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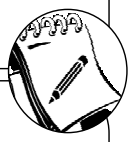
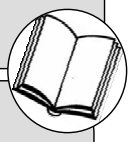
1 In-course handbook



To guide you through your training while you are on the course.

Contains unit objectives, exercises and space to write notes.

2 Reference material



Available online through your delegate account.

Comprehensive reference material with 100+ pages, containing step-by-step instructions.

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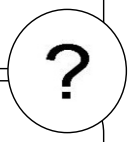

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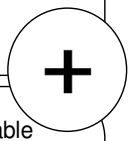

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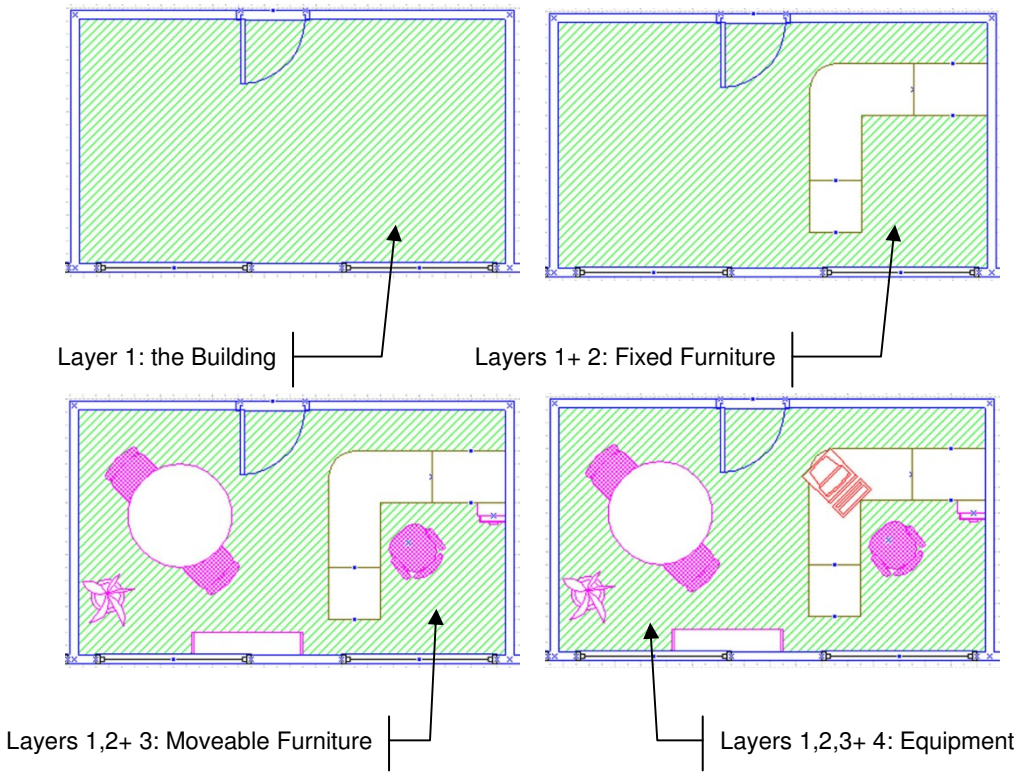
CREATING TECHNICAL LAYOUTS

UNDERSTANDING LAYERS

You can use Visio layers to organise related shapes on a drawing page. For example, if you are drawing an office layout, you can assign walls, doors, and windows to one layer, electrical points to another, and furniture to a third layer. That way, when you plan the electrical system, you do not have to worry about accidentally moving the walls or furniture.

With Layers you can, show, hide, or lock shapes and guides on specific layers so you can edit certain layers without viewing or affecting others.

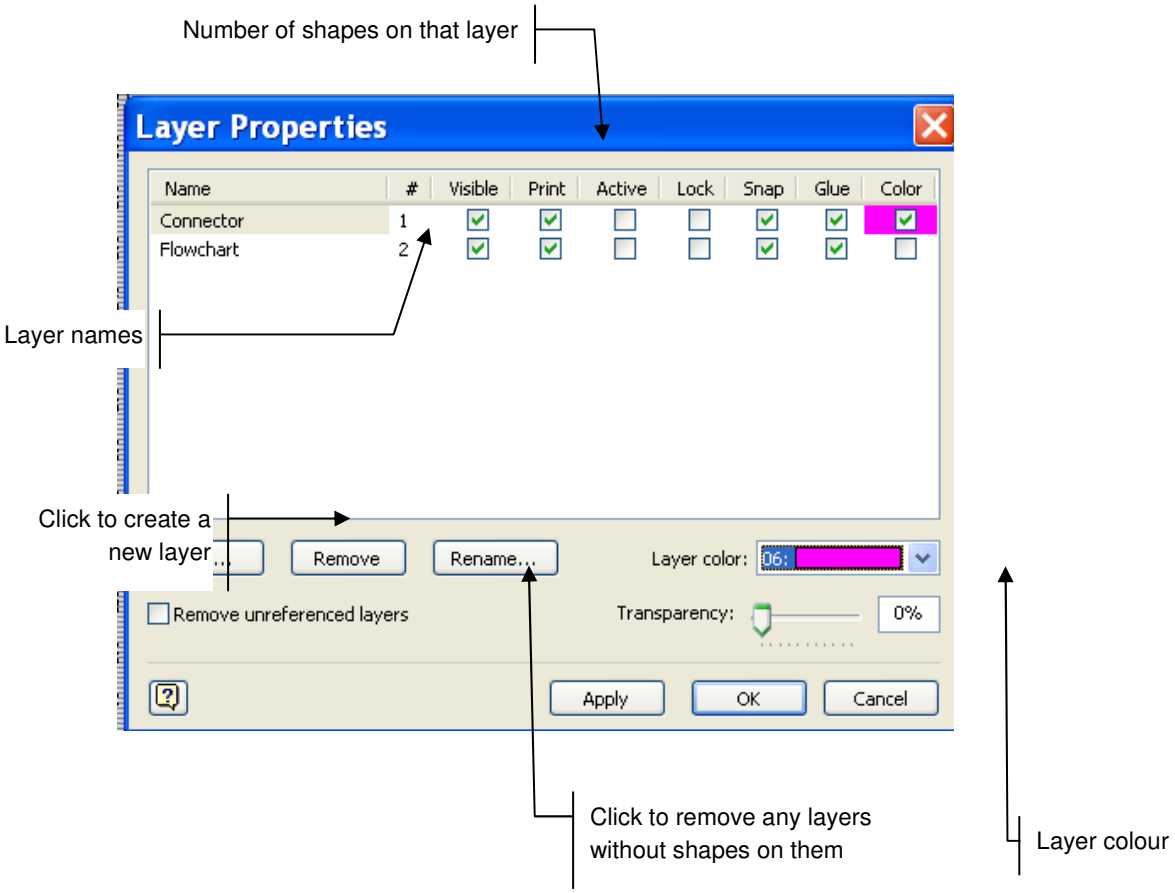


Many Visio Master shapes already come assigned to a specific layer. For example, in the Office Planning shapes, walls, doors and windows are assigned to the Building Envelope layer, computers, telephones and printers are assigned to the Equipment layer and tables, chairs, pot plants and sofas are assigned to the Moveable Furnishings layer.

CREATING A LAYER

➲ To create a new layer

- From the **VIEW** menu select **LAYER PROPERTIES**
- Press the **NEW** button and type a name for the new layer
- Click **OK** to confirm the name then **OK** in the Layer Properties dialog box to confirm the new layer.



LAYER PROPERTIES:

VISIBLE - whether shapes on a layer are visible or hidden.

PRINT - whether to print shapes on a layer.

ACTIVE - the active layer to which shapes that have not been pre-assigned to a layer are assigned. The active layer cannot be locked.

LOCK - prevents shapes on a layer from being selected or altered.

SNAP - other shapes can snap to shapes assigned to the layer. A shape on a layer that has Snap unchecked can still snap to other shapes on the same or different layer, but other shapes cannot snap to it.

GLUE - whether other shapes can glue to shapes assigned to the layer. A shape on a layer that has Glue unchecked can still glue to other shapes on the same or different layer, but other shapes cannot glue to it.

COLOR - that all shapes assigned to the layer appear in the specified colour; this option does not permanently change the colour of the shapes. Uncheck to return shapes to their original colours.

ASSIGNING A SHAPE TO A LAYER

Shapes on the drawing page can be assigned to a layer and so can any Master shapes that you create.

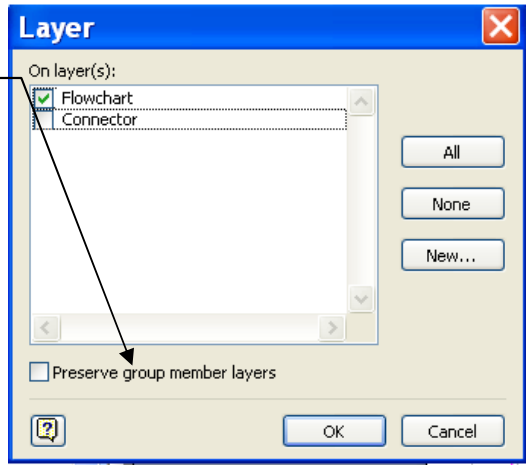
To assign a Master shape to a specific layer, you must edit the Master shape with the stencil in Edit mode.

➲ To assign a shape to a layer

- Right-click the shape on the drawing page or the Master shape in the Master Drawing Window
- Select **FORMAT** then **LAYER**
- Select the layer that you wish the shape to be assigned to
- Click **OK**

Note: if the shape is already assigned to a layer, click the layer name to de-select it. You can if you wish, select more than one layer for a shape by holding down the SHIFT key on the keyboard as you select the layers.

When checked: if items from different layers are grouped together and placed on a different layer – for example the contents of an office (Equipment layer, Movable Furniture layer etc…) grouped together and placed in the Communal Work Area layer. The individual shapes will remain on their respective layers but, as a group will exist on the groups layer (the Communal Work Area).



➲ To display individual layers

- From the **VIEW** menu select **LAYER PROPERTIES**
- Under the **VISIBLE** property, ensure that only the layers that you want to see are checked and click **OK**.

➲ To delete a layer

A layer can only be deleted if it is not in use, i.e. there are no shapes on the drawing page that are currently assigned to that layer.

- From the **VIEW** menu select **LAYER PROPERTIES**
- Select the layer name that you wish to remove and press the **REMOVE** button.
- Press the **YES** button to confirm removal then click **OK.**

➲ To automatically remove any layers without shapes on them

- From the **VIEW** menu select **LAYER PROPERTIES**
- Check the **REMOVE UNREFERENCE LAYERS** box and click **OK**.

DEFINING DRAWING SCALE

✦ **No Scale** — Objects appear at their actual size.

✦**Pre-defined Scale** — Select a category of scales, such as Architectural or Metric, and then select one of the standard scales for that category.

✦ **Custom Scale** — Specify the measurement unit and the associated size in the real world to define a custom scale.

SPECIFYING MEASUREMENT UNITS

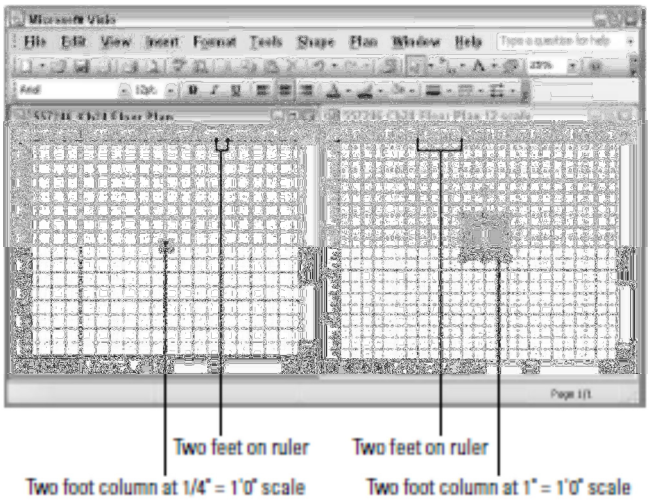
On the Page Properties tab, you can specify the units used for measuring objects on a page by choosing the units you want with the Measurement Units drop-down list.

CHOOSING THE RIGHT SCALED DRAWING TEMPLATE

With Visio you can choose Building Plan templates suited to the type of plan you want to create. Although the Office Layout template is available, the Floor Plan template is better because it creates a standard architectural size page and opens stencils with more shapes for walls, doors, windows, and other common building components.

Note

Sometimes, scales show only the ratio between paper size and real-world size. For example, the metric scale of 1⁄8:1 means that the drawing on paper is one eighth of actual size. In Visio, metric scales are represented as ratios, such as 1:50, which indicates that one meter on paper represents 50 meters actual size.



A shape won't resize if its scale is more than eight times larger or smaller than the scale of the drawing page. If shapes don't resize, make sure that you are using scaled shapes from stencils designed to work with the type of drawing you're using.

SETTING DRAWING SCALE

1. Display the page whose drawing scale you want to set.

2. Choose File ⇨ Page Setup and select the Drawing Scale tab.

3. To specify one of the scales predefined in Visio, select the Pre-defined scale option and select one of the following types of predefined scales:

• **Architectural** — Relates a number of inches or a fraction of an inch on paper to one foot in the real world

• **Civil Engineering** — Relates one inch on paper to a number of feet in the real world

• **Metric** — Relates meters on paper to a number of meters in the real world

• **Mechanical Engineering** — Relates a fraction of a unit to one unit in the real world in order to scale objects down to fit on the page. Relates multiple units on paper to one unit in the real world in order to scale objects up so they're legible on paper.

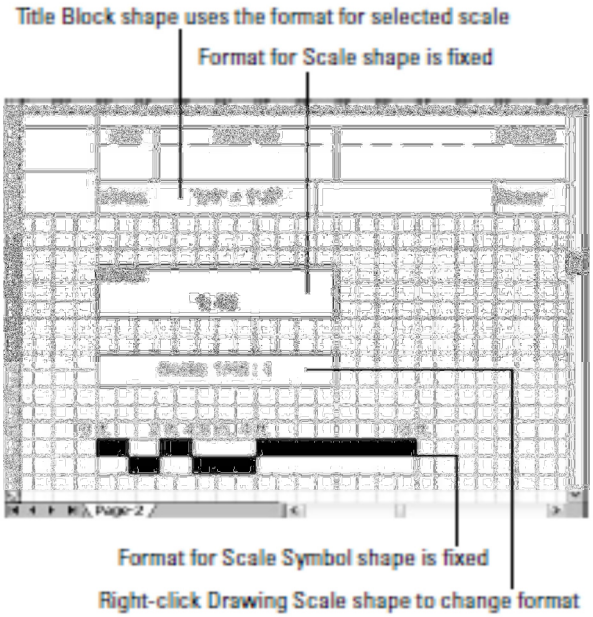
4. Choose the predefined scale you want in the Scale drop-down list. The values in the Page Size boxes change to indicate how many measurement units fit on the page at the scale you've selected.

5. Click Apply

6. If you use background pages with your scaled drawings, display the background page and then repeat steps 2 through 4 to apply the same drawing scale to it.

SHOWING SCALE ON DRAWINGS

. Visio provides several shapes that automatically display the drawing scale for you.



SPECIFYING MEASUREMENT UNITS

When you work with scaled drawings, two types of units are important: page units and measurement units. Page units represent the distances or units on the printer page or piece of paper you print. Measurement units represent real-world distances or the units for the actual sizes of the objects you're drawing.

SETTING DEFAULT UNITS

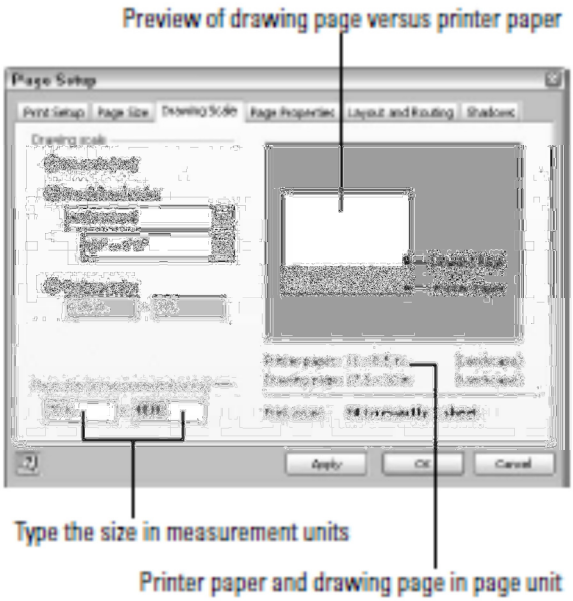
If you don't use Visio's templates to create scaled drawings or you use shapes you've created yourself, you can specify the units you want to use.

SPECIFYING MEASUREMENT UNITS FOR A PAGE

You can set or change the measurement units for a drawing page. For example, you can specify whether the rulers and drawing grid use inches, meters, or even miles.

✦ **Specify measurement units** — Choose File ➪ Page Setup and select the Page Properties tab.

✦ **Specify the page size in measurement units** — Choose File ➪ Page Setup and select the Drawing Scale tab. In the Page Size (In Measurement Units) boxes, type the distances you want to represent on the page.



DIMENSIONING SCALED DRAWINGS

Typically, scaled drawings include dimensions to show sizes, offsets, and distances from reference points. Visio provides stencils with shapes you can use to dimension linear, radial, and angular distances.

ADDING DIMENSIONS

Dimension shapes include control handles you drag to define the distance to measure as well as the location of the dimension lines. For example, you can add linear dimensions from a vertical baseline by following these steps:

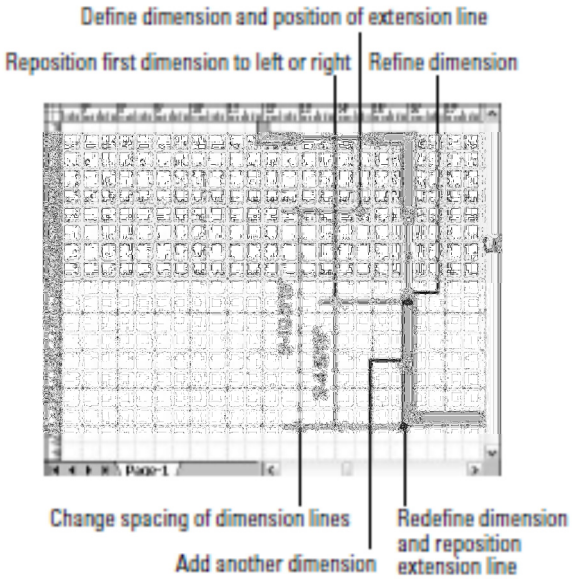
1. Drag the Horizontal Baseline shape onto the page and position it at the bottom and to the left of the distances you want to dimension.

2. Drag the lower green end point and glue it to a geometry point that defines the baseline for all your dimensions, such as the corner of an exterior wall.

3. Drag the other green end point and glue it to a geometry point that defines the end of the first distance you want to dimension, such as the lower edge of a window.

4. To reposition the text and vertical dimension line for the first dimension, drag the yellow control handle on the first dimension line to the left or right.

5. To define the next dimension, drag the yellow control handle between the dimension shape's selection handles to a position above the first dimension. Another yellow control handle appears at the end of the horizontal reference line. Drag this control handle and glue it to a point that defines the second distance you want to dimension.



6. Repeat step 3 until you have added the dimensions you want.

SPECIFYING PRECISION AND UNITS FOR DIMENSIONS

To change precision and units for a dimension, follow these steps:

1. Right-click a dimension shape, such as Vertical, Radius Outside, or Angle Center, and choose Precision & Units from the shortcut menu. The Custom Properties window appears.

2. To specify the number of decimal points of precision for the dimension shape, select an entry from the Precision drop-down list.

3. To specify the units you want to use, select an entry from the Units drop-down list.

4. In the Units Display list, select an entry to specify whether or not to show the units.

5. To change the angle of the dimension, type an angle in the Angle box.

6. Click OK.

CALCULATING AREA AND PERIMETER

You can calculate the area within the floor of a building to determine the number of sprinkler heads you need for fire protection, or the perimeter of a parking lot to order fencing.

To measure the area and perimeter of one or more shapes, choose Tools ➪ Add- Ons ➪ Visio Extras ➪ Shape Area and Perimeter.

MEASURING AREAS WITH HOLES

1. Click the Line tool or Drawing tool on the toolbar.

2. Draw a shape around the building perimeter and then draw another shape around the building core.

3. With no other shapes selected, Shift+click the two shapes you just drew and then choose Shapes – Operations – Combine. The Combine command creates a hole in the floor using the shape you drew around the building core.

4. Select the combined shape and choose Tools Add-Ons Visio Extras – Area Shape and Perimeter. The Total Area and Total Perimeter represent the values for the entire floor minus the values of the holes.

WORKING WITH BUILDING PLAN LAYOUTS

With Visio templates, you can develop plans beginning with the shell of a building and gradually add walls, doors, windows, and furnishings. You can create additional plans for building services, such as electrical service, plumbing, and HVAC. To complete your plan package, you can expand outdoors and develop site and landscaping plans or draw maps.

WORKING WITH WALLS

Visio provides shapes that represent different types of walls, such as exterior, interior, curtain, or window walls. Additionally, you can create your own custom wall shapes, with, for instance, a hatched fill to show walls to be demolished.

CONVERTING SPACES INTO WALLS

When you begin with a space plan, you can easily transform those spaces into walls with the Convert to Walls command. You can specify the type of wall you want to use, as well as whether to display dimension lines or add guides to the walls created.

To convert Space shapes into walls, follow these steps:

1. Select the Space shape or shapes you want to convert and initiate the Convert to Walls command using one of these methods:

• **Right-click a shape** and then choose Convert to Walls from the shortcut menu.

• **Select the shapes** you want to convert using any selection method and then choose Plan ➪ Convert to Walls.

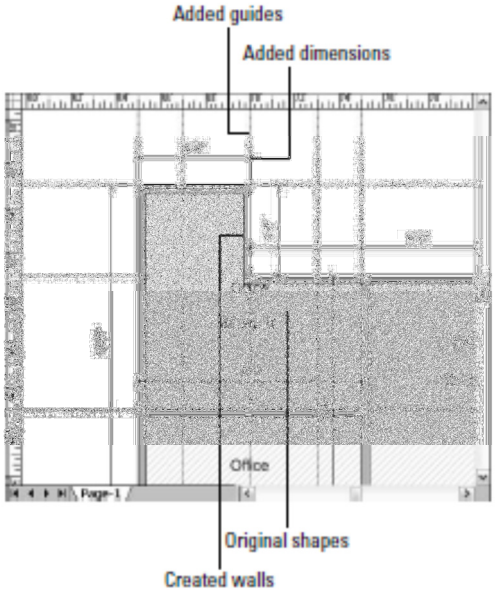
2. In the Convert to Walls dialog box, in the Wall Shape list, select the type of Wall shape you want to use.

3. To automatically add dimensions to each segment of a wall that is created, check the Add Dimensions check box.

4. To glue guides to each vertical and horizontal wall segment, check the Add Guides check box. You can reposition wall segments while maintaining their connection to other wall segments by dragging these guides.

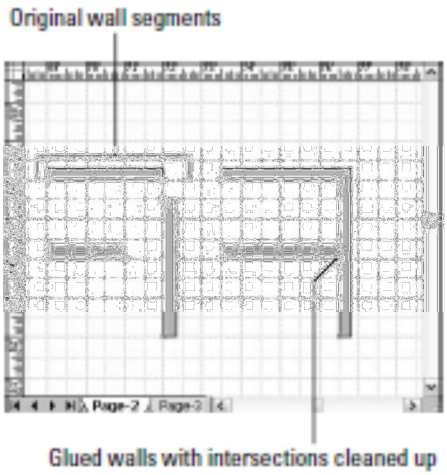
5. To keep the Space shapes after you convert them to Wall shapes, select the Retain option. If you are converting some other type of geometry to Wall shapes, select the Convert to Space shape to turn the geometry into Space shapes.

6. Click OK



7. To reposition a Wall shape, drag the guide glued to it. Wall shapes glued to the guide resize, but the original Space shapes remain the same.

Creating Walls



To create new walls on a drawing, use one of the following methods:

✦**Drag and drop Wall shapes** — To add walls one at a time, drag the Wall shape you want onto the drawing page.

✦ **Use the Connector tool** — To add several connected walls, click the Connector tool on the Standard toolbar, click the master for the type of wall you want to add on a stencil.

Note: When you add Exterior Wall shapes to a plan, you want the selection handles to appear on the interior surface of the building wall. If an Exterior Wall shape's selection handles are on the edge that represents the exterior of the building, right-click the shape and choose Flip Wall on Reference Line from the shortcut menu.

Connecting and Resizing Walls

When you glue Wall shapes together, Visio cleans up the corners and other intersections.

However, this glue only goes so far. If you drag a Wall shape to another position, it separates from its friends and the corners fill in again. You can use guides to move multiple Wall shapes and lengthen, shorten, or otherwise resize connecting Wall shapes. It's easy to glue Wall shapes to guides as you construct your plan using one of the following methods:

CHANGING WALL THICKNESS AND OTHER PROPERTIES

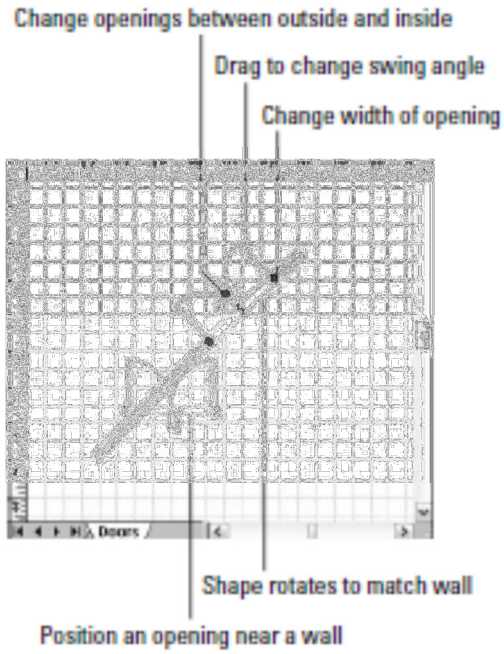
Visio Wall shapes include several custom properties, some of which modify the configuration of the shape itself, while others store data for reference or reports.

CHANGING THE WAY WALLS ARE SHOWN

If you want to change how Visio displays walls, right-click any Wall shape on a drawing page and choose Set Display Options from the shortcut menu. Make sure the Walls tab is selected and then choose the option you want.

ADDING OPENINGS TO WALLS

To insert a door, window or other type of opening into a wall, drag a Door, Window, or Opening shape from the stencil onto a Wall shape.



Modifying Doors, Windows, and Openings

- **Reverse direction**
- **Reverse swing**
- **Reposition opening**
- **Modify dimensions and other attributes**
- **Change the door and window components that appear**

For example, Visio displays the window frame and sash by default, but you can also show the header and sill.

- **Set default configurations**

ADDING CUBICLES TO AN OFFICE LAYOUT

To create a cubicle from components, follow these steps:

1. Drag Panel or Curved Panel shapes from the Cubicles stencil onto the drawing page. To resize panels, drag selection handles on the shapes.

2. To connect panels, follow these steps:

a. Drag a Panel Post shape onto the page and glue it to one end of a Panel shape.

b. Drag a connection point from another Panel shape and glue it to a connection point on the Panel Post shape. The Panel Post shape rotates into position based on the connection point you choose.

3. To add furniture and equipment to a cubicle, drag one or more of the following shapes into the cubicle:

- **Modular work surfaces**
- **Modular storage units**
- **Suspended shelves and lateral files**
- **Chairs and other free-standing**
- **Computers and other equipment**

EXPLORING ADVANCED DIAGRAMS

CAUSE AND EFFECT DIAGRAMS

Cause and effect diagrams document potential and real factors that produce an effect. By arranging these factors or causes by their level of importance or detail, cause and effect diagrams can help you identify root causes or problem areas, and can show the priority of different causes that lead to an effect. These diagrams are also called fishbone diagrams.

To create a cause and effect diagram, follow these steps:

1. Choose File . New . Business Process . Cause and Effect Diagram.

2. To specify the effect you're studying, select the horizontal arrow on the page and type text describing the effect or problem.

3. To create the cause categories you want, use one of the following methods:

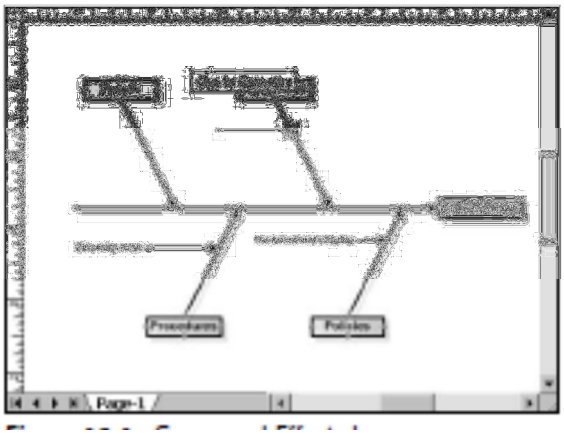
• **Add a category** — Drag a Category 1 or Category 2 shape onto the page and position it so the arrowhead touches the horizontal arrow of the Effect shape. Visio automatically glues the Category shape to the geometry of the Effect shape.

• **Delete a category** — Select a Category shape and press the Delete key.

• **Move a category** — Drag a Category shape to the new location until it snaps to the geometry of the Effect shape.

4. For each Category shape on the page, select the shape, and type the name of the cause category that you want to appear as text in the shape box.

5. To show major causes in a category, drag Primary Cause shapes onto the page until the arrowheads snap to category line.



6. To illustrate secondary causes that contribute to primary causes, drag Secondary Cause shapes onto the page until the arrowheads snap to primary cause lines.

7. For each cause, select the shape, and type a description of the cause.

EXPLORING THE PROJECT SCHEDULING TEMPLATES

✦ **Calendar** — Create calendars for projects as well as other purposes showing days, weeks, months, or years.

✦ **Timeline** — Provides a set of dated timeline shapes that show events along a horizontal or vertical timeline. There are also shapes for milestones and intervals.

✦ **Gantt Chart** — Drag shapes onto a page to create Gantt charts and import data from Microsoft Outlook or Microsoft Project

✦ **PERT Chart** — Provides a pair of PERT (Program Evaluation and Review Technique) Chart boxes, or nodes, to show the interdependencies between tasks without taking timing into account.

CONSTRUCTING CALENDARS

Creating Daily Calendars

You can create a calendar consisting of a single day or multiple nonconsecutive days. You could create a calendar of nonconsecutive days to show meetings or events that always occur on Tuesdays and Thursdays, for example. To create a calendar of selected days, follow these steps:

1. Drag the Day shape onto the drawing. The Configure dialog box appears.

2. Enter the date and the date format (if necessary)

3. Repeat steps 1 and 2 for each day you want in your calendar.

4. Resize and move the Day shapes into the size and position you want. To change the date or date format in a Day shape after you've created it, select the shape and then choose Calendar ➪ Configure.

Creating Weekly Calendars

To create a weekly calendar, follow these steps:

1. Drag the Week shape onto the drawing. The Configure dialog box appears.

2. In the Start Date box, enter the date for the beginning of the week.

3. In the End Date drop-down list, select the number of days for the week and the resulting end date.

4. Specify the date format, language, whether you want the weekend to be shaded, and whether you want to show the title of the week (for example, "Week of July 12, 2004").

5. To add additional weeks, repeat steps 1 through 4.

6. Resize and move the week shapes into the size and position you want.

Creating Monthly Calendars

1. Drag the Month shape onto the drawing. The Configure dialog box appears.

2. Enter the month and year for the calendar.

3. Select the day on which the weeks should begin in the Begin Week On dropdown list.

4. Specify the language if necessary, whether you want the weekends to be shaded, and whether you want to show the title of the month (for example, "August 04").

5. If necessary, resize and move the Month shape into the size and position you want. By default, it fills the page.

6. To add additional months, add a new page by choosing Insert ➪ New Page and then clicking OK in the Page Setup dialog box. Repeat steps 1 through 5 to set up the month on the new page.

Creating Yearly Calendars

1. Drag the Year shape onto the drawing. The Custom Properties dialog box appears.

2. Enter the calendar's year, the day on which the weeks should begin

3. If necessary, resize and move the Year shape into the size and position you want.

4. To add another year to the drawing, add a new page by choosing Insert ➪ New Page and then clicking OK. Repeat steps 1 through 3 to set up the year on the new page.

Working with Calendars

✦ **Change dates or format settings** — Select a calendar and choose Calendar ➪ Configure.

✦ **Change the color scheme**

✦ **Change the calendar title**

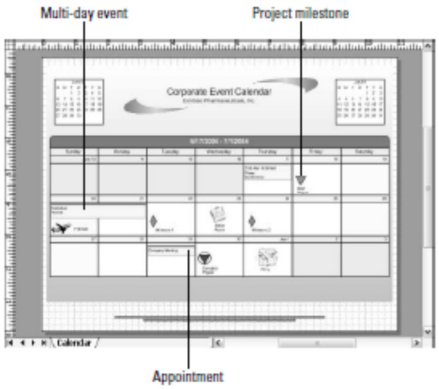
Working with Appointments and Events

✦ **Add an appointment**

✦ **Add a multiple-day event**

✦ **Add text**

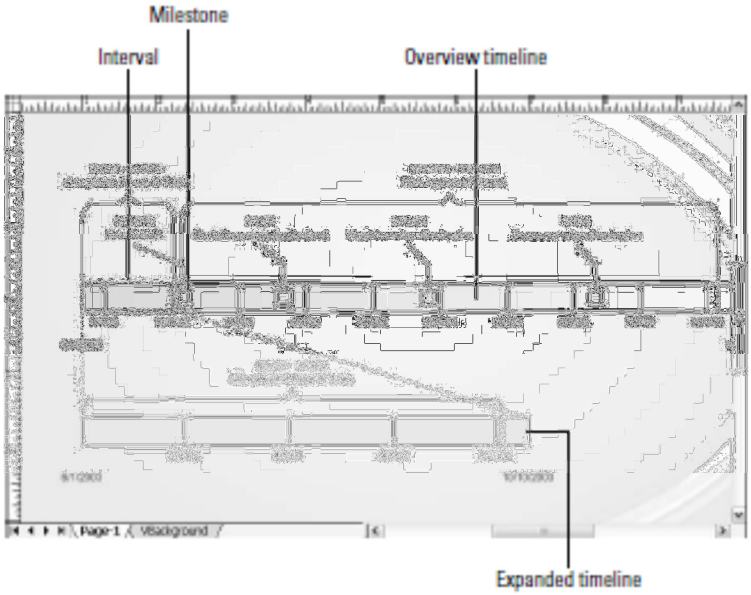
Caution: Text added to a day box is associated with the day box, but not the actual day, as are appointments and events. To move the text to another day, you can cut and paste it from one day box to another.



- ✦ **Revise an appointment or event**
- ✦ **Delete an appointment or event**

DOCUMENTING PROJECT TIMELINES

Use the Timeline template to show milestones, intervals, tasks, or phases along a horizontal or vertical bar. A timeline drawing can help you communicate dates and show progress toward a deadline.



With the Timeline template, you can take advantage of the following options:

- ✦ **Timeline shapes**
- ✦ **Milestones**
- ✦ **Intervals**

✦ **Markers** — Annotate the timeline to show the current day or elapsed time.

The Today Marker automatically moves to the current date as set in your computer system clock. You can also add the Elapsed Time shape to show the duration of a project up to the current date.

✦ **Expanded timeline** — Add an Expanded Timeline shape to show a detailed view of a segment in an overview timeline.

✦ **Data exchange with Project** — Import data from Microsoft Project into your Visio Timeline or export Visio Timelines to Microsoft Project.

Creating Timelines

1. Choose File ➪ New ➪ Project Schedule ➪ Timeline.

2. From the Timeline Shapes stencil, drag one of the Timeline shapes.

3. In the Configure Timeline dialog box, specify the start and finish dates and times

4. Under Scale, specify the timescale properties you want.

5. Drag the new timeline to the position you want on the drawing.

Tip: If you don't see dates or times on your timeline, select it and choose Timeline ➪ Configure Timeline. Select the Time Format tab and check the check boxes for the dates you want to show in the timeline.

To add a Milestone shape to your timeline to show an event on a particular date, such as the kickoff date of a phase or the due date of a major deliverable, follow these steps:

1. **From the Timeline Shapes stencil**, drag one of the Milestone shapes

2. **In the Configure Milestone dialog box,** specify the date in the Milestone Date box

3. **In the Description box**, type the text for the milestone.

4. **To change the date format**, select a format from the Date Format drop-down list.

5. **Click OK.**

To add an Interval shape to your timeline to show work over a period of time, such as the duration of the research phase of a project, follow these steps:

1. **From the Timeline Shapes stencil**, drag one of the Interval shapes.

2. **In the Configure Interval dialog box,** specify the start and finish dates for the interval.

3. **In the Description box,** type the text you want to appear with the interval in the timeline.

4. **Change the date format** if necessary and click OK.

Expanding Timelines

Create a more detailed view of a segment of an overview timeline.

1. Draw and configure the overview timeline.

2. From the Timeline Shapes stencil, drag the Expanded Timeline shape onto the drawing.

3. In the Configure Timeline dialog box, specify the start and finish dates

Note: The dates in the expanded timeline must be within the date range of the overview timeline.

4. In the Time Scale box, select the detailed timescale.

5. Click OK

6. Draw any additional milestones or intervals on the expanded timeline.

Note: Milestones and intervals added to the expanded timeline do not appear on the overview timeline. However, if you add a milestone or interval to the overview timeline within the date range of an expanded timeline, it appears on the expanded timeline as well. Visio synchronizes changes to milestones or intervals with the associated timelines.

You can use the mouse to change the expanded timeline in the following ways:

✦ **Move**

✦ **Resize**

✦ **Change the start or end date**

Synchronizing Milestones and Intervals

Just as Visio synchronizes milestones and intervals in overview and expanded timelines, you can synchronize milestones and intervals across multiple timelines on a page. To synchronize a milestone or interval with another, follow these steps:

1. Use one of the following methods to select a milestone or interval:

• **Existing shapes** — Select the milestone or interval you want to synchronize.

• **New shapes** — From the Timeline Shapes stencil, drag the Synchronized Milestone or Synchronized Interval shape onto the timeline.

2. Choose Timeline ➪ Synchronize Milestone or Timeline ➪ Synchronize Interval.

3. In the Synchronize With drop-down list, select the milestone or interval with which the selected shape should be synchronized.

4. Select the date format if necessary and click OK.

Note: Deleting the gray, dotted line does not remove the association between synchronized milestones or intervals. To break the link between synchronized milestones or intervals,

delete one of the synchronized shapes. You can then add it back as a regular unsynchronized shape.

Modifying Timelines

Timeline ➪ Configure Timeline. In the Configure Timeline dialog box, use one or more of the following methods:

✦ **Start and end**

✦ **Timescale**

✦ **Date or time format**

✦ **Timescale date and markings**

✦ **Revise dates automatically** — Select the Time Format tab. Check the Automatically Update Dates When Markers Are Moved check box.

You can change the look of your timeline in the following ways:

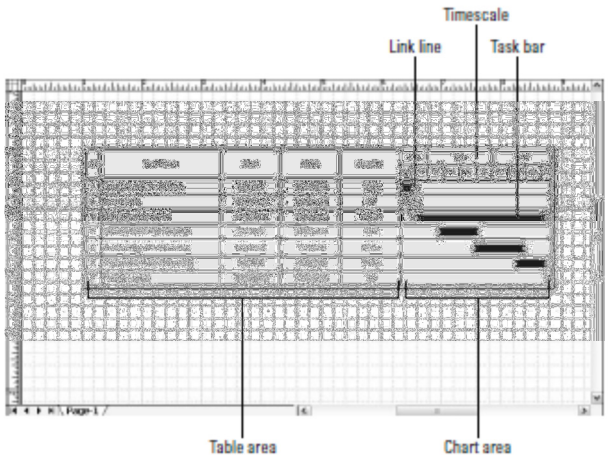
✦ **Change the timeline orientation** — Select the timeline and drag the selection handles

✦ **Change the type of timeline** — Right-click the timeline and choose Set Timeline Type from the shortcut menu

✦ **Show arrowheads** — Right-click the timeline and then choose Show Start Arrowhead or Show Finish Arrowhead.

SCHEDULING PROJECTS USING GANTT CHARTS

The Gantt chart is one of the most popular diagrams for showing project task information.



Creating Gantt Charts

1. Choose File ➪ New ➪ Project Schedule ➪ Gantt Chart.

2. In the Gantt Chart Options dialog box, specify the number of tasks you want to define,

3**. When you're finished, click OK** to build and display the Gantt Chart.

To enter task details in the table area of your Gantt Chart, follow these steps:

1. Zoom into the Gantt Chart if necessary to see text in the columns.

2. In the Task Name column, double-click Task 1 in the first row and change Task 1 to the first task name in your project.

3. In the Start and Finish columns, double-click a date and change it

4. In the same way, change the Duration field

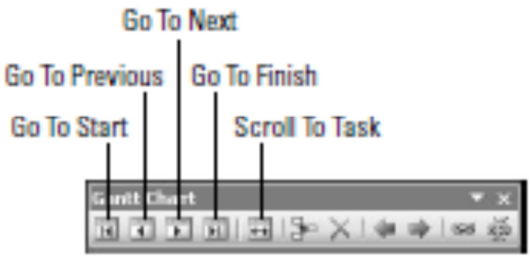
✦ **Change the start date** — Drag the left green selection handle to the left or right

✦ **Change the finish date** — Drag the right green selection handle to the left or right

✦ **Change the task duration**

✦ **Indicate progress in the task bar** — Drag the left yellow control handle toward the right in the task bar to display a pink progress bar.

Navigating in Gantt Charts



Adding Milestones

1. From the Gantt Chart Shapes stencil, drag the Milestone shape

2. Double-click New Task in the Task Name column and then change the placeholder name to the milestone name.

3. Change the Start Date field to the milestone date.

Note: Leave the duration for the milestone task at 0. If you add a duration, the milestone marker changes to a Task Bar shape in the chart area. Likewise, if you change a task duration to 0, its task bar changes to a milestone marker.

Organizing Tasks

1. **Add all the summary tasks and subtasks** in the proper order for the hierarchy.

2. Select the task you want to transform into a subtask of the task above it.

3. Click the Indent tool on the Gantt Chart toolbar or choose Gantt Chart ➪ Indent

• **Visio indents the selected task** to show that it's a subtask of the task above it.

• **Visio bolds the fon**t for the task above, indicating that it's now a summary task of the indented tasks below it.

• **The summary task information calculates** rolled up values for all its subtasks.

• **The task bar for the summary task is marked with triangular end points,** and represents the start, finish, and duration for all subtasks.

Linking Tasks

Many tasks cannot start until other tasks are completed, a condition which is known as a task dependency, or task link. To link tasks to show their dependencies, follow these steps:

1. Select the first task or the predecessor you want to link. Then Shift+click or Ctrl+click the second task, or successor. Click as many tasks as you want in the order that you want them linked.

2. On the Gantt Chart toolbar, click the Link Tasks tool. Visio links the selected tasks in a finish-to-start relationship, as shown by link lines in the chart area of the Gantt Chart. Start and finish dates might be recalculated to reflect the scheduling changes caused by the new task links.

Annotating Gantt Charts

Drag one or more of the following shapes to the Gantt Chart drawing:

✦ Title

✦ Legend

✦ Text Block (8-point, 10-point, or 12-point text)

✦ Horizontal Callout or Right-Angle Horizontal (callout)

Modifying the Content in Gantt Charts

✦ **Add a new task**

✦ **Delete a task**

✦ **Rename a task**

✦ **Add a column to the table**

✦ **Remove a column from the**

Formatting Gantt Charts

✦ **Change timescale dates and units**

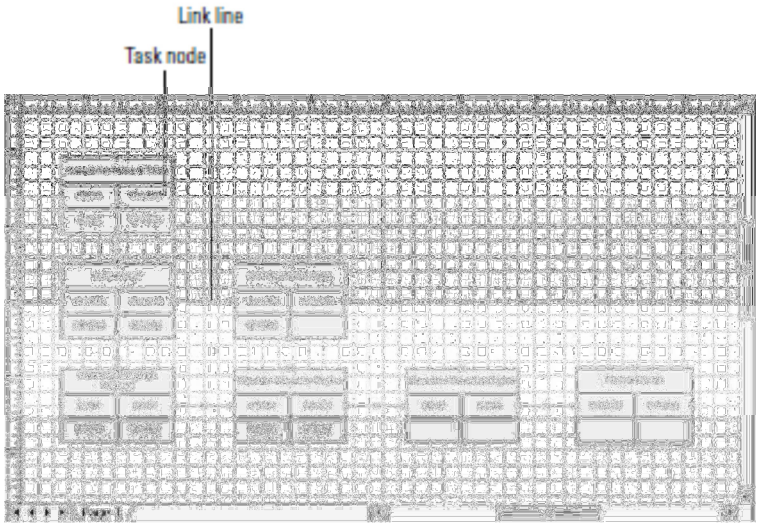
✦ **Change the look of task bars and milestones**

✦ **Change text formatting in the table area**

✦ **Change colors in the Gantt Chart**

BUILDING PERT CHARTS

Like Gantt charts, Program Evaluation and Review Technique (PERT) charts are also popular for displaying project task information in a network diagram layout.



Creating PERT Charts

1. Choose File ➪ New ➪ Project Schedule ➪ PERT Chart.

2. From the PERT Chart Shapes stencil, drag the PERT 1 or PERT 2 shape onto the drawing.

3. Drag a PERT node shape onto the drawing for each project task you want to show

4. To enter a task name, select a node and then type the task name.

5. To enter other task information in the node, first select the node, select a text box, type the information, and then press Esc.

Tip: To empty a text box, select it, press the spacebar, and then press Esc.

6. To show a task dependency from one node to another, use the Connector tool

7. To add a legend or callouts, drag the Legend shape onto the drawing and update the text to help others understand the information in your task nodes.

Summarizing Projects on PERT Charts

You can use the PERT Chart's Summarization Structure shape to create a high-level graphical overview of a project. To do this, follow these steps:

1. Choose File ➪ New ➪ Project Schedule ➪ PERT Chart.

2. From the PERT Chart Shapes stencil, drag the Summarize Structure shape onto the drawing.

3. Type the text you want in the box.

4. Repeat steps 2 and 3 for the additional shapes in your project summary.

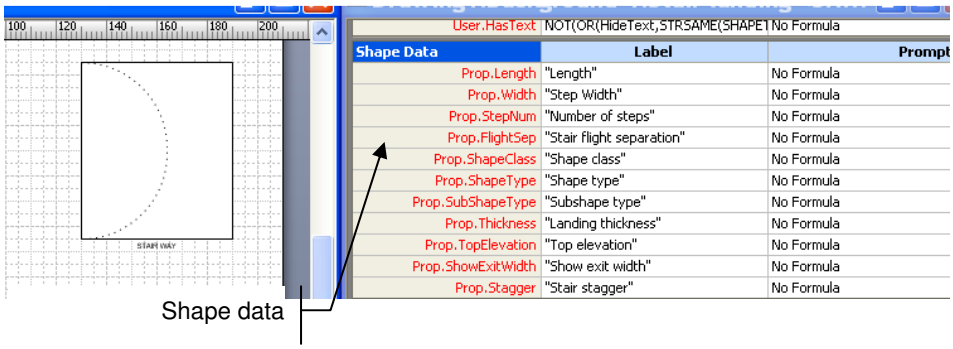
5. To show links among the summary structures, drag the yellow control handle in a structure lower in the hierarchy to the connection point on the bottom of the related structure above it.

SHAPE DATA of SHAPES & CUSTOM PROPERTIES

A shape in a flowchart can store data about the cost, duration, and resources involved in the process the shape represents, these are **Shape Data** (like fields in a database).

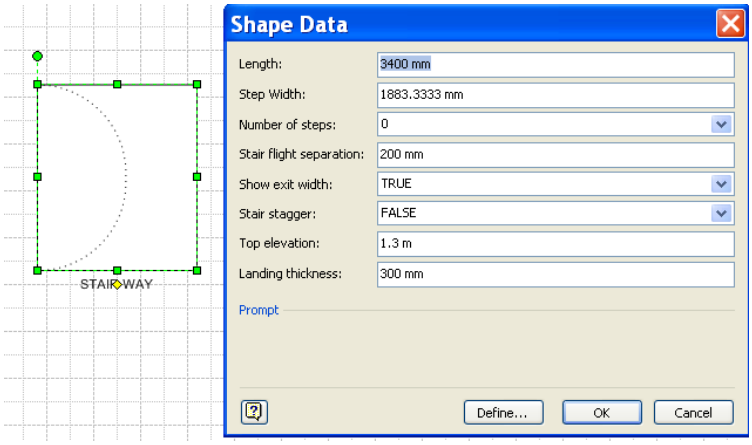
With shape data, a shape can act as a visual database field that stores data you can retrieve in a report.

The shape data for a shape can be seen in the shapes Shapesheet.



➲ To enter shape data for a shape

- Right-click the shape on the drawing page and select **SHAPE** then **PROPERTIES**

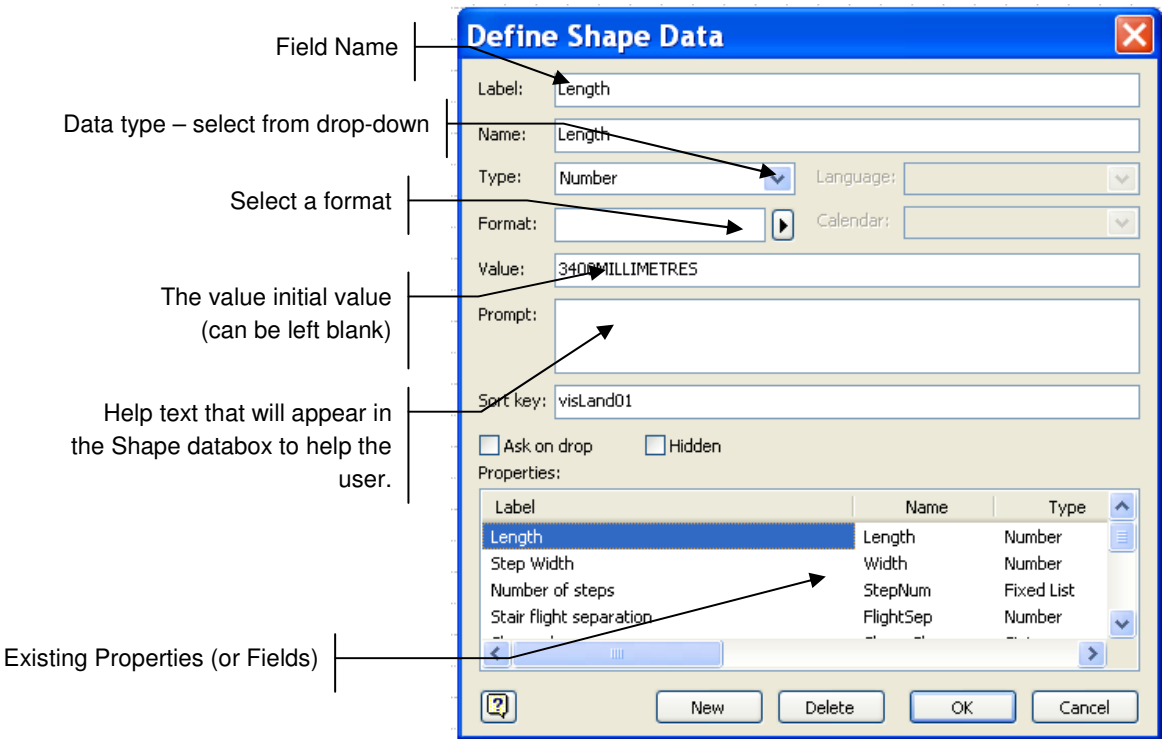


- If a shape has shape data then they will appear and you can simply enter the data.

➲ To define new shape data

- Right-click the stencil title and select **EDIT**
- Right-click the Master shape that you wish to edit and select **EDIT MASTER**
- Right-click the shape and select **SHAPE** then **PROPERTIES**
- If the shape has no custom properties, a dialog box will ask if you wish to define some – press the **YES** button

- **Or**, if you wish to add to existing shape data, press the **DEFINE** button in the Shape Data dialog box.
- In the **Define Shape Data** box, press the **NEW** button to add a new Custom Property (or Field) – it will be call **Property#**
- Enter and select settings for the shape data
- Press the **OK** button when you have finished, this will return you to the **Shape Data box** where the new field will be displayed, click **OK** to close.



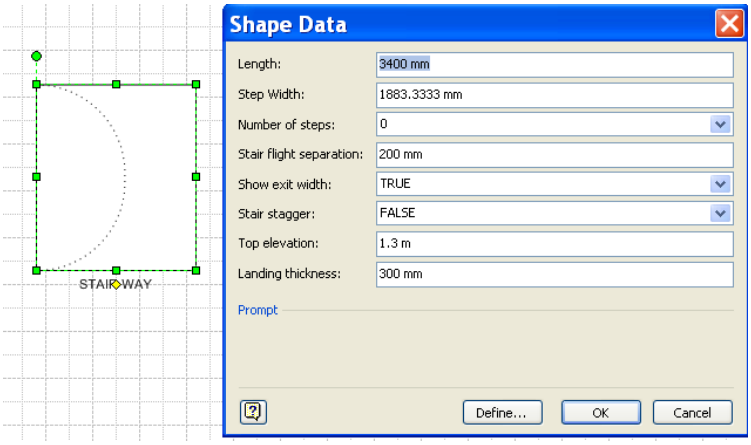
- When you have finished defining custom properties, close the Master Drawing Window
- When asked if you wish to **UPDATE THE MASTER** choose **YES**.
- When you have finished, Right-click the stencil name and select **SAVE**, then **EDIT**.

Each instance of that Master will now contain the user-defined shape datawhen you drag and drop them onto the drawing page.

➲ To view shape data for shapes

- Right-click any shape on the drawing page
- Select **PROPERTIES**
- A window will open on the screen to show shape data for that shape that you have selected.

- The window remains open until you close it.



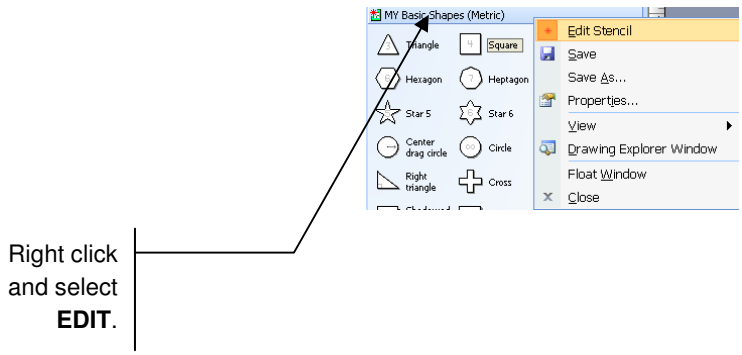
ADVANCED CUSTOM SHAPE DESIGN

CREATING CUTOM STENCILS

➲ To create a custom stencil based on an existing stencil

- If it is not already there, add the stencil to the drawing file.
- Right-click on the stencil name and select **SAVE AS** - stencil displays a red asterisk to show that it is in Edit mode.
- Right click on any shapes in the stencil and choose **DELETE**
- When you are finished, Right-click the stencil name and select **SAVE AS**
- Give the stencil File a new name and a location and press the **SAVE** button.
- Right click on the stencil name and choose **EDIT** again to switch off the Edit mode.

Note: Visio stencils are stored in the same solution folders as the Solution Templates – they can also be stored elsewhere if necessary.



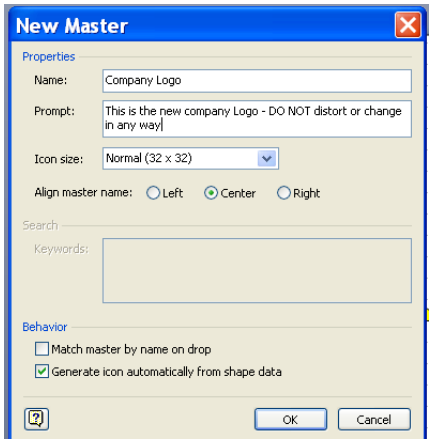
➲ To create a custom stencil from scratch

- From the **FILE** menu select **STENCILS** then **NEW**
- Drag shapes from other stencils onto the drawing page and then into the new stencil
- When the new stencil is complete, Right-click the stencil name and select **SAVE AS**
- Type a name for the new stencil and choose a location
- Right-click the stencil name and select **EDIT** to finish.

CREATING NEW SHAPES

➲ To create a master shape

- Open the stencil that you wish to add new master shapes to (or create a new stencil)
- Right-click the stencil name and choose **SAVE AS**
- Right-click on the green area of the stencil and select **NEW MASTER**



- Type a **NAME** for the new shape and a **PROMPT** (text that shows when you pause over the icon in the stencil), then click **OK**
- Double click the new Master icon in the stencil
- A blank Master Drawing Window will be shown.
- Either draw a new shape using drawing tools, insert clipart or copy and paste an image from another program.
- Close the Master Drawing Window using the **X** button
- When asked if you wish to **UPDATE THE MASTER** choose **YES**.
- When you have finished adding new shapes to the stencil, Right-click the stencil name and select **SAVE**, then **EDIT**.

➲ To make further changes to a new master shape

- Ensure the stencil is in **EDIT** mode

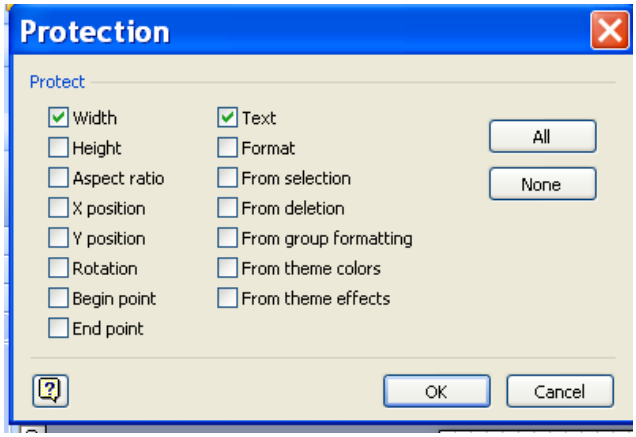
- Right-click the Master shape that you wish to edit and select **EDIT MASTER**
- Make any changes, then close the Master Drawing Window using the **X** button
- When asked if you wish to **UPDATE THE MASTER** choose **YES**.
- When you have finished, Right-click the stencil name and select **SAVE**, then **EDIT**.

➲ To edit the name and prompt on a Master shape

- Ensure the stencil is in **EDIT** mode
- Right-click the Master shape that you wish to edit and select **MASTER PROPERTIES**
- Make changes and click the **OK** button
- When you have finished, Right-click the stencil name and select **SAVE**, then **EDIT**.

PROTECTING SHAPES AND DOCUMENTS

Master shapes that you create on a stencil and shapes placed on the drawing page can be protected against a number of actions.



➲ To protect a shape on the drawing page

- Right-click on the shape and select **FORMAT** then **PROTECTION**
- Select the Protection options and click **OK**

➲ To protect a Master shape

- Ensure the stencil is in **EDIT** mode
- Right-click the Master shape that you wish to edit and select **EDIT MASTER**
- Right-click the Master shape in the Master Drawing Window
- Select **FORMAT** then **PROTECTION**
- Select the Protection options and click **OK**

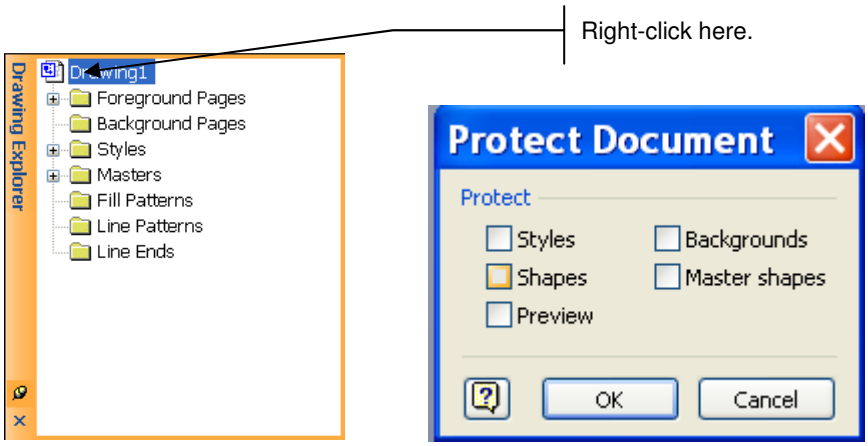
- Close the Master Drawing Window using the **X** button
- When asked if you wish to **UPDATE THE MASTER** choose **YES**.
- When you have finished, Right-click the stencil name and select **SAVE**, then **EDIT**.

➲ To unprotect a shape

- Shape protection is also switched off by right clicking the shape and selecting **FORMAT** the **PROTECTION**

➲ To protect a document

- From the **VIEW** menu select **WINDOWS** then **DRAWING EXPLORER**
- Right-click the drawing icon, and then choose **PROTECT DOCUMENT**
- Select the required options and if you desire, type a password
- Click **OK**, then close the Drawing Explorer window.



➲ To unprotect a document

- From the **VIEW** menu select **WINDOWS** then **DRAWING EXPLORER**
- Right-click the drawing icon, and then choose **UNPROTECT DOCUMENT**

Note: if you have set a password, you will need to enter this in order to unprotect the document.

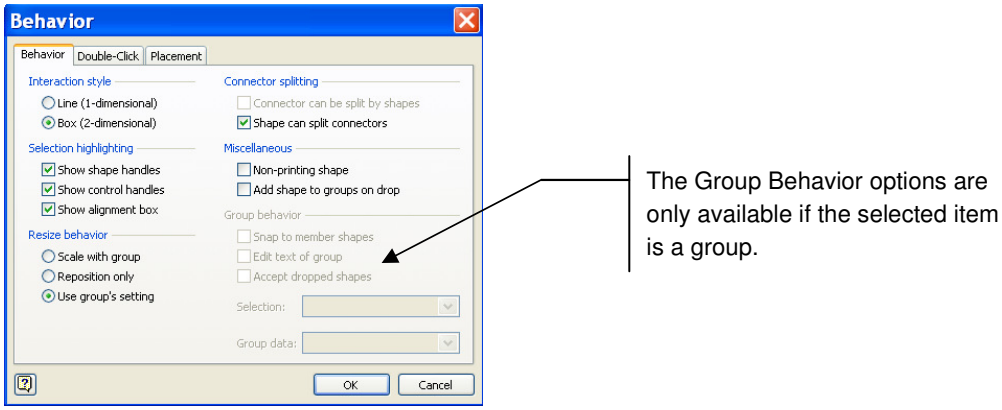
- Click **OK** and close the Drawing Explorer.

CHANGING SHAPE BEHAVIOR

You can control the behaviour of any shape you create on the drawing page and in the stencils.

To change the behaviour of a shape

- Right-click the shape and select **FORMAT** then **BEHAVIOR** if it is on the drawing page



Or, if you wish to change the behaviour of a Master shape:

- Set the stencil containing the Master shape to **EDIT** mode, right-click the Master shapes icon and select **EDIT MASTER**
- Right-click the Master shape in the Master Drawing Window
- Select **FORMAT** then **BEHAVIOUR**
- Select the Behavior options and click **OK**
- Close the Master Drawing Window using the **X** button
- When asked if you wish to **UPDATE THE MASTER** choose **YES**.
- When you have finished, Right-click the stencil name and select **SAVE**, then **EDIT**.

USING AUTOMATIC LAYOUT

Positioning shapes automatically can help you revise large drawings more quickly than using the pointer tool to select and drag each one to the new location. To layout shapes automatically

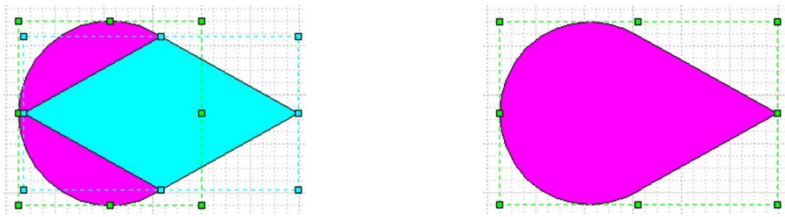
- Select that shapes that you wish to layout, or do not select any shapes to automatically layout the whole page.
- From the **SHAPES** menu select **LAY OUT SHAPES**
- Experiment with the different options, pressing **APPLY** to view the results until the desired affect is achieved.

MERGING SHAPES

Merging shapes together enables you to create new shapes from existing ones, you can then add these as Master shapes to your stencils.

USING THE UNION COMMAND

The **Union** command merges overlapping shapes together to create one shape.

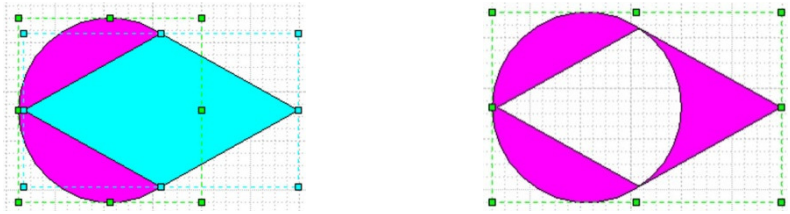


- Select all shapes to be merged
- From the **SHAPE** menu select **OPERATIONS** then **UNION**

USING THE COMBINE COMMAND

The Combine command merges overlapping shapes and creates 'knocked out' areas in the new shape where the initial shapes overlapped.

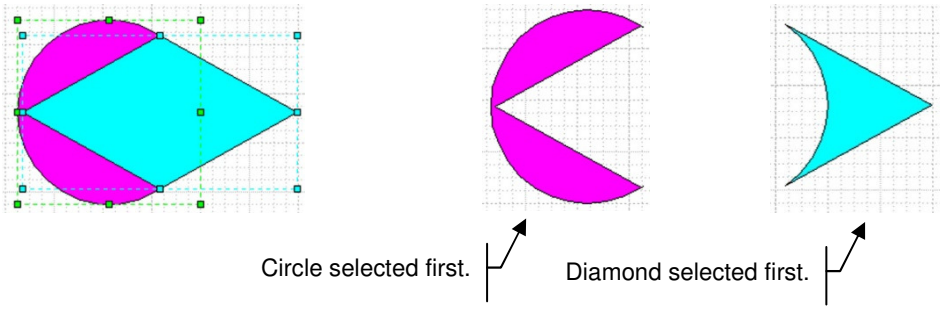
The resulting shape will take on the colour of whichever shapes was selected first.



- Select all shapes to be merged
- From the **SHAPE** menu select **OPERATIONS** then **COMBINE**

USING THE SUBTRACT COMMAND

With the Subtract command the shape that is selected first works like a piece of 'pastry' and the other shapes overlapping it work like 'pastry cutters'.

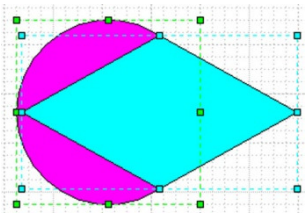


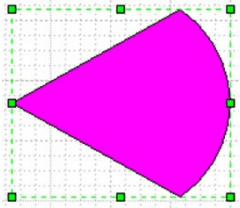
- Select all shapes to be merged
- From the **SHAPE** menu select **OPERATIONS** then **SUBTRACT**

USING THE INTERSECT COMMAND

The Intersect command creates a new shape from the area where all selected shapes overlap.

The resulting shape will take on the colour of whichever shapes was selected first.



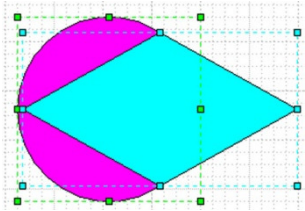


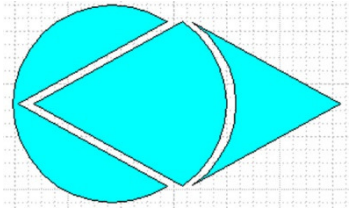
- Select all shapes to be merged
- From the **SHAPE** menu select **OPERATIONS** then **INTERSECT**

USING THE FRAGMENT COMMAND

The Fragment command creates a new shape wherever selected shapes overlap.

The resulting shape will take on the colour of whichever shapes was selected first.





- Select all shapes to be merged

  From the **SHAPE** menu select **OPERATIONS** then **FRAGMENT**