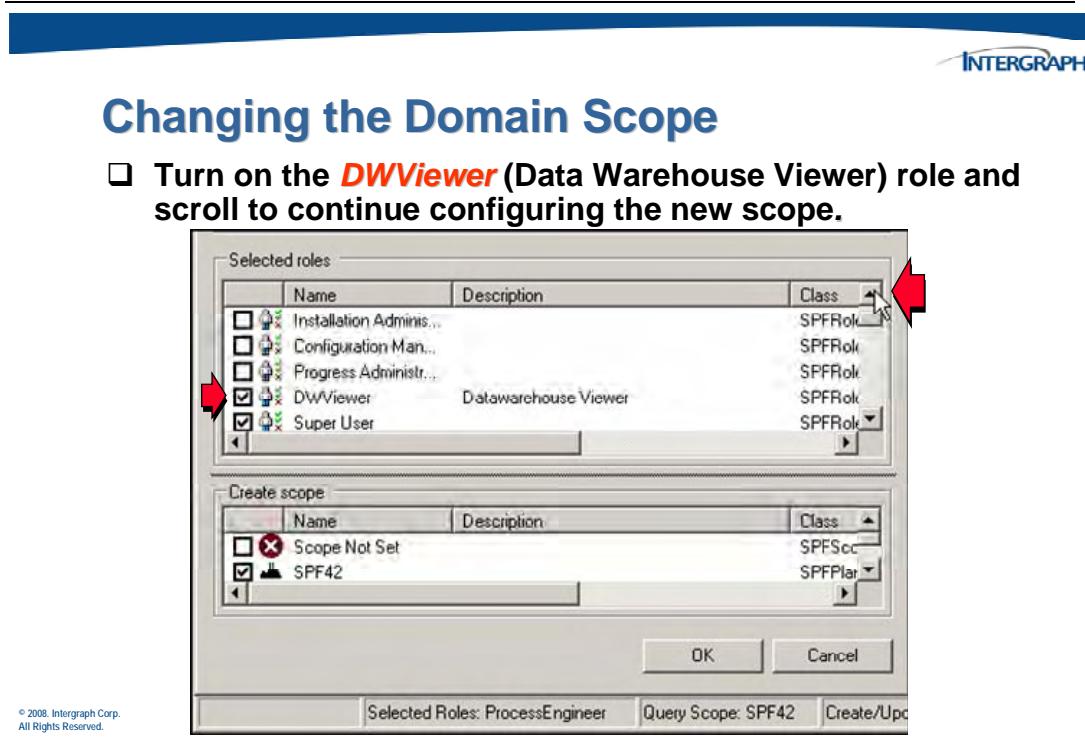
- Click Close to complete the publish process.



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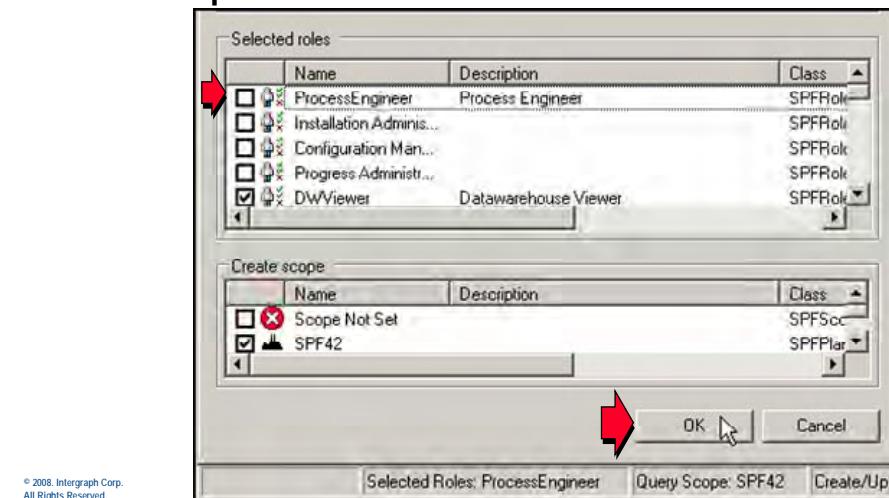
13.6.1 Verifying the Published Data

To verify the published instrument, change from the *ProcessEngineer* role to the *Super User* and the *DWViewer* roles using the *Set Scope* menu command.



Changing the Domain Scope

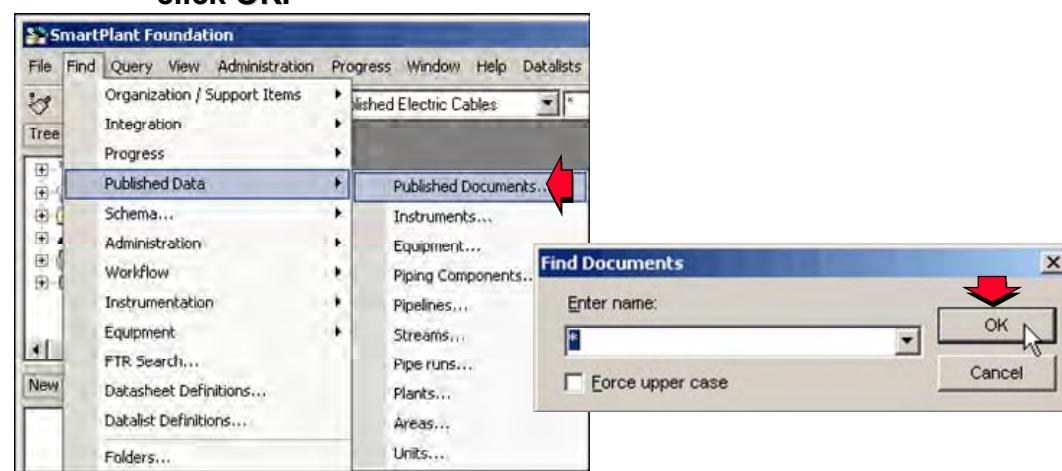
- Turn off the **ProcessEngineer** role and click OK to set the scope.



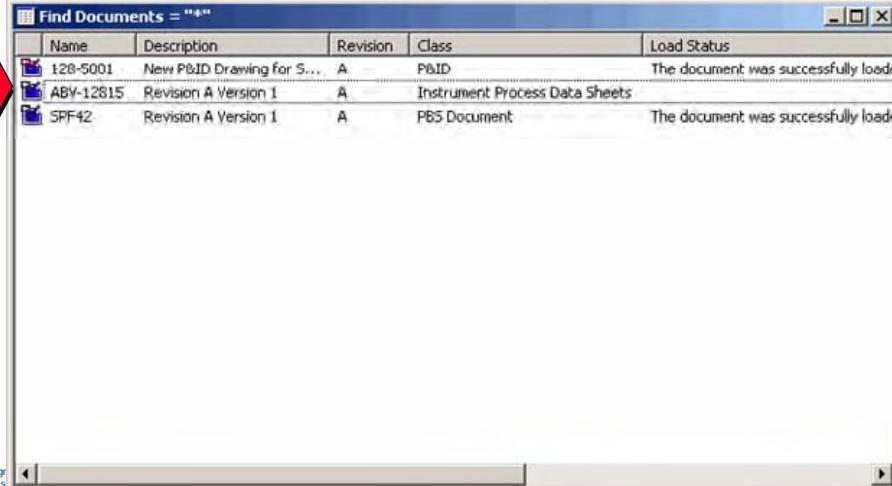
Note that the menus have changed based on the roles selected. Perform a search in order to view the published documents.

Verifying the Published Instrument

- Select **Find > Published Data > Published Documents** from the menu. Enter the search criteria in the **Find** dialog and click **OK**.



The list view window will now show three published documents rather than the original two documents. The new document corresponds to the *Instrument Process* data that was published from the authoring domain.



The screenshot shows a Windows application window titled "Find Documents = '**'". The window has a grid view with columns: Name, Description, Revision, Class, and Load Status. There are three items listed:

Name	Description	Revision	Class	Load Status
12B-5001	New PbID Drawing for S...	A	PbID	The document was successfully loaded
ABY-12615	Revision A Version 1	A	Instrument Process Data Sheets	The document was successfully loaded
SPF42	Revision A Version 1	A	PBS Document	The document was successfully loaded

A red arrow points to the first item in the list, "12B-5001".

Verifying the Published Instrument

Note that the published instrument is now retrieved as a published document.

13.7 Activity 2 – Authoring Data in SmartPlant Foundation

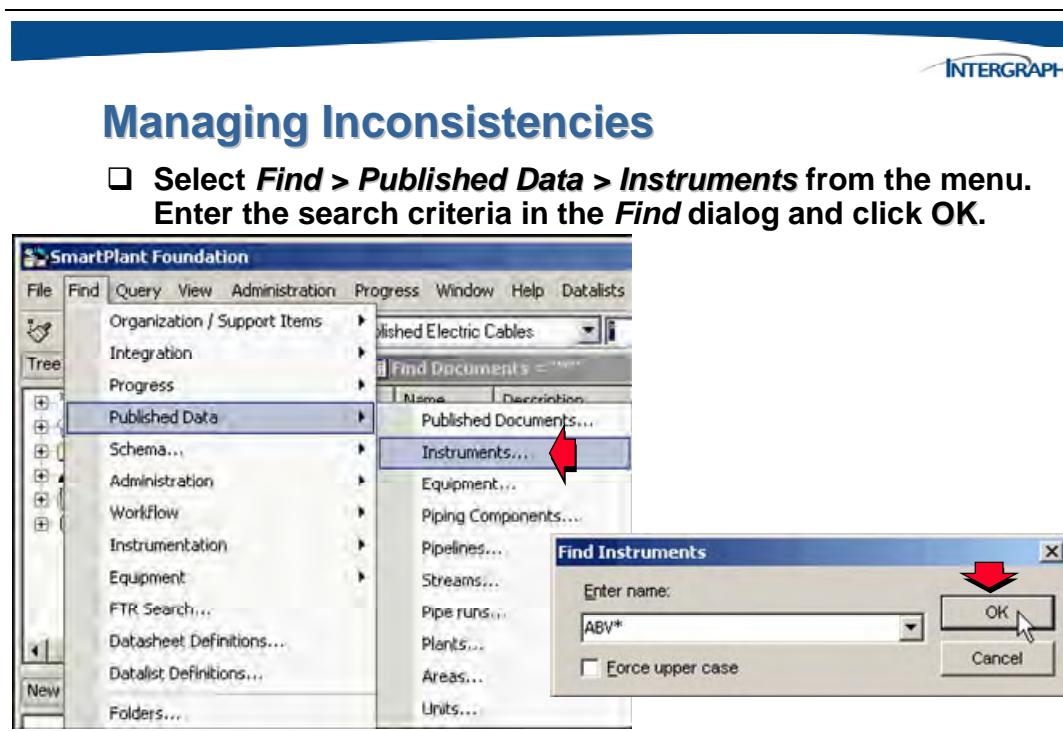
Complete the **Chapter 13 – Activity 2** in the SmartPlant Foundation 2008 (4.2) Introduction and Administration I activity workbook.

13.8 Managing Data Inconsistencies

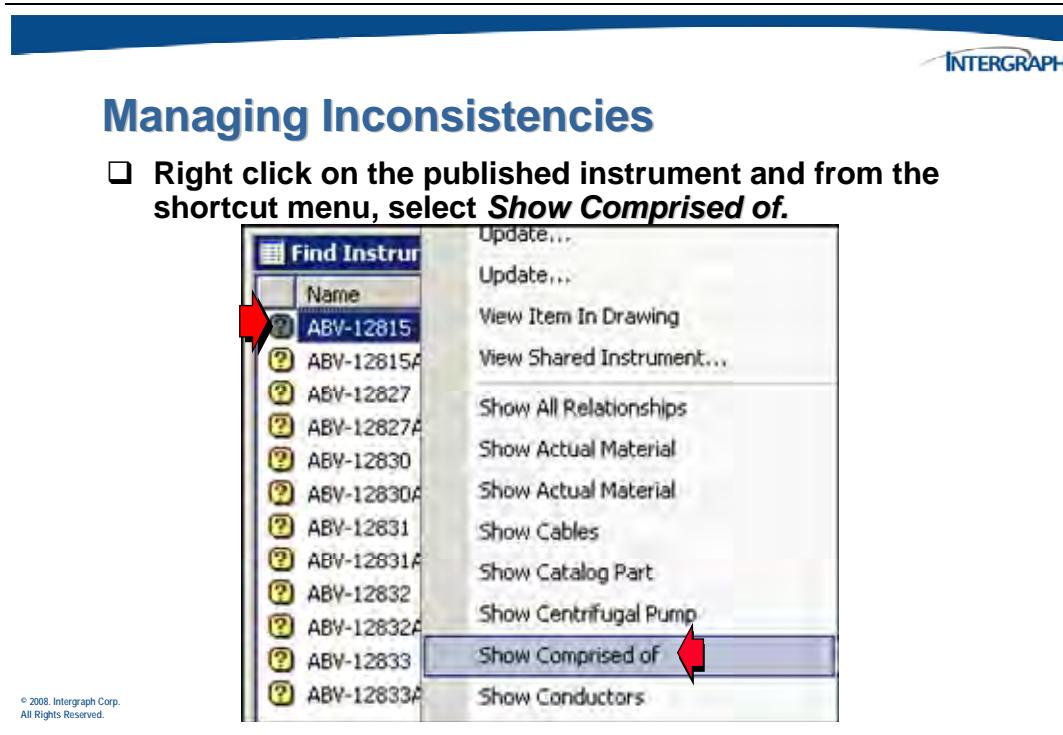
Once the publish has completed, the shared objects from the shared domain can be viewed. A *Property* detail form is used in order to view all of the shared data published by all of the different tools in a single dialog box. This form highlights any inconsistencies found between the different views (or tools) of the data.

This functionality permits the viewing of inconsistencies in data of objects that are **shared** between tools.

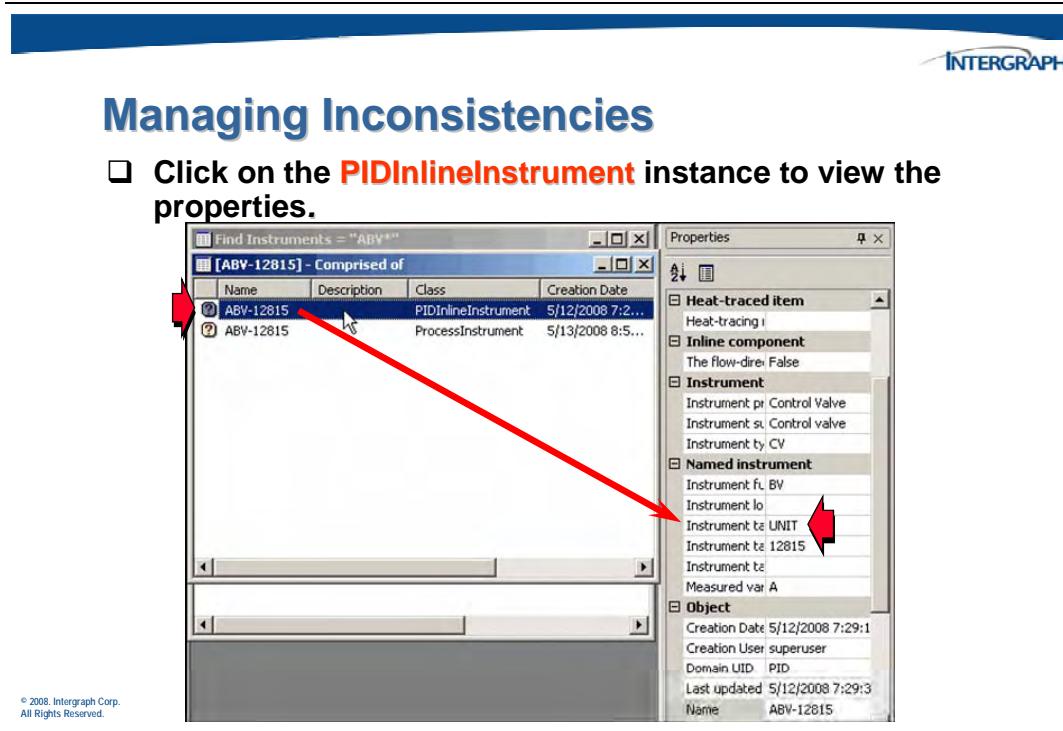
Perform a search that is the same as after the P&ID publish to find all **ABV** instruments.



Highlight the shared instrument, *ABV-12815*, in order to view what it is comprised of.



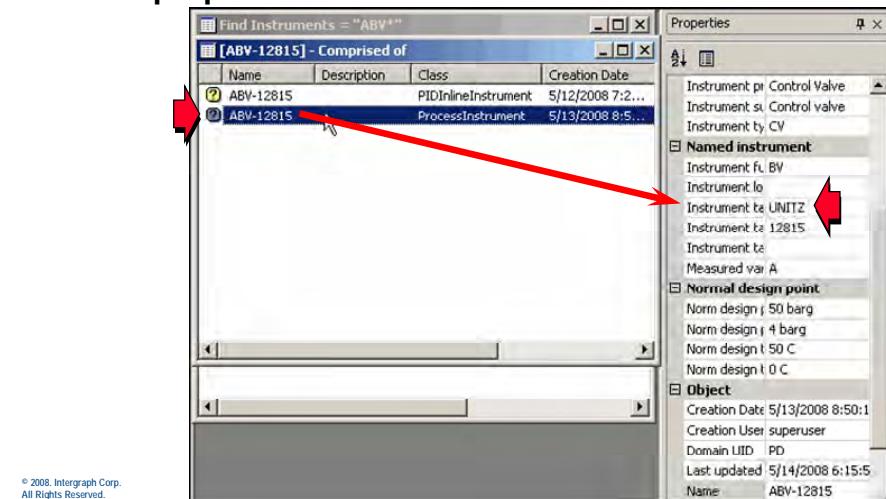
In the view window that appears, note that this shared object is comprised now of a **PIDInlineInstrument** object and a **ProcessInstrument** object.





Managing Inconsistencies

- Click on the **ProcessInstrument** instance to view the properties.

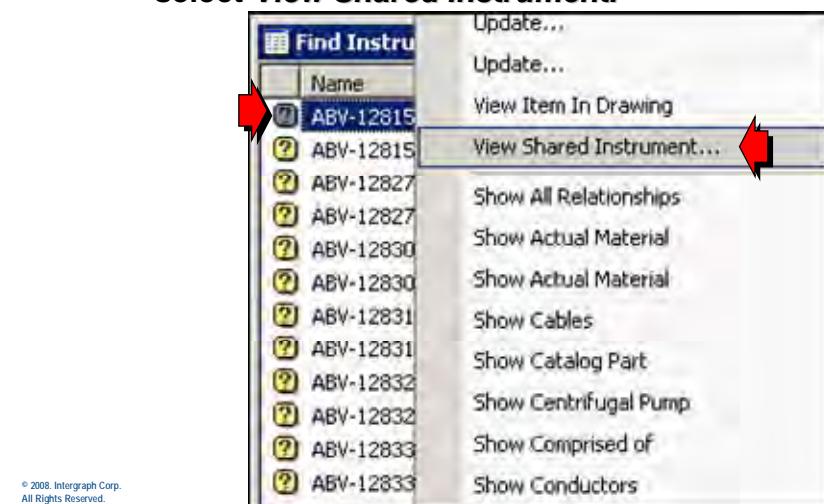


To view the composite shared values from all the tools, use the enhanced *Property* detail form.



Managing Inconsistencies

- Right click on the instrument and from the shortcut menu, select **View Shared Instrument**.



The Property form will show the values from the PID domain and the PD (Process) domain.

Property	Last In Value	PD	PID
Failure action	Close	Close	
Heat-tracing requirement			
Instrument function modifier	BV	BV	BV
Instrument loop suffix			
Instrument process function	Control Valve	Control Valve	Control Valve
Instrument subtype	Control valve	Control valve	Control valve
Instrument tag prefix	UNITZ	UNITZ	UNIT
Instrument tag sequence number	12815	12815	12815
Instrument tag suffix			

The data inconsistency between P&ID and SPF (PD) will be highlighted.

Instrument type	CV	CV	CV
Is claim exclusive	False	False	False
Item has been claimed to a lower config	False	False	False
Measured variable	A	A	A
Name	ABV-12815	ABV-12815	ABV-12815
Nominal diameter	3 in		3 in
Norm design pressure max	50 barg	50 barg	
Norm design pressure min	4 barg	4 barg	
Norm design temperature max	50 C	50 C	
Norm design temperature min	0 C	0 C	
Number of claims	0	0	0
Object Configuration	PL_SPF42	PL_SPF42	PL_SPF42
Seat leakage	ANSI II	ANSI II	

Selected Column Inconsistent property

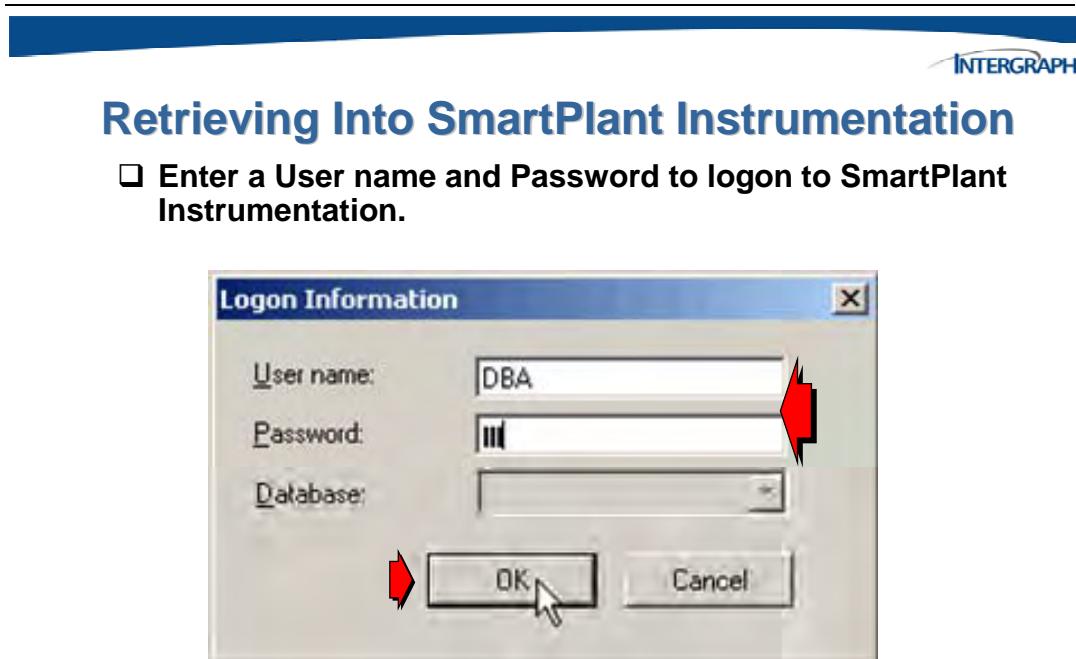
Engineers would need to meet and discuss the data in order to resolve the inconsistency. Once the correct value is identified, then the corresponding tool could correct their data and re-publish. This would hopefully result in all of the fields becoming white again to indicate that all of the tool values align.

The authoring and publish process could be continued for the *InstrumentEngineer* and the *Instrumentation* domain in the same way as for the *ProcessEngineer*.

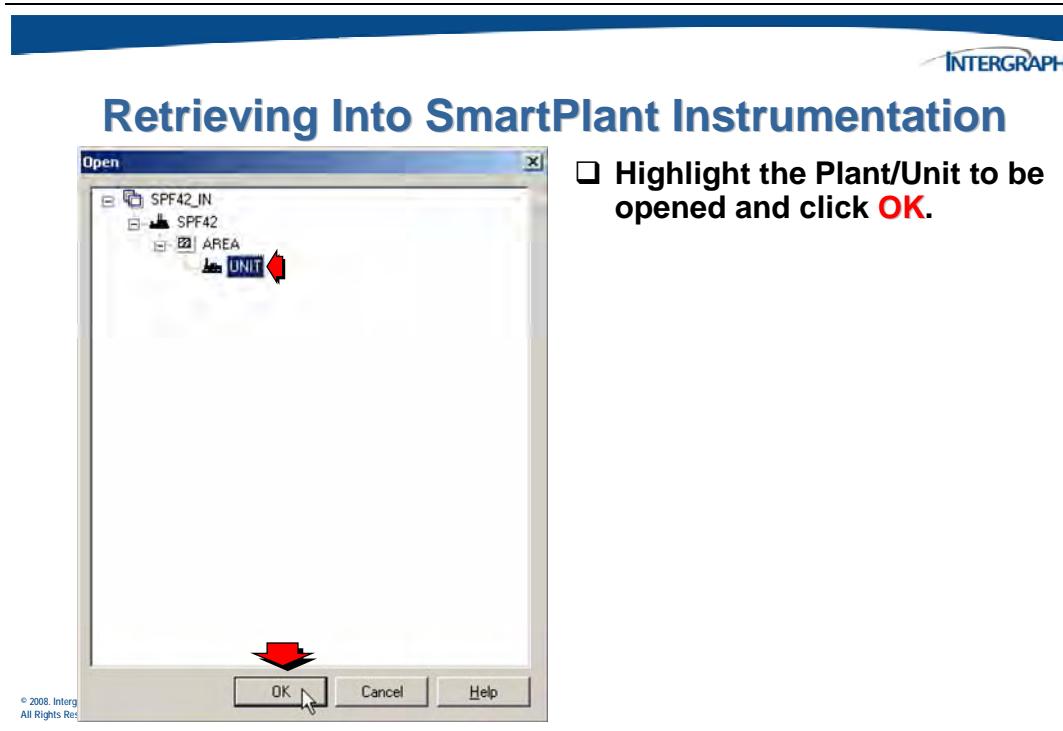
13.9 Retrieving a Change into SmartPlant Instrumentation

Now that the instrument change has been published by SmartPlant Foundation, the document can be retrieved by SmartPlant Instrumentation.

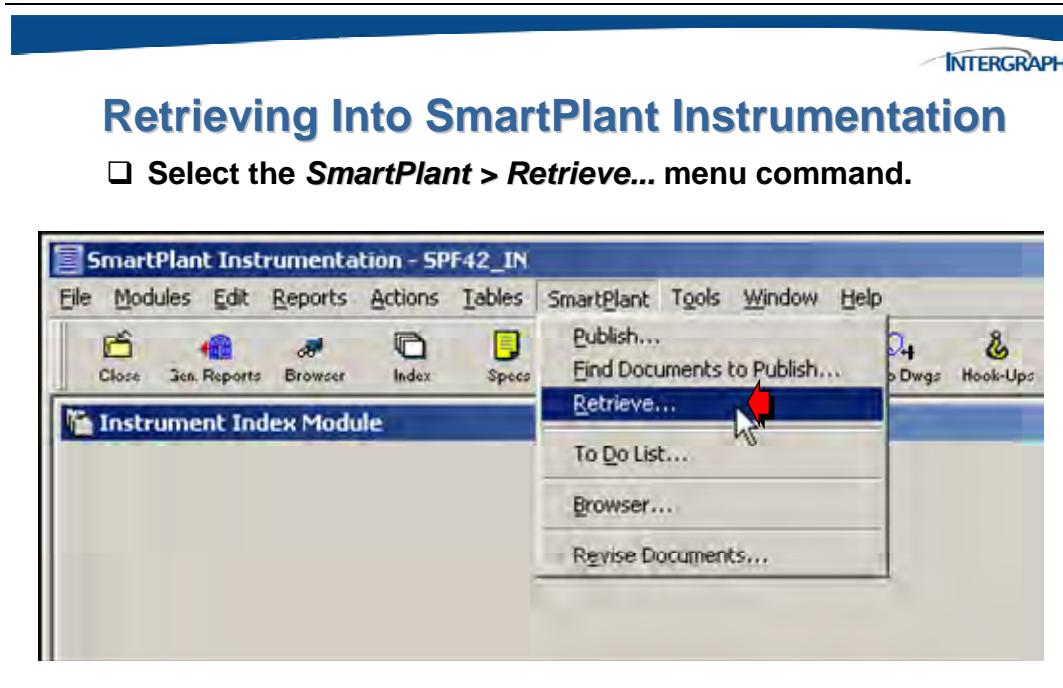
Start SmartPlant Instrumentation and the login dialog will display.



When the *Open* window displays, choose a plant/unit from the displayed tree.



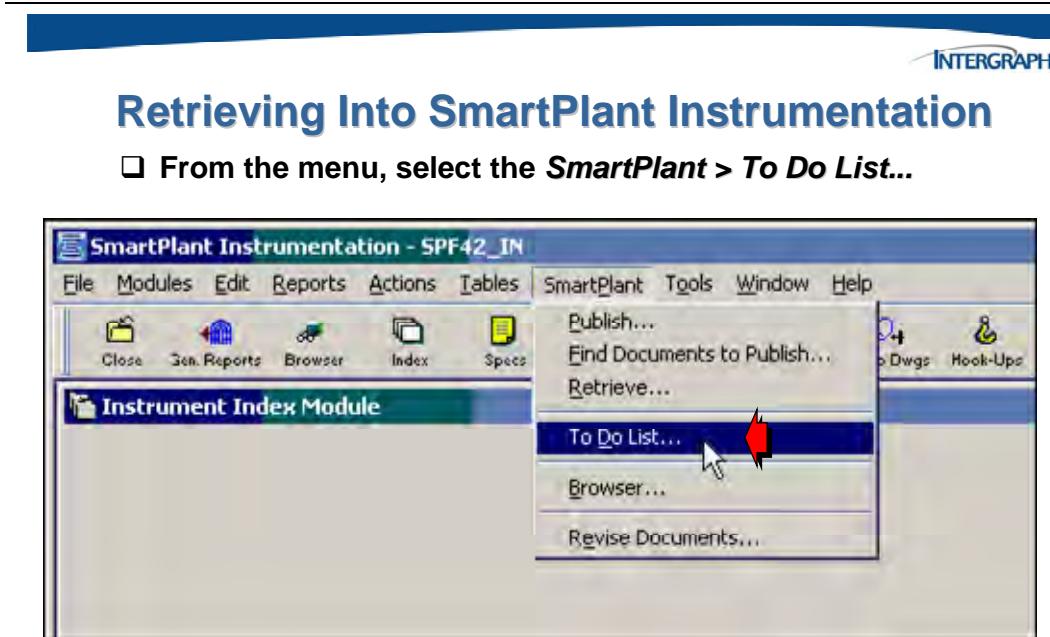
To perform a retrieve operation; use the **Retrieve** command from SmartPlant Instrumentation.



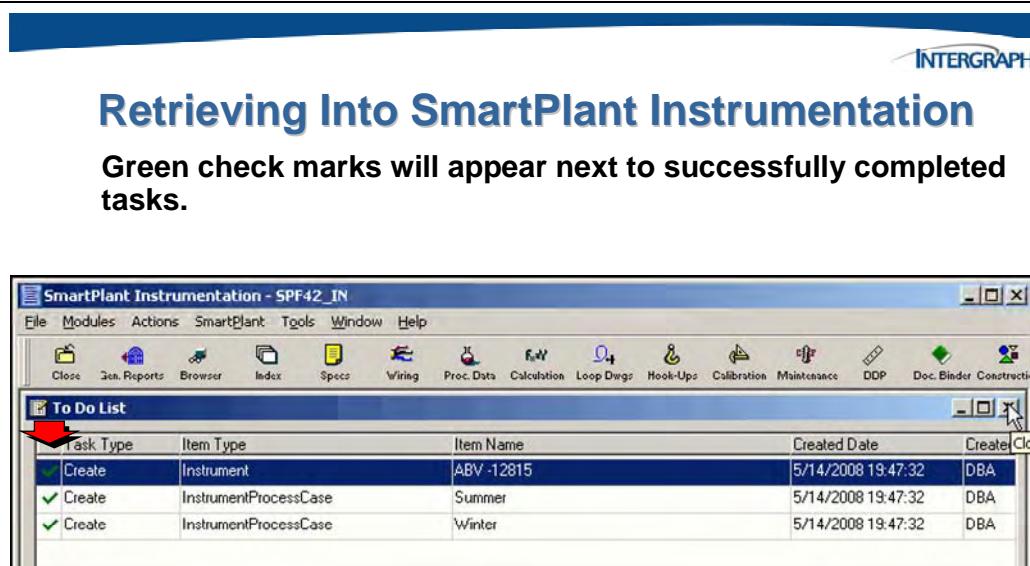
When the retrieve dialog displays, enable the toggle box next to the previously published instrument document from the SPF IPD to be retrieved by SmartPlant Instrumentation.



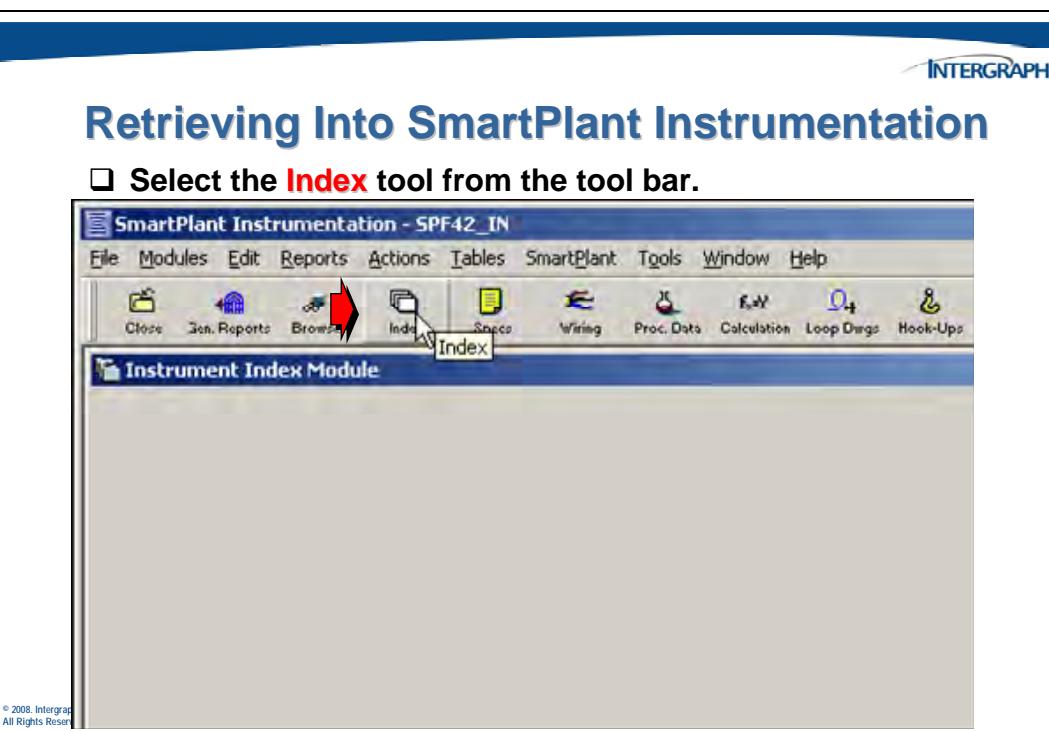
The instrument changes are not automatically applied by SmartPlant Instrumentation. The engineer will display the **To Do List** which contains all of the commands that can be executed within SmartPlant Instrumentation.



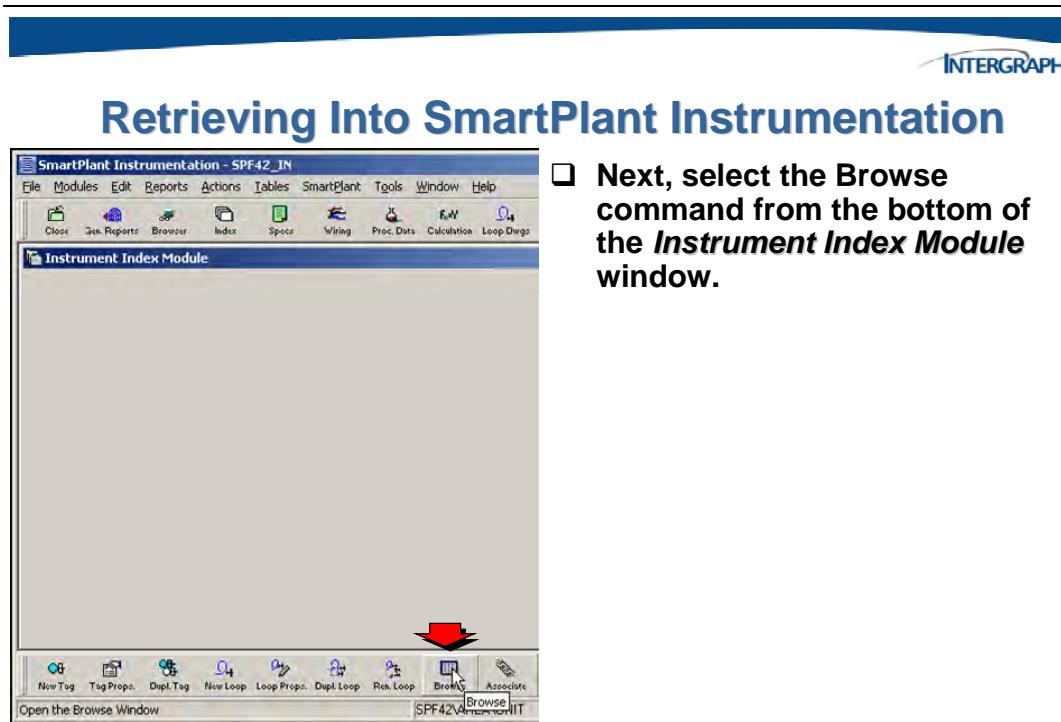
When the engineer is ready, the retrieved tasks can be executed by using the **Run** command at the bottom of the window. Highlight the *To Do List* tasks to be executed and select **Run**.



A status icon will be displayed in the left most column as tasks are completed. Once the tasks have been executed, use one of the browser windows to view the results.

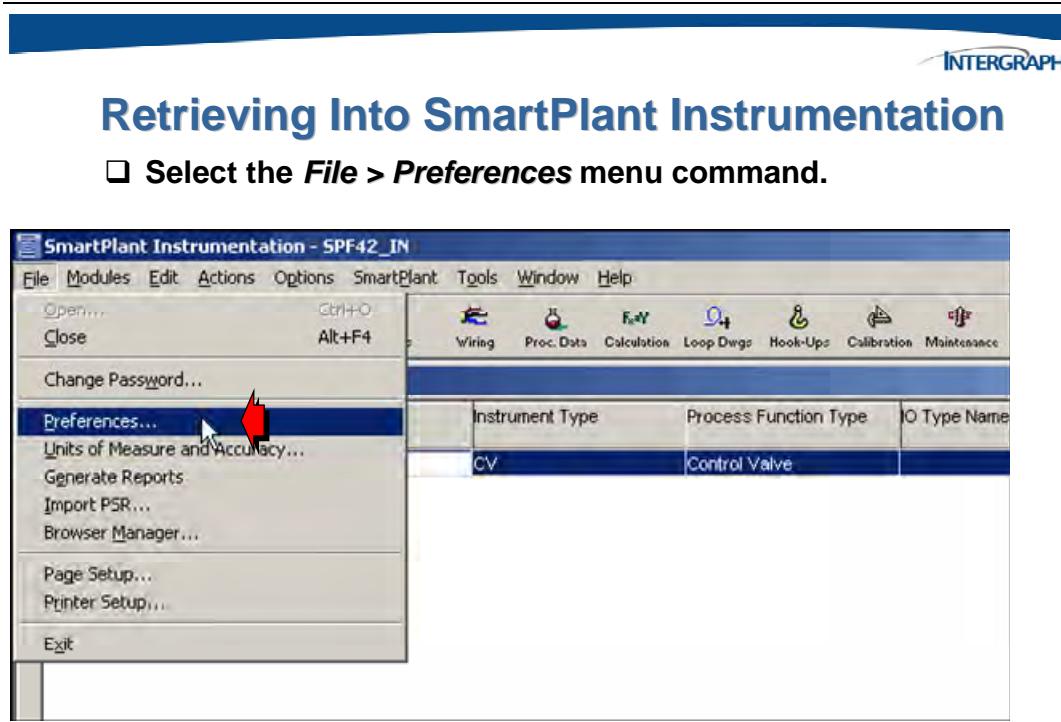


The *Instrument Index Module* window will display.

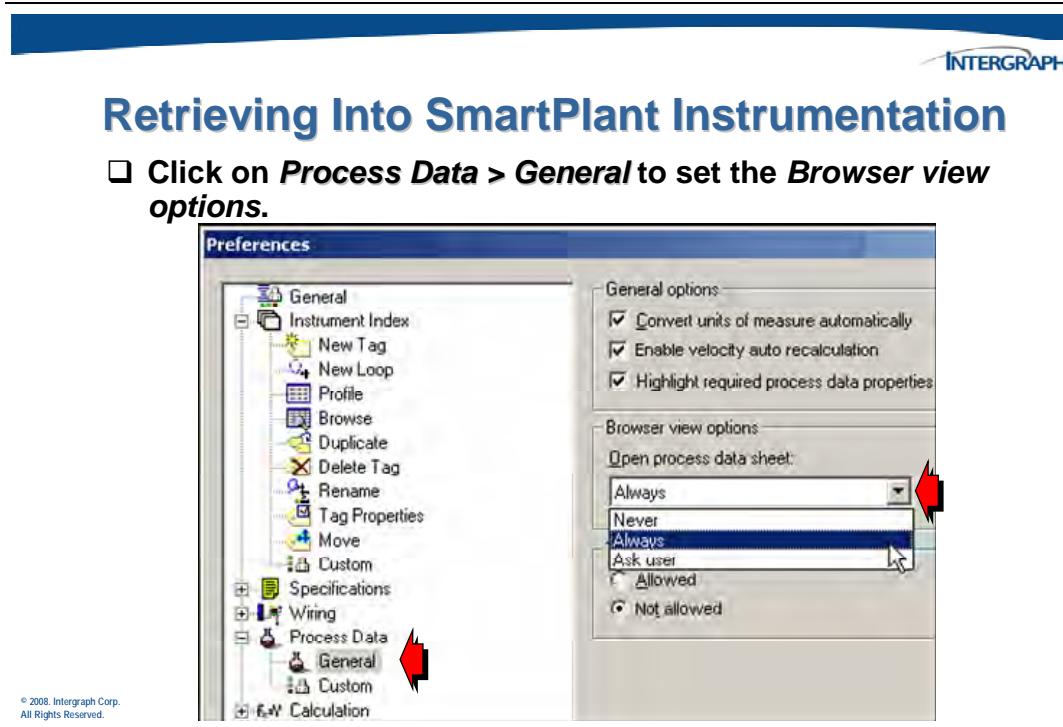


- Next, select the **Browse** command from the bottom of the *Instrument Index Module* window.

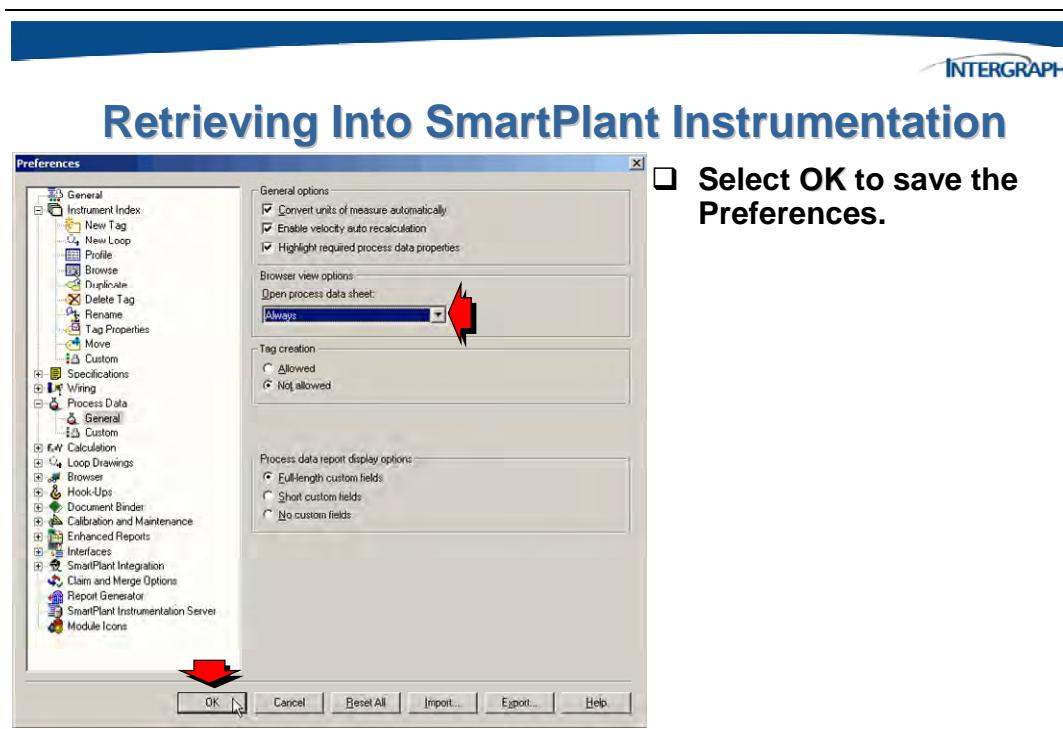
Configure SmartPlant Instrumentation to display the retrieved *Process Data*.



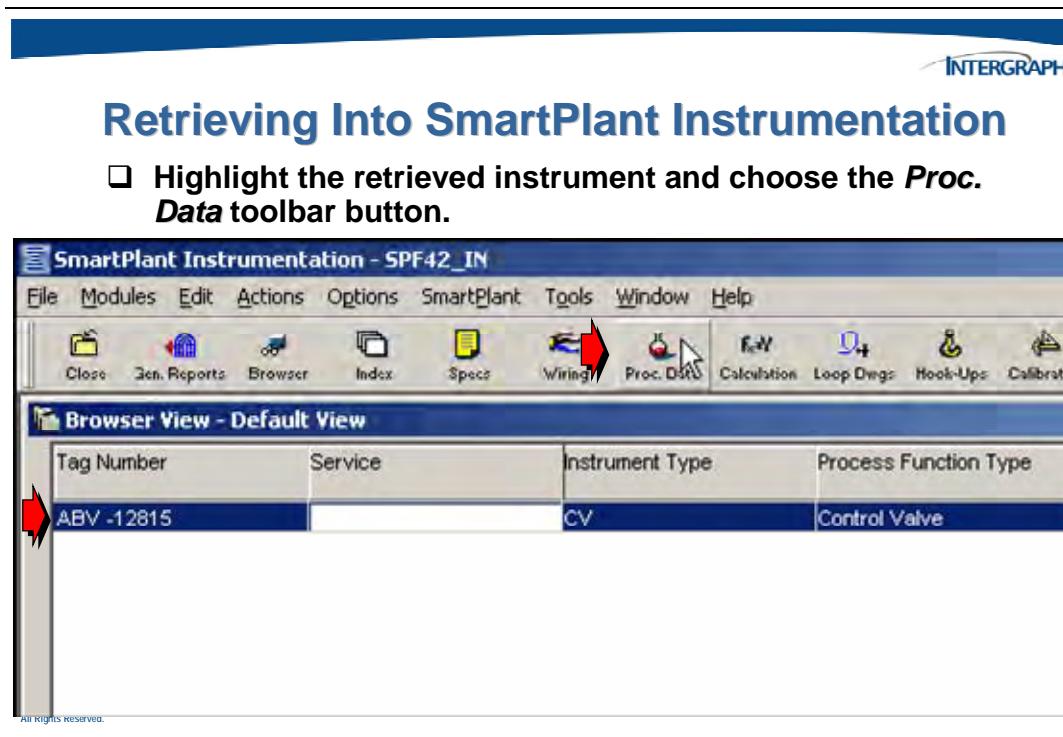
In the tree in the left pane, expand the Process Data entries and configure the option to open a *process data sheet*.



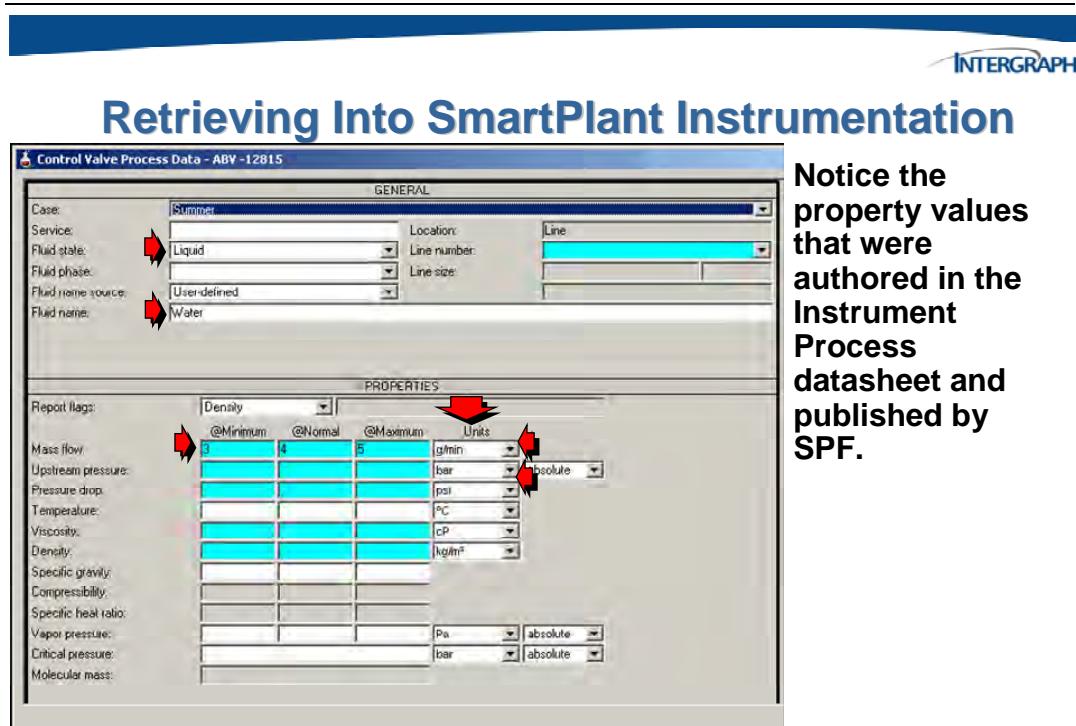
Once this option has been configured, save the change and dismiss the *Preferences* window.



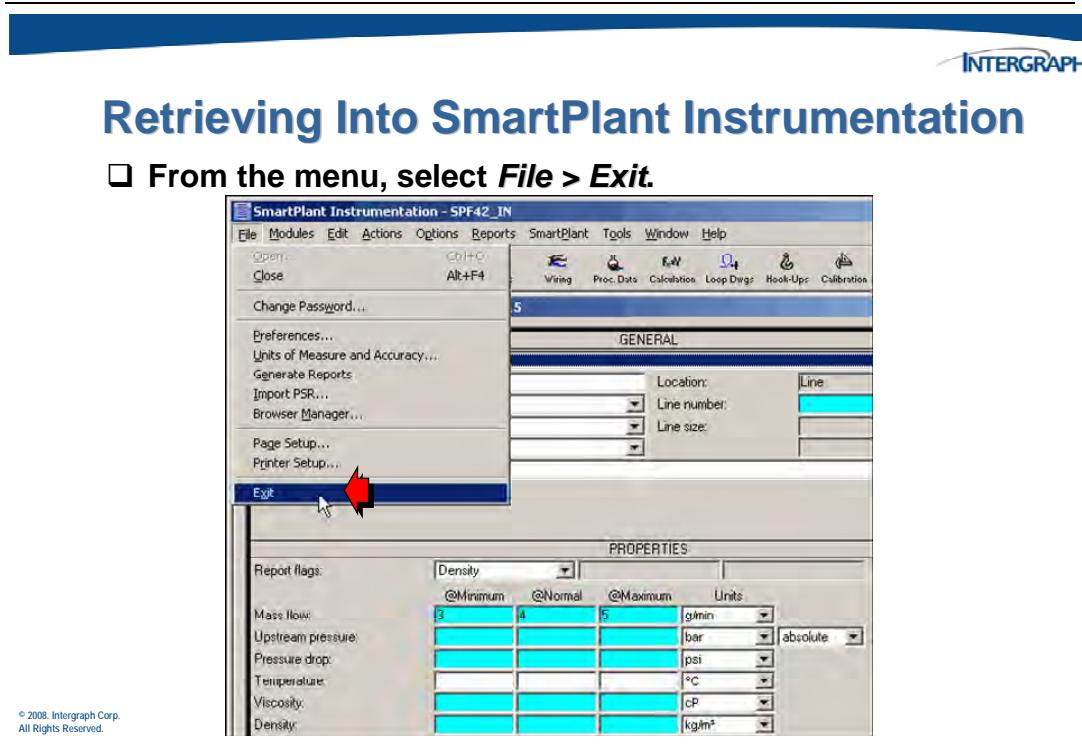
To view the retrieved process instrument, select the ***Process Data*** button.



The *Control Valve Process Data* sheet for ABV-12815 will be displayed.



Once the data values that were published from the SPF Process domain have been viewed and verified, exit from SmartPlant Instrumentation.



13.10 Activity 3 – Authoring Data in SmartPlant Foundation

Complete the **Chapter 13 – Activity 3** in the SmartPlant Foundation 2008 (4.2) Introduction and Administration I activity workbook.

14

CHAPTER

Creating a Plant Breakdown Structure

14. Creating a Plant Breakdown Structure (PBS) in SmartPlant Foundation

The composition of the plant is based on the grouping of physical objects by their function in the plant. The plant usually occupies the top level of the hierarchy and is typically followed by subsections, such as areas, units, sites, or systems. This is commonly referred to as the **Plant Breakdown Structure** or PBS.

In this chapter, creating a PBS in SPF will be discussed. Once the PBS exists in SPF, it must be published in order to be retrieved by the authoring tools. This is necessary in order to synchronize the different authoring tools and SmartPlant Foundation as part using the SmartPlant environment.

In this class, we will be using SmartPlant P&ID and SmartPlant Instrumentation for our example. Once you have an understanding of how to publish and retrieve a PBS from SPF to these two tools, the same concepts and procedure will apply to Zyqad, SmartPlant 3D, SmartPlant Electrical, and Marian.

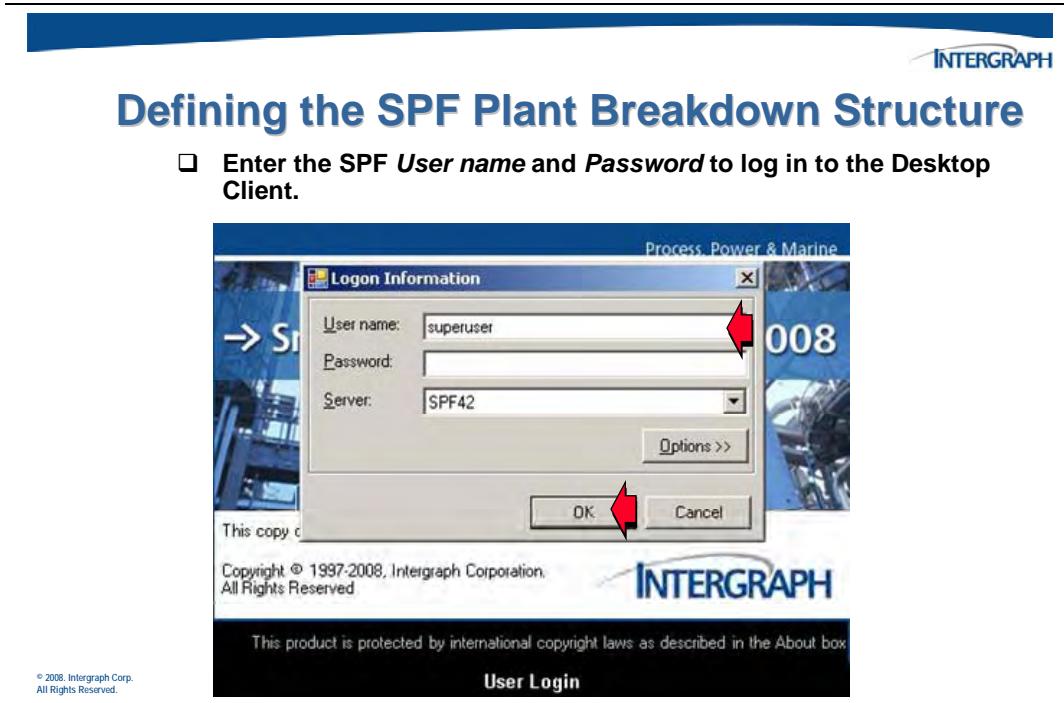
In previous versions of the software, you were required to use the Plant/Area/Unit hierarchy. This restriction is no longer in place, however, the following restrictions do still apply:

- You must apply the structure you create in SmartPlant Foundation across all authoring tools. For example, if you choose to use the Plant/Area/System hierarchy, you must use that structure in every tool that will be using SmartPlant. You cannot select different hierarchies for different authoring tools.
- Your structure must consist of three levels. You cannot create a structure that consists of just Plants and Areas or Plant, Area, Systems, and Units.

In this chapter, we will use the Plant/Area/Unit structure for our examples.

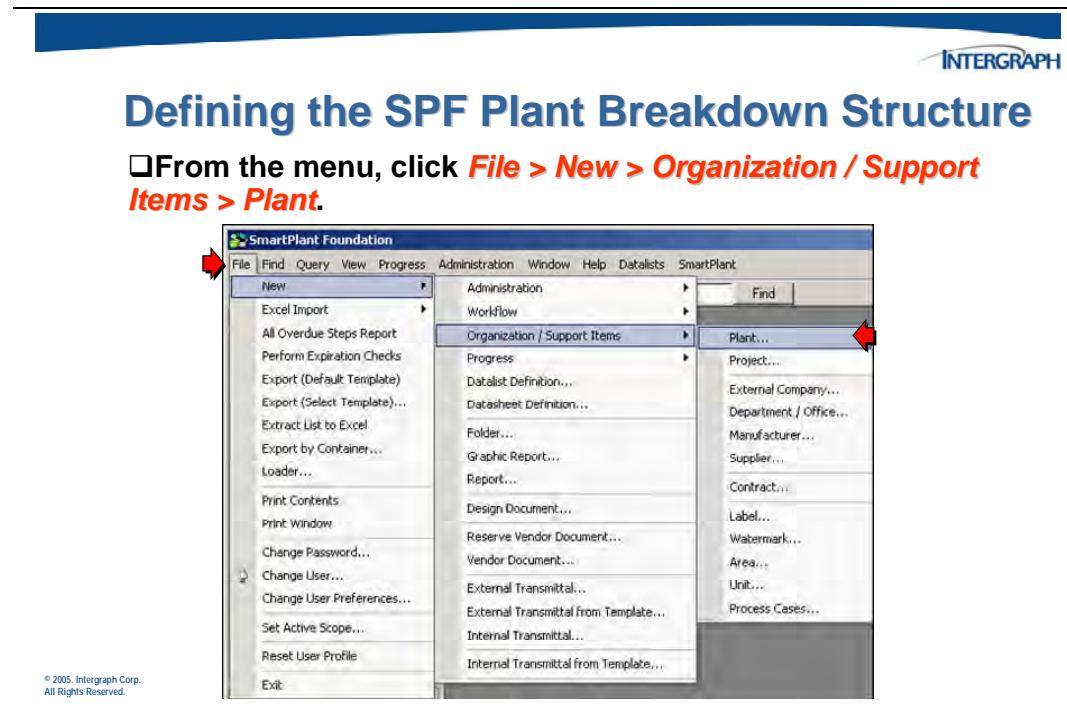
14.1 Creating a Plant Breakdown Structure in SPF

Start the SmartPlant Foundation Desktop Client.

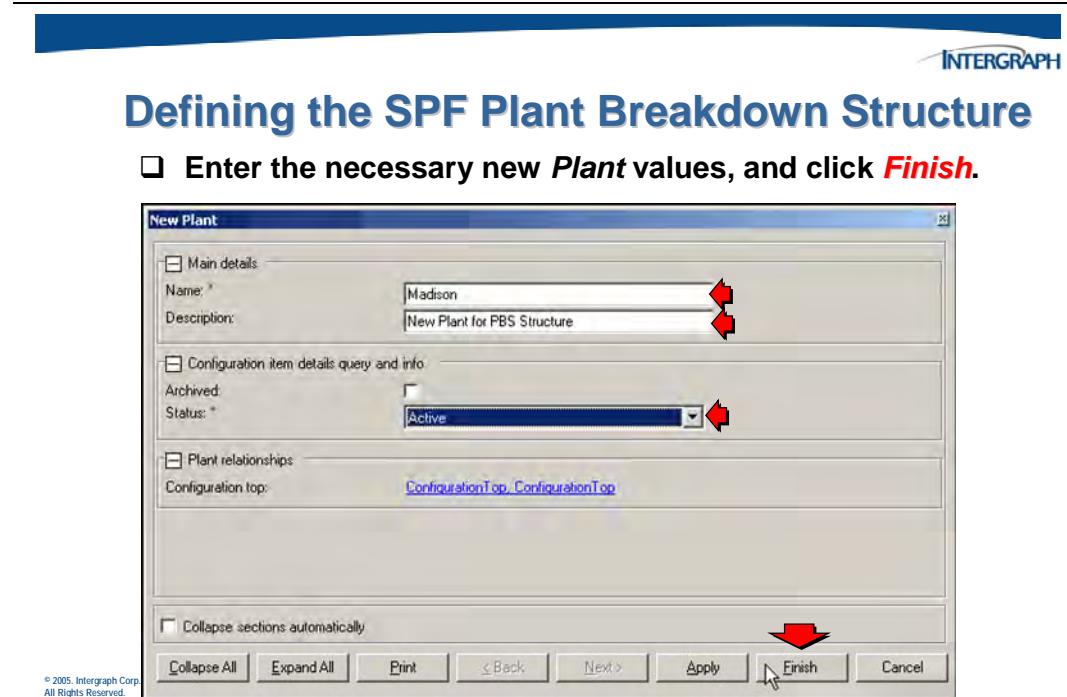


14.1.1 Creating a New Plant

The first step is to create a new Plant.



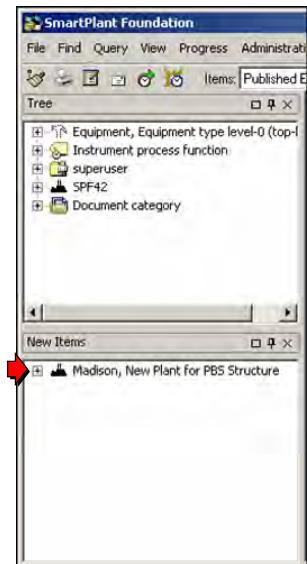
Define properties for the new plant, and then click **OK** to create it.



The new Plant appears in the **New Items** window.

Defining the SPF Plant Breakdown Structure

The new plant will be displayed in the
New Items window.



14.1.2 Setting the Active Scope

Once the plant is created, set the *Active Query Scope* to the new plant. The active query scope determines the plant in which your searches take place.

INTERGRAPH

Defining the SPF Plant Breakdown Structure

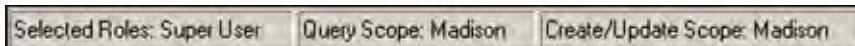
- Select a project or a plant from the query scope, a role, and a create scope. Use the Status filter field to determine what configurations are available in the *Query Scope* list.**
- By selecting multiple configurations from the Query scope list, you can perform searches that span all selected configurations.**

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The plant you selected appears beside **Query Scope** and **Create/Update Scope** in the status bar.

Defining the SPF Plant Breakdown Structure

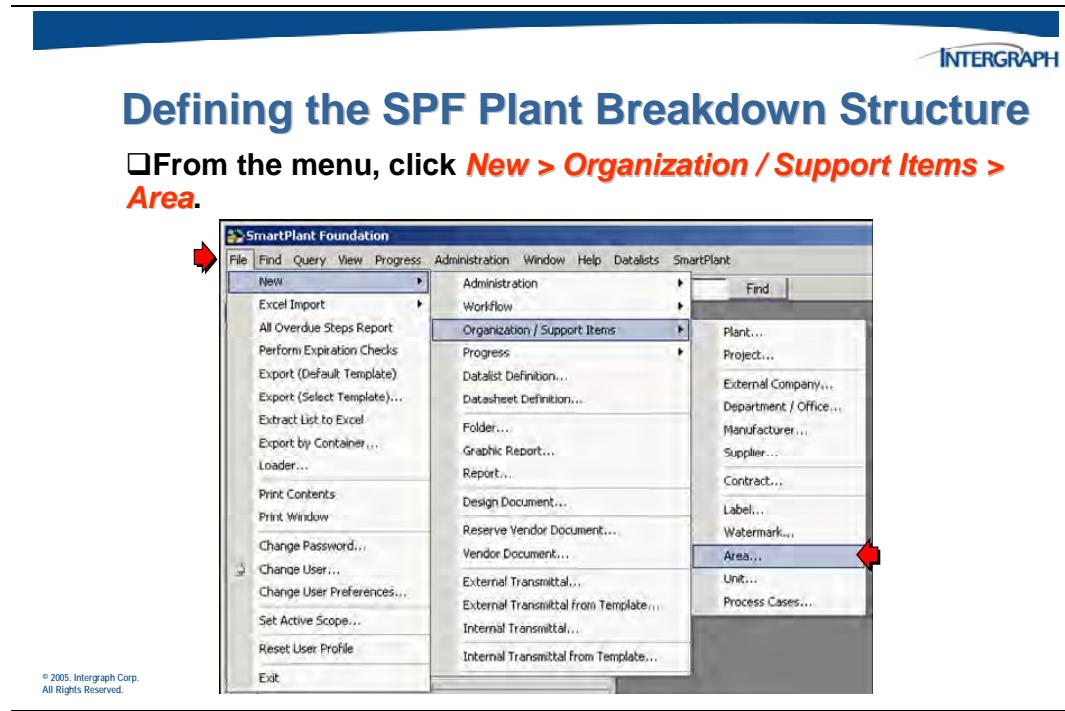
The new scope of work will be displayed in the **Status Bar** at the bottom of the Desktop Client window.



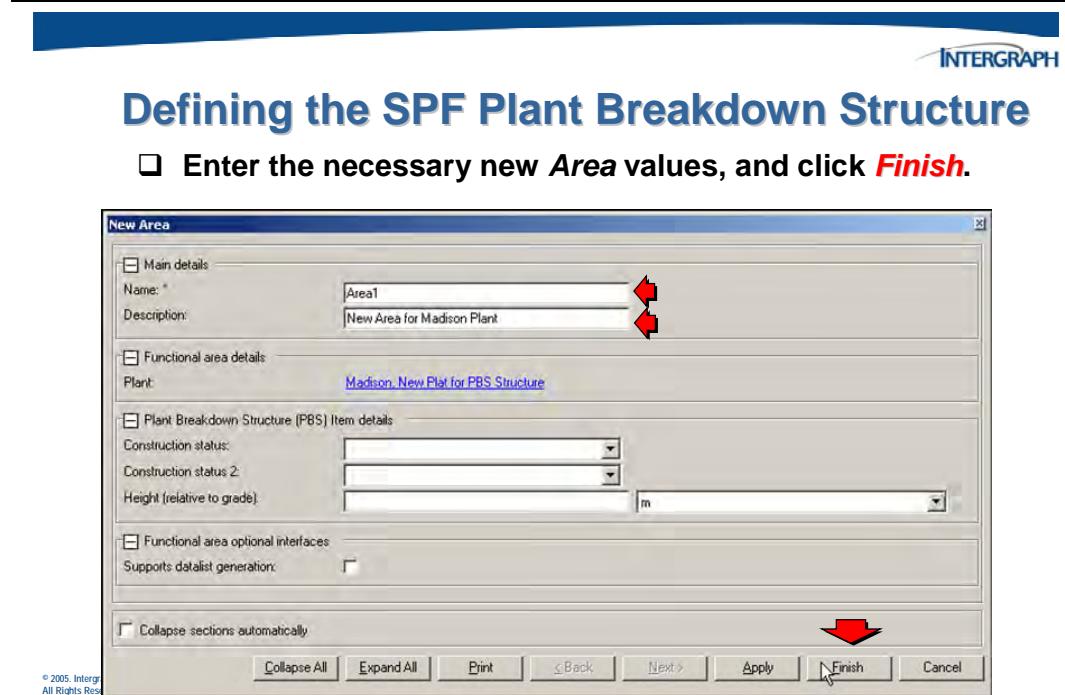
If you have selected more than one role or configuration for one of the settings on the **Set Active Scope** dialog box, the status bar will indicate only that multiple choices were selected, not a list of all selected roles and configurations.

14.1.3 Creating a New Area

The first step, once the scope has been set, is to create a new functional area.



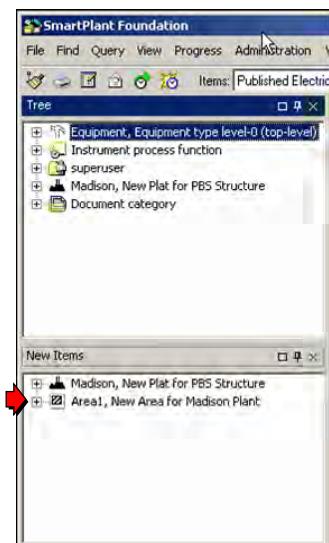
Define properties for the new area, and then click **OK** to create it.



The new area appears in the **New Items** window.

Defining the SPF Plant Breakdown Structure

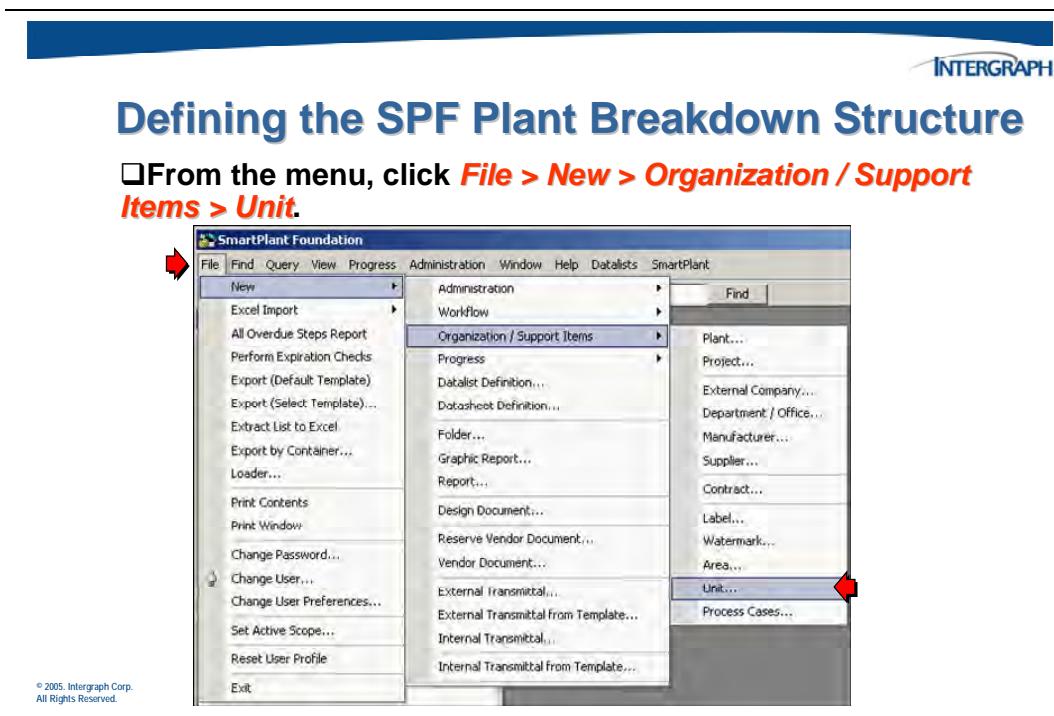
The new area will be displayed in the **New Items** window.



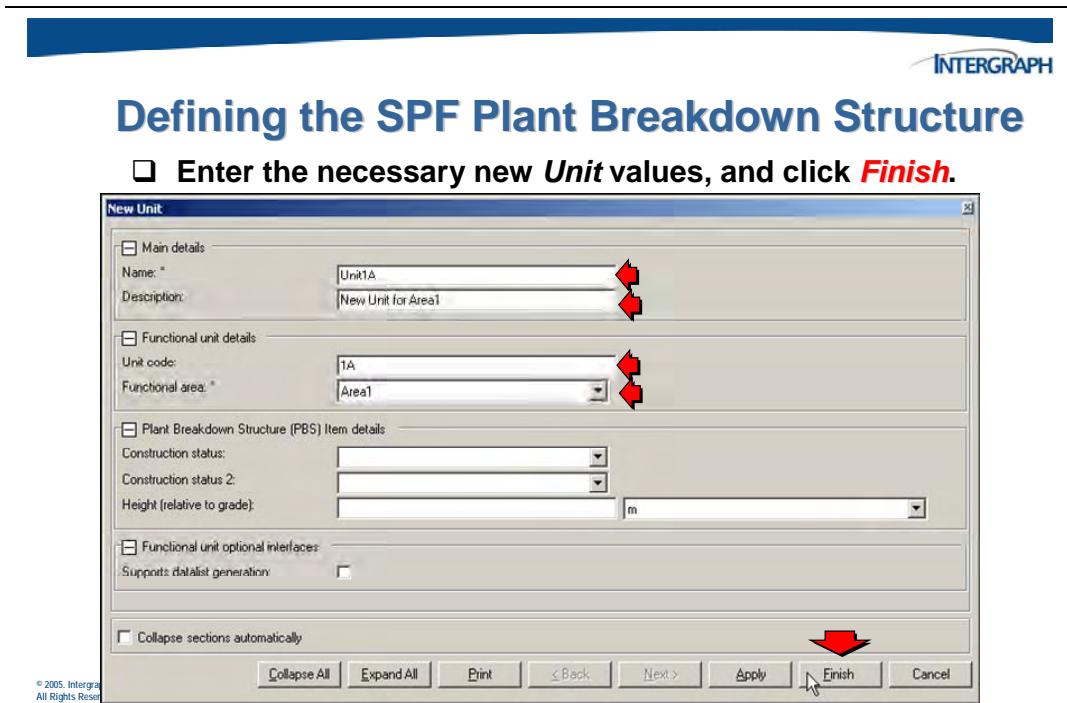
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14.1.4 Creating a New Unit

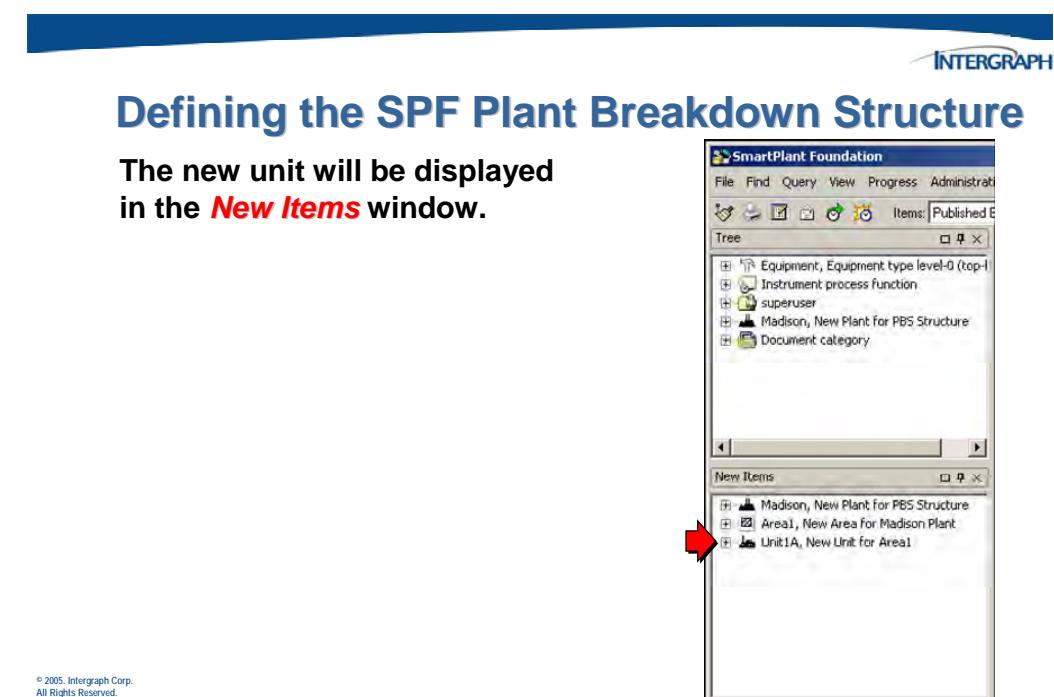
In the **New Items** window of the Desktop Client, right-click the area you just created. On the shortcut menu that appears, click **New Unit**.



Define properties for the new area. Be sure that you define a value for the **Unit code** property.



The new unit appears in the **New Items** window.

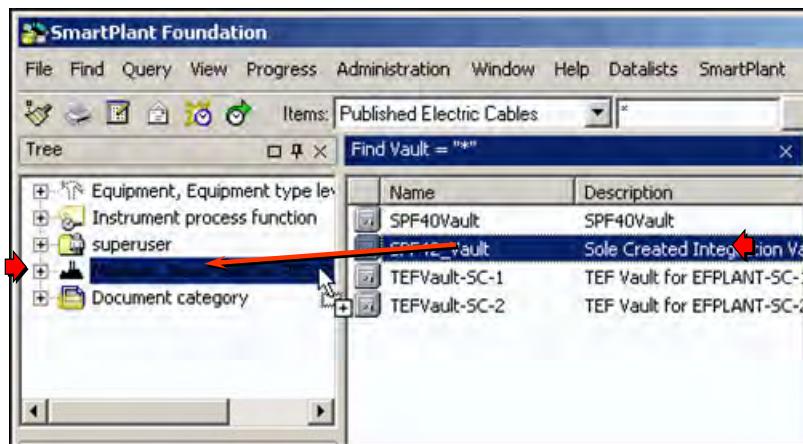


14.1.5 Relate the Plant to a Vault

In order to successfully publish the PBS in a later step, the new Plant must be related to a vault. For the purpose of this chapter, the new Plant is related to the existing *SPF_42* vault. To find the *SPF_42* vault, use *Find > Administration > Vault*. Drag and drop the vault onto the new *Madison* Plant.

Relate the Plant to a Vault

- Drag and drop a vault object onto a plant object.



14.1.6 Register the Plant Breakdown Structure (PBS) Document

Once the new area and unit have been created for the new plant, you are ready to register the new PBS with SPF. Being fully integrated, SPF treats itself like any other authoring tool so you must register the new PBS before attempting to publish process.

As part of the synchronization between SmartPlant Foundation and each of the engineering or authoring tools, each tool must be registered with SPF. This process associates a plant in each tool with a plant in SmartPlant Foundation.



Registering Authoring Tools

Being fully integrated, SPF treats itself like any other authoring tool (such as SmartPlant P&ID or Smart Plant Instrumentation). You must register the new PBS before attempting the publish process.





Defining the SPF Plant Breakdown Structure

- ❑ Register the PBS in the SPF Desktop Client. From the menu, click **SmartPlant > PBS > Register**.



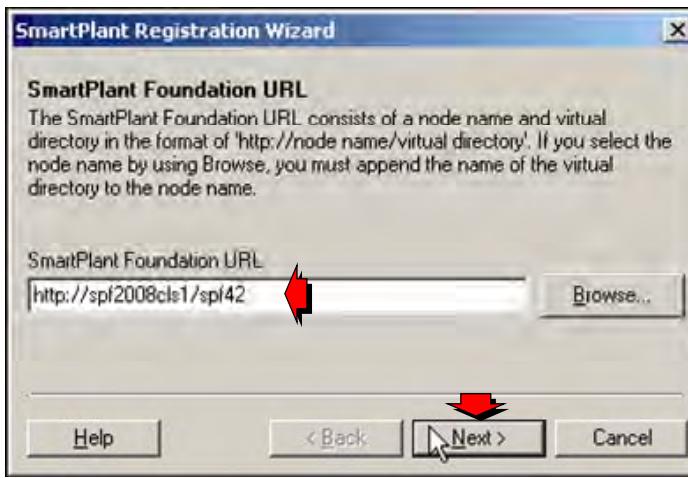
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The SmartPlant Registration Wizard displays.



Registering a New Plant in SPF

- ❑ Enter the URL for the SPF Web Client, and click **Next**.



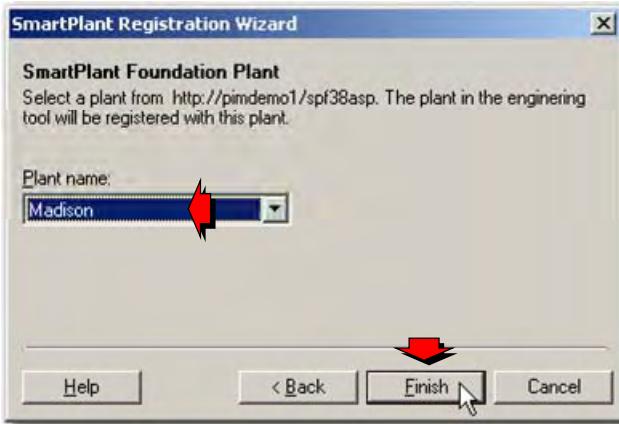
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In the *SmartPlant Foundation URL* field, type the node name and virtual directory of the SmartPlant Foundation database with which you want to register your plant. Use the following format: `http://<SPFServer>/<VirtualDirectory>`. For example, **http://spf2008cls1/spf42**.

For the next step, specify the **Madison** plant that was created earlier.

Registering a New Plant in SPF

- Once the plant to register has been selected, click **Finish**.

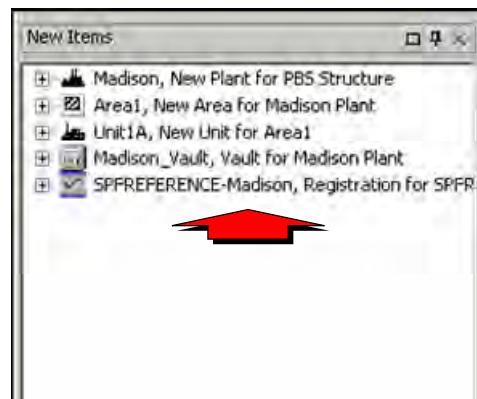


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If the registration is completed successfully, the *Register With SmartPlant Software* message box appears, as illustrated below.

Registering a New Plant in SPF

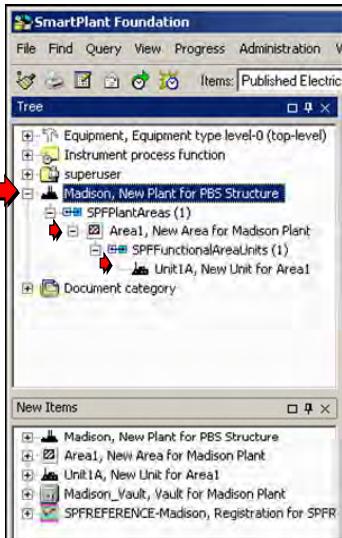
- Verify that the plant registration was successful. The new registration displays in the new items window.



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14.1.7 Publish the Plant Breakdown Structure (PBS) Document

Once the new area and unit have been created for the new plant, you are ready to publish the new PBS to make the structure available to the engineering tools.



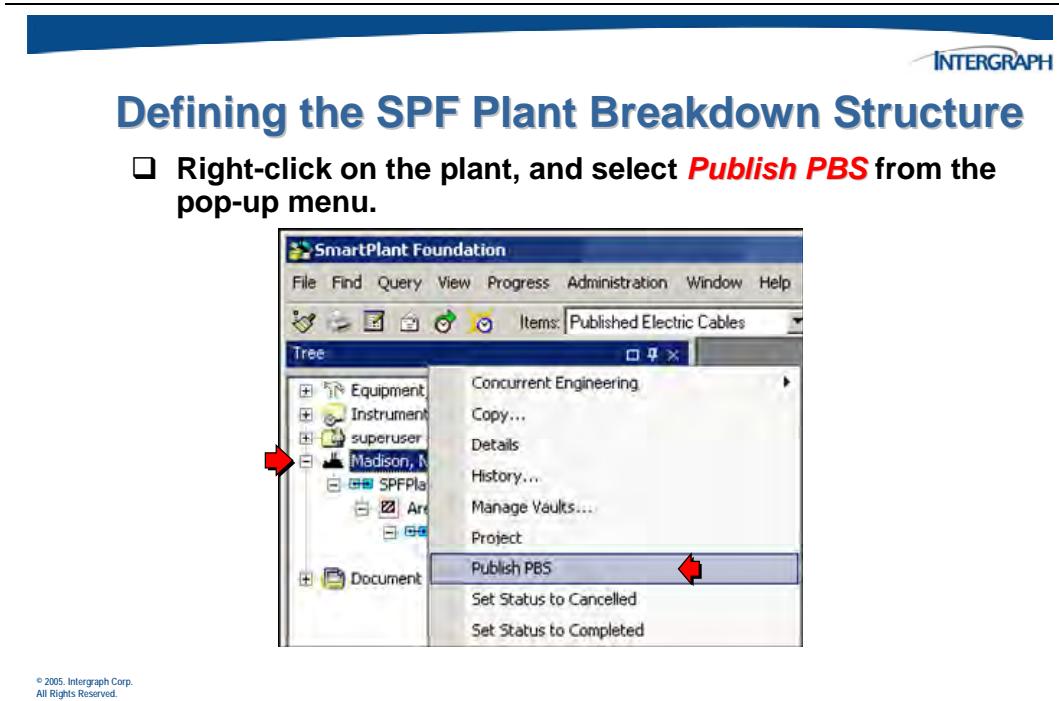
The screenshot shows the SmartPlant Foundation application window titled "Defining the SPF Plant Breakdown Structure". The main window displays a hierarchical tree structure under the heading "Tree". The tree includes nodes for "Equipment, Equipment type level-0 (top-level)", "Instrument process function", "superuser", and "Madison, New Plant For PBS Structure". Under "Madison, New Plant For PBS Structure", there is a node for "SPPPlantAreas (1)" which contains "Area1, New Area for Madison Plant" and "SPFFunctionalAreaUnits (1)" which contains "Unit1A, New Unit for Area1". A red arrow points to the "Area1" node. Below the tree is a "New Items" window containing a list of items: "Madison, New Plant For PBS Structure", "Area1, New Area for Madison Plant", "Unit1A, New Unit for Area1", "Madison_Vault, Vault for Madison Plant", and "SPFREFERENCE-Madison, Registration for SPFR". A red arrow also points to the "Area1" item in the "New Items" list. The top right corner of the application window features the INTERGRAPH logo.

Defining the SPF Plant Breakdown Structure

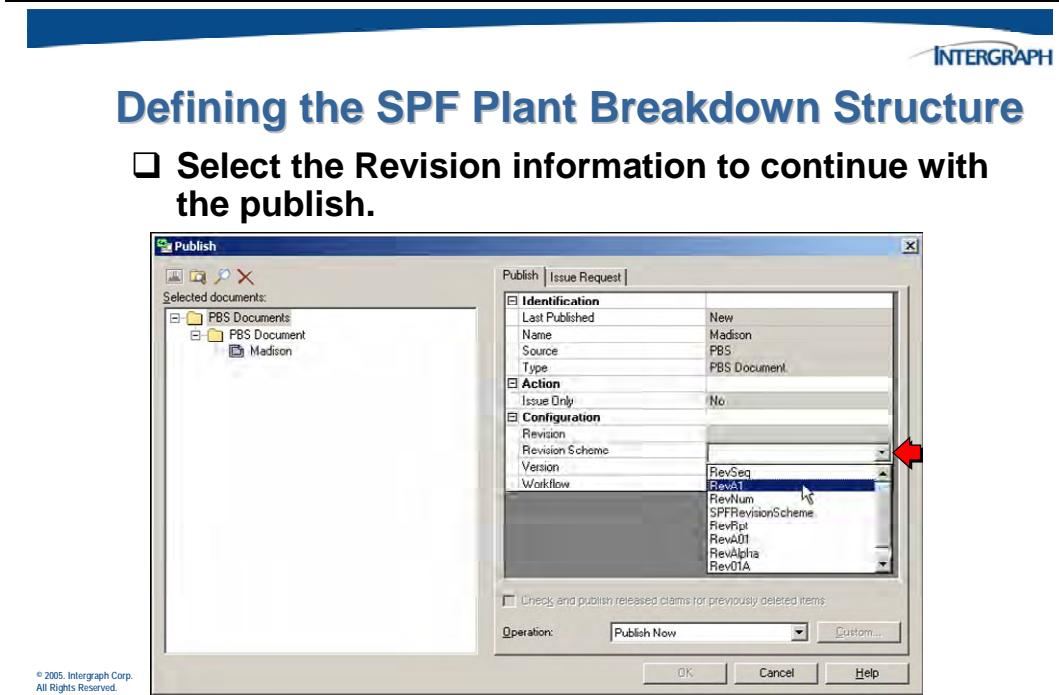
- Expand the new plant relationships to verify the new area and unit for this plant.

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In the SmartPlant Foundation Desktop Client, right-click the plant in the tree view.



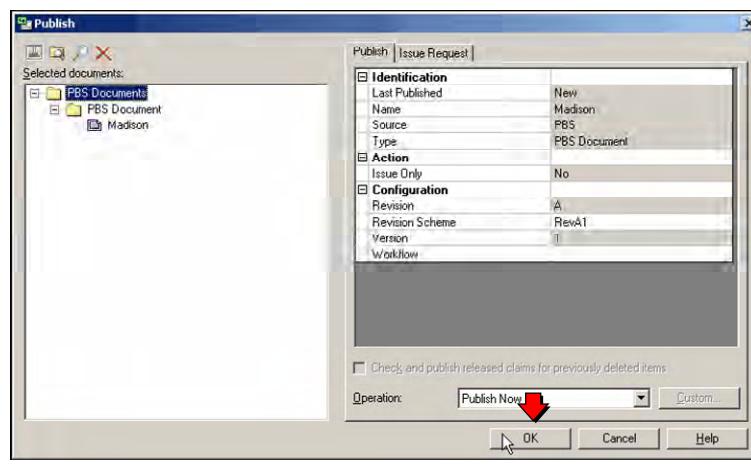
The **Publish** window displays. Select the **Revision** information for the document to be published.





Defining the SPF Plant Breakdown Structure

- ❑ To complete the publish, click **OK**.



If the plant breakdown structure is published successfully, SmartPlant Foundation is set up correctly.

14.2 Registering Authoring Tools

As part of the synchronization between SmartPlant Foundation and each of the engineering or authoring tools, each tool must be registered with SPF. This process associates a plant in each tool with a plant in SmartPlant Foundation.



Registering Authoring Tools

Before you can publish and retrieve documents from any of the authoring tools (such as SmartPlant P&ID or SmartPlant Instrumentation), you must register each plant in the authoring tool with a SmartPlant Foundation plant database.



14.2.1 Creating a New SmartPlant P&ID Plant

Several administrative tasks in SmartPlant P&ID are actually conducted in the SmartPlant Engineering Manager application, including creating new plants and registering them with SmartPlant Foundation. As a result, in order to create a P&ID plant, register it with SPF, and retrieve the information from the PBS to correlate the P&ID plant with the SPF Plant, we will perform all these task using SmartPlant Engineering Manager.

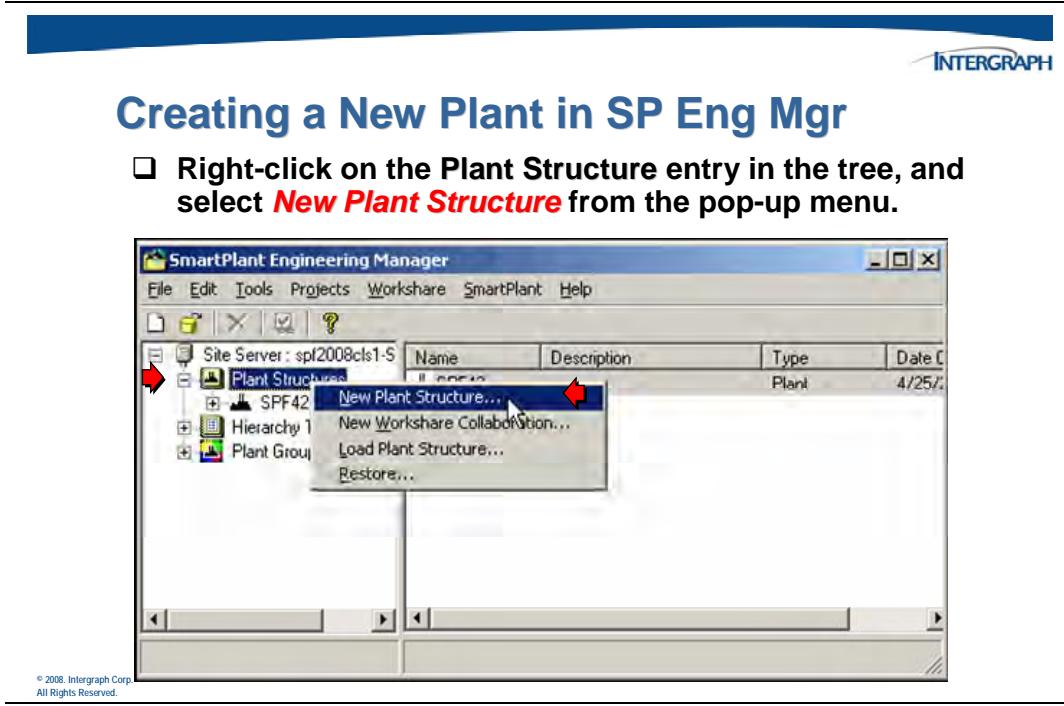
Before you can register a plant in SmartPlant Engineering Manager, you must create the site and plant, associate applications, and define roles for the plant.

Begin by starting the *SmartPlant Engineering Manager* application.

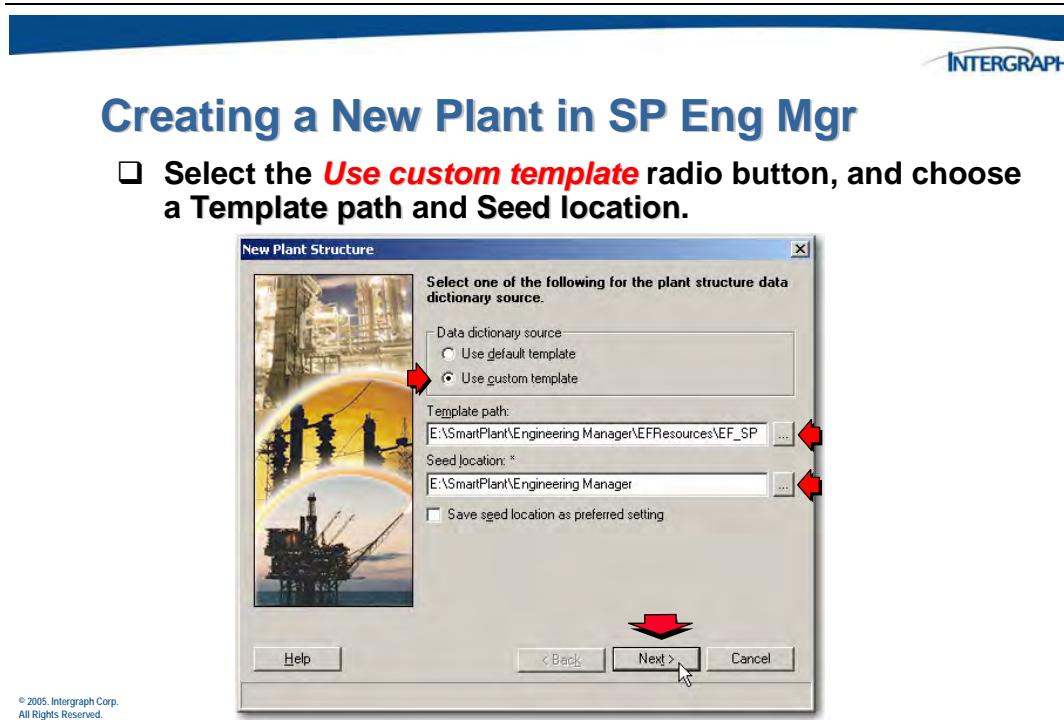


The following steps must be completed before you can register a new plant in SmartPlant Engineering Manager to be used by the SmartPlant P&ID authoring tool.

First, create a new plant structure in SmartPlant Engineering Manager to be associated with the PBS published from SPF.



The *New Plant Structure* form will appear.

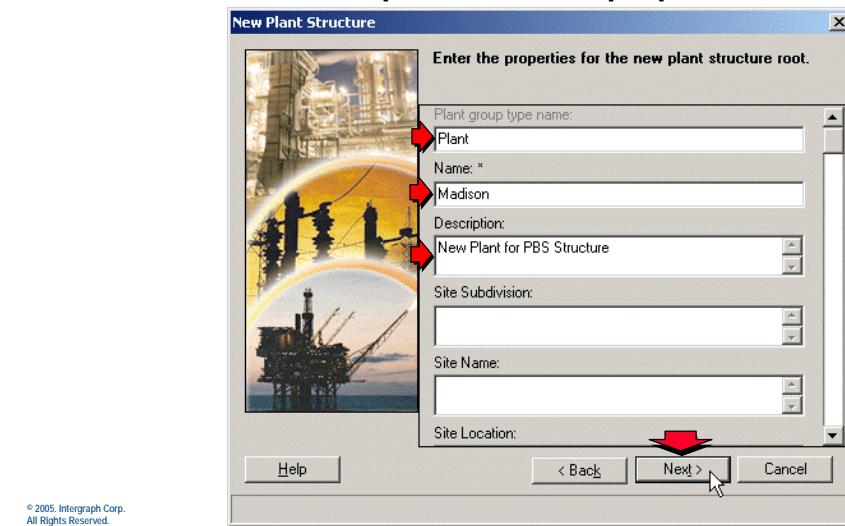


Define the information for the new plant. This information should match what you have created in SPF.



Creating a New Plant in SP Eng Mgr

- Enter the new plant structure properties, and click **Next**.



Next define the paths used by this plant. These paths should use the <host>|site UNC path.



Creating a New Plant in SP Eng Mgr

- Key in the appropriate paths for the plant structure storage and backup file locations.





Creating a New Plant in SP Eng Mgr

- If the specified storage directory does not exist, click **Yes** to create it.



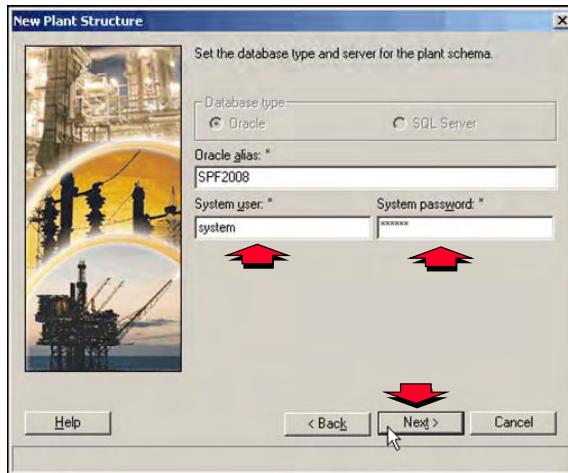
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In order to create the necessary Oracle tables, enter the necessary Oracle login information.



Creating a New Plant in SP Eng Mgr

- Enter the Oracle System user name (**system**) and password (**system**).

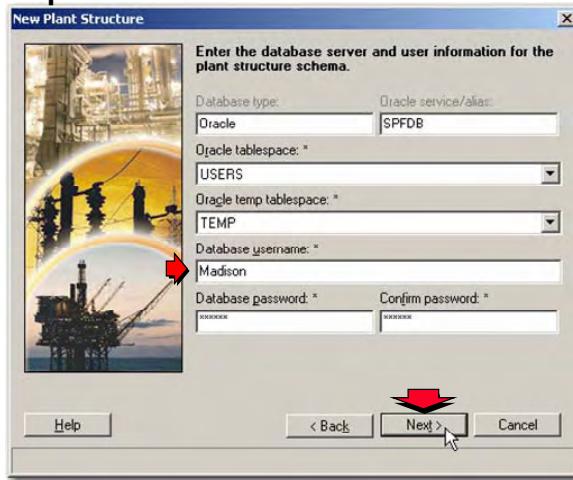


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The Oracle username and password information will be filled in for you. Set the tablespace where you want to add the plant structure.

Creating a New Plant in SP Eng Mgr

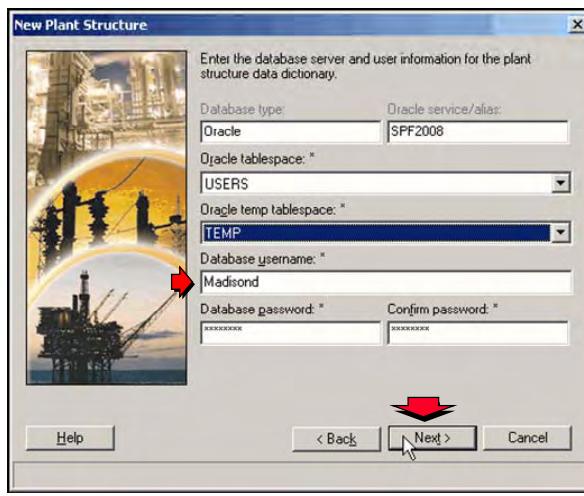
- Choose the **Users** tablespace, and then click **Next** to create the new plant schema.



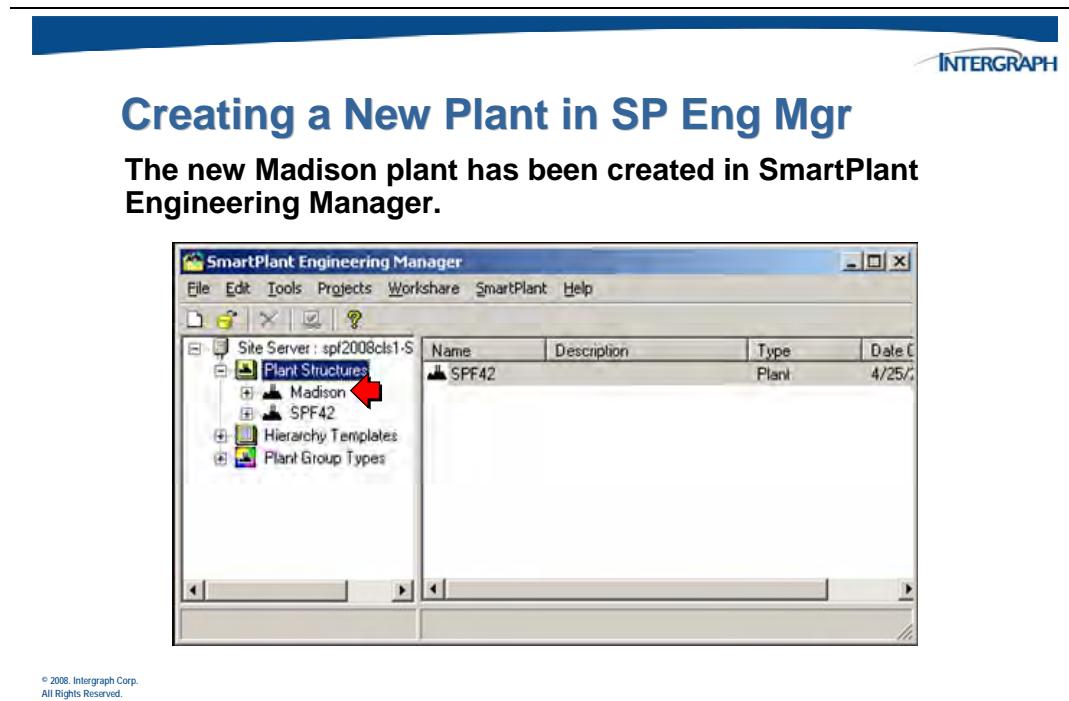
Again, the Oracle username and password information will be filled in for you. Set the tablespace where you want to add the plant data dictionary.

Creating a New Plant in SP Eng Mgr

- Click **Next** to create the new plant data dictionary.



In the *New Plant Structure* dialog, note the tasks that will be performed by the setup.

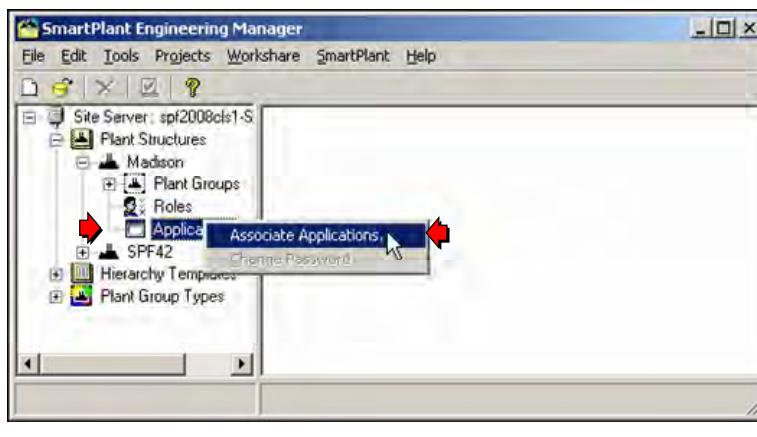


Expand the new Madison plant structure.



Creating a New Plant in SP Eng Mgr

- Right-click on Applications, and select **Associate Applications** from the pop-up menu.

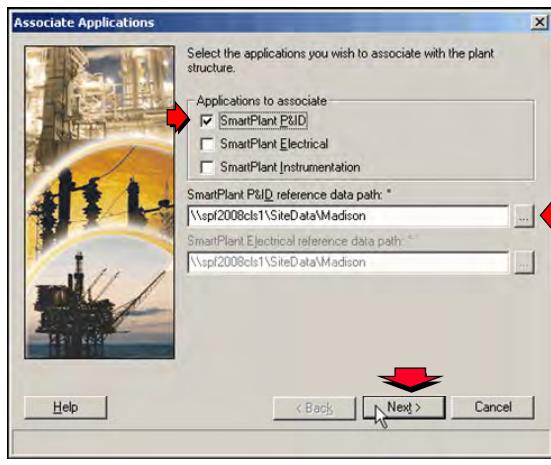


Next, associate the new plant with the SmartPlant P&ID application.



Creating a New Plant in SP Eng Mgr

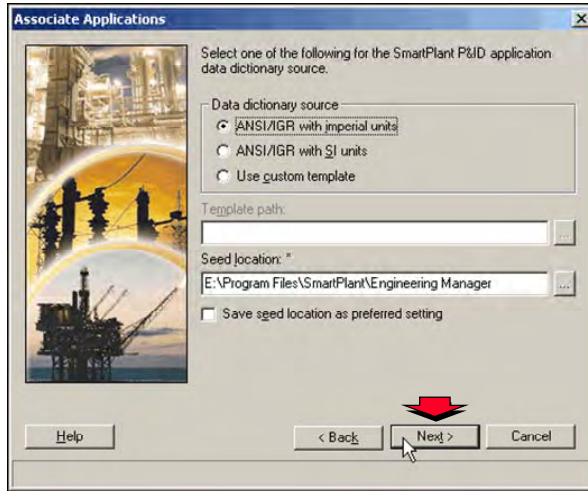
- Enable the SmartPlant P&ID toggle, and set a reference data path (if necessary).





Creating a New Plant in SP Eng Mgr

- Take the default settings, and select **Next**.

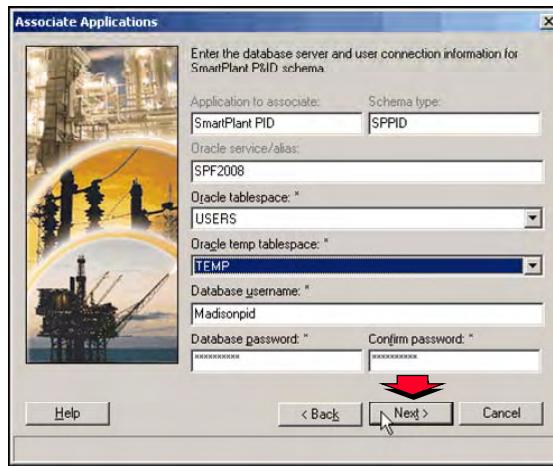


Once again, the Oracle username and password information will be filled in for you. Set the tablespace where you want to add the SP P&ID schema.



Creating a New Plant in SP Eng Mgr

- Confirm the correct information for the SP P&ID schema, and select **Next**.

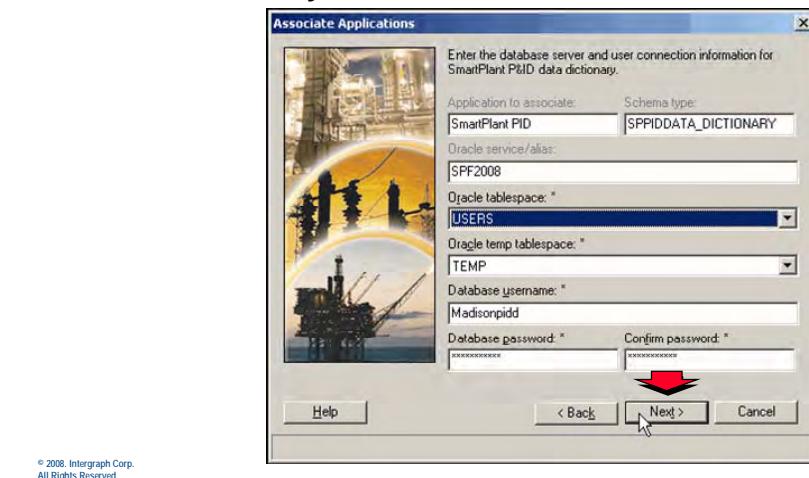


Repeat this for the SmartPlant P&ID data dictionary.



Creating a New Plant in SP Eng Mgr

- Confirm the correct information for the SP P&ID data dictionary, and select **Next**.

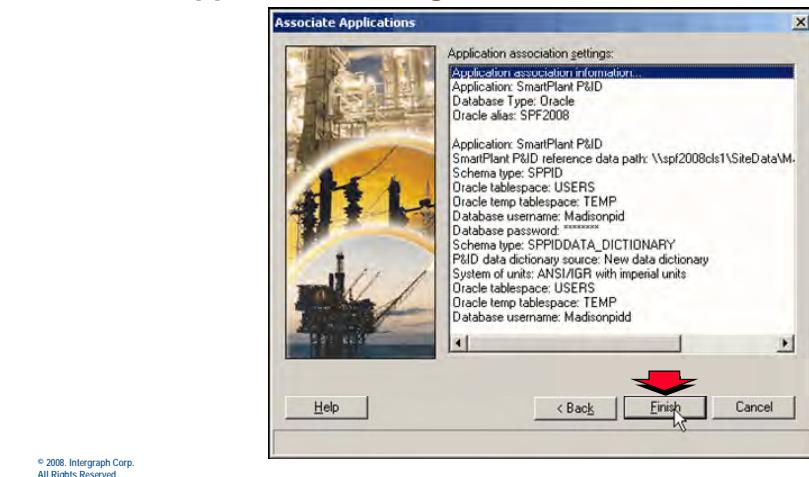


In the *Associate Applications* dialog, note the tasks that will be performed by the setup.



Creating a New Plant in SP Eng Mgr

- Choose **Finish** to complete the setup of the new application settings.



The new plant is now associated with the SmartPlant P&ID application.

Creating a New Plant in SP Eng Mgr

The **SmartPlant P&ID** application has been associated with the new Madison plant.



14.2.2 Registering SmartPlant P&ID with SmartPlant Foundation

From the Plant Structures node in the tree view, select the plant that you would like to register. On the *SmartPlant* menu, click the **Register** command, which should be available to you. If it is not available, make sure that you have selected the plant in the tree view.

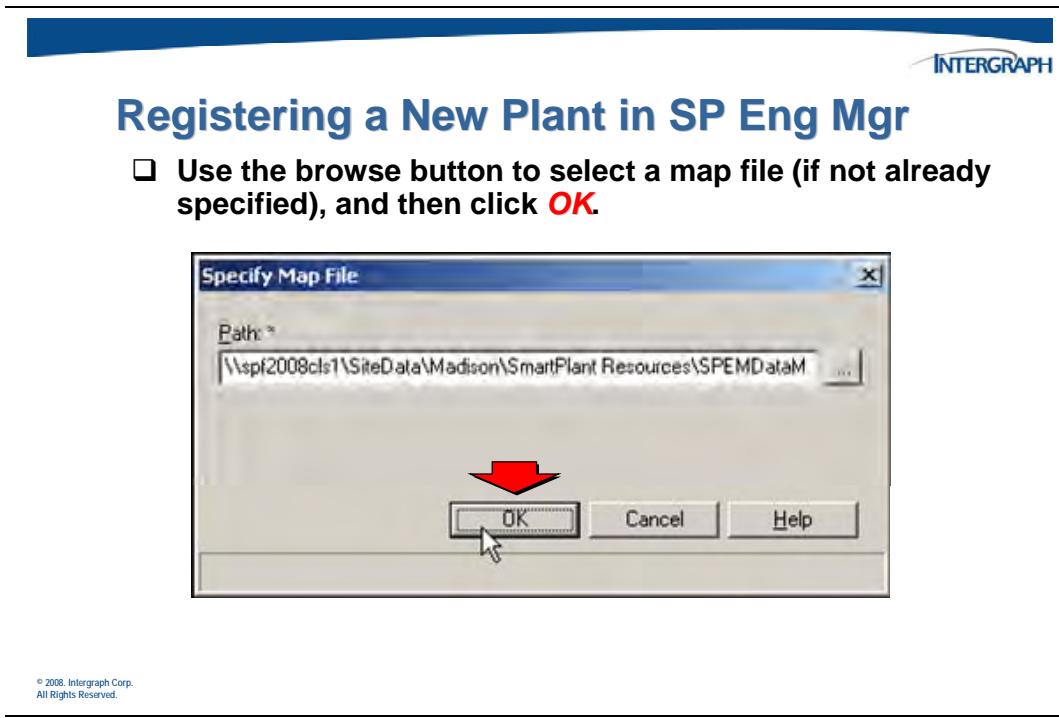
Registering a New Plant in SP Eng Mgr

- Select the **SmartPlant > Register** command from the menu.



You may be required to enter your SmartPlant Foundation user name and password before you can register a plant. You are not required to enter this information if your computer user name matches a user name in SmartPlant Foundation.

The *Specify Map File* dialog will display.



After you click the **Register** command, the software displays a dialog box asking you to specify a map file for SmartPlant Engineering Manager. SmartPlant Engineering Manager uses this map file to map plant properties from SmartPlant Foundation PBS document to the plant properties in SmartPlant Engineering Manager.

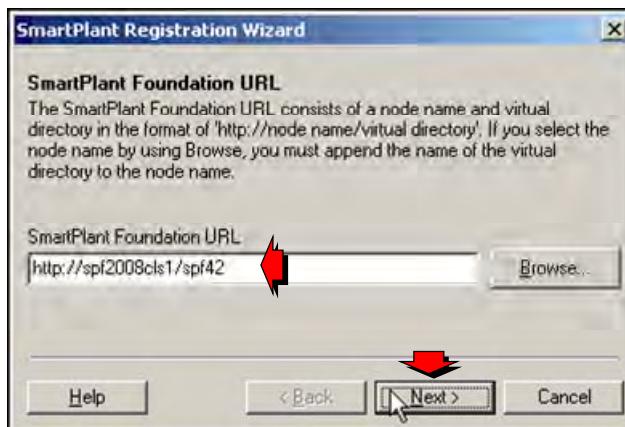
By default, SmartPlant Engineering Manager places a copy of this schema map file under your plant structure. To minimize confusion and to avoid having multiple copies of this file, you can move a copy of the schema map file to a central **EFResources** folder during SmartPlant P&ID reference data configuration. The following is an example of the location of the **EFResources** folder: \\efspid1\Sites\RefData\EFResources.

When you select a location for the map file, you can accept the default location without any problems later with publish and retrieve.

After you specify the schema map file for SmartPlant Engineering Manager, the *SmartPlant Registration Wizard* appears. The SmartPlant Registration Wizard user interface is part of the Common UI and is incorporated by all authoring tools from Intergraph.

Registering a New Plant in SP Eng Mgr

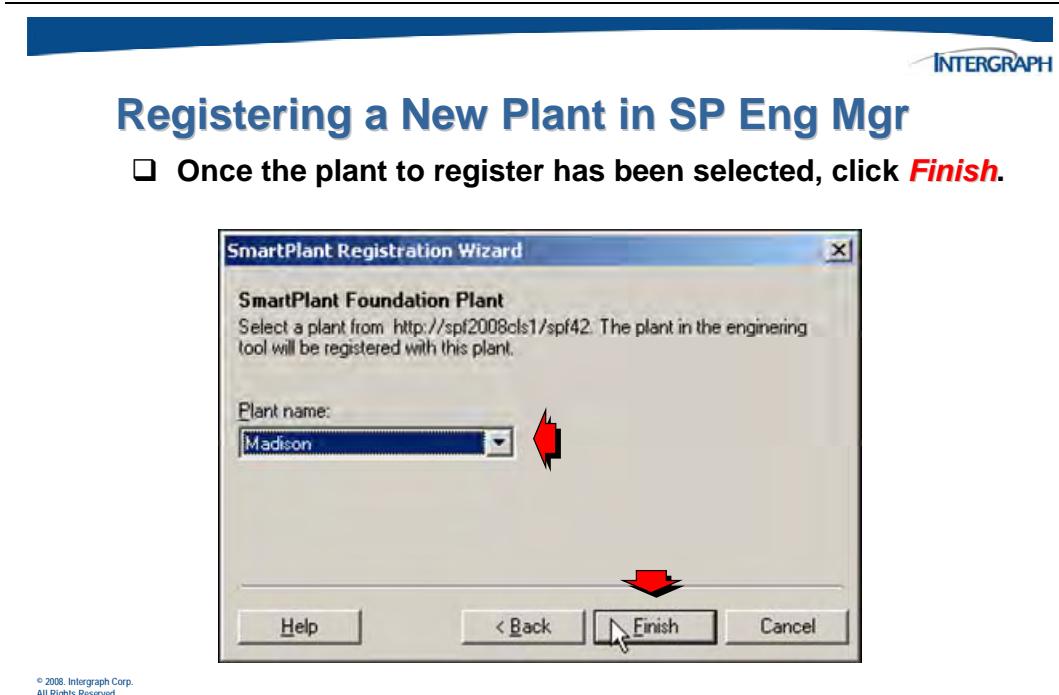
- Enter the URL for the SPF Web Client, and click **Next**.



In the *SmartPlant Foundation URL* field, type the node name and virtual directory of the SmartPlant Foundation database with which you want to register your plant. Use the following format: `http://<SPFServer>/<VirtualDirectory>`. For example, **http://spf2008cls1/spf42**.

For the next step, you will need to know the SmartPlant Foundation plant to which you are registering. In this example, we will register to the **Madison** plant that was created earlier.

In the *Plant name* list, select the **Madison** plant.



If the registration is completed successfully, the *Register With SmartPlant Software* message box appears, as illustrated below.

Registering a New Plant in SP Eng Mgr

- Verify that the plant registration was successful.



14.2.3 Retrieve the PBS Document from SmartPlant Foundation

After you register your plant, you can retrieve the PBS document from SmartPlant Foundation. The PBS document can be used to update the plant and create the appropriate area and unit.

Retrieving the PBS from SPF

- Select the **SmartPlant > Retrieve** command from the menu.

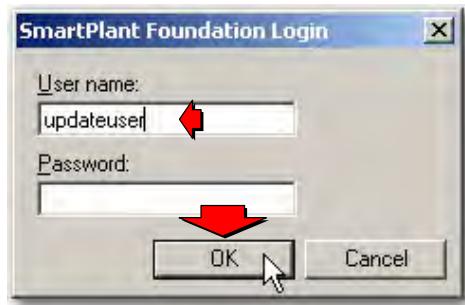


You may be required to enter your SmartPlant Foundation user name and password before you can retrieve from SmartPlant Foundation. You are not required to enter this information if your computer user name matches a user name in SmartPlant Foundation.



Retrieving the PBS from SPF

- ❑ Enter a valid SPF *User name* and *Password* to log on to the SPF server from the authoring tool.

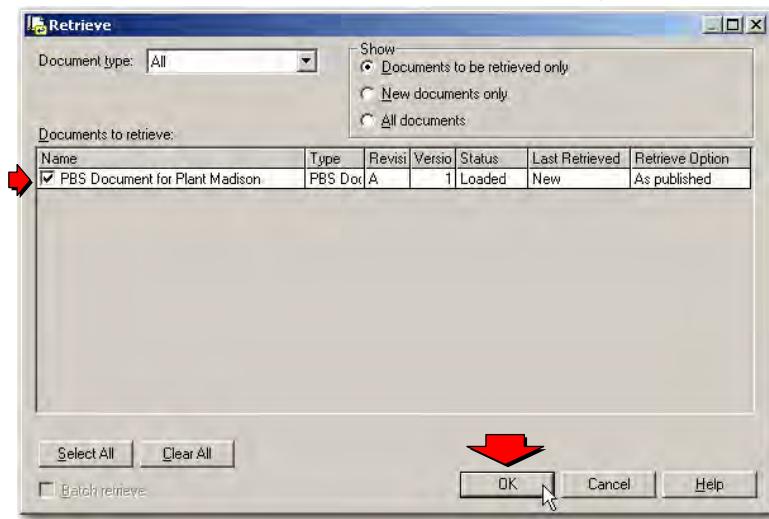


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Retrieving the PBS from SPF

- ❑ Select the PBS document to be retrieved, and click **OK**.



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The software displays the retrieve status in the *Retrieving* message box. When the document has been retrieved, the software displays a message box to let you know that the retrieve was successful.

Retrieving the PBS from SPF

The *Retrieving* dialog box will display the status of the retrieve operation.



14.2.4 Reviewing the Results of the Retrieve

When you retrieve the PBS into SmartPlant Engineering Manager, the Run Tasks dialog box appears.

Running the Retrieval Tasks

- Click **OK** to run the retrieval tasks.



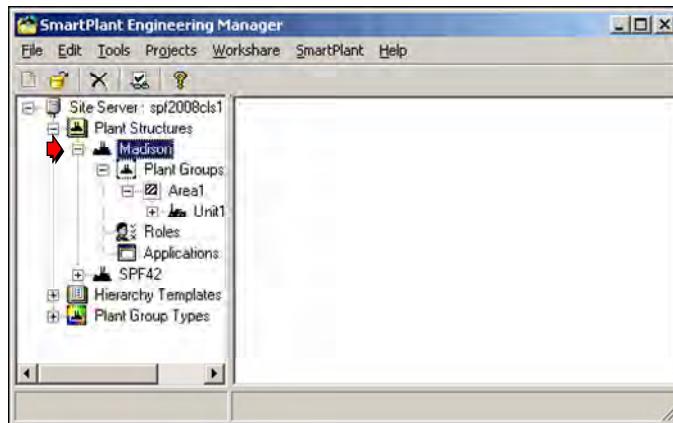
When you click **OK**, the software automatically runs all the tasks that are generated by the retrieve process.

In SmartPlant Engineering Manager, you can now see the area and unit that were created in SmartPlant Foundation and that were added to the new P&ID plant as a result of retrieving the PBS.



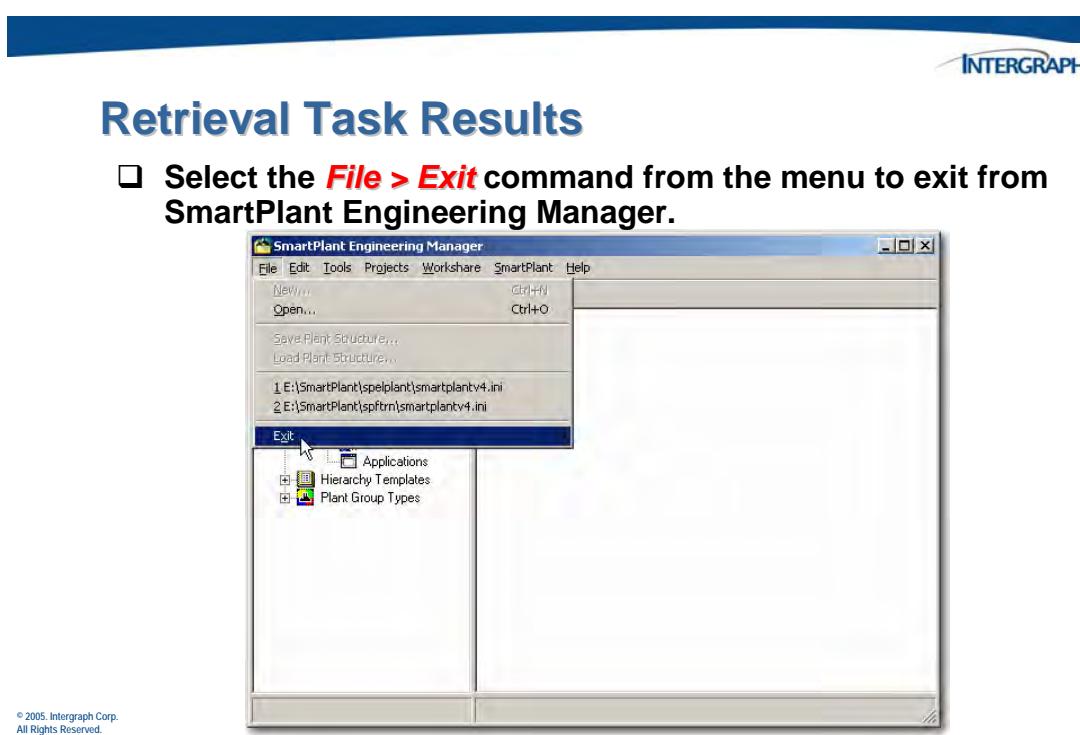
Retrieval Task Results

- Expand the tree to display the Madison Plant Breakdown Structure.**



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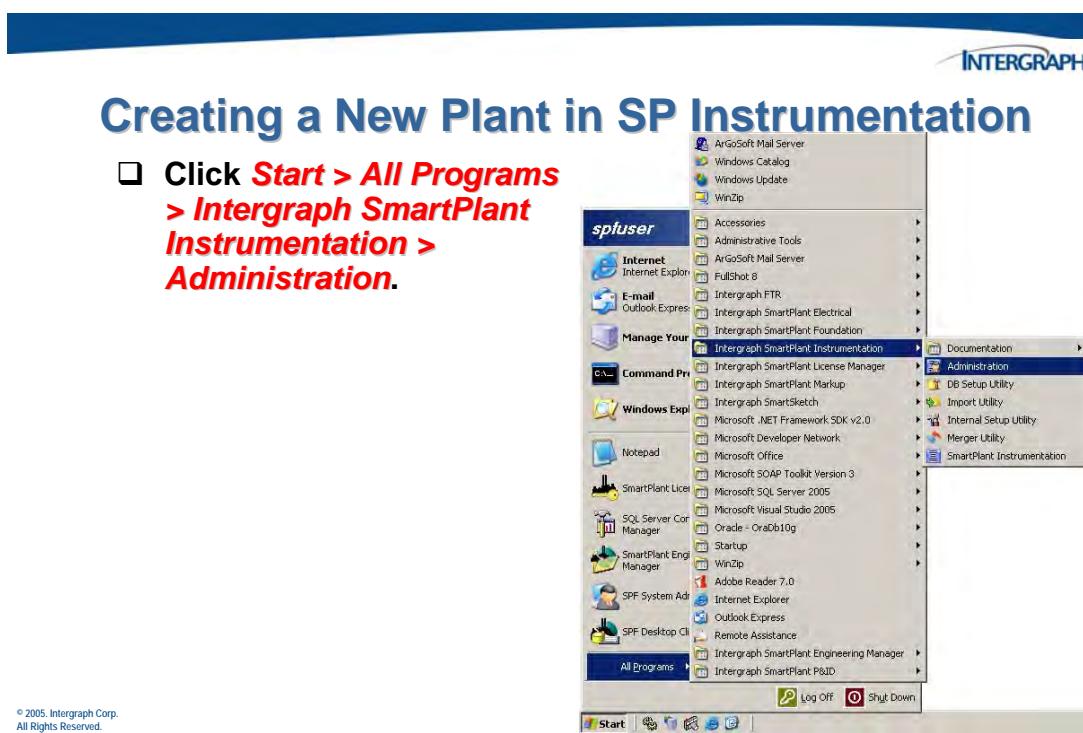
Now that the plant has been registered and the PBS structure retrieved and updated in SmartPlant Engineering Manager, you can exit the application.



14.2.5 Creating a New SmartPlant Instrumentation Plant

Again, before you can register a plant in SmartPlant Instrumentation, you must create the plant. For the purposes of this example, these tasks are shown being completed in SmartPlant Instrumentation.

Begin by starting the *SmartPlant Instrumentation Administration* application.



Log on to SmartPlant Instrumentation using the default user name and password. The default user name and password are DBA/DBA, and they are not case sensitive.



Creating a New Plant in SP Instrumentation

- Enter a valid *User name* and *Password* to log in to SmartPlant Instrumentation Administration.



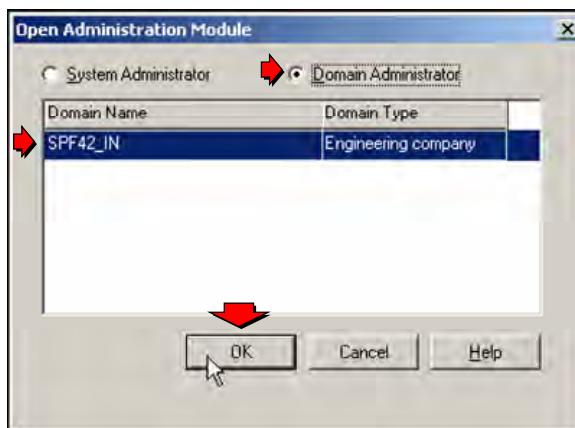
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The *Open Administration Module* dialog will be displayed.



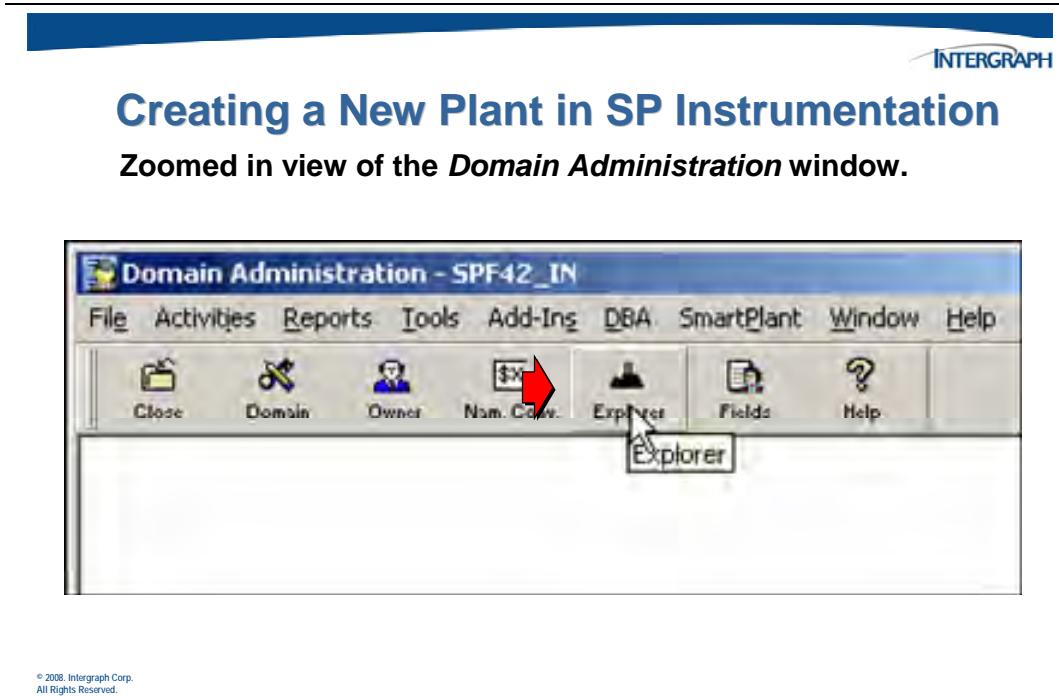
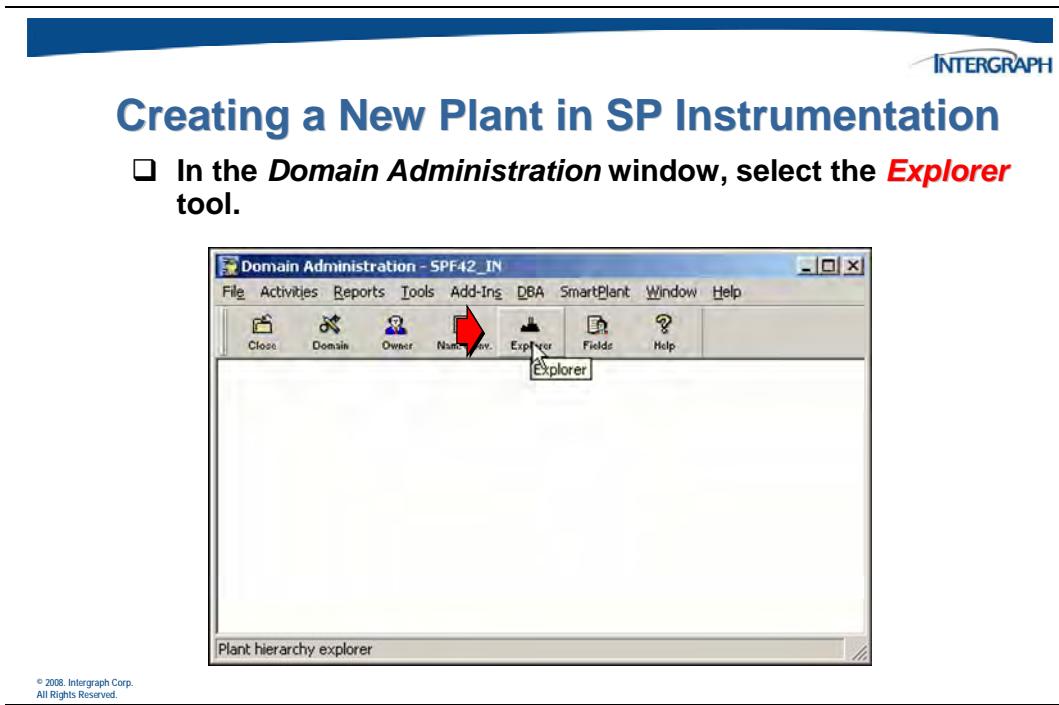
Creating a New Plant in SP Instrumentation

- Choose the **Domain Administrator** option, and select the **Domain Name**.



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Next, open the *Plant Hierarchy Explorer* window.

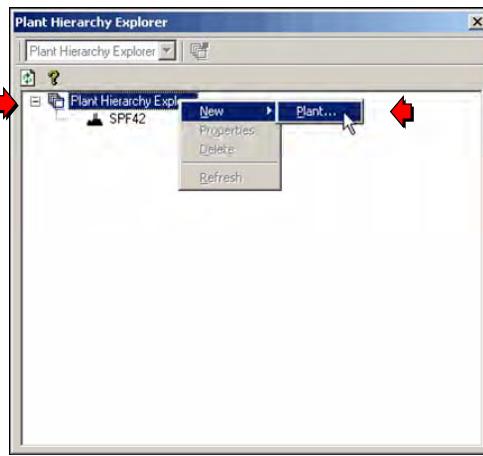


The *Plant Hierarchy Explorer* window will appear.



Creating a New Plant in SP Instrumentation

- ❑ Right-click on *Plant Hierarchy Explorer* in the Explorer window, and select **New > Plant** from the pop-up menu.

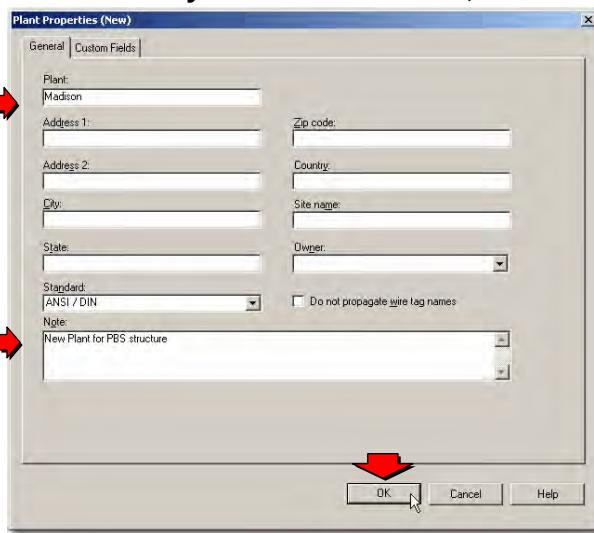


The *Plant Properties (New)* dialog will appear.



Creating a New Plant in SP Instrumentation

- ❑ Enter the necessary new *Plant* values, and click **OK**.

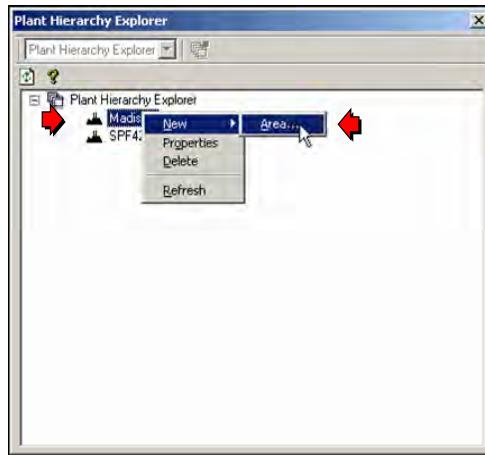


Next, create a new **Area** for the newly defined *Madison* plant.



Creating a New Plant in SP Instrumentation

- ❑ Right-click on the plant in the Explorer window, and select **New > Area** from the pop-up menu.



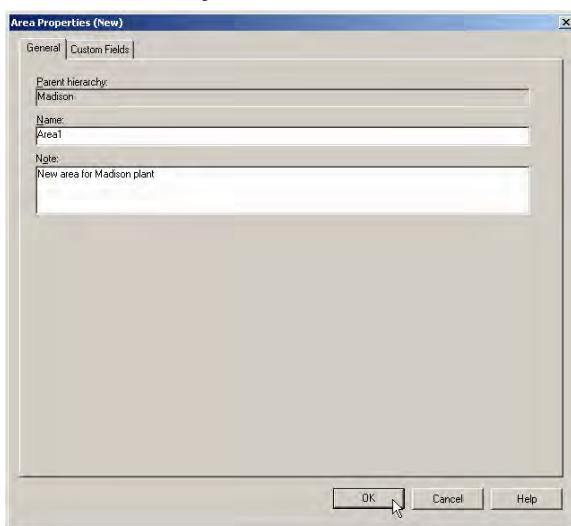
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The *Area Properties (New)* dialog will appear.



Creating a New Plant in SP Instrumentation

- ❑ Enter the necessary new **Area** values, and click **OK**.

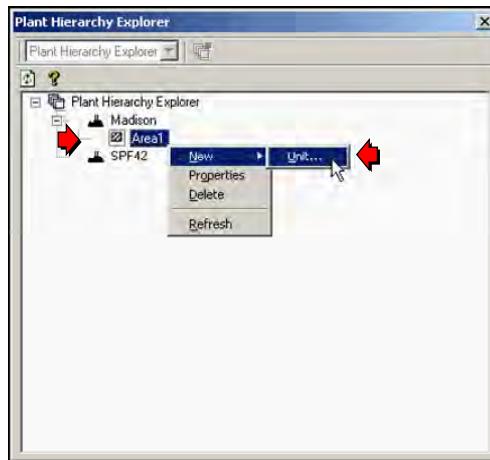


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Finally, create a new **Unit** for the new *Area1*.

Creating a New Plant in SP Instrumentation

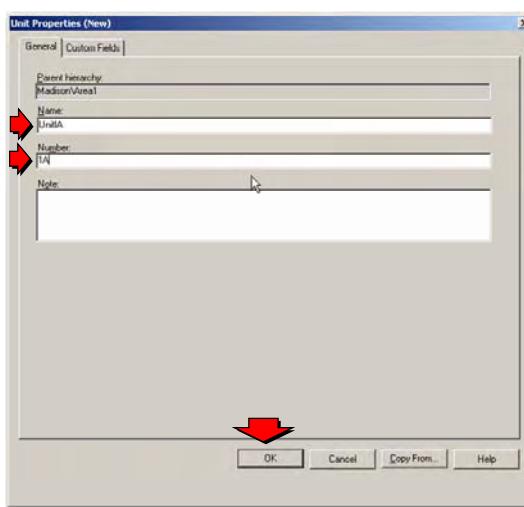
- ❑ Right-click on the area in the Explorer window, and select **New > Unit** from the pop-up menu.



The *Unit Properties (New)* dialog will appear.

Creating a New Plant in SP Instrumentation

- ❑ Enter the necessary new **Unit** values, and click **OK**.

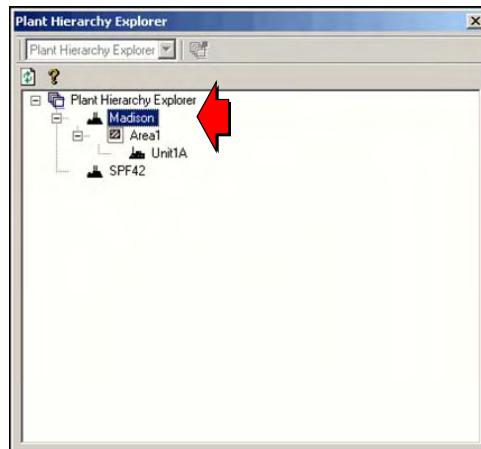


Review the new plant, area, and unit (PAU) structure that you have just defined in SmartPlant Instrumentation.



Creating a New Plant in SP Instrumentation

- Expand the new plant relationships to verify the new area and unit for this plant.

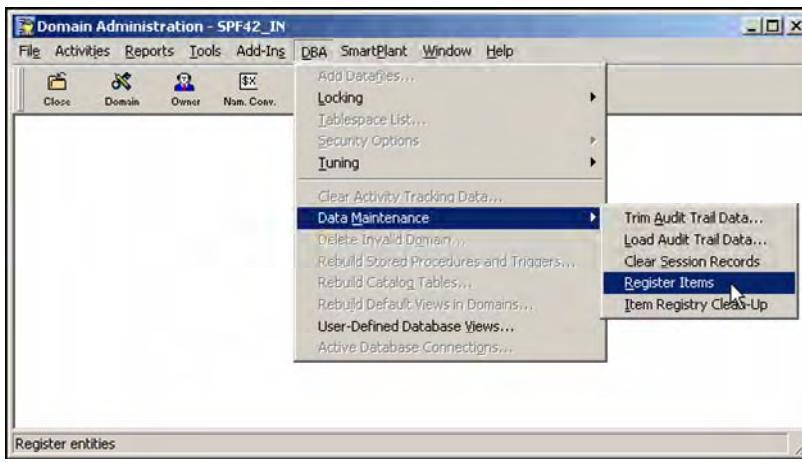


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Note: If you experience a problem performing the plant register operation, use the following **Register Items** command.

Creating a New Plant in SP Instrumentation

- Select **DBA > Data Maintenance > Register Items**.



Creating a New Plant in SP Instrumentation

- Confirm that you want to register items by clicking **Yes**.
- When registration is complete a dialog will indicate if the process was completed successfully.

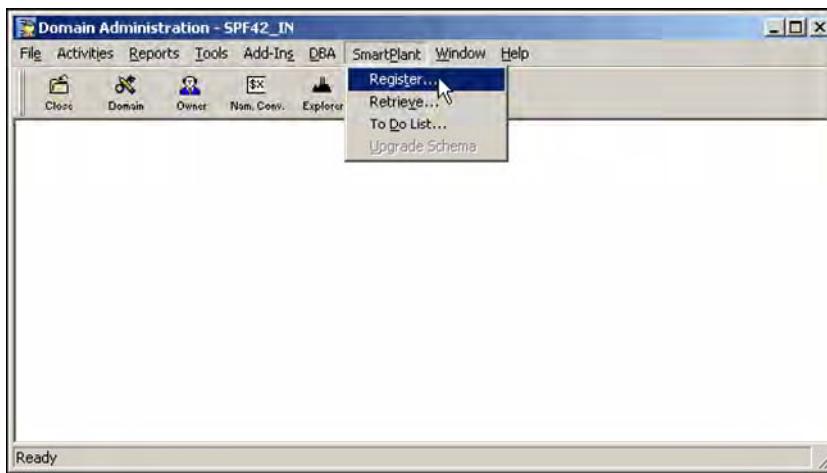


14.2.6 Registering SmartPlant Instrumentation with SmartPlant Foundation

To register the new plant, select *SmartPlant > Register* from the menu.

Registering a New Plant in SPI

- Select the *SmartPlant > Register* command.



The *Select Plant* window will appear. Select the plant you just created.



Registering a New Plant in SPI

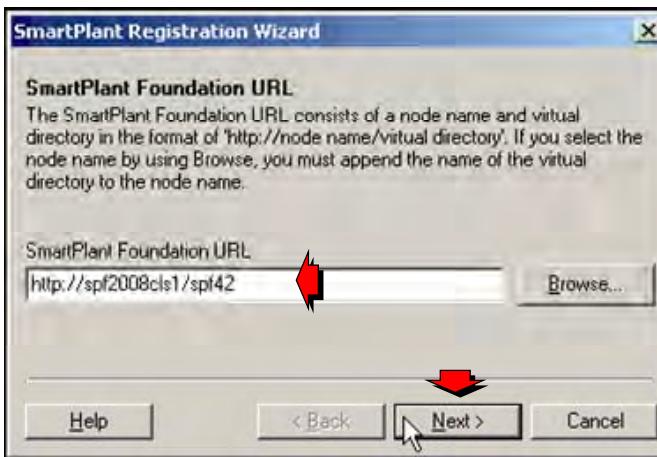
- Select the plant to be registered, and click **OK**.



The *SmartPlant Registration Wizard* appears. The SmartPlant Registration Wizard user interface is the same for other authoring tools.

Registering a New Plant in SPI

- Enter the URL for SmartPlant Foundation, and click **Next**.



In the *SmartPlant Foundation URL* field, type the node name and virtual directory of the SmartPlant Foundation database with which you want to register your plant. Use the following format: `http://<SPFServer>/<VirtualDirectory>`. For example, **http://spf2008cls1/spf42**.

For the next step, you need to know the SmartPlant Foundation plant to which you will register. In this case, register to the **Madison** plant that was created earlier.

In the *Plant name* list, select the **Madison** plant.

Registering a New Plant in SPI

- Once the plant to register has been selected, click **Next**.



If the registration is completed successfully, a message box appears.

Registering a New Plant in SPI

- Verify that the plant registration was successful.

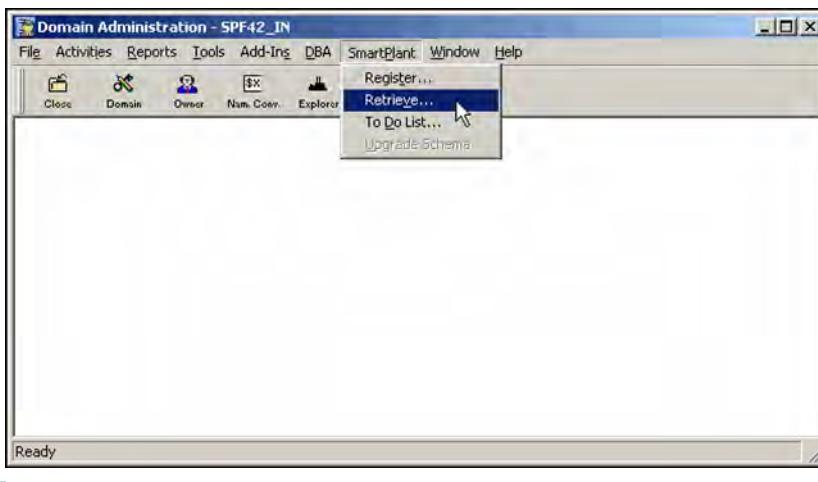


14.2.7 Retrieve the PBS Document into SmartPlant Instrumentation

After you register your plant, you can retrieve the PBS document from SmartPlant Foundation. In this instance, the PBS document will correlate to the plant, area and unit structure that was defined in SmartPlant Instrumentation.

Retrieving the PBS from SPF

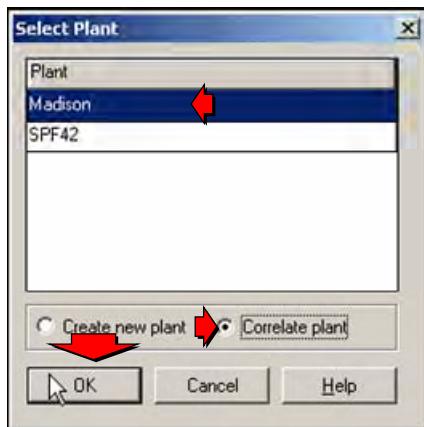
- Select the *SmartPlant > Retrieve* command.



The **Select Plant** window will appear.

Retrieving the PBS from SPF

- Select the plant to be correlated with the *Plant Breakdown Structure* in SPF.



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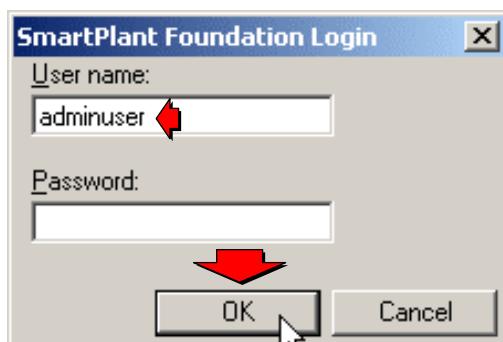
The *Correlate plant* option will correlate the plant structure in SmartPlant Instrumentation with the PBS structure that will be retrieved from SPF. The plant names and structure must match in order to use the correlate option.

The *SmartPlant Foundation Login* dialog will appear.



Retrieving the PBS from SPF

- Enter a valid SPF *User name* and *Password* to log in to the SPF server from the authoring tool.



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The *Retrieve* dialog will appear, listing the PBS document that was published from SPF.



Retrieving the PBS from SPF

- Select the PBS document to be retrieved, and click **OK**.

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The software displays the retrieve status in the *Retrieving* message box.



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When the document has been retrieved, the software displays a message box to let you know that the retrieve was successful.



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Retrieving the PBS from SPF

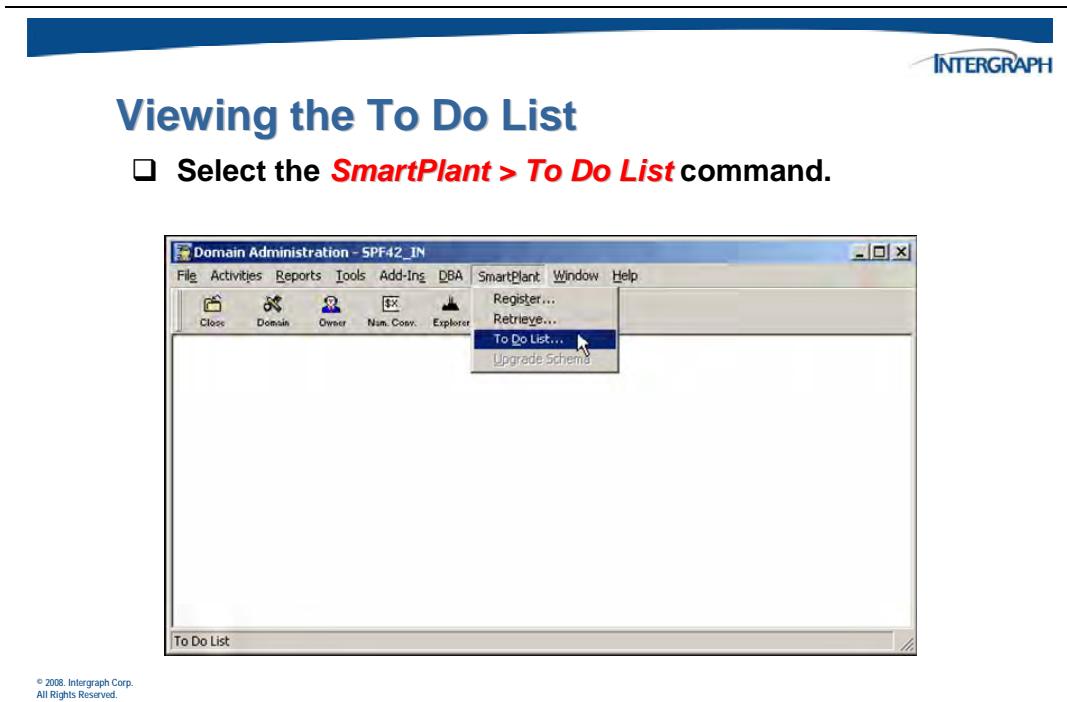
- Click **Cancel** to close the *Select Plant* dialog.



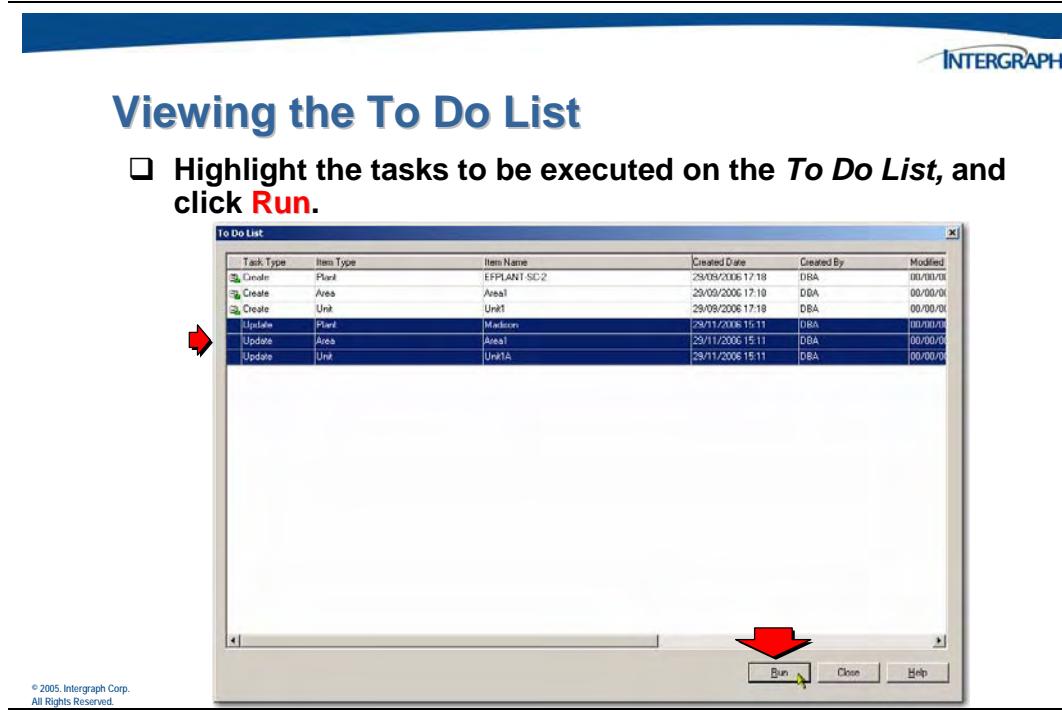
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14.2.8 Run Tasks in the SmartPlant Instrumentation To Do List

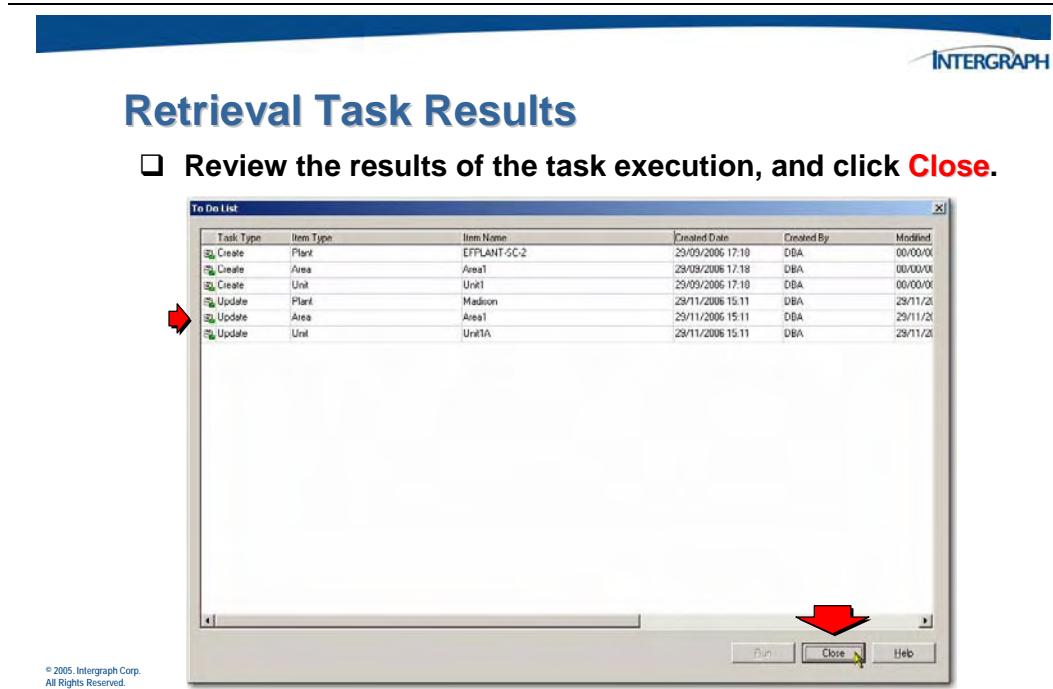
To see the PBS information and tasks that need to be performed, display the *To Do List* window.



The *To Do List* window will be displayed showing all tasks, including those that have already been run. The tasks without an icon to the left are the new ones resulting from the latest retrieve and are ready to be executed.

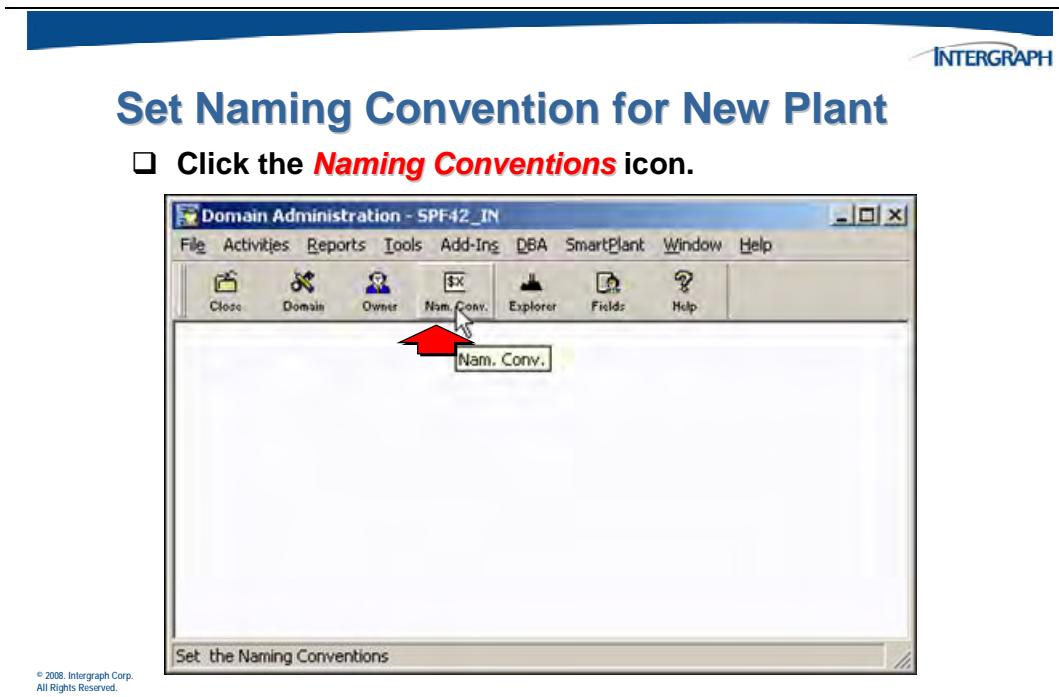


A check mark ✓ appears in the left most column of the *To Do List* when the tasks have been completed.

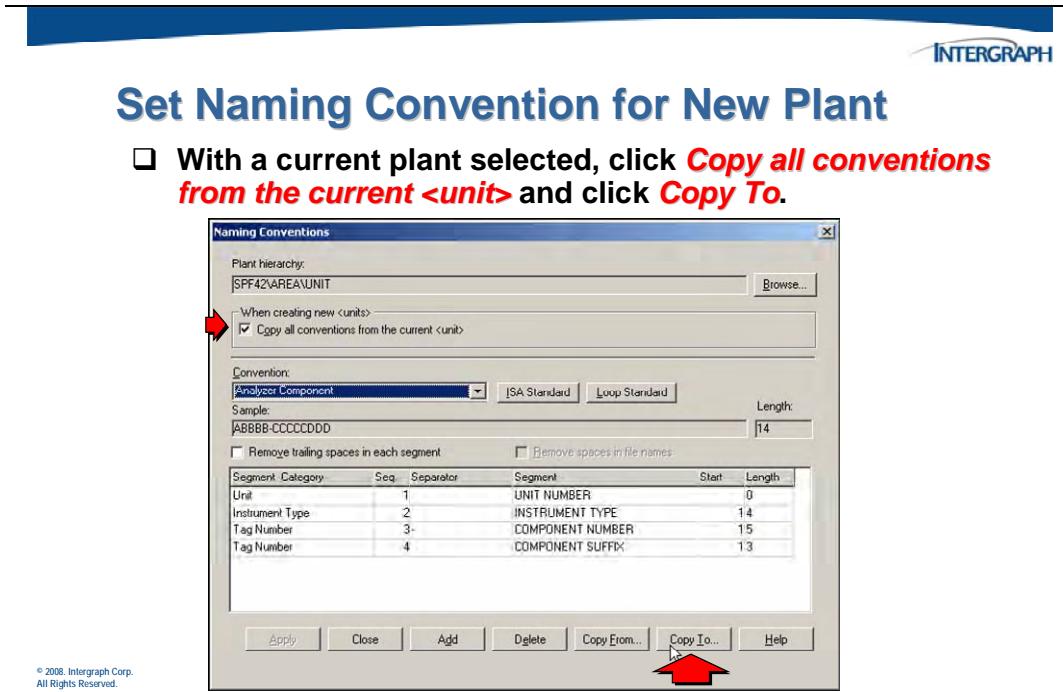


14.2.9 Set the Naming Convention for the New Plant

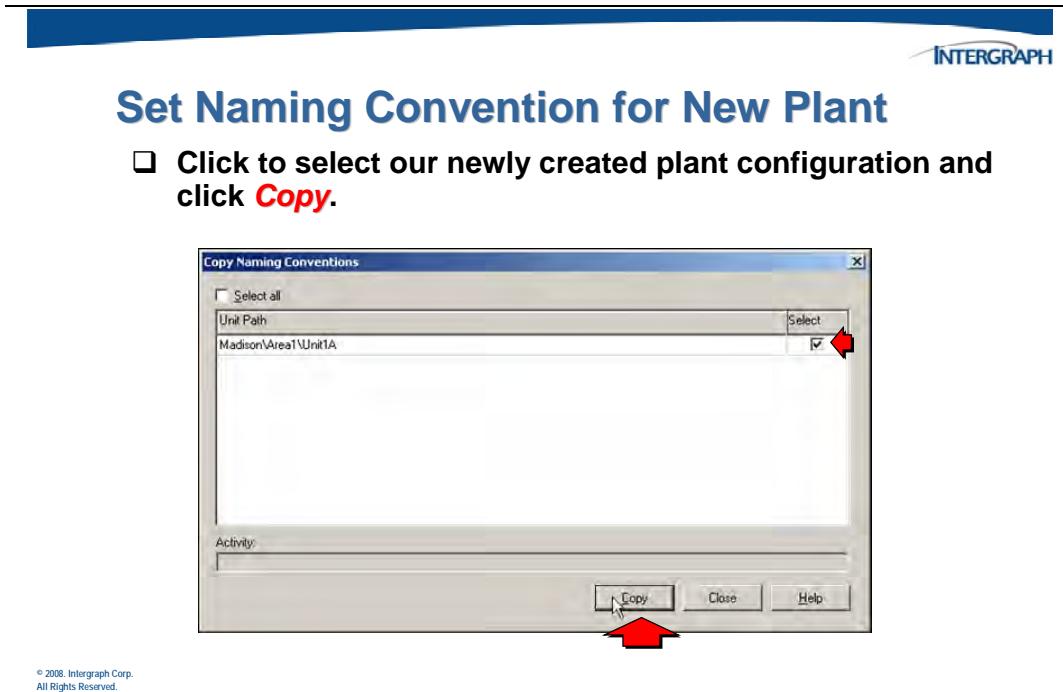
From the *Domain Administration* window, click ***the Naming Conventions*** icon.



The *Naming Conventions* dialog displays. Select ***Copy all conventions from the current <unit>*** to copy the naming conventions from the current plant configuration to the new plant.



Select the new plant configuration and click ***Copy***.



14.3 Activity – Creating a Plant Breakdown Structure

Complete the **Chapter 14 – Activity 1** in the SmartPlant Foundation 2008 (4.2) Introduction and Administration I activity workbook.

A P P E N D I X

A

Glossary

A

active scope

A configuration in which you may view, create, modify, and delete information in the SmartPlant Foundation client.

adapter

Authoring tool software that facilitates the sharing of data between the authoring tool and other integrated tools. Tool adapters generate XML files for publish operations and consume XML when tools retrieve documents. Adapters are also called SmartPlant adapters.

API

1) Application Programming Interface. 2) American Petroleum Institute.

as-built

The set of data that describes the existing conditions of a plant or site; the completed and approved state of a project.

attribute

An object characteristic.

authoring tools

Applications where documents are created and then shared through integration. Integrated authoring tools include Zyqad, SmartPlant P&ID, SmartPlant Electrical, SmartPlant Instrumentation, SmartPlant 3D, SmartPlant Materials, and SmartPlant Foundation.

B

batch printing

Printing files at a specified date and time from the SmartPlant Foundation client.

brownfield

An existing plant or site that is modified by one or more projects.

C

cache

Memory that stores recently-accessed data so that subsequent requests to access the same data can be processed quickly.

cases

Configurations for instruments that may include specific parameters, settings, or even components for use in a specific situation.

change notification

An e-mail message sent to a user when an action is performed on an object in SmartPlant Foundation.

check out

Allows you to make changes to an existing document in SmartPlant Foundation. Only the user who has checked out a document can save changes to it.

checklist

A series of items, tasks, or questions that the user finishes before a completing a step in a workflow. Checklists can be optional or required.

claim

- To take responsibility for a step in a SmartPlant Foundation workflow.
- To identify the scope of a project by adding items to the project from a drawing or a 3-D model. When authoring tools are integrated, SmartPlant P&ID claims items that are shared among tools. Other authoring tools, such as SmartPlant Instrumentation and SmartPlant 3D, claim items that they create and modify that are not shared.

class view map

A schema object that specifies a set of class definitions and the default view definition that should be used for each class definition in the set.

class view map

A schema object that specifies a set of class definitions and the default view definition that should be used for each class definition in the set.

client API

A .dll (dynamic link library) that performs a particular function in SmartPlant Foundation. Client APIs are processed by a specific section of code in a component.

common UI

An ActiveX component (.dll) that provides a standard user interface for integration functionality, such as publish, retrieve, and register. The authoring tools display the common UI when the user clicks particular SmartPlant commands in the authoring tool.

compare

To view the differences between two revisions of the same document in SmartPlant Foundation.

component

A .dll (dynamic link library) that handles requests on the SmartPlant Foundation server. Components are also called business service layers (BSLs).

component schema

A subdivision of the complete SmartPlant schema that contains the set of class definitions that are used within a specific domain or application area.

condition

An object that can restrict access to a method, workflow, or relationship based on specified criteria.

configuration tree

A representation in a tree list, which may include plant, areas, units, and projects that indicates the structure in which the data is stored in SmartPlant Foundation.

container

An object used by the tool adapters and the SmartPlant software components to pass data back and forth between a tool and SmartPlant Foundation. A container may hold data or metadata related to the data model or actual instance data.

contract

A group of documents that are collected and issued for bid, construction, review, and so on.

correlation

The relationship between items that represent the same object in multiple authoring tools.

create scope

A configuration for data creation, modification, and termination in SmartPlant Foundation.

current document

A document that has been signed off. Current documents can be revised in SmartPlant Foundation, but not checked out or in.

cut-off date

Any date on which progress information is calculated. Official cut-off dates are scheduled in advance and are typically part of a reporting schedule. Unofficial cut-off dates are random dates when rollups are not scheduled but progress is calculated anyway.

D**data list**

A list of plant items that can be modified outside SmartPlant Foundation. You can generate data lists to view and edit SmartPlant Foundation data in Microsoft Excel, and then save the data back into SmartPlant Foundation.

data sheet

A file that allows users to view, edit, and print object data in a customizable format.

data sheet template

An Excel file that defines the layout of a data sheet.

database

Collection of files of comprehensive information that have predefined structure and organization; a specific program can communicate, interpret, or process these files.

design basis

An item in an authoring tool that represents an item from a upstream application (an application used earlier in the lifecycle of the plant). Plant items placed with the authoring tool correspond to a particular design basis item.

Design basis items provide a means of determining if the plant items within the authoring tool are consistent with the items from the upstream application and help users maintain consistency as changes are made in all authoring tools.

design file

A file generated by a design tool, such as SmartPlant P&ID or Zygad.

digest

See e-mail digest.

display item

Object used to present data or relationships on a form in SmartPlant Foundation.

distribution matrix

A list of people who will receive a transmittal created in SmartPlant Foundation and an indication of what is expected from each recipient. Workflows can also be configured to use a distribution matrix for sending **To Do List** or e-mail notifications to workflow step recipients.

document

An object used to track revisions to a design file in SmartPlant Foundation.

document master

An object used to group all the revisions of a document in SmartPlant Foundation.

document revision

An officially recognized change to a document.

domain

A set of data (for example: tool data, SmartPlant Foundation administration data, and schema data) that is segregated and managed independently in SmartPlant Foundation. Data segregation improves performance and maintains data integrity. The SmartPlant Enterprise authoring tools create data in one SmartPlant Foundation domain and publish into another domain.

downstream forecasting

A feature that uses timestamping information and actual dates when steps were completed to provide an estimated completion date for subsequent steps.

dump file

A file that contains data exported from the SmartPlant Foundation data or system administration database. You can import database dump files using SmartPlant Foundation Server Manager.

E**edge definition**

Single or multiple relationship definitions with direction. In the SmartPlant schema, an edge definition is used to traverse from a starting object to related objects.

effectivity date

The period of time for which historical data is displayed in SmartPlant Foundation.

e-mail digest

A collection of notification messages from SmartPlant Foundation that are sent together instead of separately. You can set a user preference in the Desktop Client to receive digests instead of individual e-mail messages.

enumerated entry

A member of an enumerated list that defines one possible value for a property in the SmartPlant schema. Enumerated values are sometimes called enumerated entries.

enumerated list

A list of possible string property values defined for a property definition in the SmartPlant schema. Enumerated sets are sometimes called enumerated lists, picklists, codelists, and lookups.

exposes

The relationship between interface definitions and property definitions in the SmartPlant schema. Interface definitions *expose* the property definitions for class definitions.

F**file server**

A service that handles direct file transfer between vaults and the SmartPlant Foundation client.

file type

A setting in SmartPlant Foundation that specifies the format of attached files based on file extension. This setting determines how files are viewed, edited, and printed in SmartPlant Foundation.

folder

A grouping object that can contain a number of items. A folder can contain other folders, to build up a folder hierarchy. A folder can have an owner, which makes it visible only for that user, and it can have an owning group, which allows access for members of the group.

form

A part of the SmartPlant Foundation client user interface that allows users to specify values for class definition properties.

FTR

Full-Text Retrieval; a separate module of SmartPlant Foundation that allows you to store, index, and search for text contained in or associated with objects managed by SmartPlant Foundation. Full-text retrieval creates an inverted index (a list of the individual words with locations in the files) and uses this index at search time.

G**governing case**

The specific case used for an instrument.

graph definition

A connected network of edge definitions with structure. Each graph definition in the SmartPlant schema starts at an interface definition and traverses through one or more relationship definitions to another interface definition at the other end. Graph definitions are sometimes referred to as directed graph definitions.

graphic report

A filtered view of a drawing or model, displayed graphically in SmartPlant Foundation.

graphic report definition

A set of rules defined to display a drawing or model as a graphic report. The report definition is saved and is also available for use with any number of drawings or models in SmartPlant Foundation.

greenfield

A new plant on a site with no existing infrastructure.

H**hierarchy**

A classified structure with superiors, or roots, and subordinates, or dependents, used for grouping data.

host

A computer that stores files.

hotspot

Graphical notification that a user can click a drawing item in a drawing or viewable file to display the properties for the item in SmartPlant Foundation.

I

implies

The relationship between two interface definitions in the SmartPlant schema. If an interface definition *implies* another interface definition, then any class definition that realizes the first interface definition can also realize the implied interface definition.

integration

Technology that standardizes and improves the communication among the various SmartPlant Enterprise authoring tools used in the course of designing, constructing, and operating a plant. Integration manages data exchange among these authoring tools, which enables sharing and reuse of plant information throughout the plant lifecycle.

interface definition

A named collection of property definitions that represents a role for a class definition in the SmartPlant schema.

issue

To release a document as part of a transmittal. The document is not considered issued until the status of the transmittal has been changed to issued.

issue request

A staging of documents and drawings to be issued with a transmittal. An issue request means that the documents or drawings are ready to be issued with a transmittal, but does not actually cause the transmittal to be issued.

M

master file

A document file that references other files.

merge

To combine project data from all the authoring tools with the as-built data. Project and as-built data must be merged in all authoring tools and a final publish of the as-built documents must occur before a merge can occur in SmartPlant Foundation.

meta schema

A set of schema objects that describe the objects in the SmartPlant schema. The meta schema provides the building blocks upon which the SmartPlant schema is built.

method

A call to an API that allows users to perform actions on objects or interfaces in SmartPlant Foundation.

O

owning group

The user group to which an object is assigned in SmartPlant Foundation.

P

picklist

A list of applicable values for a given property in SmartPlant Foundation.

plant

An object that can represent the top level in the delivered SmartPlant Foundation data hierarchy. If you use a custom hierarchy, the object at the top level of the hierarchy may have a different name.

Plant Breakdown Structure (PBS)

The composition of the plant based on the grouping of physical objects by their function in the plant. The plant usually occupies the top level of the hierarchy and is typically followed by areas and units.

print server

A computer that processes print requests for a defined list of printers in SmartPlant Foundation.

process cases

Configurations for instruments that may include specific parameters, settings, or even components for use in a specific situation.

profile

See user profile.

progress

Functionality that allows users to track the development of deliverables, such as documents or items, against a project plan, indicating any deviations from the original plan.

project

A logical unit of data that is a subset of the items that make up a plant. A project is used for making controlled, incremental changes to the data in a plant. There can be multiple projects for a plant at any given time.

property

An object characteristic.

property definition

A basic attribute shared by all members of a class. Property definitions are grouped using interface definitions in the SmartPlant schema.

publish

To share a document and its data with other authoring tools by exporting an XML file containing the document data and relationships. When a document is published, the software places the XML file in the appropriate SmartPlant Foundation vault and loads the data from the XML file into the SmartPlant Foundation database. After the document is published, users can retrieve the data from the XML file located in the SmartPlant Foundation vault into other authoring tools.

punchlist

Provides a running to do list of outstanding scope for completions.

Q

query

A detailed search based on object properties.

query scope

A configuration for data queries and relationship expansions in SmartPlant Foundation.

R

realizes

The relationship between class definitions and interface definitions in the SmartPlant schema. Class definitions *realize* interface definitions. The interface definitions that are realized by a class definition expose the properties for that class definition.

Reason For Issue (RFI)

The reason a document is released as part of a transmittal.

Reason For Receipt (RFR)

The reason why a specific recipient was included on a transmittal or workflow step.

reference file

Files associated with a master file in SmartPlant Foundation.

register

To map an authoring tool and all its projects to a SmartPlant Foundation URL, which points to one SmartPlant Foundation database. You must register your authoring tool plant before you can publish and retrieve in an integrated environment.

relationship

An association between two objects.

relationship definition

Associations between interface definitions in the SmartPlant schema. Relationship definitions identify two specific objects that fulfill the roles on each end of the relationship.

resurrected object

A deleted authoring tool object that is reintroduced to the SmartPlant Foundation database when recovered tool data is republished. For example, a tool initially publishes a document containing an object, but later deletes the object and republishes. SmartPlant Foundation then detects that the object is deleted. However, if the tool restores data that was backed up before the object was deleted, through a data restoration or other tool-specific mechanism, and republishes, then SmartPlant Foundation recognizes that the object was previously deleted but has been reintroduced (resurrected).

retrieve

To import document data from an .XML file that was published by another authoring tool for the purpose of maintaining consistency of data across tools. When you retrieve a document, most authoring tools analyze the impact of the newly retrieved data on the existing database and then place tasks on the authoring tool's **To Do List**. The tasks on the **To Do List** allow you to create, delete, or modify items at the appropriate time in the design process.

revision

An officially recognized change to a document. Each revision of a document may have multiple versions.

revision scheme

A numbering convention for document revisions.

role

A role determines a user's level of access to data and functionality in a specific plant/project configuration. Users can belong to more than one role per configuration. Roles are defined by system administrators and are based on related access groups, domains, and owning groups.

rollup

The process of calculating progress data. Progress is calculated for every deliverable at every level of the hierarchy, and all of that information is available for viewing or reporting when you run a rollup. Rollups can be scheduled with official cut-off dates or can be run manually at any time.

S**schema**

A model used to describe and validate the structure of XML files.

Schema Component

A suite of ActiveX components that provide functionality surrounding the creation, parsing, validation, and comparison of the SmartPlant schema and data. The tool adapters interact with the Schema Component to read the SmartPlant schema, to create data for publish, and to retrieve data.

scoped by

The relationship between property definitions and property types in the SmartPlant schema. The *scoped by* relationship specifies the property type that defines acceptable values, or scopes, a particular property definition. Every property definition in the SmartPlant schema is scoped by one and only one property type. All properties of that property definition must be of that property type.

section

A collection of display items used on SmartPlant Foundation forms.

server

A computer that stores or processes files.

shared object definition

A schema object used to group together similar class definitions that define the same object in different domains. Class definitions that can be shared have a Sharing relationship with shared object definitions in the SmartPlant schema.

sharing

The relationship between class definitions and shared object definitions in the SmartPlant schema. This relationship indicates that a class definition can be shared.

SI

International System of Units, sometimes referred to as the metric system. When values for units of measure are published, they are converted to SI units and stored, regardless of the units of measure selected when the user defined the value in the authoring tool.

sign off

To approve a particular revision of a document in SmartPlant Foundation. Signing off a document sets the document to be the current released revision, makes it official, and supersedes any previous released revisions. Document revisions that have been signed off are frozen and cannot be checked out.

site

Refers to the SmartPlant Foundation server settings that point to SmartPlant Foundation Administration and Data databases and vaults. Each site allows you to run SmartPlant Foundation operations on data associated with plants and projects configured in the database.

SmartPlant Enterprise

A suite of Intergraph engineering applications that are delivered together.

SmartPlant schema

An XML file that describes the structure of the XML files generated by integrated authoring tools in much the same way as a data dictionary describes the structure of a database. As tools publish documents in XML format, those documents must adhere to the format defined by the schema to ensure that the XML data can be loaded into SmartPlant Foundation and retrieved into the other authoring tools.

status

The state of a change object at the completion of each step in a workflow.

step

A process that must be performed in order to complete a workflow.

subscribe

To register interest in an object so that you receive a notification when the object is modified. You can manually subscribe to change notifications in the SmartPlant Foundation client.

superseded

Indicates that a newer, working version of the selected document exists.

symbolology

Settings that determine how a drawing or model will appear when displayed as a graphical report in SmartPlant Foundation.

T**TEF**

The Engineering Framework; technology behind the integration of SmartPlant Enterprise products.

terminate

To change the status of a SmartPlant Foundation object to terminated without removing it from the SmartPlant Foundation database. Terminating objects, instead of deleting them, allows you to continue to see the history of the object after termination.

timestring

A schedule that assigns a certain number of days for the completion for each step in the lifecycle of a deliverable.

title block

The portion of a drawing that contains information about the drawing, such as who created the drawing, when it was created, who approved it, and so on. The type of information included in the title block varies by drawing type, industry, and organization.

To Do List

A graphical list of tasks that require attention from the user. In SmartPlant Foundation, the **To Do List** contains workflow steps assigned to the user. In the authoring tools, such as SmartPlant

P&ID and SmartPlant Instrumentation, the **To Do List** contains create, delete, and update tasks generated when a user retrieves a document.

token

A license that provides timed access to users of SmartPlant Foundation. When a user opens the software, a token is activated.

There are two types of tokens: daily and perpetual. Daily tokens are available to all users and are valid for 12 consecutive hours after the user logs on to SmartPlant Foundation. When a daily license token is checked out, a token is depleted from the daily token file. If there are no tokens left in the daily token file, then other users cannot access the software. Perpetual tokens are only available to a select group of system users and provide unlimited access to the software.

tombstone

Delete instructions for an object that has been removed in one of the authoring tools. Upon retrieval of a tombstone, delete tasks are created in the authoring tool's **To Do List** to allow the tool to delete the object from its database.

tool

See authoring tool.

tool adapter

See adapter.

tool schema

A set of schema objects that describe the data in the authoring tool databases before it is transformed into the format prescribed by the SmartPlant schema. The tool schema also specifies the mapping between objects in the tool database and the SmartPlant schema.

tool signature

A unique identifier for the relationship between a plant in SmartPlant Foundation and a specific plant in an authoring tool database. The relationship is created when an authoring tool registers with SmartPlant Foundation.

transmittal

A controlled package of documents used to perform, track, and record the distribution of project documentation among different design teams.

U**unit**

Group of parts of the schematic and individual worlds of a plant that together perform a given process function. The identifying number of the unit is unique within the project and within the plant. Most companies, but not all, use the concept of unit.

unit of measure list

A collection of different units that measure the same property in SmartPlant Foundation.

UoM

A unit of measurement.

user

An object that specifies data about a person who is authorized to use SmartPlant Foundation.

user profile

Information about windows, configuration, and interface settings, saved by the SmartPlant Foundation client when you close the application and used to configure the application when you reopen it.

V

vault

A folder where files are stored on a host computer.

version

An intermediate update to an existing document that is tracked by the SmartPlant Foundation software.

view definition

A named group of properties extracted from the possible properties that a graph definition exposes. View definitions are used in an integrated environment to provide a different view of data from that provided by the underlying schema.

virtual directory

A Web folder created in IIS that points to a physical folder on the Web server. Virtual directories are used by SmartPlant Foundation to run applications and services from the SmartPlant Foundation server and to transfer files between file servers and clients.

W

Web Portal

Provides the functionality of the SmartPlant Foundation client system through an easy-to-deploy Internet Explorer web browser. Based on the software configuration and authorization of the System Administrator, you can perform the following functions:

- View information from the database about a specific object
- Search for objects in the database
- View drawings and 3D models
- View a history for a particular object
- View relationships between objects

weighting

The percentage of a project that is made up by a step, sub-step, or deliverable. When you create a step or sub-step for a deliverable or assign a deliverable to workpack, you must indicate what percentage of the work that item represents. For example, if a deliverable is 30 percent complete when a particular step is finished, the weighting for that step is 30.

wildcard

A character that helps you narrow your search for objects in the SmartPlant Foundation database. You can use wildcards in any text box in the **Find** and **Query** dialog boxes.

Text wildcards in SmartPlant Foundation include the following:

- ? - Finds any single character

- - Finds any string of characters
- % - Performs the same function as *

Work Breakdown Structure (WBS)

The composition of the plant based on the construction work to be completed. The plant usually occupies the top level of the hierarchy; it is typically followed by projects, contracts, and documents.

workflow

A series of steps defining actions to be taken on an object in SmartPlant Foundation.

working document

A document that has not been signed off in SmartPlant Foundation.

X**XML**

Extensible Markup Language; the format for all documents published or retrieved in an integrated environment. These XML files must conform to the structure defined by the SmartPlant schema.

A P P E N D I X

B

Using VMWare Workstation

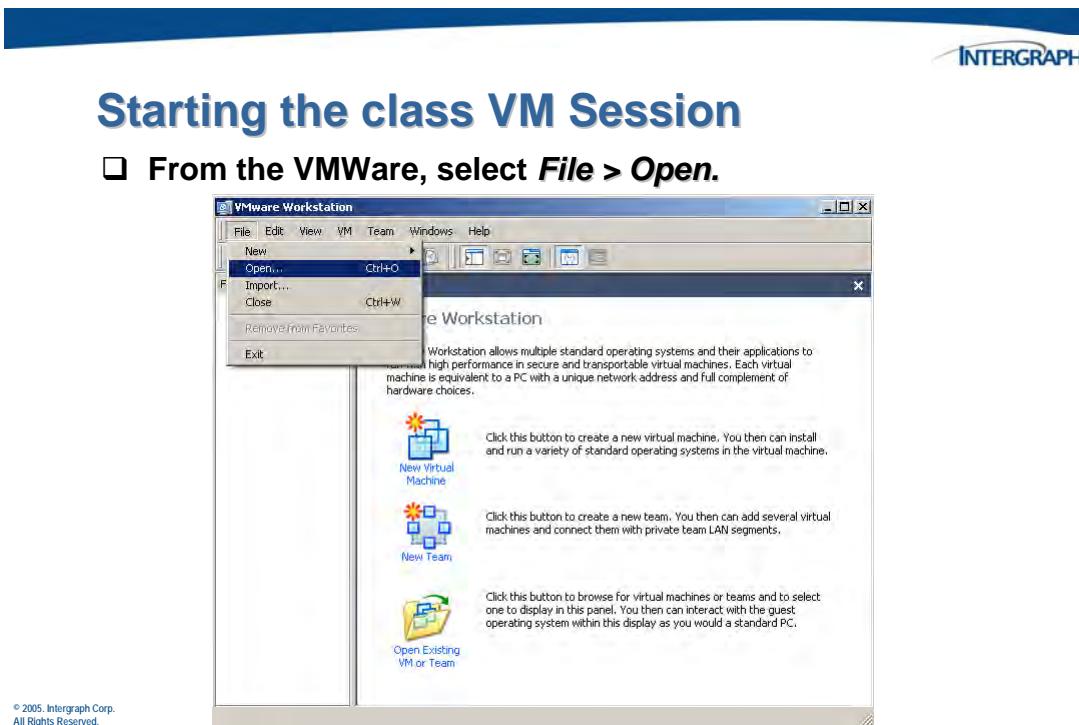
B. Using VMWare Workstation

Your class will be using an application called VMWare to enable you to login and run the SmartPlant Foundation application and the class hands on activities. This software is a virtual installation of an entire PC machine complete with the Windows 2003 Server operating system and all other necessary applications. You will find an icon on the desktop of your native class machine called *VMWare Workstation*.



Double click on this icon to start the VMWare application.

The *VMWare Workstation* window will display.

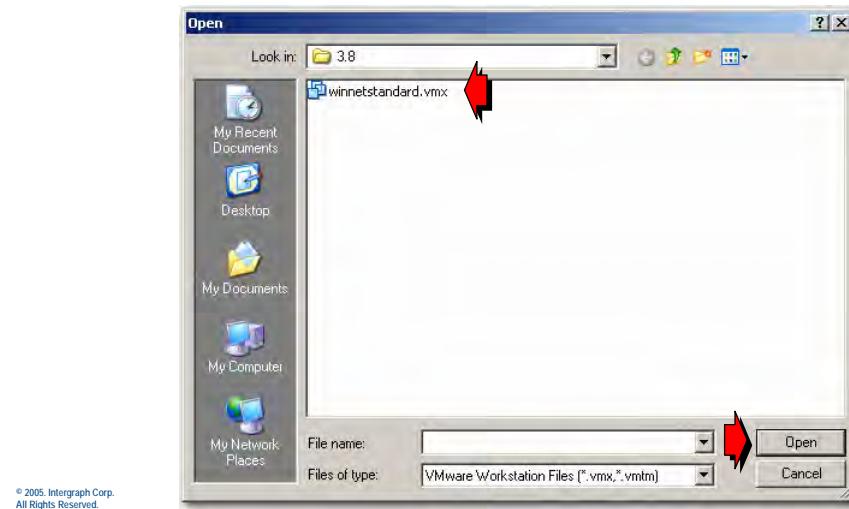


Set your open browser to the folder path specified by your instructor. Write down the path here _____.



Starting the class VM Session

- Choose the class VMWare configuration file as shown.

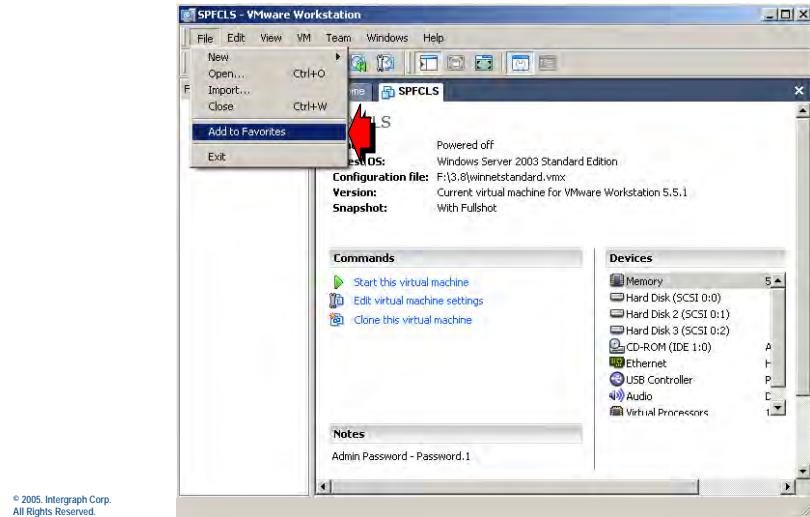


For future convenience, add the VM machine to your favorites.



Starting the class VM Session

- Select **File > Add to Favorites.**

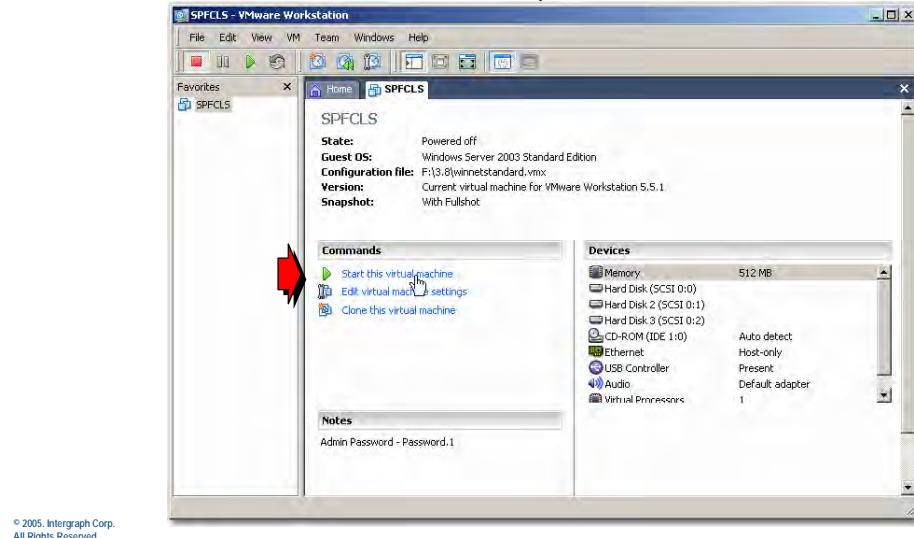


Boot up the virtual machine by using the *Start* command.



Starting the class VM Session

- In the Commands section, click **Start this virtual machine.**

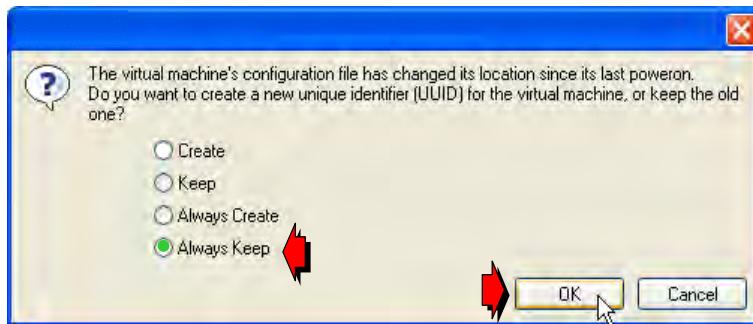


You may or may not see the following dialog box.



Starting the class VM Session

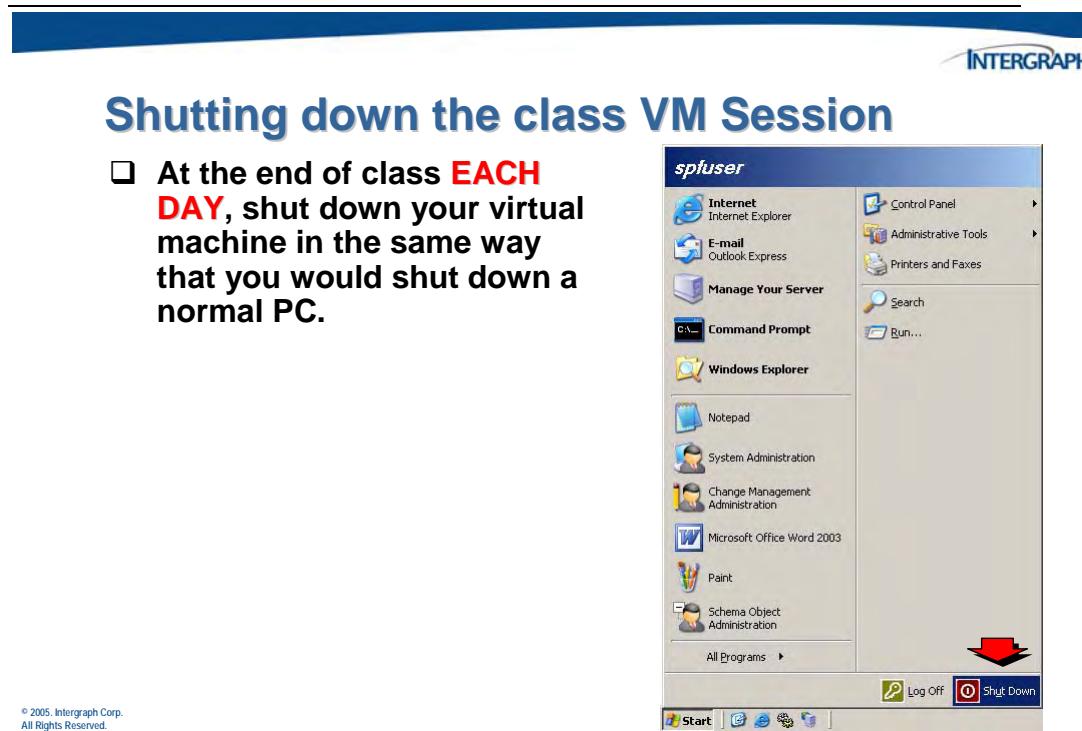
- ❑ If you get this informational dialog, select the **Always Keep** option and then click OK.



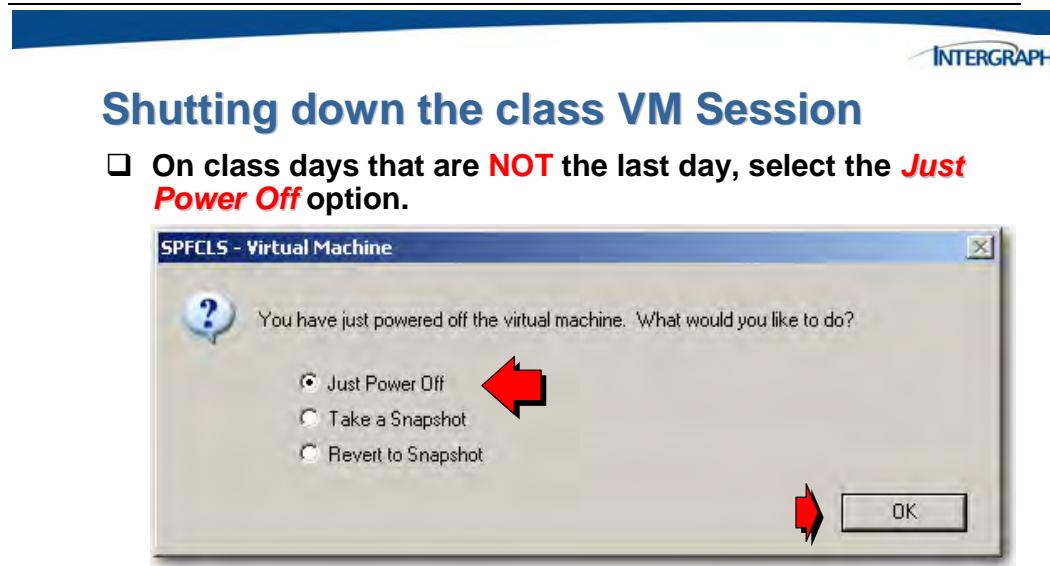
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Once you are in your VM Session, be sure to use **CNTL + ALT +INS**, rather than **CNTL + ALT +DEL**. The control latter command control action on the base system, where CNTL + ALT +INS performs within the VM session.

When you have finished with your hands-on exercises at the end of each day, please shut down your VM session. This will free up memory in your native machine in preparation for the next day. In the illustration below, you are using the Shut Down command within the VM session.



You will be prompted for an option when powering off the virtual machine.



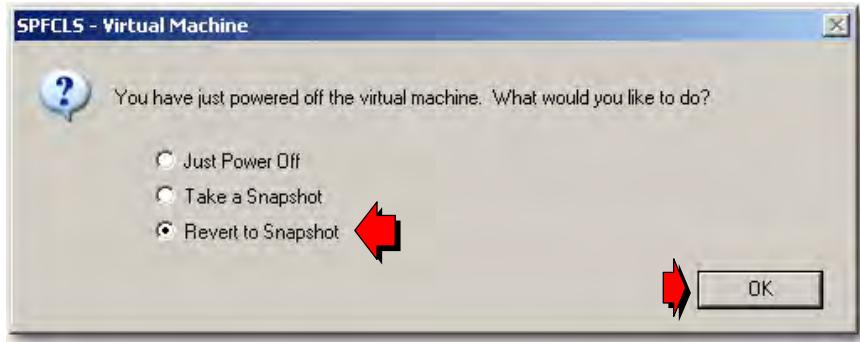
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This will keep all of your work just as you left it from that day.

You will revert to the snapshot only on the last day of class when you shut down for the last time. Using the revert option will cause you to lose all of your work from the week.

Shutting down the class VM Session

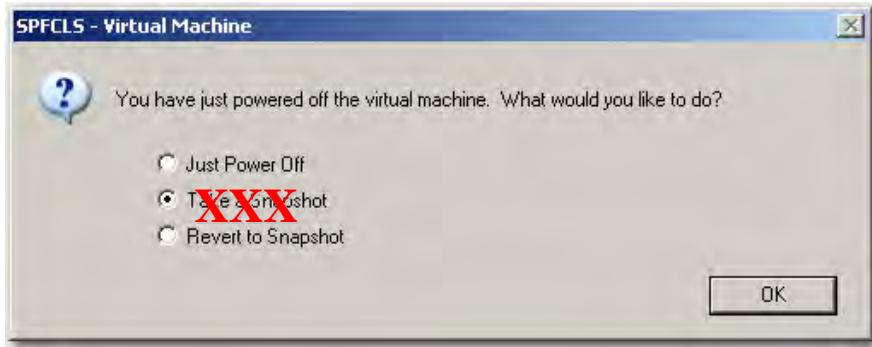
- On the last class day **ONLY**, select the **Revert to Snapshot** option.



Do not use the *Take Snapshot* option. This will prevent us from using this VM session for future classes.

Shutting down the class VM Session

- ❑ **DO NOT** use the *Take Snapshot* option at all during the SPF/SmartPlant training classes.



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