

Ken Fauver

Plant 3D and P&ID Implementation Consultant - Autodesk

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### **Learning Objectives**

- Learn how to customize an isometric style using Project Setup in AutoCAD Plant 3D
- Learn how to do specific advanced customization directly in the IsoConfig.xml file
- Understand the different parts and syntax of the IsoConfig.xml file
- Learn how to create an isometric style template for future use

### Speaker

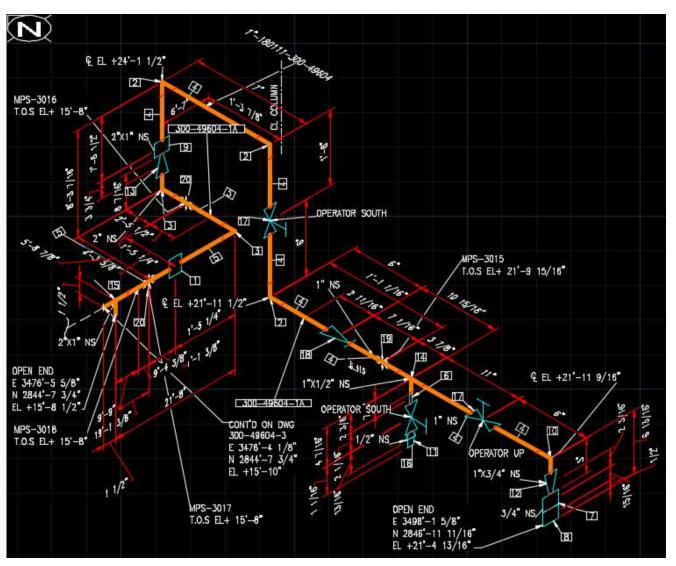
Employed by Autodesk for the past 6 years. Part of the CS WW Project Delivery AMER as a Plant 3D and P&ID Implementation Consultant. Previously part of the ENI & TS-AMER Technical Sales Specialist Team. Concentrating on activities related to Plant 3D. Supports the North American AEC Named Accounts working with Owner / Operators and other Key Accounts. Has over 25 years' experience in the Oil and Gas industry as a Piping Designer, Drafter, and CAD Administrator. Prior to joining Autodesk, worked for several companies in the Petro/Chemical markets including Wink Engineering, ACPlant dba Flow Logic International and Jacobs Engineering. My work-related interests include pipe design, software support and training. Also, worked as a System Administrator, AutoCAD Programmer, Trainer and CAD Coordinator with several software applications during his pre-Autodesk career.

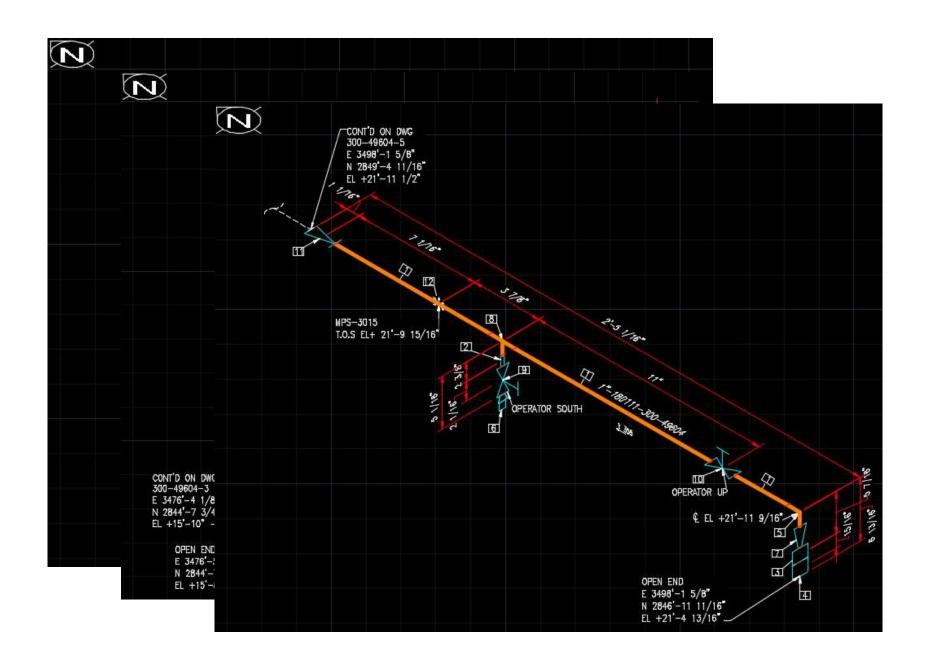
### Agenda

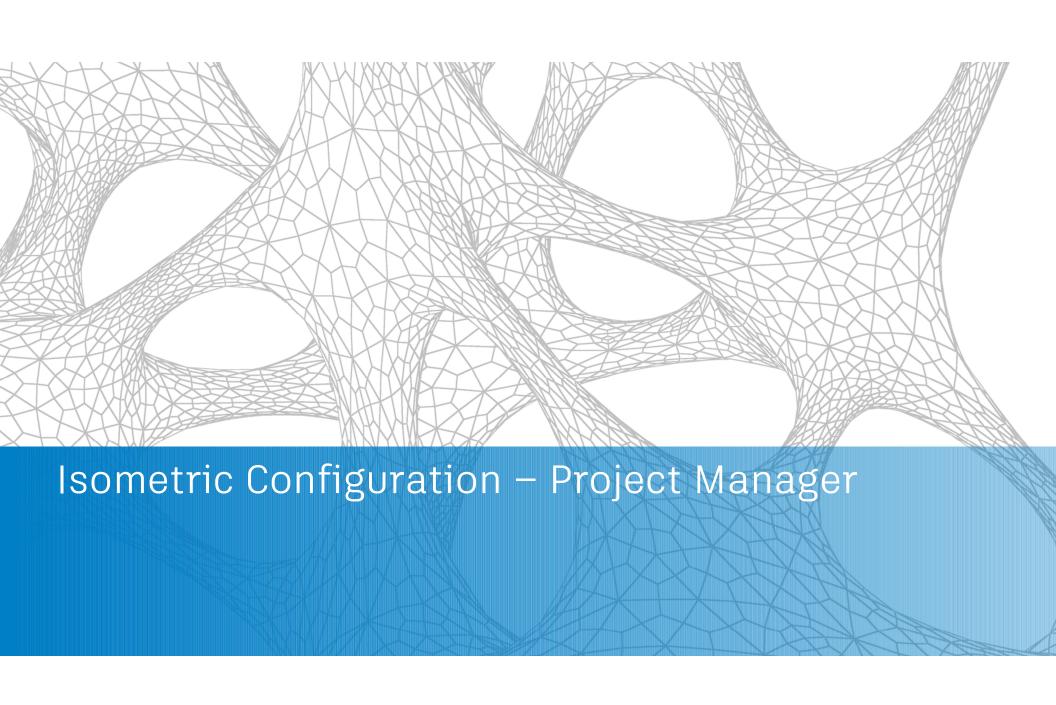
- Isometric Configuration Project IsoConfig.xml Manager
  - Symbols and Reference
  - Editing Isometric Symbols
  - Iso Style Setup
  - Iso Style Default Settings
  - **Annotations**
  - **Dimensions**
  - Themes

- - Autodesk Iso Style Editor (Beta)
  - Modifying the IsoConfig.xml
- Isometric Symbols (SKEY)
  - IsoSkeyAcadBlockMap.xml
  - IsoSymbolStyles.dwg



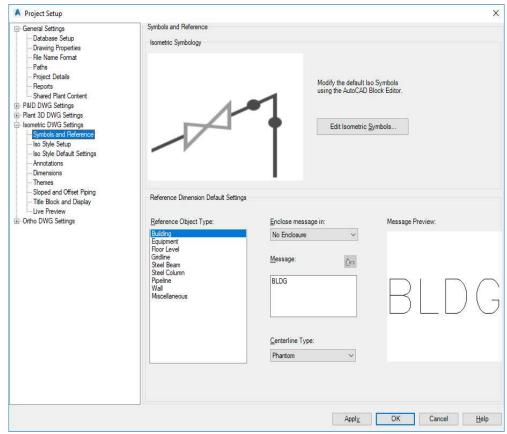






### Symbols and Reference

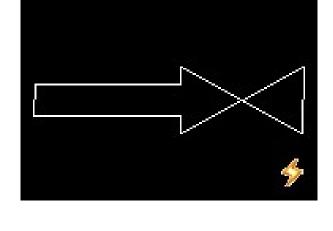
- Modify Isometric Symbology (SKEY)
- Modify Reference Dimension Default Settings
  - IsoSymbolStyles .dwg
- Iso Message symbolsPlant3dIsoSymbols.dwg

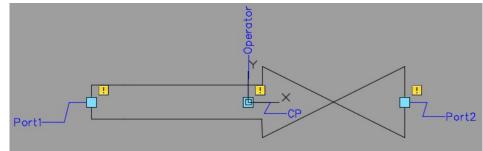


Symbols and Reference

## **Editing Isometric Symbols**

- AutoCAD Blocks
- Minimal use of Dynamic Block parameters
  - Port(s) Parameter
  - Operator Parameter
  - CP Parameter
- IsoSkeyAcadBlockMap.xml



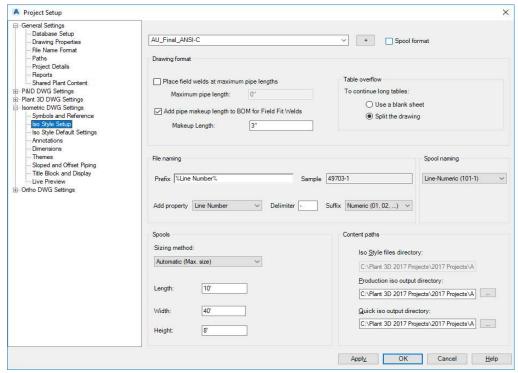


<SkeyMap SKEY = "VE??" AcadBlock ="ExtBodyGateValve"/>

Iso Style Setup

The Iso Style that was modified for this class is called **AU\_Final\_ANSI- C**. Except for **Content paths** all other settings in this dialog are set to their default values.

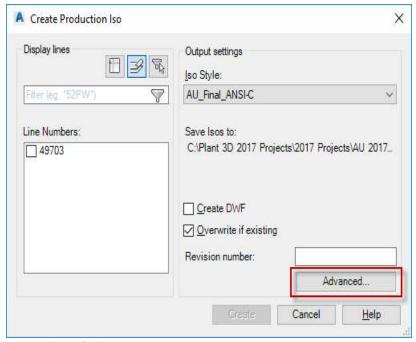
- Drawing Format
- File Naming
- Spool Naming
- Spool Size
- Isometric Output Paths



Iso Style Setup

### Iso Style Default Settings

When creating isometrics, you have option to change some settings at run time by selecting the **Advanced...** button.

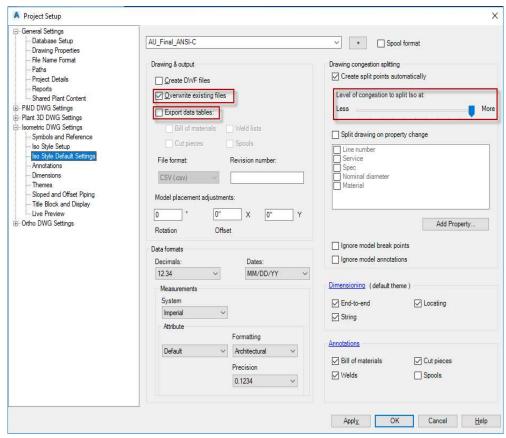


Iso Style Default Settings

Iso Style Default Settings

Or set these values as default through the Iso Style Defaults Settings in Project Setup.

- Turn on Overwrite existing files
- Level of congestion to split isometric at: Set to More
- Turn off Export data tables

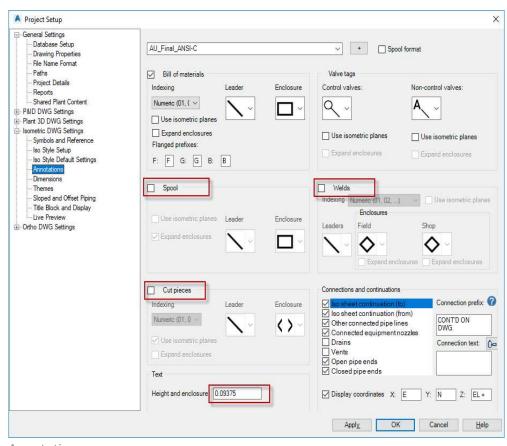


Iso Style Default Settings

### **Annotations**

This dialog specifies the callout symbols and leaders for BOM, Valve tags, Spools, Welds and Cut pieces.

- Spool, Welds, and Cut pieces annotation has been turned off.
- Enclosure height and text have been set to 0.09375.
- Connectors and Continuations

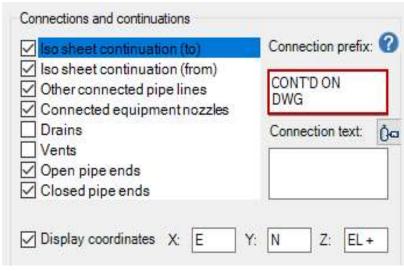


Annotation

### **Connectors and Continuations**

These settings determine the how the different connection and continuations are labeled on the isometric.

- Iso sheet continuation (to)
- Iso sheet continuation (from)
- Other connected pipe line
- Connected equipment nozzles
- Drains
- Vents
- Open pipe ends
- Closed pipe ends

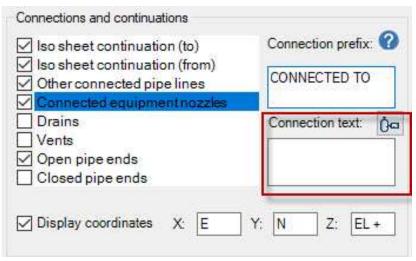


Iso Sheet Configuration

Refer to Handout for additional connection settings

### **Connection Text:**

The Connection text box allows you to change the information shown on the isometric continuation.



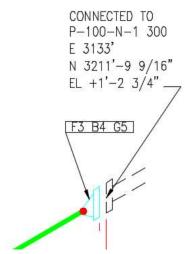
Iso Sheet Configuration

#### Add the following:

<Equipment.Tag>, <Nozzle.Tag>, <Nozzle.Size>-<Nozzle.PressureClass> LB\$<Equipment.PartSizeLongDesc>

The "\$" in the text represents typing the "Enter" key to start a new text line.

#### Out-of-the-Box



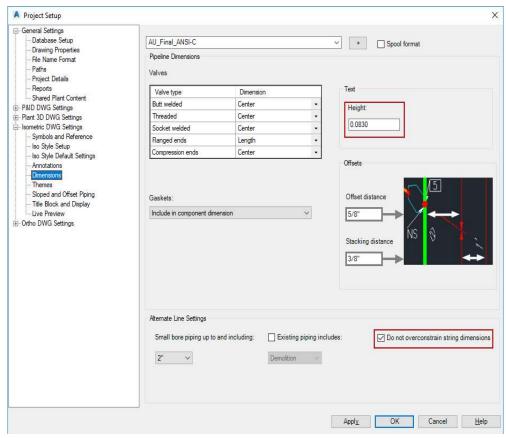
#### **New Results**

CONNECTED TO
P-100, N-1, 6"-300LB
CENTRIFUGAL PUMP
E 3133'
N 3211'-9 9/16"
EL +1'-2 3/4"

### **Dimensions**

Sets the format for dimensions placed in isometric drawings.

- Dimension text height: 0.0830
- Do not over constrain string dimensions is checked.

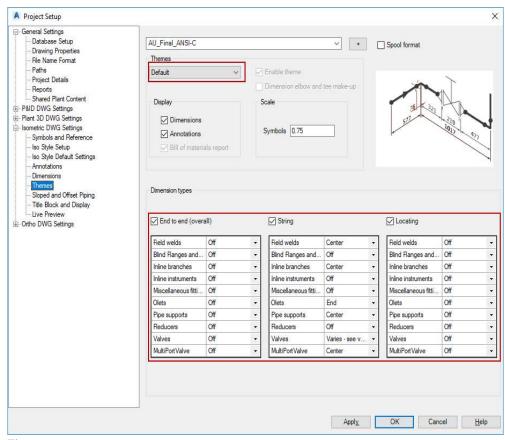


Dimensions

#### **Themes**

Specifies dimension, annotation, and isometric symbol scale for piping and override themes.

- Default
- Fitting To Fitting
- Small Bore Piping
- Vent / Drain Piping
- Offline Instrument Connection
- Existing Piping
- Continuation / Connection Piping
- Sloped and Offset Piping

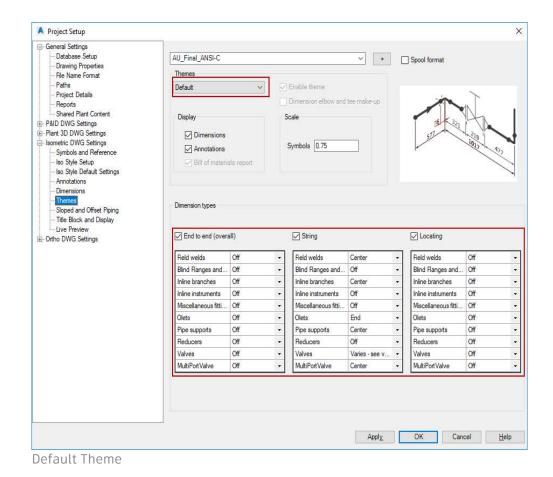


Themes

### **Default Theme**

#### Specifies isometric options for normal piping.

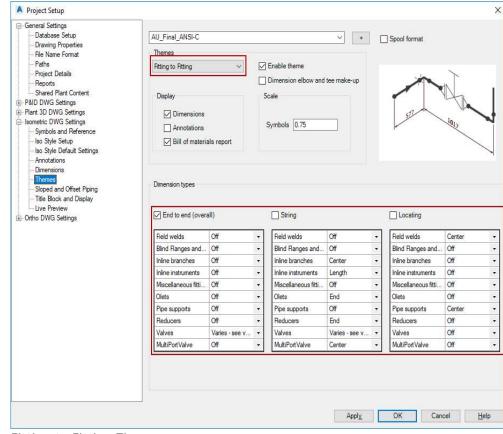
- Display
  - Dimension Enabled
  - Annotation Fnabled
  - Bill of Material Report Disabled
- Scale
- Dimension Types
  - End to end (overall) Enabled
  - String Enabled
  - Locating Enabled



### Fitting to Fitting Theme - Override

#### Specifies isometric options for fittings that are connected.

- Display
  - Dimension Enabled
  - Annotation Disabled
  - Bill of Material Report Enabled
- Scale
- Dimension Types
  - End to end (overall) Enabled
  - String Disabled
  - Locating Disabled

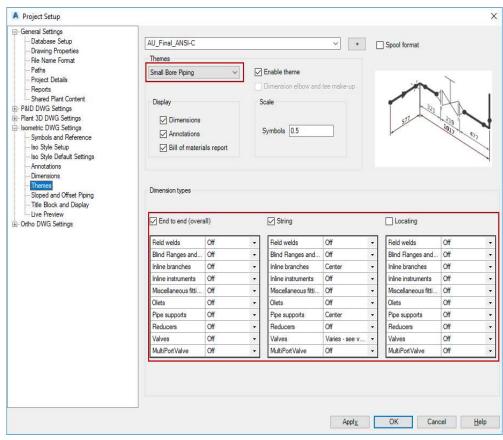


Fitting to Fitting Theme

### Small Bore Piping Theme - Override

Specifies isometric options for small bore fittings and pipe as defined in the **Dimension** section above.

- Display
  - Dimension Enabled
  - Annotation Enabled
  - Bill of Material Report Enabled
- Scale
- Dimension Types
  - End to end (overall) Enabled
  - String Enabled
  - Locating Disabled

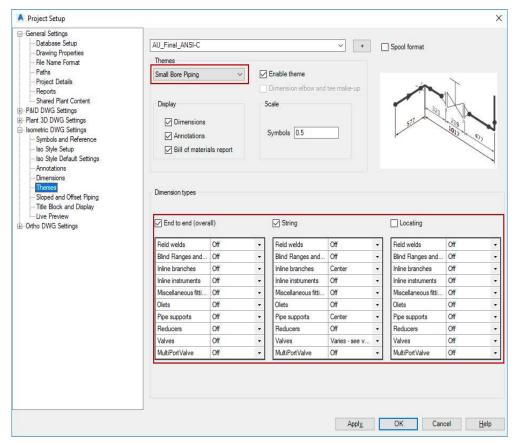


Small Bore PipingTheme

### Vent/Drain Piping Theme - Override

#### Specifies isometric options for Vent and Drain piping.

- Display
  - Dimension Disabled
  - Annotation Fnabled
  - Bill of Material Report Enabled
- Scale
- Dimension Types
  - End to end (overall) Disabled
  - String Disabled
  - Locating Disabled

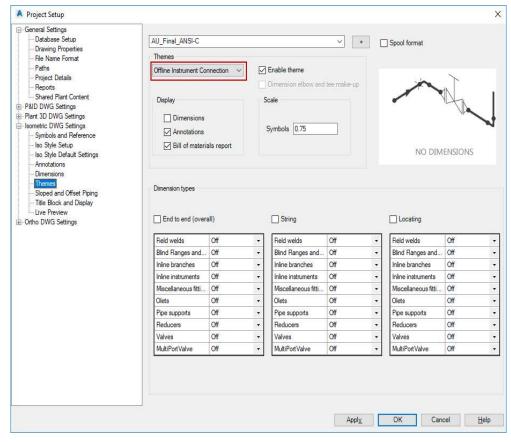


Vent/Drain Piping Theme

### Offline Instrument Connection - Override

#### Specifies isometric options for offline instruments.

- Display
  - Dimension Disabled
  - Annotation Enabled
  - Bill of Material Report Enabled
- Scale
- Dimension Types
  - End to end (overall) Disabled
  - String Disabled
  - Locating Disabled

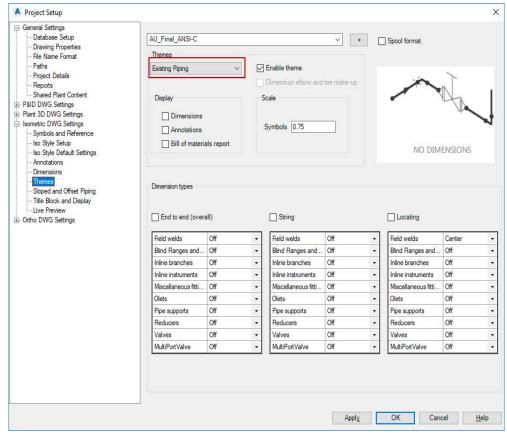


Offline Instrument Connection Theme

### **Existing Piping Theme - Override**

#### Specifies isometric options for existing pipe and fittings.

- Display
  - Dimension Disabled
  - Annotation Disabled
  - Bill of Material Report Disabled
- Scale
- Dimension Types
  - End to end (overall) Disabled
  - String Disable
  - Locating Disabled

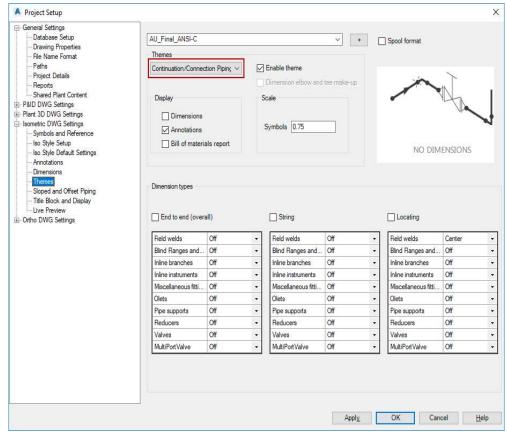


Existing Piping Theme

### Continuation/Connection Theme - Override

#### Specifies isometric options for continuations and/or connections.

- Display
  - Dimension Disabled
  - Annotation Fnabled
  - Bill of Material Report Disabled
- Scale
- Dimension Types
  - End to end (overall) Disabled
  - String Disable
  - Locating Disabled

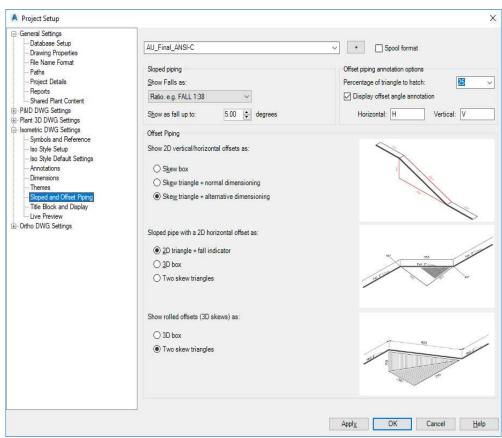


Continuation/Connection Theme

### Slope and Offset Piping

Specifies formatting for sloped lines, including falls, 2D offsets, and 3D offsets.

No change to the default settings

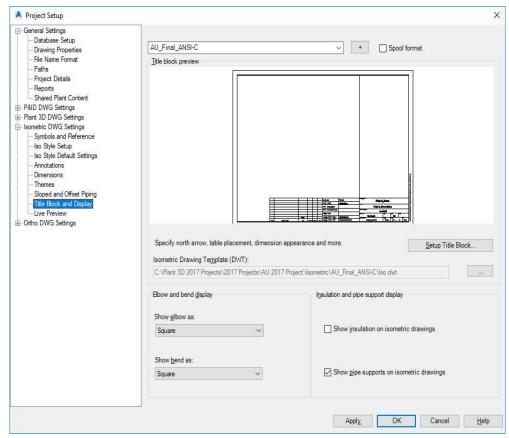


Slope and Offset Piping

### **Title Block and Display**

#### Sets up the title block for isometric drawings

- Elbow & Bend Display = Square
- Show Insulation = Disabled
- Show Pipe Supports = Enabled
- Setup Title Block...

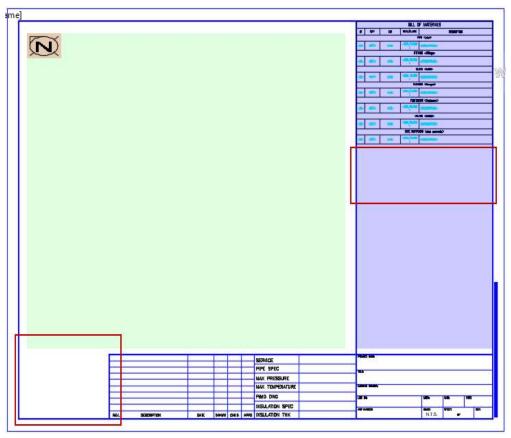


Title Block and Display

## Setup Title Block...

#### Removed:

- Cut Piece Table
- Weld List Table



Setup Title Block

### **Table Setup**

#### **Table Layout**

This dialog configures the columns and column layout to be used for

the Bill of

- Used defaults
- Table type: Bill of Materials
- BOM Layout template:
   Grouped w/category titles
- Single column for Schedule and Pressure class
- No new columns added

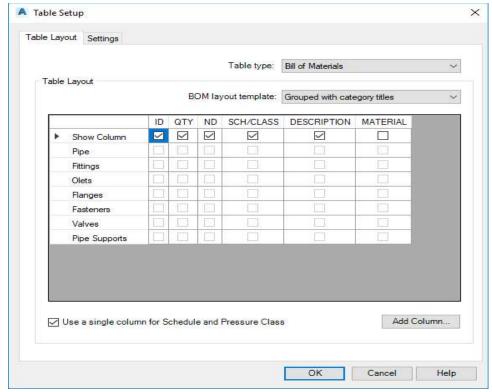


Table Layout

### **Table Setup**

#### **Table Settings**

Specifies the bill of materials settings.

- Used defaults
- Sort Ascending
- Disable Cutback annotation
- Fixed Length PipeEnable Cutback annotation
- Use Long Description (Family)

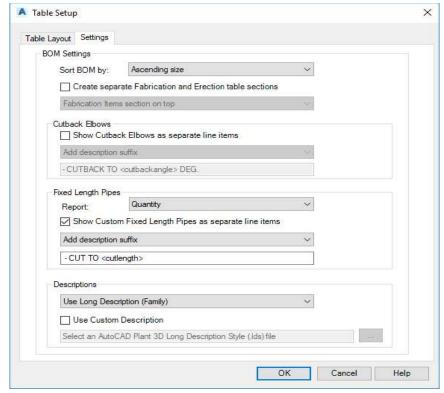


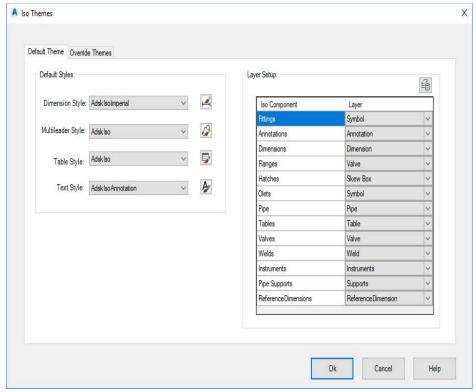
Table Settings

### **Iso Themes**

Iso Themes are used to control which Dimension Style, Multileader Style, Table Style, Text Style, and Layer Setup.

#### **Default Theme**

Unless override themes are configured, all isometric components will use these settings



**Default Theme** 

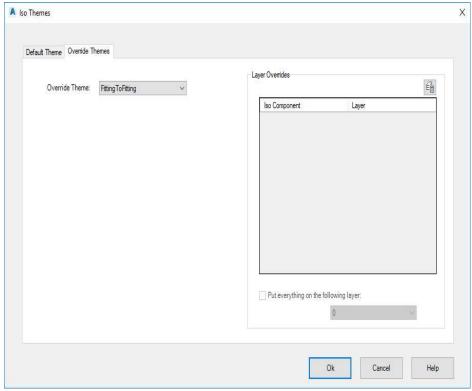
### **Iso Themes**

Iso Themes are used to control which Dimension Style, Multileader Style, Table Style, Text Style, and Layer Setup.

#### **Override Themes**

Used to override the default settings

- FittingToFitting
- Small Bore Piping
- Vent/Drain Piping
- Offline Instrament Connection
- Existing Piping
- Continuation/Connection Piping



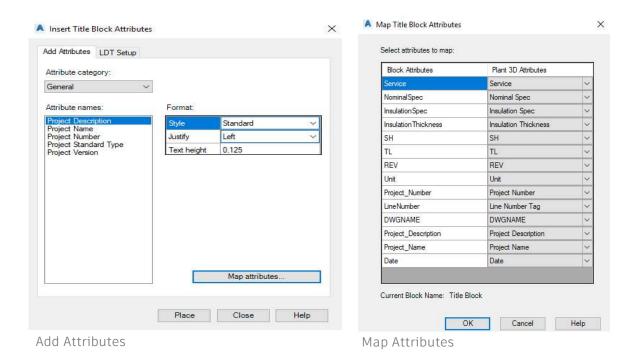
Override Themes

### **Title Block Attributes**

#### **Map Title Block Attributes**

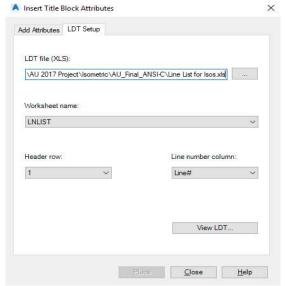
The isometric configuration allows for two ways to map data to the title block attributes. You can either map directly to the database properties or you use an external spreadsheet referred to a Line Designation Table (LDT).

Database Properties

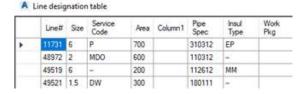


### **Title Block Attributes**

#### **Map Title Block Attributes**

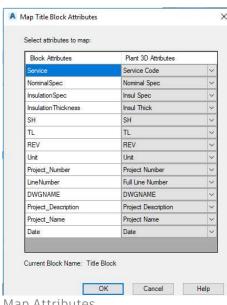


LDT Setup Tab





LDT Attribute



Map Attributes

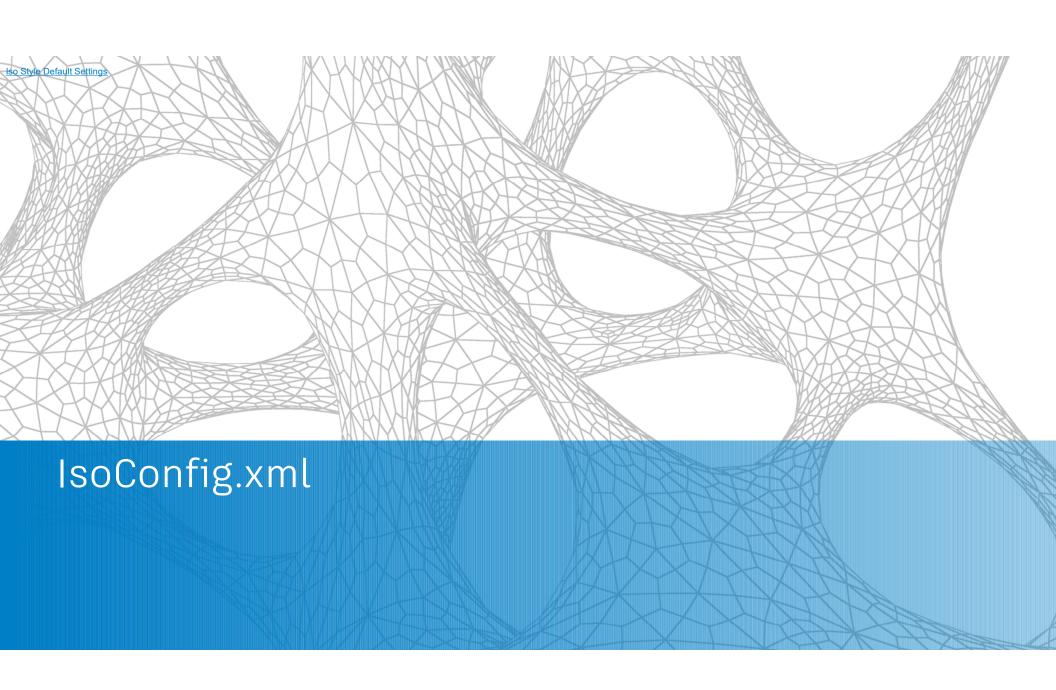
#### Line Designation Table

### **Title Block Attributes**

Finished title block with all attributes assigned.

	SERVICE	Service Code	PROJECT NAME:  Project	Project_Name					
	PIPE SPEC	NominalSpec							
	MAX PRESSURE		Project_Description  DWGNAME						
	MAX TEMPERATURE								
	P&ID DWG		LINE NO:	LINE NO: AREA: UNIT: TYPE:					
	INSULATION SPEC	Insul Spec	Full Line Number	SCALE:	Unit			REV:	
APPD	INSULATION THK	Insul Thick	Project_Number	N.T.S.	SH	OF	TL	REV	

Title block



## IsoConfig.xml

Some isometric configuration requires modification of the *IsoConfig.xml* file. Meaning there was not a setting in the user interface to change or I needed to tweak the settings further to get the results needed.

The following section will review IsoConfig.xml modifications and additions that were configured during the setup of the **AU\_Final\_ANSI-C** isometric style included for download with the handout online.

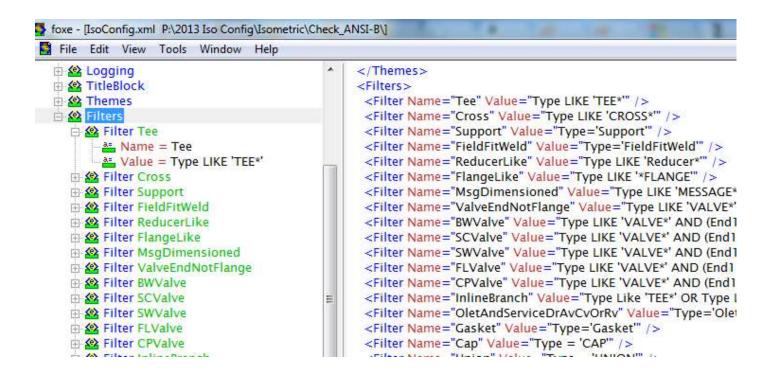
### Viewing XML Files

Several applications can be used to view xml files. By default, in Windows, if you open the xml files, it will open read-only in Internet Explorer.

```
<?xml version="1.0"?>
 <IsoConfigDefinition xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchem
   <!-- Output drawing configuration -->
   <!-- 'ForceUpcase': 'true' or 'false' -->
   <!-- 'true' = convert Annotation and Table text to uppercase -->
  <!-- 'false' = do not change case -->
   <Output Overwrite="true" ForceUpcase="true" BOMReportFLPLength="false" />
  <!-- Support and log file name configuration -->
  <!-- 'SymbolLibrary': (string); Symbol and styles library file drawing name (input file). -->
   <!-- 'DrawingTemplate': (string); Isometric drawing template file name (input file). -->
   <!-- 'LogFile': (string); Message log file name (output file). -->
   <!-- 'SymbolMap': (string); Symbol key to block name map (input file). -->
   <!-- 'PropertyNameMap': (string); Property name to display name map (input file). -->
   <Files SymbolLibrary="...\IsoSymbolStyles.dwg" DrawingTemplate="Iso.dwt" LogFile="IsoCreationLog.txt" SymbolMap=
   <AdvancedDefault CreatePCF="true" ExportBOM="false" ExportCutPiece="false" ExportSpool="false" ExportWeld="false"
      <BreakAttributes />
   </AdvancedDefault>
   <!-- File name format -->
  <!-- 'UseSpoolNameAsFileName': 'true' or 'false' -->
   <!-- 'true' = use spool name as file name, use the setting of SpoolNameFormat -->
       'false' = use the [<ModelProperty><Delimiter>]<SheetNumber>[<Delimiter><ModelProperty>] as the file name
   <FileNameFormat UseSpoolNameAsFileName="false">
      <!-- Properties included in the file name prefix -->
      <!-- PrefixModelProperties contains one or more ModelProperty elements. -->
      <PrefixModelProperties>
        at Model property >
```

#### **Foxe**

Another free editor with great features is Foxe (First Object Xml Editor) <a href="http://www.firstobject.com/dn\_editor.htm">http://www.firstobject.com/dn\_editor.htm</a>



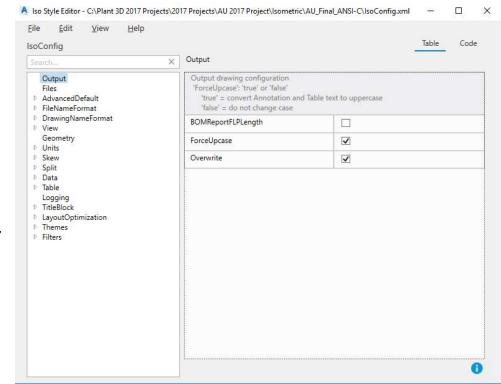
### Autodesk Iso Style Editor Public Beta (New)

# Customer & Expert Council for P&ID and Plant 3D

Go to the **DOWNLOADS** page to watch our getting started video, check out the PDF guide, and download the Iso Style Editor!

Next, let us know your thoughts! The **FORUM** for the Iso Style Editor is here.

Have a friend that isn't part of the forum yet? Send them this invite link: <a href="https://goo.ql/AoSxBG">https://goo.ql/AoSxBG</a>





Make anything.

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