

## Modular Designing – Reinforcement Handout

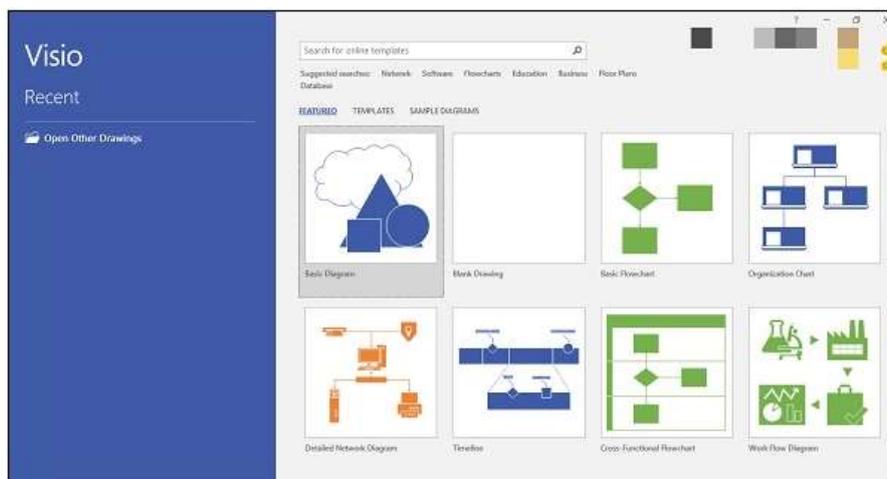
### What is MS Visio?

Microsoft Visio is a diagramming tool that allows you to create diagrams (ranging from simple to complex), which aid in data visualization and process modelling. Visio also helps to create detailed org charts, floor plans, pivot diagrams, etc. Microsoft Visio is one of the most popular diagramming software that empowers diagramming, data visualization, and process modelling in a familiar interface.

### Visio User Interface:

The user interface of Visio is similar to that of other programs in the Office suite. You will be greeted with a Start page that lists some of the recent documents you have opened along with featured templates for creating common diagram types.

You can also search for templates on the Microsoft website right from the Start screen.



The top right corner shows the Microsoft account you are connected to, if you are an Office 365 subscriber. Apart from the featured templates, you can also click Templates to browse through the template categories.

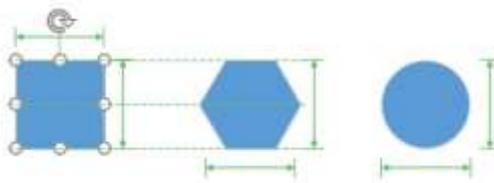
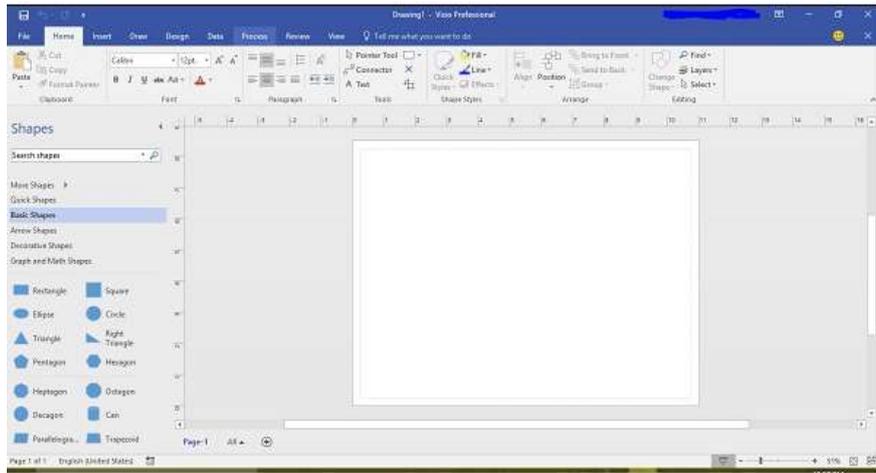
### Document Interface:

Clicking any of the above templates opens the template document

The document interface of Visio is similar to other Office programs such as Word or Excel. On the top, you have the Quick Access toolbar, which contains common commands, such as Save, Undo, and Redo. This can be customized as needed.

Below the Quick Access toolbar is the familiar Office Ribbon. The Home tab lists common commands for working with the document. We will learn more about other tabs as we go along.

On the left-hand pane, there is Shapes, which lists the common shapes that go well with the template. To insert a shape, just click and drag the shape onto the canvas. There are many shapes available in Visio and we will get more familiar with them as we move ahead.



When you place shapes onto the canvas, you will see guides that help you align the shapes with respect to the objects already on the canvas. You also have a ruler on the top and left of the canvas. This gives a sense of perspective and lets you create perfectly aligned diagrams.

Shapes in Visio are basically vector graphics and as such you can enlarge or shrink the size as needed without loss of quality. You also get an idea of the relative dimensions of all the other shapes (indicated by green arrows) when you try to change the dimensions of any shape.

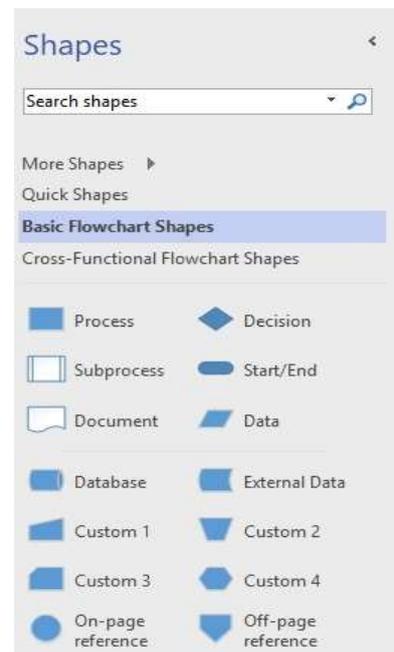
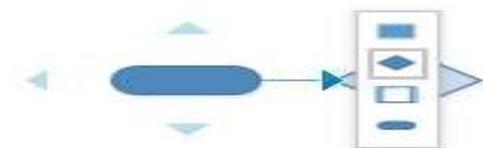
**Creating and Arranging SmartShapes:**

SmartShapes provide contextual shapes which relate to the selected shape. SmartShapes are connected to the original shape and the connector also moves whenever the SmartShape is moved.

**Creating a SmartShape:**

Start with a blank document (in this case a flowchart diagram). You will notice that the Shapes pane has different shapes that are applicable to flowcharts. Click and drag a shape onto the empty canvas. You can resize or rotate the shape as desired. You can even align the shape with the help of the alignment guides.

When you drag a shape onto the canvas, you will notice that there are four arrows along the shape. Hovering over any of these arrows will show possible shapes that can be created and linked to this shape.



Click the desired shape to create the shape. You will also notice that the shape is automatically connected to the initial shape. If you were to drag the shape manually, you will need to connect it manually as well. The connections between the shapes are dynamic and they will move in relation to the placement of the shape.

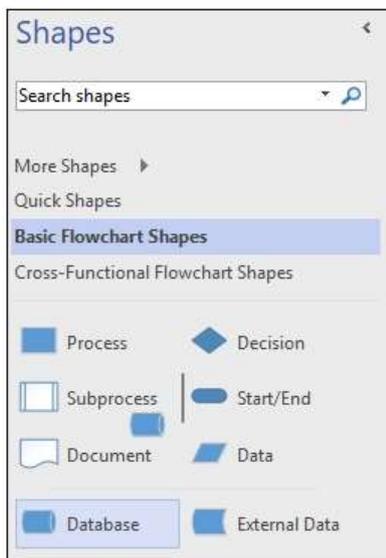
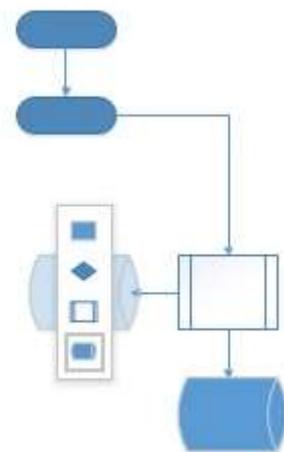
**Arranging SmartShapes:**

The SmartShape arrow lists the first four shapes for the diagram that are seen in the Shapes pane. You might want to customize which shapes appear in the four SmartShape options depending on your workflow.

To set the shapes that you prefer as SmartShapes, first select the desired shape in the Shapes pane and drag it to one of the first four shapes within the pane.

In this example, let us assume that the Database shape needs to be in the first four. Click and drag the Database shape into one of the first four positions.

Now, when you create a SmartShape, you will find that the Database shape is made available.



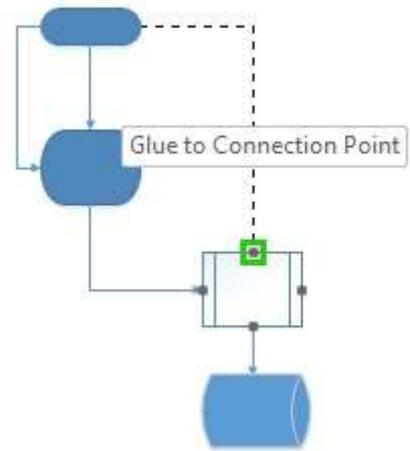
**Connecting SmartShapes**

SmartShapes allows to automatically connect shapes. If you want to connect shapes that are not directly related, you can manually connect them.

To manually connect shapes, click the Connector tool in the Tools section of the Home tab. The mouse pointer now changes into a connector.



Draw a connecting line from the originating shape to the destination. You will notice a dotted line representing the connector. You can either glue this connector to the connection point or glue it to the destination shape. Gluing it to the shape will enable you to move the shape to a different location on the canvas along with the connector.



Click the Pointer Tool in the Tools section of the Home tab to return the mouse pointer back to normal.

**Connected SmartShapes:**

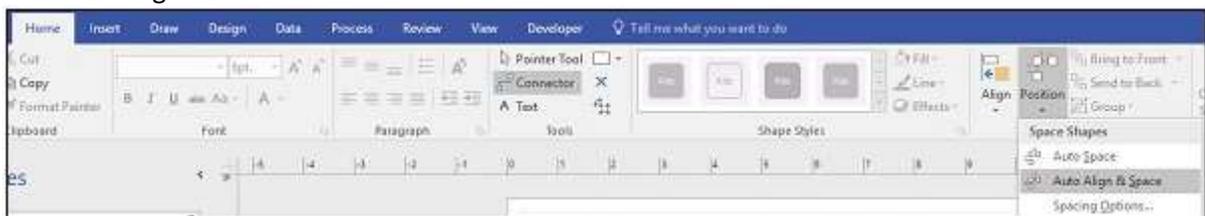
Newer versions of Visio have built-in intelligence to help you place shapes between other shapes. Visio automatically adds the required spacing and connectors to ensure that the new shape is inserted in the correct position.

To insert a shape between two shapes, drag the new shape in between the desired shapes, till you see green squares on the connectors and release the mouse. The new shape will be inserted with equal spacing and appropriate connections.

If you delete the inserted shape, the connector extends all the way till the next shape.

**Align and Space Shapes:**

To automatically align and space shapes in a diagram, go to the Position dropdown menu in the Arrange section of the Home tab. Click either Auto Space or Auto Align & Space depending on the requirement. You can also hover the mouse on these commands to preview how the diagram would look after alignment.

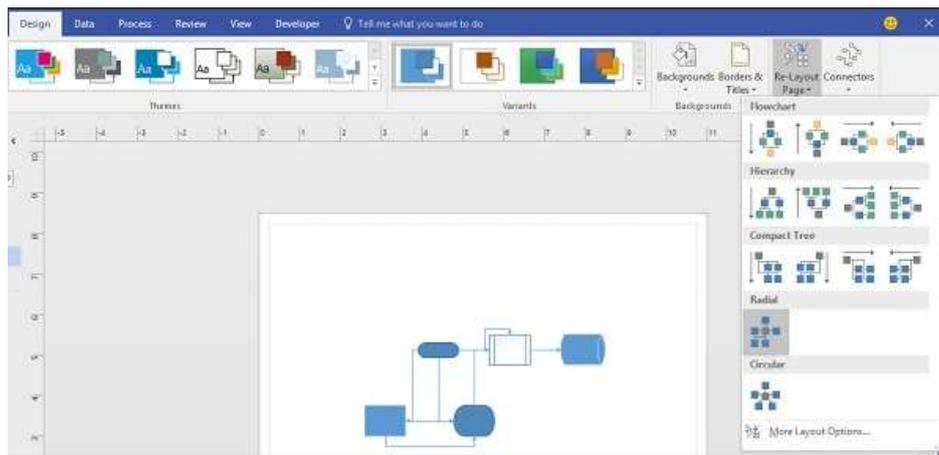


After alignment, you can still move the shapes in your diagram, if you would like a more customized appearance.

**Changing the Diagram Layout:**

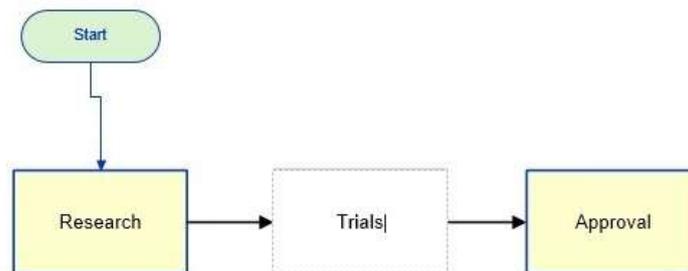
Visio provides options for automatically changing the layout of the diagram with the ReLayout Page command. The Re-Layout Page command provides commonly used layouts. You can also customize some of the aspects of the layout as needed.

Open the diagram and navigate to the Design tab on the Ribbon. Click the Re-Layout Page dropdown menu and select a layout as needed. You will see that the diagram now changes to the selected layout. You can also preview the look before clicking by hovering the mouse over the layout style.



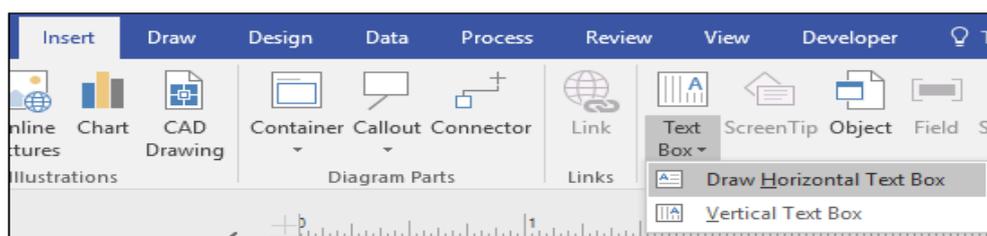
### ***Inserting Text in a Shape:***

It is easy to insert text within a shape. Just double-click within a shape to type the text. The text automatically wraps according to the shape, however, you can also press hard returns if you would like to have your own wrapping. Notice that Visio automatically zooms into the shape to enable typing and zooms out when you click outside the shape.



### ***Inserting Text in a Document:***

To insert a text in a document such as a heading for the chart, click the Text Box dropdown menu in the Insert tab on the Ribbon and select either horizontal or vertical text box.

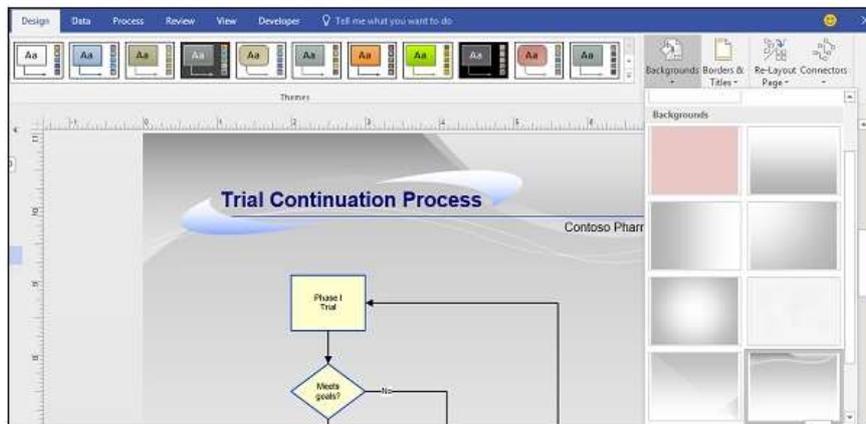


Then place the cursor on the document and draw a text box to start typing.

### ***Inserting a Background Page:***

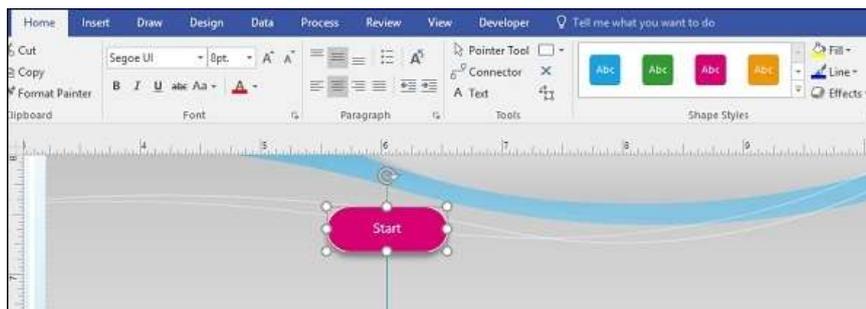
You can change the background of a document by choosing from preset backgrounds or using your own background template. To insert a background, click the Background dropdown menu from the Design tab on the Ribbon and choose a background preset.

This creates a new page in addition to the diagram page. You can right-click the newly created background page to rename it. The new background will be automatically applied to all newly created pages in the document.



### ***Shape Formatting:***

You can also format the shapes to give them a more professional or casual look as desired. To format shapes, select the shape in the diagram and format using the options available in the Shape Styles section.



You can select predefined shape styles or you can customize the shape using the Fill dropdown menu. To adjust the color of the shape border, select a color from the Line dropdown menu. The Effects menu allows to add special effects to your shape such as drop shadows or 3D rotations.

### ***Text Formatting:***

If you are familiar with Microsoft Word, you should be right at home in Visio with respect to formatting text. You can format titles and text within shapes. You can also use the Format Painter command to copy formatting and paste it into another shape or text box.

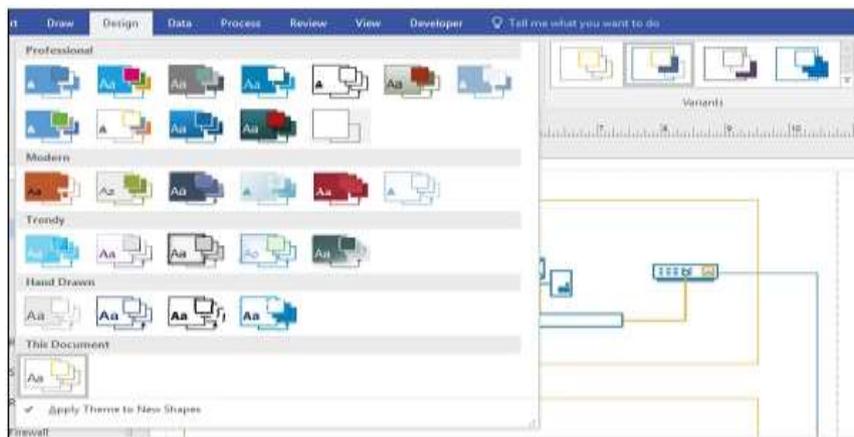
To format the text, select the text box containing the text or highlight the text itself. Then, choose from the options available in the Font and Paragraph sections of the Home tab.

You can change the font, size, color, and paragraph alignment. If you want to change the font styles in a shape, just double-click the shape to select the text within the shape and change the font styles as desired.

### Visio Themes and Styles:

Themes apply to the entire diagram. Themes comprise of a set of colors and effects that generally blend well with each other. They are a great way to quickly give the diagram a polished look. Themes also affect other parts of the document such as titles, headings, text, etc.

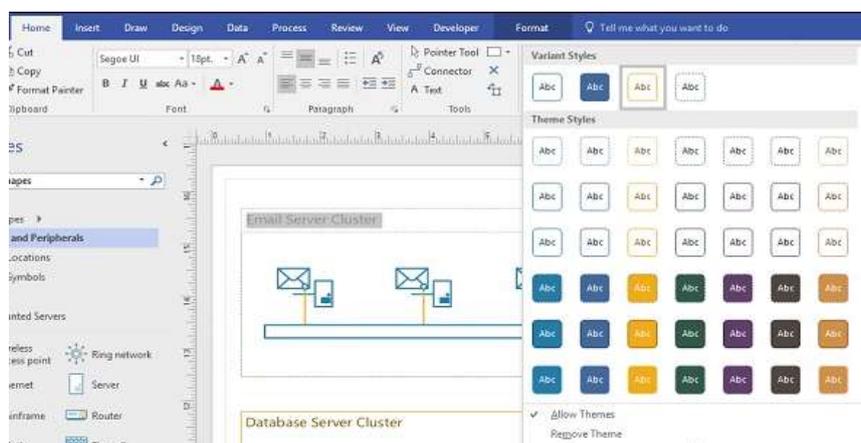
To apply a theme, go to the Design tab and select a theme from the Themes section. The dropdown arrow provides more choices categorized by theme type. When you click a theme, all the aspects of the diagram and other parts of the document reflect the theme settings.



A theme can have many variants, which can be selected from the Variants section of the Design tab.

Styles are different from themes such that, they are applicable to a selected shape or a group of shapes. Styles help in customizing the aspects of a particular style.

To change a style of a shape, select the shape and from the Home tab, then select a style from the Shape Styles section. Style can be applied to both shape elements in the diagram as well as to individual text boxes. You can select multiple shapes to apply the style to all of them together.



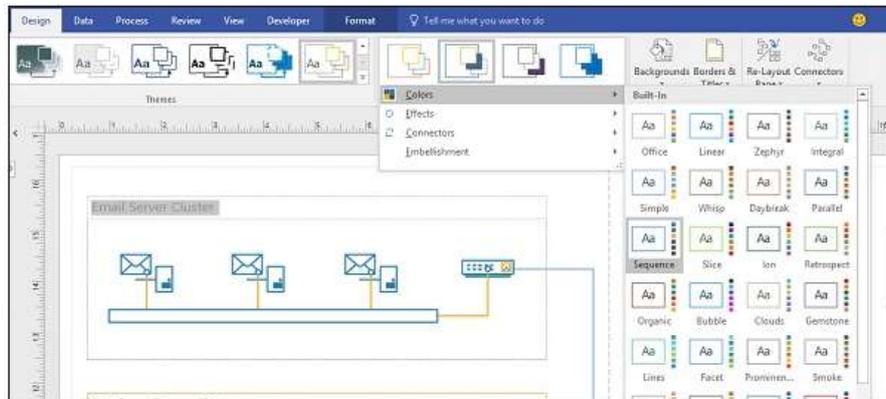
When you change a theme after applying a style to a shape, the shape will take up the characteristics of the theme but will still remain distinct from other shapes.

### Applying Theme Colors and Effects:

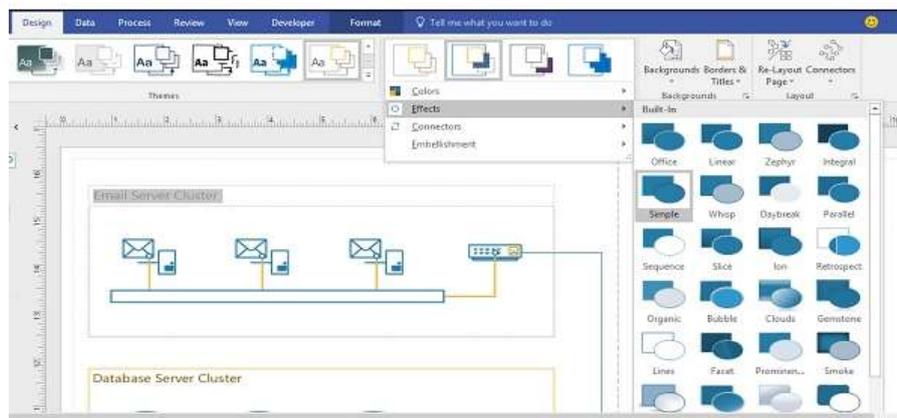
Themes are useful to customize the appearance of the document. Visio goes a step further and allows to customize the themes themselves.

Themes come with variants that can be further customized as needed. Theme variants can be accessed from the Variants section in the Design tab. You can use the stock variants or click the dropdown menu to customize many other aspects.

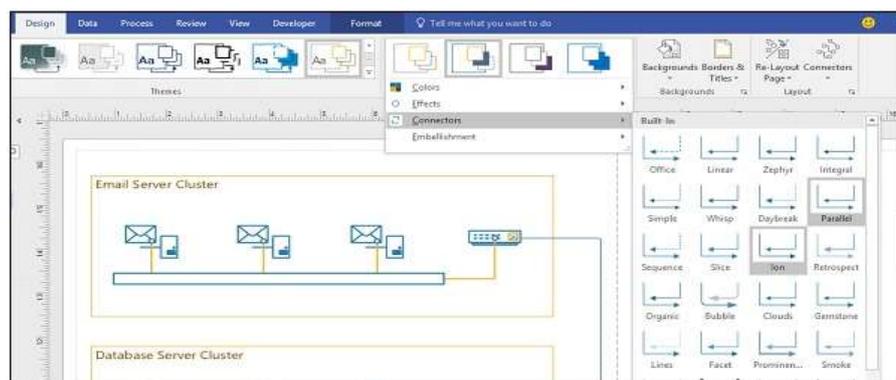
In the Colors menu, you will find that there many color combinations to choose from.



The Effects menu shows some of the effects that can be applied onto the selected shape.



You can also choose from a range of connectors.



**Rulers and Guides:**

Visio comes with visual aids to help align and structure the elements in the diagram so that it appears great both on-screen and in print. The main visual aids available include rulers, grids, and guides.

**Rulers:**

Rulers help in providing perspective to the elements in the diagram. They help orient the shapes to attain a consistent and clean look. Rulers can be switched off or on with a simple checkbox in the Show section of the View tab.



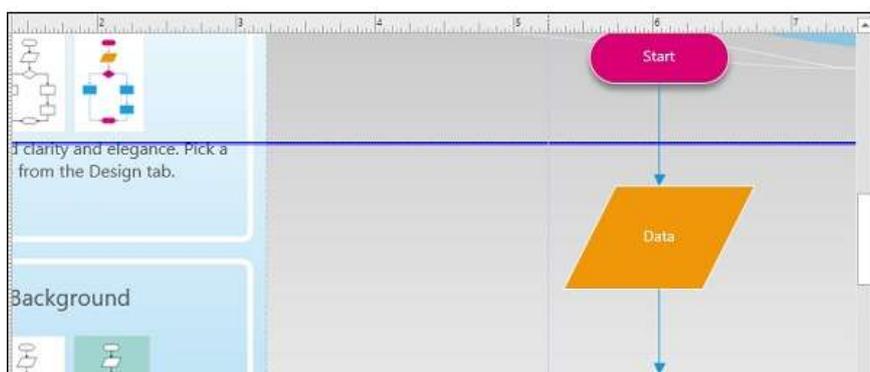
When you move a shape, you will notice that there are 3 dotted lines (shown in the following example in red rectangles) on both the vertical and horizontal rulers. These 3 dotted lines denote the left, middle, and right parts of the diagram. When you drag the shape vertically or horizontally, these 3 dotted lines help position the shape exactly at the place you need.



You can turn off the Ruler checkbox if you need some screen estate.

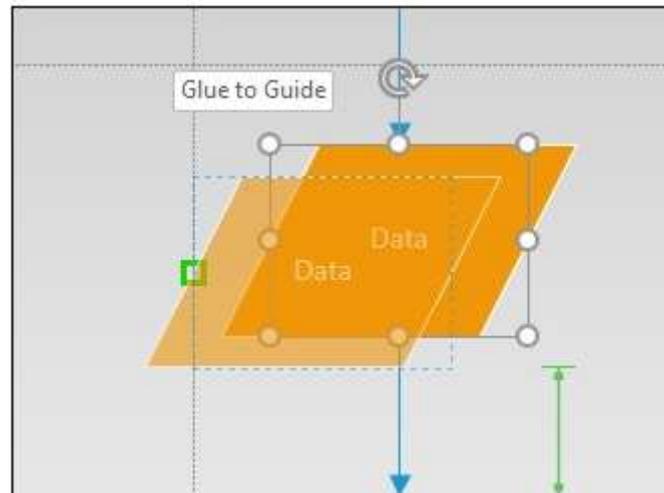
**Guides:**

Just like rulers, guides help in orienting different shapes of the diagram properly. You can create any number of guides from both the vertical and horizontal rulers. To create a guide, simply drag a line from either the vertical or horizontal rulers.



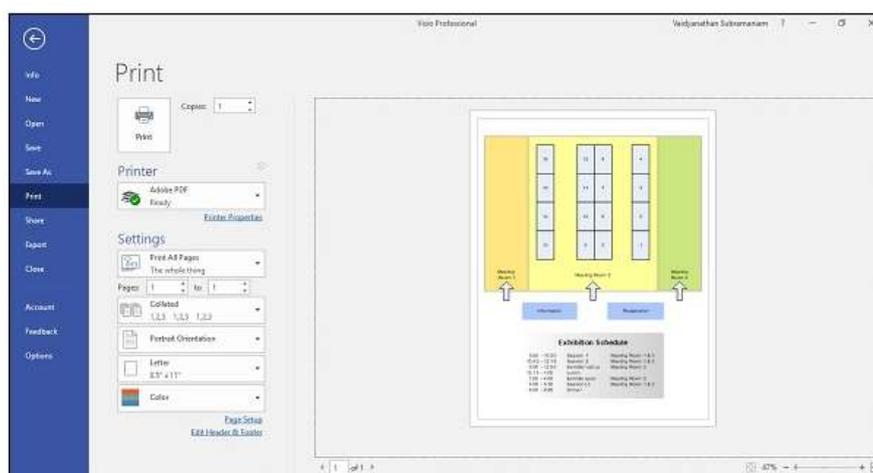
Guides are represented by lines, which appear thick when selected. You can delete a guide by simply selecting the guide and pressing the Delete key on the keyboard. Uncheck the Guides checkbox in the View tab to remove all the guides from view.

Dragging a shape onto a guide will enable you to snap the shape to the guide. When a shape is snapped to a guide, it moves along with the guide.



### Printing Diagrams:

To print a drawing, simply go to the File menu and click Print or press the keyboard shortcut Ctrl+P. The Print menu provides several options to select the layout of the printed page and the printer to which you'd like to send the document for printing.



The right side of the Print menu shows a preview of the output. You can change the orientation of the page, page size, and select only the pages that you need to print.

Depending on your printer, you can also print in color or in greyscale. Remember that printing in black and white might not produce a good output. It is best to print in greyscale, if you wish to save on your printer's ink.