

## CHAPTER 5

# WORKING WITH CONNECTORS

**INFocus**

WPL\_V505

In some drawings, like flowcharts and organisational charts, you need to connect shapes to indicate the flow of the operation, procedure or logic.

In Visio, the lines connecting two objects are called **connectors**. A connector attaches itself to a **connector point** on a shape or to the shape itself.

Shapes can be connected as they are drawn or you can place the shapes on the page first and then draw the connectors at a later stage.

**In this session you will:**

- ✓ gain an understanding of how to connect shapes in **Visio**
- ✓ learn how to automatically add connected shapes
- ✓ learn how to connect existing shapes
- ✓ learn how to insert and delete shapes in a connected diagram
- ✓ learn how to add text to connectors
- ✓ learn how to change connectors
- ✓ learn how to work with connection points
- ✓ learn how to format connectors.

## CONNECTING SHAPES

The shapes drawn from some stencils (e.g. flowcharts) have **connection points**. These points enable you to draw **connectors** between shapes to display a relationship between them.

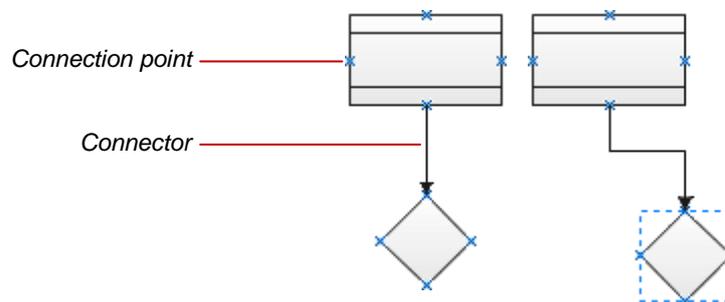
The connectors can be attached to the shapes using either **dynamic** or **point glue**. **Glue** is a property that keeps shapes connected even when they are moved to new positions.

### Connection Points

A **connection point** is a special point on some shapes to which you can attach (or **glue**) connectors and other shapes. A connection point appears as a blue **x** – for example, the **Create request** and **Decision** shapes below each have four connection points.

When you glue a **connector** to a connection point on a shape, the shape and connector will stay connected even if you move the shape as you can see in the example below.

In Visio 2010, connection points only become visible when you attempt to connect a shape to another shape. You will see a shape's connection points when you hover near a shape using the **Connector** tool or drag the endpoint of a connector or line near a shape that has connection points.



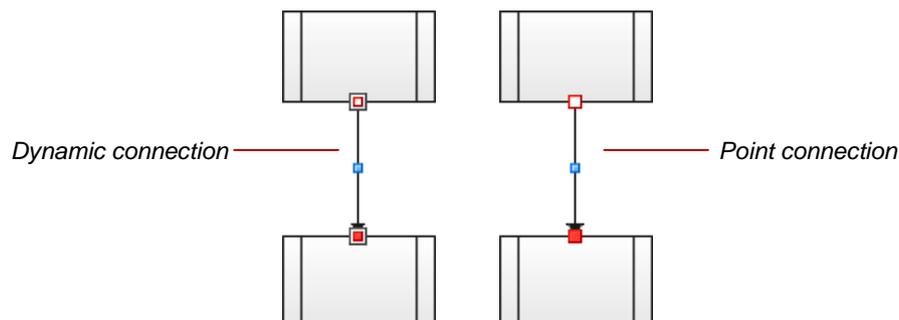
### Connections

There are two main types of **connections** in Visio: **dynamic** and **point**. What differentiates these two connections is whether or not a connector remains glued to a specific connection point when you move the attached shape.

A **dynamic connection** is one where the connector will move around the shape as you move the shape. Visio will always ensure the connector is the shortest, most direct line possible. You create a dynamic connection by selecting the entire shape (rather than the connection point) and connect it to another shape (rather than to a connection point).

A **point connection** is one where the connector is **glued** on a connection point of a shape. When you move this shape, the connector may change shape (i.e. to allow for other shapes in its way) but the connector will always remain attached to the same connection point. You create a point connection by connecting a specific connection point on one shape to another connection point on another shape.

Until you select a connector or move one of the attached shapes, you cannot differentiate a dynamic connector from a point connector. Below, we have selected both connectors so you can see how they differ. Both ends in a dynamic connector are surrounded by a blue box, while the start point of a point connector is a hollow red box and its end point is a solid red square.



# AUTOMATICALLY ADDING CONNECTED SHAPES

The **AutoConnect** feature in Visio lets you quickly add connected shapes to your drawing that are evenly spaced and aligned. You can either add the shapes by selecting one of the four

Quick Shapes in the mini toolbar, or you can pre-select the desired shape in the **Shapes** window and simply click on the AutoConnect arrow pointing in the direction where you want to add the shape.

## Try This Yourself:

**Open File** Before starting this exercise you **MUST** open *V505 Working With Connectors\_1.vsd...*

**1** Hover over the Build model **Process** (rectangle) shape until the blue AutoConnect arrows appear around the shape

**2** Hover over the bottom AutoConnect arrow to display a mini toolbar with the top four Quick Shapes from the open **Basic Flowchart Shapes** stencil

*A preview of the shape that is currently selected in the stencil appears on the page...*

**3** Move the pointer over the four shapes to see a live preview of each shape on the page

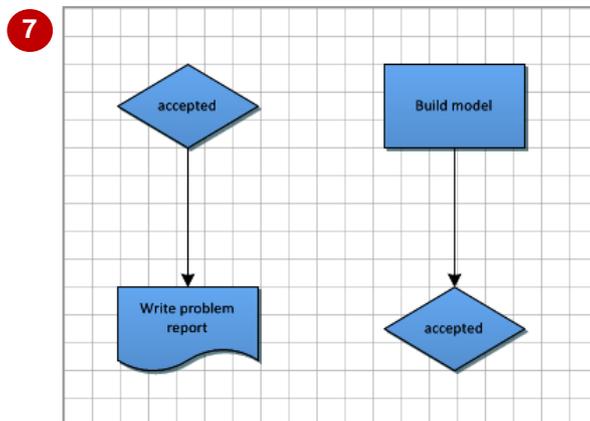
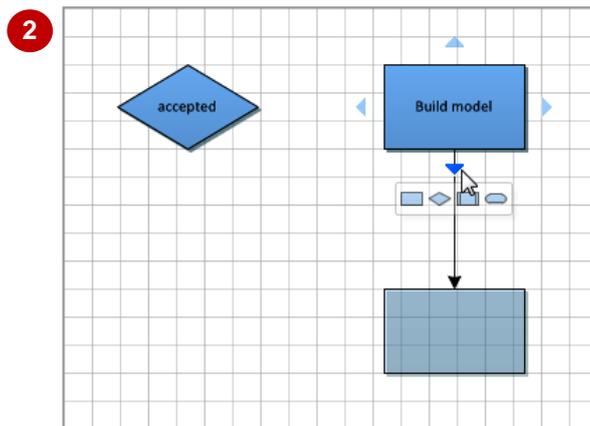
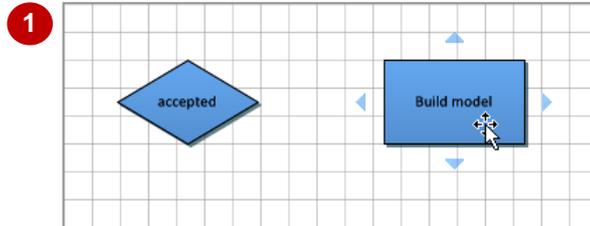
**4** Click on the **Decision** (diamond) shape, then type **accepted** and click outside the shape

*Let's add another shape...*

**5** Click on **Document** in the **Shapes** window to select this shape in the stencil

**6** Hover over the first **Decision** shape, then hover over the bottom AutoConnect arrow

**7** Click on the AutoConnect arrow to add the **Document**, then type **Write problem report**



Connections created using AutoConnect are **dynamic connections**.

## For Your Reference...

To automatically add connected shapes:

1. Click on the shape in the stencil to be added
2. Hover over the shape in the drawing, then hover over the desired AutoConnect arrow
3. Click on the Quick Shape in the mini toolbar or click on the AutoConnect arrow to add the selected shape

## Handy to Know...

- You can turn **AutoConnect** on or off in the active drawing by ticking or clearing **AutoConnect** in the **Visual Aids** group on the **View** tab. You can turn it on or off for all drawings in the **Options** dialog box. Click on **File, Options, Advanced** and tick or clear **Enable AutoConnect** in **Editing options**.

## CONNECTING EXISTING SHAPES

You can connect existing shapes in a drawing using **AutoConnect** (with the **Pointer** tool) or manually with the **Connector** tool. To create a **point connection** on the first shape (connecting

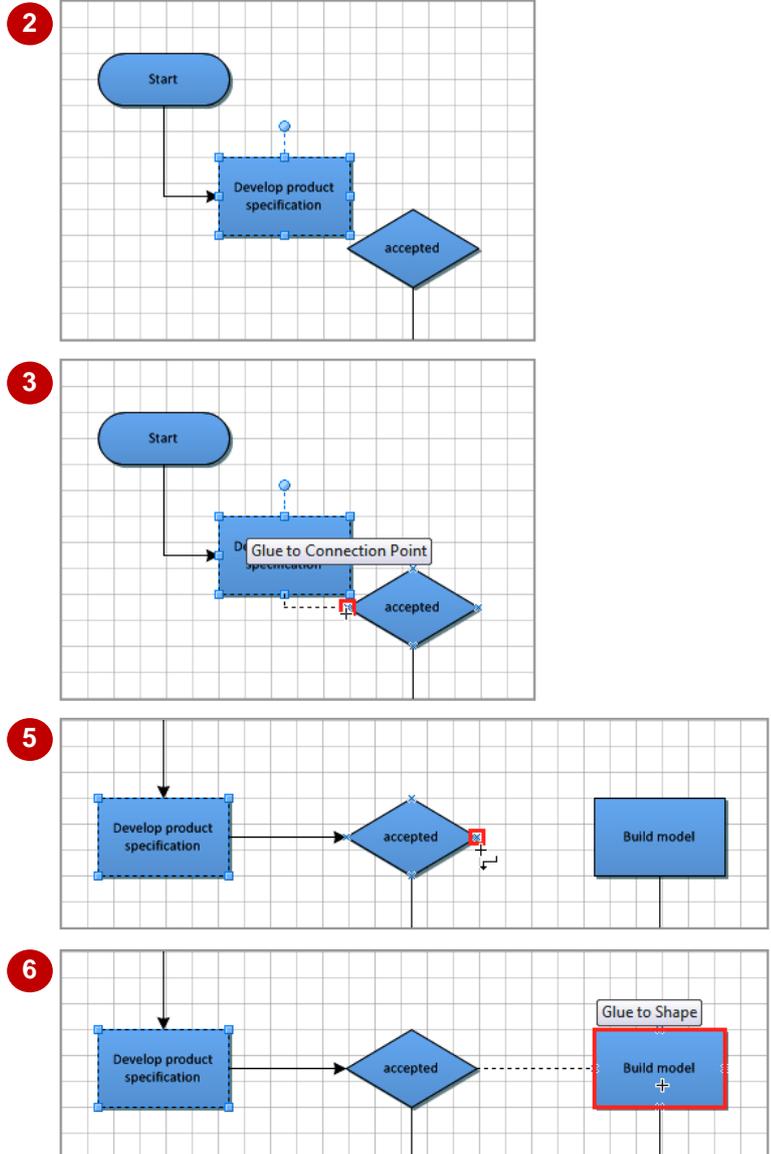
from a connection point to another point or shape), you must use the **Connector** tool. By default, AutoConnect creates a **dynamic connection** glueing the start of a connector to the shape.

### Try This Yourself:

Same File

Continue using the previous file or open V505 Working With Connectors\_2.vsd...

- 1 Hover over the **Start** shape to display the AutoConnect arrows, then hover over the bottom arrow to display a preview of a connector
- 2 Click on the AutoConnect arrow to insert the connector, then drag the shape to a location similar to as shown to see that the connector can move to a different connection point – this is a dynamic (**shape to shape**) connection
- 3 Hover over the **Develop Process** shape, then click and drag the bottom AutoConnect arrow until the connection point is highlighted, as shown, then release the mouse button – this is a **shape to point** connection
- 4 Drag the **Develop Process** shape back to its original position – the connector will attach to the connection point closest to the **Decision** shape
- 5 Click on the **Connector** tool  in the **Tools** group, then hover over the right connector point of the top **Decision** shape to select it
- 6 Click on the connector point, then drag to the centre of the **Build Process** shape, as shown, then release the mouse button to create a **point to shape** connection



You can use the **Connector** tool  to create all four connector types: **shape to shape**, **shape to point**, **point to shape**, and **point to point**. Using the **Pointer** tool  and **AutoConnect**, you can only create **shape to shape** and **shape to point** connectors.

### For Your Reference...

To connect existing shapes with a point to shape/point connection:

1. Click on the **Connector** tool 
2. Click on the connection point and drag to either the shape or connection point
3. Release the mouse button

### Handy to Know...

- You can connect shapes using a connector shape from a stencil. Once you have dragged the connector onto the page, drag each end of the connector to the desired connection point and glue it in position. If you are using a dynamic connector shape, you can glue it to the shape or connection point.

# INSERTING AND DELETING SHAPES

If you have already created much of your flowchart but you need to add or remove shapes, it's no problem. As you insert a shape, Visio will connect the shapes, repositioning shapes as

necessary. When you delete a shape, Visio will automatically connect the remaining shapes but without repositioning them. However, using **Auto Align & Space** you can correct this with a click.

## Try This Yourself:

Same File

Continue using the previous file or open *V505 Working With Connectors\_3.vsd...*

**1** Drag the **Document** shape from the **Basic Flowchart Shapes** stencil onto the connector between the **Start** and **Develop Process** shapes until the two red connection handles appear

**2** Release the mouse button

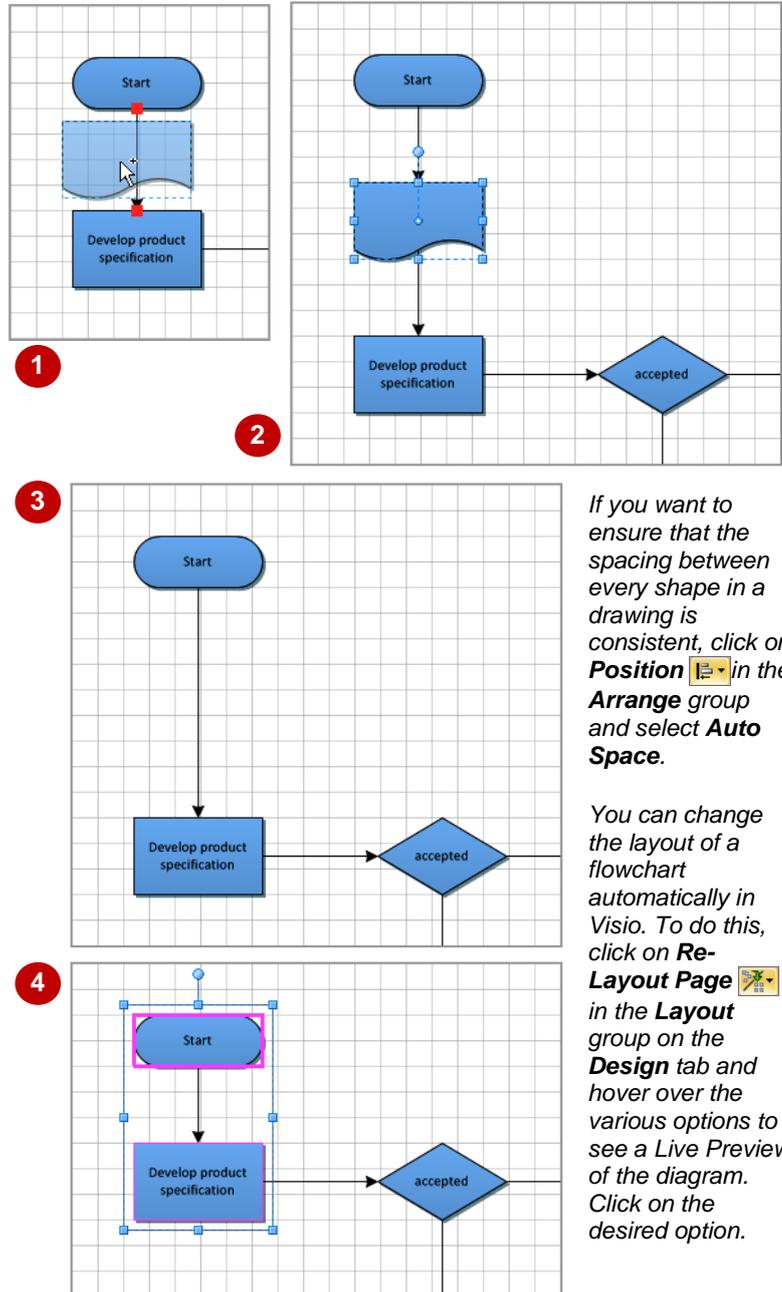
*The surrounding shapes will move automatically making room for the shape and a new connector will be added.*

*You can easily remove shapes as well...*

**3** Ensure the new **Document** shape is selected, then press

*The two connectors will be replaced by a single connector between the remaining shapes. Let's correct the spacing now...*

**4** Click on the **Pointer** tool , then select both the **Start** and **Develop Process** shapes, then click on **Auto Align & Space**  in the **Arrange** group



*If you want to ensure that the spacing between every shape in a drawing is consistent, click on **Position**  in the **Arrange** group and select **Auto Space**.*

*You can change the layout of a flowchart automatically in Visio. To do this, click on **Re-Layout Page**  in the **Layout** group on the **Design** tab and hover over the various options to see a Live Preview of the diagram. Click on the desired option.*

## For Your Reference...

To insert a shape with automatic adjustment:

1. Drag a shape to be inserted onto a connector

To delete a shape with automatic adjustment:

1. Select the shape and press
2. Select the shapes then click on **Auto Align & Space**  to correct the spacing

## Handy to Know...

- Visio does not automatically close up the space when you delete a shape from a linked sequence of shapes as this might not be the action you desire.
- You can adjust all shapes in a diagram at the same time by selecting them and then clicking on **Auto Align & Space** .

# ADDING TEXT TO CONNECTORS

In some instances, you may need to add text to a connector. In a flowchart, for example, you might need to indicate the direction of flow based on the outcome of a decision. If the outcome is

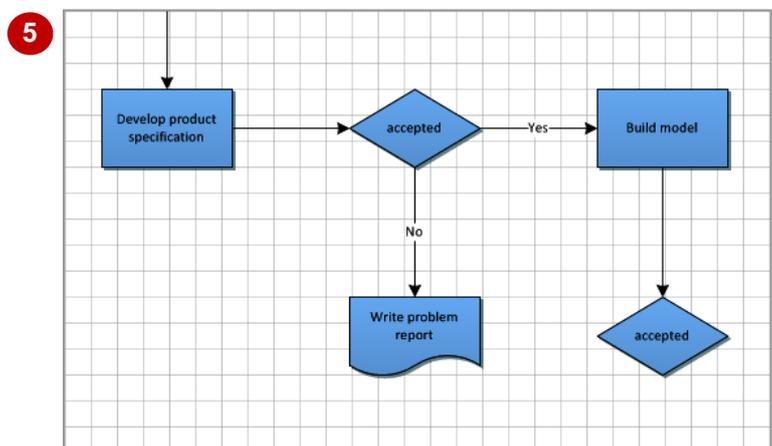
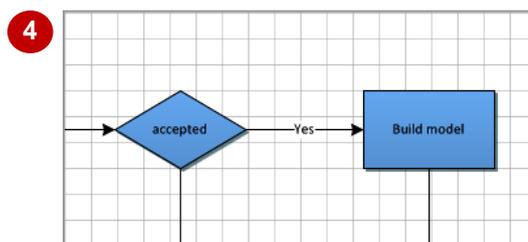
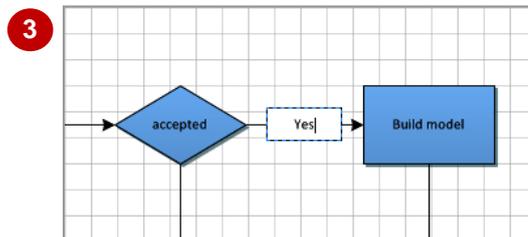
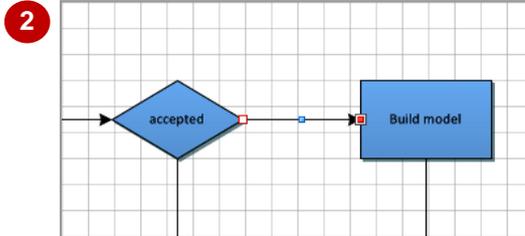
positive, the flow will continue in one direction but if the outcome is negative, then the flow will be redirected elsewhere.

## Try This Yourself:

Same  
File

Continue using the previous file with this exercise, or open the file *V505 Working With Connectors\_4.vsd...*

- 1 Click on the **Pointer** tool  in the **Tools** group
- 2 Click on the connector between the accepted **Decision** shape and the Build **Process** shape to select it
- 3 Type **Yes**  
*Visio will automatically add the text to the selected connector. Visio may also zoom in if you are working at a magnification less than 100% so that you can see what you are typing...*
- 4 Click outside the text to indicate that you have finished entering the text  
*You could have also pressed ...*
- 5 Repeat the above steps to add **No** between the **Decision** shape and the **Document** shape



## For Your Reference...

To add text to a connector:

1. Click on the connector using the **Pointer** tool 
2. Type the desired text

## Handy to Know...

- You can format or edit the text on a connector. To do this, select the connector by clicking on it with the **Pointer** tool  then click on the **Text** tool  in the **Tools** group to select the text.

# CHANGING CONNECTORS

Sometimes, the path that a connector makes between two shapes is not quite right. You can manipulate a connector to reshape it. You can also change the type of line that is used for a

connector from being right-angled to either curved or straight. If you have connectors crossing other connectors in more complex flowcharts, you can change the way the lines appear where they cross.

## Try This Yourself:

**Same File**

Continue using the previous file or open *V505 Working With Connectors\_5.vsd...*

- 1 Use the **Connector** tool  to create a point to point connection as shown

You can manipulate a connector...

- 2 Click on the **Pointer** tool  then drag the two midpoints (the blue squares) and vertex (blue diamond) on the connector as desired

You can change the connector to a different type of line...

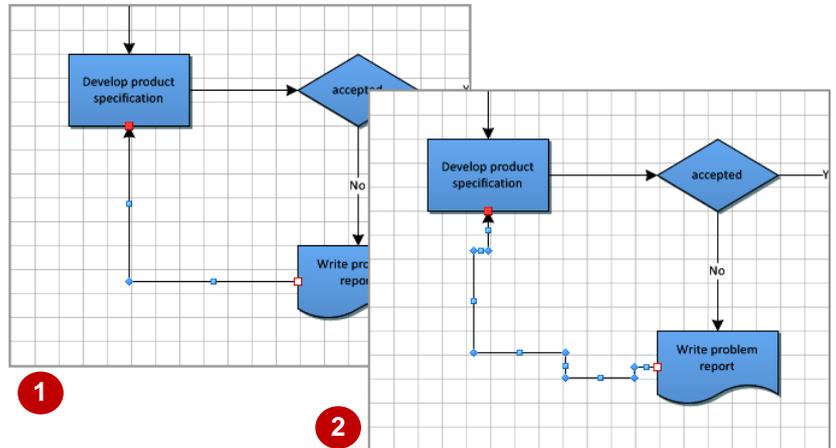
- 3 Click on the **Design** tab, then click on **Connectors**  in the **Layout** group and select **Straight Lines**

- 4 Repeat step 3 but select **Curved Lines** and then manipulate it as desired

Using the **Connectors** menu you can also add line jumps...

- 5 Using **AutoConnect**, create a connector from the bottom of the **Develop Process** and glue it to the bottom of the **Build model Process**

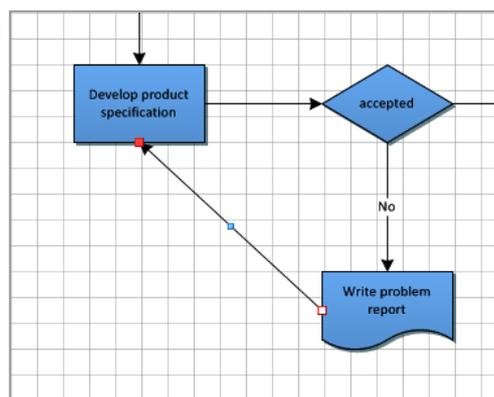
- 6 Repeat step 3 and select **Show Line Jumps**, then press **Esc**



1

2

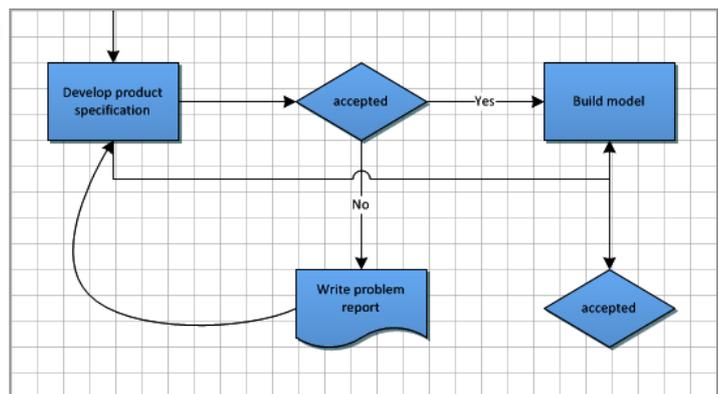
3



You can create a new vertex in a connector by holding **Ctrl** while dragging a midpoint.

You can add extra sections to a connector by holding **Shift** while dragging a vertex or midpoint.

6



## For Your Reference...

To manipulate a connector:

1. Click on the connector (**Pointer** tool )
2. Click on **Connectors**  in the **Layout** group and selected the desired line type
3. Drag the vertices and midpoints as needed

## Handy to Know...

- If you want to reverse the direction of a connector, select the connector, press **Del** to delete it, and then create a new connector in the correct direction.
- You can use different **Line jumps** settings by clicking on the **dialog box launcher**  for **Layout** (on the **Design** tab).

# WORKING WITH CONNECTION POINTS

A connection point is a special point on some shapes to which you can glue connectors and other shapes. Although Visio provides a specific number of connection points in default locations,

you can easily add additional points if you want to glue a connector in a non-standard location. You can also move and delete unwanted connection points.

## Try This Yourself:

**Same File**

Continue using the previous file or open *V505 Working With Connectors\_6.vsd...*

- 1 Click on the **Connection Point** tool  in the **Tools** group on the **Home** tab

The existing connection points will display. Let's add a new connection point...

- 2 Click on the **Develop Process** shape to select it, then hold **Ctrl** and click to the right of the bottom connection point

The connector will automatically move to the new connection point...

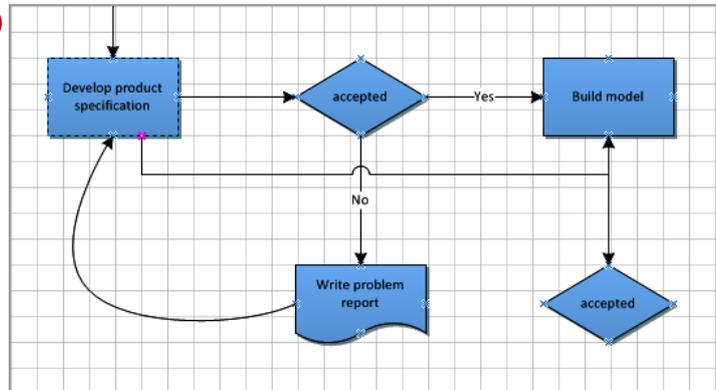
- 3 Repeat step 2 to add a new connection point to the left of the bottom point on the **Build Process** shape

Let's move the connector to the new connection point...

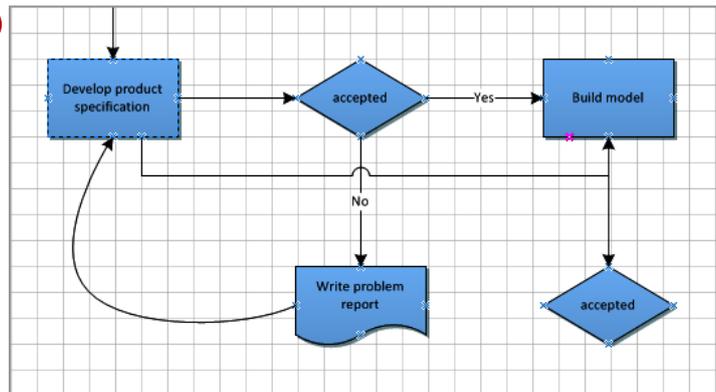
- 4 Click on the **Pointer** tool , then click on the connector between the two **Processes**

- 5 Drag the far right midpoint until it is to the left of the other vertical connector, then drag the red endpoint over your new connection point – it will be highlighted in red as shown – then release the mouse button

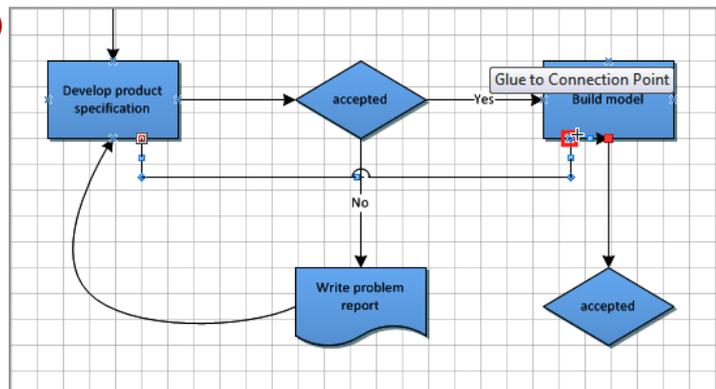
2



3



5



## For Your Reference...

To add a connection point:

1. Click on the shape
2. Click on the **Connection Point** tool 
3. Press **Ctrl** and click where desired

## Handy to Know...

- You can move a selection point. Select the shape, click on the **Connection Point** tool  and drag the connection point as desired.
- To delete a connection point, select the shape, click on the **Connection Point** tool , click on the connection point and press **Del**.

# FORMATTING CONNECTORS

There are multitudes of styles that you can apply to connectors to differentiate or highlight them. You may choose to alter the line width, colour or pattern, or you might want to have rounded lines

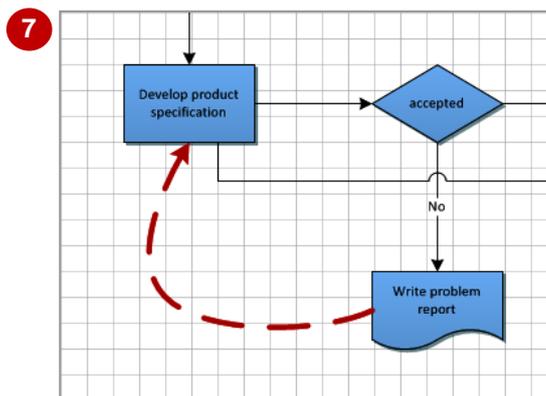
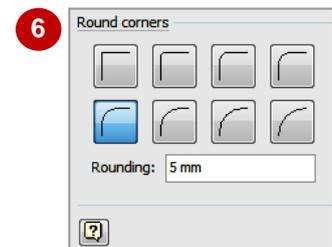
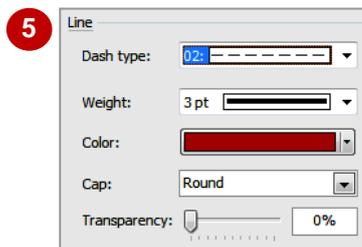
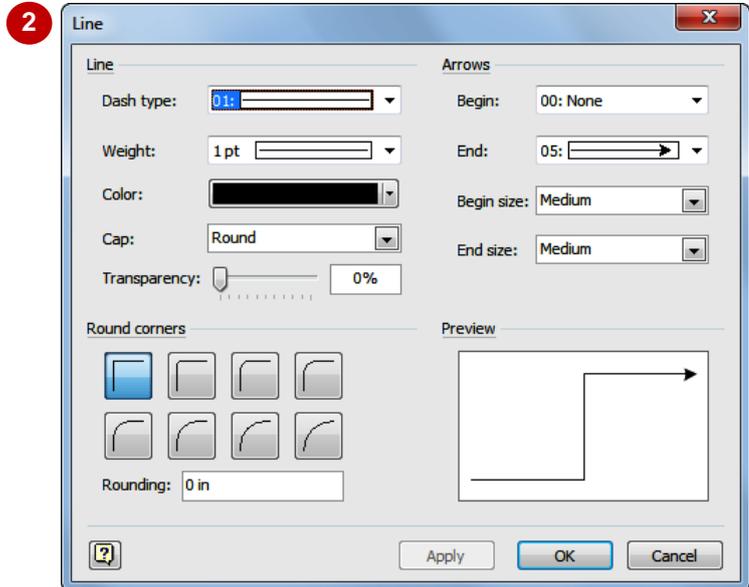
rather than straight ones. You can also change the beginning and ending styles of connectors. These detailed **formats** mean that drawings can meet even the most stringent of design criteria.

## Try This Yourself:

Same File

Continue using the previous file or open *V505 Working With Connectors\_7.vsd...*

- 1 Click on the **Pointer** tool , then click on the connector between the **Document** and the Develop **Process**
- 2 Click on the drop arrow  for **Line**  in the **Shape** group and select **Line Options** to open the **Line** dialog box
- 3 Click on the drop arrow  for **Dash type** and select **02**
- 4 Click on the drop arrow  for **Weight** and select **3 pt**
- 5 Click on the drop arrow  for **Colour** and click on the first colour under **Standard Colours** (Dark Red)
- 6 Click on the bottom left **Round corners** option
- 7 Click on **[OK]**, then press **[Esc]** to deselect the line



### For Your Reference...

To format a connector:

1. Select the connector/s
2. Click on the drop arrow  for **Line**  and select **Line Options**
3. Select the required options
4. Click on **[OK]**

### Handy to Know...

- You can change a connection from being **dynamic** to **point** and vice versa. To do this, select the connector and then drag the connector end point away from the shape. Drag and drop the connector on a connection point for a point connection, or on the middle of the shape for a dynamic connection.

