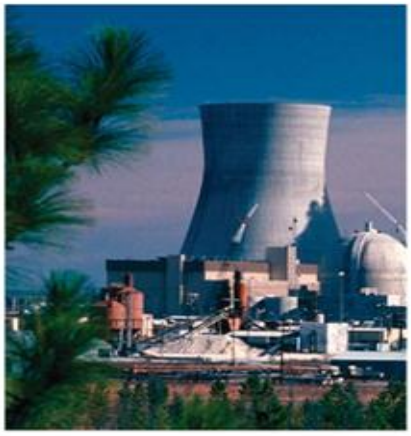
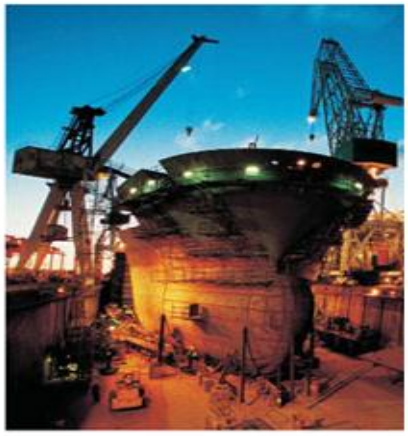
SmartPlant P&ID

V2014 Delta Training

Process, Power & Marine

INTERGRAPH

Version 2014

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Table of Contents

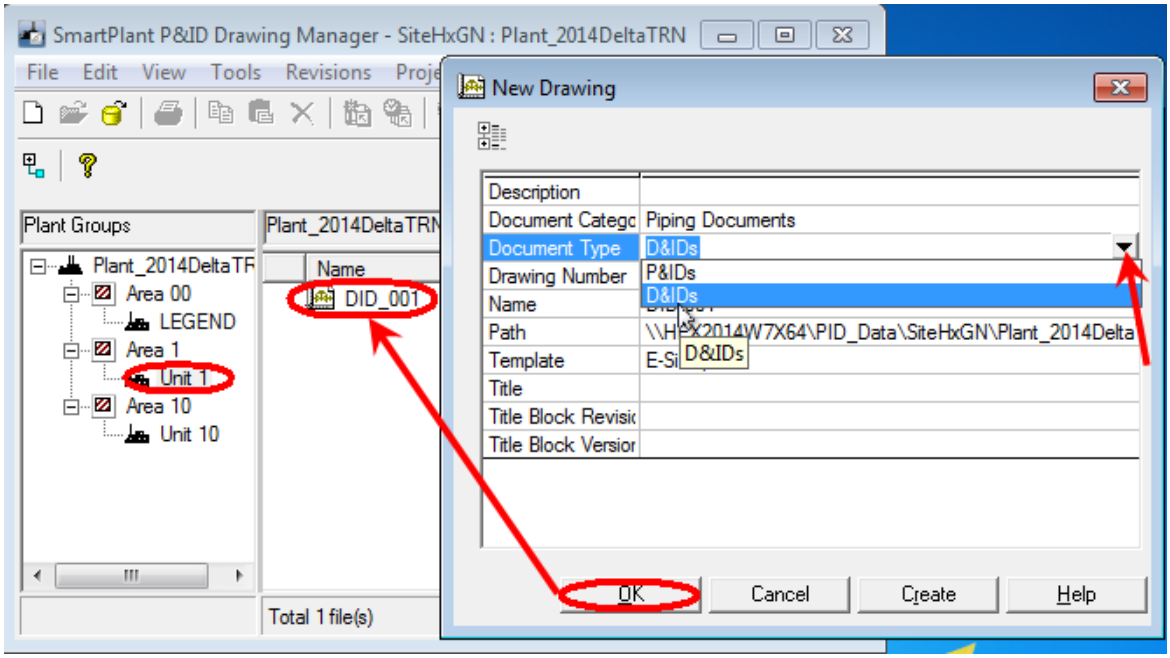
Preface

This document is a description of the major enhancements in SmartPlant P&ID V2014 (07.00.00.0469).

Ducting and Instrumentation Diagrams (D&IDs)

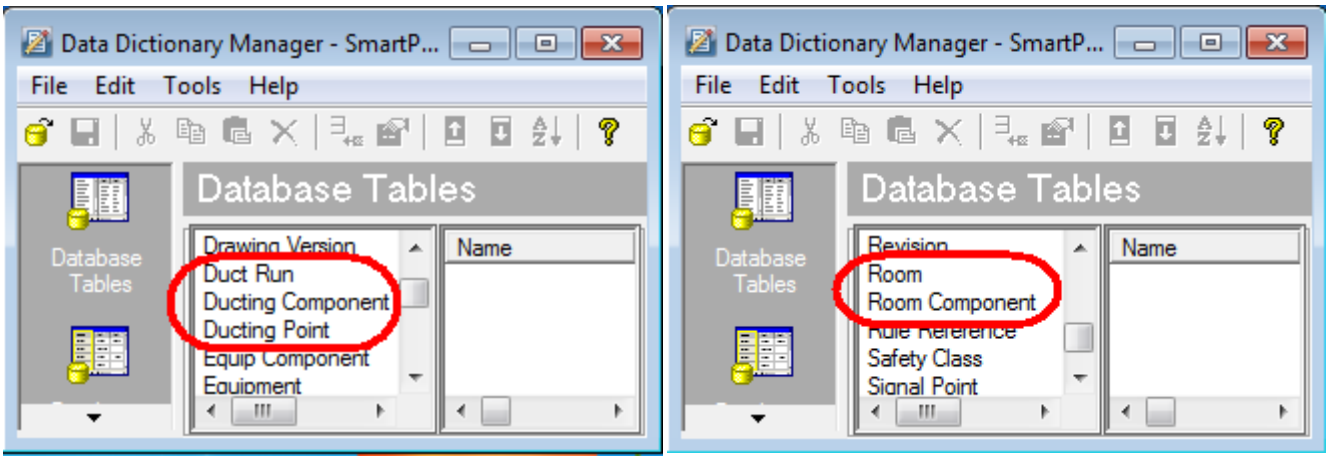
SmartPlant P&ID version 2014 allows users to create Ducting and Instrumentation Diagrams (D&IDs) without additional software adaption. Users can place components such as rooms, equipment, ducting, piping, and instrumentation from Catalog Explorer or the stockpile in a D&ID. The deliverables of D&ID design with SP P&ID include D&IDs, room load report, duct component MTO and duct list.

1. Create a new drawing of D&IDs type using Drawing Manager. On the **New Drawing** dialog box, users now can click the drop-down list for **Document Type** and select D&IDs for the drawing document. After assign values for the required fields and click **OK**, a drawing of D&IDs type is created.

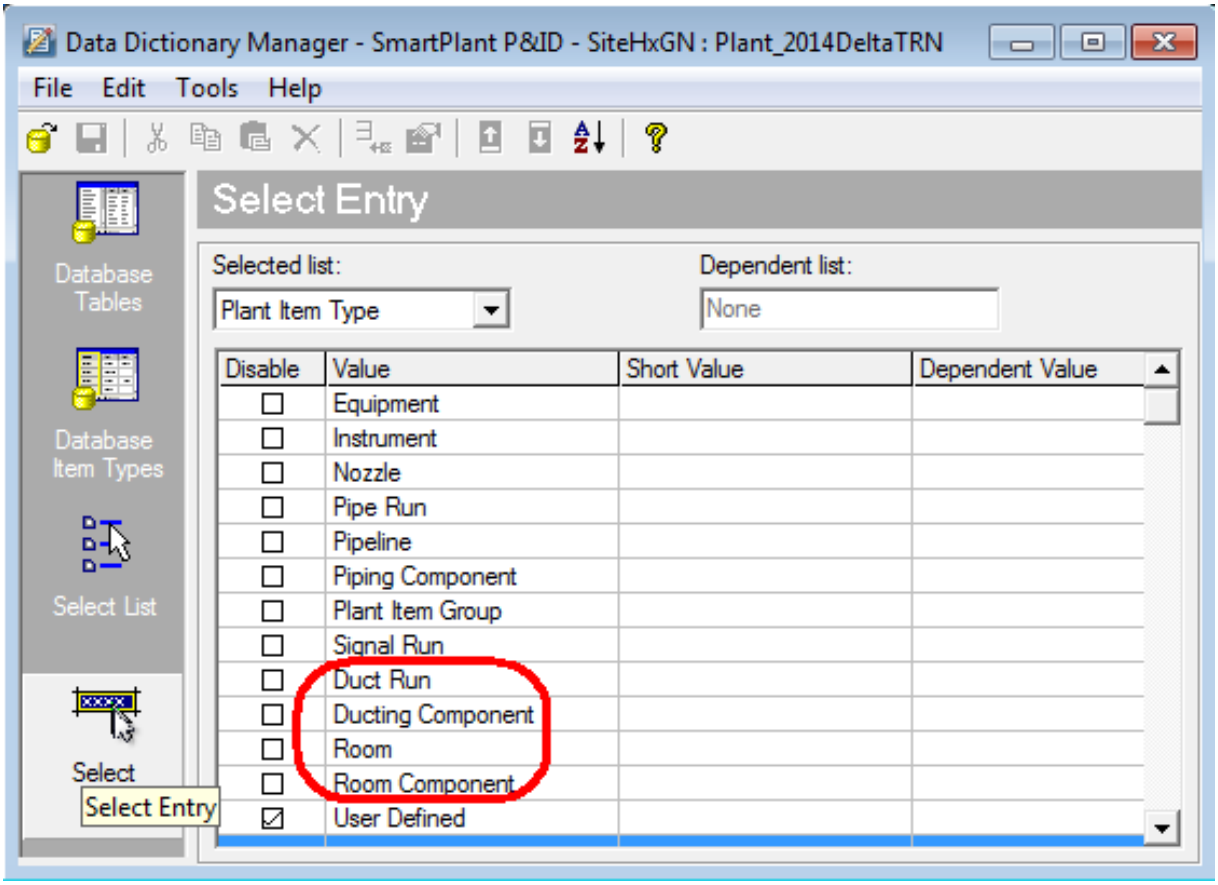


2. New items types are added to the delivered data dictionary templates (DDTs) for D&IDs: **Duct Run, Ducting Component, Ducting Point, Room,** and **Room Components**.

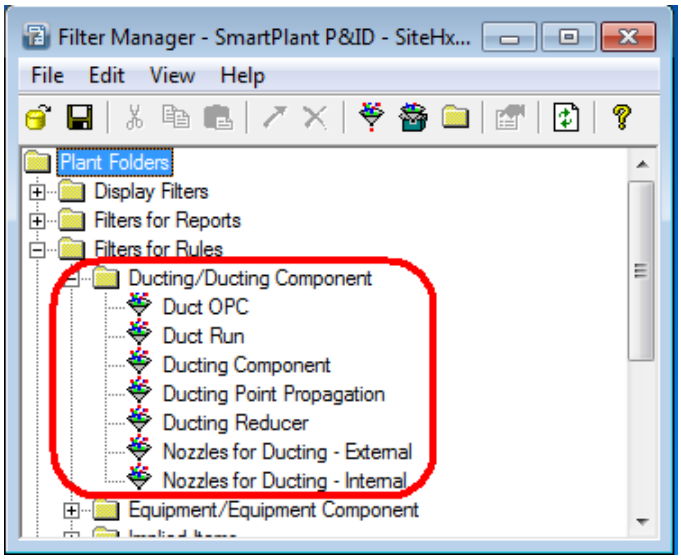
   a. In Data Dictionary Manager, new table is added for each item type of D&IDs



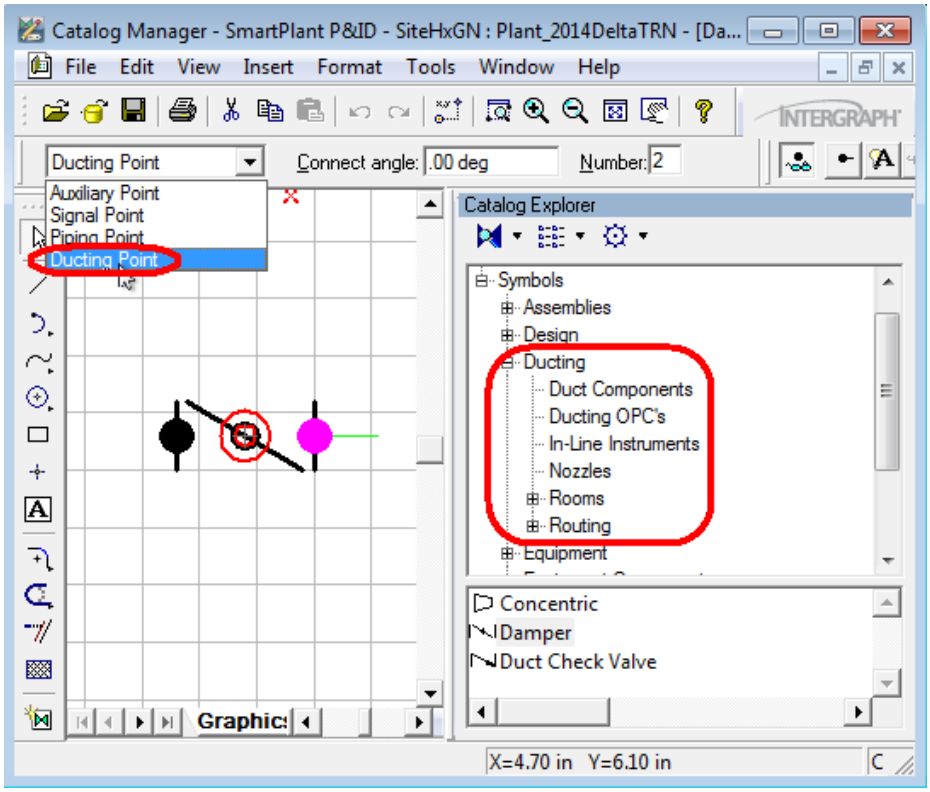
b. The **Plant Item Type** now includes **Duct Run, Ducting Component, Room**, and **Room Component**.



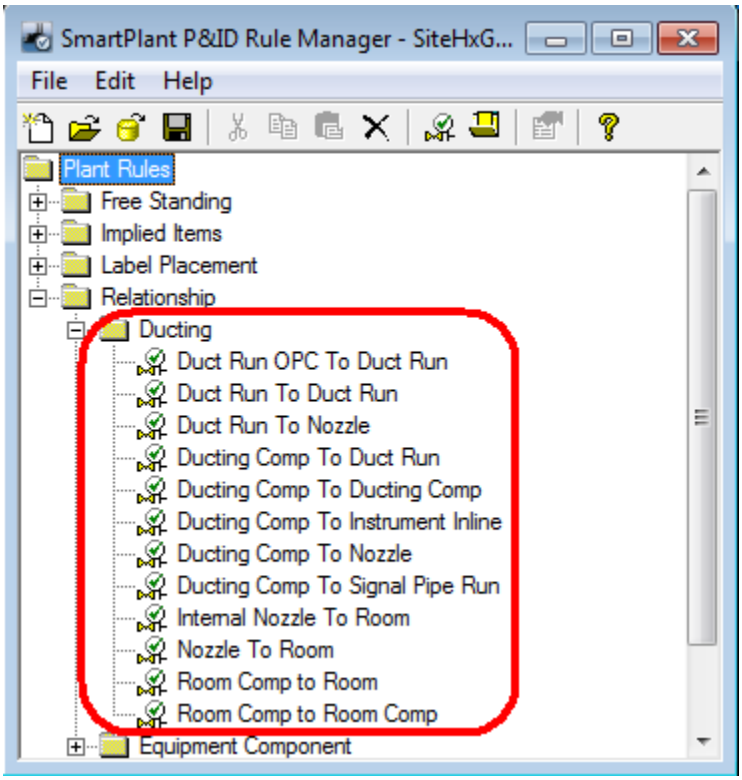
3. Filters have been added for D&ID items in Filter Manager, for example **Filters for Rules**:



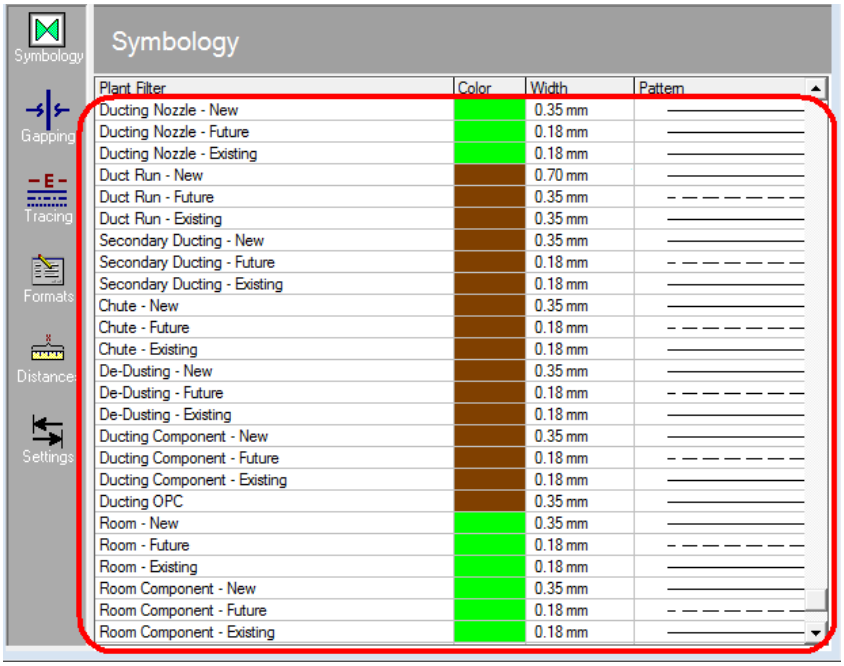
4. A new catalog category **Ducting** is created with D&ID symbols. A new point type **Ducting Point** is created to allow add **Ducting Points** to **Equipment Nozzle**, **Ducting Component**, or **in-duct Instrument** to connect a duct run or another ducting component, such as a nozzle and a flange or a reducer and a valve.



5. Relationships have been added for the **Ducting** rules:



6. In Options Manager, plant filters are added to Symbology for items of D&IDs:



7. D&IDs supports placing and manipulating **Rooms** and **Room Components** as following**.**
   - Place rooms in drawings for use with ducting or piping.
   - Place a room as a multiple representation in several drawings.
   - Attach a duct run or pipe run to a room via a nozzle.
   - Associate a room with instruments or with equipment such as towers, boilers, heat exchangers, and reactors.
   - Place room components in rooms.
   - When place room components, the software automatically creates a group relationship between the room and the component. As a group, the components move when moving the room.
   - A room component can only be associated with a single room. When place a room component, the component is associated with the last selected or highlighted room, creating a group.
   - The possible placements for the room or room component depend on the rules defined for the room or room component. For example, a particular component can be flagged for placement inside the room only, while a different component can be flagged for placement outside the room only. Rule Manager defines rules that determine the way that model items interact during manipulation.

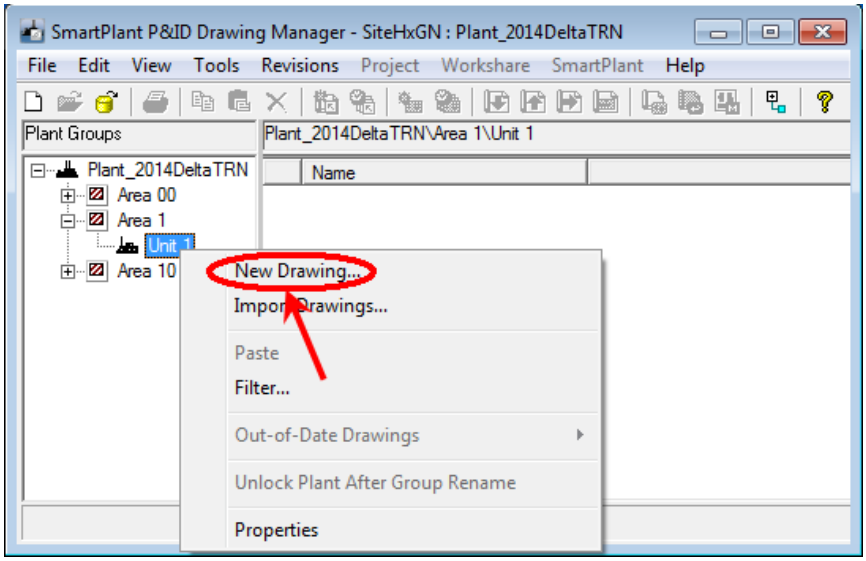
8. Associate a room with a plant Item
   - Property validation is triggered when any property that comprises the room **Item Tag** value is added or modified: *Tag Prefix* ***Tag Sequence Number*** *Tag Suffix*. The room **Item Tag** format is: (Tag Prefix)-(Tag Sequence Number)(Tag Suffix).
   - The **Room Tag** comprises the same properties as the room **Item Tag**, and has the same format: (Tag Prefix)-(Tag Sequence Number)(Tag Suffix). When any property that comprises the **Room Tag** is added or modified, validation automatically creates a **Room Tag** designated for the drawing.
   - **Room Component** and **Nozzle** are automatically associated to the **Room** they are attached to.
   - Manually associate a room with a plant Item.
     a. Select the plant item**,** such as equipment item or instrument with which to be associated a room.
     b. In the **Properties** window or in the **Engineering Data Editor**, beside the **Room Tag** property, click the ellipsis button.
     c. On the **Find Room Tag** dialog box, type a string corresponding to all or part of the room in the **Search string** box. Or use the percent character, %, as a wildcard. to display all available room tags, type %.
     d. Click **Find** to display the list of room tags corresponding to the search string entered.
     e. In the **Results** window, select the room tag of the room to be associated with the plant item, and click **OK**.
     f. In general, it is only possible to associate a room with a plant item that is in the same drawing as the room or is in that drawing's stockpile. To enable association of a room with a plant item in another drawing, a multiple representation of the room must be placed in the target drawing.

Activity 1

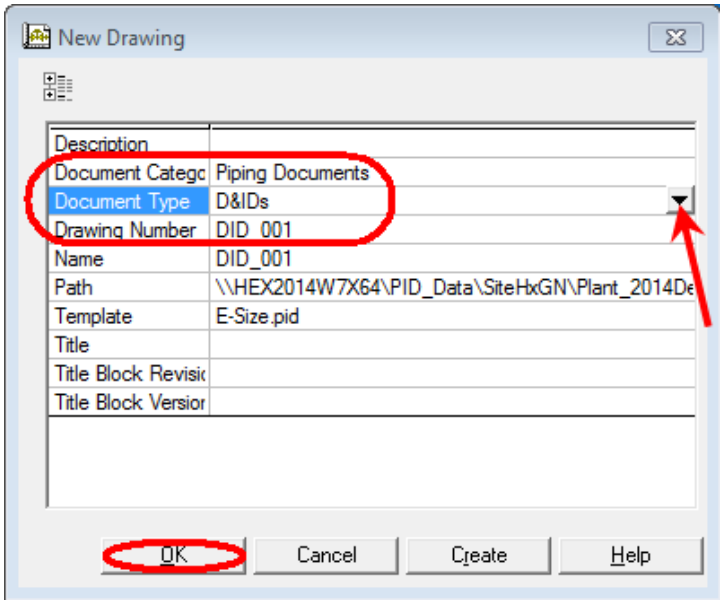
This activity demonstrates the creation of a sample D&ID and highlights various ducting elements that can be used in D&ID design.

1. Start SmartPlant P&ID Drawing Manager from All Programs > Intergraph SmartPlant P&ID.

2. Under Plant_2014DeltaTRN node, select Area 1\Unit 1, then click **File> New Drawing…** or select right-mouse-click > **New Drawing…** command.

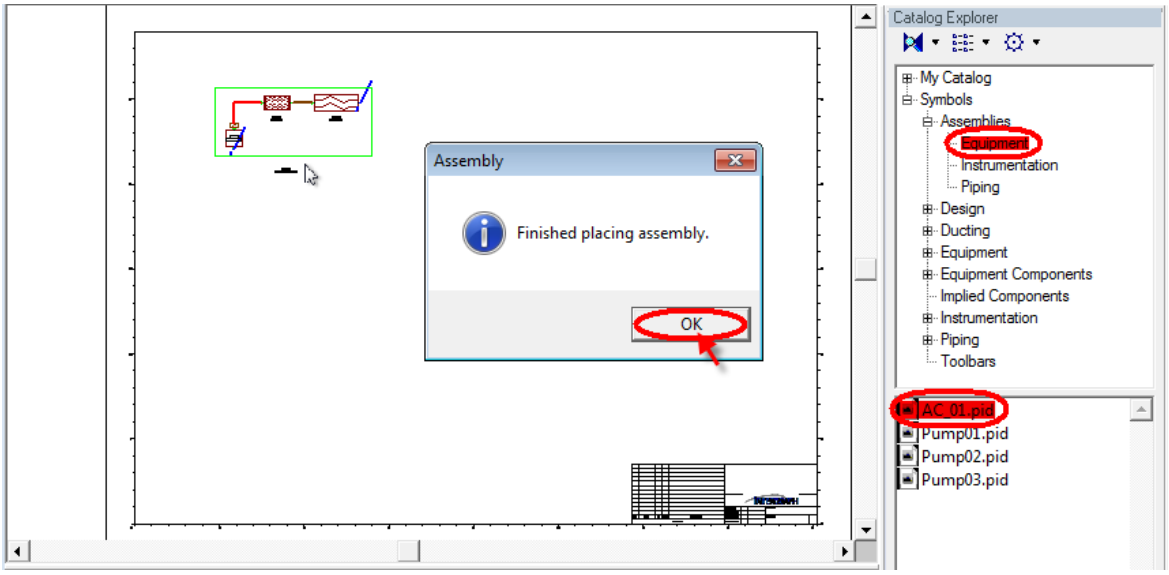


3. On the **New Drawing** form, select **Document Type** *D&IDs*, and key in **Drawing Number** 'DID_001', **Name** 'DID_001', (tab out grid after input), and then click **OK**.

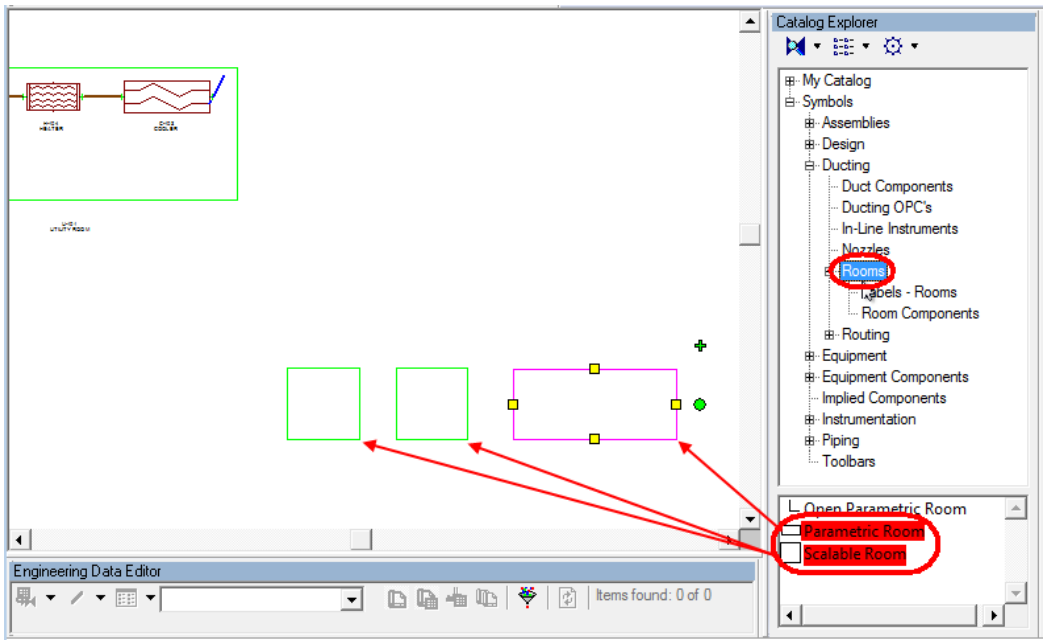


4. Double click the newly created drawing DID_001 to open.

5. When DID_001 is opened, place assembly AC_01.pid from Catalog Explorer, *\Symbols\Assemblies\Equipment\AC_01.pid* onto the drawing (at top-left corner). At the prompt, click **OK**.



6. Place three room symbols (from *\Symbols\Ducting\Room*, two *Scalable Room*, one *Parametric Room*) onto the drawing (middle section) and use symbol handles to adjust the size of each symbol to close to what's shown below.



7. Assign below properties to the room objects just placed:

a. Room B30-101 (left)

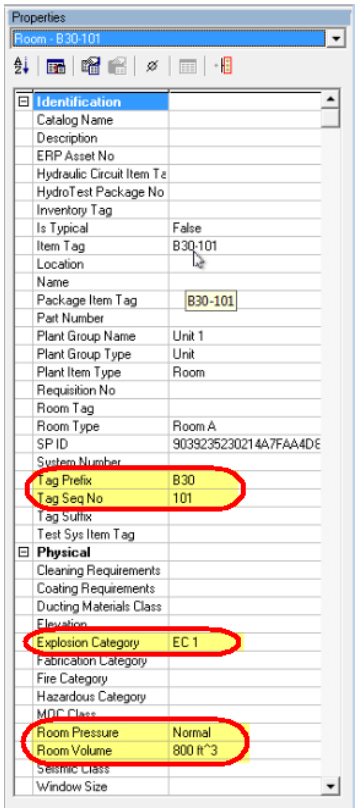
Tag Prefix:	B30
Tag Seq No:	101
Explosion Category:	EC1
Room Pressure:	Normal
Room Volume:	
800 ft^3	

b. Room B30-102 (middle) (Tip: Copy/Past bulk properties)

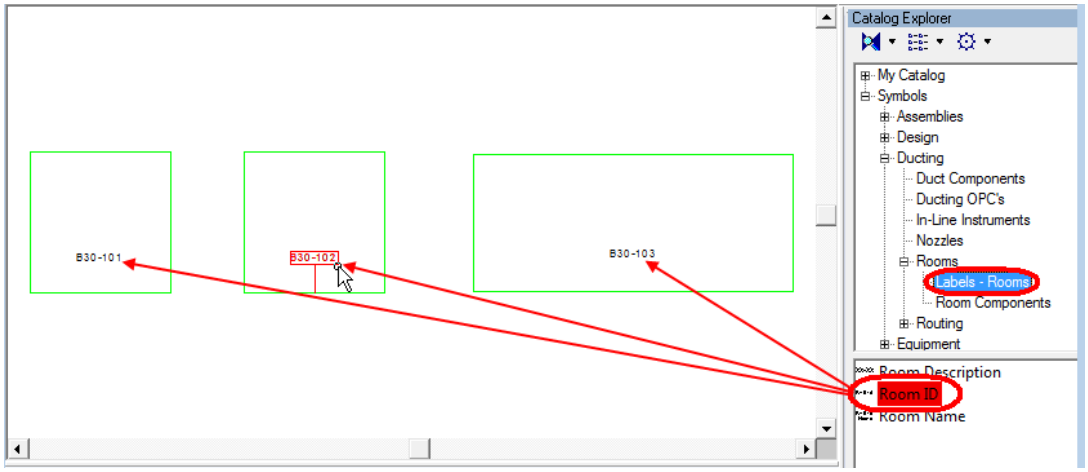
Tag Prefix:	B30
Tag Seq No:	102
Explosion Category:	EC1
Room Pressure:	Normal
Room Volume:	
800 ft^3	

b. Room B30-103 (right)

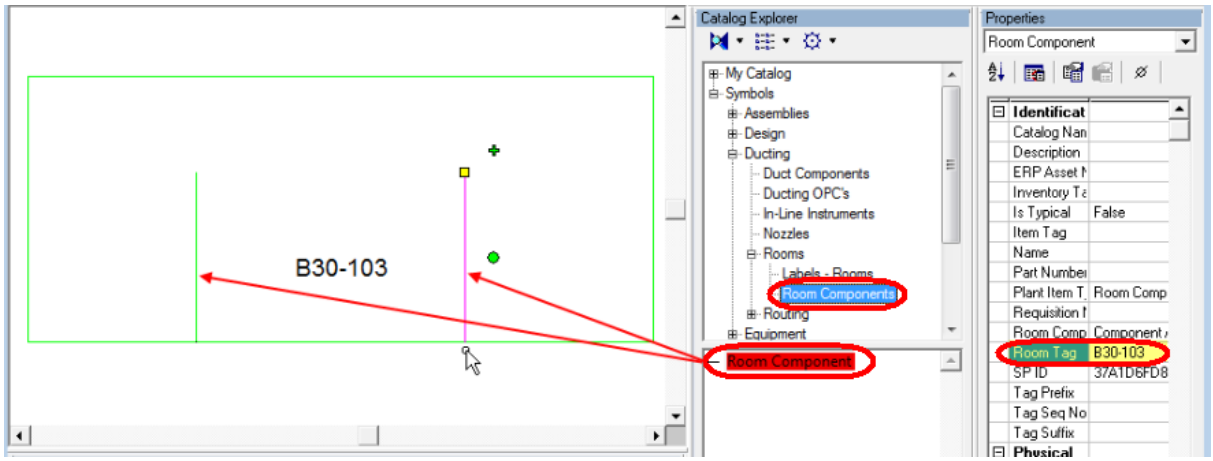
Tag Prefix:	B30
Tag Seq No:	103
Explosion Category:	EC1
Room Pressure:	Normal
Room Volume:	
2400 ft^3	



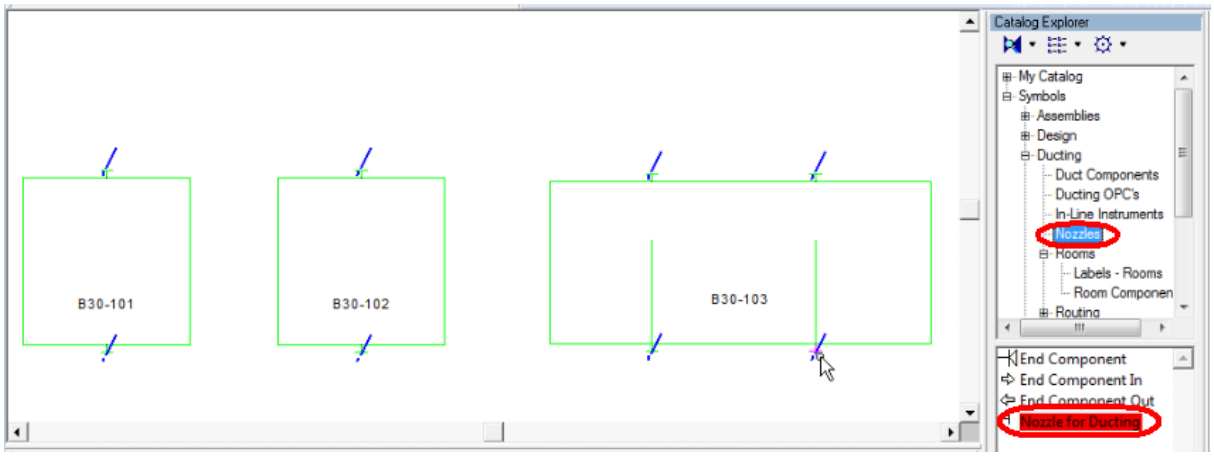
8. Place *Room ID.sym* label symbol (*\Symbol\Ducting\Room\Room Labels\)* to label each room.



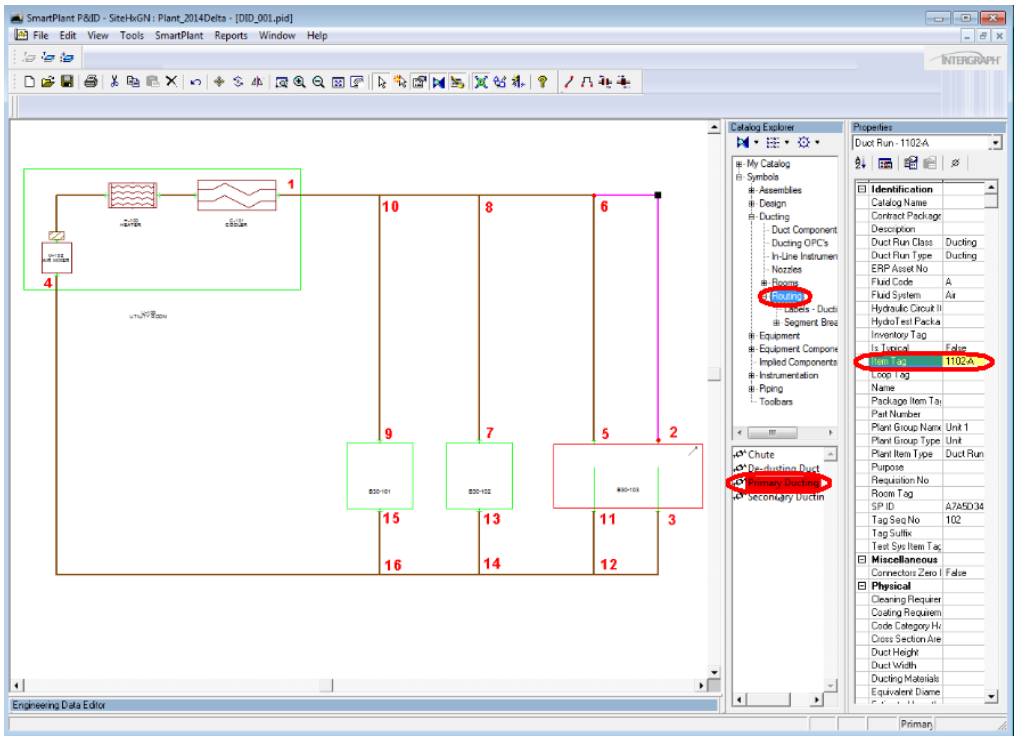
9. Place two Room Component (\Symbols\Ducting\Room Components\Room Component.sym) inside B30-103, the parametric one on the right. Notice after placement, the room component is automatically associated with the main room, indicated by the Room Tag property.



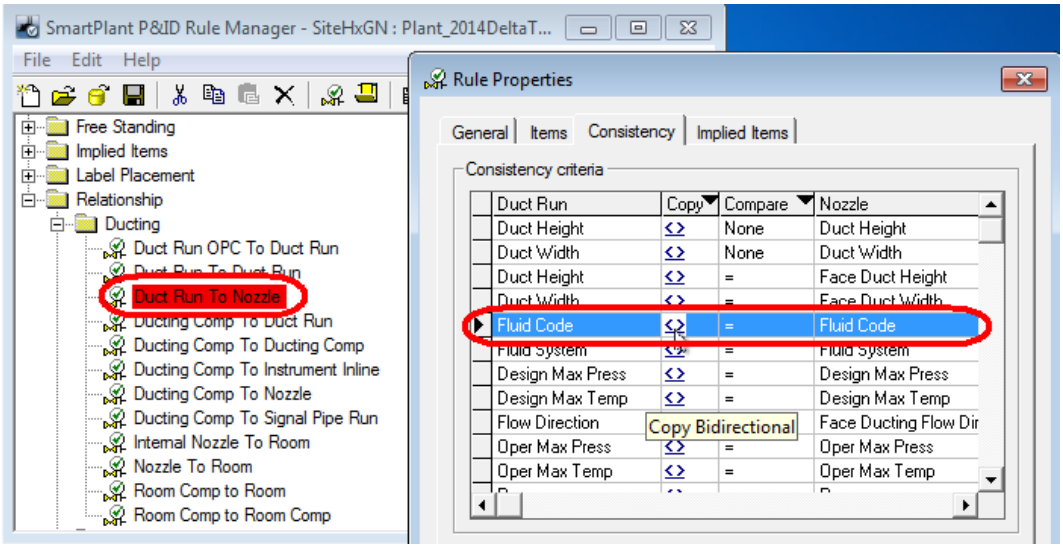
10. Place Duct Nozzle (\Symbols\Ducting\Duct Nozzles\Duct Nozzle.sym) to each room as shown below:



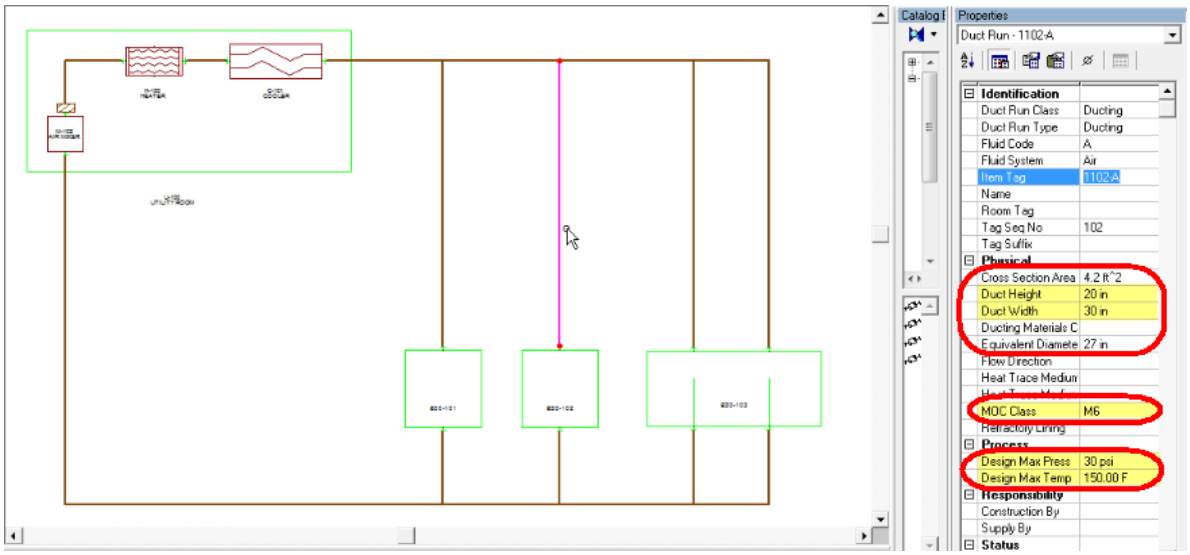
11. Now route ducting lines to connect rooms. Select *\Symbols\Ducting\Routine\Primary Ducting.sym* from Catalog Explorer to start routing, follow below sequence to connect. Note point 6,8,1,12,14,16 are branch connection to existing duct.



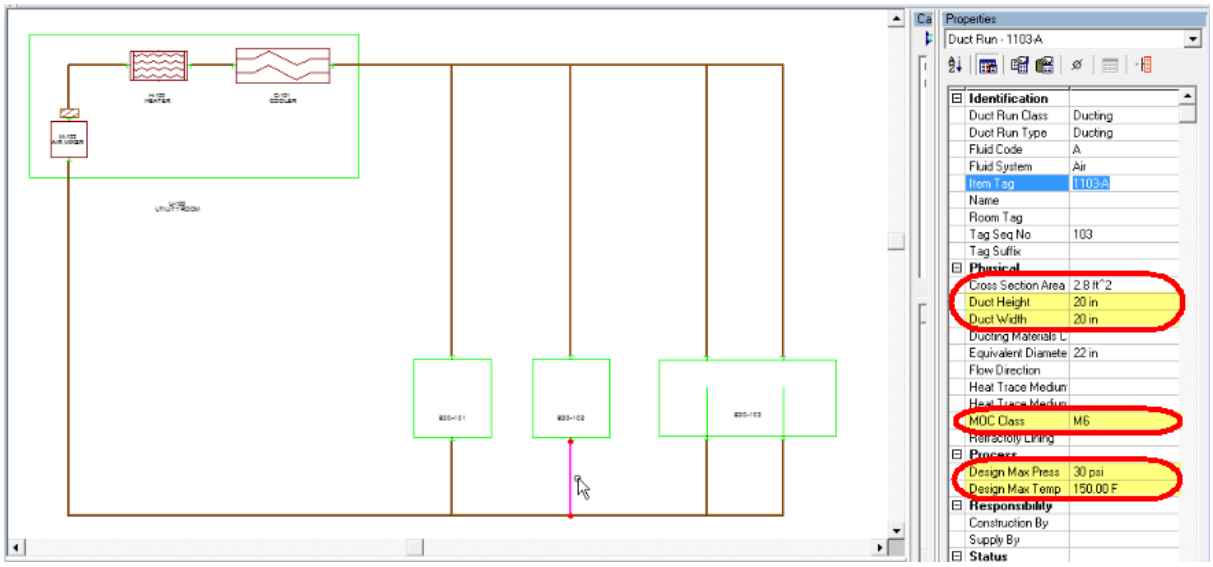
12. Verify the newly placed ducts automatically get assigned Tag Seq No and Item Tag. This is because of propagation of **FluidCode** (from Nozzle on cooler and mixer to newly placed duct run) triggered ItemTag validation program.



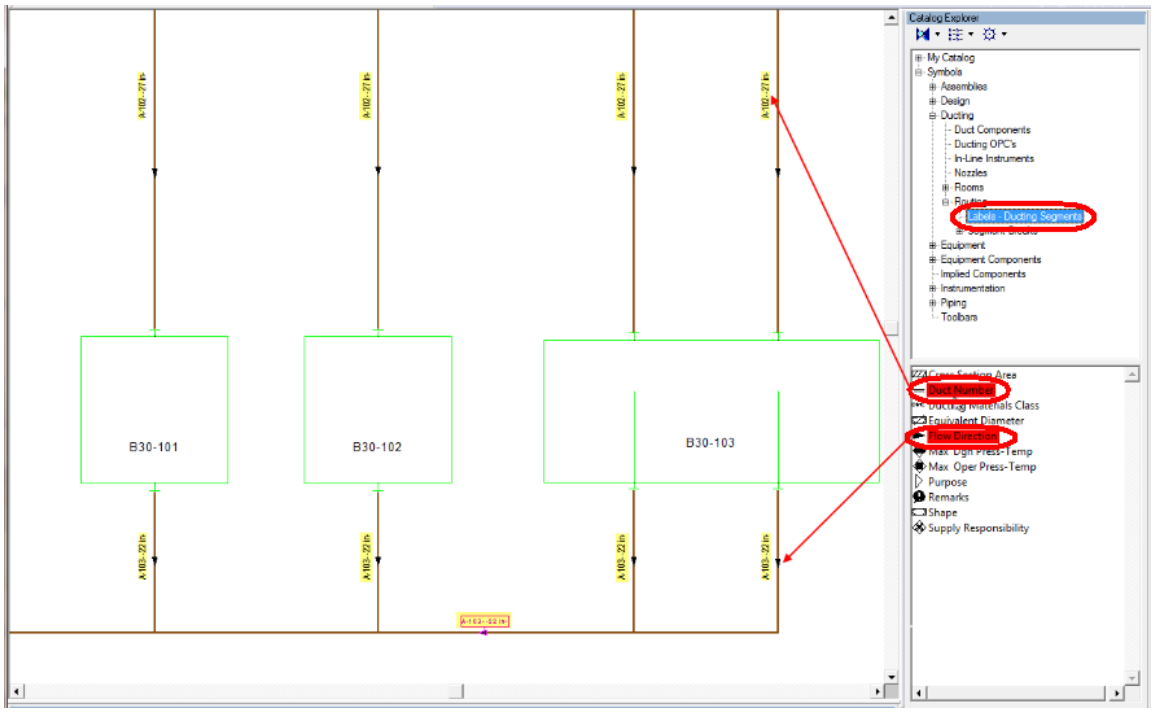
13. Select the main duct connecting from cooler to room B30-102; in **Properties** windows, assign below highlighted properties. Note the **Cross Section Area** and **Equivalent Diameter** is system calculated value based on the input of **Duct Height** and **Duct Width**. The assigned value will be propagated to branch duct runs (vertical runs) due to **System Editing**.



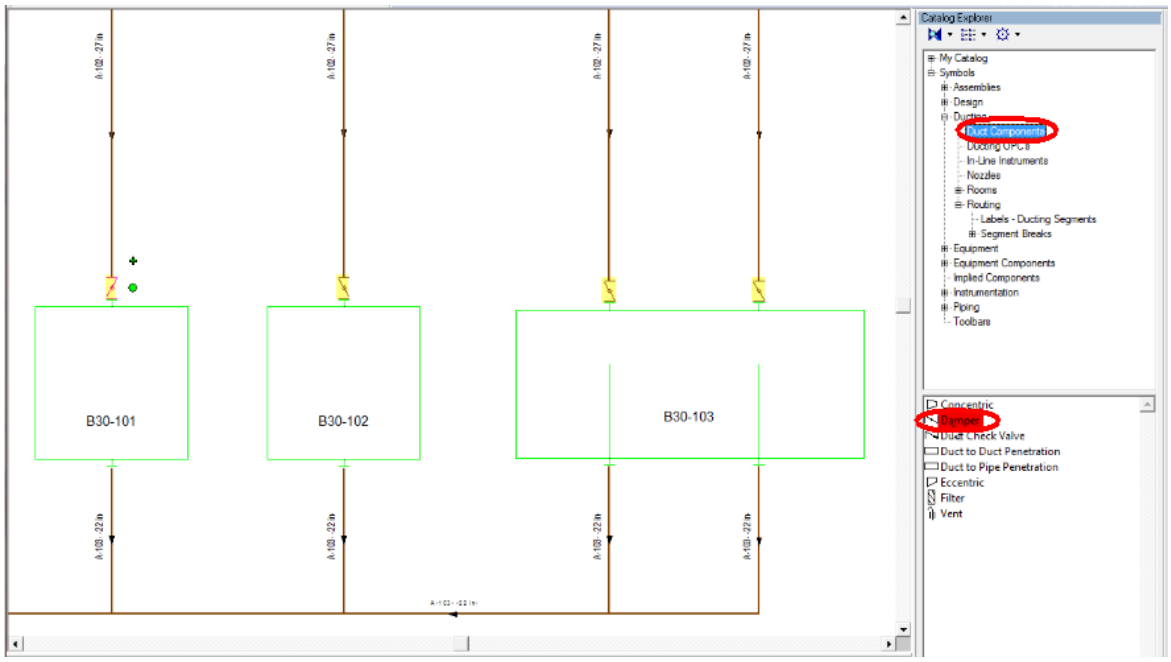
14. Select the main duct connecting from the air mixer to room B30-102 (lower line); in **Properties** window, assign below highlighted properties.



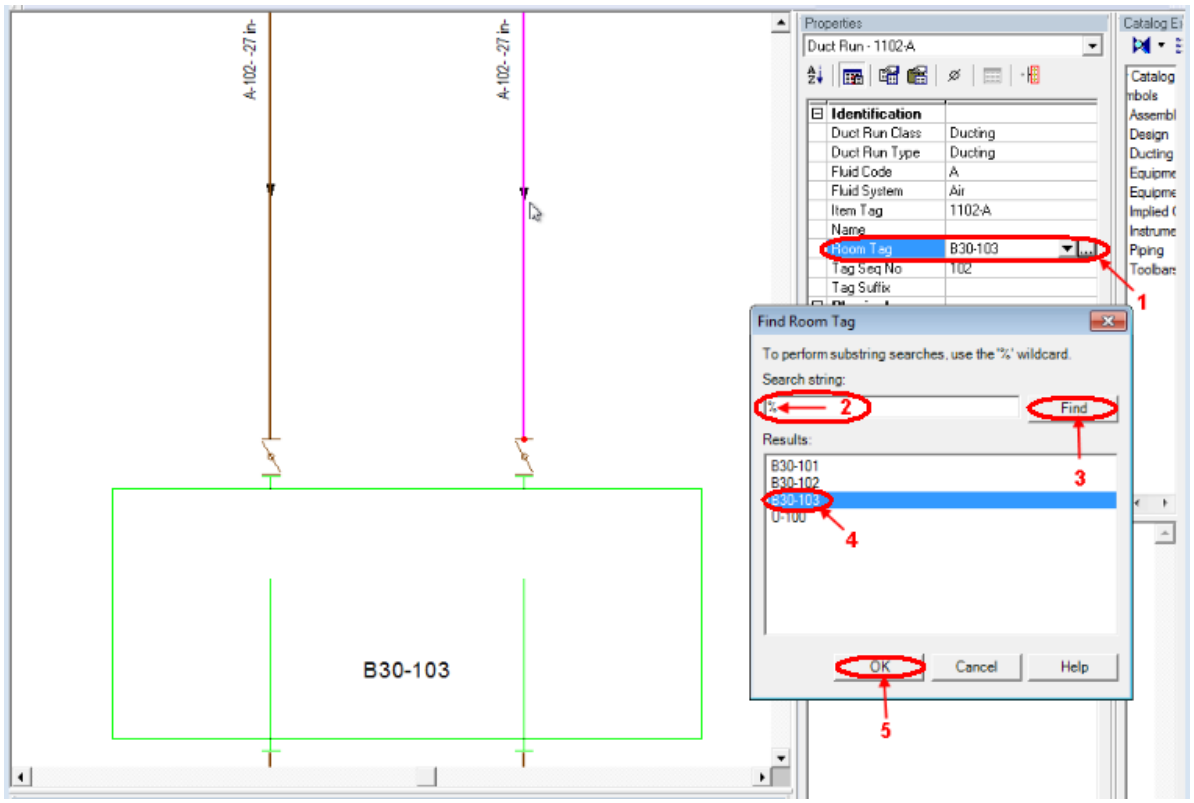
15. Label duct runs using *Duct Item Tag* and *Duct Flow Direction* labels located under *\Symbols\Ducting\Label – Ducting Segments*. Tip: to set the correct flow direction, use PickQuick tool() or assign proper **Flow Direction** property on duct run's properties window.

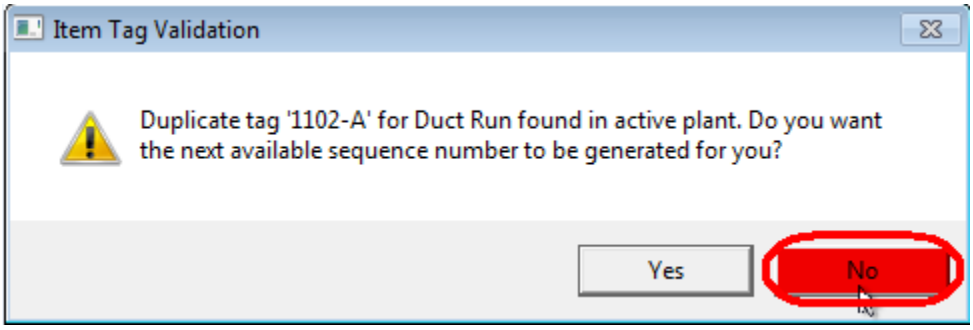


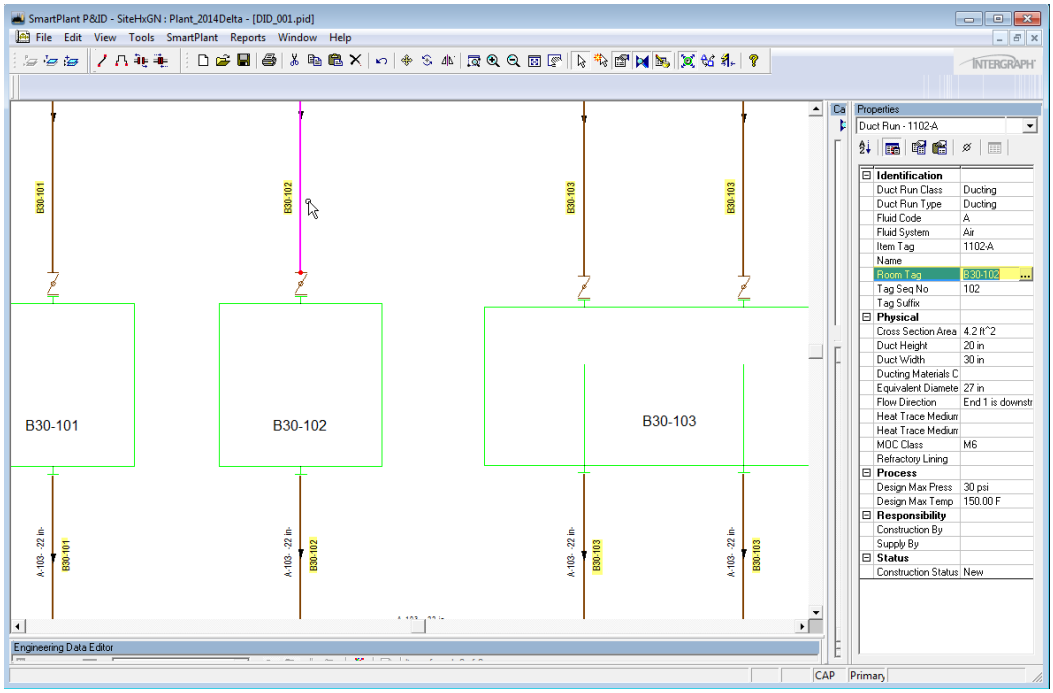
16. Place 4 *dampers* (*\Symbols\Ducting\Ducting Components\dampler.sym*) as shown below.



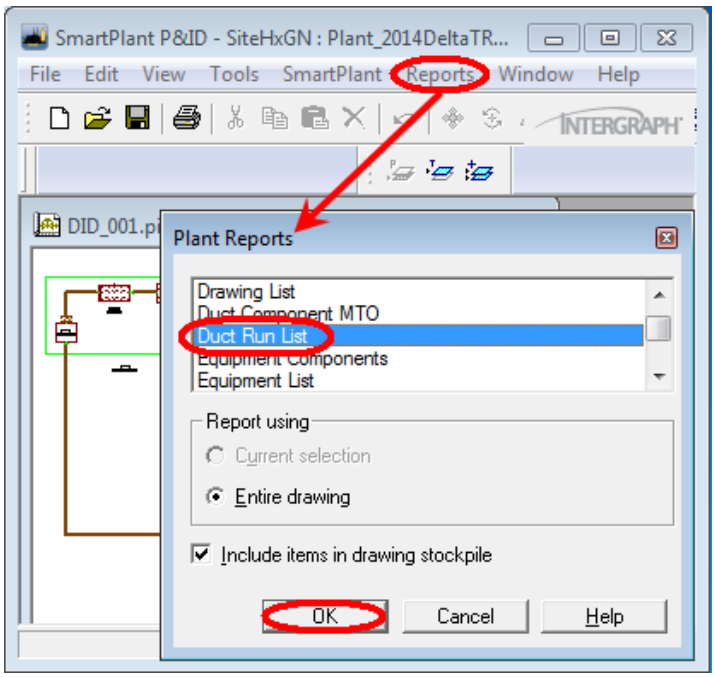
17. Assign Room Tag to duct runs as shown below (Tip: use calculation button on Room Tag property grid and use wildcard % to search all available Rooms. To enable association of a room with a plant item in another drawing, a multiple representation of the room must be placed in the target drawing. See activity 2 for detailed examples). Click **No** to ItemTag duplication dialog to keep already assigned Item Tag.



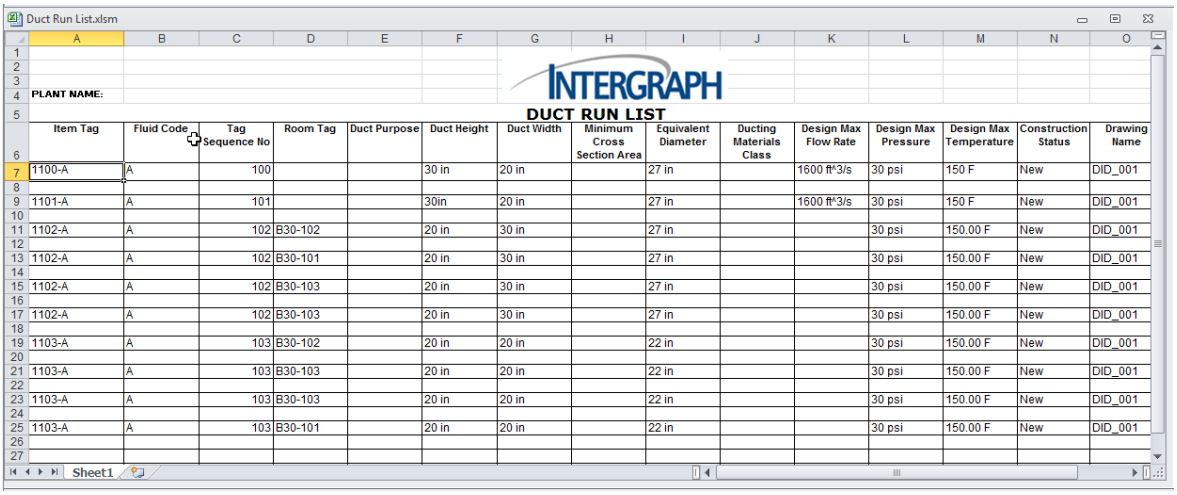




18. From SmartPlant P&ID application menu, click **Reports > Plant Reports**, on the **Plant Reports** dialog box select Duct Run List, set scope to **Entire drawing** and click **OK**.



19. When the report is opened, review the result and then close the file. This activity is now completed.



Duct Run List.xlsm

PLANT NAME:

INTERGRAPH

DUCT RUN LIST

Item Tag	Fluid Code	Tag Sequence No	Room Tag	Duct Purpose	Duct Height	Duct Width	Minimum Cross Section Area	Equivalent Diameter	Ducting Materials Class	Design Max Flow Rate	Design Max Pressure	Design Max Temperature	Construction Status	Drawing Name
1100-A	A	100			30 in	20 in		27 in		1600 ft^3/s	30 psi	150 F	New	DID_001
1101-A	A	101			30in	20 in		27 in		1600 ft^3/s	30 psi	150 F	New	DID_001
1102-A	A	102	B30-102		20 in	30 in		27 in			30 psi	150.00 F	New	DID_001
1102-A	A	102	B30-101		20 in	30 in		27 in			30 psi	150.00 F	New	DID_001
1102-A	A	102	B30-103		20 in	30 in		27 in			30 psi	150.00 F	New	DID_001
1102-A	A	102	B30-103		20 in	30 in		27 in			30 psi	150.00 F	New	DID_001
1103-A	A	103	B30-102		20 in	20 in		22 in			30 psi	150.00 F	New	DID_001
1103-A	A	103	B30-103		20 in	20 in		22 in			30 psi	150.00 F	New	DID_001
1103-A	A	103	B30-103		20 in	20 in		22 in			30 psi	150.00 F	New	DID_001
1103-A	A	103	B30-101		20 in	20 in		22 in			30 psi	150.00 F	New	DID_001

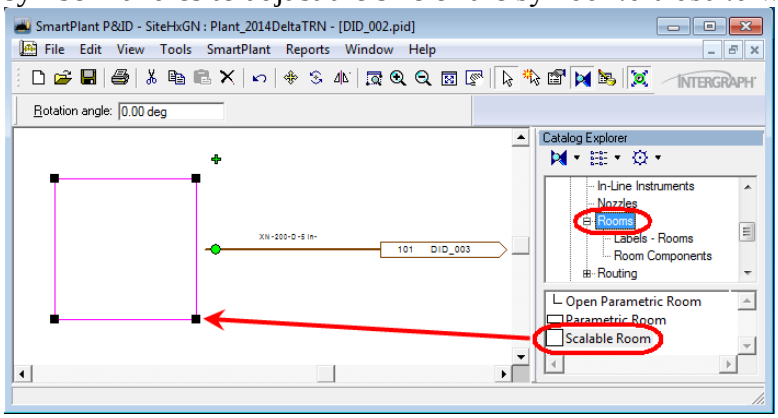
Sheet1

Activity 2

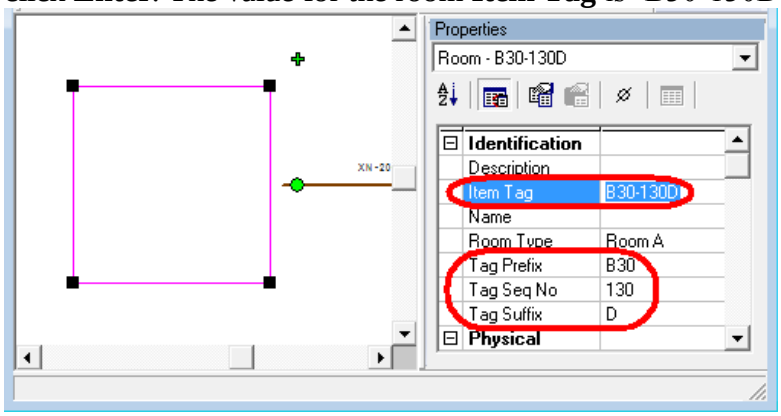
This activity demonstrates how to enable association of a room with a plant item in another drawing. In this case a multiple representation of the room must be placed in the target drawing.

In the following example, three rooms are placed in the drawing 'DID_002', with item tag 'B30-130D', 'B30-131DS', and 'B30-132S' accordingly. Then the room with item 'B30-131DS' is deleted to the drawing stockpile, and the room with item tag 'B30-132S' is deleted to the plant stockpile. The example shows how to associate those rooms with a vessel placed in the other drawing 'DID_003'.

1. Start SmartPlant P&ID Drawing Manager from All Programs > Intergraph SmartPlant P&ID.
2. Under the Plant_2014DeltaTRN node, click Area 1 > Unit 1. In the drawing **List** view, right click drawing 'DID_002' and click **Open Drawing**.
3. Place a room symbol '\Symbols\Ducting\Room\Scalable Room.sym' onto the drawing. Use symbol handles to adjust the size of the symbol to close to what's shown below.



4. Type 'B30' for **Tag Prefix**, and then click **Enter**. The next available **Tag Seq No** ('130' for example) is generated and the **Item Tag** is created automatically. Type 'D' as **Tag Suffix** and click **Enter**. The value for the room **Item Tag** is 'B30-130D'.



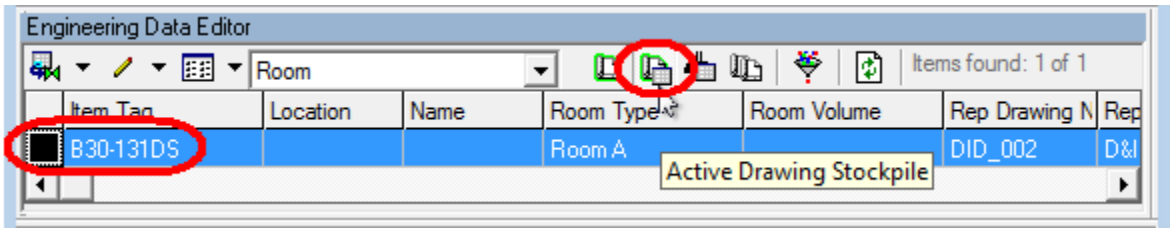
5. Place the label symbol '\Symbol\Ducting\Room\Room Labels\Room ID.sym' to label the room 'B30-130D'.

6. Place two more room symbol '\Symbols\Ducting\Room\Scalable Room.sym' onto the drawing.

7. Select one room, type 'B30' for **Tag Prefix**, and then click **Enter.** Type 'DS' for **Tag Suffix** and click **Enter.** The **Item Tag** 'B30-131DS' is generated for the room.

8. Right click the room 'B30-131DS' and click **Delete to StockPile > Drawing.**

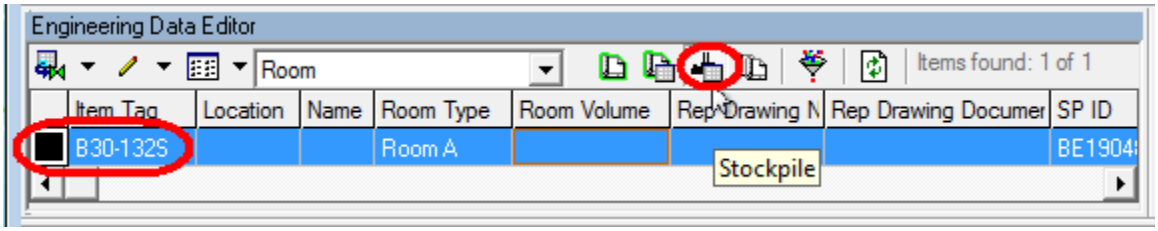
9. In the **Engineering Data Editor**, select **Room** view and toggle the **Active Drawing Stockpile**. Review the room with Item Tag 'B30-131DS' is listed.



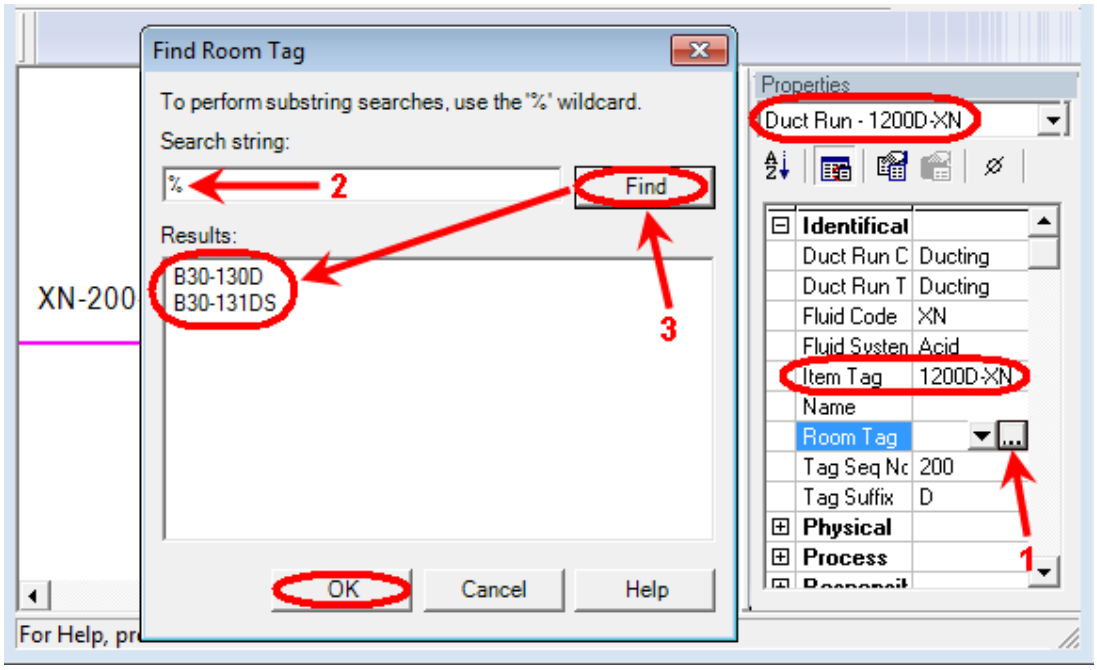
10. Select the other room placed in the step 6, type 'B30' for **Tag Prefix**, and then click **Enter.** Type 'S' for **Tag Suffix** and then click **Enter.** The **Item Tag** 'B30-132S' is generated for the room

11. Right click the room 'B30-132S' and click **Delete to StockPile > Plant.**

12. In the **Engineering Data Editor**, select **Room** view and toggle the **Stockpile**. Review the room with Item Tag 'B30-132S' is listed.

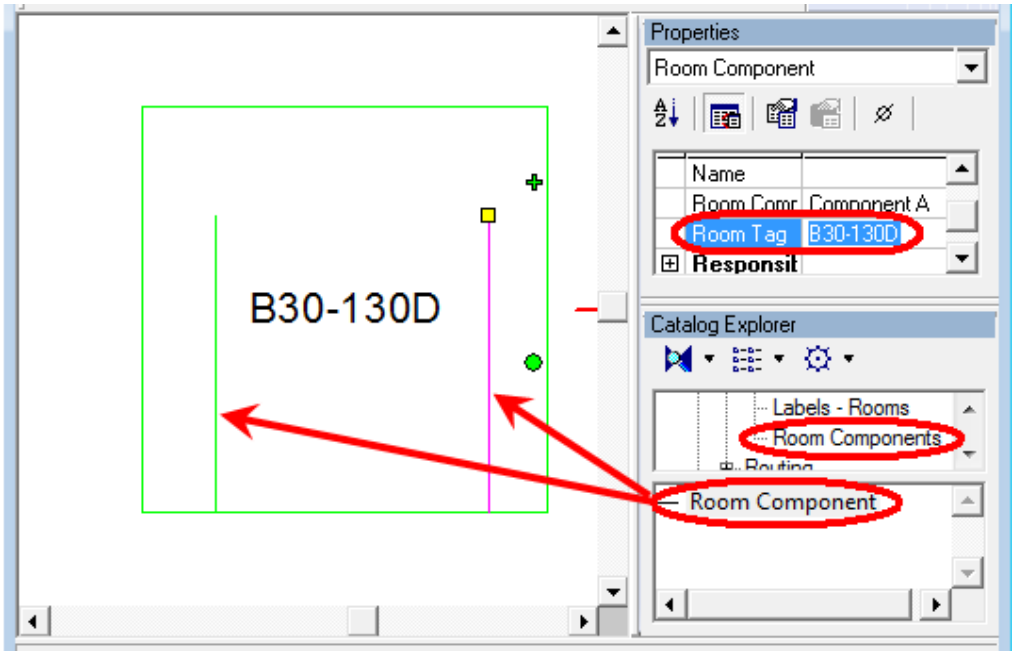


13. Select the duct run '1200D-XN'. In the **Properties** window or in the **Engineering Data Editor,** click the ellipsis button beside the **Room Tag** property to launch **Find Room Tag** dialog box. In the **Search string** box, key in the '%' and click Find, review that for rooms residing in the active drawing or drawing stockpile, their room tag 'B30-130D' and 'B30-130DS'show in the **Results** window. However the room 'B30-130S'in the plant stockpile does not show and cannot be associated to a plant item.

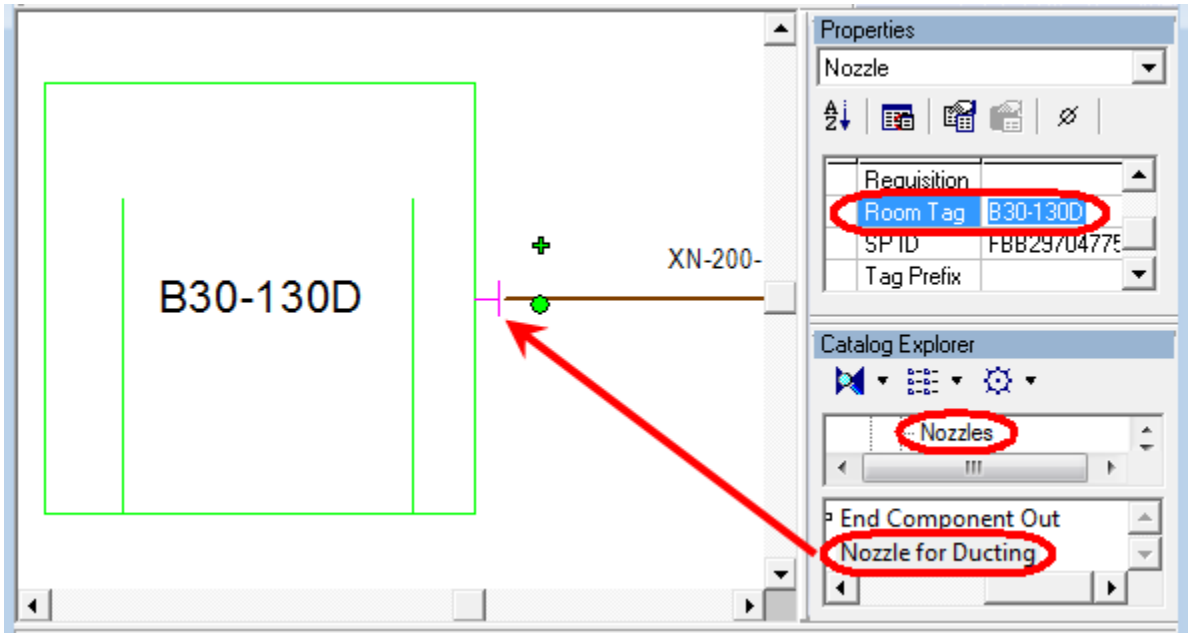


a. In the **Properties** window, you can select the room tag directly by clicking the drop-down list icon and selecting the desired room.

14. Place two room components '\Symbols\Ducting\Room Components\Room Component.sym' inside the room 'B30-130D'. Highlight these two room components in turn and review that both were attached to the room: automatically getting the Room Tag 'B30-130D'.



15. Place a nozzle '\Symbols\Ducting\Nozzles\Nozzle for Ducting.sym' on the room 'B30-130D', and then attach the duct run '1200D-XN' to the room via the nozzle. Highlight the nozzle and review that the nozzle was attached to the room: automatically getting the Room Tag 'B30-130D'.



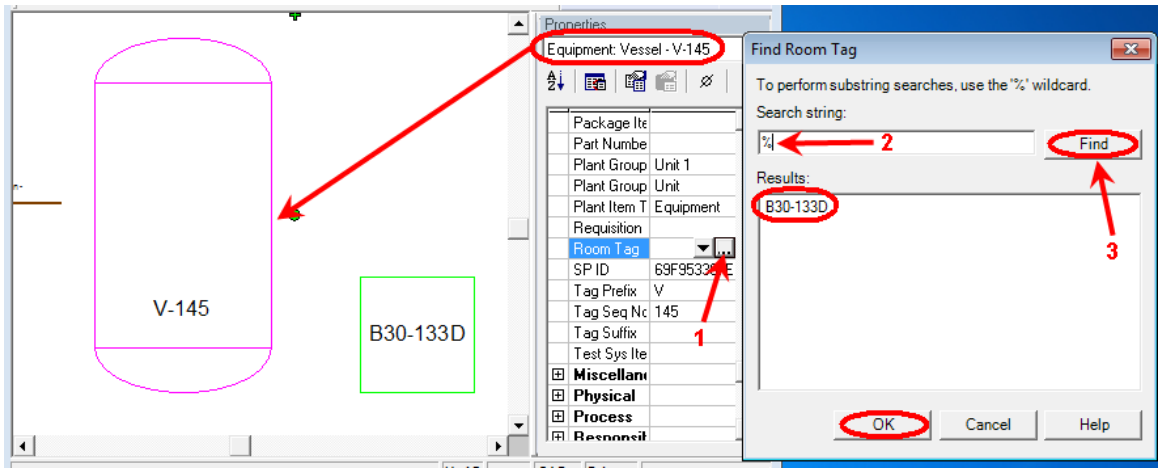
16. In Drawing Manager, double click the drawing 'DID_003' to open it.

17. Place a room symbol '\Symbols\Ducting\Room\Scalable Room.sym' onto the drawing. Type 'B30' for **Tag Prefix**, and then click **Enter**. The next available **Tag Seq No** ('133' for example) is generated and the **Item Tag** is created automatically. Type 'D' as the **Tag Suffix** and click **Enter**. The value for the room Item Tag is 'B30-133D'. Click **File > Save**.

18. Place the label symbol '\Symbol\Ducting\Room\Room Labels\Room ID.sym' to label the room 'B30-133D'.

19. Place a vessel '\Symbols\Equipment\Vessels\Vertical Drums\Short 1D 1C 1to1.sym' onto the drawing. Key in 'V' for **Tag Prefix,** and click **Enter**. Place the label '\Symbols\Equipment\Labels – Equipment\ Equipment ID.sym' to label the vessel. **Click File > Save**.

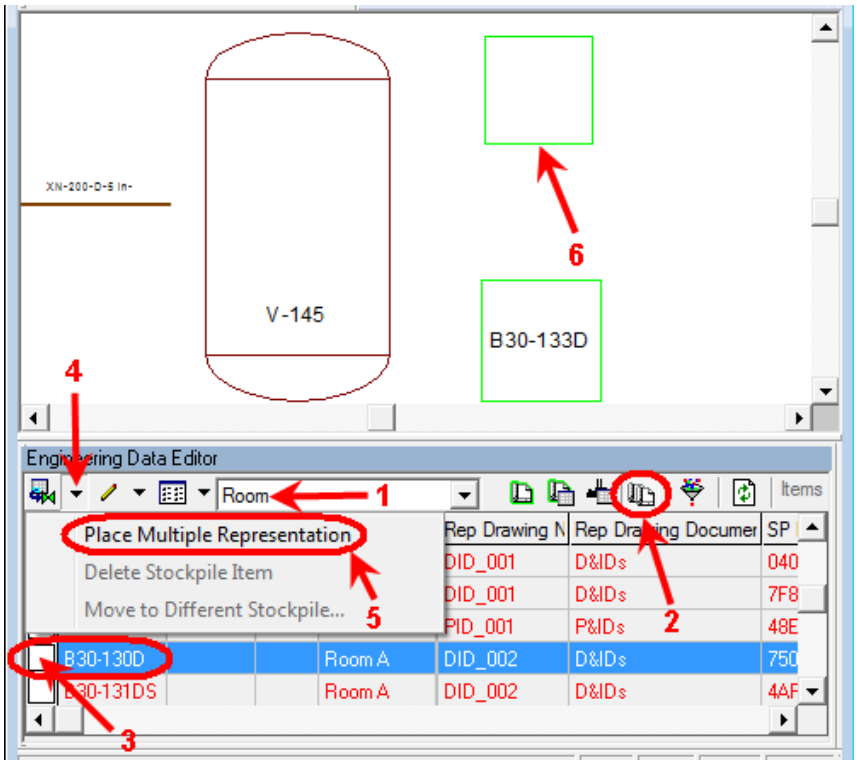
20. Select the vessel 'V-145' placed in above step. In the **Properties** window, click the ellipsis button beside the **Room Tag** property. On the **Find Room Tag** dialog box, type the percent character, %, as a wildcard in the **Search string** box, and then click **Find**. Notice that only room in the current drawing or drawing stockpile has its room tag 'B30-133D' displayed in the **Results** window.



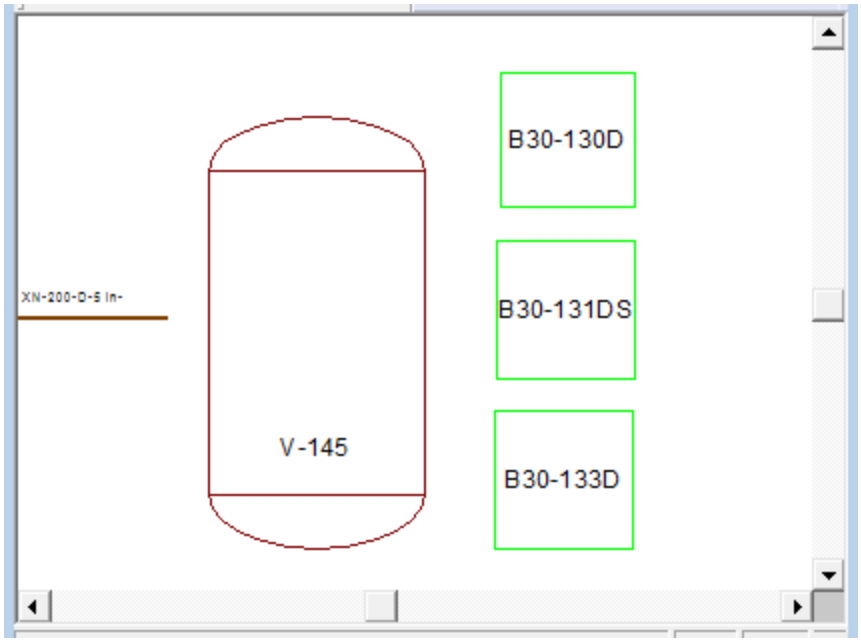
21. In order to enable association of a room with a plant item in another drawing, a multiple representation of the room must be placed in the target drawing.

22. In the **Engineering Data Editor**, select **Room** view and toggle **Other Drawings**.

23. Select the symbol icon for room 'B30-130D' and click **Place Multiple Representation** to place a multiple representation of the room 'B30-130D' onto the drawing. Use symbol handles to adjust the size of each symbol to close to what's shown below. Click **File > Save**.

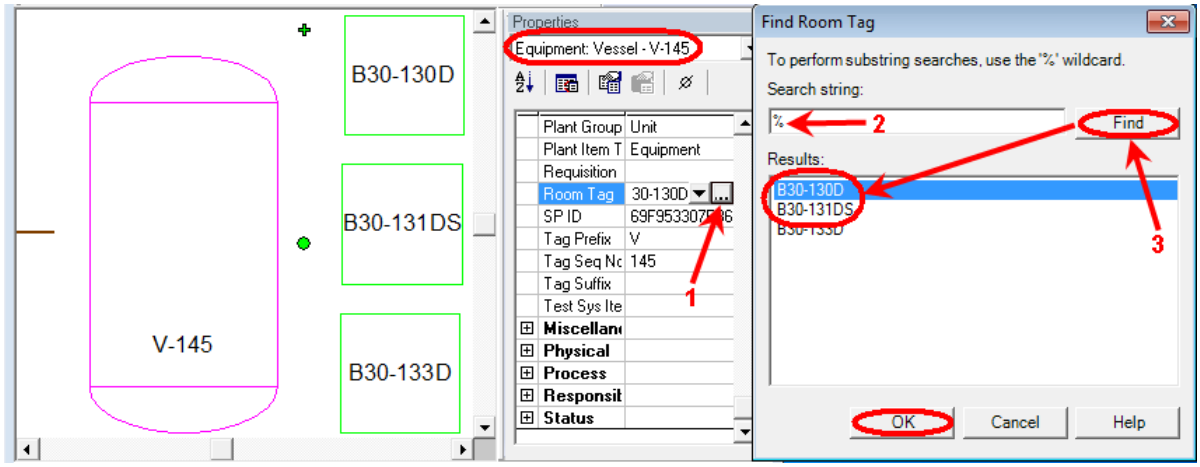


24. Repeat the above step to place a multiple representation of the room ‘B30-131DS’ onto the drawing. Use symbol handles to adjust the size of each symbol to close to what’s shown below.



25. Place the label symbol ‘\Symbol\Ducting\Room\Room Labels\Room ID.sym’ to label the rooms ‘B30-130D’ and ‘B30-131DS’placed in above two steps.

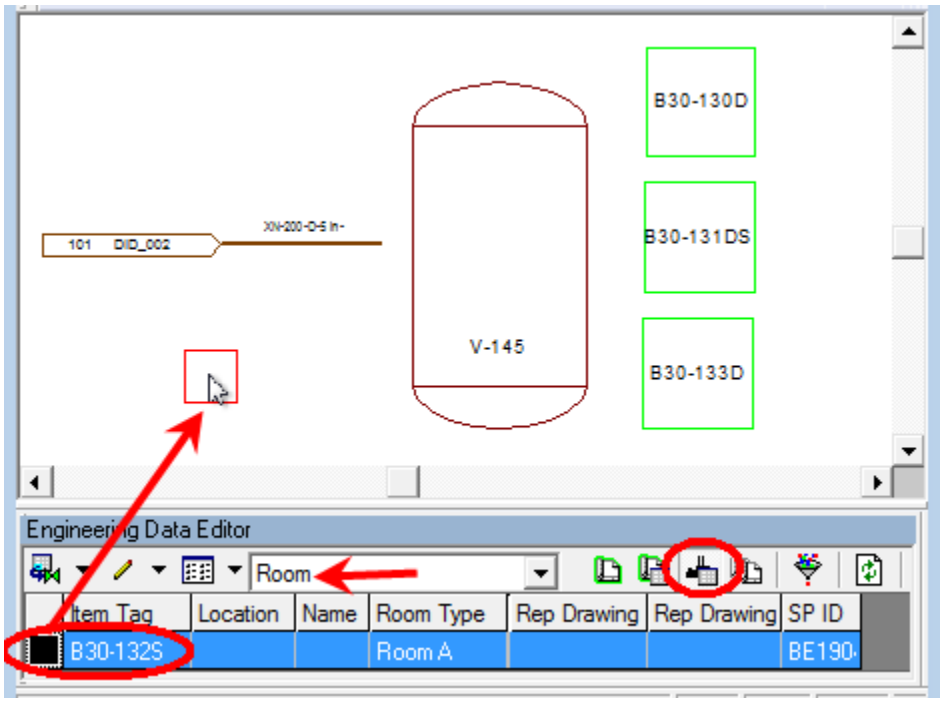
26. Select the vessel ‘V-145’. In the **Properties** window, click the ellipsis button beside the **Room Tag** property. On the **Find Room Tag** dialog box, type the percent character, %, as a wildcard in the **Search string** box, and then click **Find**. Notice that for those rooms with a multiple representation in the target drawing ‘DID_003’, their room tags ‘B30-130D’ and ‘B30-131DS’ are displaying in the **Results** windows, and one is ready to associate.



27. On the **Find Room Tag** dialog box, select 'B30-130D' for **Room Tag** from **Result** windows and then click **OK.** Click **File > Save**.

28. To be associated again, a room residing in the plant stockpile needs to be moved to a drawing or drawing stockpile first.

29. Open drawing DID_003. In the **Engineering Data Editor**, select the **Room** view and toggle the **Stockpile.** Select the room 'B30-132S' to be reused, right click the room icon, and then drag and click mouse left button to place the room onto the active drawing. Now the room 'B30-132S' can be to associate to a plant item in the drawing DID_003.



30. Or right click the room icon for the room ''B30-132S' > **Move to Different Stockpile…**

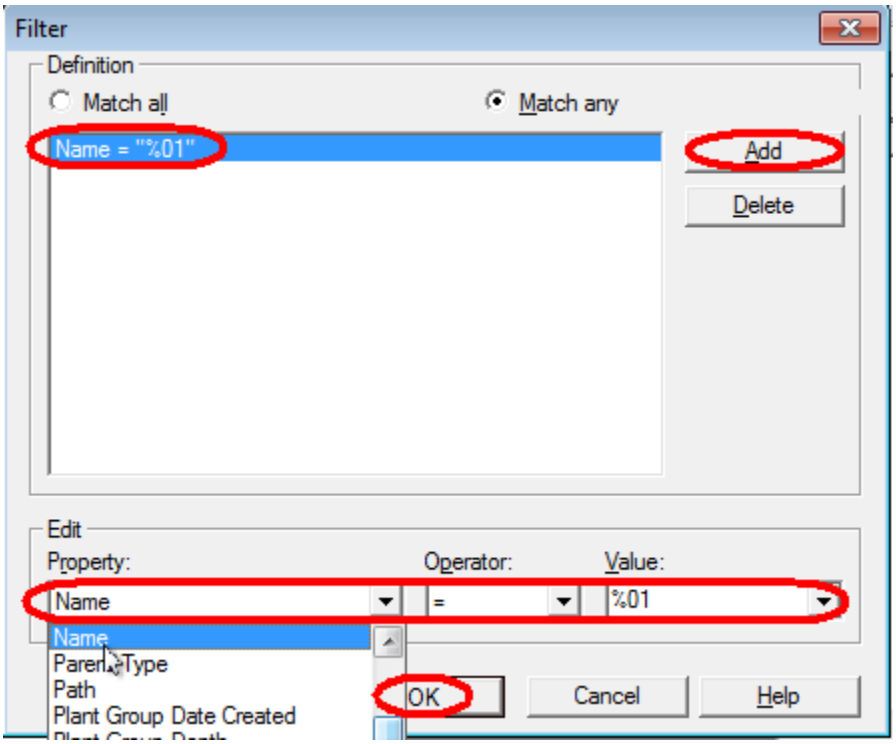
31. On the **Move to Different Stockpile** dialog box, select the target drawing \Area 1\Unit 1\DID_002 and click OK. Click **File > Save**.

32. Now the room 'B30-132S' can be to associate to a plant item on a target drawing by placing a multiple representation of the room 'B30-131S' onto the drawing.

Retain filter settings on the list view of drawings

In SP P&ID version 2014, if a filter was previously applied to customize the **List** view of drawings, the filter settings are retained the next time you open the **List** view in Drawing Manager or on the SmartPlant P&ID **Open** dialog box. Before SP P&ID version 2014 the software would clear filter automatically when the Drawing Manager or the SmartPlant P&ID **Open** dialog box is closed.

1. In Drawing Manager, click **View > Filter**, or right click the plant structure node or sub-node under the plant structure > **Filter,** or click **Filter** on the **Open** dialog box. The **Filter** dialog box appears to allow view or modify the criteria associated with a filter.



Definition — Displays all defined criteria associated with a filter. To add to or modify the definition list, you must select a line in the list and then define or edit the property in the **Edit** group.

Match all — Specifies that items matching ALL of the filtering criteria pass through the filter.

Match any — (Default) Specifies that items matching any one or more of the filtering criteria pass through the filter.

Add — Places a new entry at the end of the existing definition list and enables the options in the **Edit** group so that you can edit the new entry.

Delete — Removes the selected criterion from the definition list. This button is available only when you select a criterion in the definition list.

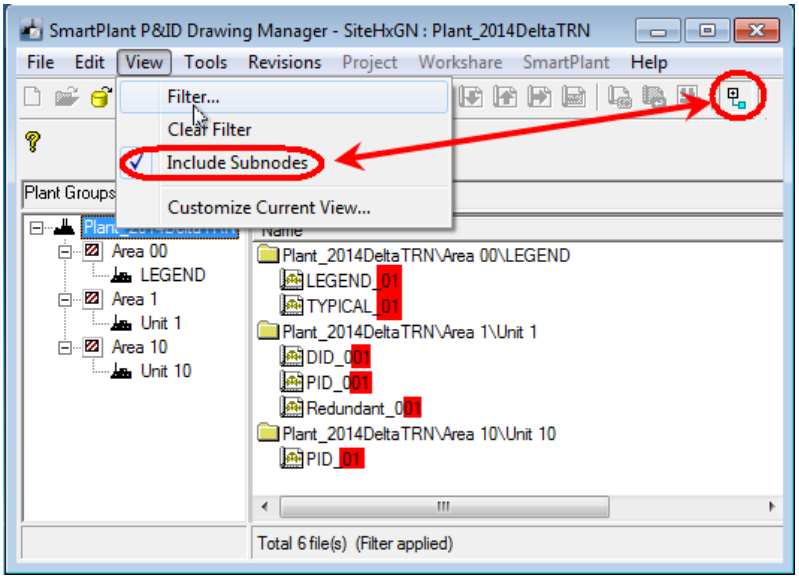
Edit — Allows you to define or edit a single line of filter definition criteria.

Property — Displays a list of all properties for a certain item type. Examples of properties include revision number and name. You define or modify filtering criteria by selecting a property, an operator, and a value.

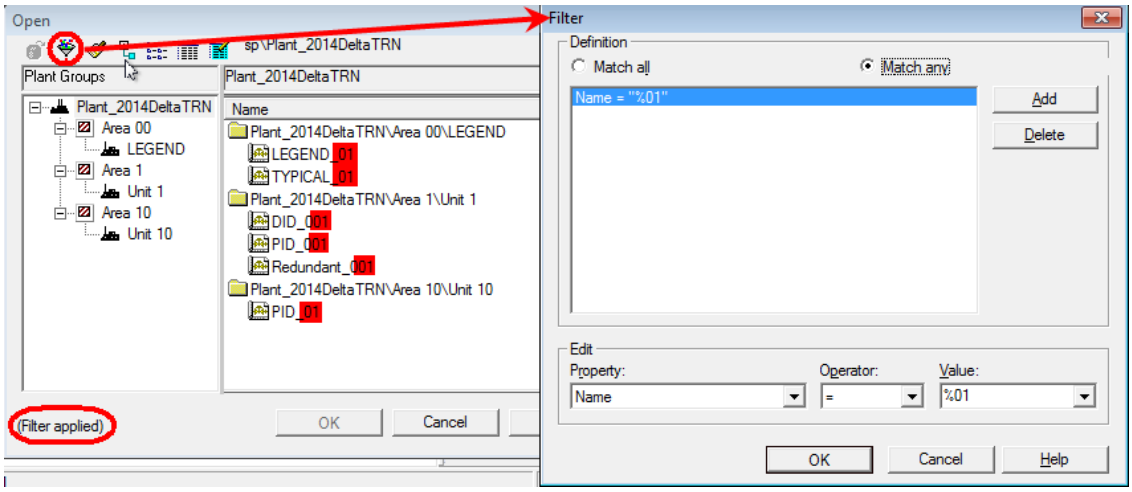
Operator — Specifies the relationship between the property and its value. These relationships include greater than, >; equal to, =; not equal to, <>; and so forth.

Value — Lists appropriate values for the property specified in the **Property** list. If a list of attributes is not already associated with the **Value** box, you must choose null or type a value, which can be free text. You can type a percent sign (**%**) as a wildcard character to find multiple characters or an underscore (_) as a wildcard character for a single character. Do not use an asterisk (*****) in the **Value** box.

2. After click **OK**, the drawings with '…01' in name are shown in the **List** view. An external Filter Info configuration XML file ('DrawingManagerFilterInfo.XML') is created for the filter settings and stored in the folder C:\Users\%username%
Close Drawing Manager and then reopen it, the filter setting defined in step 1 is retained for the drawing **List** view.



3. In P&ID, click **File > Open**. At the prompt, review the info 'Filter applied' displays on the **Open** dialog box, and the drawings with '…01' in name are displayed in the **List** view. Click **Cancel** and reopen the **Open** dialog box, verify the filter setting is retained.

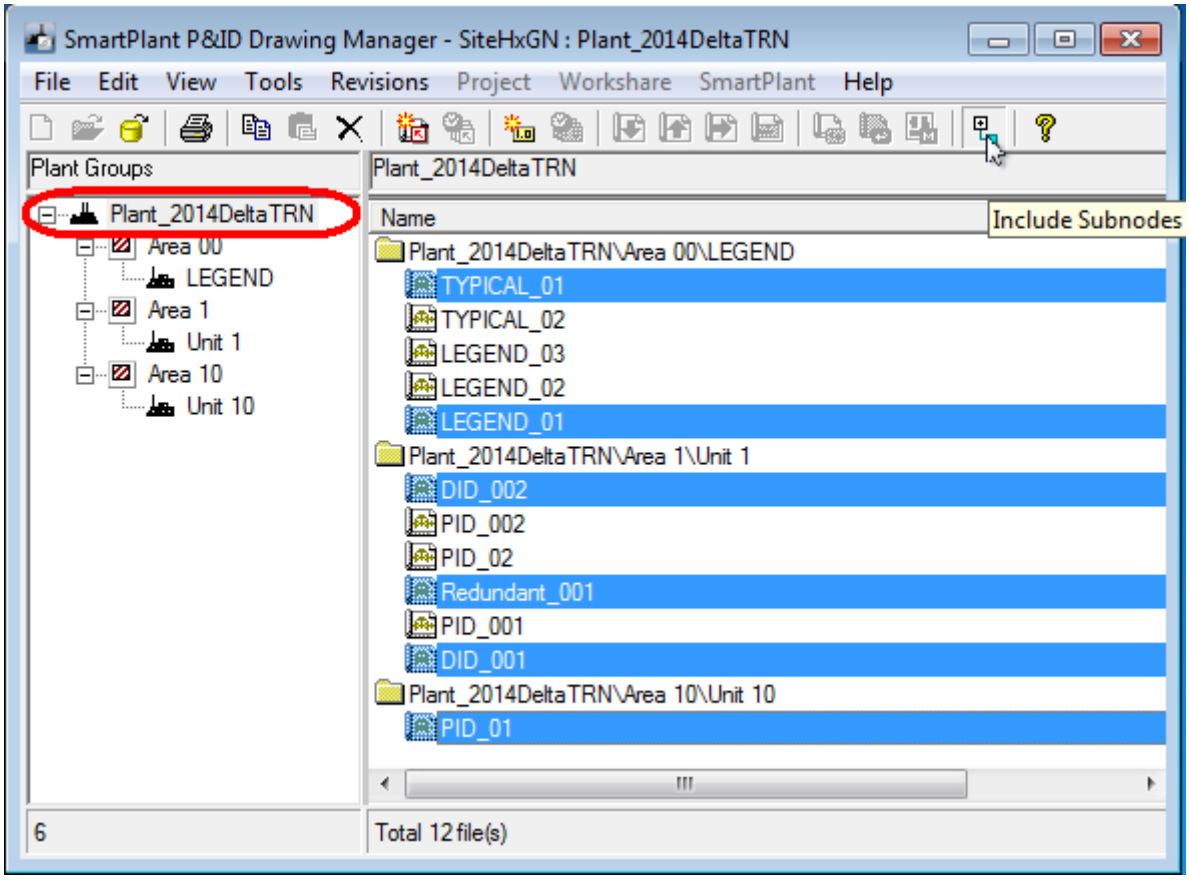


4. Click **View** > **Clear Filter**, or open another plant structure will delete the external Filter Info configuration XML file 'DrawingManagerFilterInfo.XML', and the previous filter settings will be removed.

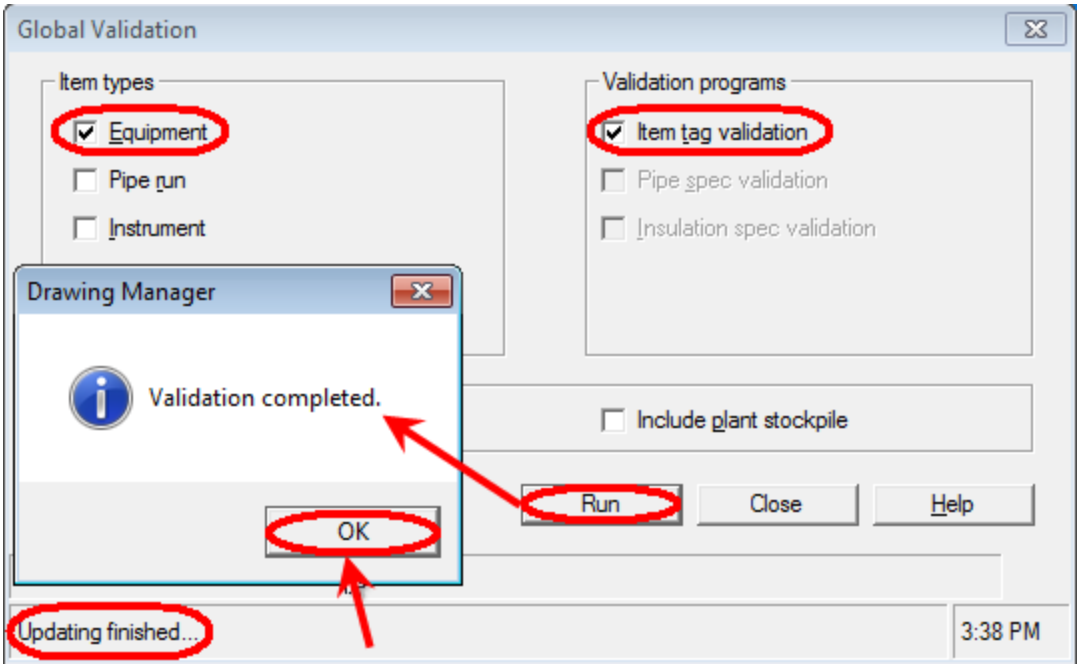
Drawing Manager: Drawings remain selected after actions

In SP P&ID version 2014, it is now possible to keep the selection of drawings between actions. For example, after select multiple drawings located at different units and then run **Global Valadation...**. after the execution of the **Global Valadation...**, those drawings remain selected when perform another operation such as **Print…**; **Revisions > New Revision…**; or **Out-of-Date Drawings** > **Update…**

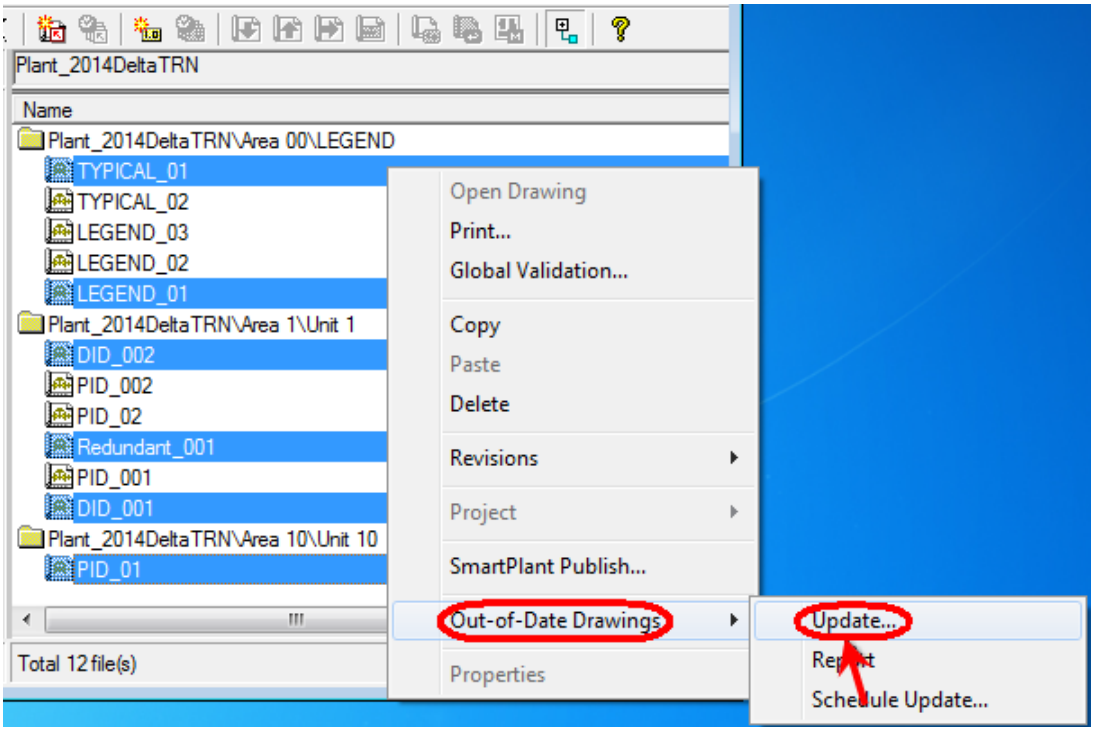
1. In Drawing Manager, click the plant structure node and click **View > Include Subnodes**. In the **Tree** view, use the **SHIFT** or **CTRL** key to select multiple drawings.

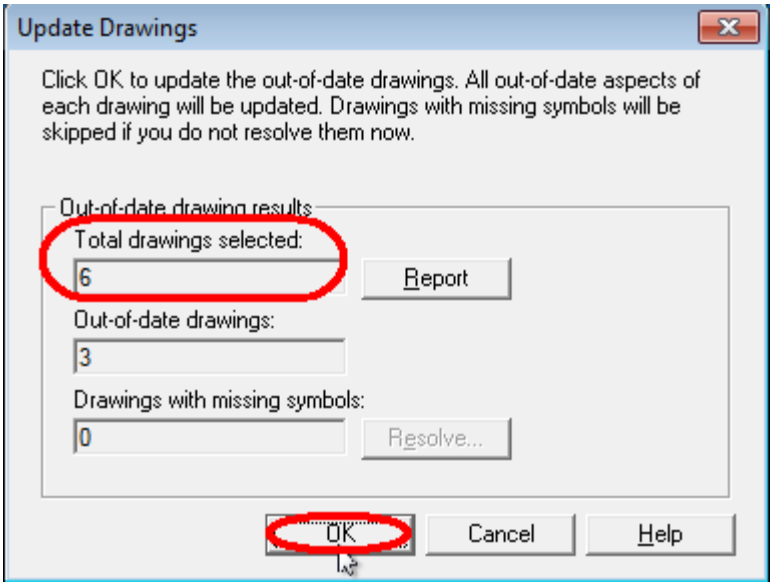


2. Right click the selection > **Global Validation**. In the **Global Validation** dialog box, select **Equipment** as the **Item types**, and **Item tag validation** as the **Validation programs**, then click **Run**. After Updating finished…, click **OK** on the 'Validation completed.' message box, and then click **Close** to exit the **Global Validation** dialog box. Review that all the selected drawings are still highlighted in the **List** view.



3. Right click the selection > **Out-of-Date Drawings** > **Update…** At the prompt, click **OK** to upgrade the selected drawings. After the updated is completed, review that all the selected drawings are still highlighted in the **List** view.

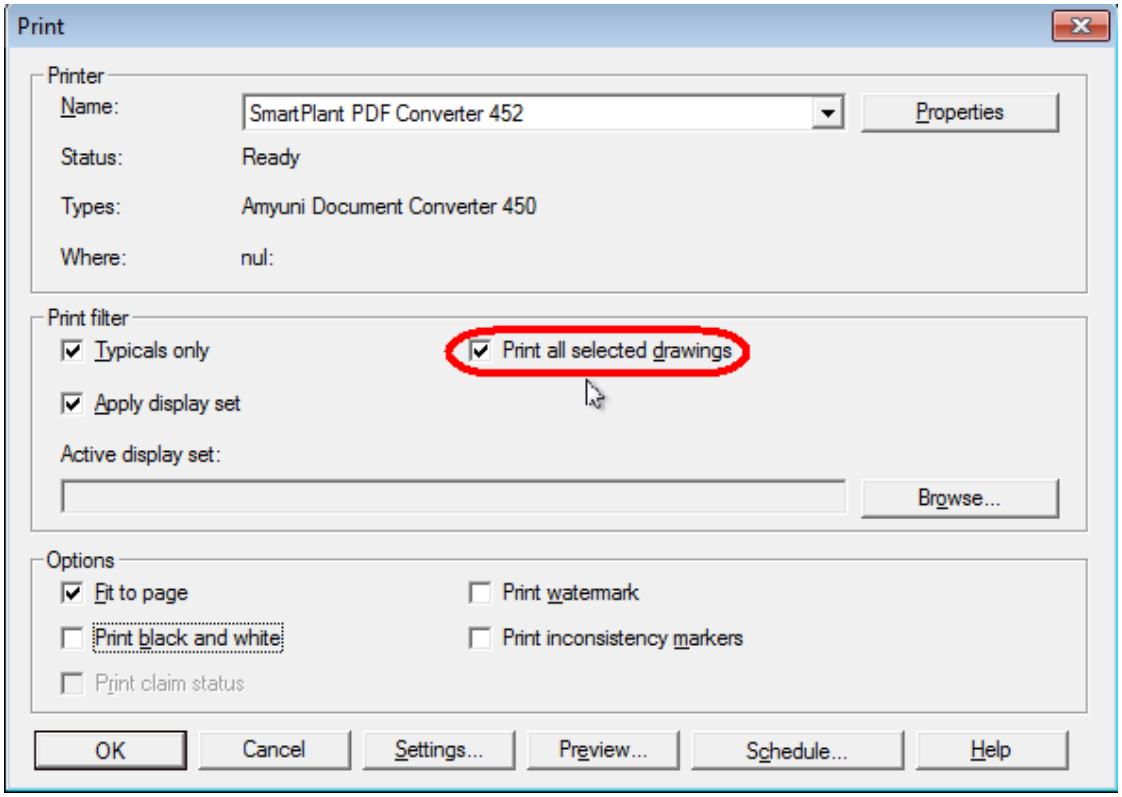



Update Drawings
Click OK to update the out-of-date drawings. All out-of-date aspects of each drawing will be updated. Drawings with missing symbols will be skipped if you do not resolve them now.
Out-of-date drawing results
Total drawings selected:
6
Report
Out-of-date drawings:
3
Drawings with missing symbols:
0
Resolve...
OK
Cancel
Help

Drawing Manager: Print filtered drawings only

In SmartPlant P&ID version 2014, when printing drawings filtered for a display set or typicals only, it is possible to specify that drawings which do not contain any items filtered by display sets or typicals are excluded from the printing.

1. The **Print** dialog in Drawing Manager has a new option (check box) **Print all selected drawings**. This option is only available when either or both check boxes **Typicals only** and **Apply display set** are selected.

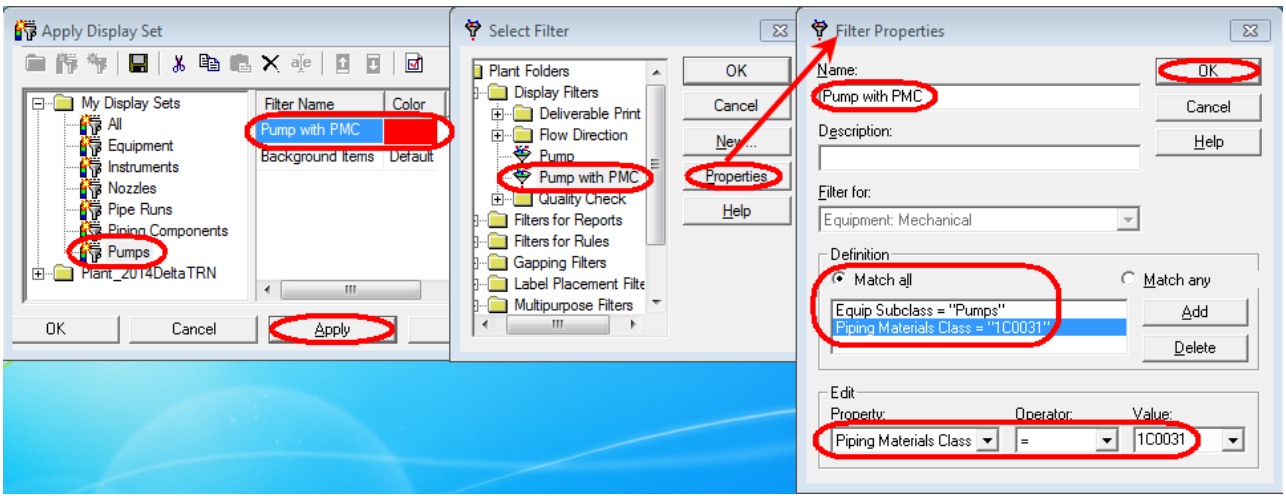


2. When the **Print all selected drawings** check box is cleared, those drawings that do not contain filtered items as a result of applying these filters are excluded from the print output.
3. Selecting the check box results in the printing of all selected drawings, including drawings that do not contain such filtered items.

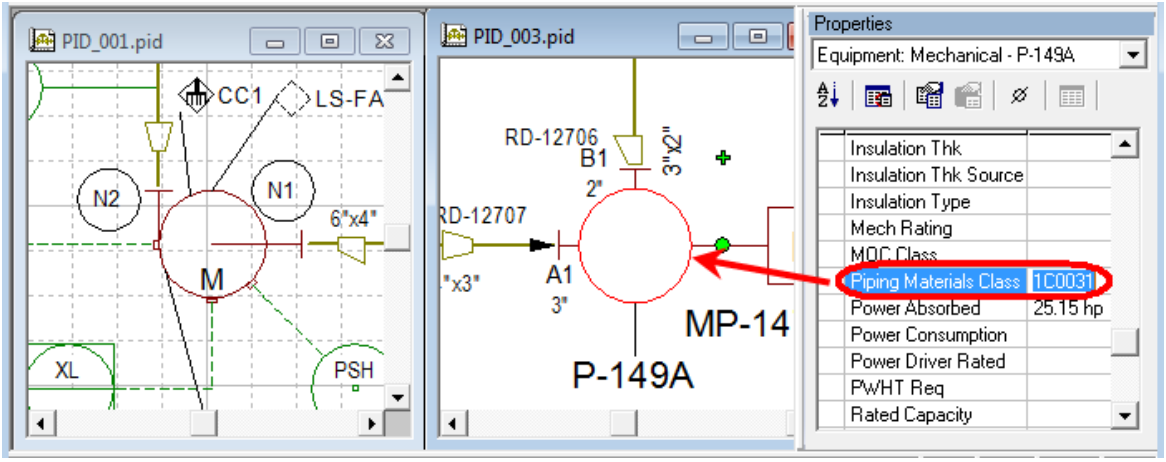
Activity 3

This activity demonstrates how to print drawings using Display Set as filter.

In the following example, the display set 'Pumps' is created under the folder 'My Display Sets', and set to display pumps with 'Piping Materials Class' = '1C0031' in **Red** color. For this purpose, a new filter 'Pump with PMC' is added to the display set 'Pumps'. In Drawing Manager, the display set 'Pumps' can be set to the 'Active display set' for the **Print filter** to print drawings with filtered pumps only.

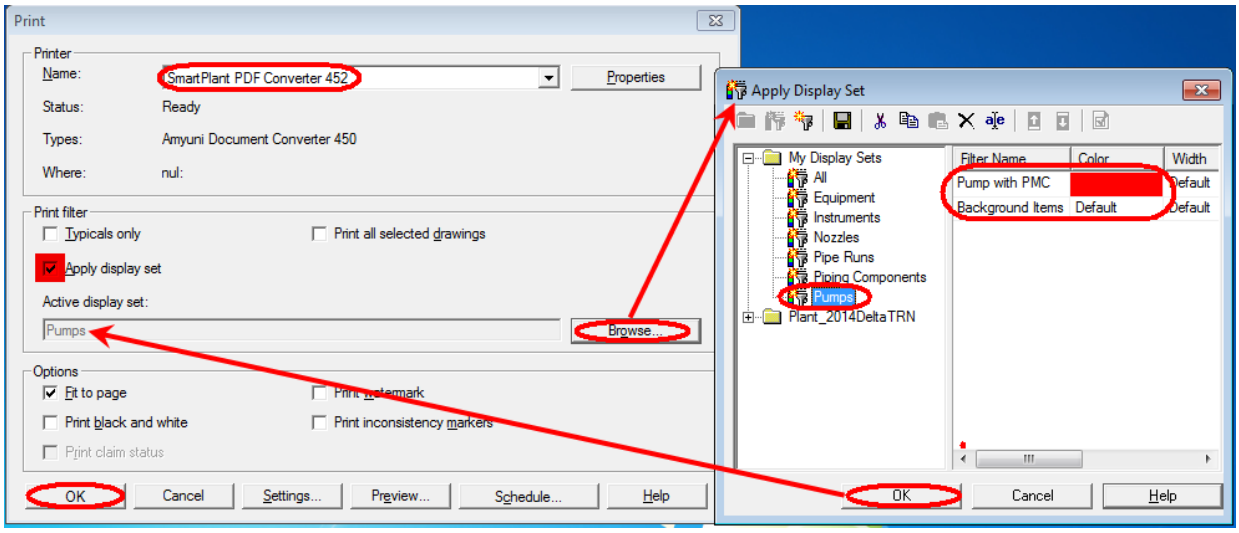


1. In drawing Manager, click **Plant_2014DeltaTRN** > **Area 1** > **Unit 1**. There are pumps (P-149A and P-148A) with 'Piping Materials Class' = '1C0031' in drawing PID_003; and in drawing PID_001 there is a pump (P-108A) without assigning 'Piping Materials Class'.

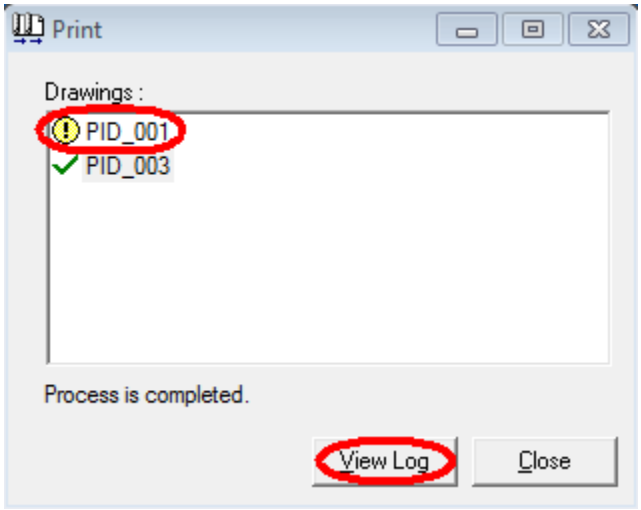


2. In the Tree view, use the CTRL key to select drawings PID_001 and PID_003. Then right click the command **Print…** to launch the **Print** dialog.

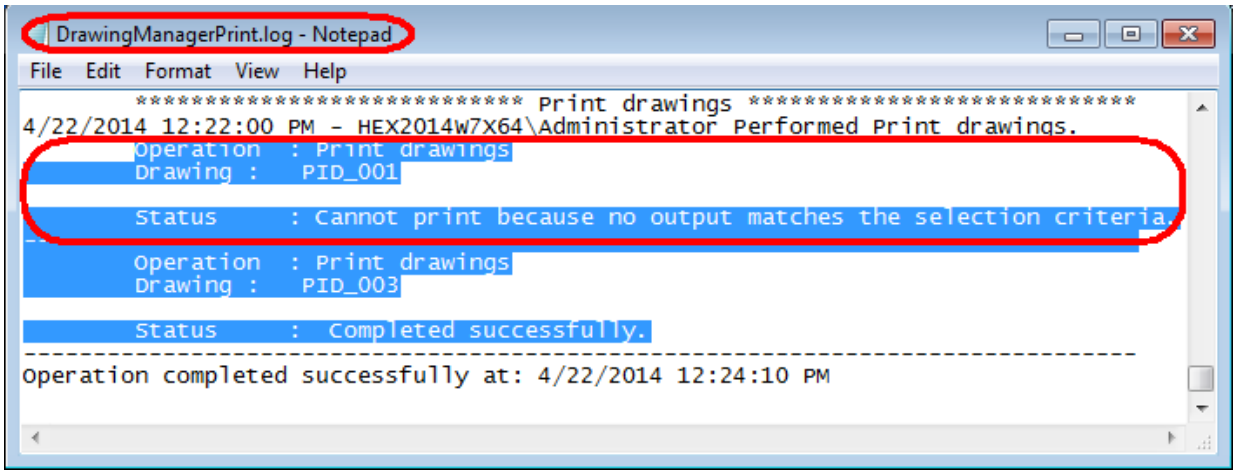
3. Select check box **Apply display set**, clear both check boxes **Print all selected drawings** and **Typicals only**. Clear check box for the option **Print black and white.** Click **Browse…** and then select the customized display set **My Display Sets** > **Pumps** and click **OK** to add **Pumps** as the **Active display set.** Select printer 'SmartPlant PDF Conveter 452'.



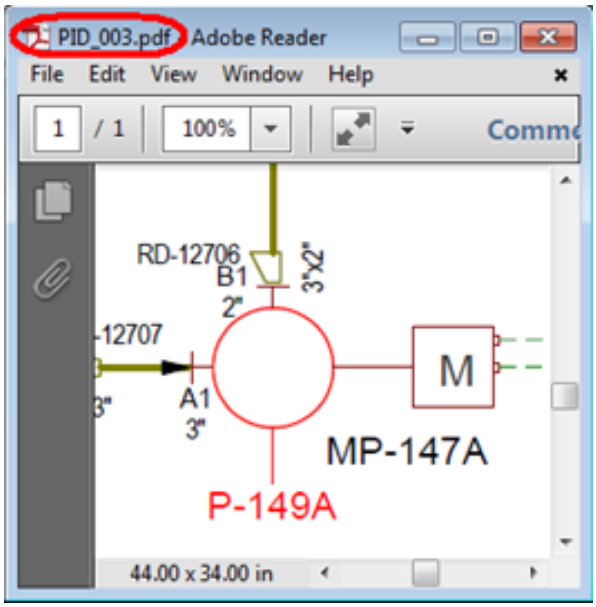
4. Click **OK** on the **Print** box to print out the selected drawings PID_001 and PID_003. At the prompt **Output File Name** dialog box, click **OK** to save output file PID_003.pdf. Review the drawing list on the prompt **Print** dialog box: the drawing PID_001 without filtered pump is excluded from the printing.



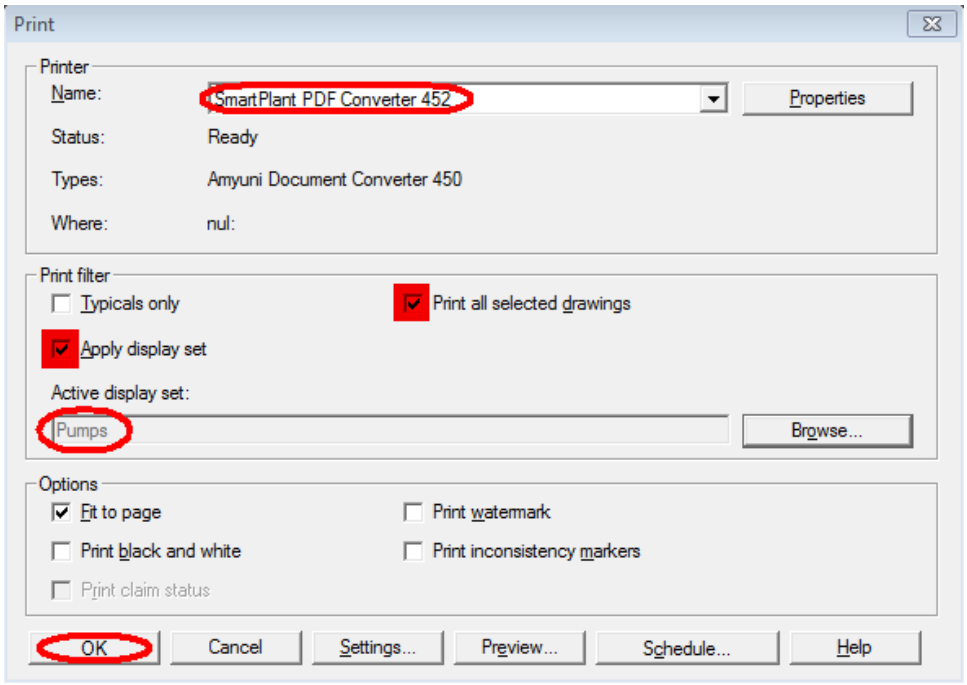
5. Click **View Log** on the **Print** dialog box, review the log file 'DrawingManagerPrint.log'. Click **Close**.



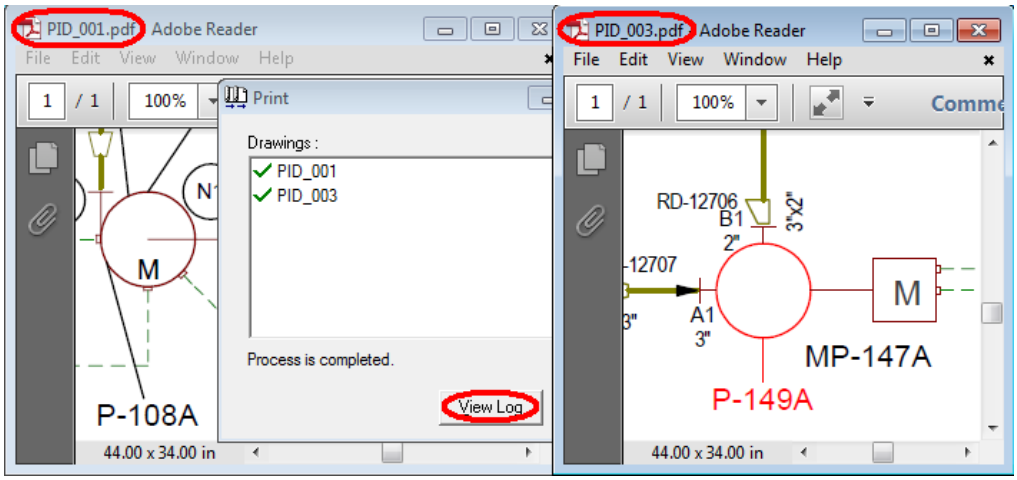
6. Open saved output file PID_003.pdf. Review that drawing PID_003 has filtered pumps printed in **Red**.



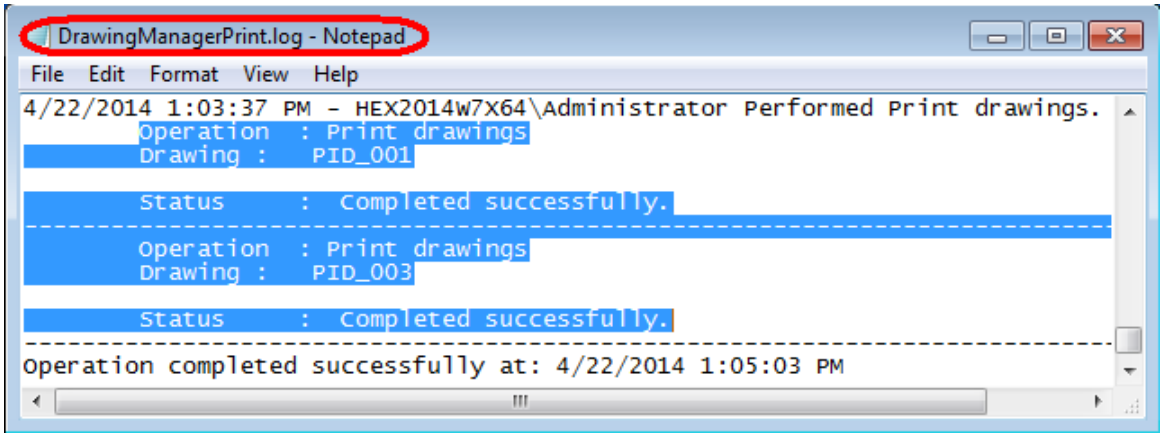
7. With PID_001 and PID_003 still selected, launch **Print** dialog. Select check boxes **Print all selected drawings** and **Apply display set,** clear check boxes **Typicals only**. Clear check box for the option **Print black and white.** Click **Browse…** then select the customized display set **My Display Sets** > **Pumps** and click **OK** to add **Pumps** as the **Active display set.** Select printer 'SmartPlant PDF Conveter 452'.



8. Click OK to print out the selected drawings PID_001 and PID_003. At the prompt **Output File Name** dialog box, click **OK** to save output file for each drawing. Open saved output files PID_001.pdf and PID_003.pdf. Review that drawing PID_003 has filtered pumps printed in **Red**, while all the items in drawing PID_001 are printed as Background Items with default color.

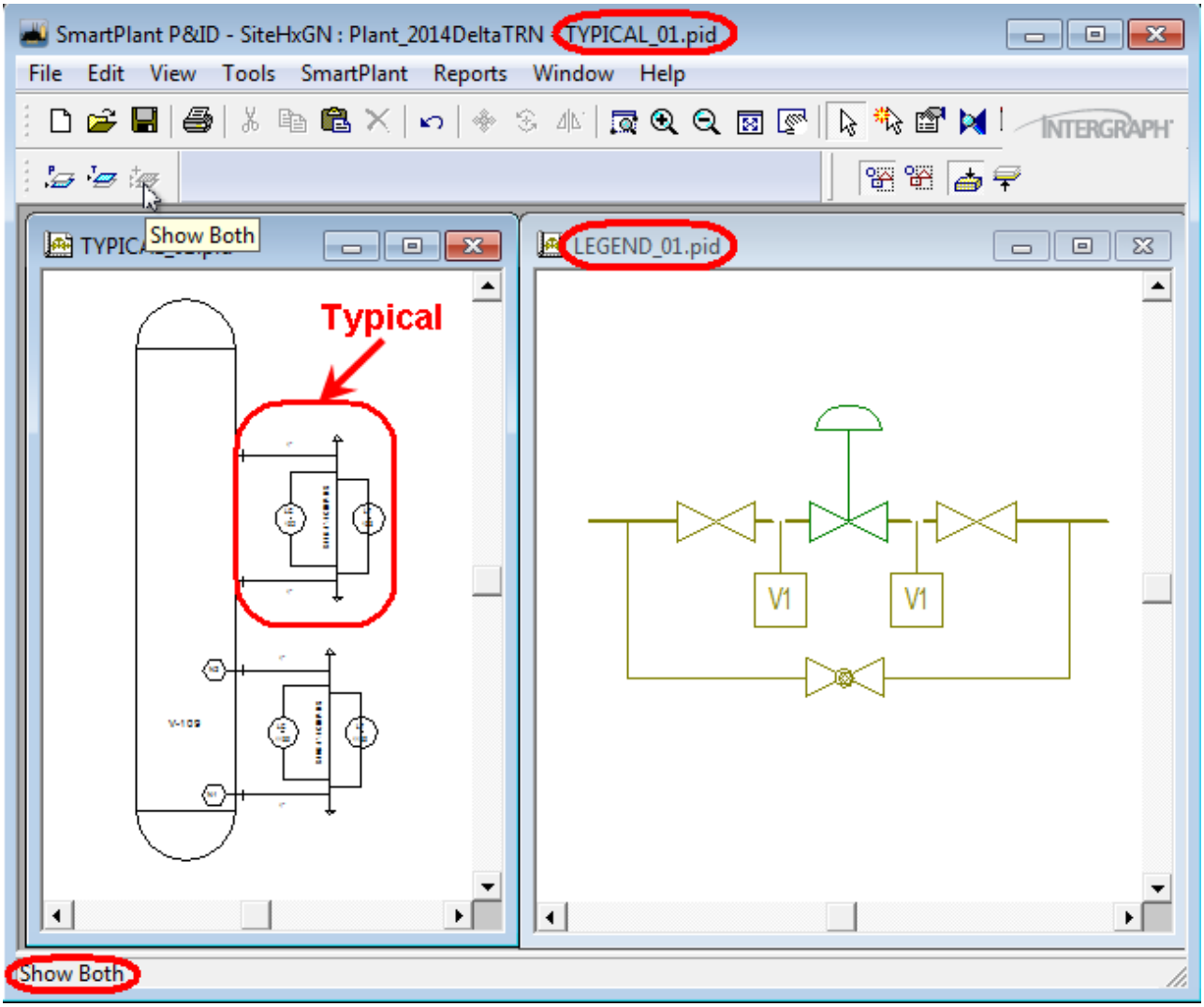


9. Click **View Log** on the **Print** dialog box, review the log file 'DrawingManagerPrint.log'. Click **Close.**

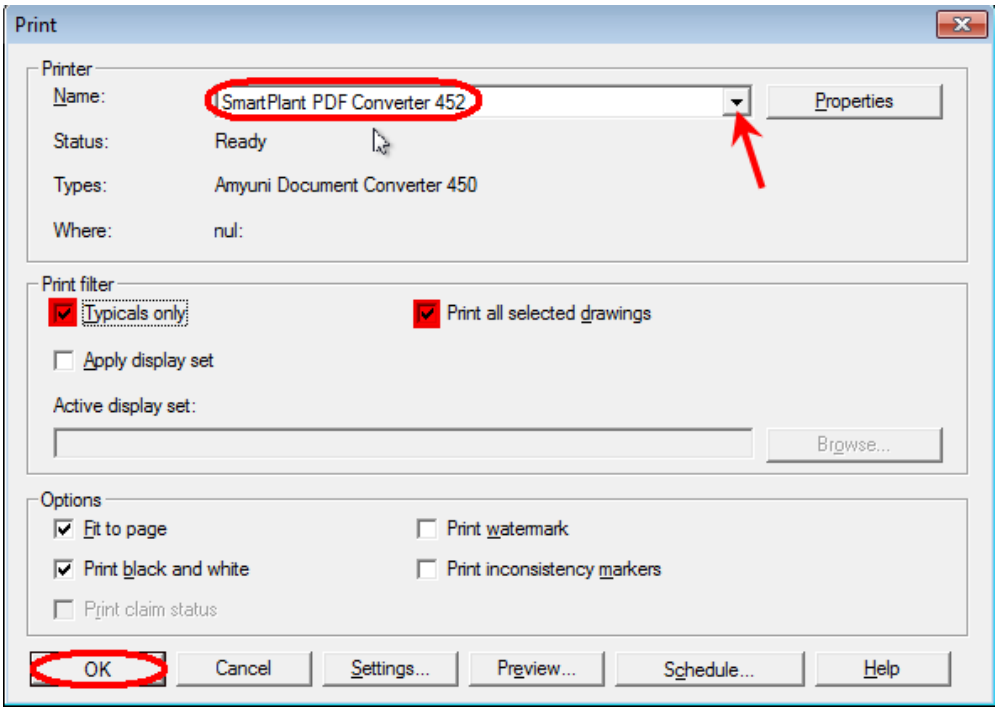


Activity 4

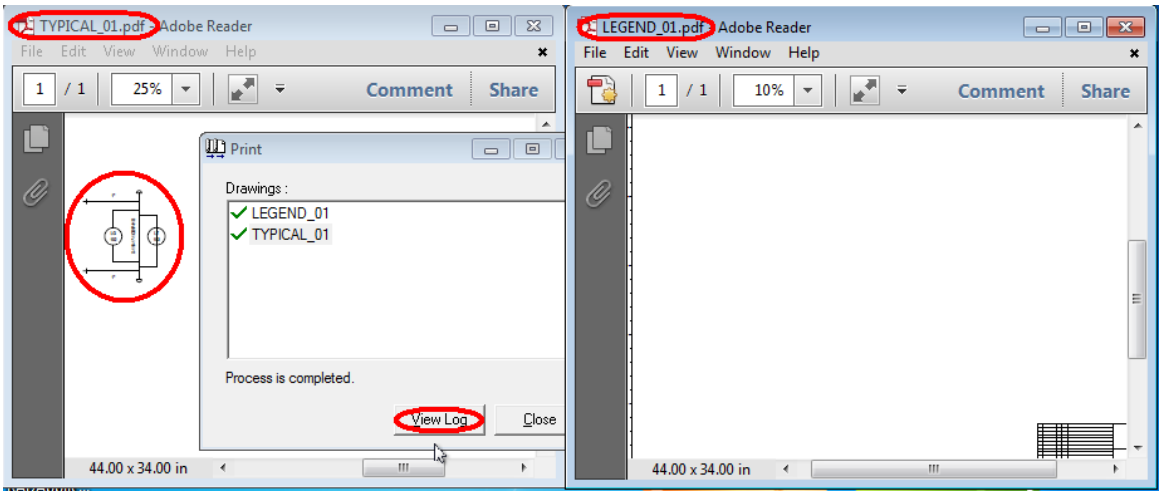
This activity demonstrates how to print drawings with Typicals only.



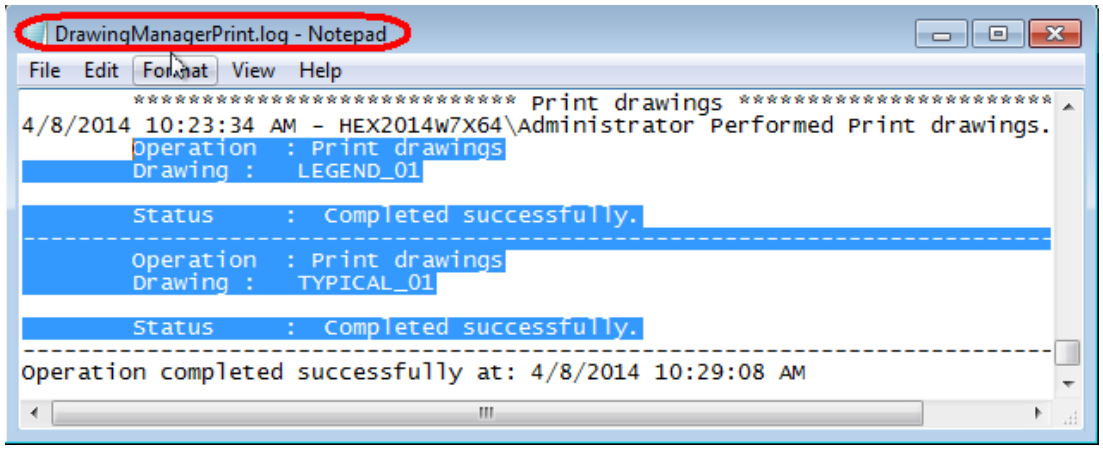
1. In drawing Manager, click **Plant_2014DeltaTRN** > **Area 00** > **LEGEND**.
2. In the Tree view, use the CTRL key to select drawings LEGEND_01 and TYPICAL_01. Then right click the command **Print…** to launch the **Print** dialog.
3. Select both check boxes **Typicals only** and **Print all selected drawings**, clear check box **Apply display set**. Select printer 'SmartPlant PDF Conveter 452'.



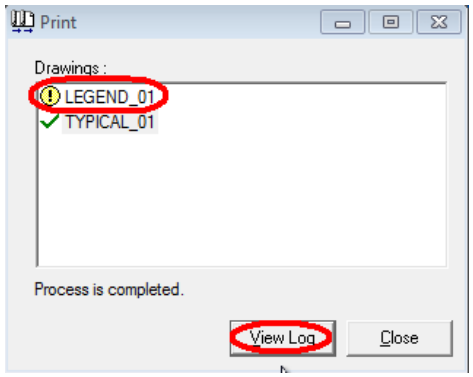
4. Click **OK** on the **Print** box, and then click **OK** on **Output File Name** dialog box for each drawing. Open saved output files LEGEND_01.pdf and TYPICAL_01.pdf. Review that both drawings that does or does not contain such filtered items **Typical only** are printed.

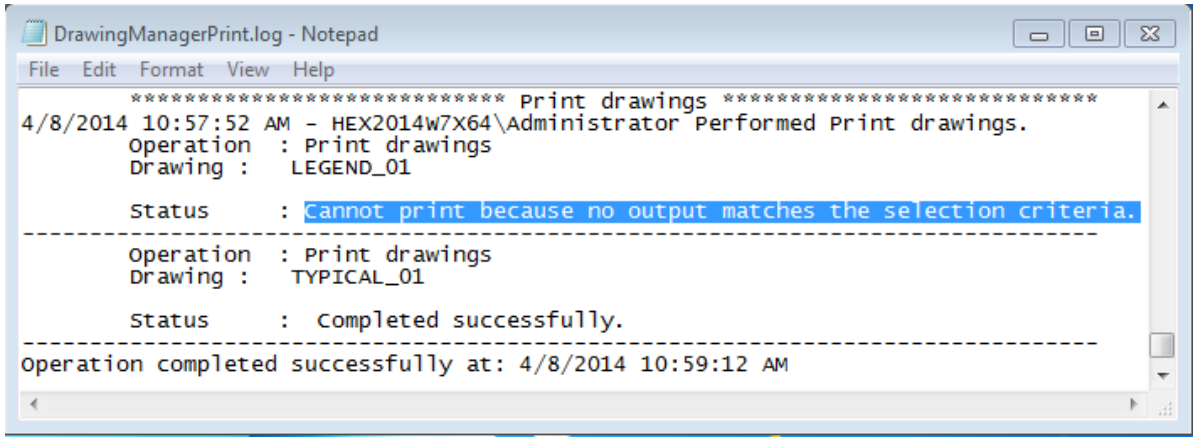


5. Click **View Log** on the **Print** dialog box, then view the log file 'DrawingManagerPrint.log'.



6. Launch **Print** dialog. Select check box **Typicals only**, clear check boxes **Print all selected drawings** and **Apply display set.** Then click OK to print out the selected drawings LEGEND_01 and TYPICAL_01. Now the drawing LEGEND_01 without items in Typical view is excluded from the printing.

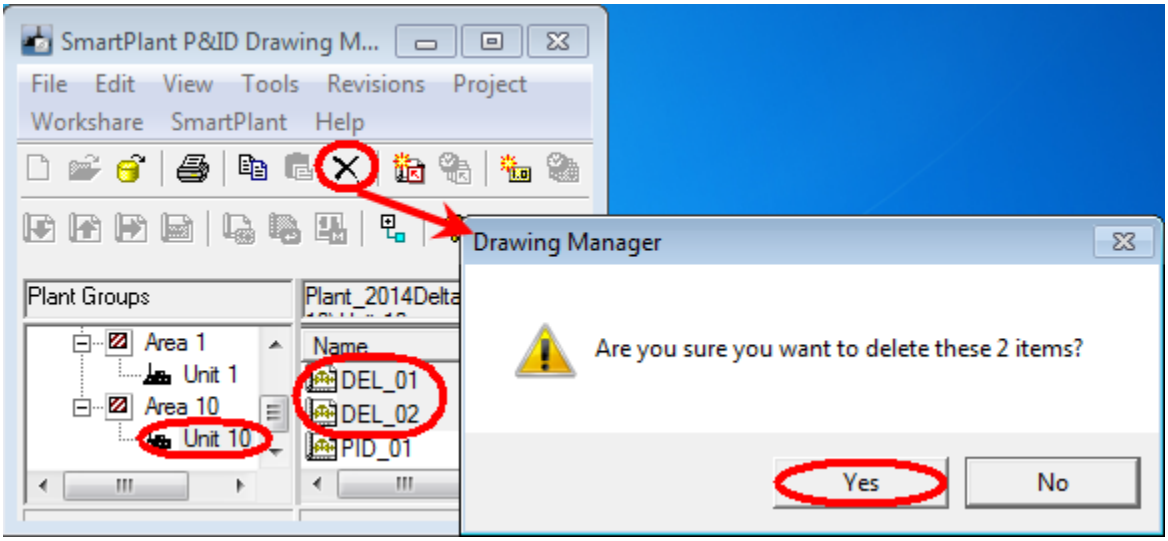




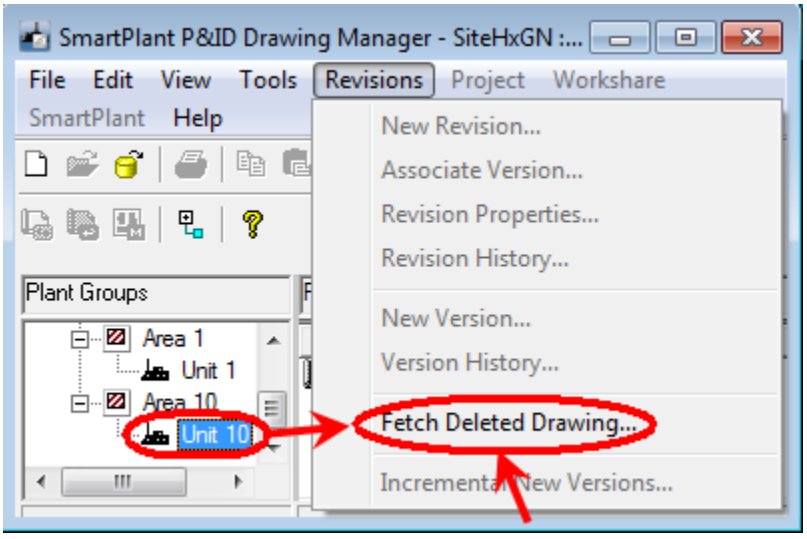
Drawing Manager: Delete drawing permanently

In SP P&ID version 2014, it is now possible to permanently delete selected drawings from the database through Drawing Manager.

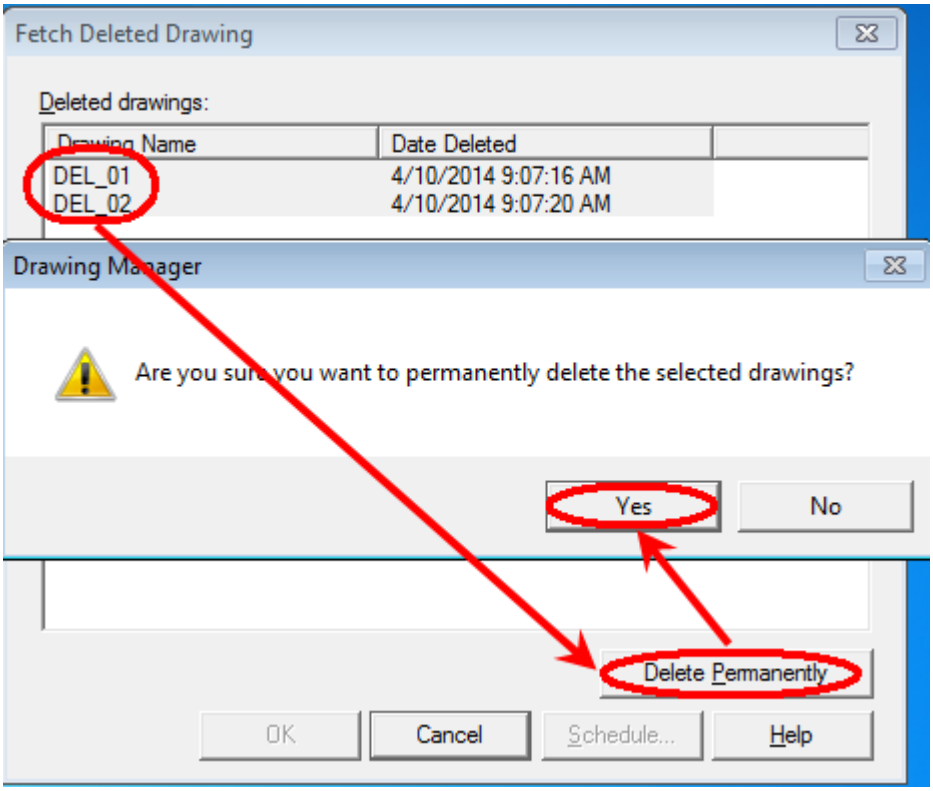
1. In Drawing Manager, click the plant structure node Plant_2014DeltaTRN > Area 10 > Unit 10. Select drawings DEL_01 and DEL_02, then click **Edit > Delete**, or click the **Delete** command. At the prompt, click **Yes** to confirm deletion of the selected drawings for the **List** view. After deleting drawings, click **Close** on the **Deleting Drawing** dialog box.



2. Select a plant structure node in the **Tree** view, i.e. Unit 10 to activate **Revisions > Fetch Deleted Drawing….** Then click command **Fetch Deleted Drawing…** to launch the **Fetch Deleted Drawing** dialog box.



3. On the **Fetch Deleted Drawing** dialog box, select the drawings to be deleted, click **Delete Permanently.** At the prompt, click **Yes** to confirm deletion of the selected drawings from the database.



4. The delete permanently action is irreversible; drawings cannot be recovered after being deleted permanently.

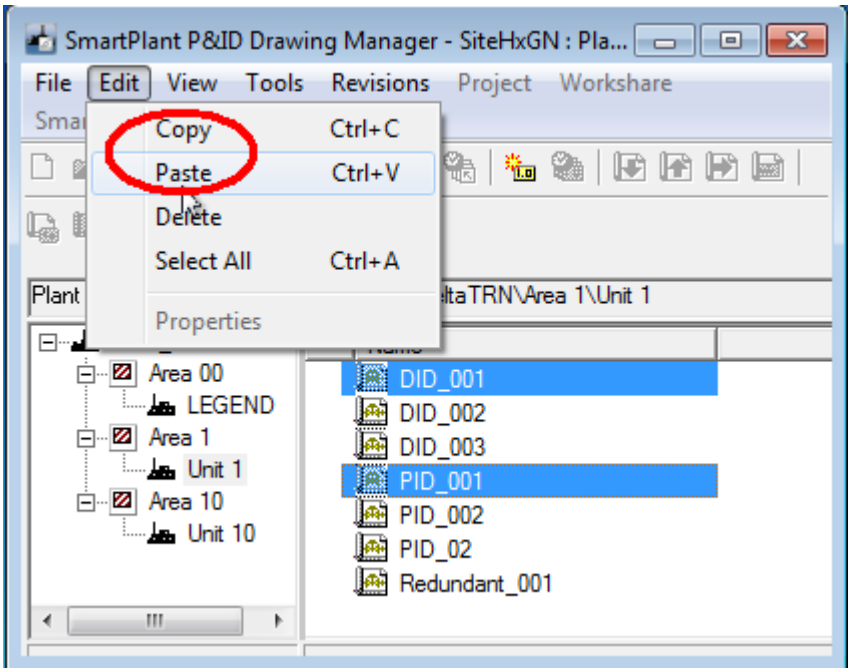
5. It is not possible to permanently delete drawings that have been checked out or fetched by other projects.

Drawing Manager: Batch import or copying drawing

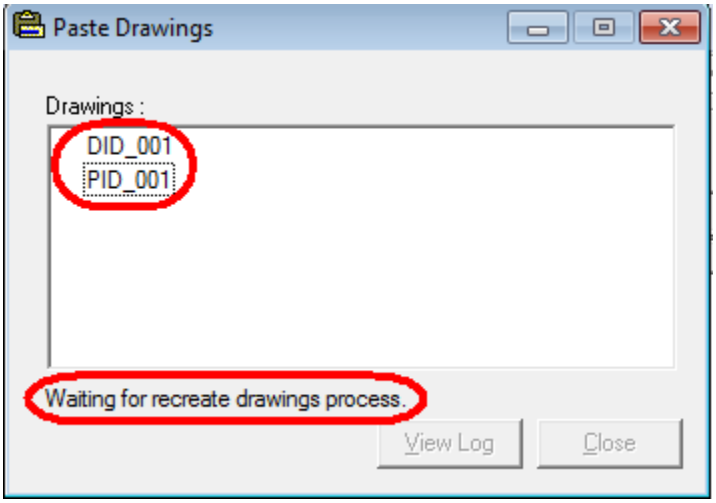
In SP P&ID version 2014, during batch import or copying of drawings, each drawing is listed individually in the process dialog box. If the option to re-create drawings was selected when import drawings, the re-create process now only begins after completion of the import action for all the drawings. For copying of drawings, the re-create process now only begins after completion of the paste action for all the drawings.

1. In Drawing Manager, click the plant structure node and select the appropriate plant level in the Tree view (i.e. Plant_2014DeltaTRN > Area 1 > Unit 1.) Use the **SHIFT** or **CTRL** key to select multiple drawings.

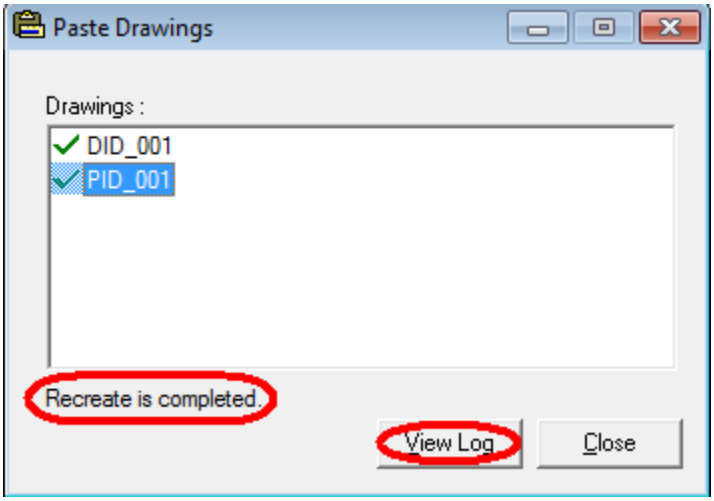
2. Click **Edit > Copy**, then click **Edit >Paste**. At the prompt, click **OK** on **Transformation Programs** dialog box to start **Paste** process.

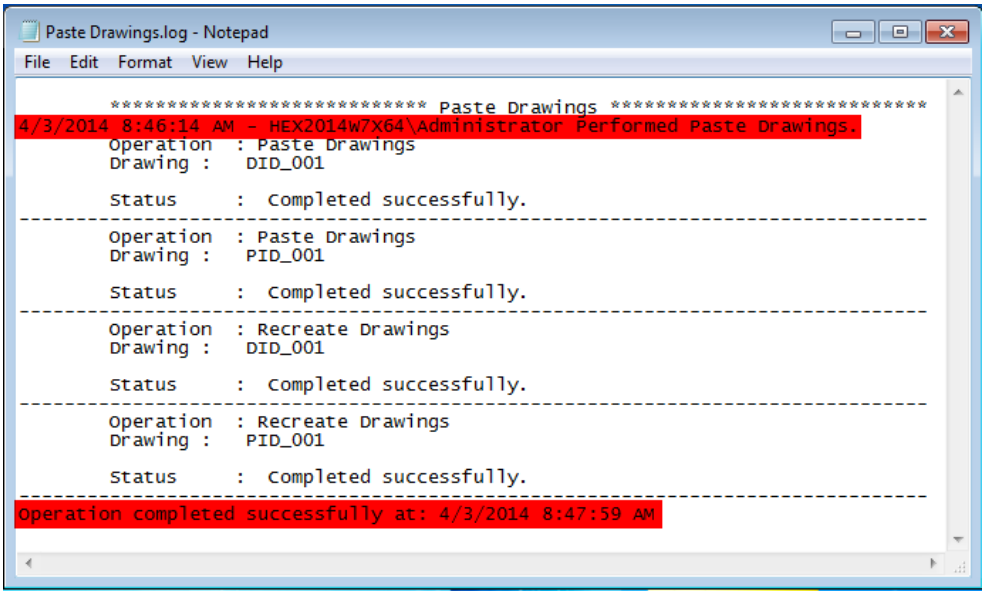


3. Each drawing is listed individually on the **Paste Drawings** dialog box. The recreate drawings process won't get start until **Paste** action is completed.

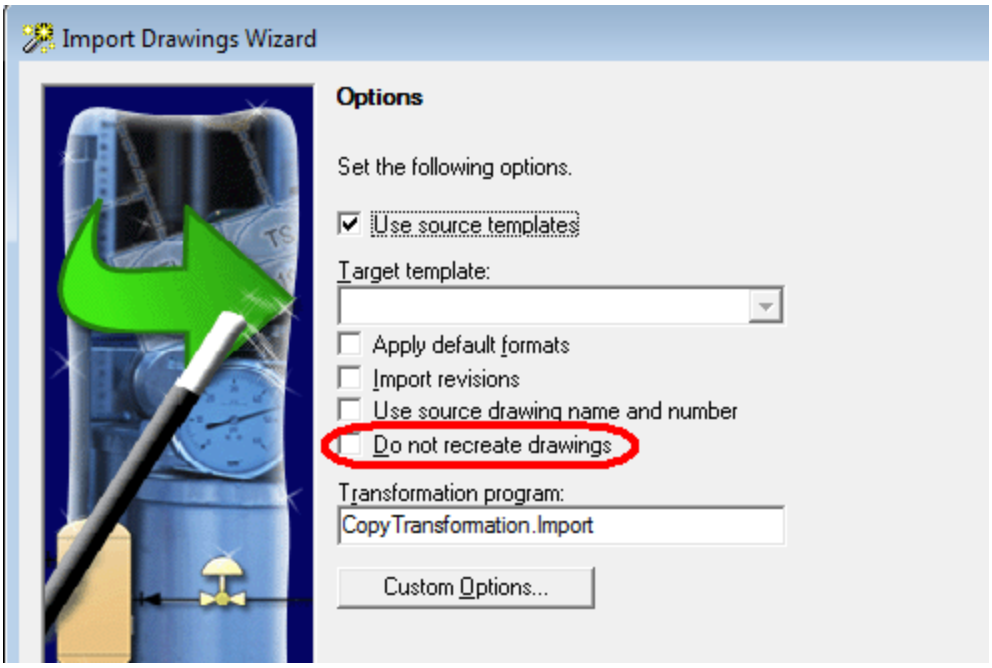


4. When Recreate is completed, click **View Log**. The timestamps for start and completion of copy/paste operation are logged in the Paste Drawings.log file. Click **Close** and review the selected drawings have been copied.

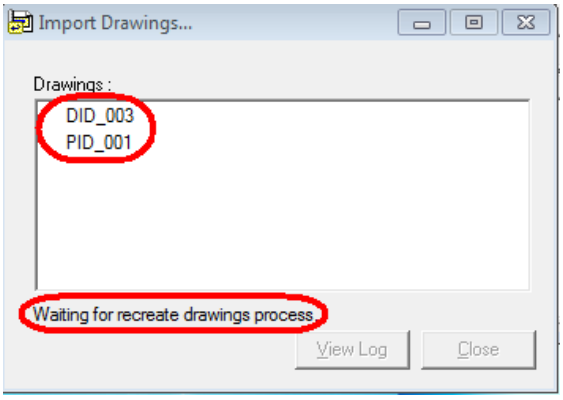




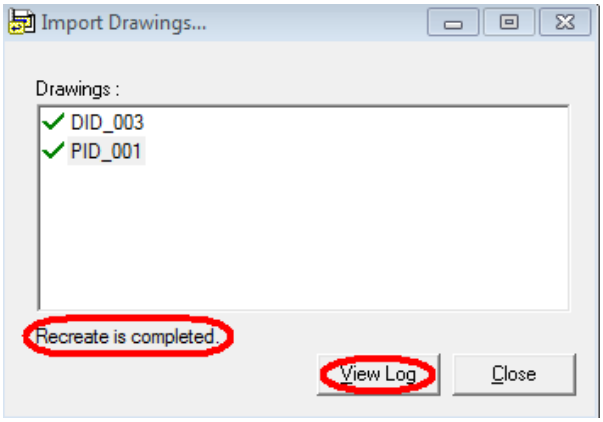
5. When importing drawings, on the **Import Drawings Wizard – Options**, clear check box **Do not recreate drawings.**

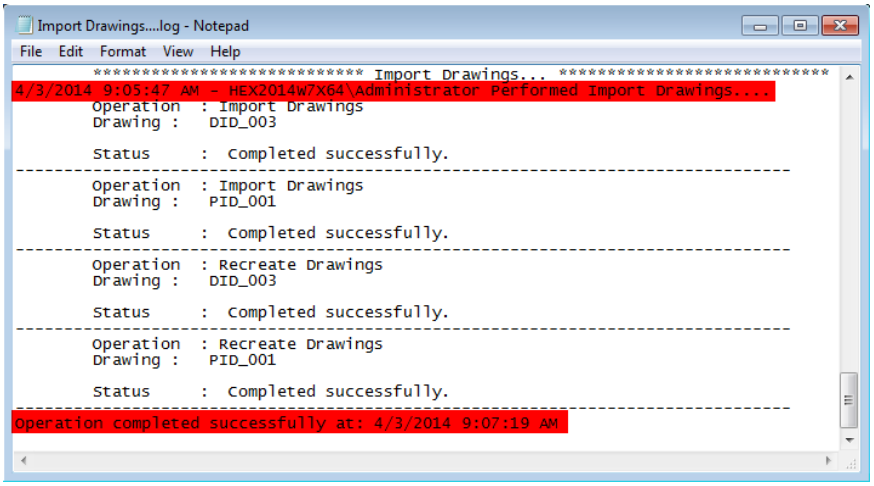


6. Each drawing is listed individually on the **Import Drawings…** dialog box. The recreate drawings process won't get start until **Import** action is completed.



7. When Recreate is completed, click **View Log**. The timestamps for start and completion of import operation are logged in the Import Drawings....log file. Click **Close** and review the selected drawings have been imported.

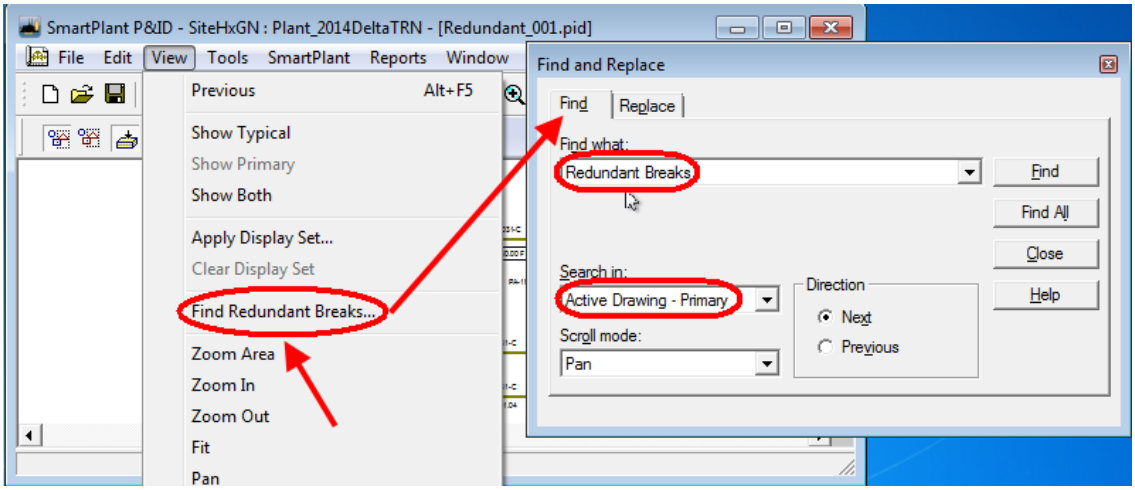




SPPID: Redundant Piping Network Breaks

In the SmartPlant P&ID version 2014, a new feature **Find Redundant Breaks** has been added for finding redundant breaks in a drawing. Redundant breaks do not appear as inconsistencies on drawings, making them very hard identify graphically. This new feature allows searching for and highlighting break components, attribute breaks, and pipe segment break points where those properties for which a discontinuity is expected are the same on either side of the break.

1. In P&ID, Click **View > Find Redundant Breaks**, or click **Edit > Find**. The **Find and Replace** dialog box appears with the **Find** tab active.



2. Choose an option from the **Search in** dropdown list.

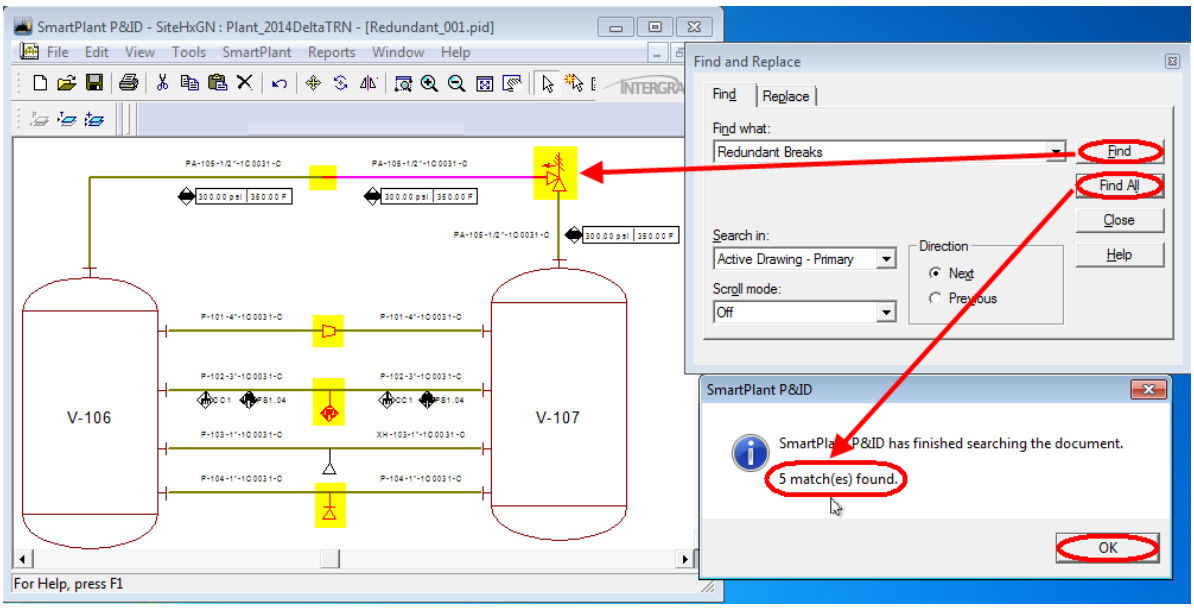
3. Do one of the following:
   - Click **Find** to highlight and move to each redundant break in turn, first break components, then attribute breaks, and last pipe segment breaks.
   - Click **Find All** to display a message with the total number of redundant breaks on the drawing. The software highlights all the redundant breaks.

4. If a break component also behaves as a reducer (that is, its **IsReducing** property is 'True'), it will be identified as a redundant break if all the break properties or all reducing properties are the same on both sides of the component. In the case where both sets of properties are the same, the component is only counted once as a redundant break.

Activity 5

Redundant breaks do not appear as inconsistencies on drawings. This activity demonstrates how to ensure that there are no redundant breaks or components before releasing drawings to downstream disciplines.

- Break components where both sides have consistent values. For instance a reducer breaks the Nominal Diameter property hence would expect a discontinuity of NPD across the reducer. If the two sides of the reducer have the same NPD, it will break the consistent and make the reducer a **Redundant Break Component**.
- Attribute breaks where data on both sides of break is consistent.
- Broken runs that should be joined to keep the data consistent.



1. Start SmartPlant P&ID Drawing Manager from All Programs > Intergraph SmartPlant P&ID.

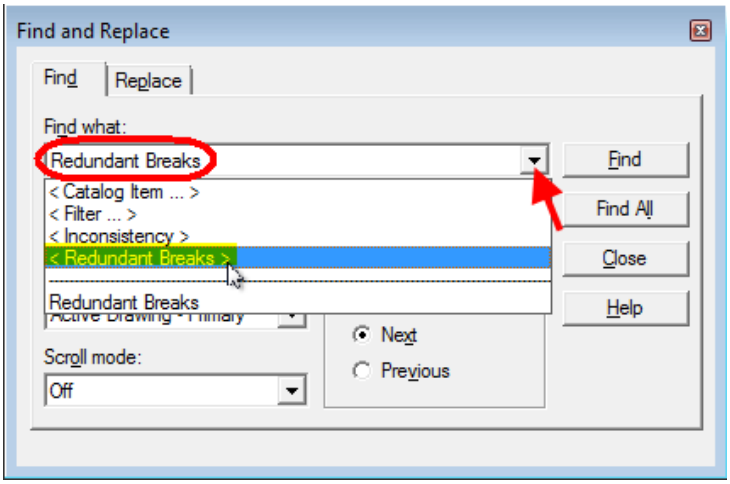
2. Under Plant_2014DeltaTRN node, select Area 1\Unit 1, then **File> New Drawing…** or select right-mouse-click > **New Drawing…** command.

3. On the **New Drawing** dialog box, select **Document Type** *P&IDs*, and type Drawing Number Redundant_001, Name Redundant_001, (tab out grid after input), and then click **OK**.

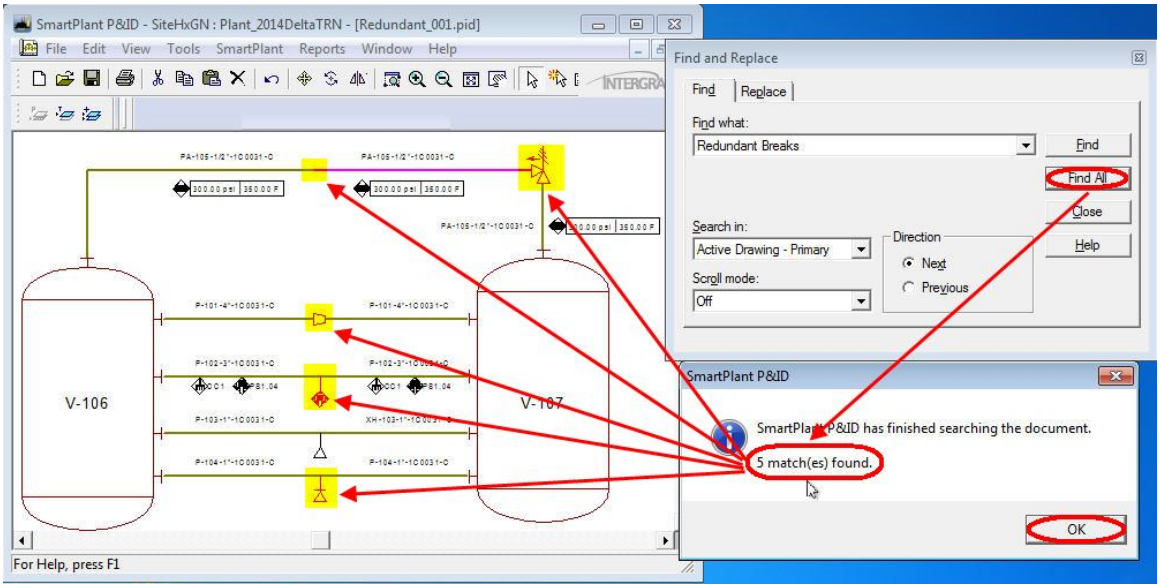
4. Double click the newly created drawing Redundant_001 to open.

5. When Redundant_001 is opened, place assembly Redundant.pid from Catalog Explorer, *\Symbols\Assemblies\Redundant.pid* onto the drawing. Click OK on Assembly placement confirmation dialog.

6. Locate **Find Redundant Breaks** feature in P&ID. Click **View > Find Redundant Breaks**, or click **Edit > Find** to launch **Find and Replace** dialog box. For **Find What**, the search criteria is set to **Redundant Breaks**. Click the dropdown list for **Find What** and review an new search criteria option <Redundant Breaks> is added in SmartPlant P&ID version 2014.

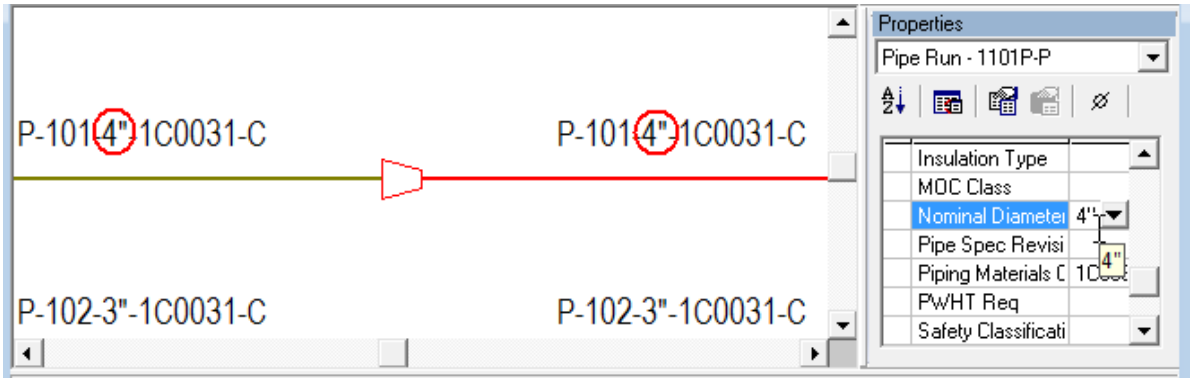


7. Click **Find All**, at prompt, a message shows totally 5 match(es) found on the drawing Redundant_001. Click **OK** to close the message box and notice those redundant breaks are highlighted in the drawing.

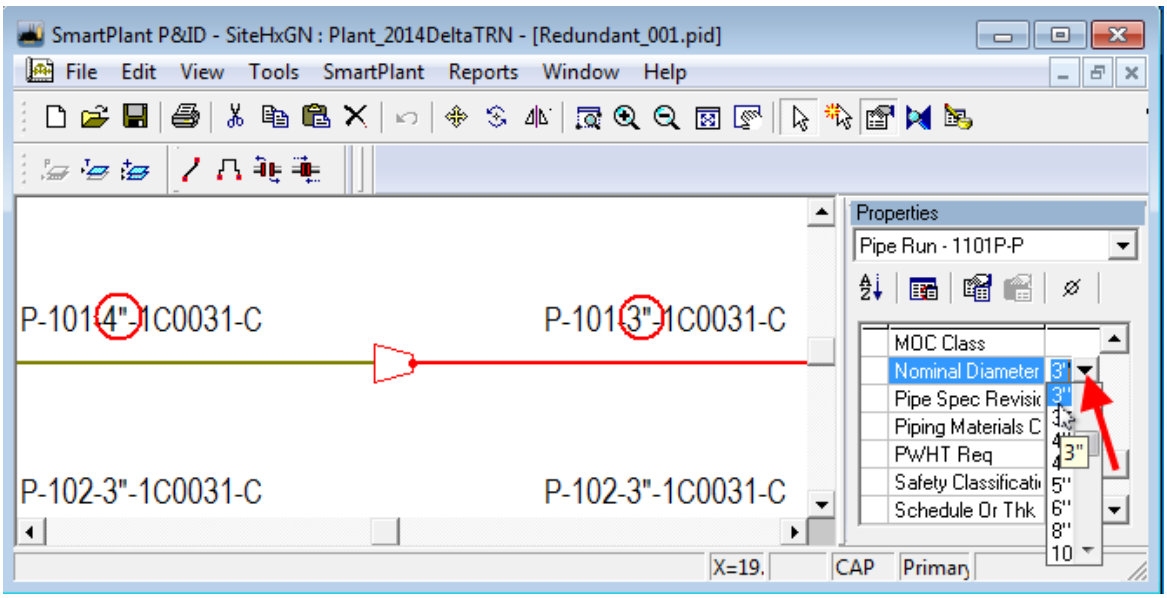


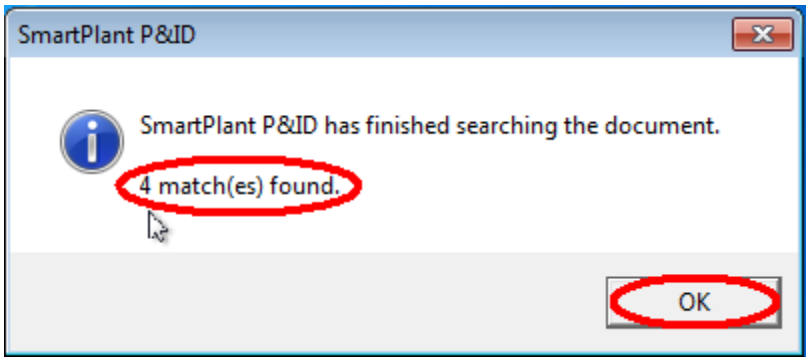
8. Review and resolve the redundant break component on Pipe run with **Tag Seq No** 101 and **Item Tag** 1101P-P.

    a. Because the **Nominal Diameter** on both side of the reducer is the same (4”), the reducer is now a redundant break component. Click **View** > **Find Redundant Breaks** to launch the **Find and Replace** dialog box, then click **Find** until the reducer is highlight as a redundant break component.



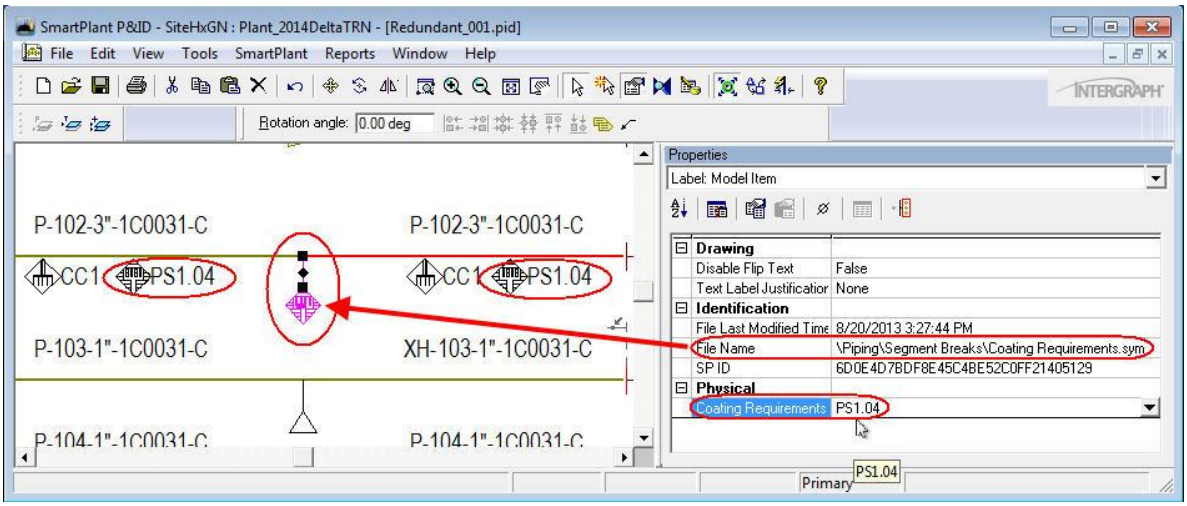
    b. Select the piping segment on the right side of the reducer and pick up 3” from the NPD dropdown list, then click **File > Save**. This change will make the break property NPD consistent on both sides of the reducer hence it is no longer a redundant break component. Click **Find** to move to each redundant break, the reducer is not highlight in turn. If click **Find All**, the match(es) found on the redundant breaks are reduced to 4.



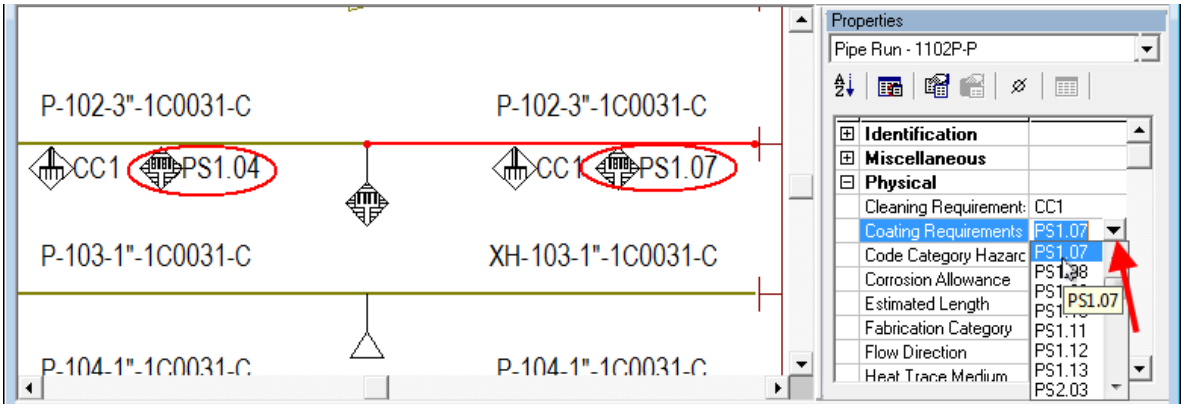


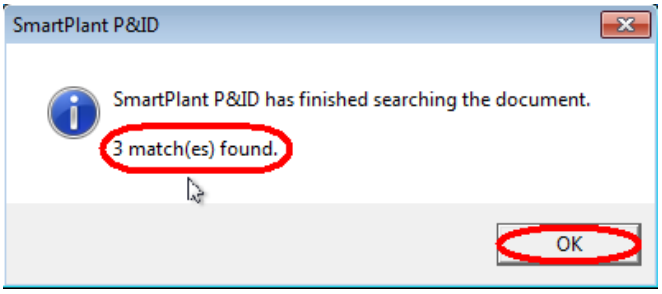
9. Review and resolve the redundant break on Pipe run with **Tag Seq No** 102 and **Item Tag** 1102P-P.

    a. The attribute break label 'Coating Requirements.sym' indicates a value change for the property **Coating Requirements** at the connection point. In this configuration, the **Coating Requirements** on both side of the connection point is the same (PS1.04), making the attribute break label 'Coating Requirements.sym' a redundant attribute break. Click **View** > **Find Redundant Breaks** to launch the **Find and Replace** dialog box, then click **Find** until the label 'Coating Requirements.sym' is highlight as a redundant attribute break.



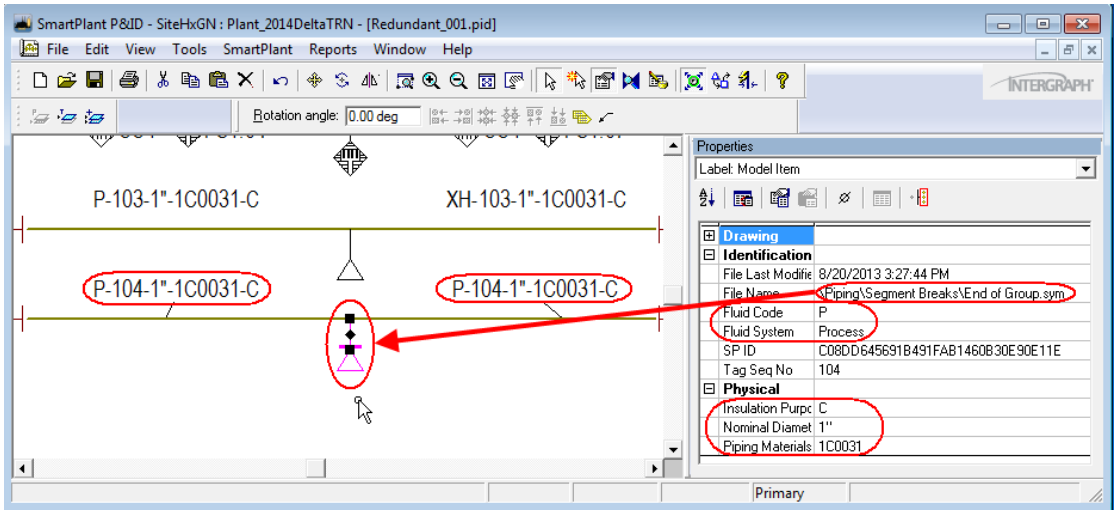
    b. Select the piping segment on the right side of the connection point and pick up a different value (PS1.07) for **Coating Requirements**, then click **File > Save**. This change will make the break attribute **Coating Requirements** consistent on both sides; hence the attribute break label 'Coating Requirements.sym' is no longer a redundant attribute break. Click **Find** to move to each redundant break, that label 'Coating Requirements.sym' is not highlight in turn. If click **Find All**, the match(es) found on the redundant breaks are reduced to 3.



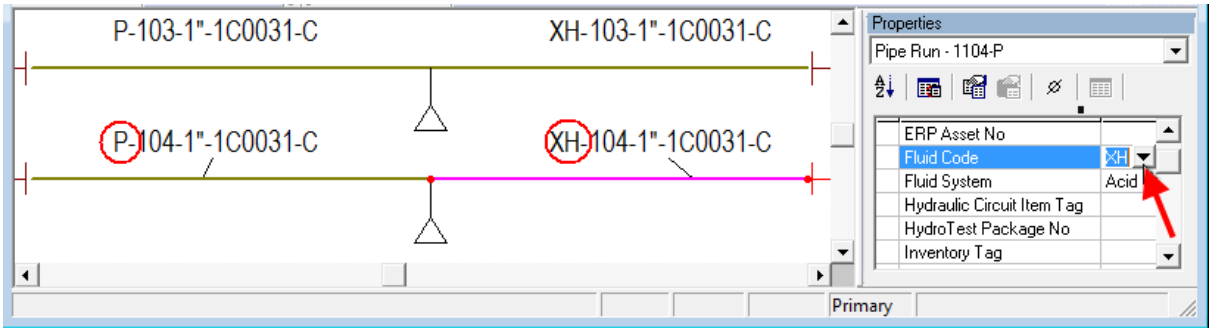


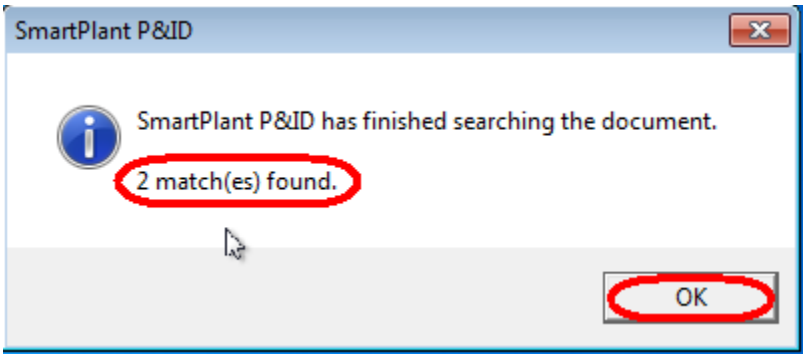
10. Review and resolve the redundant break on Pipe run with **Tag Seq No** 104 and **Item Tag** 1104P-P.

    a. All the values of the break attributes in the break label 'End of Group.sym' are the same on both sides of the connection point, making this break label a redundant attribute break. Click **View** > **Find Redundant Breaks** to launch the **Find and Replace** dialog box, then click **Find** until the label 'End of Group.sym' is highlight as a redundant attribute break.



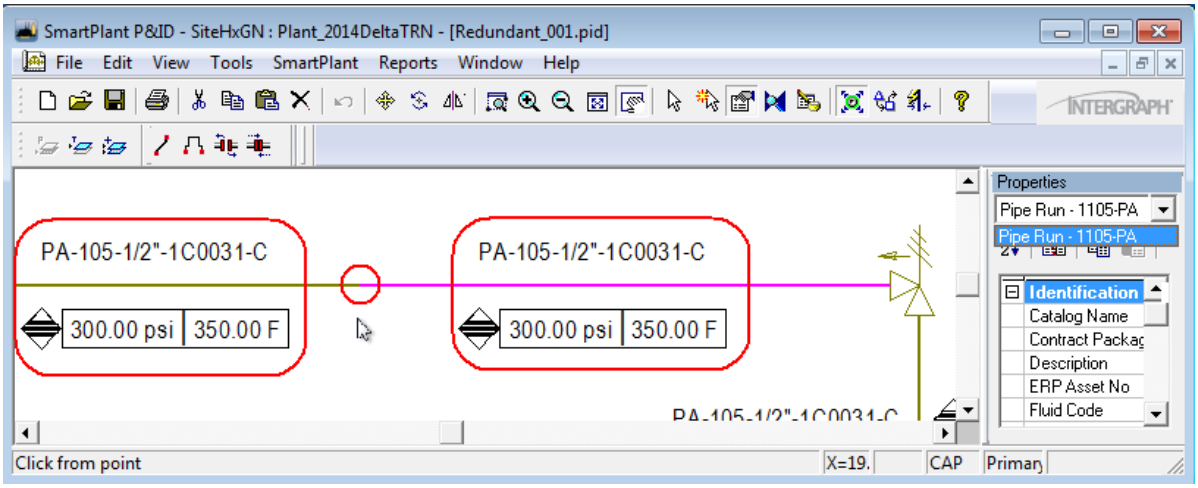
b. To make data on both sides of break consistent, change at least one of values of the break attributes on one side of the connection point. The break attributes in break label 'End of Group.sym' are **Fluid Code**, **Fluid System**, **Insulation Purpose**, **Norminal Diameter**, and **Piping Material Class**. Select the piping segment on the right side of the connection point and pick up a different value (select Acid for **Fluid System** then select XH for **Fluid System**) for **Fluid Code**, then click **File > Save**. This change will make the break attributes consistent on both sides; hence the attribute break label 'End of Group.sym' is no longer a redundant attribute break. Click **Find** to move to each redundant break, that label 'Coating Requirements.sym' is not highlight in turn. If click **Find All**, the match(es) found on redundant breaks are reduced to 2.



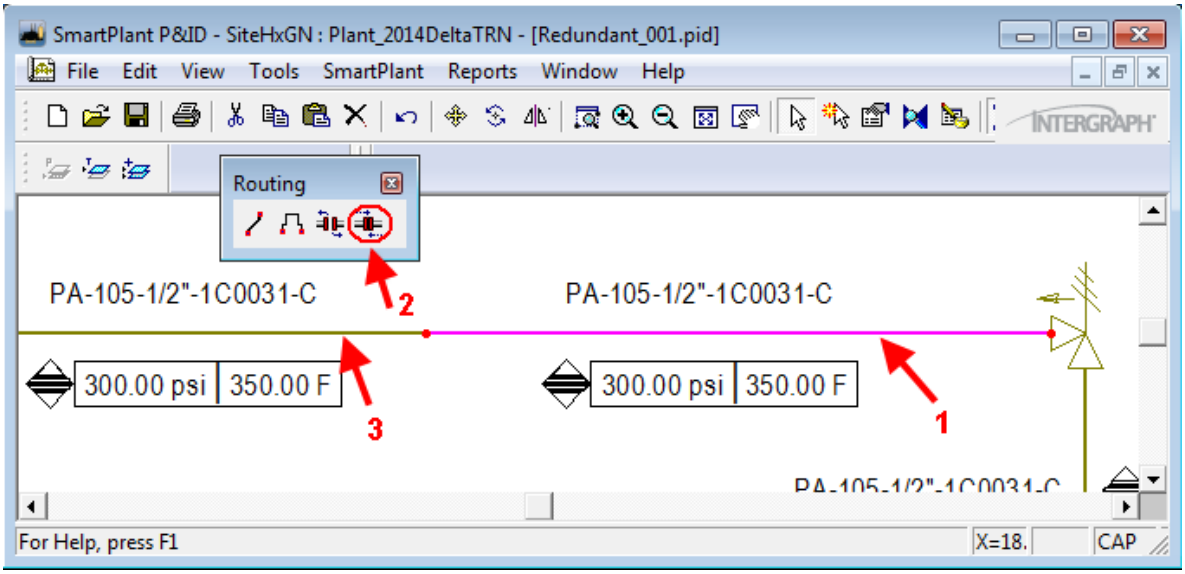


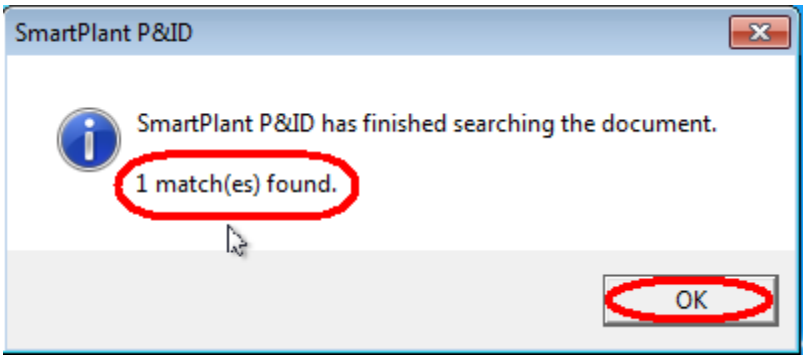
11. Review and resolve the redundant break on Pipe run with **Tag Seq No** 105 and **Item Tag** 1105P-P.

a. If every not-null attribute has the same value on both sides of the connection point, the broken pipe run is a redundant break. Click **View** > **Find Redundant Breaks** to launch the **Find and Replace** dialog box, then click **Find** until broken run is highlight as a redundant break.



b. In order to make data consistent on both sides of break point, select the piping segment on the right side of the breaking point, click Join Runs, then select the piping segment on the left side of the breaking point, then click **File > Save**. The rejoin of the broken runs will make the attributes consistent. As the result attribute break has been removed. Click **Find** to move to each redundant break, that label 'Coating Requirements.sym' is not highlight in turn. If click **Find All**, the match(es) found on redundant breaks are reduced to 1.



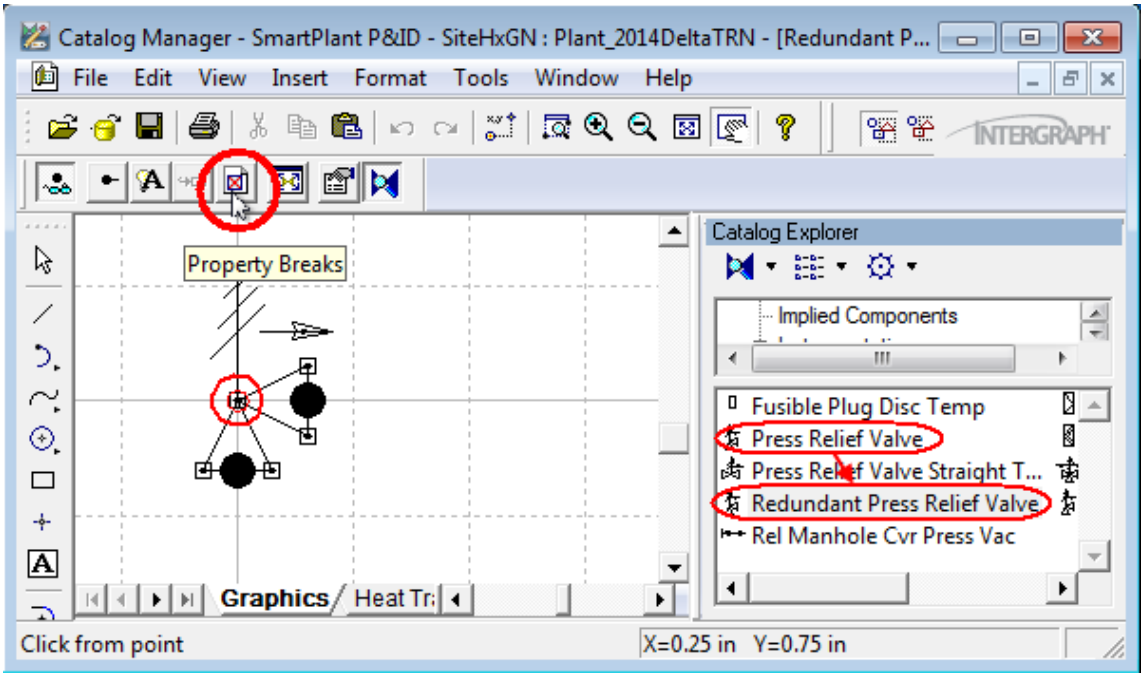


12. Review and resolve the customized redundant break component on Pipe run with **Tag Seq No** 105 and **Item Tag** 1105P-P.

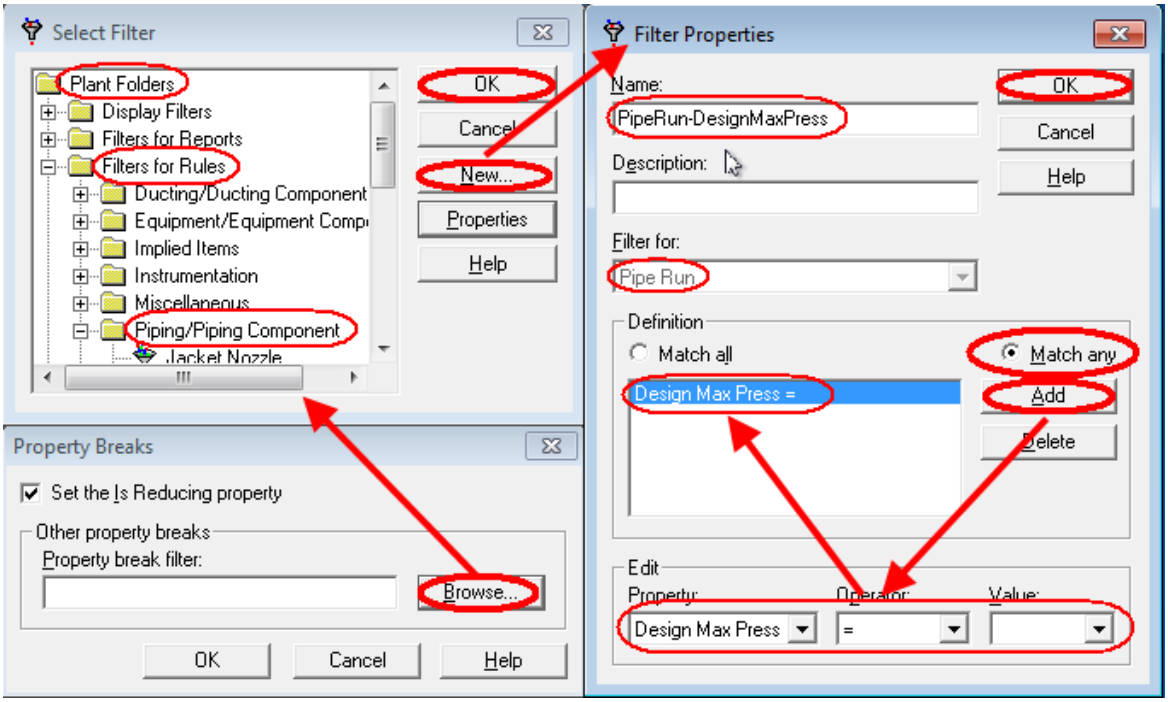
    a. The customized break component '\Symbols\Piping\Relief Devices\Redundant Press Relief Valve.sym' also behaves as a reducer. To create such a symbol:

    - In Catalog Manager, make a clone of the symbol '\Symbols\Piping\Relief Devices\Press Relief Valve.sym', then change the clone's name to 'Redundant Press Relief Valve.sym'.

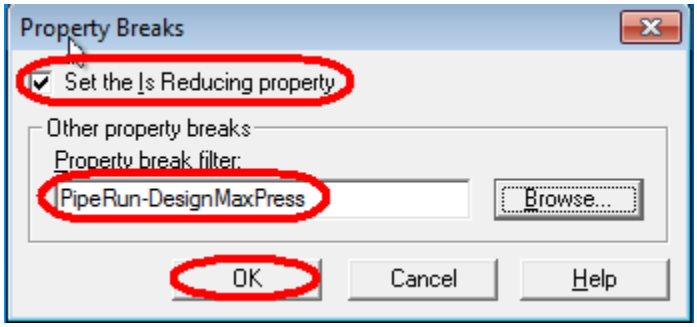
    - Double click 'Redundant Press Relief Valve.sym' to open the symbol, then click **Properties Breaks** to launch the **Property Breaks** dialog box.



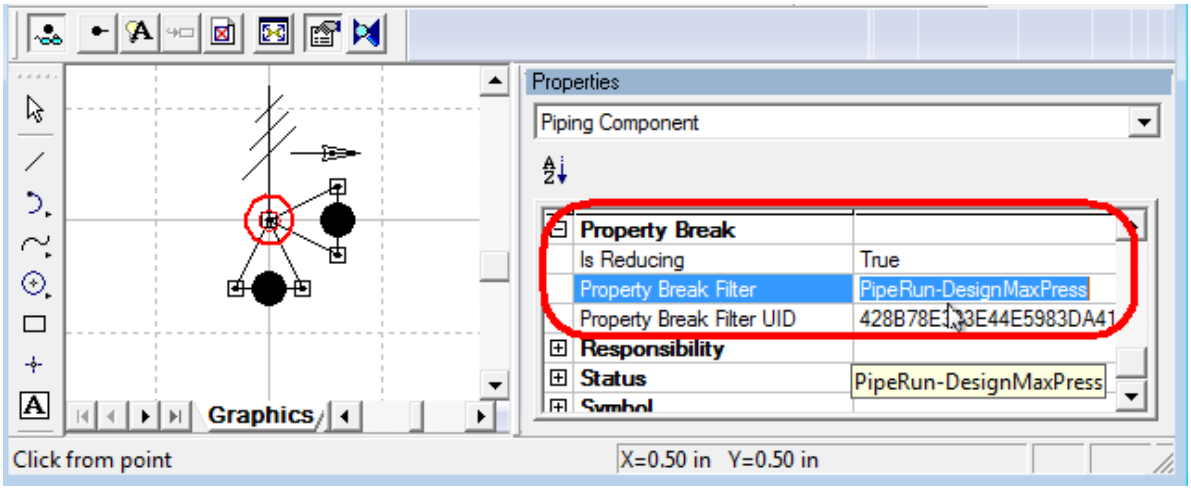
- Click **Browse** to launch **Select Filter** dialog box, navigate to Plant Folders > Filters for Rules > Piping/Piping Component, and then click **New** to add a Simplefilter 'PipeRun-DesignMaxPress'.



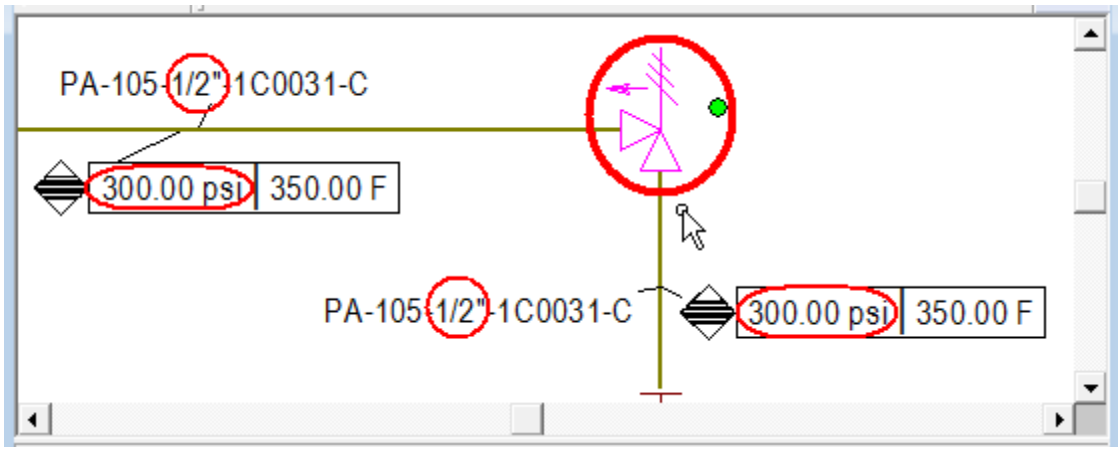
- Click **OK** on **Filter Properties** dialog Box > click **OK** on **Select Filter** dialog box > check the option for 'Set the Is Reducing property' and make sure 'PipeRun-DesignMaxPress' is listed for 'Property break filter', then click OK.



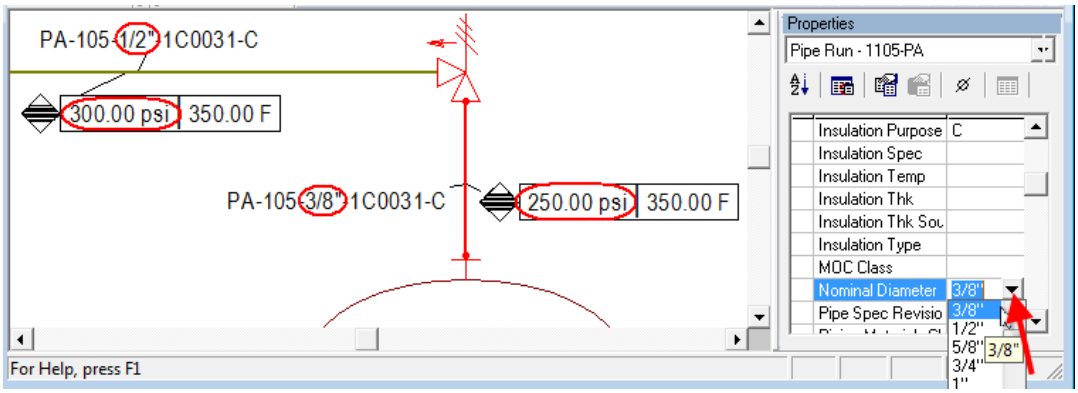
- Now the customized symbol 'Redundant Press Relief Valve.sym' is both a break component and a reducer.

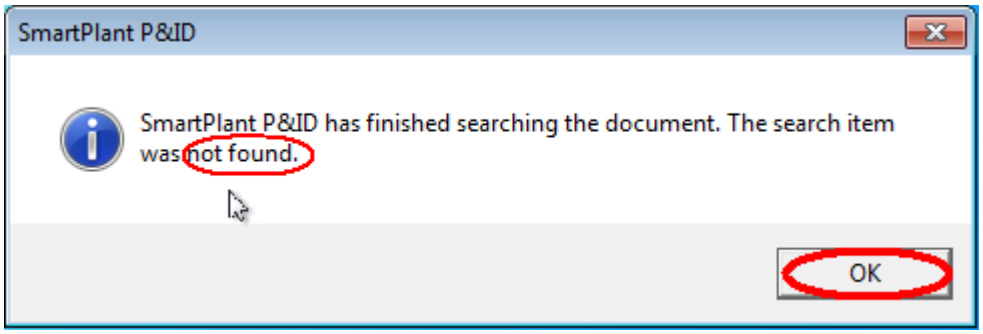


- Both **Design Max Press** and **Nominal Diameter** keep the same on both sides of the component, making it a redundant break component and a redundant attribute break at the same time. However when run **Find All** to search redundant breaks, it is only counted once as a redundant break. Click **View** > **Find Redundant Breaks** to launch the **Find and Replace** dialog box, then click **Find** until 'Redundant Press Relief Valve.sym' is highlight as a redundant break.



b. To make data consistent on both sets of properties, select the piping segment connected to the vertical end of the 'Redundant Press Relief Valve.sym', change the **Design Max Press** to 250 psi (if now run **Find**, this component is still highlighted as a redundant attribute break); then pick up 3/8" as the NPD and click **File > Save**. Now both sets of properties have different values on two ends of the component, making it no longer a redundant break component, nor a redundant attribute break. Click **Find** to move to each redundant break, the component 'Redundant Press Relief Valve.sym' is not highlight. If click **Find All**, the message says 'The search item was not found'.

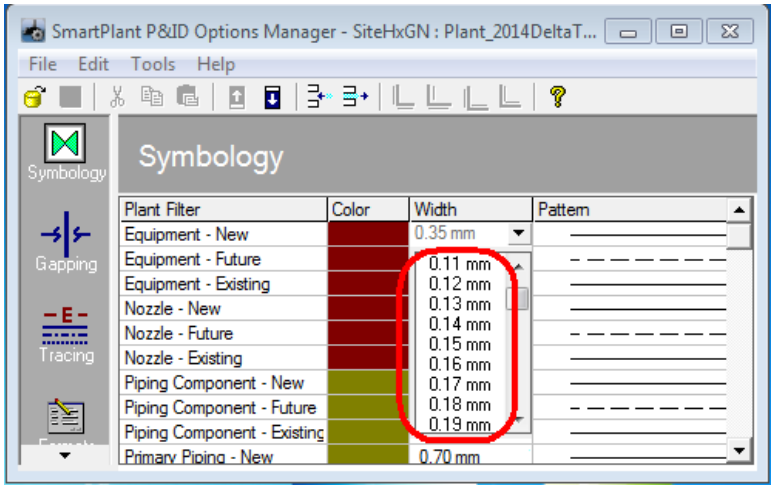

PA-105-1/2"-1C0031-C
300.00 psi
350.00 F
PA-105-3/8"-1C0031-C
250.00 psi
350.00 F
Properties
Pipe Run - 1105-PA
Insulation Purpose
Insulation Spec
Insulation Temp
Insulation Thk
Insulation Thk Sou
Insulation Type
MOC Class
Nominal Diameter
Pipe Spec Revisio
3/8"
1/2"
5/8"
3/4"
1"
For Help, press F1


SmartPlant P&ID
SmartPlant P&ID has finished searching the document. The search item was not found.
OK

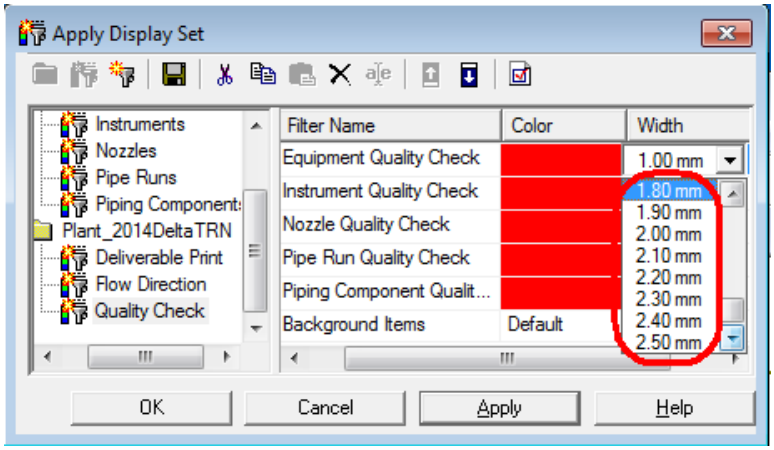
SP P&ID: Additional line widths

In SmartPlant P&ID version 2014, several additional line widths (in mm) are available for specifying symbol representations in the Options Manager Symbology settings and in SmartPlant P&ID when specifying line thicknesses for display sets.

1. Additional line widths are added as following:
   - 0.05 mm
   - 0.10 mm
   - 0.11 mm…0.19 mm (0.01 mm increments)
   - 0.20 mm…0.95 mm (0.05 mm increments)
   - 1.00 mm…2.50 mm (0.10 mm increments)
2. Additional line widths for symbol representations in the Options Manager Symbology settings.



3. Additional line widths for display sets.



SP P&ID: Label line widths for display sets

In SmartPlant P&ID version 2014, when specifying line widths for display sets, a setting in the SmartPlantPID.ini file can be used to ensure that label graphics and leader lines appear in the default width of the labels regardless of the line width value specified for model items. To implement this behavior, the following line must be added under the 'Options' section:

…
IgnoreDisplaySetWidthOnLabels=1
…

This behavior occurs for the following actions:

- Applying a display set.
- Printing a drawing when a display set is applied.

1. When specifying line widths for display sets, you can set label graphics and leader lines to appear in the default width of the labels regardless of the line width value specified for model items. This option is specified by using a key 'IgnoreDisplaySetWidthOnLabels' under the 'Options' section of the SmartPlantPID.ini file (located in the users\<username> folder) as shown:

   [options]

   WaterMarkWhileWorking=True

   WaterMarkWhilePrinting=True

   undosteps=0

   autogapping=False

   ConsistencyChecks=True

   .

   .

   .

   IgnoreDisplaySetWidthOnLabels=1

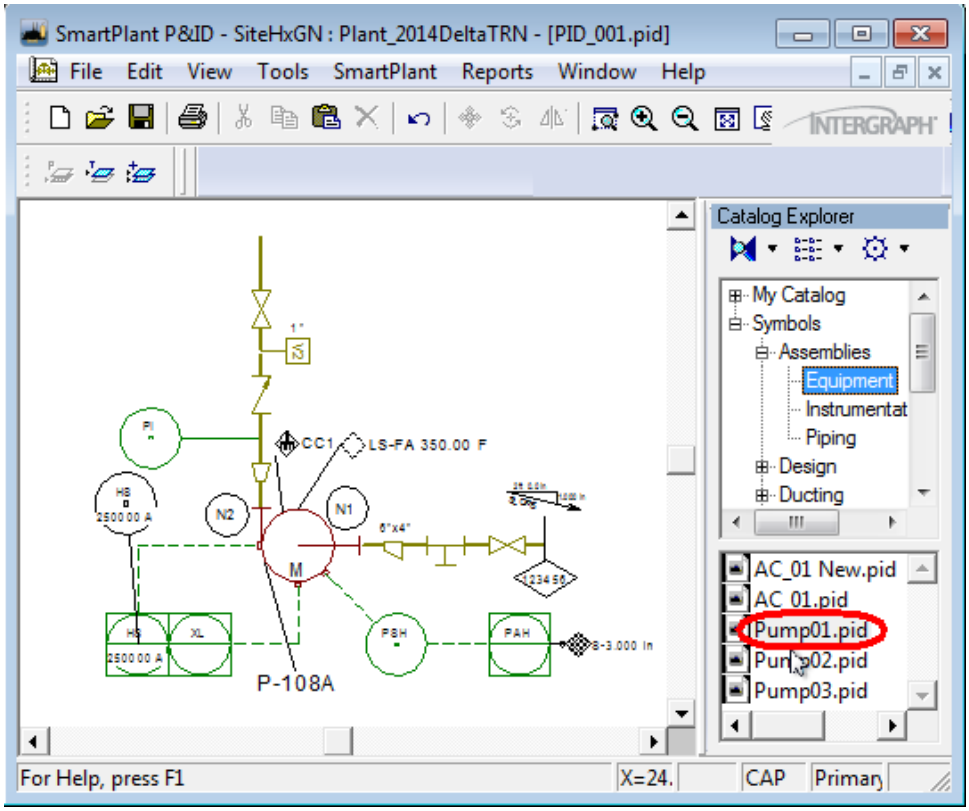
The following table shows how the values assigned in the SmartPlantPID.ini file affect the output.

Key Value	Resultant Behavior when Applying Display Set
IgnoreDisplaySetWidthOnLabels=1	Label line widths are independent of model item line widths; label line widths are set to default value for labels. Label line widths are independent of model item line widths; line widths of label graphics and leader lines are set to the default value for labels.
IgnoreDisplaySetWidthOnLabels=0	Label line widths, including graphics and leader lines, are the same as the model item line widths.
No key	Label line widths, including graphics and leader lines, are the same as the model item line widths.

Activity 6

This activity demonstrates how to ensure that label graphics and leader lines appear in the default width of the labels regardless of the line width value specified for model items in display sets.

4. In drawing Manager, click **Plant_2014DeltaTRN** > **Area 1** > **Unit 1**.
5. Double click the drawing PID_001 to open it in P&ID.
6. Place the assembly **Symbols > Assemblies > Equipment > Pump01.pid** onto the drawing.



7. Place the following labels:
   - For the Horizontal centrifugal pump ‘P-108A’

     \Equipment\Labels - Equipment\Equipment ID.sym

     \Equipment\Labels - Equipment\Cleaning Req.sym

     \Equipment\Labels - Equipment\Heat Tracing.sym
   - For the DCS function ‘HS-250000A’

     \Instrumentation\Labels - General Instrument\Tag Number with Balloon.sym

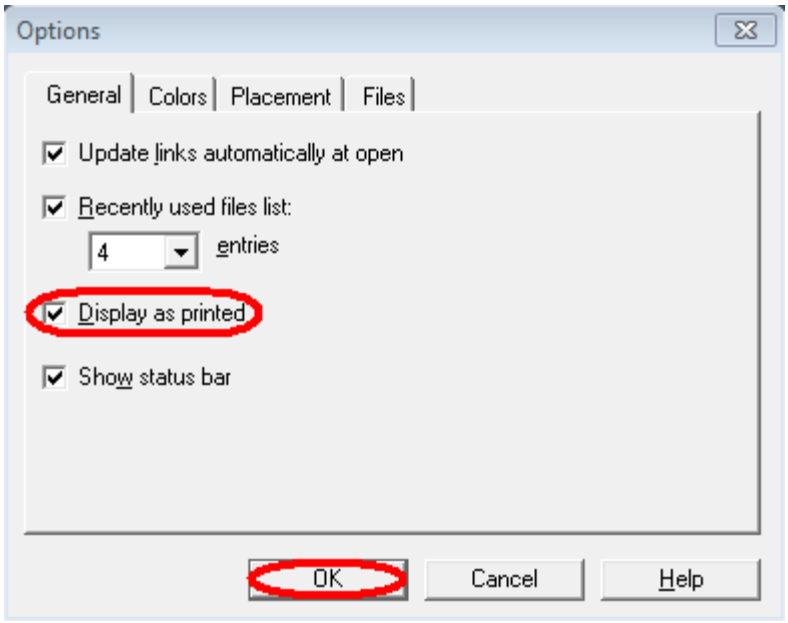
- For the DCS function ‘PAH-200000’

  \Instrumentation\Labels - Off Line Instruments\Insulation Req (Offline).sym
- For pipe Run ‘1250-XH’

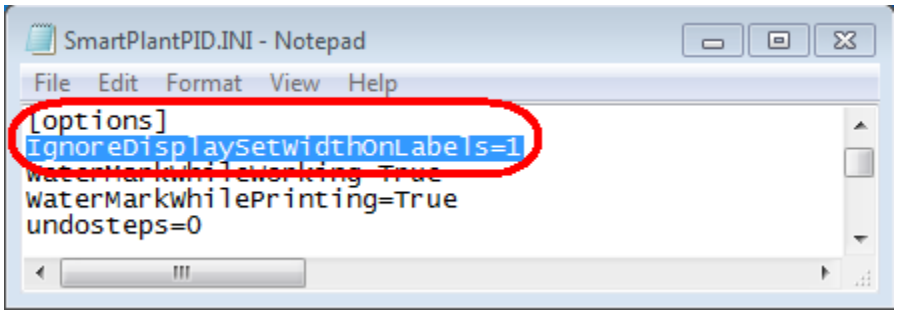
  \Piping\Labels - Piping Segments\Slope Dnwrd (Rise & Run).sym

  \Piping\Labels - Piping Segments\Stream Number.sym

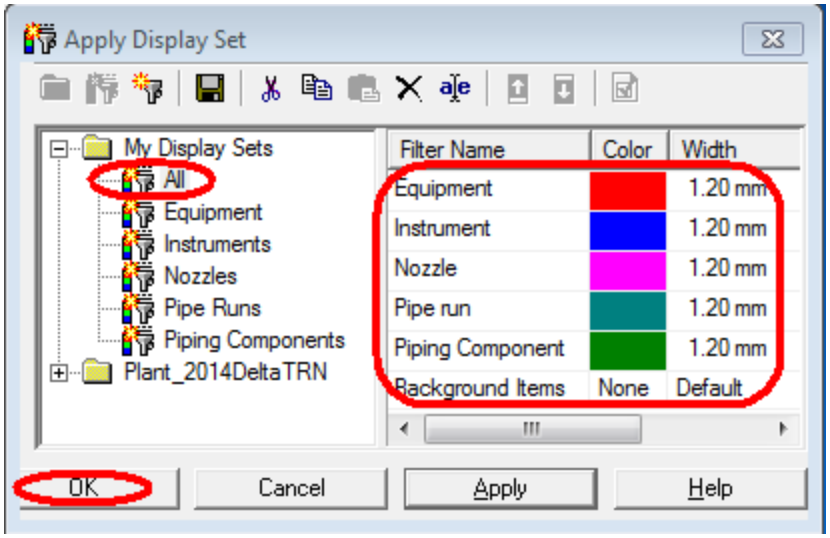
8. Click **Tools > Options,** select check box **Display as printed,** and then click **OK**



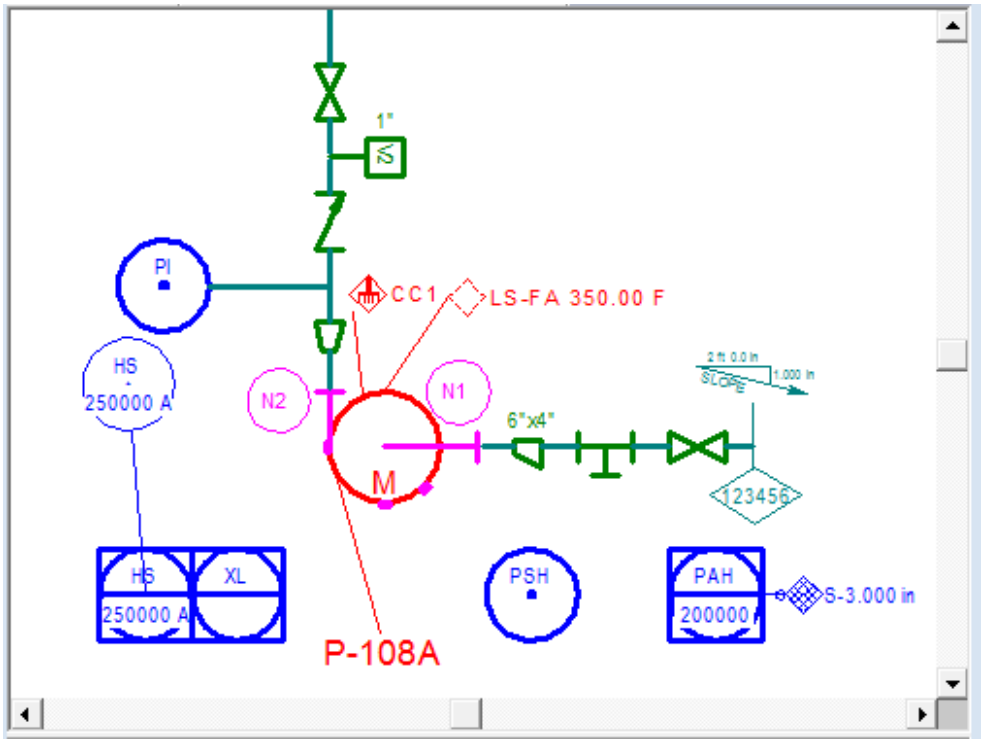
9. Open SmartPlantPID.ini file (located in the users\<username> folder), add the following line under the 'Options' section. Click **File** > **Save**, and then close the file.



10. Click **View > Apply Display Set….** On **Apply Display Set** dialog box, add a display set **All** under the folder **My Display Sets.** Then add filters with **Color** and **Width** shown as below for model items. Click **OK** to save the changes.



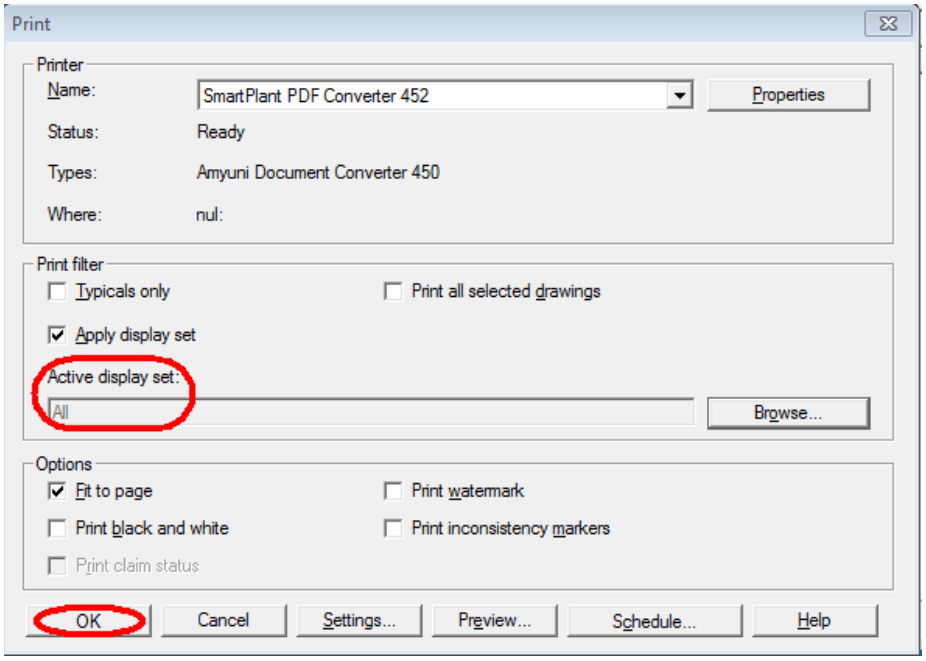
11. In P&ID, click **View > Apply Display Set.** Then select the display set **All** and click **Apply.** Review that label graphics and leader lines appear in the default width of the labels regardless of the line width value specified in the display set **All** for model items.

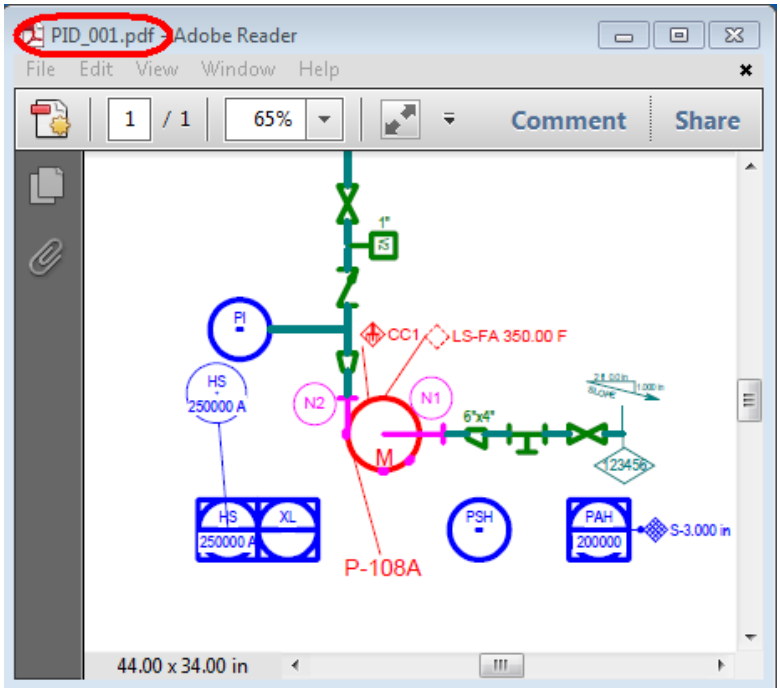


12. Select the drawing PID_001 in Drawing Manager, click **File > Print...** On **Print** box, select printer 'SmartPlant PFD Converter 452'. Then select check box **Apply display set** and click **Browse…** to select the display set **All** (under the folder **My Display Sets** on the **Apply Display**

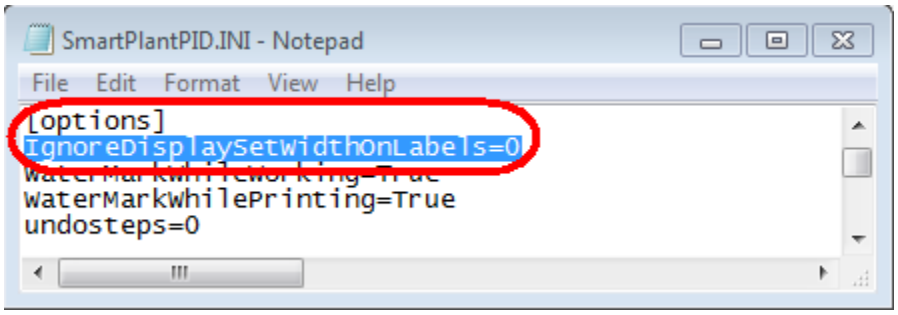
Set dialog box) as the **Active display set.** Clear check boxes for **Typicals only**, **Print all selected drawings**, and the option **Print black and white**.

- Review that label graphics and leader lines appear in the default width of the labels regardless of the line width value specified in the display set **All** for model items.

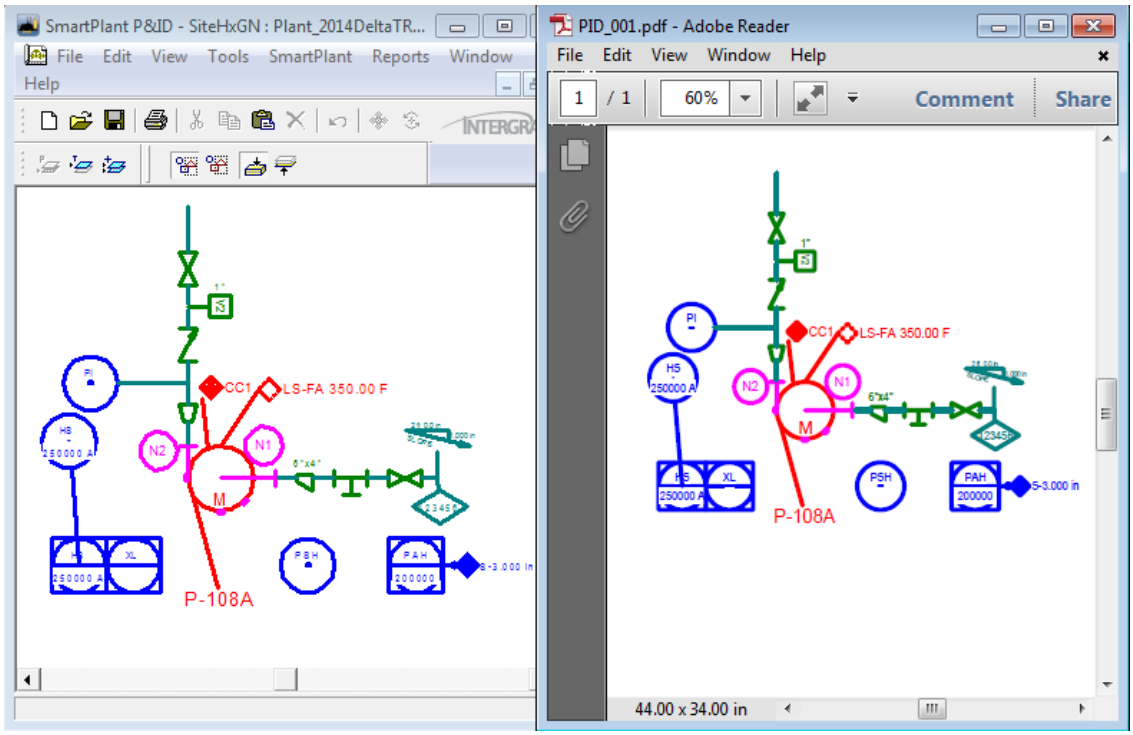




13. Open SmartPlantPID.ini file (located in the users\<username> folder), remove the line IgnoreDisplaySetWidthOnLabels from 'options' or set it to 0. Click **File > Save**, and then close the file.



14. Re-apply the display set All in P&ID, or print from Drawing Manager. Now Label line widths, including graphics and leader lines, are the same as the model item line widths specified in the display set **All** for model items.



SP P&ID: Format as Entered

In SmartPlant P&ID version 2014, users can now specify that the units of measure entered for the labeled item in the **Properties window** or the **Engineering Data Editor** are used in the label. The behavior is specified by the format chosen for the label's **Smart Text** in Catalog Manager.

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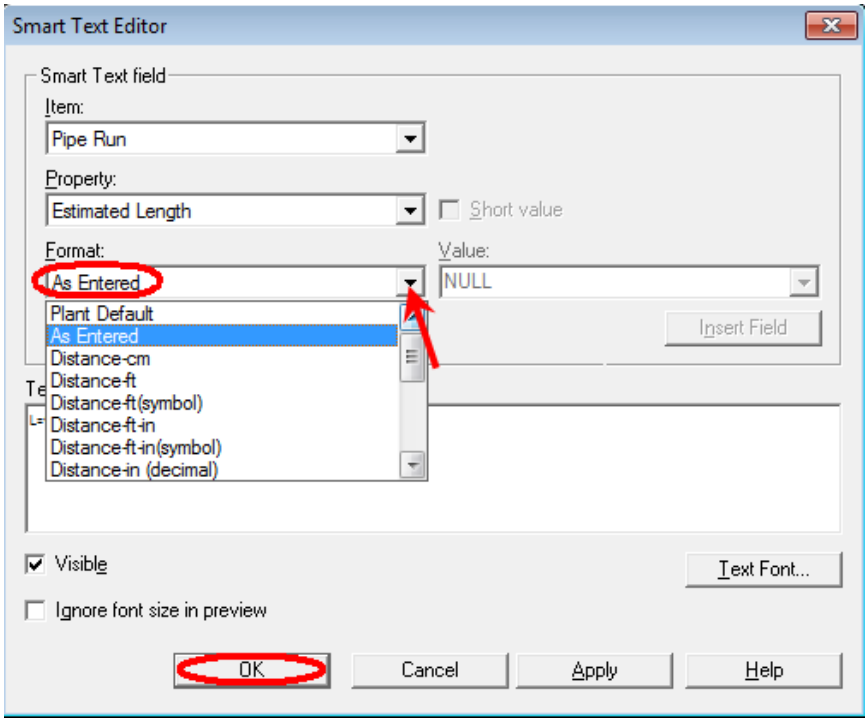
1. In Catalog Manager, open a label that displays a formatted attribute.
2. On the **View** window, click the **Label** tab.
3. Select Text Box and then click **Smart Text** command to launch the **Smart Text Editor** dialog box**.**
4. On the **Format** box, select **As Entered** as the format if you want the data to be displayed in the exact value precision (decimals) and in whatever units (UOM) it was entered with.

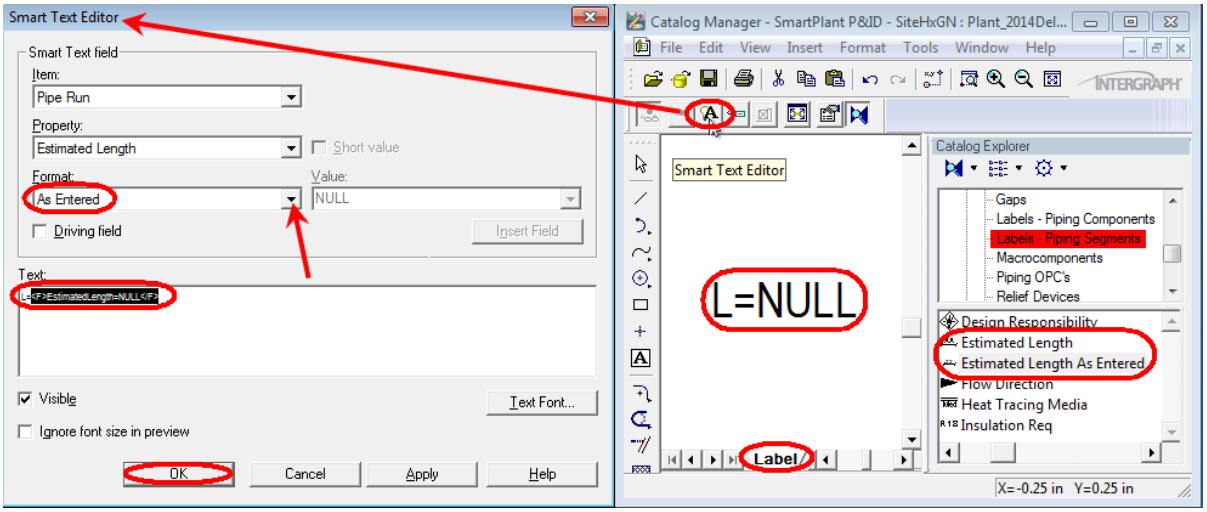


5. Click **OK** in **Smart Text Editor** dialog box, then click **File** > **Save.**
6. It is now possible to specify that the units of measure entered for the relevant item in the Properties window or the Engineering Data Editor are used in the label.

Activity 7

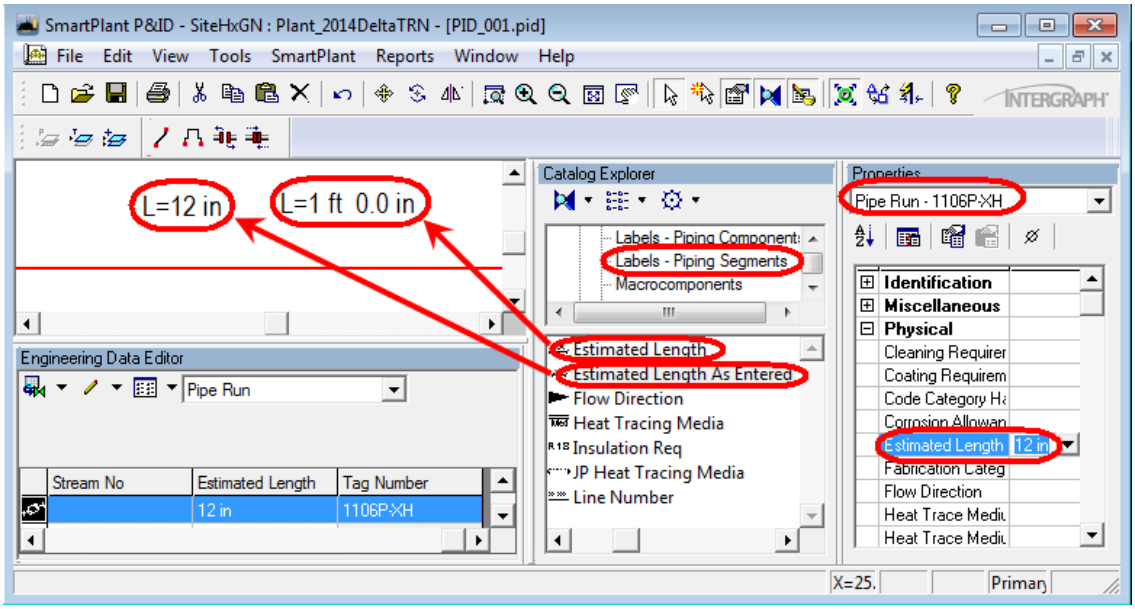
This activity demonstrates the behavior of the format **As Entered** chosen for the label's Smart Text in Catalog Manager. Label field using As Entered format will display the same value (numerical value and UoM string) as seen in SmartPlant P&ID's Property window or EDE for that labeled property.

1. Open Catalog Manager, navigate to **Symbols > Piping > Labels – Piping Segments**. Right click the label 'Estimated Length' and click **Clone.** Then right click the clone of the label 'Estimated Length' and click **Rename** to change the name to 'Estimated Length As Entered'.
2. Double click the label 'Estimated Length As Entered' to open it.
3. On the **View** window, click the **Label** tab.
4. Select Text Box 'L=NULL' and then click **Smart Text** command to launch the **Smart Text Editor** dialog box**.**
5. Highlight Text '<F>EstimatedLength=NULL</F>'. Click the dropdown list of the **Format** box, select **As Entered** as the format to specify the data to be displayed in the exact value precision (decimals) and in whatever units (UOM) it was entered with.



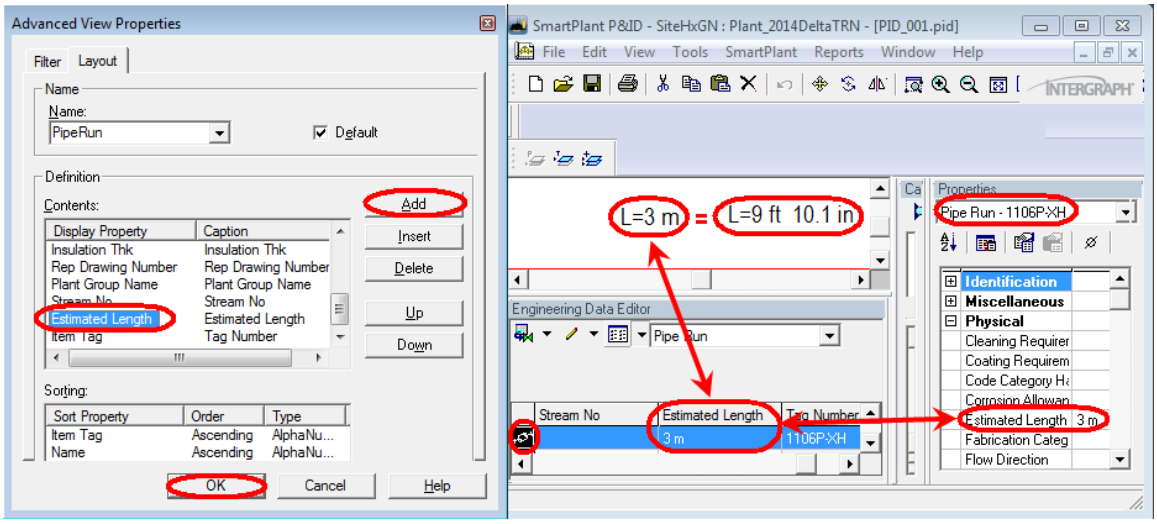
6. Open the drawing PID_001 under Plant_2014Delta TRN > Area 1 > Unit 1. Route a pipe run, then generate an Item Tag for it, i.e. 1106P-XH.
7. Place labels 'Estimated Length' (on the right) and 'Estimated Length As Entered' (on the left) on the pipe run '1106P-XH'.
8. In **Properties** window, key in '12 in' for the property **Estimated Length**, then click **File > Save.** The label 'Estimated Length As Entered' (on the left) dis plays the value '12' and the units of measure in' as entered, the format specified for the label's Smart Text in Catalog

Manager. The label 'Estimated Length' (on the right) displays value using the default format defined in the **Formats** in Options Manager, which is '1 ft 0.0 in' converted from '12 in'.



9. In **Engineering Data Editor**, select the Pipe Run view. Click **Edit View…> Advanced…>Layout** and add property **Estimated Length** to the **Contents** in the **Advanced View** dialog box, then clicks **OK** to save the changes to the view Pipe Run.

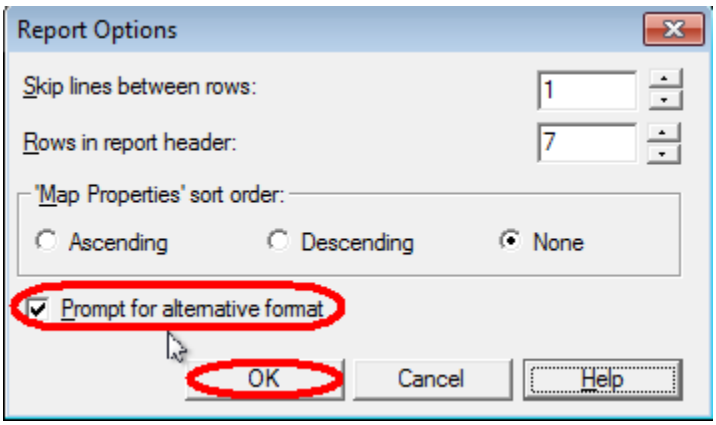
10. Click the pipe run '1106P-XH' in Engineering Data Editor, key in '3m' for **Estimated Length.** Click **File > Save** and re-select the pipe run in the drawing. The label 'Estimated Length As Entered' shows 'L=3 m' as entered, while the label 'Estimated Length' is showing 'L=9 FT 10.1 in' in default format.



SP P&ID: Report template using alternative format

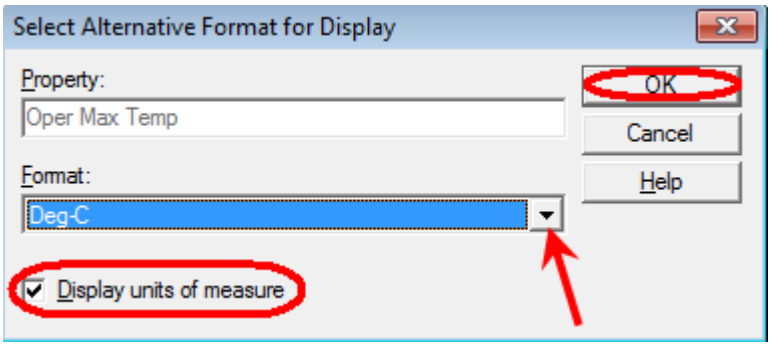
In SmartPlant P&ID version 2014, it is now possible to display the value of a property in a report using an alternative format (that can include or exclude units of measure) specified in the report template. The software converts the value that was entered in the Properties window or the Engineering Data Editor to the appropriate numerical value in the alternative format.

1. A new option **Prompt for alternative format** is added to the **Report Options** dialog box.



2. Select the check box **Prompt for alternative format** to display a prompt for an alternative format when reporting on a property that has units of measure. When cleared, the property will display using the format specified in the Properties window.

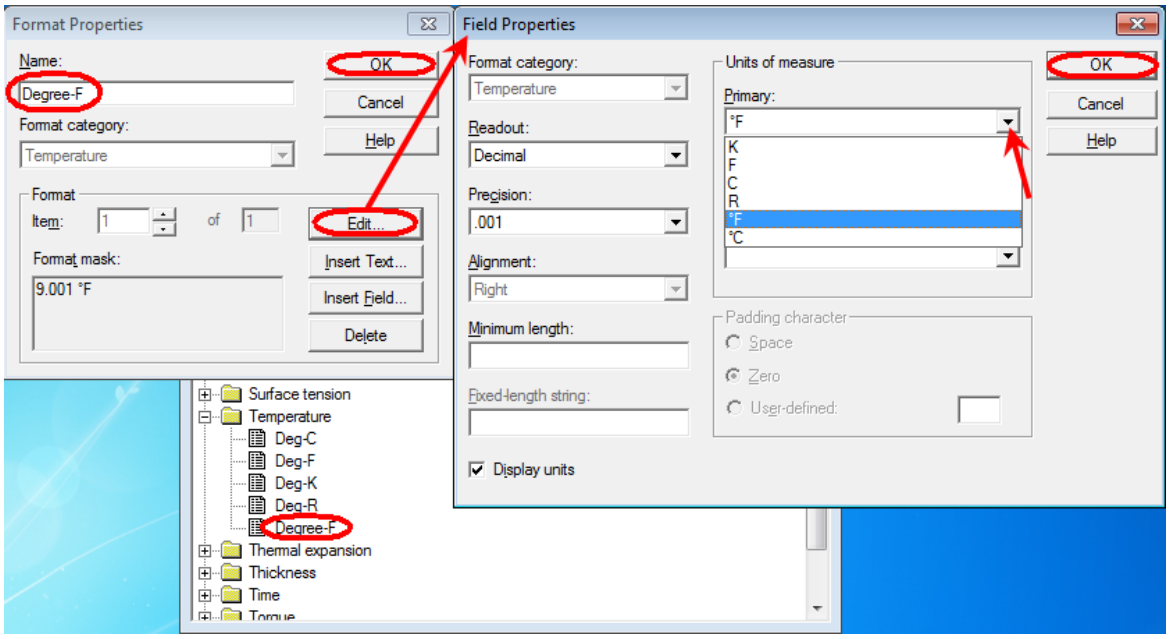
3. When select a property with units of measure, the **Select Alternative Format for Display** dialog box prompts with an option to display units of measure for a format selected. Select the check box Select this check box **Display units of measure** to display the selected units of measure in the report. Clear the check box to display the property values without units of measure.



Activity 8

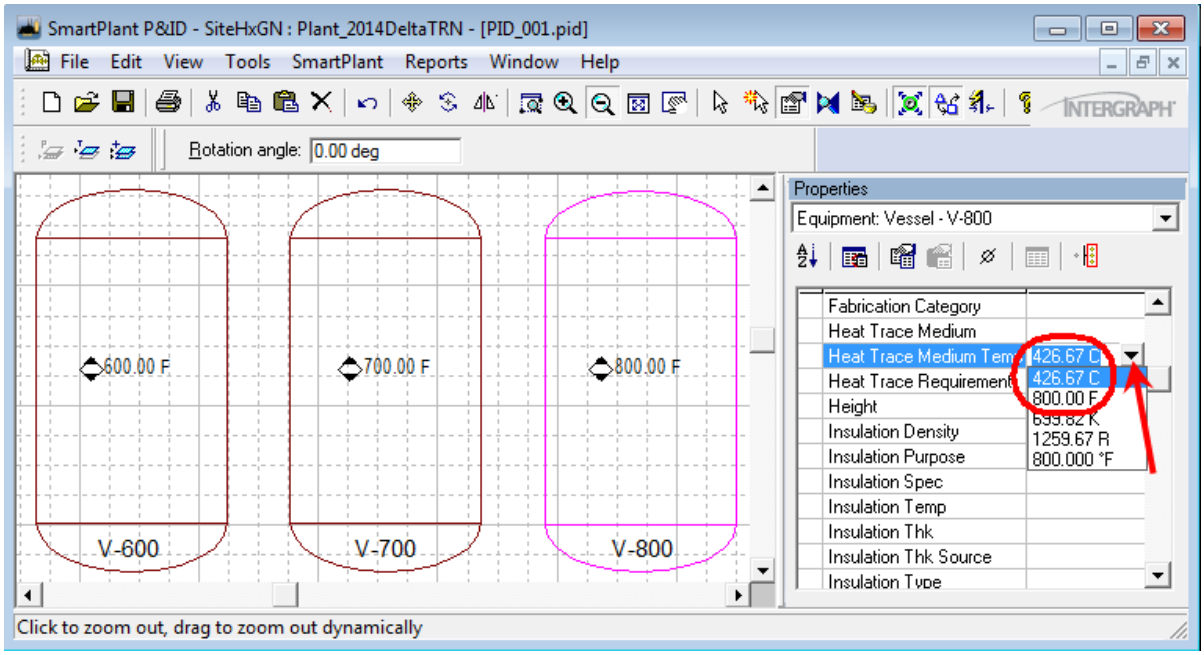
This activity demonstrates how to specify an alternative format for data columns in a report template, and how to include or exclude units of measure string for an alternative format.

1. Open Format Manager, right click **Temperature** and click **Add Format…** to launch **Format Properties** dialog box.
2. On **Format Properties** dialog box, key in **Degree-F** as the **Name.** Click **Edit** to launch **Field Properties** dialog box. Under the Primary, select °F. Click **OK** in the **Field Properties** dialog box, click **OK** on the **Format Properties** dialog box, then click **File > Save.**



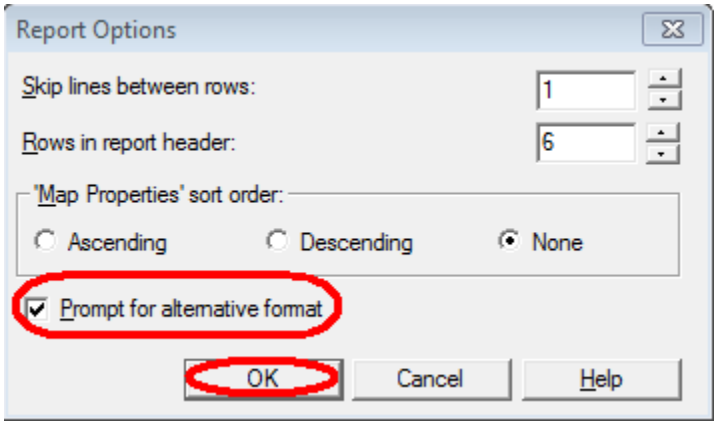
3. Open the drawing PID_001 under Plant_2014Delta TRN > Area 1 > Unit 1. Place three 'Short 1D 1C 1to1.sym' from \Equipment\Vessels\Vertical Drums, generate the Item Tag for each of them: V-600, V-700, and V 800.
4. Place the customized label \Equipment\Labels - Equipment\Heat Trace Medium Temp.sym on each equipment placed in step 3.
5. Assign value for the property **Heat Trace Medium Temp** to each equipment: 600 F to V-600, 700 F to V-700, and 800 F to V-800.
6. Select the drum V-700. In the **Properties** window, click the dropdown list aside the property **Heat Trace Medium Temp** and pick up the value for format R: 1159.67 R; which equals 700 F.

7. Select the drum V-800. In the **Properties** window, click the dropdown list aside the property **Heat Trace Medium Temp** and pick up the value for format C: 426.67 C; which equals 800 F.



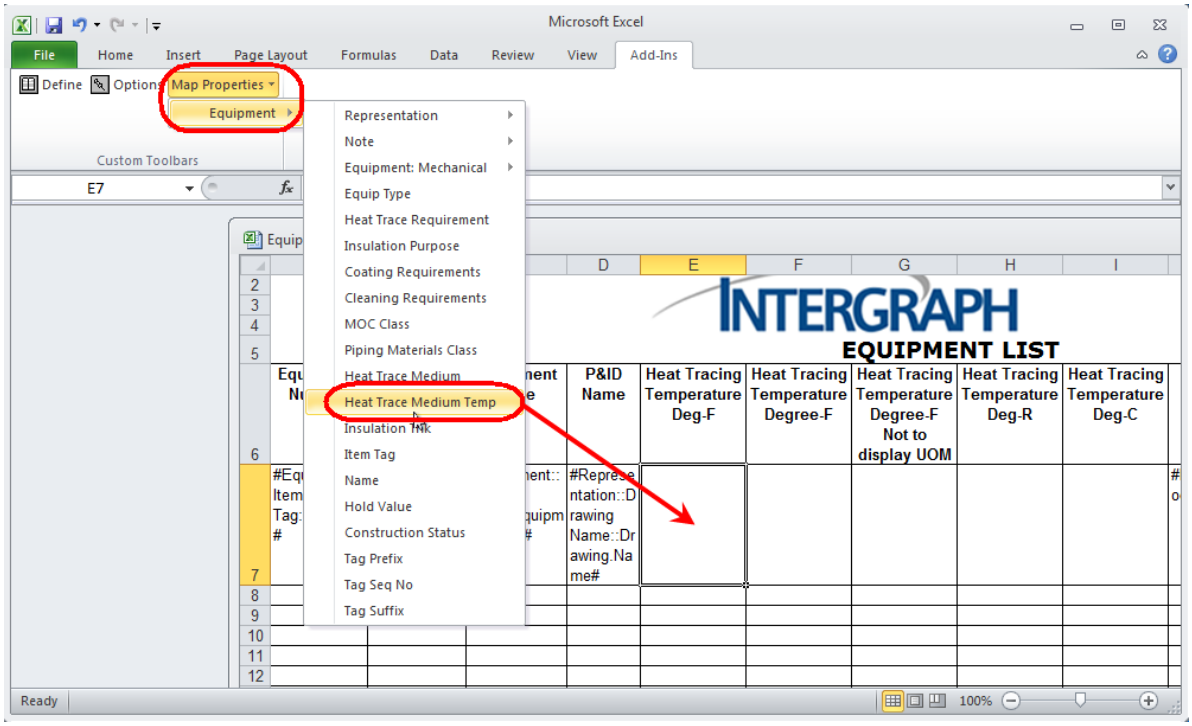
8. In P&ID click **Reports > Edit**. On the **Edit Report Template** dialog box, select the report template 'Equipment List - Alt Format.xlsm' and click **Open.**

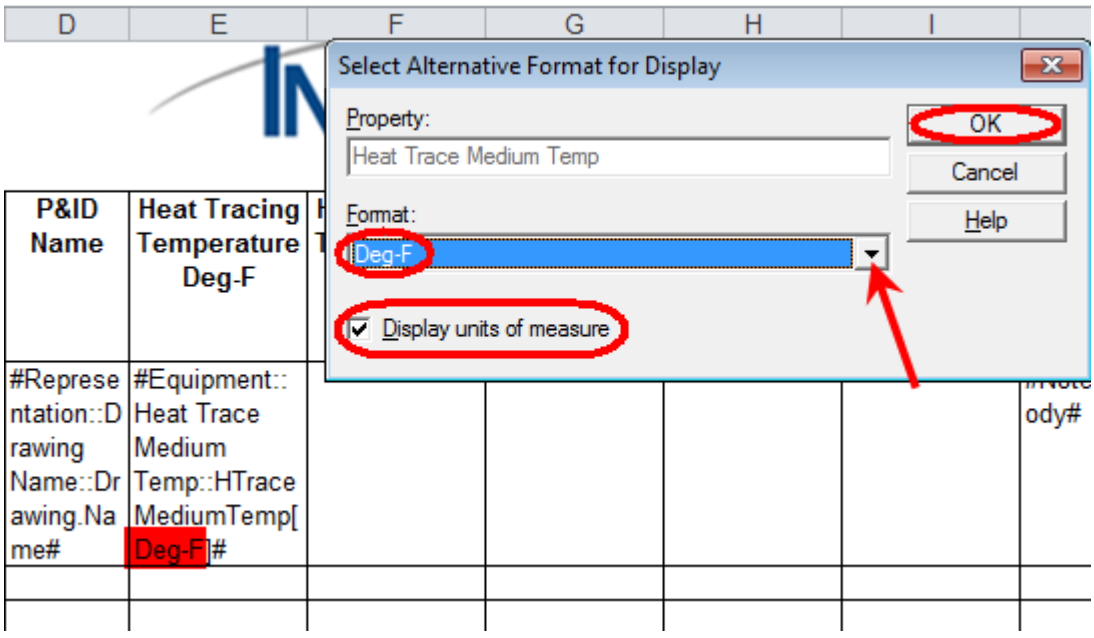
9. Click **Add-Ins > Options.** On the **Report Options** dialog box, select the check box **Prompt for the alternative format**, and then click **OK.**



10. Click the cell row 7 column E, then click **Map Properties > Equipment > Heat Trace Medium Temp**. **Select Alternative Format for Display** dialog box appears when the **Prompt for alternative format** check box was selected in the **Report Options**. Click the dropdown list for **Format** and select the default format Deg-F, specified in Options Manager; and then select

check box **Display units of measure**. Click **OK.** Notice the map property is added: #Equipment::Heat Trace Medium Temp::HTraceMediumTemp[**Deg-F**]#





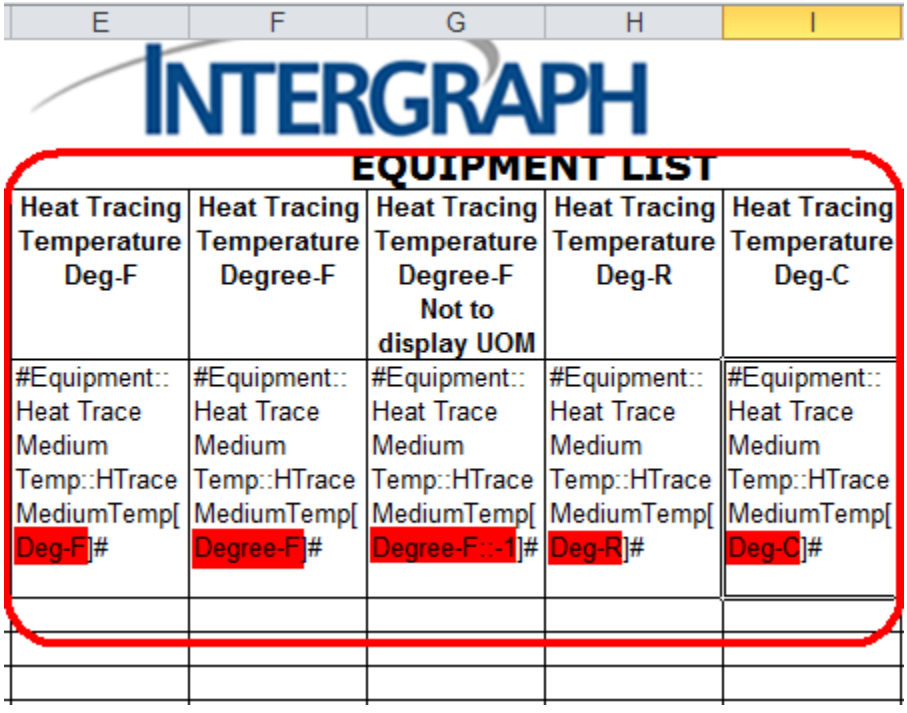
11. Click the cell row 7 column F, then click **Map Properties > Equipment > Heat Trace Medium Temp.** On **Select Alternative Format for Display** dialog box, select the customized format Degree-F and select the check box **Display units of measure**. Click **OK.** Notice the the

map property is added: #Equipment::Heat Trace Medium Temp::HTraceMediumTemp[**Degree-F**]#

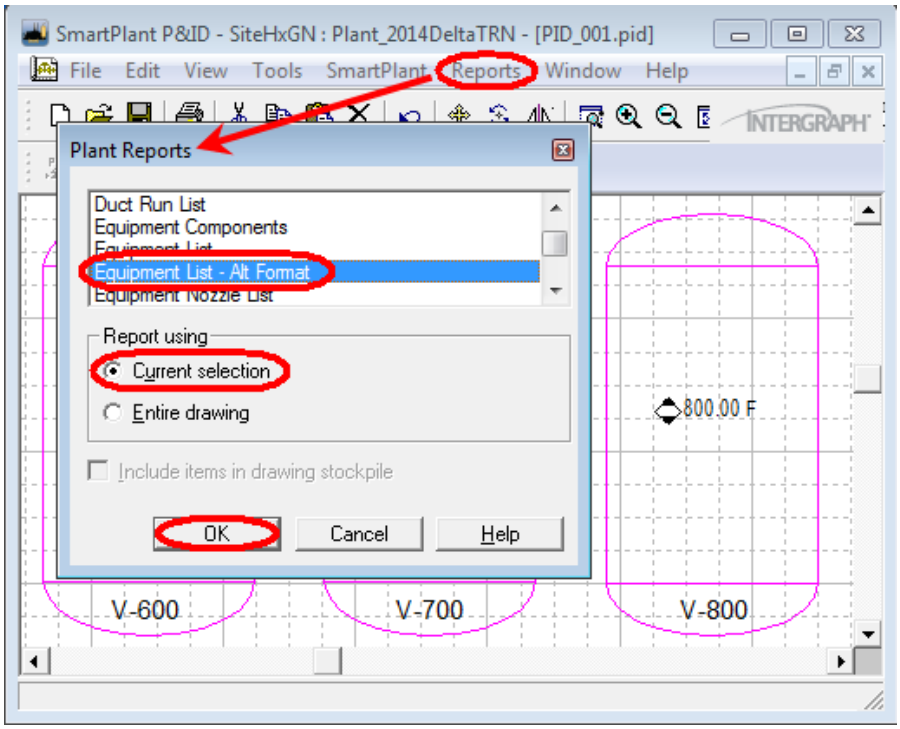
12. Click the cell row 7 column G, then click **Map Properties > Equipment > Heat Trace Medium Temp.** On **Select Alternative Format for Display** dialog box, select the customized format Degree-F and clear the check box **Display units of measure**. Click **OK.** Notice the the map property is added: #Equipment::Heat Trace Medium Temp::HTraceMediumTemp[**Degree-F::-1**]#

13. Click the cell row 7 column H, then click **Map Properties > Equipment > Heat Trace Medium Temp.** On **Select Alternative Format for Display** dialog box, select the customized format Deg-R and select the check box **Display units of measure**. Click **OK.** Notice the the map property is added: #Equipment::Heat Trace Medium Temp::HTraceMediumTemp[Deg-R]#

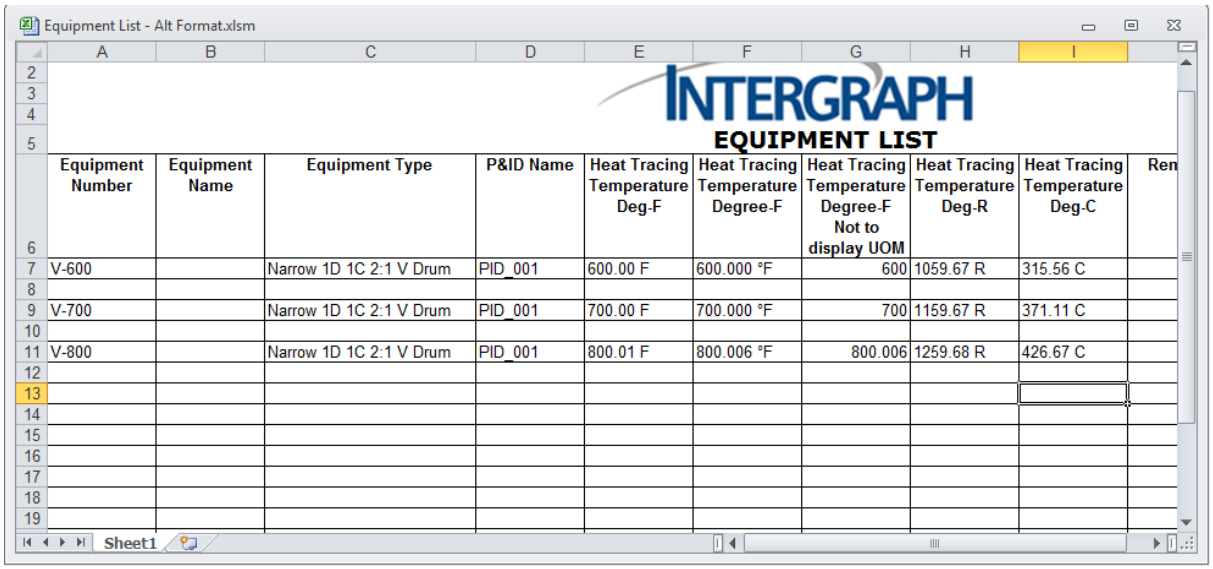
14. Click the cell row 7 column I, then click **Map Properties > Equipment > Heat Trace Medium Temp.** On **Select Alternative Format for Display** dialog box, select the customized format Deg-C and select the check box **Display units of measure**. Click **OK.** Notice the map property is added: #Equipment::Heat Trace Medium Temp::HTraceMediumTemp[Deg-C]#



15. Select drums V-600, V-700, AND V-800 in the drawing, click **Reports > Plant Reports..**, on the **Plant Reports** dialog box, select report template 'Equipment List – Alt Format', check the option **Current selection** for the **Report using**, then click **OK**. At the prompt, click **Save** on the **Save Output As** dialog box.



16. Open the output, review the result and then close the file


Equipment List - Alt Format.xlsm

INTERGRAPH

EQUIPMENT LIST

Equipment Number	Equipment Name	Equipment Type	P&ID Name	Heat Tracing Temperature Deg-F	Heat Tracing Temperature Degree-F	Heat Tracing Temperature Degree-F Not to display UOM	Heat Tracing Temperature Deg-R	Heat Tracing Temperature Deg-C	Ren
V-600		Narrow 1D 1C 2:1 V Drum	PID_001	600.00 F	600.000 °F	600	1059.67 R	315.56 C	
V-700		Narrow 1D 1C 2:1 V Drum	PID_001	700.00 F	700.000 °F	700	1159.67 R	371.11 C	
V-800		Narrow 1D 1C 2:1 V Drum	PID_001	800.01 F	800.006 °F	800.006	1259.68 R	426.67 C	

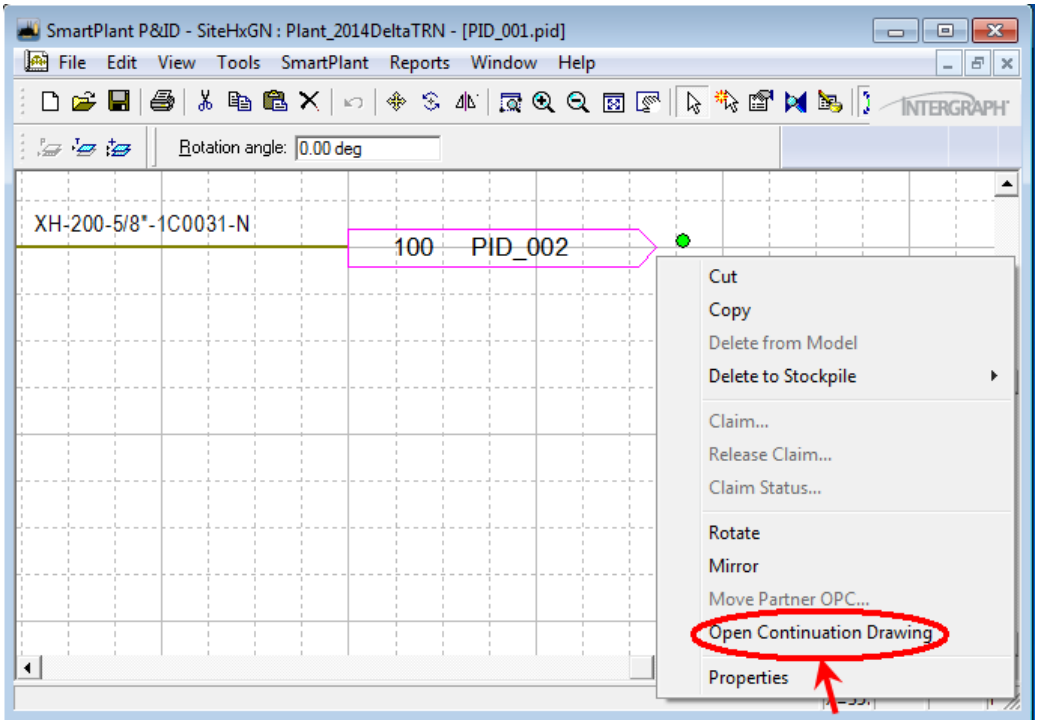
Sheet1

Note: When importing a report that contains numerical values without units of measure, these numerical values will be imported using the plant default formats specified in Formats in Options Manager, potentially altering the items' properties. For example, if a report was created with a temperature in Celsius without displaying the units (using an alternative format), a numerical value of 100 in the report (intended as 100 ºC) will be imported as 100 ºF (37.78 ºC) into a plant with ºF as the plant default.

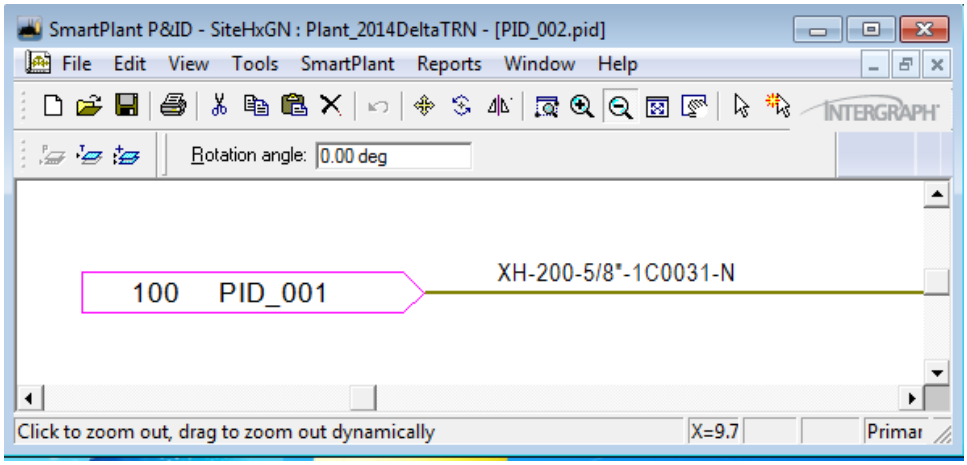
SP P&ID: Open a continuation drawing

In SmartPlant P&ID version 2014, the command **Open Continuation Drawing** allow to highlights and zooms in on the partner OPC if it in the in the drawing and not in the drawing stockpile.

1. Select and right click an OPC when its partner OPC is in a drawing and not in the drawing stockpile. Then click **Open Continuation Drawing.**



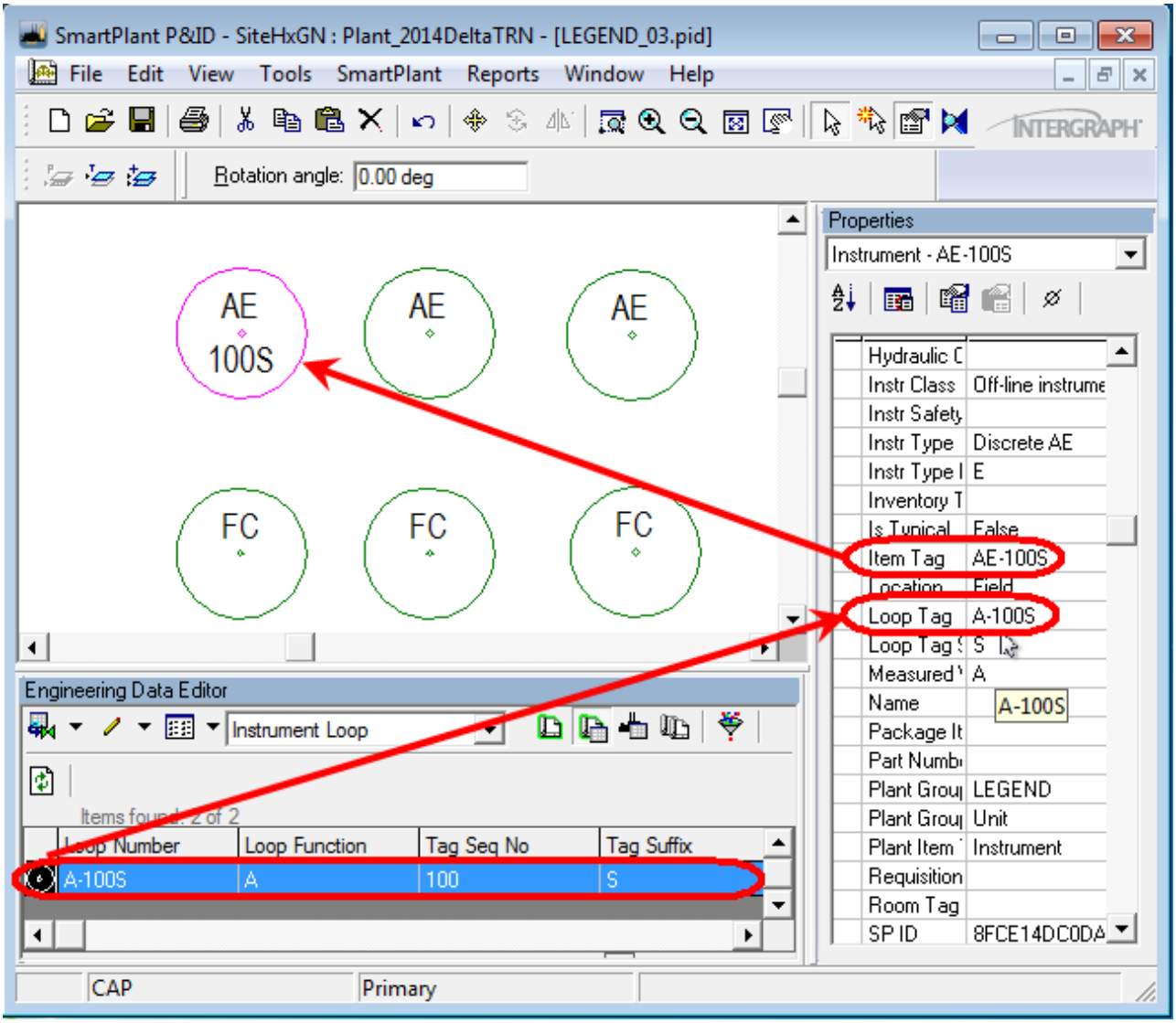
2. In the opened continuation drawing, review the partner OPC is highlighted and zoomed.



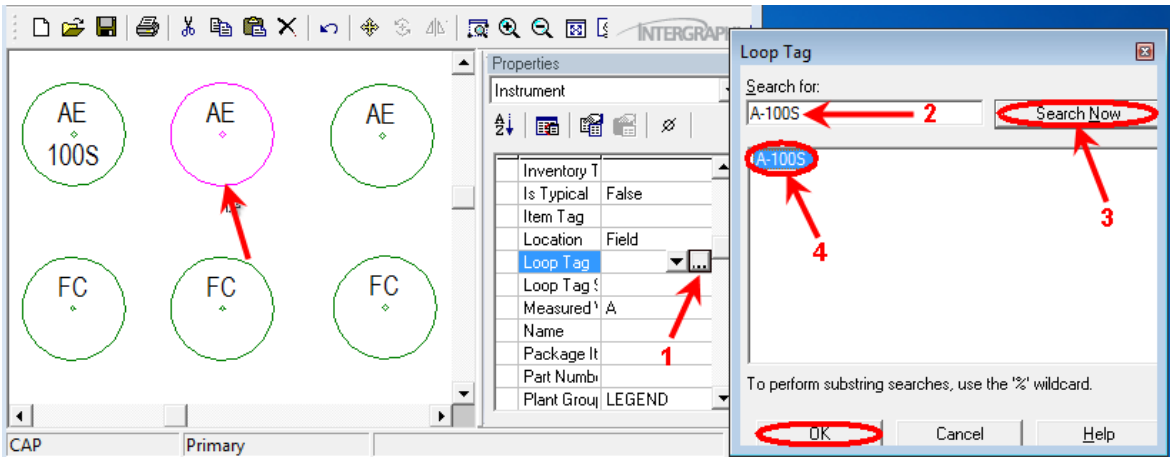
SP P&ID: Duplicate item tags for instruments are no longer allowed

In SmartPlant P&ID version 2014, duplicate item tags for instruments are no longer allowed, whether the item tag is created manually or generated by instrument-loop association.

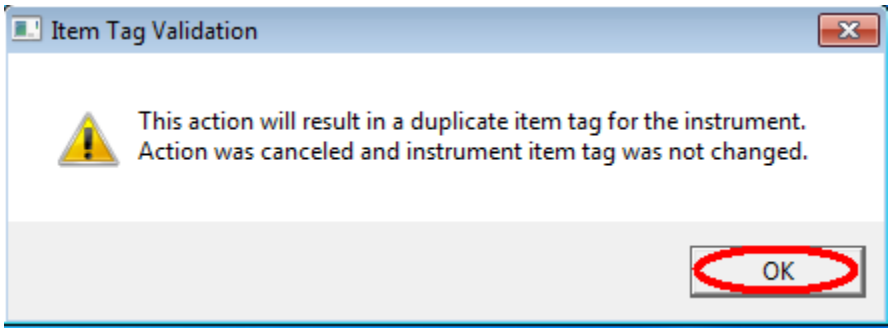
1. Open a drawing and place several instruments. Also create a loop and add one instrument to it**.** In the following example, in drawing LEGEND_03 under **Plant_2014DeltaTRN > Area 00 > LEGEND**, the off-line instrument with **Item Tag** 'AE-100S', i.e \Instrumentation\Off-Line\With Implied Components\AnalyzeDiscr Field Mounted AE.sym, is associated to the loop A-100S.



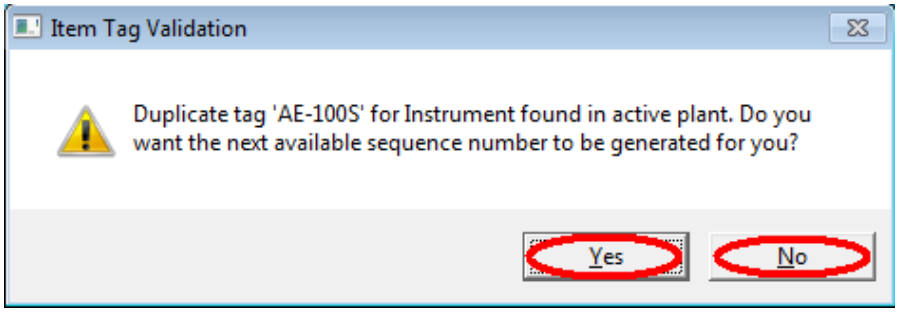
2. Highlight the middle off-line instrument (on the right of 'AE-100S'). In the **Properties** window, click the **Calculation** button beside the **Loop Tag** property. On the **Loop Tag** dialog box, enter 'A-100S' in the **Search for** box and click **Search Now.** Highlight 'A-100S' from the resulting list.



3. Click **OK** on the Loop Tag dialog box. If the item tag validation program finds a duplicate item tag, it will cancel the action. At the prompt, click **OK** and review the **Loop Tag** and the instrument **Item Tag** were not changed.



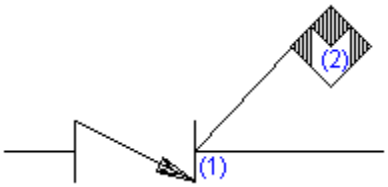
4. Highlight the off-line instrument on the right. Manually assign **Tag Suffix** 'S', and then **Tag Seq No** '100', click **Enter**. At the prompt, item tag validation program will report 'Duplicate tag 'AE-100S' for Instrument found in active plant…'. Click **Yes** to accept the next available sequence number for generating a unique instrument Item Tag. Or click No to cancel the assignment of the **Tag Seq No** '100'.



SP P&ID: Invalid break labels

In SmartPlant P&ID version 2014, it is no longer possible to place break labels on pipe runs for which a segment break is not defined. When upgrading from a previous version, a new custom command, FindInvalidBreakLabelsCmd.dll, is available which allows you to identify any invalid break labels in the current drawing or for the entire plant.

2. From the **List** view in **Catalog Explorer**, select the break label that you want to place.
3. The **Catalog Explorer Tree** view node where break labels are located is called **Segment Break**.
4. Place the break label using two-point placement. The first click (1) specifies the junction in the process line; the second click (2) designates the location for the break label itself.

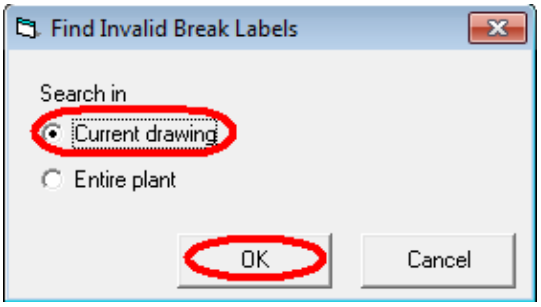


5. A break label can only be placed at a connection point where the specified properties are being propagated.

6. To place a break label on a valve located in the middle of a pipe run, you must first break the pipe run manually.

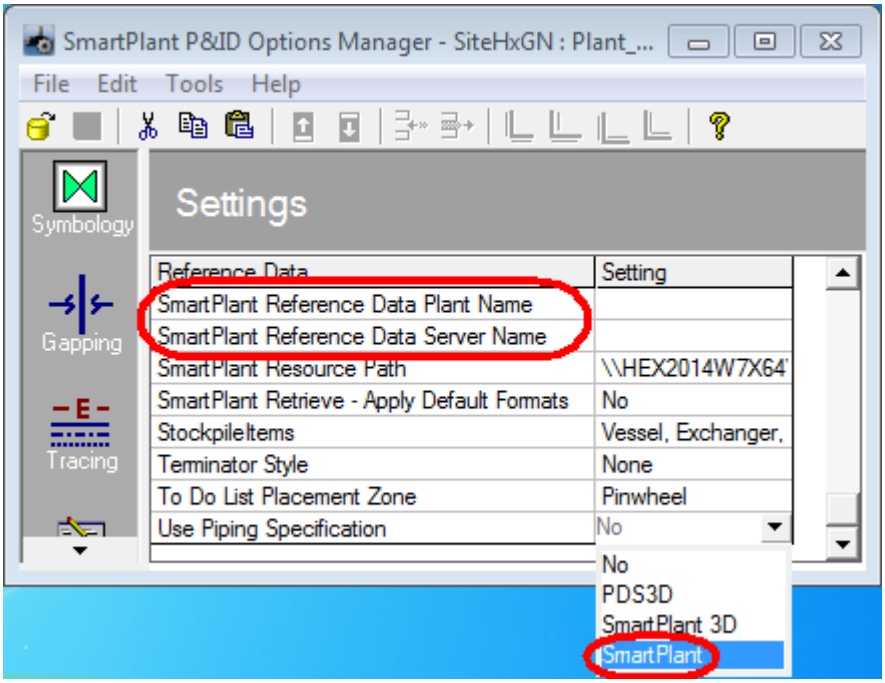
7. When place an **End of Group** break label on a valve located in the middle of a pipe run, you must first break the pipe run manually due to the fact that valves do not have the **Piping Material Class** attribute.

8. Click **View** > **Custom Command**. Select FindInvalidBreakLabelsCmd.dll from … \SmartPlant\P&ID Workstation\bin and click **Open** on the **Custom Command** dialog box. At the prompt, select **Current drawing**, then click **OK**, any invalid break labels will be reported in the InvalidBreaklLabels.log file, and band aided in the current drawing. If select entire plant and click **OK**, any invalid break labels in the entire plant will be reported in the InvalidBreaklLabels.log file.



SP P&ID: Pipe Spec validation

- In SmartPlant P&ID version 2014, Pipe spec validation is now supported for data from SmartPlant Reference Data.



- Commodity code validation is supported for design maximum temperature data specified on piping components in SmartPlant Reference Data.

- Commodity code validation is supported for maximum or minimum temperature data specified on piping components in Smart 3D.

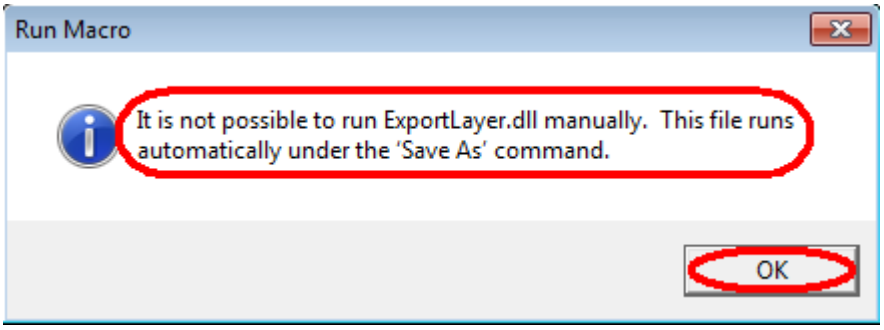
- When performing service limits validation for a temperature-pressure pair, the software also validates against pipe run nominal diameter if a range is specified in Smart 3D.

Save As for AutoCAD and MicroStation

In SmartPlant P&ID version 2014, **Save As** option now supports AutoCAD 2012 and MicroStation V8.

1. When saving a drawing to AutoCAD or MicroStation, the default value of the Processing Batch Translation configuration file setting has been changed to 1 (progress bar display turned off).

2. Exportlayer.dll runs automatically in background when run **Save As** command. If run exportlayer.dll from **Tools > Custom Command >** …\SmartPlant\P&ID Workstation\bin, at the prompt, the message on the **Run Macro** box says:



3. The behavior of the AutoCAD configuration file Override Layers on Export setting has been modified to determine which settings AutoCAD translation honors when applying colors and symbology. As a result of the modification, the PID Cleanup for AutoCAD Utility is no longer required after saving a P&ID as an AutoCAD drawing.

4. A new setting in the AutoCAD configuration file, Clipping Boundary Growth, allows you to extend the boundary of SmartFrames to avoid clipping of graphics on the boundary. This is particularly necessary where a SmartFrame is used as a drawing template border.

5. New linestyle settings are available for revision clouds when saving a P&ID as an AutoCAD or a MicroStation drawing.

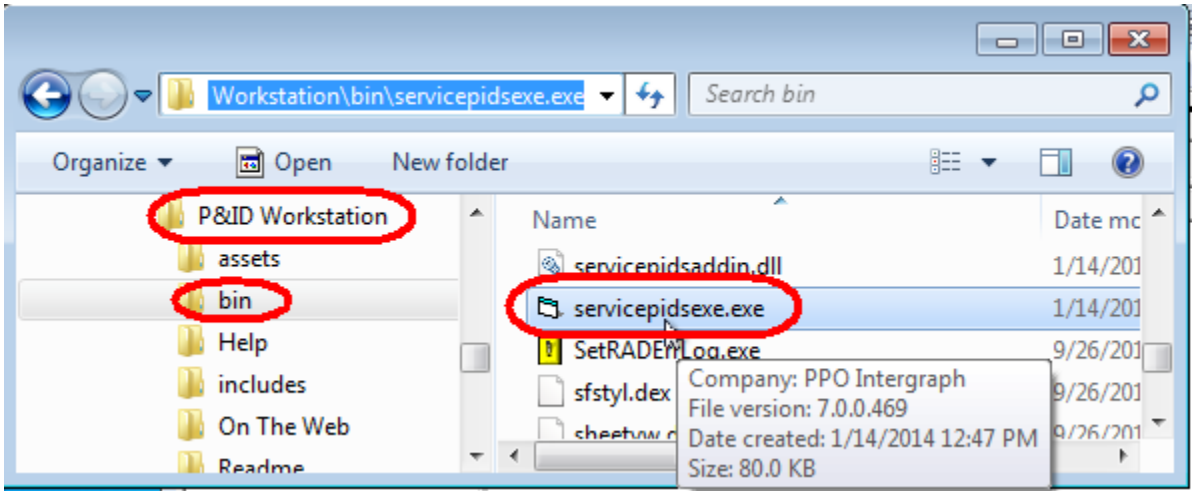
6. When saving a drawing to AutoCAD .dwg format, it is possible to specify that all files created during translation are merged into a single file.
    - Objects with .tiff or .jpg format are not merged and need to be kept in the same folder as the .dwg file in order to display correctly.

7. 'SmartPlantPID 3.x (*.pid)' no longer appears as an option for the Save as type in SmartPlant P&ID.

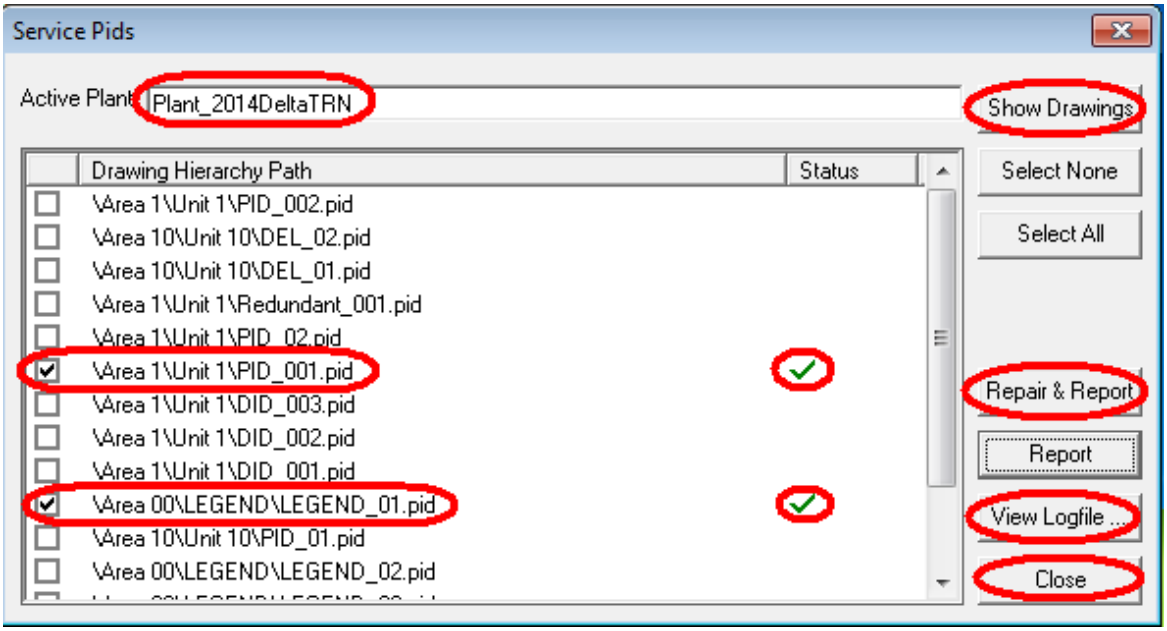
Service P&IDs Utility

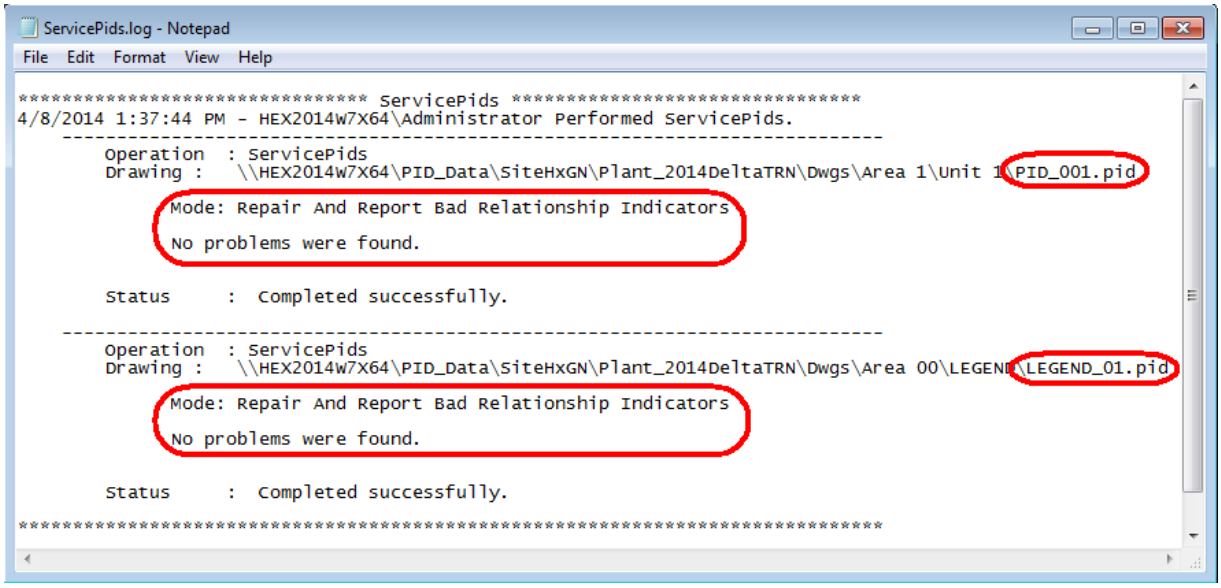
In SmartPlant P&ID version 2014, the Service P&IDs Utility (ServicePIDsExe.exe) is now able to fix relationship issues as well as reporting them.

1. Navigate to … \SmartPlant\P&ID Workstation\bin\. Double click ServicePIDsExe.exe.

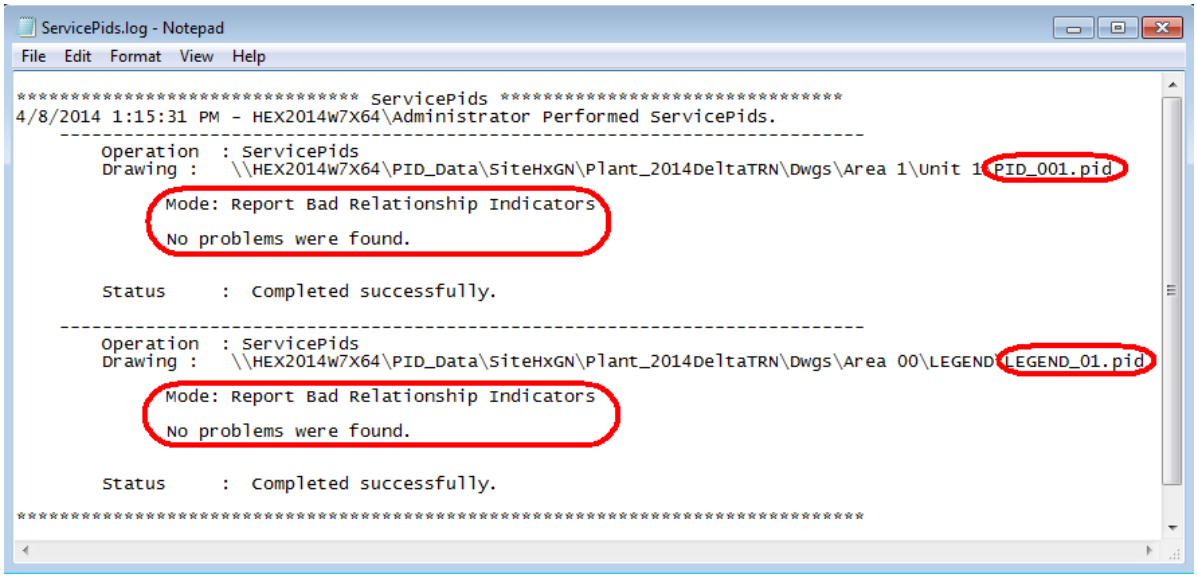


2. In the Service Pids dislog box, click **Show Drawings**. In the result list, select drawings to work with, or click **Select All**. Click **Repair & Report**. When the **Status** indicates the **Repair & Report** is completed, click **View Logfiles…** to open the ServicePids.log file. The bad relationships will be repaired and the results will be reported in the ServicePids.log file.





3. If click **Report** after selecting the drawings, ServicePIDsExe.exe only reports the bad relationships in the ServicePids.log file.



SmartPlant Integration

- When publishing documents, a new option is available that allows revisions from SmartPlant P&ID to be sent to SmartPlant Foundation instead of using the SmartPlant Foundation revision feature.

- When publishing documents, users can create an external plug-in that enables the .xml file generated when publishing from SmartPlant P&ID to be modified automatically before it is handed over to SmartPlant Foundation.

- Publishing of equipment components that have an association between them is now supported.

- A new 'Task assignment' field is available for task properties. This is a free text field by which To Do List tasks can be filtered.

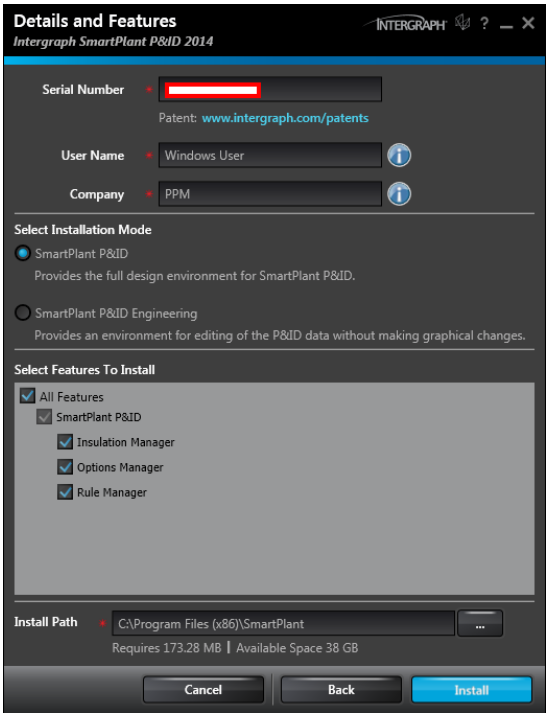
- If selected To Do List tasks include any Create tasks that will create an item on the current drawing for which the item's original plant group is different from the plant group of the current drawing, on running the tasks, a message prompt now appears allowing users to decide whether to continue.

- The default Piping Component description values in the SPPIDDataMap schema have been set to match the expected values for Smart 3D.

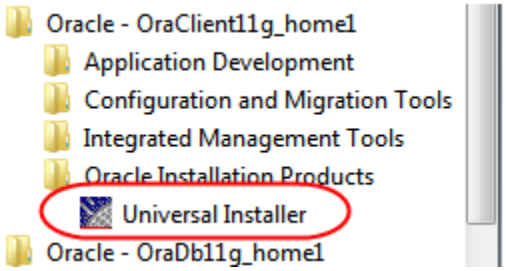
Tips for the installation of SmartPlant P&ID 2014

A new interface is used for the installation of SmartPlant P&ID 2014. This interface includes different silent install command line options from those of previous version installations.

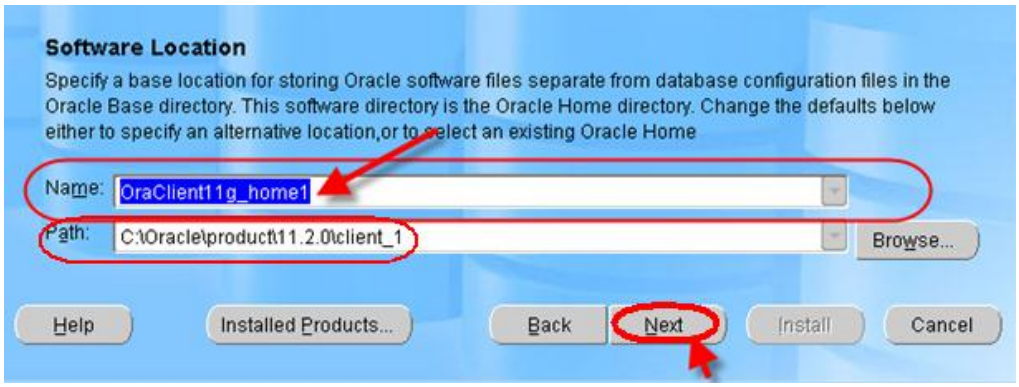
1. A new set-up, based on Windows Installer XML (WiX) toolset, is used for the installation of SmartPlant P&ID 2014.



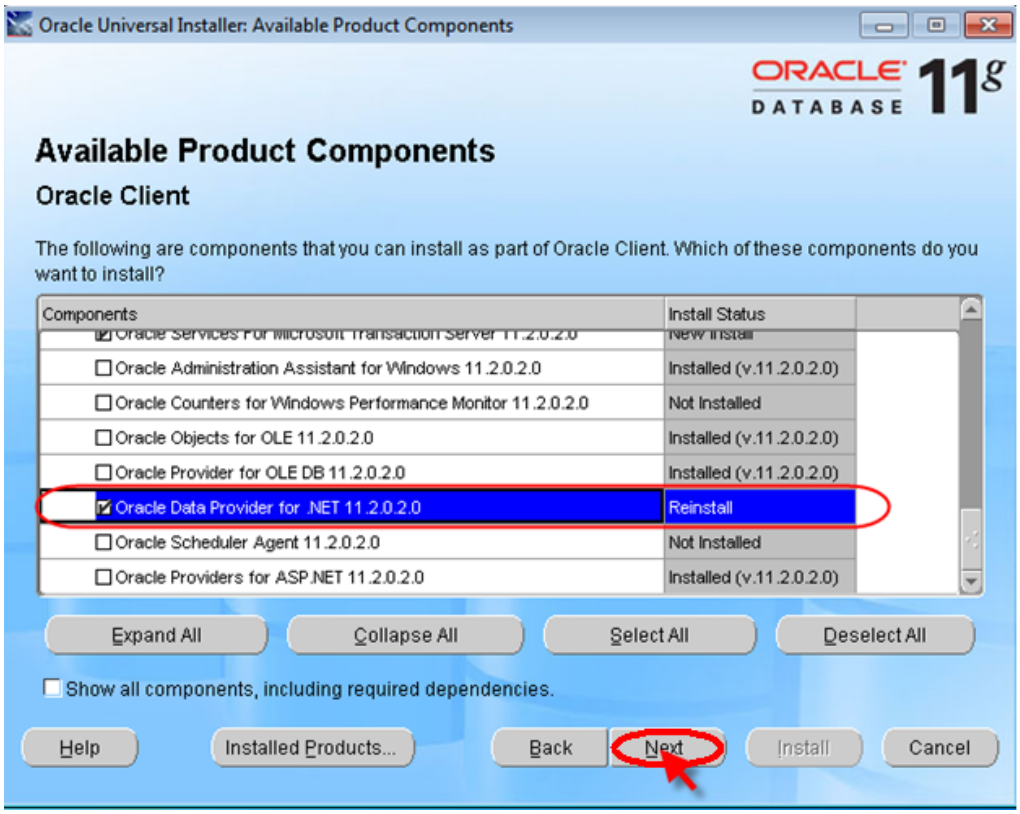
2. Install Oracle component "**Oracle Data Provider for .NET**" in order to communicate with Oracle database server.
   a. Install Net Framework 4.0 or higher first, and then install Oracle client.
   b. Run **Universal Installer** from Oracle client.



c. At the prompt, Click **Next** on the **Welcome** page.
d. In **Path** field for **Source** location, make sure point to the path where Oracle client installation media is located. Click **Next**.
e. Select **Custom** for **Select Installation Type**. Click **Next**.
f. On **Specify Home Details** dialog box, choose and verify the **Name** and **Path** for **Software Location**. Click **Next**.



g. In the list of **Available Product Components** for Oracle Client, select **Oracle Data Provider for .NET 11.2.0.2.0**. Click **Next**.



h. Click **Install** on **Summary** page. At the prompt, click **Yes** on the **Warning** message box. At the prompt, click **Exit** to close the **End of Installation** dialog box.
i. Verify the file **oracle.dataaccess.dll** is installed under the following location: C:\Window\Microsoft.NET\assembly**GAC_32**\Oracle.DataAccess\v4.0_4.112.2.0__89b483f429c47342\oracle.dataaccess.dll

3. Run CleanUpUtility.exe to clean the installation of an old SmartPlant P&ID version with Hotfixes. On a machine, if a Hot Fix was installed on top of an old SmartPlant P&ID version, such as SPEM 2009 HF4 (06.01.06.0058), or SPPID 2009 HF8 (06.00.05.0110):
   a. From Window's Uninstall or change a program, uninstall SPPID and SPEM, follow the order **Support Utilities > HF > P&ID > SPEM > Reference Data** if loaded.
   b. Run CleanUpUtility.exe. Specify the Installation Folder and the location for VerificationMap.xml file. Click **Run Utility**