

## ***Visio Developer Training Manual Sample***

The Following is an excerpt from Visimation's Visio Developer Training guide:  
Our developer training course materials work in conjunction with lab examples specific to each module.

### **Visio Platform Introduction**

- **Introduce the Visio platform and the components that make up a typical Visio solution.**

Before you begin building solutions with Visio, you should first understand the components that make up a solution. On the surface there is the drawing environment that contains the drawing page, the stencils of master shapes, the templates, and the add-ons used to create the drawing. However, Visio drawings are much more than the lines and arcs that form the picture; they can be rich with information that describes the picture in detail. The drawing and the information that describes the drawing are referred to as a model.

## Overview

- **Designing vs. Drafting**
  - Drawings vs. Models
- **Visio SmartShapes® Solutions**
  - Masters
  - Stencils
  - Templates
  - Add-ons

The following demonstration shows how a Visio drawing (a network diagram) can have additional information stored with the drawing and how this information can be used to generate useful reports.

### ⚡ **Demonstration: Overview**

1. **Open** <install folder\Demos\Mod01\S1-2 Visio Platform Introduction\Network demo\ **Network Diagram.vsd**.
2. **Run** the **Create Purchase Order** add-on by clicking on the page with the right mouse button. This add-on reads custom property information from the shapes in the drawing and displays this information in a spreadsheet.

Following the demonstration you will compare the process of creating a drawing using traditional drafting techniques to designing a model using objects and Visio. You will also learn about the components of a typical Visio solution including master shapes, stencils, templates, and add-ons.

### ⚡ **Demonstration: The Kitchen Sink Model**

Draw a simple kitchen counter and cabinet layout two ways:

1. **Open** <install folder\Demos\Mod01\S1-2 Visio Platform Introduction\ **Sink Unfinished.vsd** Try to reproduce the drawing using the Rectangle and Circle tools. Keep a **count** of the number of **operations** it takes to produce the solution using drawing primitives.
2. Using the open stencils, **draw** the kitchen cabinet with **Base 2** (size to 48") and **Sink 1**. Keep a count of the number of operations it takes to produce the solution using objects.

Note: It is easier to draw with graphic objects that correspond to objects in the problem domain.

3. Go to the **Kitchen Plan** page of the drawing. Right-click on the page and run the macro called **Generate Cabinet List**. Like the network diagram example earlier, this add-on extracts custom property information from the drawing and writes it into a spreadsheet.

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**Note** When you design with objects, you can generate usable information from the drawing. The drawing then becomes a model.

### *Models vs. Drawings*

A model is constructed to help solve a problem. Think of some examples of models with graphical views.

A drawing is usually just a partial view of a model. For example, in the case of business process analysis, the analysis may require that you know the cost per transaction of each process.

In a kitchen layout, the 2-D location of the cabinets specified in the plan view does not provide enough information to install the cabinets and counters. You also need to know the model numbers, colors, materials, heights, and so on. You can add this data to a Visio drawing so that the complete model is stored in the drawing.

If you have many drawings that have to be consistent, part of the model can reside in a single shared database (like a database of process inputs and outputs).

You can also combine information from a drawing (such as location and unique identifiers) with data stored elsewhere (such as a price list) to generate a complete model that can be used to generate parts lists and cost estimates.

Once a model is constructed:

- Other graphical views can be constructed automatically using an add-on.
- Analysis and reporting can be done automatically.

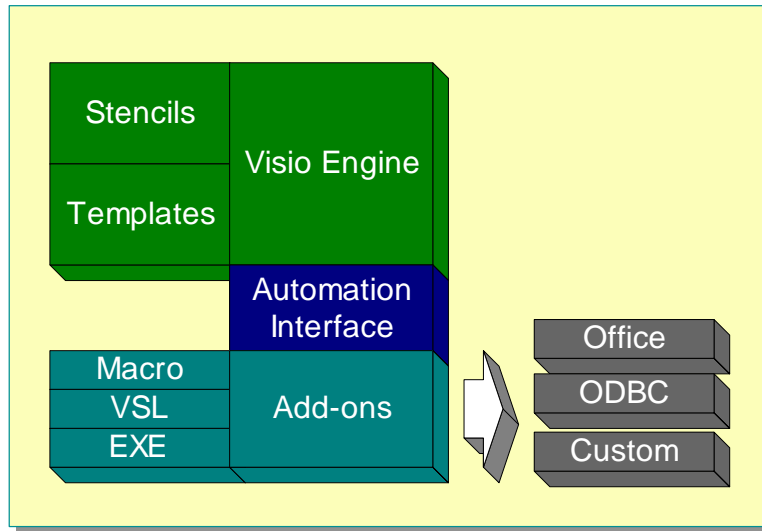
## In a Good Visio Solution

- **Graphical Objects (Shapes) correspond to objects in the problem domain**
- **Making the Drawing builds the Model**
- **Shape behavior encourages correct modeling and correct graphical representation**
- **Manual override is allowed for user convenience**

Objects in Visio typically correspond to objects in the real world. Ideally, they take on characteristics similar to their real-world counterparts. Consider the kitchen cabinet in the previous example. You set the cabinet's width by setting a custom property value. These custom property values are in 3-inch increments, which is typical of cabinets purchased in the United States. By controlling the cabinet's width in this manner, the user is prevented from inadvertently setting a value to a non-standard value. However, the shape does allow for non-standard values to be set. Thus you can override the default behavior for the object just as you can order a non-standard width for cabinets when you go to the cabinet supply store.

A good Visio solution ensures that a proper model is maintained. Again, going back to the kitchen example, when the cabinet objects are added to the drawing the user is prompted for information concerning cabinet style, color, manufacturer, and so on. This ensures that the data needed to generate the Bill of Materials is captured as part of the drawing data.

## Visio Development Platform Architecture



Visio can be used to do much more than just create drawings. It provides a platform for creating solutions that integrate graphics with data in other forms, such as databases, spreadsheets, and word processors.

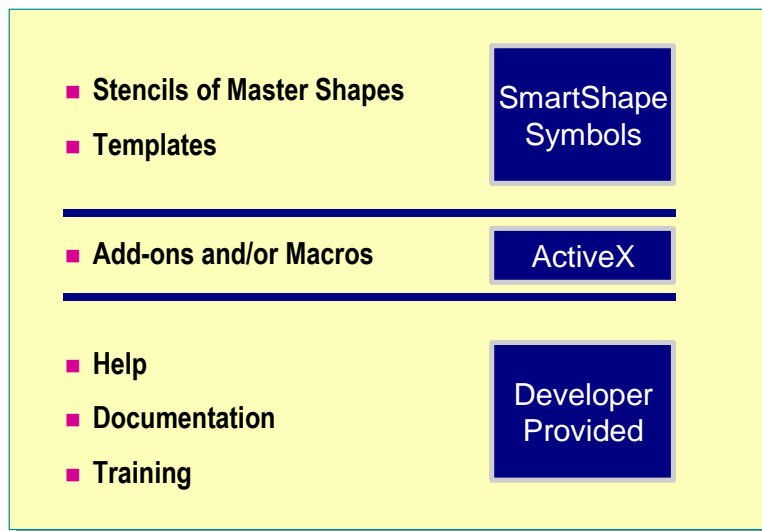
Let's look at the components of the platform architecture. At the core is the Visio graphics engine. The engine controls the environment: file management, user interface, graphics display, and so on.

A Visio drawing is typically constructed by using the drag-and-drop technique to add shapes to a drawing. These shapes are then positioned, resized, and connected to other shapes to create a finished drawing. Stencils are predefined collections of shape masters. By defining these master shape objects, the user can create very complex drawing documents without having to draw anything by hand.

Templates provide a starting point for a new drawing. A template can contain pre-drawn elements such as title boxes, logos, and frames. Templates can also pre-define scale, drawing size, paper size, and many other characteristics of the environment.

Add-ons can help create the drawing, analyze the drawing, or transfer information to or from the drawing to external data sources. Visio provides a type library that defines the automation interface. Add-ons can be created using Microsoft Visual Basic for Applications, which is built into the product, or any other development tool for creating applications based on Microsoft Windows® including Microsoft Office Developer to create a COM Add-in and C++ to create a VSL.

## Content of a Typical Visio Solution



The contents of a typical Visio solution contain a number of elements that make it well rounded and complete.

Stencils of master shapes give you the power to create your own custom shapes, and give your users ease and flexibility in using them.

Templates are a great way for you to package a drawing solution, making it easier to distribute to users.

A typical custom Visio solution will also have an add-on to make it more robust and powerful. This can be through the Visual Basic for Applications interface, or via a Microsoft ActiveX® interface.

Help files are an important component in a complete solution. Giving your users access to more information when they need it makes your solution more complete and user friendly.

As a developer, it is important to keep good documentation of your solution and what it provides for your users. This documentation is a solid foundation for writing pertinent help files and is a good starting point for compiling important training material.

## Stencils

- **A stencil is a container for a collection of masters**
- **You can add to an existing stencil or create a new one**
- **Make sure the stencil is editable by opening as Original/Copy or Edit it via RMA on the stencil title bar.**
- **To create a new blank stencil choose:**

`File \ Stencils \ New Stencil`

A shape on a stencil is called a master. A stencil serves as a container for holding related masters. A stencil can be standalone or local. A standalone stencil exists independently as a file with the extension .VSS. You create a standalone stencil by choosing File\Stencils\New Stencil. This will open a blank stencil that you can add your own master shapes to.

Normally, an existing stencil is opened as read-only. If you are modifying a stencil, make sure it is opened as Original or as a Copy (writeable). You can also make a read-only stencil writeable using the Edit command on the right-click menu on that stencil's title bar.

A local stencil is the stencil associated with the drawing, and is called the Document Stencil. When you drag a master from a standalone stencil onto the drawing page, Visio copies the master to the local stencil, and then creates an instance of the master on the drawing page. Thus the local stencil receives copies of all masters used to create the drawing. It is the mechanism that makes a Visio drawing self-contained and allows others to view your drawings without having to have the stencils of the original masters loaded on their local machine.

## Creating Masters

- Create a master from a shape in a drawing
- Drag a copy of the shape from a drawing to a stencil window (Ctrl, drag)
- Edit properties of the new master

You can turn any shape on a drawing page into a master by dragging the shape and dropping it into a stencil that is writeable.

### ⚡ **Demonstration: Creating a New Master**

1. **Draw** a new shape, such as a red rectangle, on the drawing page.
2. **Create** a new stencil by choosing **File\ Stencil\ New Stencil**.
3. **Drag** the rectangle shape from the drawing page into the stencil.
4. From the stencil window, **right-click** on the new master and **choose Master Properties** from the menu. In the **Properties** dialog box you can edit properties of the master, such as name, icon size, prompt, and so on.
5. **Right-click** on the master again and from the menu, choose **Edit Master**. This opens a new drawing window containing the master shape. From this window you can make changes to the master. When the window is closed, Visio will prompt you to save the changes to the master shape.