THE DEVELOPMENT ENVIRONMENT

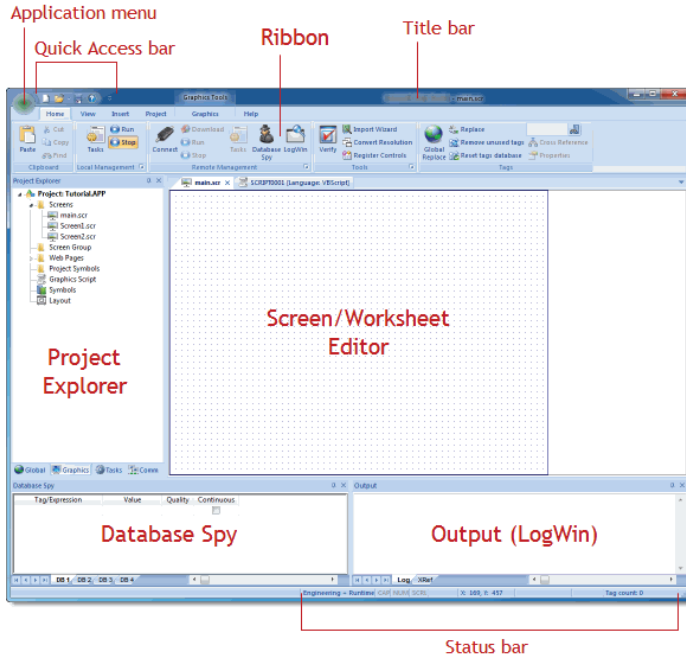# CHAPTER
2

The Development Environment

Point of View incorporates a modern, Ribbon-based Windows interface to provide an integrated and user-friendly development environment.
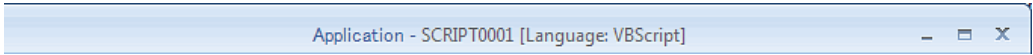

The POV Development Environment

Title Bar

The Title Bar located along the top of the development environment displays the application name (e.g., Point of View) followed by the name of the active screen or worksheet (if any).

Application - SCRIPT0001 [Language: VBScript]	– □ ✕

Example of Title Bar

The Title Bar also provides the following buttons (from left to right):

- Minimize button ▬ : Click to minimize the development environment window to the Taskbar.

- Restore Down / Maximize: Click to toggle the development environment window between two sizes:

  - Restore Down button 🗗 reduces the window to its original (default) size.

  - Maximize button 🗖 enlarges the window to fill your computer screen.

- Close button ✕ : Click to save the database and then close the development environment. If you modified any screens or worksheets, the application prompts you to save your work. This button's function is similar to clicking Exit Application on the Application menu.

NOTE: *Closing the development environment does not close either the project viewer or the runtime system, if they are running.*

Status Bar

The Status Bar located along the bottom of the development environment provides information about the active screen (if any) and the state of the application.

2

| Engineering + Runtime | CAP | NUM | SCRL | ID: 0 | X: 160, Y: 90 | W: 201, H: 181 | Tag count: 0 |

Example of Status Bar

The Status Bar fields (from left to right) are described in the following table:

Field	Description
Execution Mode	The current execution mode of the application.
CAP	Indicates whether the keyboard Caps Lock is on (black) or off (grey).
NUM	Indicates whether the keyboard Num Lock is on (black) or off (grey).
SCRL	Indicates whether the keyboard Scroll Lock is on (black) or off (grey).
Object ID	The ID number of a selected screen object.
Cursor Position	The location of the cursor on the active screen or worksheet. If it's a screen, then the position of the mouse cursor is given as X,Y coordinates, where X is the number of pixels from the left edge of the screen and Y is the number of pixels from the top edge of the screen. If it's a worksheet, then the position of the text cursor is given as Line and Column.
Object Size	The size (in pixels) of a selected screen object, where W is the width and H is the height.
No DRAG	Indicates whether dragging is disabled (No DRAG) or enabled (empty) in the active screen.
Tag Count	The total number of tags used so far in the project.

Application Button

The Application button opens a menu of standard Windows application commands like New, Open, Save, Print, and Close.
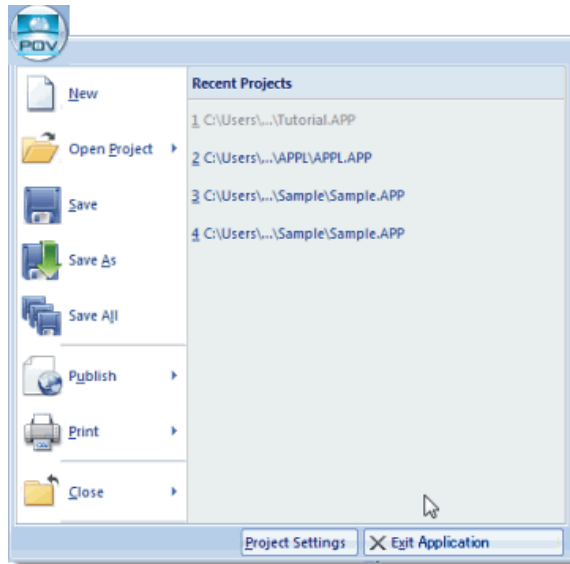
Application Button Opens Menu of Commands

Quick Access Toolbar

The Quick Access Toolbar is a customizable toolbar that contains a set of commands that are independent of the ribbon tab that is currently displayed.

Move the Quick Access Toolbar

The Quick Access Toolbar can be located in one of two places:

- Upper-left corner next to the Application button (default location); or

- Below the ribbon, where it can run the full length of the application window.

If you don't want the Quick Access Toolbar to be displayed in its current location, you can move it to the other location:

1) Click Customize Quick Access Toolbar ⬇.

2) In the list, click Show Below Ribbon or Show Above Ribbon.
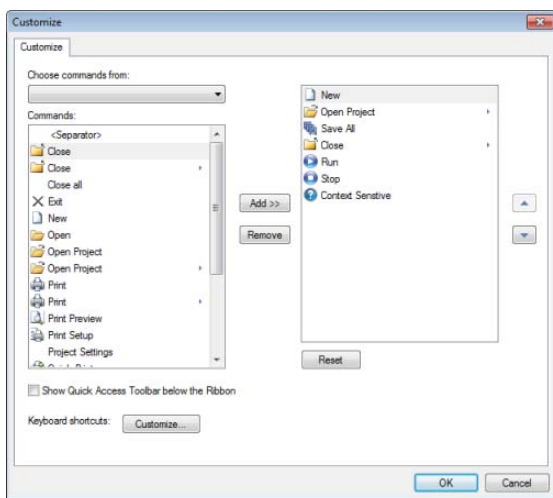
Add a Command to the Quick Access Toolbar

You can add a command to the Quick Access Toolbar directly from commands that are displayed on the ribbon:

1) On the ribbon, click the appropriate tab or group to display the command that you want to add to the Quick Access Toolbar.

2) Right-click the command, and then click Add to Quick Access Toolbar on the shortcut menu.

You can also add and remove commands — as well as reset the toolbar to its default — using the Customize dialog:

1) Click Customize Quick Access Toolbar ⬇.

2) In the list, click More Commands. The Customize dialog is displayed.

3) In the Choose commands from menu, select the appropriate Ribbon tab. The commands from that tab are displayed in the Commands list.

4) In the Commands list, select the command that you want to add to the Quick Access Toolbar.

5) Click Add.

Only commands can be added to the Quick Access Toolbar. The contents of most lists, such as indent and spacing values and individual styles, which also appear on the ribbon, cannot be added to the Quick Access Toolbar.

*Customize Quick Access Toolbar Dialog*

Ribbon

The ribbon combines the numerous menus and toolbars into a single, user-friendly interface.
Almost all application commands are on the ribbon, organized into tabs and groups according to
general usage.
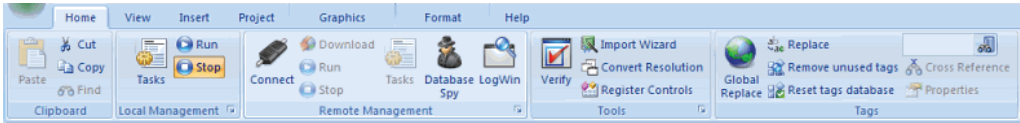
The Ribbon Interface

Home Tab

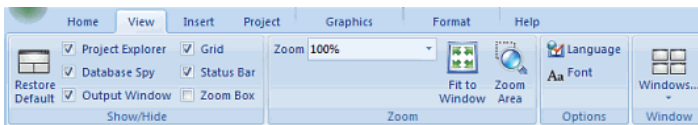The Home tab of the ribbon is used to manage your project within the development environment.
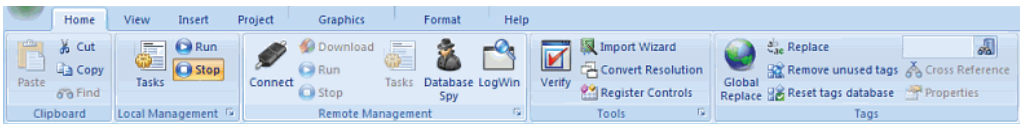
Home Tab of the Ribbon

The tools are organized into the following groups:

- **Clipboard**: Cut, copy, paste, and find items in project screens and task worksheets.

- **Local Management:** Run and stop the project on the local station (i.e., where the development application is installed), as well as manage the execution tasks.

- **Remote Management:** Connect to a remote station so that you can download the project to it, and then run, stop, and troubleshoot the project on that station. For more information, see the "About remote management" help file topic.

- **Tools:** Miscellaneous tools to verify the project, import tags from other projects, convert screen resolutions, and register ActiveX and .NET controls.

- **Tags:** Manipulate tags and tag properties in the project database.

View Tab

The View tab of the ribbon is used to customize the look of the development environment itself.

View Tab of the Ribbon
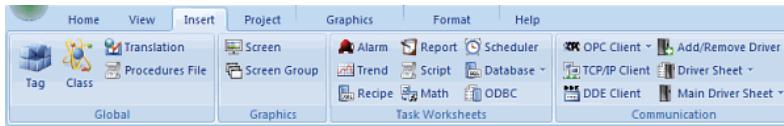
The tools are organized into the following groups:

- Show/Hide: Show and hide the different parts of the development environment, as well as restore

the default layout.

- **Zoom:** Zoom in and out of the screen editor.
- **Options:** Change the language and font used in the development environment.
- **Window:** Arrange the windows in the development environment.

Insert Tab

The Insert tab of the ribbon is used to insert new tags, screens, worksheets, and other components into your project.
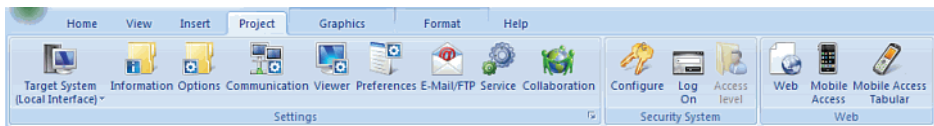

Insert Tab of the Ribbon

The tools are organized into the following groups:

- **Global:** Insert tags, classes, translations, and procedures into the Global tab of the Project Explorer.
- **Graphics:** Insert screens and screen groups into the Graphics tab of the Project Explorer.
- **Task Worksheets:** Insert task worksheets into the Tasks tab of the Project Explorer.
- **Communication:** Insert server configurations and communication worksheets into the Comm tab of the Project Explorer.

Project Tab

The Project tab of the ribbon is used to configure your project settings.
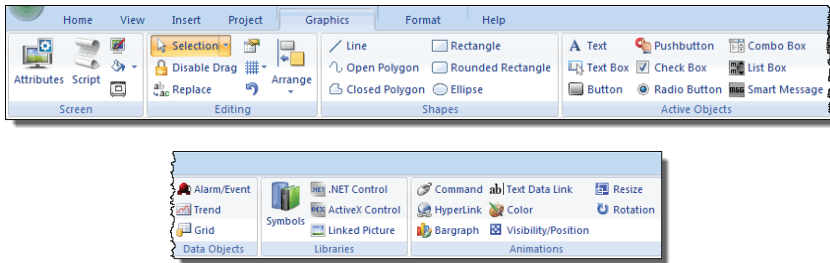

Project Tab of the Ribbon

The tools are organized into the following groups:

- **Settings:** Configure the general project settings or set the project to run as a Windows service.
- **Security System:** Enable and configure the project security system.
- **Web:** Configure the project to accept connections from a variety of thin clients.

Graphics Tab

The Graphics tab of the ribbon is used to draw project screens.
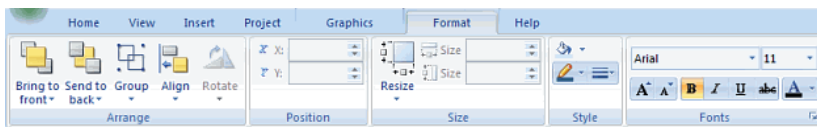

Graphics Tab of the Ribbon

NOTE: *This tab is available only when you have a project screen open for editing.*

The tools are organized into the following groups:

- **Screen:** Configure settings for the project screen itself, such as its attributes, script, and background color or image.

- **Editing:** Select and edit objects in the project screen.

- **Shapes:** Draw static lines and shapes.

- **Active Objects:** Draw active objects, like buttons and check boxes.

- **Data Objects:** Draw objects that display historical data, like alarms, events, and trends.

- **Libraries:** Select from libraries of premade objects, such as symbols, .NET and ActiveX controls, and external image files.

- **Animations:** Apply animations to other screen objects.

Format Tab

The Format tab of the ribbon is used to format and arrange objects in a project screen.

Format Tab of the Ribbon

NOTE: *This tab is available only when you've selected one or more objects in a project screen.*

The tools are organized into the following groups:

- **Arrange:** Arrange objects in a project screen, including bring to front and send to back, group, align, and rotate.
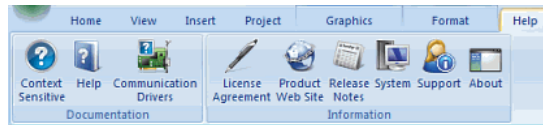
- **Position:** Precisely adjust the position of a screen object in a project screen.
- **Size:** Precisely adjust the size of a screen object.
- **Style:** Change the fill and line color of a screen object.
- **Fonts:** Change the caption font of a screen object.

Help Tab

The Help tab of the ribbon provides additional help with using the software.

Help Tab of the Ribbon

The tools are organized into the following groups:

- **Documentation:** Access the documentation for the development application, including this help file/technical reference and notes for the individual communication drivers.
- **Information:** Access other information about Point of View, including the license agreement, product website, and release notes, as well as system and support details that make it easier for Customer Support to assist you.

Project Explorer

The Project Explorer organizes all of the screens, worksheets, and other items that comprise your project and presents them in an expandable tree-view.

To open a folder and view its contents, either click the Expand icon to the left of the folder or double-click the folder itself.

To close a folder, click the Collapse icon to the left of the folder.

If you right-click any item in the Project Explorer, then a shortcut menu will appear with contextual commands for that item.

There are four main sections, or tabs, in the Project Explorer: Global, Graphics, Tasks, and Comm.

Global Tab

The Global tab of the Project Explorer contains the project tags database, as well as other features that apply to the entire project such as the security system, VBScript procedures, and UI translation.
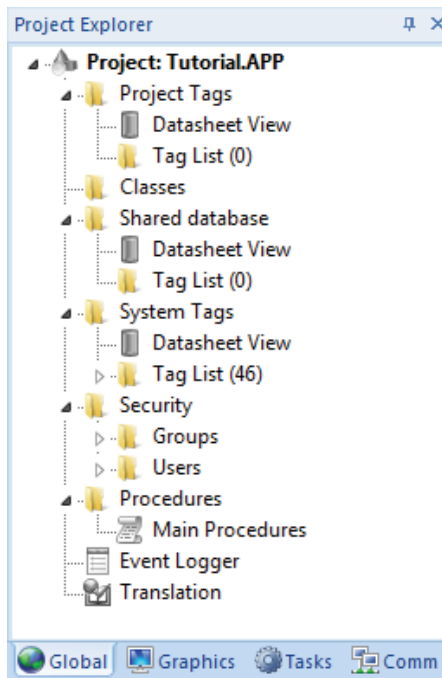
Global Tab of the Project Explorer

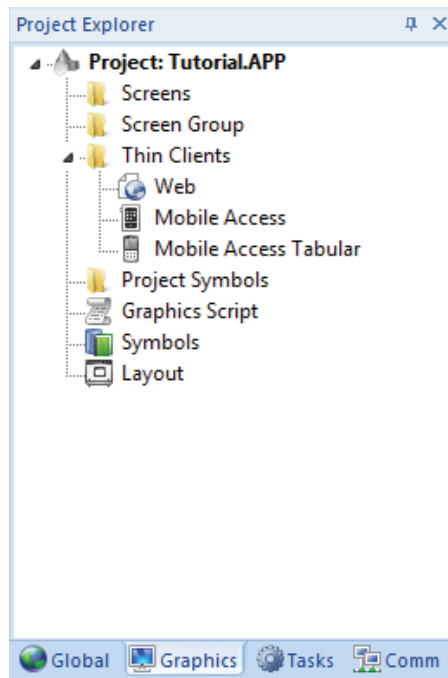The folders on the Global tab are described in the following sections:

- **Project Tags:** The project tags database contains all of the data tags that you create during project development, such as screen tags (e.g., button1_state) or tags that read from / write to connected devices.

- **Classes:** Classes are compound tags that you can create to associate a set of values, rather than a

single value, with an object. For example, where you may normally create separate tags for a tank's pressure, its temperature, and its fill level, you can instead create a "tank" class that includes all three.

- **Shared Database:** The shared database contains tags that were created in another program and then imported into or integrated with your project.

- **System Tags:** System tags are predefined values such as the date, the time, the name of the current user, and so on. You can use these values to develop supervisory functions and housekeeping routines.
  You cannot add, edit, or delete these tags from the database.

- **Security:** If you choose to enable it, you can use the project security system to control who may log on to your project and what they may do during runtime.

- **Procedures:** Procedures are VBScript functions and sub-routines that can be called by any other script in your project.

- **Event Logger:** The event logger saves important runtime messages and task results to an external database.

- **Translation:** You can use the translation table to develop a multilingual user interface (MUI) for your project.

Graphics Tab

The Graphics tab of the Project Explorer contains all of the screens, screen groups, and symbols in your project.

Graphics Tab of the Project Explorer

The folders on the Graphics tab are described in the following sections:

- **Screens:** You create screens to provide a graphical interface for your project. Each screen can contain many buttons, sliders, dials, indicators, graphs, and so on.

- **Screen Groups:** You can combine individual screens into screen groups, so that they all open together at the same time.

- **Thin Clients:** You can deploy your project as a web application to be accessed by thin clients such as desktop web browsers, tablets, and smartphones. You can even deploy different versions of your project with different levels of functionality for each type of client.

- **Project Symbols:** This folder contains all of the custom symbols that you create for your project. A symbol is a group of interconnected screen objects that work together to perform a single function — for example, lines, rectangles, and text fragments that have been arranged to make a slider control.

- **Graphics Script:** You can use this worksheet to define VBScript sub-routines that are called only when the graphics module starts (i.e., when a client station connects to the server and displays the graphical interface), while it is running, and when it ends.

- **Symbols:** The symbols library contains not only the custom symbols that you create (see Project Symbols above), but also a large selection of premade symbols that are installed with the development application.

- **Layout:** The layout editor displays all of the screens the are currently open for editing. You can use it to visualize how the screens are arranged together and reuse screens in multiple layouts — for example, to create a common navigation bar across your entire project.

Tasks Tab

The Tasks tab of the Project Explorer organizes the worksheets that are processed as background tasks (i.e., server-based maintenance tasks that are not directly related to screen operations or device I/O) during project runtime.

The folders on the Tasks tab are described in the following sections:

- **Alarms:** You can use Alarm worksheets to define when alarms are trigged, how they must be handled, and what messages they generate. (You can then use the Alarm/Event Control screen object to display your alarms on screen, but that is a separate procedure.)

- **Trends:** You can use Trend worksheets to select project tags that should be displayed as data trends and/or saved as historical data. (You can then use the Trend Control screen object to actually display your trends on screen, but that is a separate procedure.)
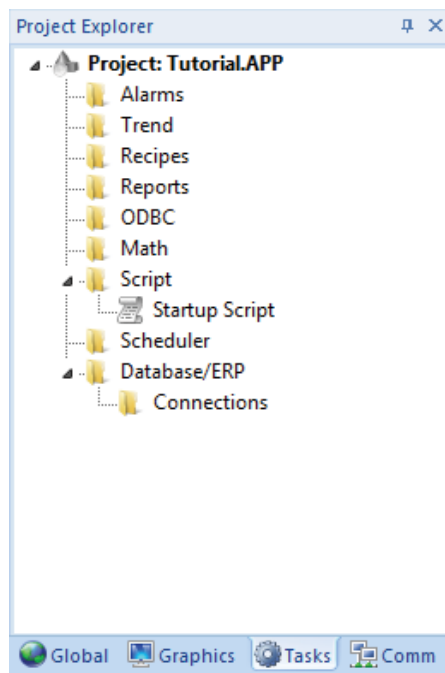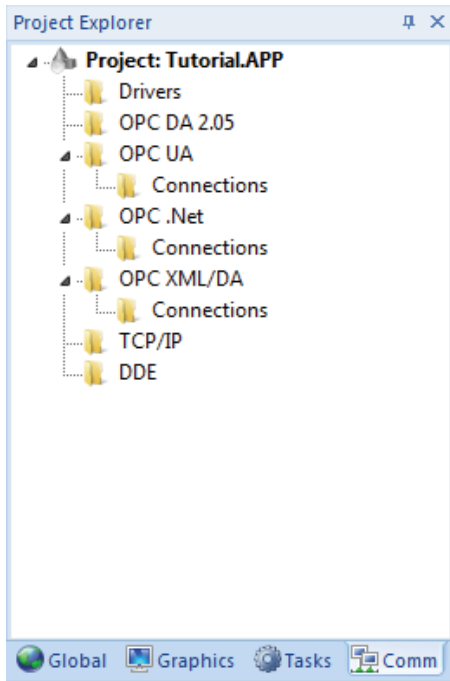

Tasks Tab of the Project Explorer

- Recipes: You can use Recipe worksheets to select project tags that will load values from and/or save values to an external file. These worksheets are typically used to execute process recipes, but you can store any type of information such as passwords, operation logs, and so on.
(You can then call the Recipe function to actually run a configured Recipe worksheet, but that is a separate procedure.)

- **Reports:** You can use Report worksheets to design runtime reports that are either sent to a printer or saved to disk. (You can then call the Report function to actually run a configured Report worksheet, but that is a separate procedure.)

- **ODBC:** You can use ODBC worksheets to set up connections and exchange data with other ODBC-compliant databases.

- **Math:** You can use Math worksheets to develop complex runtime logic using the built-in scripting language.

- **Script:** You can use Script worksheets to develop complex runtime logic using VBScript.

- **Scheduler:** You can use Scheduler worksheets to run commands at specified times, dates, or trigger events.

- **Database:** You can use Database worksheets to set up connections and exchange data with external databases using the standard ADO.NET interface (as an alternative to ODBC).

Comm Tab

The Comm tab of the Project Explorer organizes the worksheets that control communication with remote devices, using either direct communication drivers or other common protocols.


Comm Tab of the Project Explorer

The folders on the Comm tab are described in the following sections:

- **Drivers:** You can use Driver worksheets to communicate with PLCs and other hardware, using any of the hundreds of direct communication drivers that are installed with the development application.

- **OPC DA 2.05:** You can use OPC worksheets to communicate with OPC servers via the OPC Classic protocol.

- **OPC UA:** You can use OPC UA worksheets to communicate with OPC servers via the new OPC Unified Architecture protocol.

- **OPC .Net:** You can use OPC .Net worksheets to communicate with OPC servers via the new OPC .NET 3.0 protocol (formerly OPC Xi).

- **OPC XML/DA:** You can use OPC XML/DA worksheets to communicate with OPC servers via the new OPC XML-DA protocol.

- **TCP/IP:** You can use TCP/IP worksheets to configure communication between your own project and other POV projects. The TCP/IP Client and TCP/IP Server modules enable two or more projects to keep their databases synchronized using the TCP/IP protocol.

- **DDE:** You can use DDE worksheets to communicate with other Microsoft Windows applications, such as Microsoft Excel, that support the Dynamic Data Exchange protocol.

Screen/Worksheet Editor

Use the powerful, object-oriented screen editor to create and edit a variety of screens and worksheets for your projects. You can input information using your mouse and keyboard, output control data to your processes, and automatically update screens based on data input from your processes.
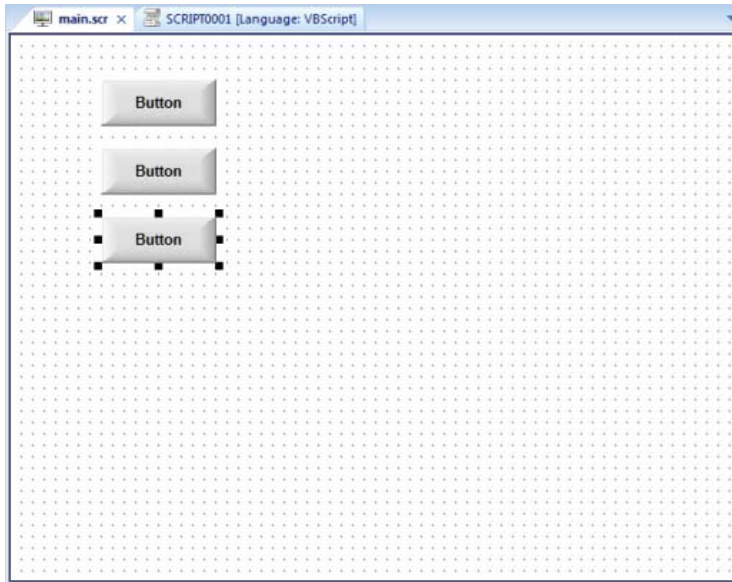
Screen/Worksheet Editor

Other screen editor features include:

- Simple point-and-click, drag-and-drop interface
- Grouping objects to preserve the construction steps of individual objects
- Editing objects without having to ungroup internal object components or groups
- Handling bitmap objects and background bitmaps
- Status line support in project windows and dialogs