IM10025

Inventor – Flexible Tube and Pipe: “How to be a Hoser”

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Learning Objectives

- Tube and Pipe Template Management
- System and BOM Settings Particular to T & P
- T & P Family Table and T & P Styles
- Define and Refine T & P Runs
- Fitting Placement with Respect to BOM

Description

The focus of this class is to cover all aspects and functions of the Flexible Tube and Pipe Module, as well as tips and trick, starting with the template location of the T & P as it’s installed in its default location. How this location must be modified for network users in a shared environment.

Discover new display and BOM settings hidden within Inventor to aid in working with the T & P module.

Discover how this module and its Styles Library differ from all other Inventor Style Libraries. How to handle version upgrades to ensure the T & P Styles Library is migrated to the current version and is available to all users.

Users will be able to modify existing T & P Styles, copy and modify existing T & P Styles to save time as well as create new T & P Styles from scratch.

Users will understand how the placement of fittings either within or outside the T & P environment can impact downstream operations such as the Bill of Materials and documentation.

Create new T & P runs using a number of different work flows in defining the run as well as modifying the run and modifying the run style. The ability to use existing model geometry to define and modify the T & P runs. How to create T & P runs with and without fittings and how this impacts BOM and downstream documentation. How to adjust the run length of a T & P run with menu tools provided.

Your AU Presenter:

Blair Stunder

General Manager and Product Engineer at Arctic Manufacturing Ltd., a heavy duty commercial vehicle manufacture in western Canada, that specials in log transport and gravel equipment for more than thirty years. He holds engineering and business degrees as well as a number of patents in the commercial transport industry.

He started using Mechanical Desktop 1.0 in 1995 and migrated to Inventor in 2000 with release 4 and is now on the 18th release version of Inventor. He started using Simulation Mechanical (formerly Algor) FEA software back in 1995 and now on the current 2016 releases.

He is one of the initial members of the Expert Elite program for his involvement and activity supporting Inventor and can be regularly found on the Autodesk Community Forums, primarily in the Inventor General Discussions area.

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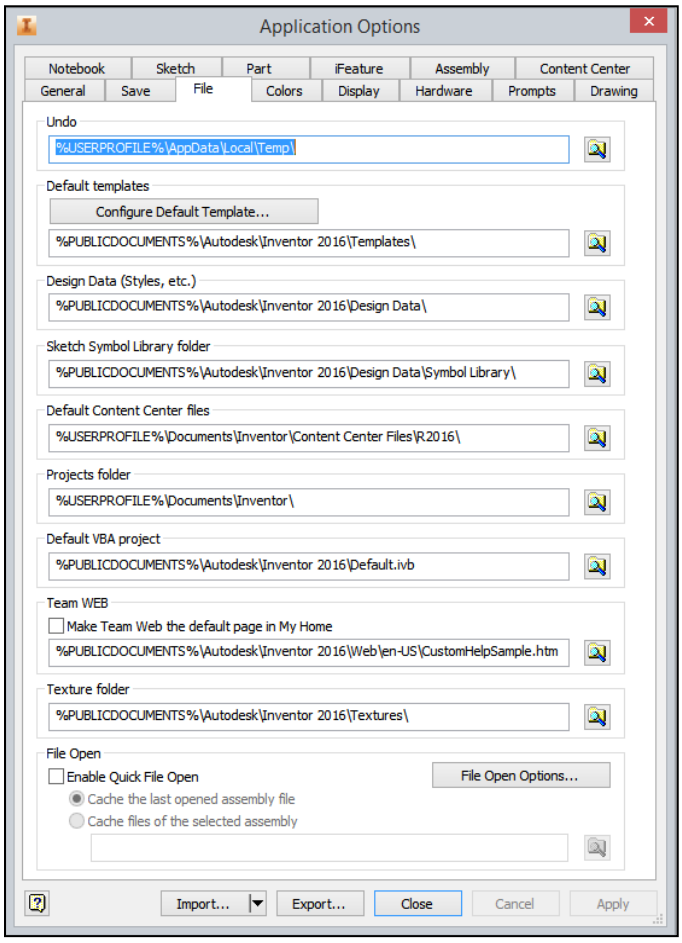
Contents:

Learning Objectives

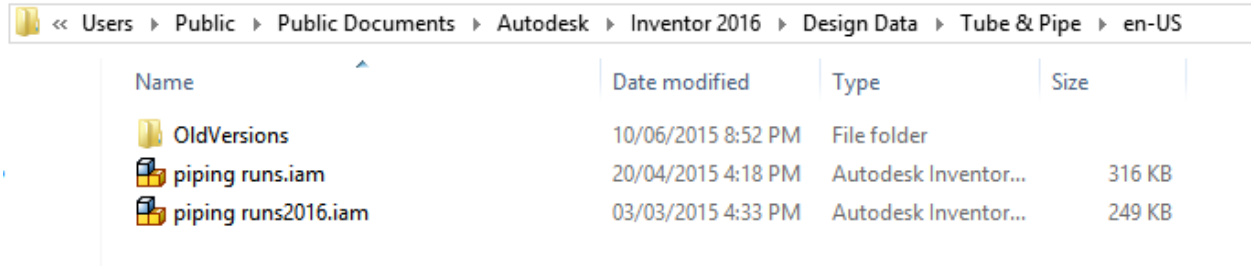
At the completion of the class, attendees will be able to add new tube and pipe styles, edit existing T & P styles. Understand management of T & P Styles in network and stand-a-lone environments. Understand Inventor settings to maximize performance within the T & P environment. Create new flexible routes; modify the path and style of new and existing routes and fittings placement. Understand how and when the placement of fittings within the model and T & P route can affect the Bill of Materials of the assembly and downstream drawings/documentation.

Tube & Pipe Styles Template

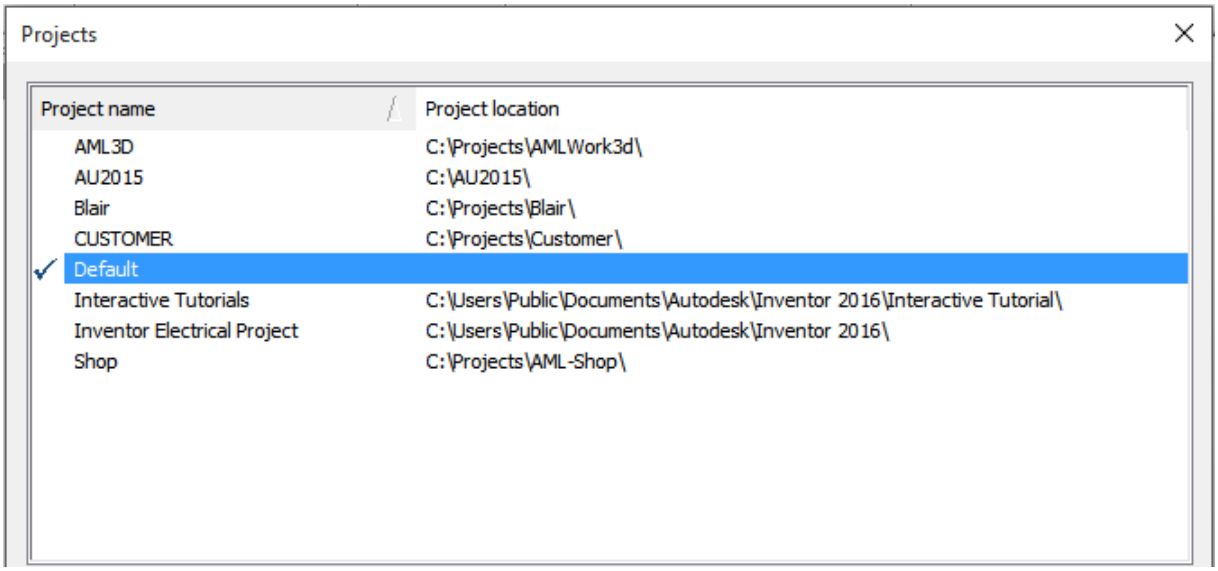
Location of the Tube & Pipe Template is controlled by the Application Options. For multi-user environments, this should be located on server. Care should be taken not to bury this location to many folder levels down.



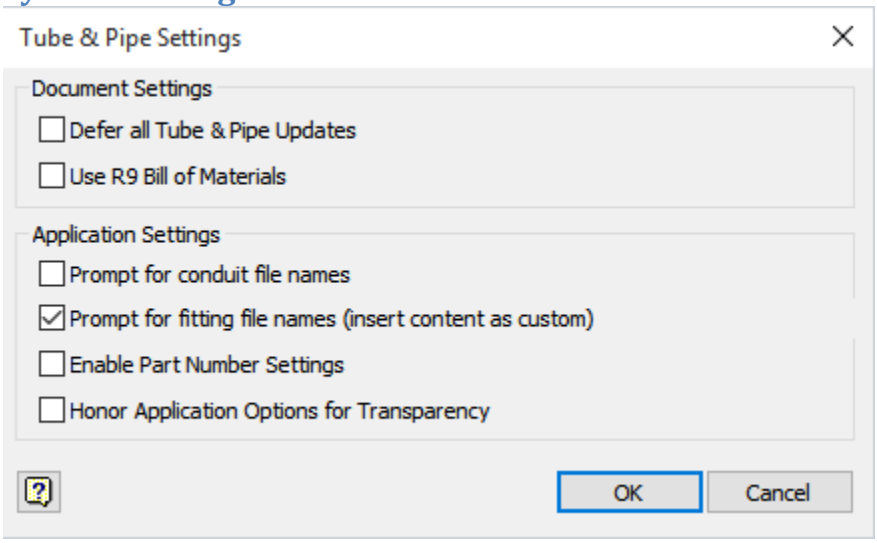
Good procedure is to create a copy of the default version, before either copying and migrating your existing version on software upgrades.



The “Default Project file is well suited for working with the T & P Template file.



System Settings



Use R9 BOM

In the current BOM, the raw material description for conduit parts is stored in the new stock number property. All BOM items with the same part number are automatically merged in parts lists. If the part number is blank, parts do not merge

In the R9 BOM, the raw material description for conduit parts was stored in the part number property. You had control over the merging of rows in the parts list. If two pipes had the same part number, you could choose not to merge them

Application Settings

Prompt for conduit file names

Determines whether conduit part files prompt to rename in progress of populating routes, saving files, and reusing tube and pipe components.

Prompt for fitting file names (insert content as custom)

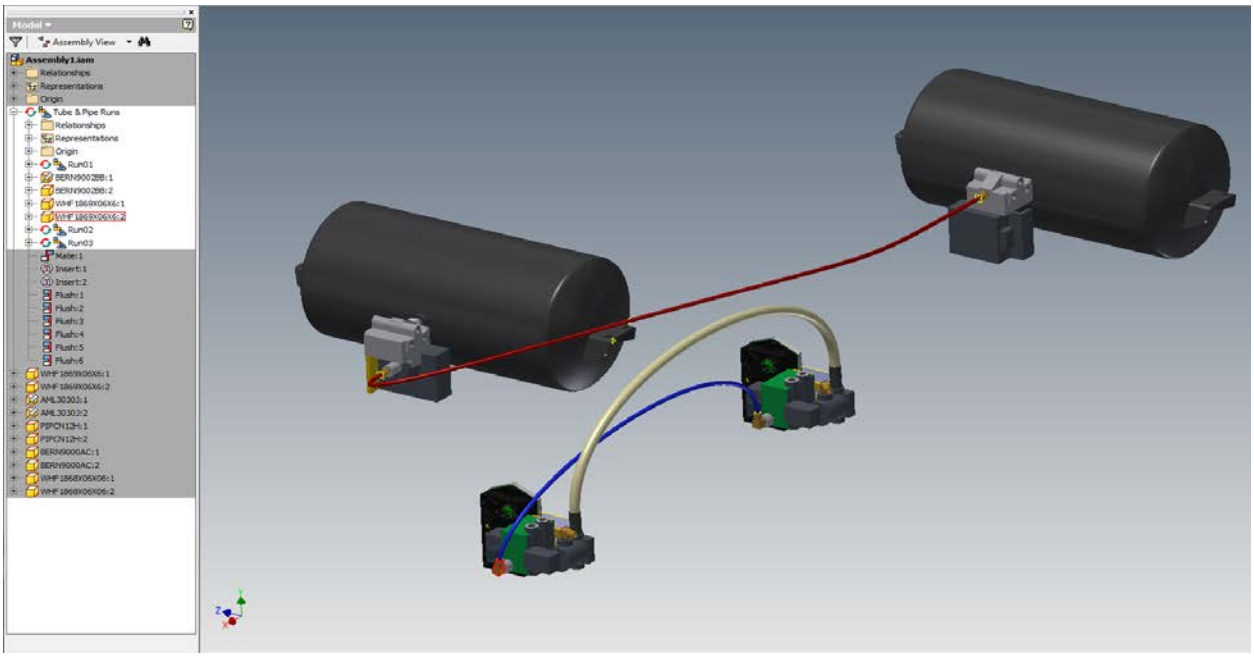
Prompts the option to customize the name of your fittings within the Conduit File Names dialog box.

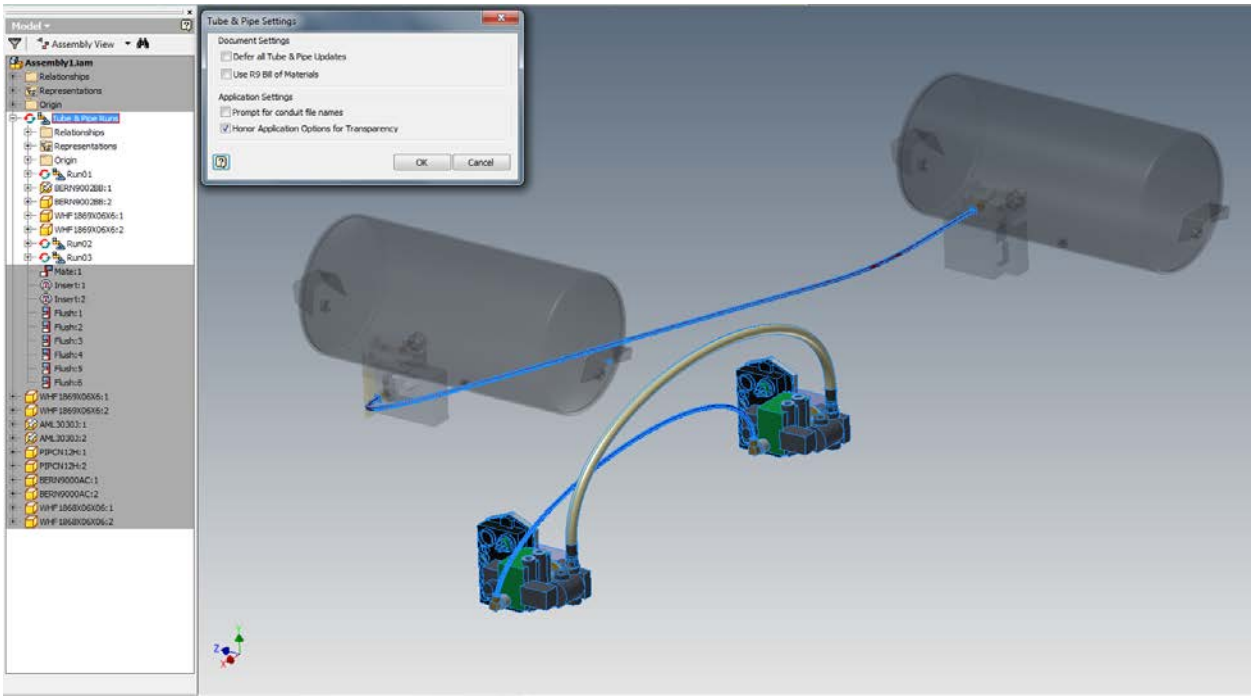
Enable Part Number Settings

Allows you to populate a part number into the parts list within the drawing environment. The part number is updated within the part file and then populates to the parts list. This option also makes available the Part Number Settings options in the Conduit File Names dialog box. Upon accessing the Conduit File Names dialog box, you then have the option to inherit part numbers from Content Center, use a custom file name, or leave empty.

Honor Application Options for transparency

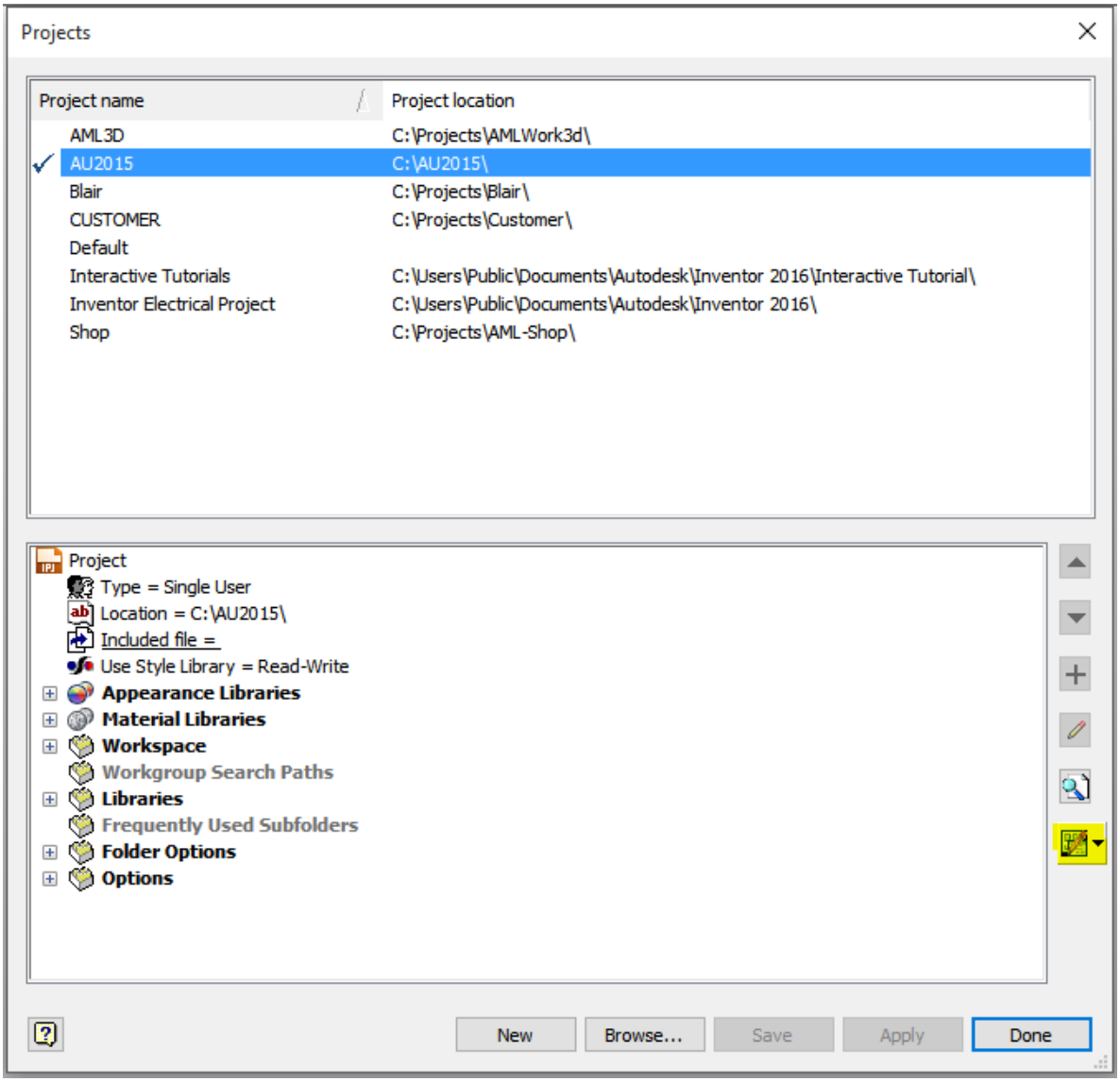
When selected, the option settings for transparency are honored as set in the Application Options dialog box. Turned off by default. When not selected, the entire assembly displays as opaque, and avoids the visual confusion that can occur when transparency is active.



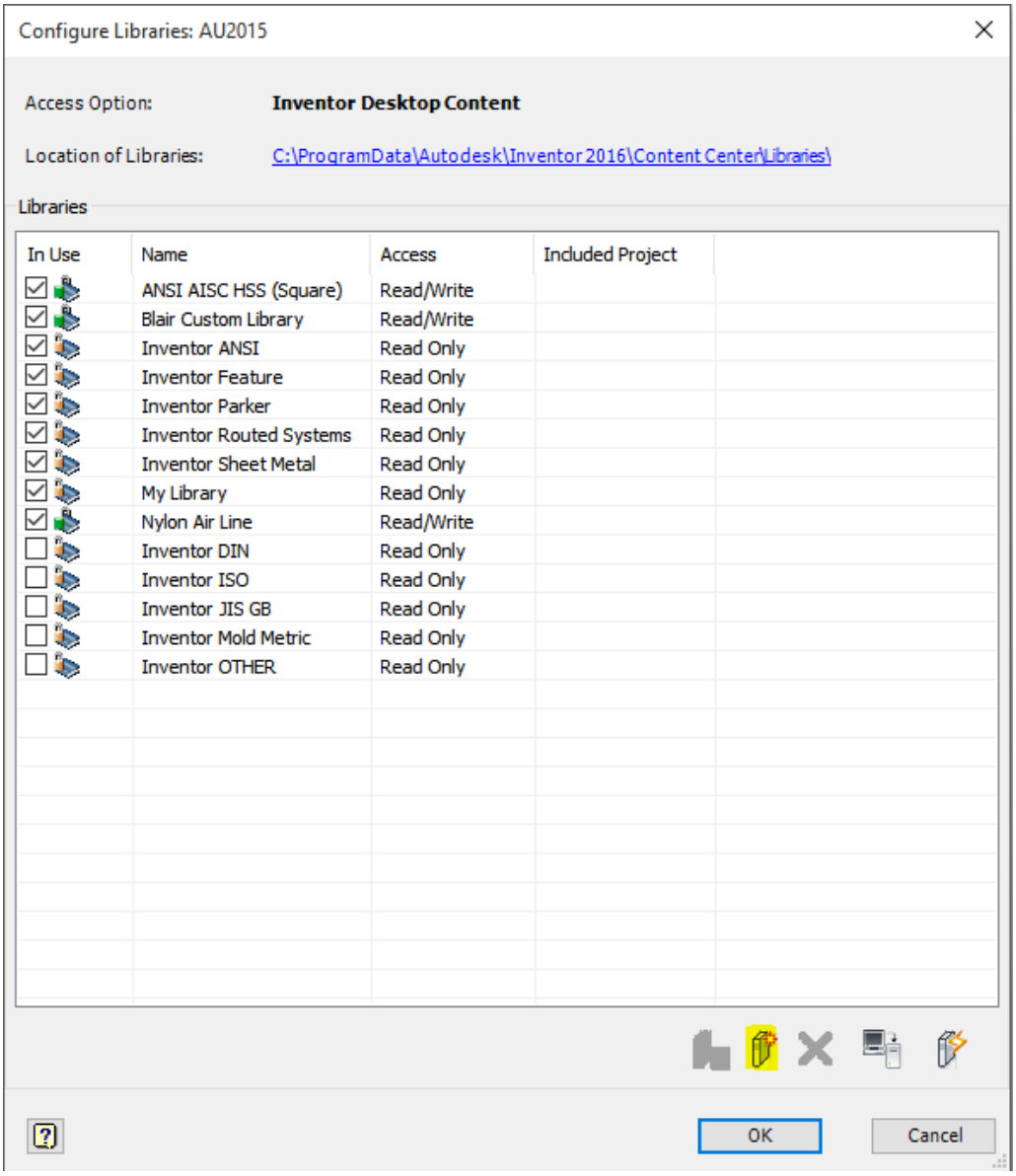


Configure Libraries

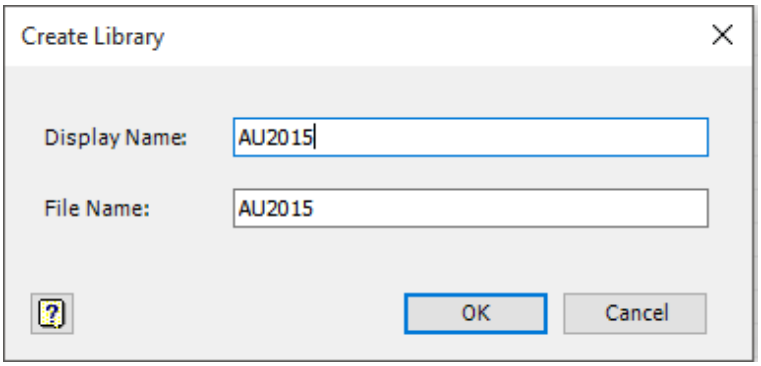
Requires a Read-Write Library, open Project File Editor via the drop-down box located at the lower RH corner of the Project Editor.



Create Library; make sure to include this new Library in any of your Project Files that require it. Good rule of thumb for performance, only include the Libraries you need for each project. If you have all the Libraries checked it will impact Content Center performance. You will need to add this Library to your “Default” Project File so it can be used for this exercise.



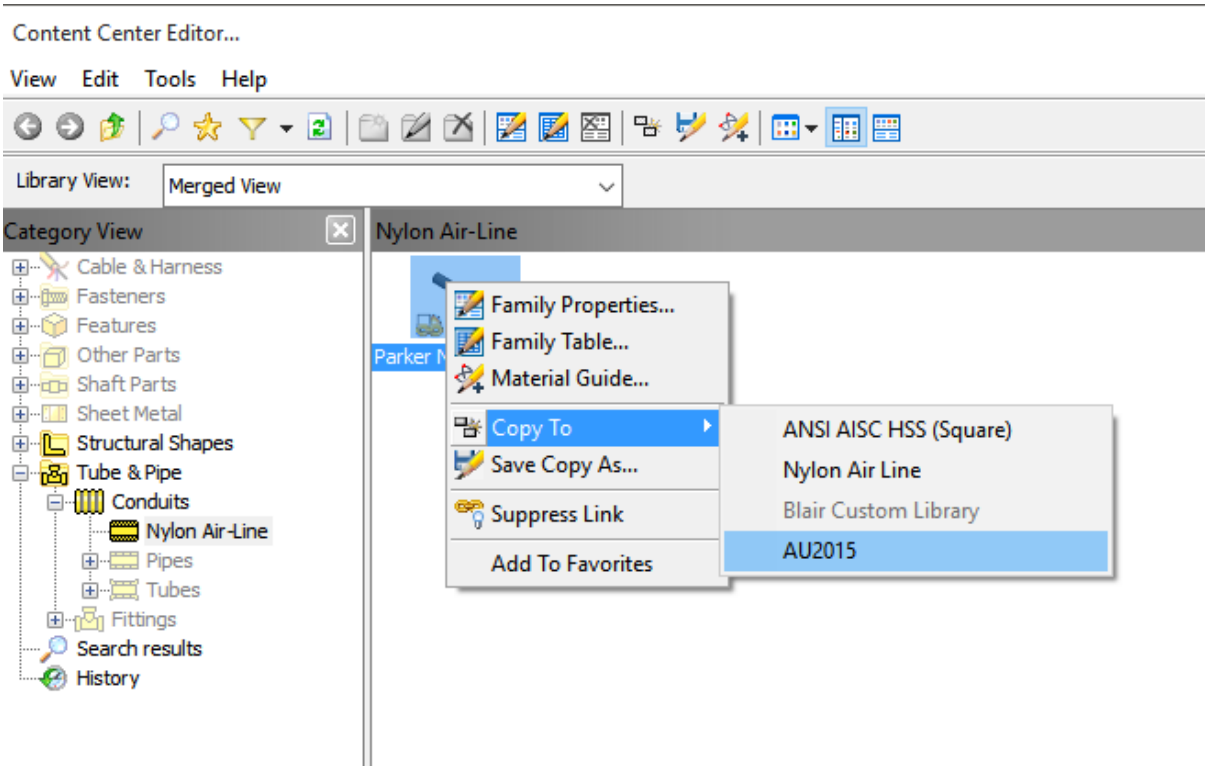
Enter File Name:



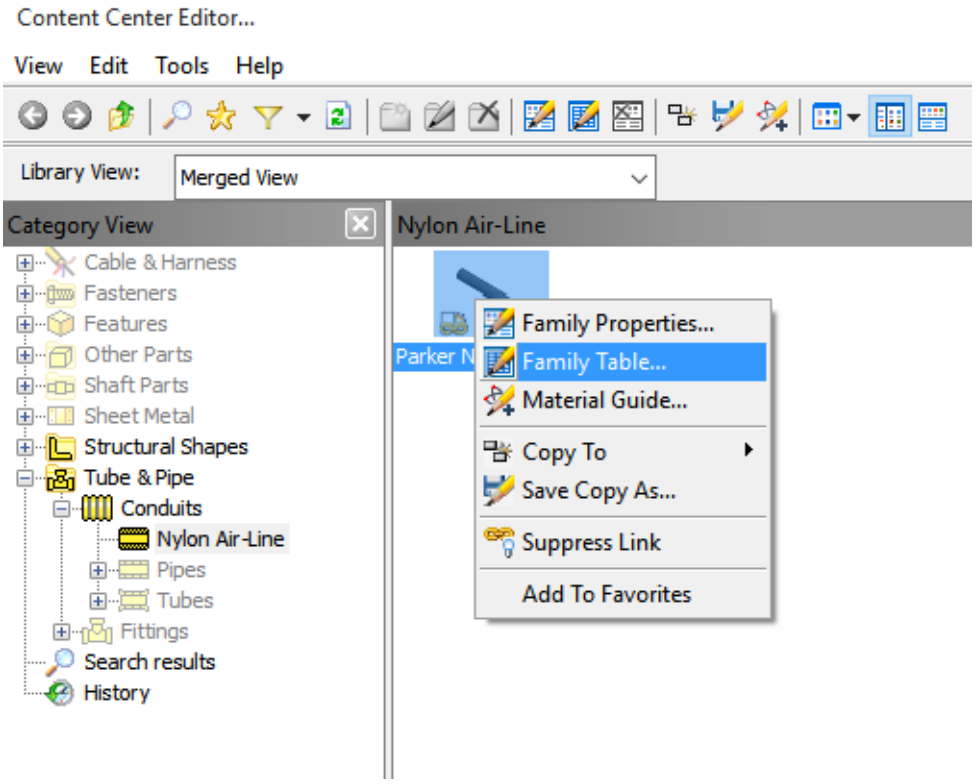
Content Center Editor

Open the Content Center Editor. It’s easier to copy and existing Library and Edit than to create a Library from scratch. It will also add continuity to your Libraries with similar layout and headings.

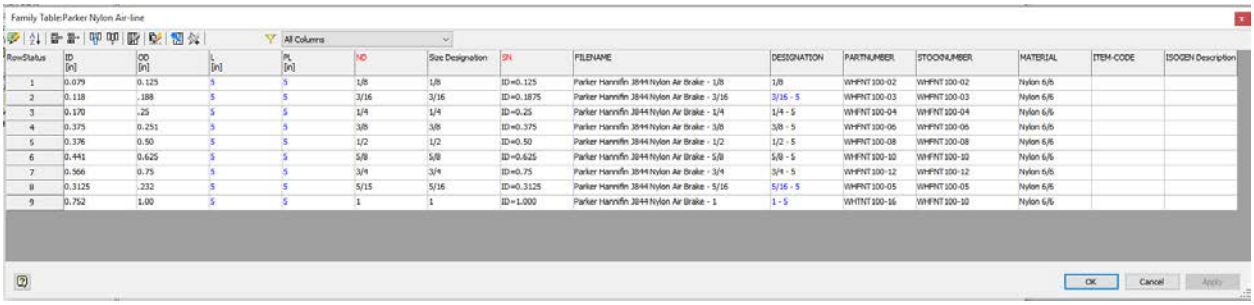
Copy the Library you wish to modify to your Read-Write Library



Right Mouse Button selects the Family, to open its Table.

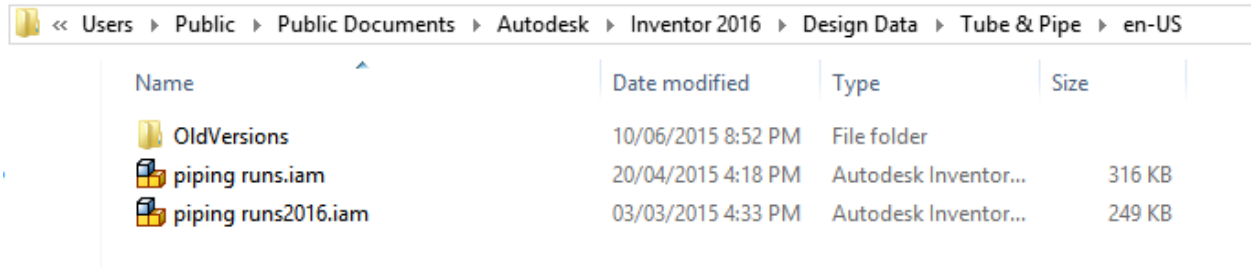


This will open the Family Tables which can then be modified.

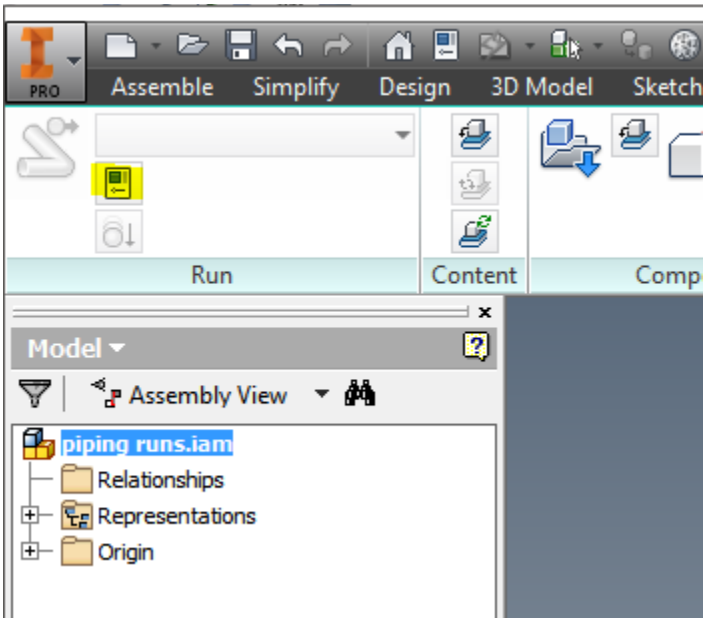


Styles

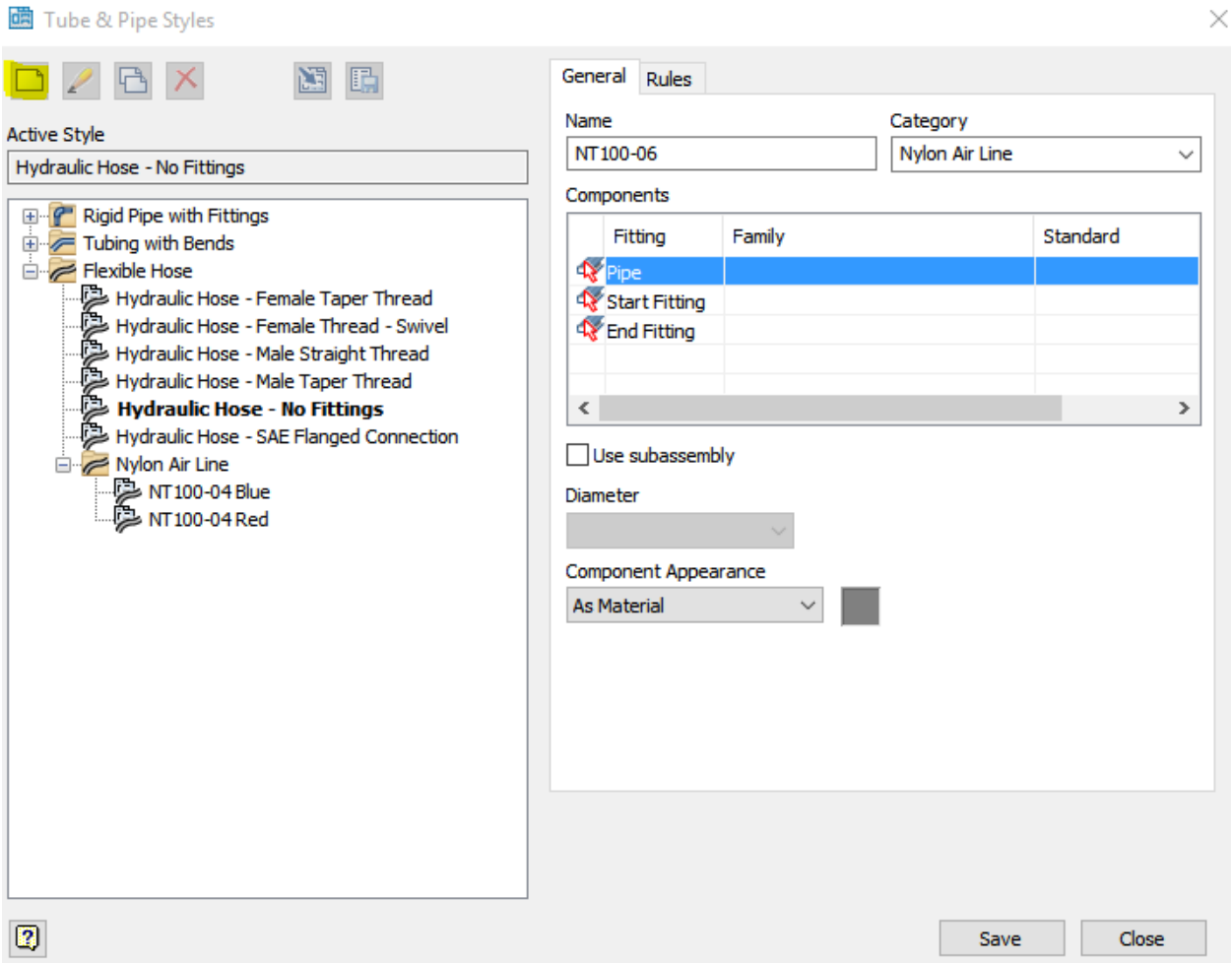
Navigate to the folder that contains the Tube & Pipe Template on your system. (default location for a stand-alone system is shown)



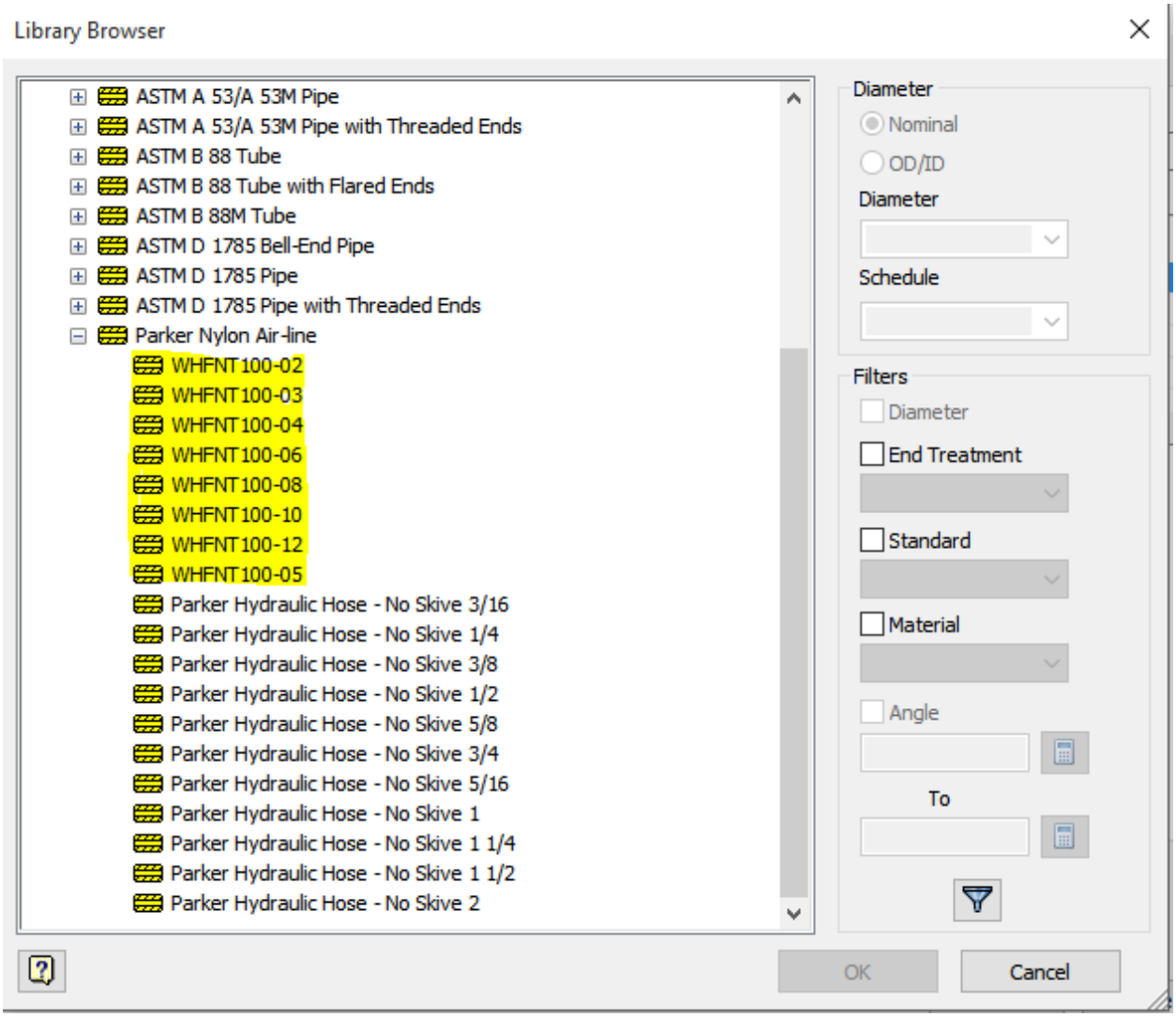
Open the Tube and Pipe Styles:



Select New



Double Click in the Component Box under Family and adjacent to the Pipe, this will open up to access the Family Table we created earlier. Under the Parker Nylon Air-Line the items created in the Family Table show. Select the required size for the new Pipe/Tube.



From this point on simply using the Copy and Edit to create all required Tube & Pipe Style. The Material is controlled in the Family Table. To create a Family Table with different materials, simply copy the Family Table, Edit and change the Materials for each member in the Table to required Materials and save this table with an appropriate file name.

Work Points / Nodes

Include Geometry:

Creates a Plane from either and Edgem Vertix, Work Geometry, 2D Sketch Geometry or Planar Face that can be used within the Tube & Pipe Environment. This works best with the Dimension command within the Contrain tab. Select the Dimension command, then select the Node first, then select the Include Geometry Plane, this creates a Sketch Dimension that can be changed fixing the Node.

Insert Node:

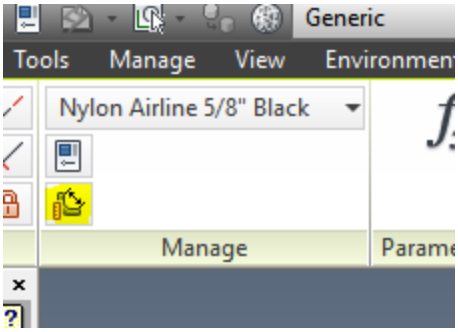
Inserts a Node along your Route that controls the Route Poly Line. By selecting the Node and RMB activated the 3D Move dialogue and Triad to move/position the Insert Node. Some of gthe Constrain commands can be used such as the Dimension command in conjunction with the “Include Geometry to control the position of the Insert Node.

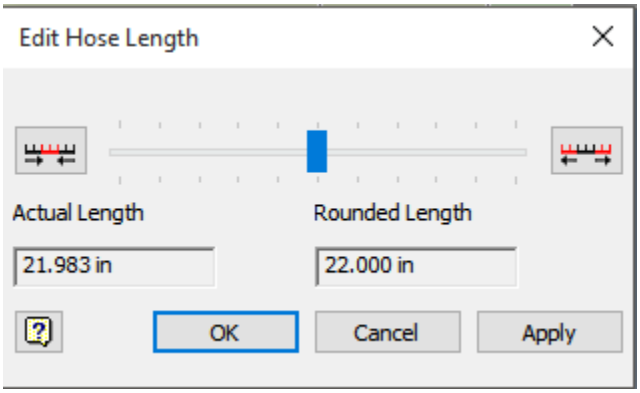
Grounded Work Point:

Converts/Adds existing construction points outside the Tube & Pipe run to Work Point Nodes inside the Tube & Pipe run.

Hose Length

Controls the “tightness” of the Poly Line with “steps” as controlled by the “Rounding” established in the Tube & Pipe Style for the run. The center Slider Bar changes the run length. The center slider bar has a limited amount of travel. Should you run out of desired travel, selected either the Shorted icon to the left or the Length icon to the right of the slider will then bump you to the next range of slider adjustment.



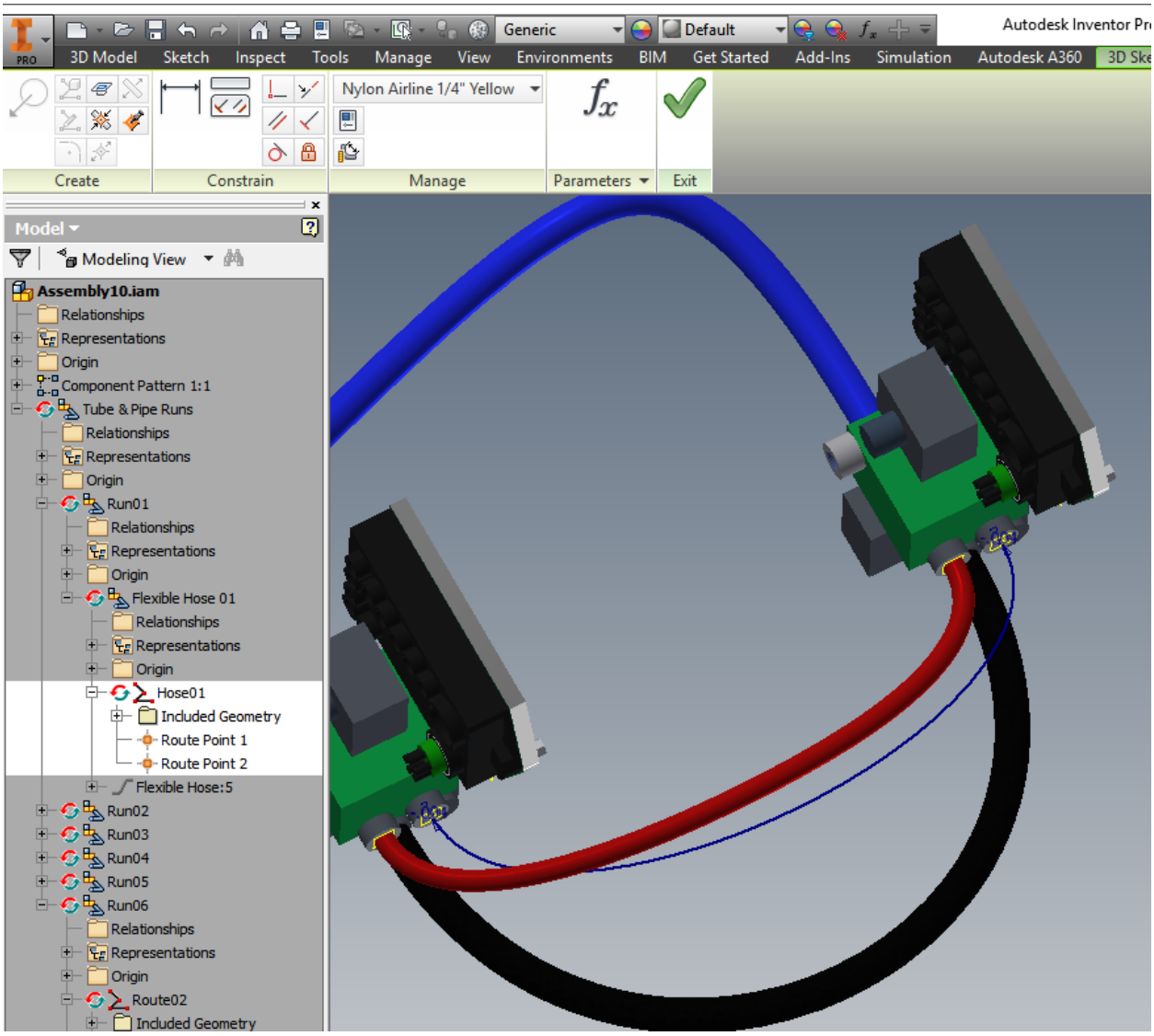


Redefine

Select Node on Route, RMB to engage Dialogue Box. Select Redefine, then select model geometry to Offset Node from. This doesn’t ground or fix the Node as it can be dragged to a new location.

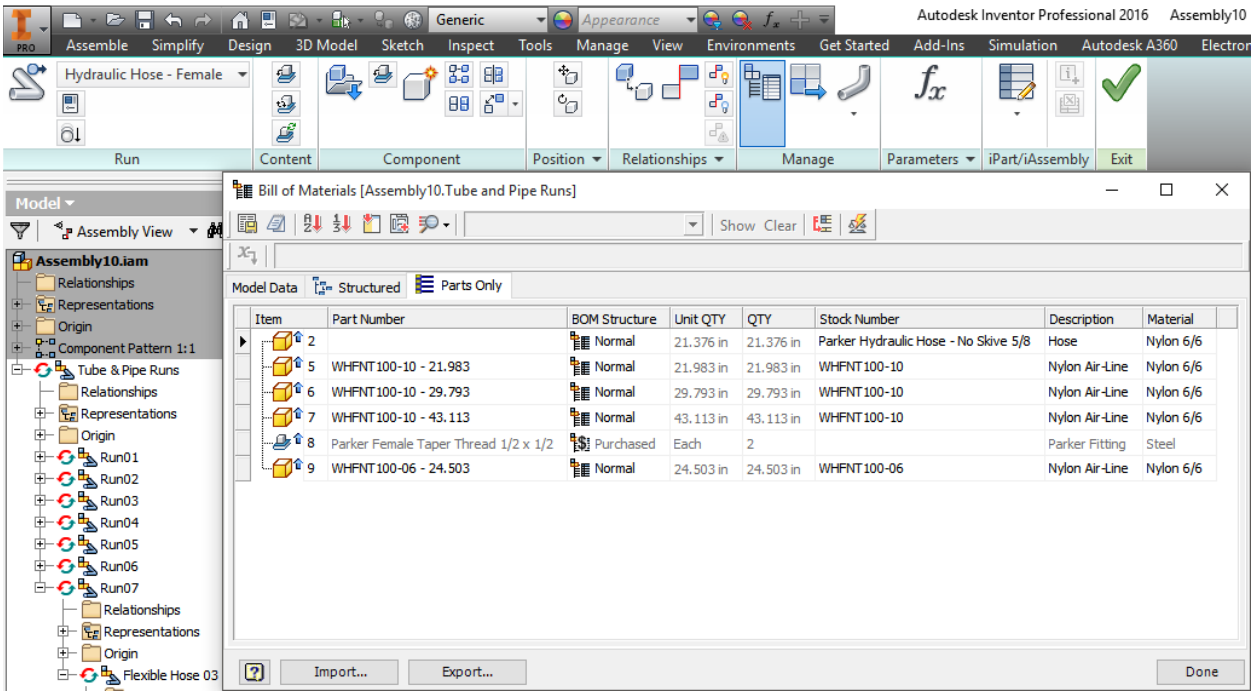
Run Style Change

Drill down to the Tube & Pipe run you wish to change the Style of. All that should be showing is the Poly Line for the Run. Select the T & P Style from the Manage panel and select the required Style. When you “Exit” the edit the new Style will be populated on the Tube & Pipe run.



BOM

Using the “Parts Only” tab within the BOM will pull the majority of the information from the Run from the Family Table and only the Length from the Run. Style information in omitted.



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