Autodesk *Skill Builders*

A Skill-building Exercise

# Authoring, Publishing, and Styles - Part 3

In This Exercise

In Part 3, you define a custom tube and pipe style based on published parts and then create a rigid pipe route. It is similar to the workflow of creating tube and pipe styles using standard library parts.

Before starting the exercises that follow, you must complete the exercises in Part 1 and Part 2.

Create a Custom Tube and Pipe Style Using Published Parts

When defining a tube and pipe style, you are essentially searching for a conduit part and the fittings that are to make up a pipe run. You are also establishing certain rules to be followed while creating routes. Use the Tube & Pipe Styles dialog box to define the search criteria, and then search for the conduit part and fittings based on the criteria.
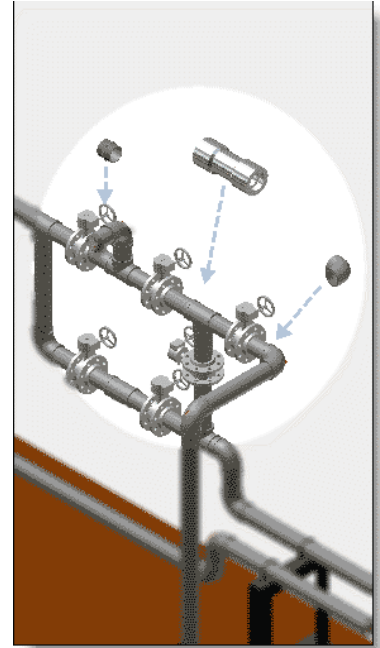
The number of published parts required by a style depends on the type of style you are configuring.

- When creating rigid pipe styles, for example, a minimum of three compatible parts are required: a pipe, a coupling, and an elbow. If you require both 45-degree and 90-degree elbows, four parts are required. The welded tube and pipe style needs a minimum of two part types: a pipe and a 90-degree elbow.
- For bent tubing styles, at least one pipe part (tube segment) must be published for a tube route.
- For flexible hose styles, it depends on whether or not the start fitting and end fitting are required for the hose, but at least one hose conduit part (hose segment) must be published.

In this exercise, you set the Tutorial Files folder as your workspace and create a welded Rigid Pipe with Fittings style using the published pipe and 90-degree elbow. Only 2 parts are required by this style, since it is a welded style with 90-degree elbows only.
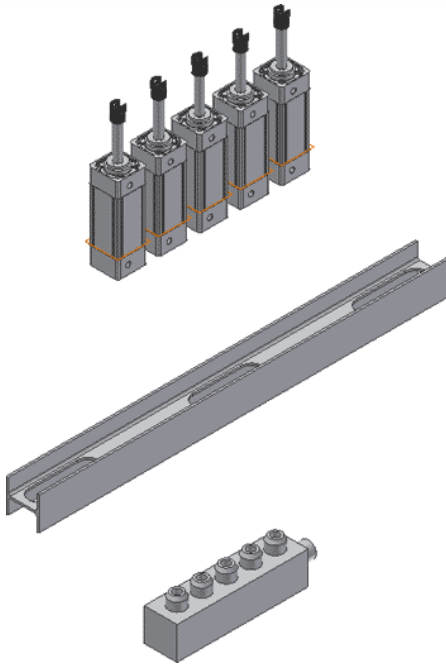
Create a custom tube and pipe style using published parts

1. Set your workspace as **Program Files ➤ Autodesk ➤ Inventor Professional** *<version>* **➤ Tube & Pipe ➤ Tutorial Files**.

2. Enable the Styles library for the project. For detailed instructions, refer to Autodesk Inventor® Professional Tube and Pipe Help.

3. Open **AirSystemAssy.iam**.

4. On the Assembly panel bar, click the Create Pipe Run tool. Use the default tube and pipe assembly name and file location.

    The first pipe run **Pipe Run 1** is created and activated automatically.

5. On the Tube & Pipe panel bar, click Tube & Pipe Styles tool.

6. In the Tube & Pipe Styles dialog box, select **ASTM A53/A53M-ASME B16.11 - Welded Steel Pipe** from the Style list as the base.

7. Click the New tool and enter **Custom Welded Pipe (1/4, 90)** in the New Style Name box.

8. On the General tab, set the following parameters:

    Route Type: **Rigid Pipe with Fittings**
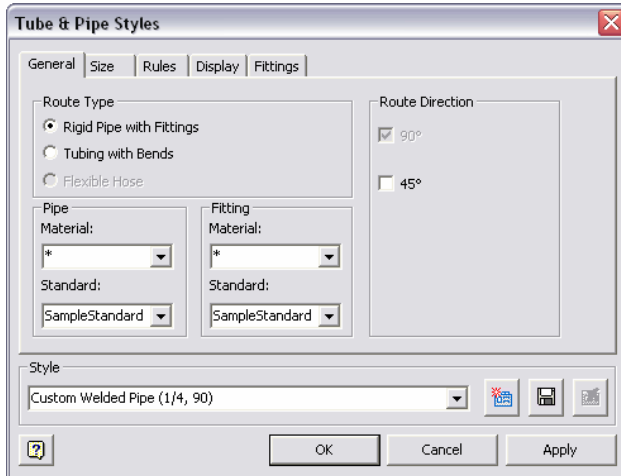
    Pipe:
    Standard: **SampleStandard**
    Material: *****

    Fitting:
    Standard: **SampleStandard**
    Material: *****

    Route Direction: Clear the **45**$^{\circ}$ check box. Note that **90**$^{\circ}$ is grayed out and always used for forward route creation.

NOTE:

■ **SampleStandard** is the Standard parameter (not Standard Organization) you manually set for the part family standard properties during publishing.

■ When **SampleStandard** is selected in the Standard list, the Material list should display all available materials. If the desired material is not displayed, use the Content Center tool to verify the part family does own this material. Use the Styles Editor tool to ensure this material is added to the Styles library.

■ Leave Material as ***** (asterisk) when you do not know the specific material or plan to search out all the compatible conduit parts or fittings based on other criteria. The active material is used when the pipe route of interest is populated.

9. On the Size tab, set the following parameters:

Nominal Diameter: **1/4 in**
Schedule: **40**

10. On the Rules tab, set the following parameters:

Segment Length Min: **1.000 in**
Max: **200.000 in**
Inc: **0.100 in**

TIP: It is recommended that the minimum segment length is at least 1.5 times Nominal Diameter; otherwise, it is more likely to cause a minimum segment length violation if pipe segments are too small compared to Nominal Diameter.

11. On the Display tab, accept the default settings.

12. On the Fittings tab, verify that the published pipe part and 90-degree elbow part are automatically filtered out.

TIP:

- If the pipe part or elbow part is not displayed, click Browse to start the Content Center library Browser dialog box and select the needed part.
- For welded routes, coupling is not a must so you can leave as is if no coupling is filtered out.

13. Click the Save tool.

The new style **Custom Welded Pipe (1/4, 90)** is created and available for creating new rigid pipe routes.

14. Click OK.

Create a Pipe Route Using the Custom Style

In this exercise, use the custom tube and pipe style to create a rigid pipe route in **AirSystemAssy.iam**.

1. Activate the previously created pipe run **Pipe Run 1**.

2. On the standard toolbar, Active Style list, verify that **Custom Welded Pipe (1/4, 90)** is selected.
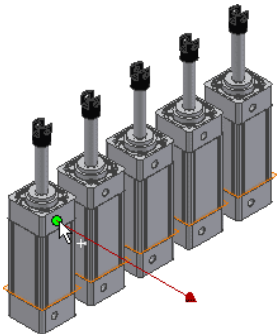
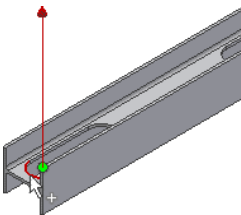3. On the Tube & Pipe panel bar, click the New Route tool.

The first pipe route **Pipe Route 1** is created.

4. On the Route panel bar, click the Route tool.

5. In the graphics window, select the following geometry to start the route. Press the spacebar to change the route direction as shown below.
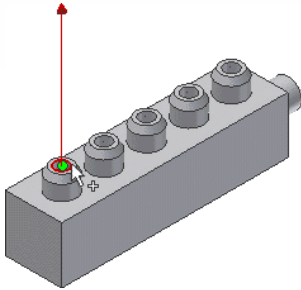
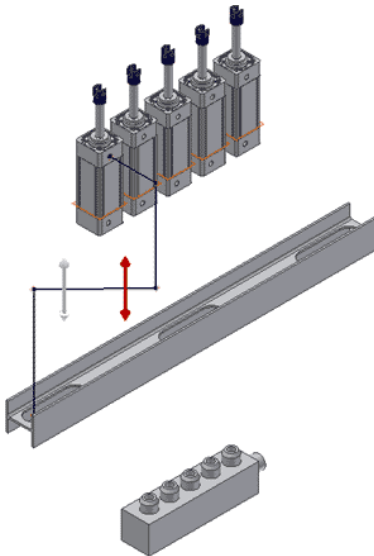6. Select the second geometry and click the green check mark to set the node point.

7. Select the third geometry as shown. When clicking the green check mark, you may fail to place the fitting or bend.

Use the Move Segment tool on the Route panel bar to drag the following segment upward.

Press ESC, or right-click the graphics window, and then select Done.

8. Right-click the last work point under the pipe route, **Work Point5**, and then select the Route tool.

   The Route tool is active again.

9. Select the same geometry with **Step 7**, and click the green check mark to set the final node point.

10. Press ESC, or right-click the graphics window and select Done.

11. Right-click again and select Finish Edit.

12. Populate the route.
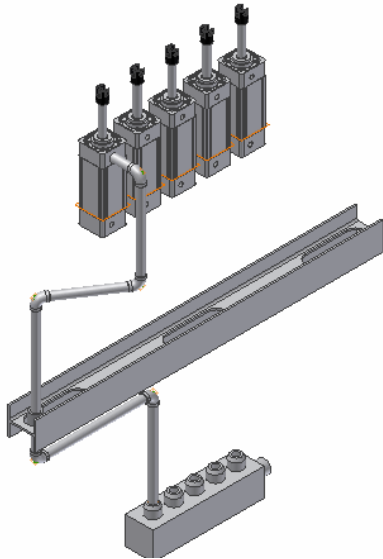
The custom tube and pipe style is applied to the pipe route. It uses at least one pipe and one 90-degree elbow that you published into the Content Center library.

Summary

You have now learned to:

- Define a custom tube and pipe style using published parts.
- Use the style to create a route.

If you need more information about tube and pipe tools, see the Autodesk Inventor Professional Tube and Pipe Help.