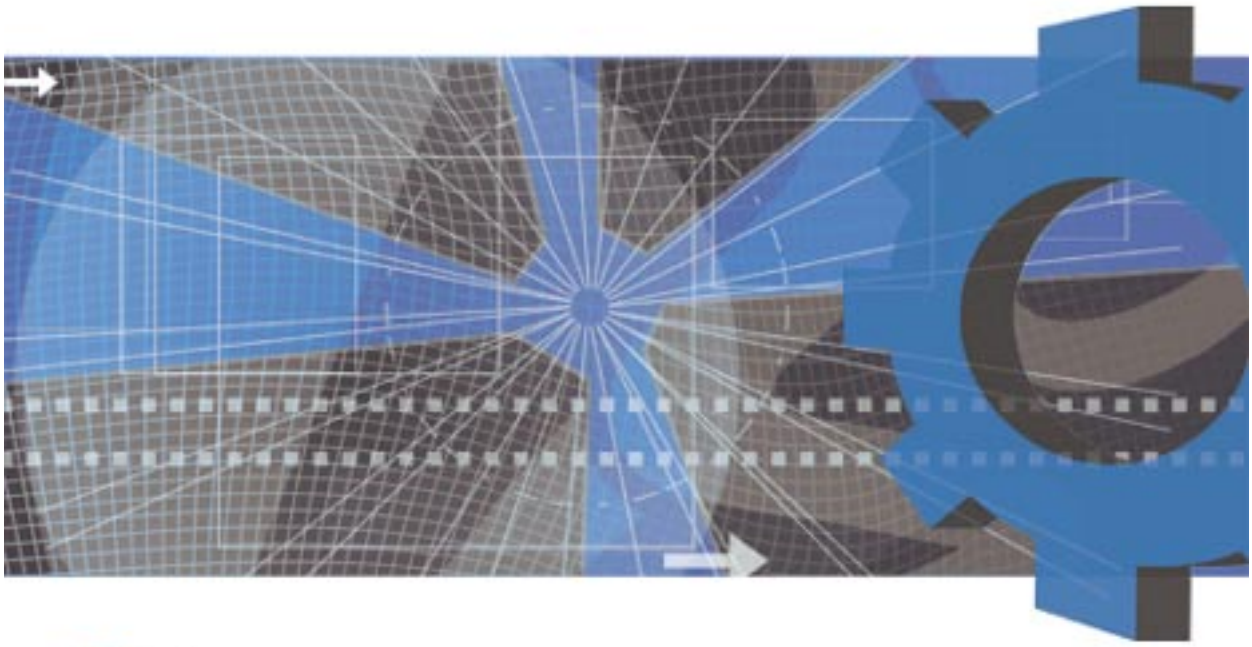
Beatware® Mobile Designer™ 1.0



Beatware MobileDesigner

User Guide

Beatware

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Table of Contents

Chapter 1: Introduction

Welcome to Beatware® Mobile Designer™, an innovative new product that sets the standard for creating interactive SVG content for mobile and desktop devices. Whether you're an experienced SVG coder or new to graphic design, Mobile Designer places the power to create professional-quality results at your fingertips.

Mobile Designer gives you unmatched power when creating SVG content without the requiring any knowledge of SVG or experience in hand coding. Mobile Designer comes with a comprehensive set of drawing and design tools as well as friendly dialogs that allow you to add interactivity to your designs with a few simple clicks of the mouse. You can even preview your designs with a quick click of the mouse and export both compressed and "human readable" SVG, both of which are perfect for display on a wide variety of mobile and desktop devices.

System requirements

Mobile Designer requires the following hardware and software:

- Pentium II-compatible CPU or better
- Windows 2000 or Windows XP
- 128MB of RAM (more recommended)
- 20MB of available hard disk space
- 800 by 600 resolution (higher recommended)
- CD-ROM or DVD-ROM drive if installing from CD.

Installing Mobile Designer

The Mobile Designer installer includes all of the files required to run Mobile Designer. Please refer to the ReadMe.html file in the installation folder before installing Mobile Designer for any last minute installation notes.

1. Insert the Beatware Mobile Designer CD into your CD-ROM or DVD-ROM drive.
2. If you have AutoPlay enabled, the Mobile Designer installer will run automatically after a few seconds. If it does not, open My Computer, right-click on the CD-ROM drive icon, and choose AutoPlay.
3. Follow the installer instructions that appear on your screen.
4. Double-click on the Beatware Mobile Designer icon to launch Mobile Designer from the installation folder.

SVG Player download

In order to preview your Mobile Designer content in SVG, you must have an SVG-enabled browser. The most popular SVG viewer is freely available for download from Adobe®, Inc. It can be downloaded from the Adobe web site, http://www.adobe.com.

Registering Mobile Designer

The first time you launch Mobile Designer, you are given the opportunity to register the program online.

If you skip that option, you may register at any time by selecting Help/Registration.

Setting preferences

Mobile Designer includes several preferences that allow you to tailor your work environment to your preferred working style.

To open the Preferences dialog:

Choose Edit > Preferences

General tab

The General tab specifies Mobile Designer's behavior when you first launch the application.

To change the default action at launch

Select one of the following options:

- To open the Movie Creator dialog, choose Create New Document from the Launch Time Settings menu.
- To open the Open file dialog, choose Open File dialog from the Launch Time Settings menu.
- To open Mobile Designer and have it await your specific directives, choose Do Nothing from the Launch Time Settings menu.

Overscan tab

The Overscan tab specifies how your objects appear when the fall outside of the canvas in the overscan (off stage) area.

To change how objects appear in the overscan area:

Check or uncheck the Show overscan as half opacity box.

Online tab

The Online tab specifies your basic E-mail information. This information is used by Mobile Designer's built-in feedback mechanism, which is accessible by choosing Help > Feedback.

The SMTP Server and e-Mail Account text entry fields are provided for you to enter your outgoing mail server and E-mail address information, respectively.

The Include a System Profile box automatically includes basic system information such as CPU performance and available RAM as part of any feedback message you send.

Tooltips tab

The Tooltips tab specifies whether or not you want helpful tooltips to appear when you rest your mouse over buttons and other widgets in Mobile Designer.

To hide or show tooltips:

Toggle the Enable Tooltips box.

Miscellaneous tab

The Miscellaneous tab specifies how many levels of undo are available. In addition, you can reactivate Mobile Designer's warning messages if they have been turned off.

To set the number of available undo levels:

Select one of the following options:

- For Unlimited Undo, choose Unlimited. Practically speaking, with this option the number of undo levels available to you is limited by your computer memory.

- For a specific number of undo levels, choose Limited to *n* Levels and specify a value for *n*.

Note: Mobile Designer maintains a separate undo list for each component and scene. When using the undo feature, the actions that are undone are for the current scene or component only.

To display all of Mobile Designer's warning messages:

Press the Reactivate Warning Messages button.

For more information

Numerous sources of information are available to answer questions and provide more information on Mobile Designer.

Beatware Mobile Designer User Guide

The Beatware Mobile Designer User Guide (this document) contains a comprehensive description of each of the features available in Mobile Designer. It is organized functionally to provide readily accessible information on topics of current interest. This guide is also available in PDF format from the Help menu.

Beatware Mobile Designer Tutorial

The Beatware Mobile Designer Tutorial provides a hands on description of how to use Mobile Designer to build a fully functional, interactive web site that can be viewed on a variety of modern mobile devices.

The Beatware Mobile Designer Tutorial is an ideal place to start learning about how to design content in Mobile Designer.

Mobile Designer web site

The Beatware Mobile Designer web site, located at http://www.beatware.com/products/mobiledesigner/index.htm, contains the latest information available on Mobile Designer including numerous sample banners, documentation and other information.

Beatware Customer Support

Licensed Mobile Designer users are entitled to free customer support via e-mail. The Beatware support staff strives to respond to all customer support questions within one business day. Please send your customer support inquiries as well as feature suggestions to support@beatware.com.

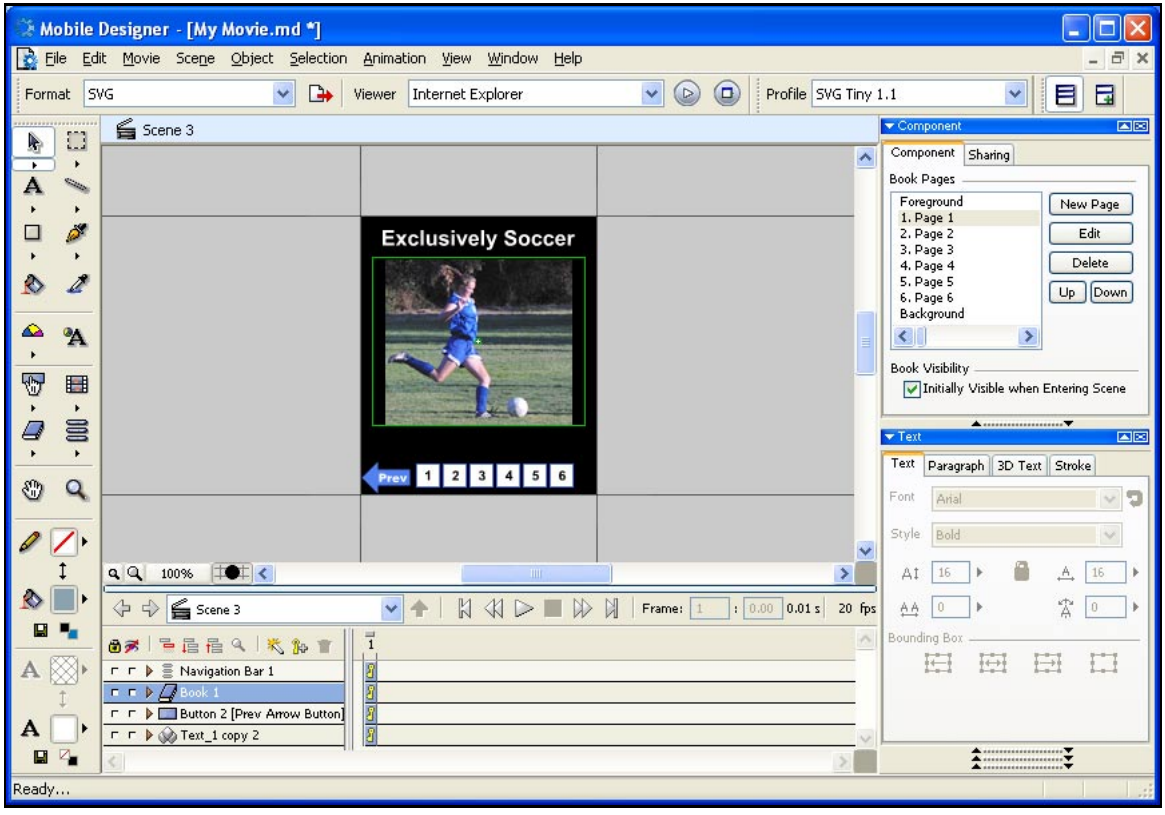
Chapter 2: An Overview of Beatware Mobile Designer

Beatware Mobile Designer is a powerful application for designing interactive content destined for both mobile devices and the World Wide Web. Using Mobile Designer, you can create everything from simple animations to complete web sites and output that content in SVG Tiny, SVG Basic and full SVG as well as in a variety of non-interactive formats.

This User Guide is designed as a reference to provide quick and easy explanations of how to use Mobile Designer and get the most out of its powerful tools and capabilities. After reading this chapter, you should be able to use the Table of Contents and Index to look up particular topics of interest. For a comprehensive tutorial on how to use Mobile Designer, please see the *Beatware Mobile Designer 1.0 Tutorial Guide*.

A high level overview of Mobile Designer

Mobile Designer is, in many ways, like any other graphic design application. There are tools for drawing, color samples for setting and changing colors, and inspector panels for changing the various attributes of the tools you use and the objects you draw on the canvas.



Integrated in with this is a powerful animation system. Through the Animation panel you control the animation of your objects (i.e. rectangles) as well their fundamental building blocks (i.e. their fill color, opacity, etc.) in a straightforward point and click fashion.

Most importantly though, Mobile Designer includes support for components - powerful, self-encapsulated little applications unto themselves. You use components (buttons, navigation bars, etc.) to add interactivity to your Mobile Designer movies. You do not, however, need to write even a single line of SVG code to make it all work. A few clicks are you are ready to export your movie to SVG and view it on the display device of your choosing.

Types of graphic content

When creating an interactive movie, you will likely use both static shapes such as text and rectangles as well as interactive elements such as buttons and navigation bars. For example, in the interactive movie shown below, the weather information is composed of text, an animation (the sun is animated, but it is difficult to see in this static doc!), and two buttons to navigate to various additional screens of content.

The simple shapes (such as the text above) that you draw in Mobile Designer are called *primitives*. The tools for creating primitives are displayed in the upper third of the Toolbox. All of the rows of tools from text and lines to charts and legends, inclusive, are primitives.

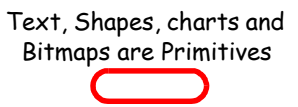
The more powerful objects (such as the buttons and animation above) you create in Mobile Designer are called *components*. The tools for creating components are found just below the primitives in the Toolbox. There are four component drawing tools: buttons, animation clips, books and navigation bars.

The table below lists all of the primitives and components (collectively called *objects*) that are supported.

Primitives	**Components**
Text	Buttons
Paragraph Text	Menu Buttons (derived from buttons)
Text on Curve	Animation Clips
3D Text	Interactive Books
Lines	Navigation Bars
Polylines	
Rectangles	
Rounded Rectangles	
Circles	
Bezier Curves	
Freehand Curves	
Paint Bucket Fills	
Charts	
Legends	
Imported Raster Images	
Imported 3D Models	

There are numerous fundamental differences between primitives and components, not the least of which are how these two different types of objects are created and used.

Primitives are simple objects that you draw or import. Primitives cannot be decomposed into more basic objects; each is an atomic unit.



Components are more complex and powerful entities that have three significant differentiating properties:

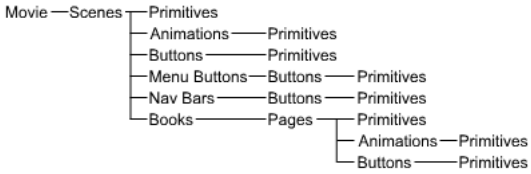
Buttons can be built with text and shape primitives.

- They are *designed* using primitives in a special editing mode called the Component Designer, but outside of the Component Designer they are treated as a single entity. See "Creating components and the component designer" on page 20 for more information on the Component Designer.
- They include a *behavior* that allows them to be interactive, animated or both.
- They each have their own *timeline* (i.e. they operate independently from other primitives and components in your movie). For example, you can have an animation clip start playing every time a button is pushed no matter what the rest of the movie is doing.

Movie elements

Your Mobile Designer movie (i.e. saved file with a ".md" extension) is composed of many parts, including scenes, primitives and components. Working together, these movie elements provide everything you need to create engaging, interactive content.

In order to help convey how all of these elements interact, a hierarchical chart followed by a brief description of each movie element or element type is provided below.



The chart is read from left to right. At the highest level is the movie. A movie contains scenes. Scenes can contain primitives, animations, buttons, menu buttons, nav bars and books. And so forth.

Scenes

A movie is composed of one or more **scenes**, only one of which is visible at any given time. A scene is roughly equivalent to a web page on the internet. It is within your scenes that you add primitives and components to create a unique and engaging user experience.

Animation Clips

Animation clips are non-interactive graphics that play within a scene. Strictly speaking, animation clips are not required to be animated. Each animation clip has its own timeline, so it can be played independent of other elements in your Mobile Designer movie.

Animation clips are built using primitives.

Buttons

Buttons are interactive graphics that can be either animated or static. You can assign one or more *actions* to a button such as playing an animation clip or displaying a new web page. Each button has its own timeline, which is used when the button is animated.

Buttons are built using primitives.

Menu Buttons

Menu Buttons are buttons that display a special menu (a "**popup menu**") that is only shown when the menu button is activated. Menu buttons provide an easy way to include numerous available options or actions without having

them take up valuable screen space at all times. Popup menus can have either a horizontal or vertical orientation. Each button within a popup menu responds its own set of actions.

Menu buttons and popup menus are built using button components.

Navigation Bars

Navigation bars, or "nav bars," are a collection of buttons of a given type. They provide a quick and easy way to add a series of buttons to your movie, all of which have the same look and are spaced evenly. Nav bars can have either a horizontal or vertical orientation. Each button within a nav bar responds its own set of actions.

Nav bars are built using button components.

Interactive Books

Interactive books, or "books," are like mini-scenes that you can embed right within your Mobile Designer movie. A book is composed of an always visible background and foreground, plus any number of "pages" of content sandwiched in between. When working with books, you display one page at a time (the others are hidden). You switch between pages using buttons. Books are a convenient way to change the content shown in a section of your scene without changing the entire scene.

Books are built using primitives, animation clips and buttons.

Primitives

As mentioned above, primitives are basic shapes that can be drawn directly onto scenes and form the basic building blocks for components.

Creating components and the component designer

Creating even a simple movie involves a number of different activities, including:

- Drawing primitives
- Drawing components
- Formatting primitives and components
- Assigning actions to components

The first two activities, drawing primitives and drawing components, are virtually identical in Mobile Designer. Both involve object creation using primitives. For more information on creating primitives, see "Drawing Primitives" on page 37.

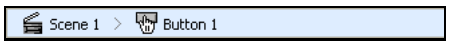
But how do you know whether the primitive you draw is part of a scene versus part of a component? It boils down to what you are doing at the time.

When you create a component, you draw the primitives that make up the component in a special mode called the **Component Designer**. You also use the component designer whenever you edit the primitives in a component. Throughout this documentation, when working with a particular component, the designer for that component is referred to by name. Thus, when working in the component designer for a button, the term “button designer” is used.

The component designer is used *exclusively* to draw and align those primitives that make up the component. Everything else you do in Mobile Designer (i.e. bullets 1, 3 and 4 above) is performed while working in the scene.

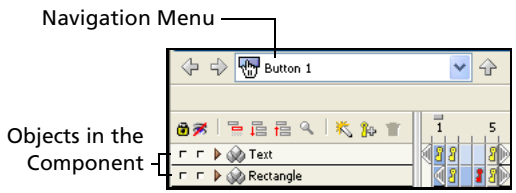
You can determine whether you are in a component designer or not with a quick glance at either the Locator bar or the Animation panel.

The **Locator bar** provides a simple indicator of what you are editing at any given time. At a minimum it lists the current scene. If you edit the primitives that make up a button within a scene (i.e. you are in the button designer), it will list both of these items. Likewise, if you are editing a button in a book in a scene, it will show all three items.

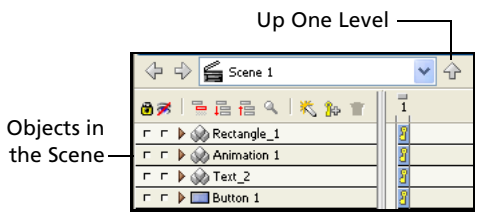


The **Navigation menu** in the upper left of the Animation panel is used for both navigation and provides a constant indicator of what you are working on.

When working in the component designer, the Navigation menu always displays the name of the component you are editing as well as the icon for that component (i.e. a button icon). Below this, the list of objects that make up the given component are shown.



When you are not working in the component designer, the Navigation menu displays the name of the current scene. Below this, the list of objects in your scene are shown - excluding those objects that make up the components themselves.



Opening the Component Designer

During the course of creating your movie, you will move into the component designer and back to the scene frequently. Three common ways to enter the component designer are:

- Creating a new component using one of the component tools in the Toolbox.
- Double-clicking on an existing component while in a scene.
- Right-clicking on an existing component and choosing Edit Component.

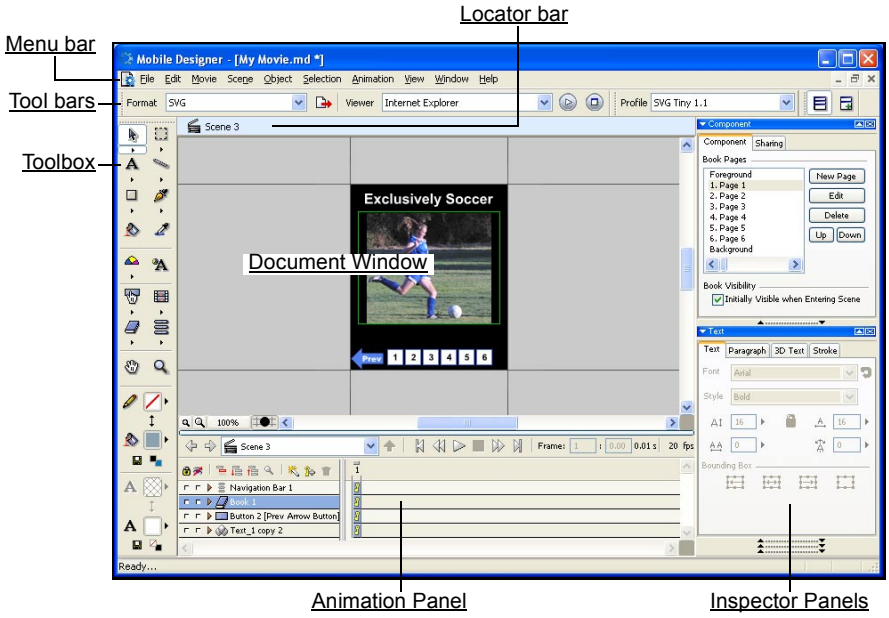
Exiting the Component Designer

To exit the component designer, click the Up One Level button adjacent to the Navigation menu (see above graphic).

The Mobile Designer work area

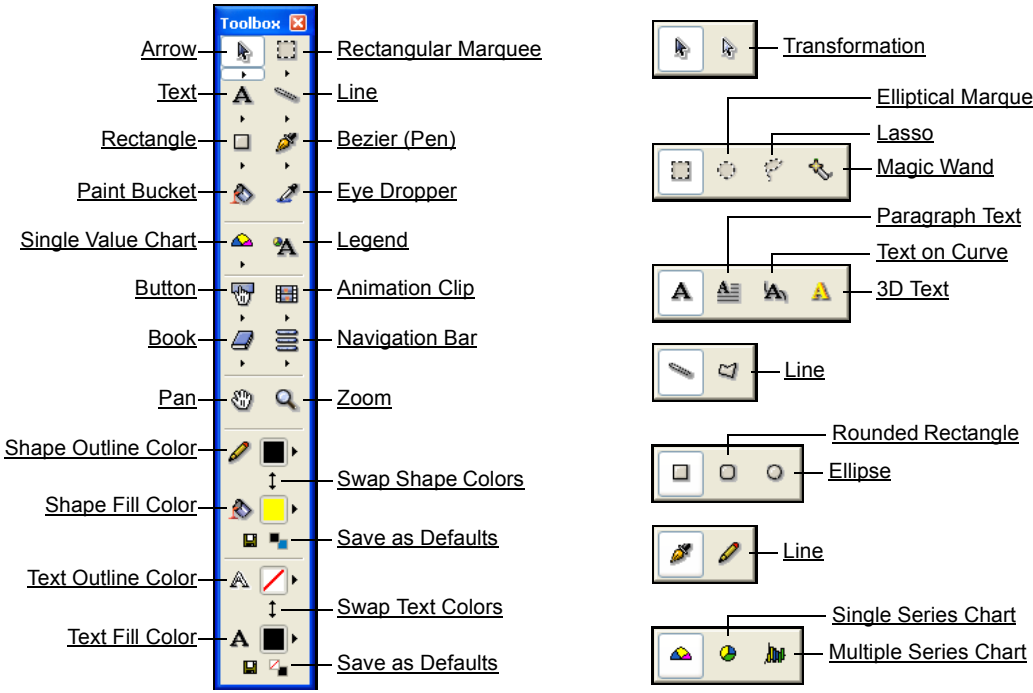
At first glance, the Mobile Designer work area looks like that of other graphic applications. Upon closer examination though you notice many unique features. These are connected to the unique capabilities of Mobile Designer.

The image below highlights the major functional areas of Mobile Designer. Each of these is described in the sections that follow.



The Toolbox

The Toolbox contains tools used to draw and manipulate objects on the canvas (for more information on the canvas, see "The Document window" on page 26).



Some tools, such as the text tools, are stacked one on top of another. To display a popup window where you can select the hidden tools, either press the Hidden Tool Selector triangle below the top tool in a stack or click and hold on a tool until the popup window appears.

Within the Toolbox, the tools are grouped by function.

Selection tools

The selection tools are used to select objects and areas. The selection tools include:

- The **Arrow** and **Transformation** tools are used to select, move, resize and rotate objects. When resizing an object, the transformation tool allows the free transformation of an object (i.e. it warps the shape of the object).
- The **Rectangular Marquee, Elliptical Marquee, Lasso** and **Magic Wand** tools are used to select a region on the canvas. Note that the marquee tools operate on raster images and regions, not directly on primitives and components.

Primitive tools

The primitive tools are used to draw primitives in scenes or components. The primitive tools are:

- The **Text** and **Paragraph Text** tools are used to enter single or multi-line 2D text. Text created with the text tool will adjust in size to resizing operations. Text created with the paragraph text tool will reformat in response to resizing operations.
- The **Text on Curve** tool is used to enter text on a previously drawn shape. Text on curve is always added to an existing shape.
- The **3D Text** tool is used to enter 3D text.
- The Line and Polyline tools are used to draw lines. Each click on the canvas with the polyline tool adds a corner. Double-clicking or pressing Esc ends the shape.
- The **Rectangle, Rounded Rectangle** and **Ellipse** tools are used to draw those shapes.
- The **Pencil** and **Bezier (Pen)** tools are used to draw free form curves. Mobile Designer automatically converts curves drawn by the pencil tool into Bezier curves. For a more in-depth discussion of drawing and editing curves, see “Curves” on page 40.
- The **Paint Bucket** tool is used to fill an area enclosed by objects or a selection marquee.
- The **Eye Dropper** is used to select colors from objects on the canvas. If no object is selected, the color goes into the designated color well. If an object is selected, the selected color is applied to the object. The eye dropper is used to select colors as follows:
  - The Fill color is selected by default.
  - The Stroke color is selected by holding down Shift.
  - The 3D Text Side color is selected by holding down Ctrl-Shift.
  - The 3D Text Face color is selected by holding down Ctrl.
- The **Single Value, Single Series** and **Multiple Series Chart** tools are used to add charts capable of display one value, a single series of values, or multiple series of values in chart form in an image. Each chart initially contains sample data which is replaced by real data either through the XML inspector tab. For more information on using charts, see “Charts and legends” on page 42.
- The **Legend** tool is used to add and associate a legend with a chart. For more information on using legends, see “Charts and legends” on page 42.

Component tools

The component tools are used to draw components. The components are described above in “Movie elements” on page 19.

Viewing tools

The viewing tools are used to change the view of the document window. The viewing tools include:

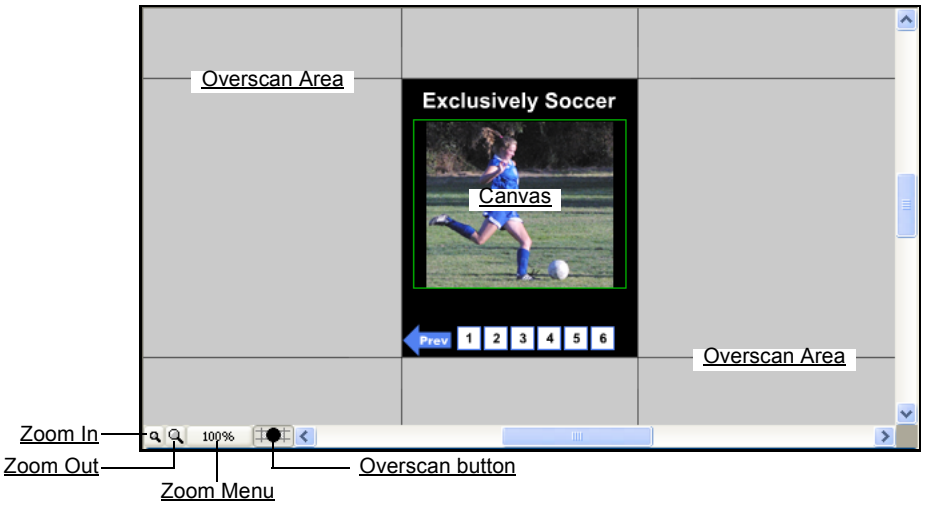
- The **Pan (Hand)** tool is used to reposition the canvas by dragging it around.
- The **Zoom** tool is used to change the magnification of the canvas.

Color samples

The color samples are used to set the stroke (outline) colors for text and shapes. For more information on applying colors to objects, see “Applying Color” on page 68.

The Document window

The **Document Window** is where you create your movie by drawing and animating shapes and components. At any given time, the document window displays the contents of one scene in your movie.



The **Canvas** is that portion of the document window that is shown when you output your movie.

The **Overscan Area** is everything that falls outside of the canvas. Graphics you place in the overscan area will not appear in your final movie. However, you can use this area to “stage” graphics that you want to move into or out of your movie (such as during an animation). All of the gray area around the canvas comprises the overscan area.

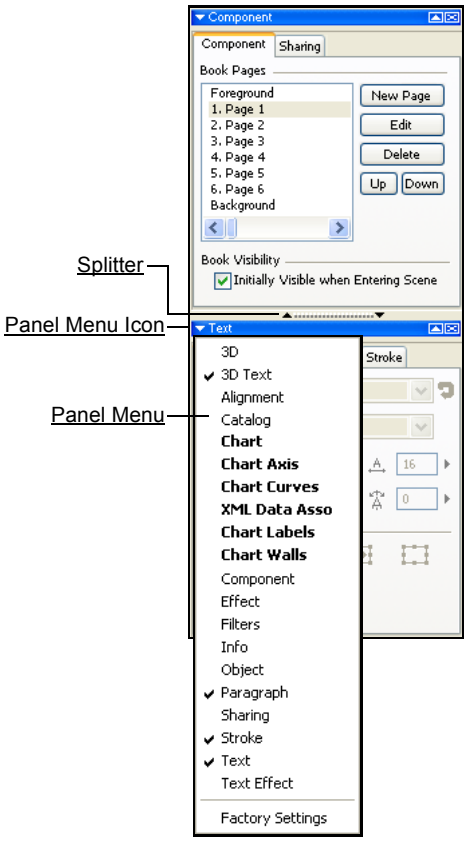
You can view the document window using any of 10 different magnification levels. The **Zoom Out** button adjusts the magnification to the next lower level. The **Zoom In** button adjusts the magnification to the next higher level. The **Zoom Menu** allows you to select from any of the predefined magnification levels.

The **Overscan Button** toggles between showing and hiding the contents of the overscan area. The default setting for the overscan button is to show the objects in the overscan area.

For more information on drawing in the document window, see “Drawing Primitives” on page 37.

The Inspector panels

The right side of the application window contains the **Inspector Panels**. You use the inspector panels to control many different aspects of your movie.



When more than one inspector panel is shown, they are stacked one on top of the other (two are shown above). Each panel contains tabs you use to display a different set of attributes and options. When you click a tab, the panel name changes to match the name of the tab.

You can change the tabs shown in a panel using the **Panel Menu.** The panel menu contains a list of available tabs. Checked items are displayed in the current panel. Regular text items are displayed in a different panel. Bold items are not currently displayed anywhere. If you select an item that is visible in the current panel, that tab is hidden, otherwise the tab is displayed in this panel.

Each inspector panel has a **Splitter** at the bottom. Drag the splitter up or down to change the size of the panel.

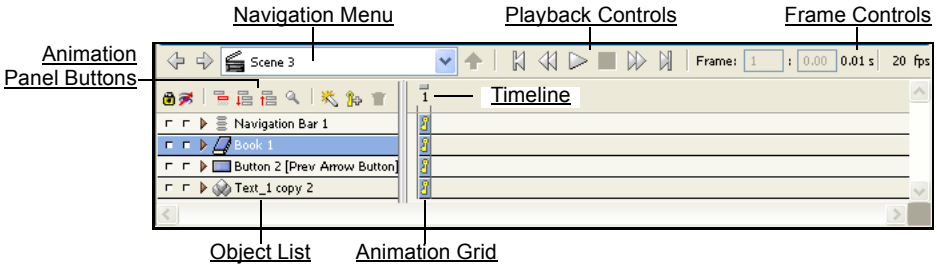
Most tabs apply to more than one tool or object. The tabs are:

- 3D - For more information on using the 3D tab, see “3D Attributes” on page 87.
- 3D Text - For more information on using the 3D Text tab, see “The 3D Text tab” on page 86.
- Alignment - For more information on using the Alignment tab, see “Aligning objects with each other” on page 111.
- Catalog - For more information on using the Catalog tab, see “Drawing Components” on page 43.
- Chart - For more information on using the Chart tab, see “The Chart tab” on page 88.
- Chart Axis - For more information on using the Axis tab, see “The Axis tab” on page 100.
- Chart Curves - For more information on using the Curves tab, see “The Curves tab” on page 105.
- Chart Labels - For more information on using the Labels tab, see “The Labels tab” on page 103.
- Chart Walls - For more information on using the Walls tab, see “The Walls tab” on page 104.
- Component - For more information on using the Component tab, see “Components and XML” on page 107.
- Effects - For more information on using the Effects tab, see “The Effects tab” on page 80.
- Filters - For more information on using the Filters tab, see “The Filters tab” on page 80.
- Info - For more information on using the Info tab, see “The Info tab” on page 81.
- Object - For more information on using the Object tab, see “The Object tab” on page 77.
- Paragraph - For more information on using the Paragraph tab, see “The Paragraph tab” on page 85.
- Sharing - For more information on using the Sharing tab, see “Drawing Components” on page 43.
- Stroke - For more information on using the Stroke tab, see “The Stroke tab” on page 79.
- Text - For more information on using the Text tab, see “The Text tab” on page 82.
- Text Effects - For more information on using the Text Effects tab, see “The Text Effect tab” on page 85.
- XML Data Association - For more information on using the XML tab, see “Components and XML” on page 107.

The Animation panel

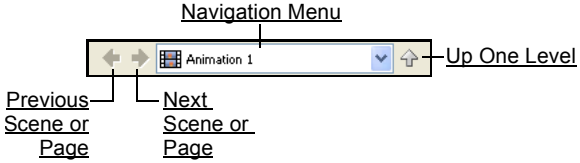
Animation is simply a change in an object over time. The Animation panel is the primary mechanism through which you control the way objects in your movie move about or change over time. In Mobile Designer, you can animate components, primitives in both components and scenes, and the attributes that make up primitives. For more information on the different objects and how you can animate them, see “Animating Objects” on page 120.

The Animation panel itself has several different parts, each of which is described below.



Navigation menu

The Navigation menu and its associated arrow buttons are used to switch between the scenes and components in your movie.



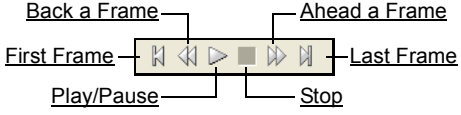
The Navigation menu always displays either the current scene name or the name of the component you are currently editing. If a component name is shown, then you are in the component designer for that component.

The left and right arrow buttons adjacent to the Navigation menu serve two different functions. If you are currently viewing a scene (working at the scene level), they allow you quickly switch to the **Previous Scene** or **Next Scene** in your movie. If you are currently editing a book (working in the book designer), they allow you to quickly switch to the **Previous Page** or **Next Page** of the book.

The **Up One Level** button moves you up one level in the current object hierarchy. For example, if you are in the button designer, clicking the Up One Level button will exit the button designer and move you to the scene that contains the button.

Playback controls

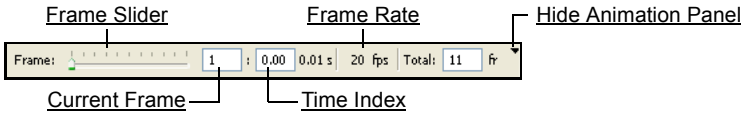
The Playback Controls are used to control how the current animation is played and displayed.They operate analogously to the controls on your VCR.



The **First Frame** button rewinds the current animation back to the beginning. The **Back a Frame** button rewinds the animation a single frame. The **Play/Pause** button plays the animation from the current frame, or if already playing, pauses the animation. The **Stop** button stops a playing animation. The **Ahead a Frame** button advances the animation to the next frame. The **Last Frame** button advances the animation to its last frame.

Frame Controls

The frame controls provide information on the timing, current frame and total frames in the current animation.



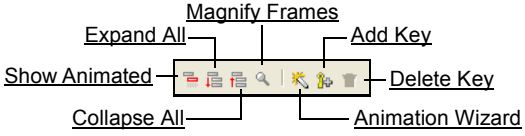
The **Frame Slider** shows you where in the animation you are relative to its total length. The text fields adjacent to this provide the **Current Frame** number where the playback head is located, and the **Time Index** where that frame starts. You can edit the values in either of these fields or drag the frame slider to change the frame that is currently displayed.

The **Frame Rate** text indicates the frame rate in Frames per Second (fps) used in your movie. For more information on changing the frame rate, see "The Movie Properties dialog" on page 135.

The **Total** field shows the total number of frames in this animation. To change the total frames, type a new number into this field and press Enter.

Animation panel buttons

The Animation panel buttons provide you with convenient access to several panel functions and features.



The **Show Animated** button toggles between showing all properties and showing only animated properties for those objects whose properties are displayed. The **Expand All** button shows all of the properties for every object currently listed in the Animation panel (filtered by the Show Animated button). The **Collapse All** button hides all of the properties for all of the objects listed in the Animation panel.

The **Magnify** button toggles between showing a normal view and a condensed view of the frames in the timeline and animation grid.

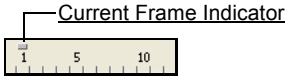
The **Animation Wizard** button launches the Animation Wizard. The Animation Wizard is used to make macro level changes to the current animation. For more information on the Animation Wizard see "Using the Animation Wizard" on page 124.

The **Add Key** button allows you to add keys to any property shown in the animation grid. For more information on using the Add Key button, see "Adding keys to an object" on page 126.

The **Delete Key** button removes the currently selected key or keys from the animation grid. Attempting to delete the last key from a property will fail since every property must contain at least one key.

Timeline

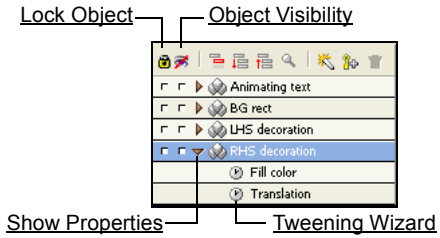
The **Timeline** shows the currently selected frame in the animation.



You can change the current frame by clicking on one of the frame numbers. When you do this, the Frame Controls adjust to display the specifics for the new frame.

Object list

The Object List displays all of the objects in the current animation.



The first column in the Object List displays the edit status of each object. If a **lock** is present, the object cannot be edited. If no lock is shown, the object is editable. By default, all objects are editable.

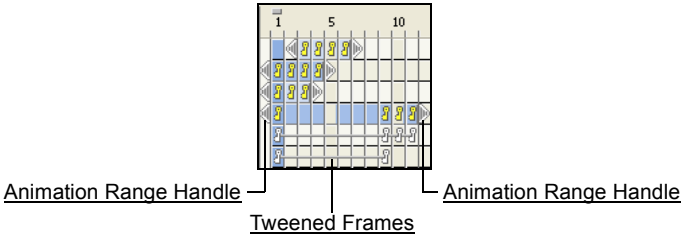
The second column in the Object List displays the **visibility** of each object. If the "slash eye" icon is present the object is invisible. If no icon is shown, the object is visible. By default, all objects are visible.

The small triangle adjacent to the visibility icon is the **properties toggle**. This allows you to display and hide the animatable properties of the object. The properties displayed are filtered by the Show Animated button (described above).

Animated properties display the **Tweening Wizard** button. Clicking the Tweening Wizard button or the adjacent property opens the Tweening Wizard for creating non-linear animations. For more information on the Tweening Wizard, see "The Tweening Wizard" on page 128.

Animation grid

The Animation Grid displays the keys recorded for each object at every frame.



Both objects and properties can have **keys**. Keys in the row of an object name indicate that at least one property key is set in that frame. Keys in the row of an object property indicate that the property itself was changed in that frame.

When an object has two or more keys, the first and last animated frame for the object have an adjacent **animation range handle**. These range handles can be dragged to proportionally resize the object's animation.

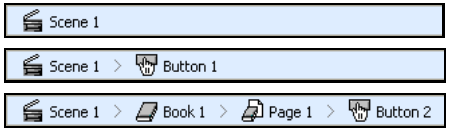
When a property has two or more keys, a line joins the keys. This line shows where the property is automatically interpolated or "tweened." Mobile Designer only records keys (thereby creating key frames) when a property in an object changes.

You can select and drag keys from one frame to another. This changes the number of frames over which the animation takes place. If you drag an object level key (i.e. a key displayed in the same row as an object name), all of the properties for that object in that column are moved. If you drag a property key, only that key is impacted.

An entire chapter of this user guide is devoted to methods of animating objects and properties. For more information on animating and using the Animation panel see, "The Animation panel" on page 119.

The Locator bar

The **Locator bar** provides an "at a glance" view of which scene or component you are currently editing. The locator bar always lists the current scene first followed by any component designers you have open.



In the first image above, only a scene is shown. This indicates that work is being done at the scene level and no component designers are open.

In the middle image above, a scene followed by a button is shown. This indicates that the current scene is Scene 1, and within Scene 1, Button 1 is being edited (the animation clip designer is open).

In the last image above, a scene, book, page and button are all shown. This indicates that the current scene is Scene 1, the designer for Book 1 is open with Page 2 active, and on that page Button 1 is being edited (the button designer is open).

The Toolbars

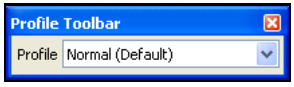
The toolbar is actually a collection of multiple adjacent small toolbars, each of which contains buttons that act as shortcuts to many Mobile Designer functions. A brief description of each toolbar is provided below.

Standard toolbar

The **Standard Toolbar** contains shortcuts to many common Windows activities including saving, copying, and pasting.

Profile toolbar

The **Profile Toolbar** contains a drop down menu used to select which target output format you are designing for, if any.



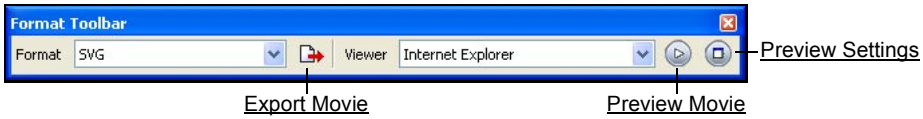
Designing for a particular target output format restricts you to the subset of features relevant to that output format. You can change profiles at any time. However, doing so may change the look and behavior of your movie. The profile choices are:

- **Normal** (default). Select this profile if you want all of the features in Mobile Designer available to use.
- **SVG Basic**. Select this profile if you want to restrict the Mobile Designer feature set to only those features supported by SVG Basic.
- **SVG Tiny 1.1**. Select this profile if you want to restrict the Mobile Designer feature set to only those features supported by SVG Tiny 1.1.
- **SVG Tiny 1.2**. Select this profile if you want to restrict the Mobile Designer feature set to only those features supported by SVG Tiny 1.2.
- **Custom Profile**. Select a custom profile if you want to define the feature set that Mobile Designer makes available.

For more information on defining and using profiles, see “Working with Profiles” on page 58.

Format toolbar

The **Format Toolbar** contains menus for selecting the file format and viewer to use when previewing your movie as well as shortcut buttons for exporting your movie.



The **Format** menu is used to select the output file format used when previewing your movie or using the adjacent **Export Movie** button. The contents of this menu are identical to those you have when you choose File > Export from the main menu. For more information on the preview/export formats, see “File formats” on page 218.

The **Viewer** menu is used to select the preferred viewer when previewing your movie in the specified format. The **Preview Movie** button builds a preview of your movie and displays it in the specified viewer. You can also specify any preferred preview settings by clicking on the **Preview Settings** button.

Inspector toolbar

The **Inspector Toolbar** contains shortcuts for inspector specific actions.

Click the Show/Hide Inspectors button to either show or hide the inspector panel. This is the same as pressing F5. When the Inspector panel is hidden, the document window and Animation panel are extended to occupy this space.

Click the Add Inspector button to add another inspector to the panel. You can have multiple inspectors with multiple tabs within each inspector, allowing you to organize your inspector tabs to best suit your work habits.

The Menu bar

The Menu bar provides access to the numerous commands available in Mobile Designer.

The **File** and **Edit** menus as well as the **View**, **Window** and **Help** menus all contain commands common in most Windows applications. The **Movie**, **Scene**, **Object**, **Selection** and **Animation** menus are Mobile Designer specific. The menu items are described throughout this manual as they are used.

Chapter 3: Working with Objects

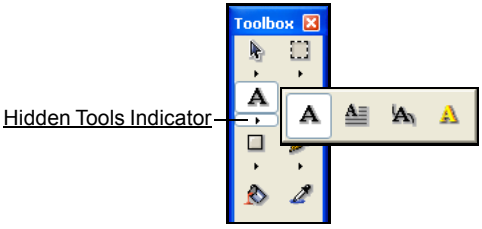
Drawing primitives and components (collectively called objects) and subsequently manipulating them is a core capability of Mobile Designer. Unlike with some applications, with Mobile Designer you have complete control of how your objects look and behave at all times.

This chapter describes both how to initially draw primitives and create components as well as how to edit them later.

Selecting Tools

The Toolbox contains the complete set of tools available in Mobile Designer. This includes various selection tools, text tools, shape tools, charting tools and component creation tools. In addition, the Toolbox contains separate color samples for setting the stroke (outline) and fill of both shapes and text. These are described in "Understanding Color" on page 67.

In order to make wise use of space, related tools are often stacked one on top of another in the Toolbox, with only the most recently used tool shown. When multiple related tools are stacked on top of each other, a small triangle is used to indicate that additional, hidden tools are available.



To select the currently visible tool:

Click on the tool in the Toolbox.

To select a hidden tool:

1. Do one of the following:
   - Click and hold on a related tool until the Hidden Tools popup window appears.
   - Click on the Hidden Tools indicator icon below the currently visible tool.
2. Click on a tool in the Hidden Tools popup window.

Drawing Primitives

Mobile Designer is a typical graphics application when it comes to drawing using the built-in tools. Insofar as primitives go, a click and drag on the canvas will more than likely produce the results you would expect (a shape drawn on the canvas). Primitives are described

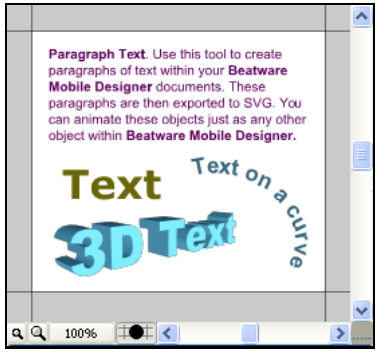
below, and components are described in the next section.

Text

When using text, you can either set the text attributes (i.e. font, etc.) before drawing or any time thereafter. For more information on setting the various text attributes, see “Text attributes” on page 82.

Four different types of text tools are available:

- **Regular text** is composed of one or more lines of text with a new line started each time the Enter key is pressed. There are no predetermined margins when using regular text.
- **Paragraph text** is composed of one or more lines of text that is typed within a specified bounding box. Paragraph text automatically wraps when it reaches the edge of the bounding box or when the Enter key is pressed.
- **Text on a curve** is composed of a single line of text that is drawn on and follows the contours of any primitive shape on your canvas. Text on a curve will wrap around a closed shape such as an ellipse and extend in a straight line past the end of an open shape such as a Bezier curve that is not closed.
- **3D text** is composed of a single line of text drawn in a straight line that has both a face and depth. 3D text can be rotated and animated in all three dimensions using either the mouse or the 3D tab. See “3D Attributes” on page 87 for more information on using the 3D tab.



To draw text:

1. Do one of the following:
- For regular text, click on the canvas and start typing. An I-beam is displayed showing where the next character will appear.
- For paragraph text, click and drag a rectangle of the desired width for your paragraph text on the canvas, then type your text.
- For text on a curve, click on an existing shape and start typing. An I-beam is displayed showing where the next character will appear.
- For 3D text, click on the canvas and start typing. A small X/Y axis is displayed showing where the 3D text object starts.

2. To finish a text object, do one of the following:
- Click on the Arrow tool. Your text is automatically selected as indicated by a red bounding box.

- Press the ESC key. Your text object is shown with a thin blue box. This indicates that the text tool remains selected so that you can click and enter additional text objects without reselecting the text tool.
- Click on another tool.

To edit an existing text object:

1. Select the text object.
2. Do one of the following to enter text edit mode:

- Double-click on it to display an I-beam at the spot where you double-click.
- Press the Enter key. With the exception of 3D text, this highlights the text for editing. For 3D text, this places the insertion point at the end of the text.

For a complete description of the different ways you can change the look of your text, see "3D Attributes" on page 87.

To rotate 3D text using the mouse:

1. Select the 3D text object.
2. Enter edit mode by doing one of the following:

- Press Enter.
- Double-click on the object.

3. Rotate the object by doing one of the following:

- For free rotation, click and drag the mouse pointer.
- To constrain movement along the x-axis, hold down the Alt key and click and drag the mouse.
- To constrain movement along the y-axis, hold down the Ctrl key and click and drag the mouse.
- To constrain movement along the z-axis, hold down the Shift key and click and drag the mouse.

Note: You can also rotate 3D text using the 3D tab. See "3D Attributes" on page 87 for more information.

Shapes

Mobile Designer includes four predefined geometric shape tools (line, rectangle, rounded rectangle and ellipse) as well as one more complex geometric shape tool (polyline). Using these, you can create a tremendous variety of vector content in very little time.

To draw using one of the basic shape tools:

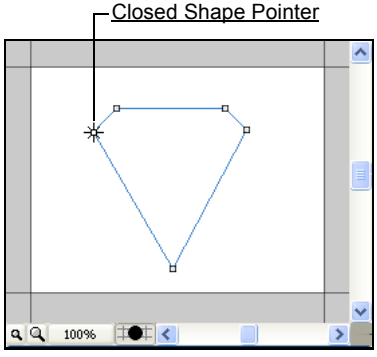
1. Click on a tool in the Toolbox.
2. Click and drag on the canvas. A blue outline of the shape you are drawing is shown as long as the mouse button is pressed.
3. Release the mouse button to finish the shape. Once you release the button, the fill for the shape is applied, if any.

To draw using the polyline tool:

1. Click on the polyline tool in the Toolbox.
2. Click on the canvas to create the first point in the polyline.
3. Click again on the canvas for each addition point you wish to add. Each point is connected to the previous point with a straight line.
4. To finish the polyline, do one of the following:

- Press ESC.
- Press Enter.
- Double-click on the canvas.

When drawing a polyline, the mouse pointer changes from a "+" shape to a closed shape pointer (like a hollow compass) whenever adding a point at that location will result in a closed shape.



To edit an existing polyline object:

1. Select the polyline object.
2. Do one of the following to enter polyline edit mode and display the points in the polyline:

- Double-click on it.
- Press the Enter key.

3. Click and drag any of the points to reposition them.
4. Do one of the following to exit polyline edit mode:

- Press ESC.
- Press Enter.
- Click away from the object on the canvas.

Curves

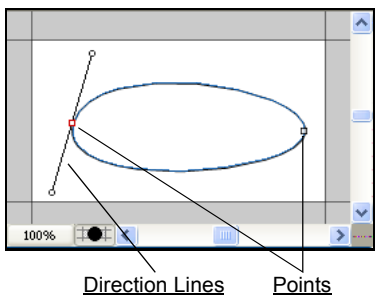
The pencil and Bezier (pen) tools provide two different ways to draw Bezier curves, mathematically based lines or shapes that can include straight lines, smooth curves, and sharp corners.

While the curve that results from drawing using these tools is the same (a Bezier curve), the pencil tool offers a relatively natural though somewhat imprecise approach to drawing, whereas the Bezier tool provides greater initial precision when drawing a given shape.

Regular text can also be converted into Bezier curves and manipulated as if drawn using the pencil or Bezier tools. The method of converting text to Beziers is also described below.

About Bezier curves

Like polylines, Beziers can be both selected (as indicated by the standard red bounding box) and edited. When in Bezier edit mode, you see not only the points that define the curve, but also the direction lines and direction points used to change the angle and length of the curve segments.

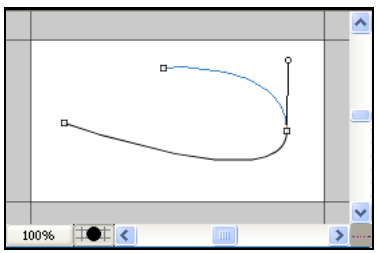


Each point within a curve has two direction lines. By default, the direction lines have the following attributes:

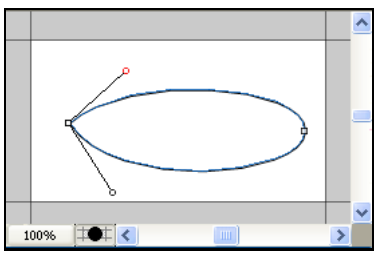
- The direction lines are of equal length initially.
- Each direction line can be sized independently.
- The size of the direction lines determine the scale of the curve around that point.

- Each pair of direction lines forms a straight line going through the point.
- Rotating one direction line automatically rotates the other direction line maintaining a smooth curve at the point.
- Direction lines at a sharp point are stacked on top of another (i.e. you don't see a direction line passing through the point).

End points on an open curve only have one direction line (effectively there is only one side to the curve at that point).



By pressing the Alt key and clicking on one of the direction points, you uncouple the direction lines. This allows you to move one line without changing the other. Thus you can create two smooth curves that change direction at the point where the meet.



To restore the direction lines to their original straight configuration, press the Alt key and click on one of the direction points.

To draw using the Bezier tool:

1. Start your curve by doing one of the following:
- Click and release on the canvas to create an anchor point for your object without a direction line (i.e. it will be stacked on the point)
- Click and drag on the canvas to create an anchor point with a single-sided direction line at that point. Release the mouse button when the direction line is of the desired length
2. Move the mouse pointer to a new position and do one of the following:
- Click and release to create a corner point (i.e. one with stacked direction points).
- Click and drag to create a smooth curve around that point (i.e one with defined direction lines). The father you drag, the bigger the curve at that point.
3. Repeat step 2 to add additional points to your curve.
4. Finish the curve by doing one of the following:
- Press ESC to finalize the curve at the last position you clicked.
- Double-click on the canvas to create one last point and finish the curve there.

As with polylines, the mouse pointer changes from a "+" shape to a hollow compass whenever adding a point at that location will result in a closed curve.

To draw using the pencil tool:

Click and drag on the canvas just as if you were writing using a pencil. When you release the mouse button, the curve is finished and it is automatically converted into a Bezier for you.

To convert text into Beziers:

1. Select the regular text on the canvas.

2. From the main menu, choose **Object > Convert Text to Bezier**.

To edit an existing curve:

1. Select the curve.
2. Do one of the following to display the points:

- Press Enter.
- Double-click on the selected object.

3. Position the mouse pointer over a point you want to adjust. The mouse pointer changes to a "+" when you are over a point.
4. Do one of the following:

- To move the point, drag it.
- To reshape the curve at the point without uncoupling the direction lines, drag the direction points. Both the length and angle of the direction lines can be adjusted.
- To reshape one side of the curve at the point without changing the other side, press Alt and click on one of the direction points. Each direction point now moves independently.
- To change a corner point to a smooth point, click on the point once, then click again and drag each stacked direction point away from the point.
- To delete a point, click on it and press the Delete key.

5. To finish editing the curve, do one of the following:

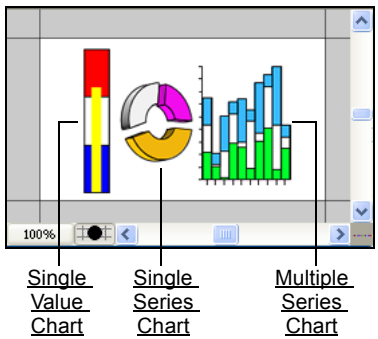
- Press ESC.
- Click on the canvas away from the object.

Charts and legends

Charts and legends are unique in Mobile Designer because they are the only objects that do not display their true look until preview/export time. This is because these objects rely on external XML data files as their data source. For more information using charts with external data files, see "Associating XML data with charts" on page 198.

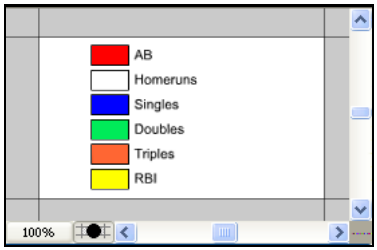
There are three fundamentally different types of charts available in Mobile Designer:

- Single value charts. These charts display a single value at a time. An example of a single value chart is a thermometer.
- Single series charts. These charts display a single set of related data. An example of a single series chart is a pie chart.
- Multiple series charts. These charts display multiple series' of related data. An example of a multiple series chart is a 3D bar chart.



No matter what type of chart is used, you always have the option of associating a legend with a chart. The

legend provides the end user with additional information about what is shown in a chart.



To draw a chart:

1. Click on one of the chart tools.
2. Do one of the following:

- Click and release on the canvas to draw a default sized chart.
- Click and drag on the canvas to custom sized chart. A blue outline appears showing you the size of the chart as you drag. Release the mouse button to finish the chart.

To draw a legend:

1. Click on the legend tool.
2. Do one of the following:

- Click and release on the canvas to draw a default sized legend.
- Click and drag on the canvas to custom sized legend.

The ultimate size of the legend is dependent on the number of items in the legend and their size. You are simply specifying the size of the legend bounding box when you draw a legend.

About charts and legends

Charts and legends are possibly the most customizable and powerful primitives in Mobile Designer. There are six inspector tabs dedicated to charts, with others such as the Text tab also effecting how chart and legend data is displayed.

- The Chart tab is used to specify the type of chart displayed as well as general characteristics that apply to that type of chart. It is also in a similar capacity for legends.
- The Axis tab is used to specify the attributes of any axes associated with the selected chart including axis color and value range information.
- The Labels tab is used specify information associated with the axis labels such as prepending a "$" to labels representing dollar values.
- The Walls tab is used to specify add color or texture to the planes formed by the intersection of the axes (i.e. graph background colors or patterns).
- The Curves tab is used to specify the look of the various curves plotted on the chart including curve colors and markers.
- The XML tab controls how an external XML file maps its data to data in a chart as well as other Mobile Designer objects. The XML tab is also used for data replication. For more information on using the XML tab, see "Associating XML data with objects" on page 177.

A comprehensive description of how to work with the various chart tabs is provided in "Chart and Legend attributes" on page 88.

Drawing Components

Components are a mainstay of any interactive design. Using components you can respond to user activities (i.e. device key presses or mouse clicks), hide and show

portions of your movie, and even call external JavaScript routines.

There are five different component types in Mobile Designer:

- Buttons are interactive components that can respond to user activities. Buttons are built using primitives.
- Menu Buttons are buttons that display a popup menu when activated. Any button can be designated as a menu button after it has been created. Menu buttons are built using buttons.
- Animation clips are non-interactive components. Animation clips are built using primitives.
- Navigation bars are evenly spaced sets of buttons. Navigation bars are built using buttons.
- Books provide a means of changing the content shown on a portion of the canvas (the "page") without impacting what else is displayed. Books are built using primitives, buttons, menu buttons and animation clips.

Components are visually differentiated from primitives by the color of their bounding box. Components have a green bounding box while primitives have a red bounding box.

Components also have a dedicated drawing mode where you design the look of your component. This dedicated drawing mode is called the "component designer." When you are in the component designer, you can only draw and edit those objects that are part of the component, not primitives drawn on the scene or in other components.

Books are a special case. Each page in a book can contain primitives, buttons and animation clips. Primitives are drawn directly on a book page Buttons and animation clips are drawn in a component designer accessible from the book page (vs. the scene)

✻ *If you are ever confused as to whether you are in a scene or in a component designer, look at the Locator bar or the Navigation menu. If you are in a component designer, these will show the component name. Otherwise, they will show the scene name.*

You can create components using one of four different methods:

- From scratch.
- From the Catalog, a library of provided components.
- From Sharing, a list of components already in your movie.
- From existing primitives.

With the exception of the last method, clicking the hidden component indicator beneath each component tool opens a dialog where you determine which method to use when creating your component. Each component tool remembers the last method selected; the default is to create from scratch.

To create a component from scratch:

Note: if the last component you created of this type was from scratch, the first two steps may be skipped.

1. Click on the Hidden Component indicator beneath the component you wish to create.
2. Select the **Design a New Component** radio button and click OK.
3. Click and release on the canvas to create your new component.

When you create a component from scratch, you are automatically placed in the component designer for that component, allowing you to draw the primitives that make up the component immediately.

When you have finished drawing the elements that make up your component, press the Up One Level button in the Navigation toolbar.

To create a component from the Catalog:

Note: if you plan to create multiple copies of the same Catalog component, create one from the Catalog and the rest from Sharing – it is more memory efficient.

1. Click on the hidden component indicator beneath the component you wish to create.
2. Select the **Create a Component from the Catalog** radio button.
3. Select the component you wish to create from the list of available components and click **OK**.
4. Do one of the following:

- Click and release on the canvas to create the selected component at its default size.
- Click and drag a rectangle on the canvas to create the component at the size you specify.

Alternatively, you can do the following:

1. Click on the Catalog tab.
2. Click and drag the component you wish to create from the Catalog tab onto the canvas.

When you create a component from the Catalog, a duplicate of the Catalog item is added to your movie. Subsequent changes you make to this duplicate have no impact on the original item in the Catalog.

When you create a component from the Catalog, you are *not* placed in the component designer for that object as you are when you create from scratch.

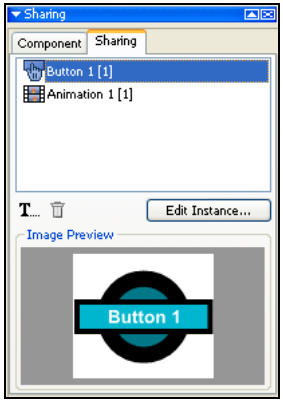
To create a component from Sharing:

1. Click on the hidden component indicator beneath the component you wish to create.
2. Select the **Create a Component from the Sharing** radio button.
3. Select the component you wish to create from the list of available components and click **OK**.
4. Do one of the following:

- Click and release on the canvas to create the selected component at its default size.
- Click and drag a rectangle on the canvas to create the component at the size you specify.

Alternatively, you can do the following:

1. Click on the Sharing tab.
2. Click and drag the component you wish to create from the Sharing tab onto the canvas.



When you create a component from Sharing, a symbol of the Sharing item is added to your movie. Symbols are more memory efficient at export time than components created from scratch or the Catalog because whenever possible the definition of the component is reused.

Note: in SVG Tiny, buttons do not offer any memory advantages when created from Sharing whereas animations do. However, in SVG Basic and full SVG, style sheets, which are not supported by SVG Tiny, are used to hold button definitions. Thus, buttons created from Sharing in SVG Basic and full SVG do offer memory savings.

When you create a component from Sharing, you are *not* placed in the component designer for that object as you are when you create from scratch.

Converting primitives into components

Many designers and artists prefer to sketch out the look of a movie without worrying about whether a particular item or group of items is destined to become a button or animation clip. Others add primitives that they later decide should be put into one of these components.

Mobile Designer includes a conversion feature that turns primitives into buttons or animation clips with a single mouse click. This affords you greater flexibility in how you go about designing your movies.

To create a component from existing primitives:

1. Select one or more primitives on the canvas (hold down Shift to select multiple items).
2. Do one of the following:

- In the main menu choose **Object > Convert to > Button** or **Animation**.
- Right-click on one of the primitives and in the popup menu choose **Object > Convert to > Button** or **Animation**.

Editing existing components

The objects that make up a component can be edited at any time in Mobile Designer. It doesn't matter whether you created the component from scratch or through one of the other methods available.

To edit an existing component:

1. Do one of the following to open the component designer for a particular component:

- Double-click on the component.
- Right-click on the component and choose **Edit Component** from the popup menu.
- Right-click on the component in the Animation panel and choose **Edit Component** from the popup menu.

2. Make the desired changes to the objects that make up the component.

3. Click the **Up One Level** button in the Navigation toolbar to exit the component designer when you are finished.

Instances created from Sharing are the only component type that require any special treatment. When you edit an instance, you must decide whether to edit only that particular instance or all instances of that component in your movie.

If you only change the selected instance, you lose the memory advantages inherent in sharing. The component becomes a new item in the Sharing list as if you created it from scratch or the Catalog.

If you elect to change all of the related instances in the movie, any changes you make to that instance are reflected in every other instance in the move and the memory advantages of sharing still apply.

Common object manipulations

In addition to drawing primitives and components, there are many other manipulations that you can perform (and in most cases, animate) on existing objects. These are detailed in the sections that follow.

Selecting

Objects must be selected before they can be manipulated.

To select one or more objects, do one of the following:

- Click on them on the canvas. Hold down the Shift key while clicking to select multiple objects.
- Click on the object name in the Animation panel (applies to single objects only).
- Use one of the arrow tools to drag a selection box completely around those objects you want to select.

Moving

Objects can be moved and movement can be animated ("translation") with pixel level precision. For information on animating movement, see "Animating between points" on page 120.

To move one or more objects:

1. Select the objects you want to move.
2. Do one of the following:

- Click on one of objects and drag it with the mouse.
- Press the arrow keys on your keyboard. Each time a key is pressed the object is moved one pixel. Hold down the Shift key in combination with the arrow keys to increase the distance moved to 8 pixels per key press.
- Change the X or Y coordinate in the Object tab (applies to single objects only). See "The Object tab" on page 77 for more information on the Object tab.
- Use one of the alignment options described in "Aligning objects with each other" on page 111.

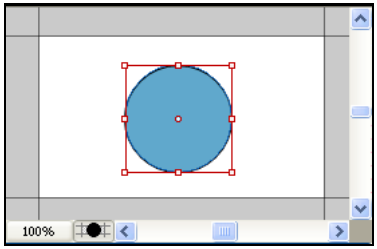
Resizing

Objects can be resized and resizing can be animated ("scaling") with pixel level precision.

To resize an object:

1. Select an object.
2. Do one of the following:

- Click and drag any of the resizing handles on the bounding box for the object. Corner resizing handles provide for scaling both adjoining edges simultaneously; Edge resizing handles provide for scaling along the selected edge. Holding down the Shift key while resizing maintains the proportions of the object.



- Hold down the Ctrl key and:
  - Press the up arrow key to decrease the object height by 1 pixel.
  - Press the down arrow key to increase the object height by 1 pixel.
  - Press the left arrow key to decrease the object width by 1 pixel.
  - Press the right arrow key to increase the object width by 1 pixel.
  - Hold down the Shift key in combination with the above to multiply the scaling by a factor of 8.
- Change the W(idth) and H(eight) values in the Object tab. See “The Object tab” on page 77 for more information on the Object tab.
- Press the “\” key to symmetrically reduce the object size by 20%. Hold down the Shift key in combination with the “\” key to increase the object size by 20%

Rotating

Objects can be rotated and rotation can be animated with sub-degree level precision. In addition, all objects have a rotation center, the point around which each object will be rotated. By default, the rotation center is in the center of the bounding box, but this can be moved anywhere on the canvas. For example, by moving the rotation center of a circle outside its bounding box, the circle can then be animated to appear to orbit around this point.

To rotate an object:

1. Select an object.
2. Do one of the following:

- Click on the object’s bounding box anywhere between the resizing handles and drag.
- Change the Rotation value in the Object tab. See “The Object tab” on page 77 for more information.

To change an object’s rotation center:

1. Select an object.
2. Click on the rotation center for the object and drag.

Hiding and Showing

Objects can be hidden and visibility can be animated.

To hide a visible object or show a hidden object:

1. Select an object.
2. Do one of the following to toggle the object’s visibility.:

- Click on the Visibility icon in the Animation panel.
- Right-click on the object name in the Animation panel and choose Visibility in the popup menu.

Renaming

Each object in Mobile Designer must have a unique name. Each object you create is given a unique name which appears in the Animation panel. You can change the name of any object while you are editing your movie. Object names however are not exposed to the view in the SVG output file.

To change the name of an object:

Do one of the following:

- Right-click on the object name in the Animation panel and choose Rename in the popup menu.
- Ctrl-click on the object name in the animation panel.

You type the new object name directly into the Animation panel.

Deleting

Deleting an object removes it from your movie everywhere it appears. Deleting is an edit time only feature; it cannot be animated (deleted objects do not appear in the SVG export file).

To delete one or more objects:

1. Select the objects.
2. Do one of the following:

- Press the Delete key.
- Right-click on the objects on the canvas and choose Delete from the popup menu.
- Right-click on an object in the Animation panel and choose Delete from the popup menu (applies to single objects only).

Grouping and Ungrouping

Two or more primitives can be grouped together at edit time. This can make working with them easier since grouped objects are treated as a single element for most manipulations.

To group one or more objects:

1. Select the objects.
2. Do one of the following:

- In the main menu, choose Object > Group.
- Right-click on the objects and choose Group in the popup menu.

To ungroup previously objects:

1. Select the grouped objects.
2. Do one of the following:

- In the main menu, choose Object > Ungroup.
- Right-click on the grouped objects and choose Ungroup in the popup menu.

When you ungroup objects, you must decide between restoring the objects to the state they were in before being grouped, or to apply any transformations/ animations you have made to the group to each object in the group.

Ordering

Objects in Mobile Designer can be stacked one on top of another. When objects overlap, the top object obscures those objects below it (or partially obscures underlying objects if partially transparent). Primitives can be stacked on top of components and vice versa.

To change the stacking order of one or more objects:

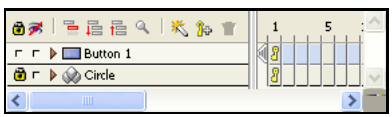
1. Select the objects.

2. Do one of the following:

- From the main menu, choose Object > Arrange and one of the following submenu items:
  - Bring to Front to bring the object(s) to the top of the stacking order.
  - Bring Forward to bring the object(s) up one spot in the stacking order.
  - Send Backward to send the object(s) down one spot in the stacking order.
  - Send to Back to send the object(s) to the bottom of the stacking order.
- Click on the object name in the Animation panel and drag it up or down in the list to move it up or down in the stacking order, respectively.

Locking and unlocking

Individual objects can be locked at edit time to prevent you from inadvertently selecting, editing or deleting them. Later these same objects can be unlocked allowing you to edit them.



To lock or unlock an object:

1. Select the object.
2. Do one of the following to toggle its locked state:

- In the main menu, choose Object > Lock.
- In the Animation panel, click the lock icon adjacent to the object name.
- In the Animation panel, right-click on the object name and choose Lock in the popup menu.

Setting opacity

The opacity of every object or group of objects can be set and can be animated on an individual basis. Furthermore, any opacity you set for the stroke or fill of an object will multiply by the opacity of the object itself to produce the final opacity for the object. See “Understanding Color” on page 67 for more information on setting the stroke and fill of objects.

You can create objects that range from completely opaque to completely transparent.

To set the opacity of an object:

1. Select the object.
2. In the Object tab, change the opacity value by typing in a new value or adjusting the slider.

Masking

Masks allow you to use one primitive as a sort of stencil for another primitive. The classic example of a mask is to use text as a mask on a digital photograph to create the familiar postcard effect of a picture of a city peeing through its own name.

When working with masks, the opacity of the masked object is applied to the mask underneath. In other words, if the masked object is partially transparent, the mask will appear to be partially transparent as well. Masks can be animated.

To create a mask:

1. Select the primitive you want to use as the masked object (the text in the example above).
2. Do one of the following to open the Mask Object dialog:

- In the main menu, choose Object > Mask.

- Right-click on the primitive on the canvas and choose Mask Object.

3. In the Mask Object dialog, select the primitive to be used as the mask (the digital photo in the example above) and click OK.

The two objects are united into one. By default, the masked object is listed in the Animation panel with the adjacent icon changed to indicate that it is a mask. The mask is no longer listed.

The mask is not gone or even inaccessible, however. Using the menus, you can switch back and forth between the masked object and the mask, editing whichever one is currently shown (you may need to unlock the mask before editing). The icon adjacent to the mask, when it is shown, is that of a normal primitive.

To switch between showing a mask and a masked object:

If the mask is currently shown, do one of the following:

- In the main menu, choose Object > Modify Masked Object.
- Right-click on the masked object and choose Modify Masked Object in the popup menu.

If the masked object is currently shown, do one of the following:

- In the main menu, choose Object > Modify Mask.
- Right-click on the masked object and choose Modify Mask in the popup menu.

To remove a mask:

1. Select the masked object.
2. Do one of the following:

- In the main menu, choose Object > Remove Mask.
- Right-click on the masked object and in the popup menu choose Remove Mask.

The mask and the masked object disassociate from each other and become two separate objects again.

Chapter 4: Working with Profiles

Mobile Designer provides a comprehensive set of tools, features and capabilities that make it perfect for designing content for a wide variety of applications. However, many existing file standards such as SVG and its variants support fewer features than Mobile Designer. Thus, unless you are very familiar with a particular target output format, you run the risk of using features available in Mobile Designer, but not available on your target platform.

About Profiles

In order to make it easier for you to create content for a particular output file format, Mobile Designer includes the ability to disable certain features within the product so that you do not accidentally use them in your designs. This is done using Profiles.

Mobile Designer includes several predefined profiles that, when selected, allow you to work with confidence knowing that your design will operate the same in both Mobile Designer and your target device. Mobile Designer also gives you the option of creating your own profiles, which can be derived from any of the predefined profiles or created from scratch.

Available Profiles

Mobile Designer provides four standard profiles targeted towards slightly different output formats. These are:

- **Normal** (default) supports all of the Mobile Designer features. It is the appropriate profile to use when you do not want any restrictions on the features available in Mobile Designer (i.e. when designing for any of the bitmap formats such as animated GIF).
- **SVG Basic** provides access to only those features that are part of the SVG Basic protocol as defined by the World Wide Web Consortium (W3C). It is intended for more powerful mobile devices such as pads.
- **SVG Tiny 1.1** provides access to only those features that are part of the SVG Tiny 1.1 specification as defined by the W3C. It is intended for less powerful mobile devices such as cell phones.
- **SVG Tiny 1.2** provides access to only those features that are part of the SVG Tiny 1.2 specification as defined by the W3C. It is intended for more powerful cell phones.

Profiles compared

The following table provides a side by side comparison of the features supported in each profile.

Feature	Normal	SVG Basic	SVG Tiny 1.1	SVG Tiny 1.2
Gradient Fill (Vector)				
Shapes	X	X		X
Text	X	X		X
Pattern Fill (Vector)				
Shapes	X	X		
Text	X	X		
Stroke Lines				
Button Caps	X	X	X	X
Round Caps	X	X	X	X
Square Caps	X	X	X	X
Arrow Caps	X	X	X	X
Other Caps	X			
Different End Caps	X			
No Joins	X			
Miter Joins	X	X	X	X
Round Joins	X	X	X	X
Bevel Joins	X	X	X	X
Dashed Stroke	X	X	X	X
Resize Proportionally		X	X	X
Resized Uniformly	X			
Text				
Text Effects	X	X	X	X
Text on Curve	X	X		
Text Includes Stroke	X	X		
Masking				
Supported	X	X		
Effects				
Supported	X	X		
Image Composition				
Opacity Control				
Transparent Backgnd				
SVG Support				
Scripting	X	X		X
Mouse Event	X	X	X	X
CSS	X	X		
Linked Image Files	X	X		
Embedded Image Files			X	X
Linked Audio Files	X	X	X	X

Feature	Normal	SVG Basic	SVG Tiny 1.1	SVG Tiny 1.2
Filters				
Oilify	X	X		
Blur	X	X		
Motion Blur	X	X		
Balance	X	X		
Brightness	X	X		
Color Limit	X	X		
Contrast	X			
Convert to Grayscale	X	X		
Hue Saturation	X	X		
Replace Color	X			
Replace Background	X			
Rotate Zoom	X			
Vortex	X			
Wave	X			
Invert	X	X		
Minimum	X	X		
Maximum	X	X		
Dilate	X	X		
Erode	X	X		
Noise	X	X		
Mosaic	X			
Sharpen	X	X		
Edge Detection	X			
Solarize	X			
Wind	X			
Composite Methods				
Normal	X	X	X	X
Multiply	X	X		
Screen	X	X		
Erase	X	X		
Add	X	X		
Subtract	X			
Darkest	X	X		
Lightest	X	X		
Difference	X			
Average	X	X		
Invert	X	X		
Dissolve	X			
Replace Hue	X	X		
Replace Saturation	X	X		
Replace Luminosity	X			
Replace Color	X			
XOR Mask	X	X		
Alpha Mask	X			

Changing Profiles

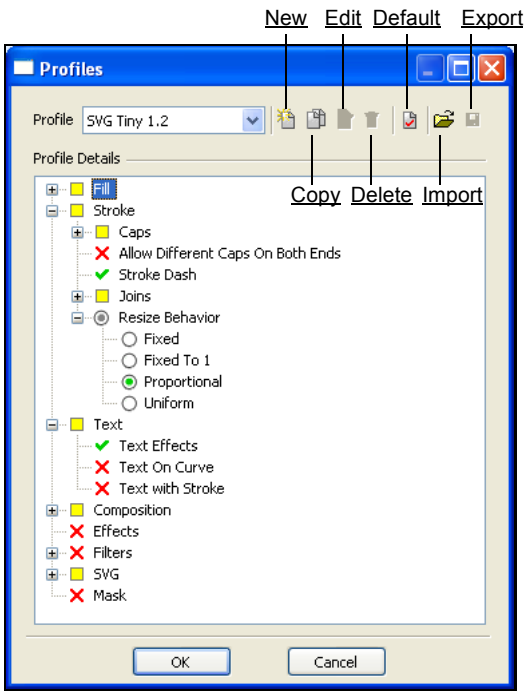
Besides setting your preferred profile when you create a new document, you can change the profile at any time in two different ways.

The Profiles toolbar

The Profile toolbar provides a quick and easy way to change the current profile. Simply select a profile from this toolbar and Mobile Designer adjusts the editing features as needed. For more information on the Profile toolbar, see “Profile toolbar” on page 33.

The Profiles dialog

Selecting Edit > Profiles from the main menu displays the Profiles dialog. This dialog provides a more detailed account of each of the available profiles.



You can select any profile in the Profile menu and view which features are supported (Mobile Designer features that are not listed are supported by all profiles).

- A green check mark indicates that the feature or feature group is enabled.
- A red “X” indicates that the feature or feature group is disabled.
- A yellow square indicates that some members of this item's sub-group are enabled and some are disabled.
- A green radio button indicates that only one item in the list can be selected at any one time. One item must always be selected.
- A gray radio button indicates that there are underlying radio buttons for this item.

The Profiles dialog also contains a number of buttons you can use to manage your profiles.

To create a new, custom profile:

1. Click the New Profile button.
2. Customize the profile settings in the Create New Profile dialog.

To activate/deactivate any of the features listed in the Create New Profile dialog, click on them.

To copy the current profile:

Click the Copy Profile button.

To edit the current profile:

1. Click the Edit Profile button.
2. Customize the profile settings in the Edit Profile dialog.

To activate/deactivate any of the features listed in the Create New Profile dialog, click on them. Only custom profiles can be edited.

To delete the current profile:

Click the Delete Profile button.

Only custom profiles can be deleted.

To set the current profile as the default when creating a new movie:

Click the Set Profile as Default button.

To load a previously saved profile:

1. Click the Import Profile button.
2. Navigate to the desired profile in the Windows Open dialog and click OK.

Profiles are stored as XML files.

To save a profile as an external file:

1. Click the Export Profile button.
2. Name the profile in the Windows Save As dialog and click OK.

Profiles are stored as XML files.

Working with Profiles

Profiles you create through the Profiles dialog are persistent. That is, they are available for use in future Mobile Designer sessions. These profiles are stored as XML files in your application folder. In addition, whenever you save your movie, the selected profile is saved along with the movie.

When you load a Mobile Designer movie (i.e. one transferred from another machine), one of several actions may be taken:

- If the profile name and contents are identical between the saved file and those available in Mobile Designer, the file loads as normal.
- If the profile name does not match any of the profile names in Mobile Designer, then a new profile is added to the profile list in Mobile Designer and the file loads as normal.
- If the profile name matches one of the profile names in Mobile Designer, but the profiles themselves are not identical, you are queried for the proper action before the file is loaded.

Customizable Features

You can customize the list of supported features for any profile that you create (the predefined profiles are not available for editing, but they can be copied). This is done through the Edit Profile dialog.

Inside the Edit Profile dialog, you can activate or deactivate any of the features listed. Deactivating a feature effectively disables that feature in Mobile Designer. It also eliminates it at export time.

Design elements created in one profile are not lost when you change to a profile that does not support them. They are retained and will be restored when a new profile with the appropriate support is selected. When changing profiles, Mobile Designer attempts to use the available information to produce a satisfactory looking replacement. You should always confirm that your design has not been negatively impacted when changing profiles.

The sections below provide a detailed description of all of the profile options.

Gradient and Pattern Fills

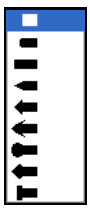
Gradient and pattern fills are not supported in all export formats. In Mobile Designer you can choose to treat gradient patterns and fills as:

- **Vectors**. Objects with vector fills are exported entirely as vectors which reduces file size and results in a sharper looking image.
- **Bitmaps**. Objects with bitmap fills are exported as bitmap objects.
- **Non-exportable**. Objects with this setting replace the gradient or pattern fill with a solid color.

In Mobile Designer, text and shapes are treated as two different categories of objects. You set the gradient and pattern fill options separately for text and shapes.

Stroke properties - Caps

Caps define the shape used at the end of open shapes. In Mobile Designer you have nine different caps to choose from, as follows.



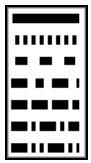
The first three caps in the list, **Button**, **Square** and **Round** caps, each merit their own profile items. The middle three caps are grouped under the category of **Arrow** caps. The final three caps are more unusual and grouped under the name **Other** caps.

One additional item involving caps is the ability to specify whether both ends of a shape have the same or different caps. Many formats, including SVG, only support having the same caps at each end. The profile option that dictates how the ends of a shape are handled is **Allow Different Caps On Both Ends**.

Stroke properties - Dash

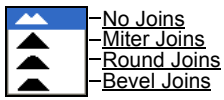
The outline or stroke of a shape can drawn using either a solid line (the default) or using different line patterns (dashes).

When the Stroke Dash item is enabled, the line pattern chosen will be exported for the stroke. Otherwise, a solid line is used for the stroke.



Stroke properties - Joins

The corners of a paths and geometric shapes can drawn using one of four different shapes (joins). Each is independently supported.



Stroke properties - Resize Behavior

Different standard file formats treat objects differently when they are scaled or resized. Certain applications, such as SVG, scale the size of an object's stroke as the object is resized. Thus, the entire object appears to grow proportionally. Other formats treat the stroke as a fixed size. In this case, the stroke remains at its original width no matter what the scaling.

Mobile Designer offers three resize behaviors in order to accommodate the different options:

- Fixed sets the stroke to remain at a constant width when objects are resized.
- Proportional scales the stroke in proportion to how the width and height of the object are resized. This behavior is currently not available in Mobile Designer. When Proportional is selected, the Uniform behavior is shown in Mobile Designer.
- Uniform scales the stroke symmetrically as the object is resized.

Text

While virtually all file formats support text in its standard form (i.e. single line and paragraph text), the more restrictive file formats do not always handle more advanced forms of text. You can individually control the following text formats in Mobile Designer:

- **Text Effects**. These are pre-programmed special animations made specifically for use with regular text.
- **Text On Curve**. This is text that follows the path of a previously drawn shape.
- **Text with Stroke**. This is text with a separate outline drawn around each text character.

Composition

The composition options dictate how objects interact visually with other objects and the scene. Because the look of a movie depends so much on the interaction of the various objects, enabling and disabling certain composition options may have a significant impact on your movie.

The composition options are:

- **Transparent Background**. Both the movie and the scenes in the movie use a background color. If a transparent background is used and then this feature is disabled, the alpha channel setting of the background color is ignored producing a solid color background.
- **Opacity**. The opacity property interacts with the alpha of the fill and stroke color of an object to determine the final opacity for that object. The opacity for an object can vary between completely opaque and completely transparent. When the opacity profile option is disabled, the object remains completely opaque.
- **Allow Opacity Above 100%**. When determining the final opacity of an object, the object's opacity and the object's alpha color values are multiplied. By allowing an opacity value greater than 100%, it is possible to take an object with alpha values less than 100% and make it completely opaque.
- **Composite Methods**. Mobile Designer offers a variety of optical composition methods which combine the selected object with its background in different ways. Each of these methods is customizable. If a method is applied on an object and the profile no longer supports this method, then this method will not be applied anymore.

Effects

Mobile Designer offers five special effects, all of which are derivatives of the outer shadow concept. The effects are globally represented. So, disabling this feature will remove all the effects applied in your movie.

Filters

Filters change the appearance of objects using a complex mathematical formula. Filter support varies widely between output formats, with some such as SVG Tiny not supporting any filters, and others such as SVG Basic supporting some filters.

Filters can be enabled on an individual basis. When a filter is disabled, it is no longer applied to the object.

Mask

Masks allow you to select one object in Mobile Designer to serve as the outline of a 1-bit mask, where everything on the inside of the outline is allowed to show through, and everything on the outside is masked out (not seen).

Disabling the mask support results in both all objects associated with the mask being visible. For SVG export, the object used as a mask is not be exported at all.

SVG

Unlike the other profile sections, the SVG section applies only to SVG export, not the individual features supported within Mobile Designer or the target output format.

SVG - Scripting

SVG movies can be enhanced with embedded calls to JavaScript functions (scripts). These calls can be included both at the movie level from the Movie Properties dialog and at the event level when assigning actions to events.

When enabled, the scripting profile option includes calls to any external JavaScript functions that you include in your movie.

SVG - Mouse events

SVG supports mouse events, such as Mouse Clicks. These events make intuitive sense on standard computers, and are automatically mapped to activate and focus events on other devices, as follows:

- Mouse Click becomes Activate
- Mouse Up becomes Activate
- Mouse Over becomes Focus In
- Mouse Out becomes Focus Out

However, not all devices support mouse events. When the Mouse Events profile option is disabled, all mouse events are exported from your exported movie.

SVG - CSS

Cascading Style Sheets (CSS) are a simple mechanism for adding style (e.g. fonts, colors, spacing) to Web documents. For more information on cascading style sheets, see http://www.w3.org/TR/REC-CSS2/.

When the CSS profile option is enabled in SVG export, the style for every object is stored in a style sheet and then referenced in the SVG export file.

Creating buttons with the same style, for example, will save you space since this information is recorded only once. Also, if one day you decide to change the fill color of your buttons, you will easily be able to do so by directly changing the fill color in your button style definition.

SVG - Multimedia Handling

Images and sounds can be included in any Mobile Designer movie. Generally speaking, these external files can be either embedded in your SVG export file (images only) or saved in separate files with references included in the SVG export file (images and sounds).

You can specify your preference in the Profiles dialog as follows:

- **Export in a Subfolder** stores your image and sound files in a folder that is local to where you save your SVG file. The name of this folder is that of your SVG file with ".files" appended to it. Within this folder are subfolders named "images" and "sounds."
- **Export Locally** stores all of your image and sounds files in the same folder as your saved SVG file.
- **Embed** includes an encoded version of your imported images directly in your SVG export file. This has the advantage that the image is always available even if the SVG file is moved to a different machine or displayed on a cell phone.

However, the SVG file size may increase substantially depending on the number and size of the images embedded.

Chapter 5: Applying Colors

Color is an integral part of any artwork no matter what the medium. You draw attention to particular image elements or convey information more subtly all through the color choices you make.

In Mobile Designer, colors can be applied to tools before drawing or to an existing object at any time.

Understanding Color

Mobile Designer provides a wide range of color setting options, all of which are available via the color samples in the Toolbox.

There are four color samples in the Toolbox, two for setting the stroke (outline) and fill for shapes, and two for setting the stroke and fill for text.

Shapes

Shapes include any object you draw on the screen with the exception of text.

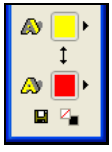
Not all shapes have both a stroke and a fill. Lines, for example, have only a stroke. Changing the stroke or fill of an object that does not inherently support one of these has no effect.

Text

Two fundamentally different types of text are supported: normal text (which includes plain text, paragraph text, and text on a curve) and 3D text. The text color icons vary depending on the type of text selected.

Normal text displays the icons shown above. When working with normal text, the stroke and fill colors are used to change the stroke and fill colors for the text as you would expect.

3D text displays slightly different color icons. The stroke icon is replaced by the side color icon, and the fill icon is replaced by the front color icon. For 3D text, the side color is the color shown for the sides or depth of each letter. The front color is the color shown when the text is viewed head on.



Applying Color

The method used to select a color is the same whether you are working with shapes or text, or solid colors, gradients or patterns.

To change the color of an object or tool:

1. Select an object or tool.
2. Do one of the following:

- Click the appropriate color sample or the small triangle adjacent to it to open the Color dialog (see "Using the Color dialog" on page 68 below).
- Click the Swap Colors icon to swap the fill and stroke colors for shapes or text.
- Click the Restore Default Colors icon to replace the current stroke and fill with those colors saved as the defaults.

Using the Color dialog

You use the Color dialog to apply a color to a tool or object's stroke or fill. Within the Color dialog you have numerous options. These include mixing and storing your own colors, creating gradients and patterns, sampling existing colors, and setting different opacity levels.

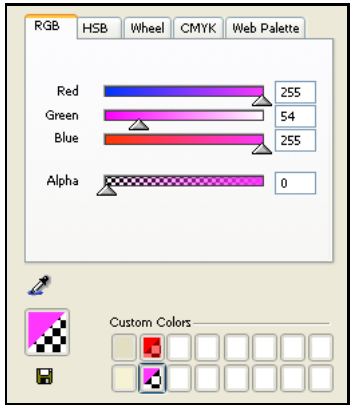
To use the Color dialog:

Do one of the following:

- Click on the No Color button to remove the stroke or fill.
- Click the Color button to apply a solid stroke or fill. See "Selecting and storing solid colors" below for more information on selecting solid colors.
- Click on the Gradient button to apply a gradient stroke or fill. See "Creating and Editing Gradients" on page 70 for more information on building gradients.
- Click on the Pattern button to apply a pattern stroke or fill. See "Using Patterns" on page 72 for more information on applying patterns.

Selecting and storing solid colors

The solid color picker includes two different sections. The top section provides tabs used to select the color model used, while the bottom section provides an eye dropper for sampling colors and space to store up to 18 custom colors.



Each of the color models and features are described in the sections that follow.

Selecting colors using RGB

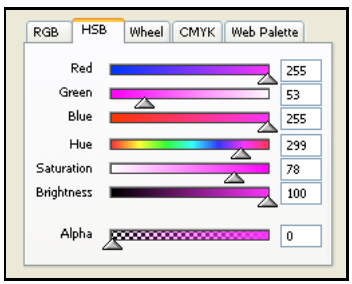
In the RGB color model you mix different levels of red, green and blue to achieve your final color. Independent from this, you can also set an alpha opacity for this color.

The red, green, blue and alpha components are set either by dragging the knob on the color slider or by specifying a value in the adjacent number field.

Each component has a range of 0 to 255. When all components are set to 0, the resulting color is black. When all components are set to 255, the resulting color is white. In between, you have a broad spectrum of visible colors to work with.

Selecting colors using HSB

In the HSB color model you set the hue, saturation and brightness levels to achieve your final color. Independent from this, you can also set an alpha opacity for this color.



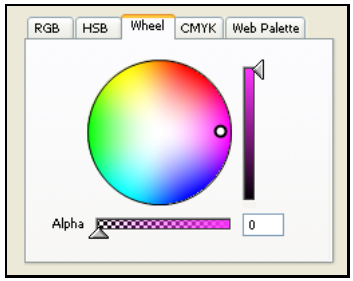
The hue, saturation, and brightness values are set either by dragging the knob on the color slider or by specifying a value in the adjacent number field.

The hue has a range of 0 to 359, which corresponds to the degree measurement on a color wheel. The saturation and brightness both have a range of 0 to 100.

The HSB tab also includes red, green and blue sliders, which are described in “Selecting colors using RGB” above.

Selecting colors using the Color Wheel

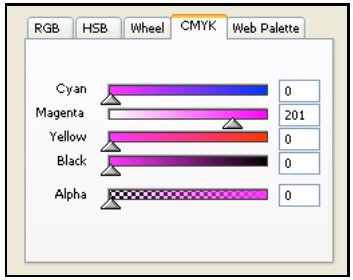
Using the Color Wheel, you set the hue and saturation levels for your color in the wheel, and the brightness level using the adjacent vertical slider. Independent from these, you can also set an alpha opacity for this color.



Click and drag anywhere on the wheel to select a color, and drag the knob on the brightness slider to specify the brightness level.

Selecting colors using CMYK

In the CMYK color model you mix different levels of cyan, magenta, yellow and black (K) to achieve your final color. Independent from this, you can also set an alpha opacity for this color.



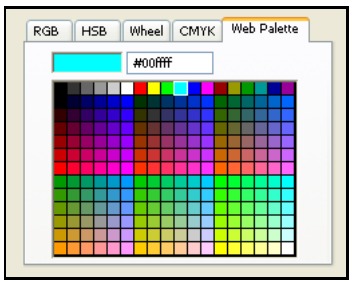
The cyan, magenta, yellow, and black components are set either by dragging the knob on the color slider or by specifying a value in the adjacent number field.

Each component has a range of 0 to 255. When all components are set to 0, the resulting color is white. When all components are set to 255, the resulting color

is black. In between, you have a broad spectrum of visible colors to work with.

Selecting colors using the Web Palette

The Web Palette provides a grid of color swatches for each of the 216 web safe colors (some of the more popular colors are duplicated in the top row) as well as a text field for entering hexadecimal color values.

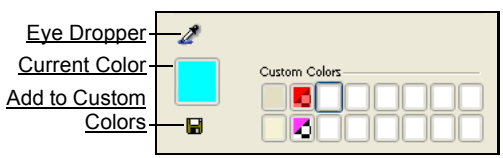


Click on a swatch to select a color. The selected color is displayed in the larger rectangular color swatch, and the hexadecimal value is updated with the current color value.

You can enter your own custom color values into the hexadecimal value field. These do not have to match any of the color swatches. The first two hexadecimal numbers encode the red, the middle two the green, and the last two the blue.

Selecting colors using the Eye Dropper

The eye dropper tool allows you to take a sampling of any color on the canvas or in the overscan area.



Click on the eye dropper then click anywhere in the document window to select the color directly below the mouse pointer. This color is displayed in the current color sample below the eye dropper where it can be refined using any of the color models or stored for later use.

Storing and using Custom Colors

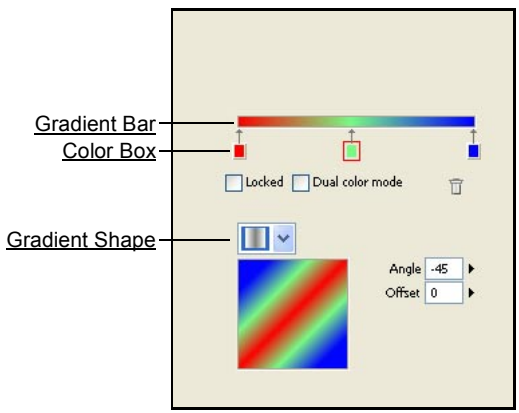
The Custom Colors section of the Color dialog provides a convenient location to store up to 16 custom colors for later use (see image above). These custom colors are persistent and will be available later for use in this movie and in other movies.

To add a color to the Custom Colors section, do one of the following:

- Drag the color from the current color sample and drop it in any of the custom color swatches.
- Select a custom color swatch, select a color, and click the Add to Custom Colors button. The new color is saved in the selected swatch.

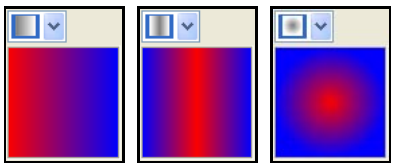
Creating and Editing Gradients

A gradient is a smooth blend between two or more colors. You use the gradient builder in the Color dialog to create new gradients and edit existing gradients.



The look of your gradient is determined by a number of factors, including the number of colors in the gradient, their placement, their relative concentrations, and the shape of the gradient.

The easiest way to see how a gradient will ultimately look is to apply it to an object. However, the Color dialog also displays a preview of each supported gradient to give you an idea of the result.



To modify the colors in a gradient:

1. Click on one of the gradient color boxes.
2. Select a new color in the slide out color picker. For information on selecting colors in the slide out color picker, see "Selecting and storing solid colors" on page 68.

To add colors to a gradient:

1. Click on the gradient bar to select it.
2. Do one of the following:

- Select one of the splitting options from the Gradient Selection menu.
- Click on the Gradient bar and drag the mouse pointer down until it is level with the other color samples and release the mouse button.

To remove colors from a gradient:

1. Click on one of the gradient color boxes.
2. Click the Delete Selection button.

Note: The color boxes on either end of the gradient bar cannot be deleted.

To change the positions of colors in a gradient:

1. Click on one of the gradient color boxes.
2. Drag it left or right to change the gradient on either side of the color box.

Note: The positions of the color boxes on either end of the gradient bar cannot be changed.

To change the distribution of colors in a gradient:

1. Click on the gradient bar to select it.
2. Select one of the following distribution options in the Interpolate menu:

- Linear results in an even transition between the two color boxes.
- Curved results in a more rapid color change near the two color boxes than in the middle of the gradient.
- Sinusoidal results in a more rapid color change near the middle of the gradient than near the two color boxes.
- Circular (decreasing) results in a rapid color change near the left color box with a slow color change near the right color box.
- Circular (increasing) results in a rapid color change near the right color box with a slow color change near the left color box.

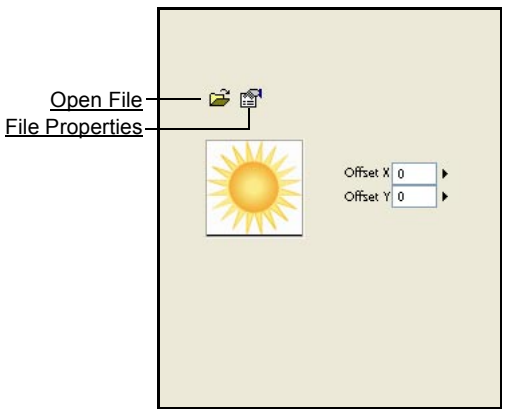
To change the shape of the gradient:

Do one of the following:

- Click on the linear gradient radio button and adjust the angle of the gradient using the adjacent angle value field or circular slider.
- Click on the radial gradient radio button.

Using Patterns

A pattern is an external image file that you use to paint the stroke or fill for an object.



Offset X and Offset Y are used to move an image to the right and down, respectively. The distance moved is a percentage of the image width (Offset X) or height (Offset Y). With both offset values set to 0 (the default), the upper right corner of the image is aligned with the upper right corner of the object's bounding box.

To load a pattern:

Click on the Open File button and navigate to the desired image file.

To view the file properties for a pattern:

Click on the File Properties button.

To change the offset for a pattern:

Do one of the following:

- Enter a new value between 0 and 400% into the Scale X or Scale Y text box.
- Click on the Scale X or Scale Y slider and drag it to a new position.

Chapter 6: Setting Attributes

The previous two chapters describe how to create objects and set many of their attributes via the menus and the animation panel. While you can accomplish a lot by working at this level, Mobile Designer offers many more options than those described thus far.

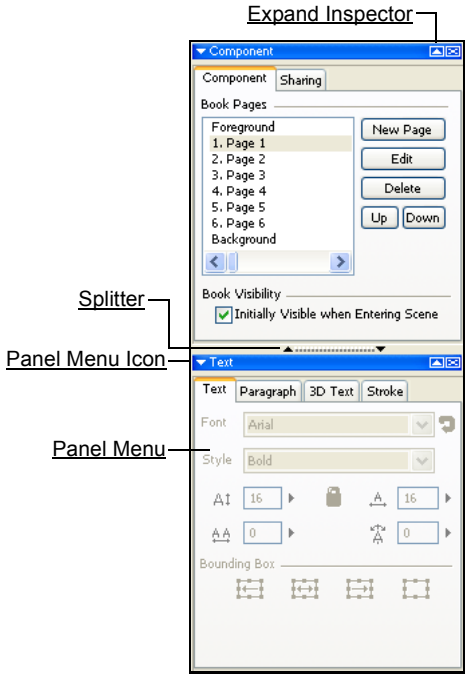
In this chapter, you learn how to use the Inspector panels to exercise greater control over the look and feel of the objects in your movie.

Overview

The Inspector panels offer a comprehensive set of options for setting everything from fonts and font sizes to 3D object rotations. Related information is grouped under tabs in the Inspector panels making it easy to make changes to any object in your movie with a couple of mouse clicks.

Working with Inspector panels

Before describing the contents of each tab, it is helpful to know how to use and customize the Inspector panels.



To select an Inspector panel tab:

Click on the tab in the Inspector panel.

To expand/contract an Inspector panel:

Do one of the following:

- Click the Expand Inspector/Contract Inspector button.
- Drag the splitter up or down to change the amount of space allocated to the Inspector panel.

To remove a tab from an Inspector panel:

1. Click on the Inspector menu button to open the Inspector menu.
2. Select the name of the tab that you wish to remove from the Inspector panel.

A check mark adjacent to an item in the Inspector menu indicates that tab is currently visible in the current Inspector. Items shown in plain text are currently visible in another Inspector panel. Items shown in bold face are currently not displayed in any Inspector panel.

To add a tab to an Inspector panel:

1. Click on the Inspector menu button to open the Inspector menu.
2. Select the name of the tab that you wish to add.

You can add any tab to an Inspector panel at any time. If it is being displayed in another Inspector panel, it will be moved from that panel to the current panel.

To close an Inspector panel and hide all of its tabs:

Click on the close button for the Inspector panel.

To open a new Inspector panel:

Do one of the following:

- From the main menu select Window > Add Inspector Panel.
- Click on the Add Inspector button in the Inspector toolbar.

To toggle between hiding and showing the Inspector panels:

Do one of the following:

- From the main menu select Window > Show/Hide Inspectors (F5).
- Click the Show or Hide Inspectors button in the Inspector toolbar.

Setting and Changing Attributes

Because Mobile Designer maintains each and every object as a distinct entity, you have complete flexibility in how you design your primitives and components. You can either set the attributes of the drawing tool before you draw a primitives, or you can change the attributes of existing objects at any time.

To set the attributes of a tool before you draw:

1. Select a tool.
2. Set its attributes in the Inspector panels or apply colors to it in the Toolbox.
3. Draw on the canvas.

To change the attributes of an existing object:

1. Select the object.
2. Change its attributes in the Inspector panels or apply colors to it in the Toolbox.

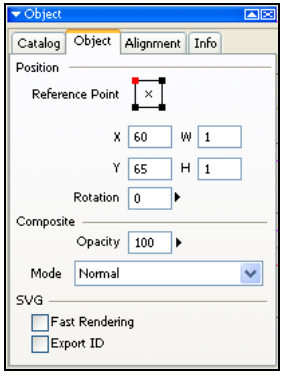
Note: all forms of text, polylines and Bezier curves also have a special editing mode for changing the text or adjusting the points on the curve. These operations are different from changing the attributes of the object. For more information on using these editing modes, see "Shapes" on page 39.

General attributes

Many of the Inspector panel tabs contain attributes and settings that apply to the vast majority of primitives and components. These are detailed below.

The Object tab

The Object tab provides a way to view and edit the position, dimensions, rotation and opacity of an object. Changes you make to these values in the Object tab are immediately reflected on the canvas. Likewise, changes you make directly to the object on the canvas are immediately reflected in the Object tab.



If you change any of the values in the Object tab from one frame to another, you animate that object. For more information on animating objects, see “Animating Objects” on page 120.

To change the position (coordinates) of an object:

1. Select the object.
2. In the Object tab, select a corner of the bounding box or the rotation center to use as the Reference Point. The reference point, shown in red, is the point on the object’s bounding box that will be placed at the new coordinates. By default, the upper left corner of the bounding box is used as the reference point.
3. Enter the new coordinates for the object in the X and Y value fields.

Coordinates are specified in pixels.

To change the dimensions of an object:

1. Select the object.
2. Enter new width and height values for the object in the W and H fields, respectively.

Dimensions are specified in pixels.

To change the rotation of an object:

1. Select the object.
2. Do one of the following:

- Type a new value into the Rotation field.
- Click on the Rotation slider and drag its thumb to the desired setting.

Rotation is specified in degrees.

To change the opacity of an object:

1. Select the object.
2. Do one of the following:

- Type a new value into the Opacity field.
- Click on the Opacity slider and drag its thumb to the desired setting.

For an individual object, an opacity of zero makes it completely transparent, and an opacity of 100 makes it opaque.

Opacity levels greater than 100 are useful with certain composite methods (i.e multiply) that mathematically combine the opacity levels of overlapping objects. For

more information on composite methods, see "The Object tab" on page 77.

To change the composite method of an object:

1. Select the object.
2. Select a new composite method from the Mode menu.

To remove a composite method from an object:

1. Select the object.
2. Select **Normal** in the Mode menu.

The available composite methods are:

- **Normal** - No composite is method applied.
- **Multiply** - The RGB values of the object and underlying object(s) are multiplied together for each of the three color channels.
- **Screen** - The selected object "burns through" underlying objects to reveal the background color.
- **Erase** - The opacity of the object is used to "erase" the underlying objects. If the object's opacity is set to less than 100%, then the objects below show through.
- **Add** - The RGB values of the object and underlying object(s) are added for each of the three color channels.
- **Subtract** - The RGB values of the underlying object(s) are subtracted from the object's values for each of the three color channels.
- **Darkest** - The lower of the two RGB values is used for each of the three color channels.
- **Lightest** - The higher of the two RGB values is used for each of the three color channels.
- **Difference** - The difference between the object's and the underlying object(s) RGB values is used for each of the three color channels.
- **Average** - The average of the object's and the underlying object(s) RGB values is used for each of the three color channels.
- **Invert** - The object's alpha level is used to invert the underlying objects.
- **Dissolve** - A random pattern is created based on the opacity of each pixel.
- **Replace Hue** - The hue of the object is used on underlying objects.
- **Replace Saturation** - The saturation of the object is used on underlying objects.
- **Replace Luminosity** - The luminosity of the object is used on underlying objects.
- **Replace Color** - The hue and saturation of the object is used on underlying objects.
- **XOR Mask** - The difference between the object and underlying object(s) opacities is computed, the absolute value is determined, and the dominant color shows through.
- **Alpha Mask** - The inverse of an erase. The composite object shape is used to mask out all lower objects.

Composite methods cannot be animated.

To set an object to be drawn aliased (when supported):

1. Select the object.
2. Check the Fast Rendering box.

Not all display devices support aliased rendering (all support anti-aliasing), and on those devices where aliasing is supported, there is no guarantee that it will be faster than anti-aliasing. Use this option at your own discretion.

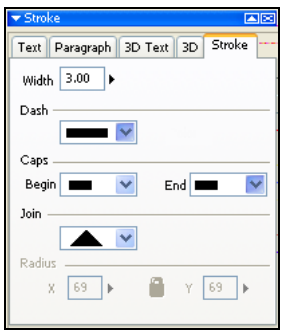
To include an object's name in exported SVG movies:

1. Select the object.
2. Check the Export ID box.

An object name is required when referring to that object from an external JavaScript function. It is not required by other SVG movies.

The Stroke tab

The Stroke tab provides a way to change the width and overall look of the stroke of an object. Most primitives have a stroke, the exceptions being paint bucket objects, charts and legends. Components do not have a stroke, though the primitives that compose them may.



To change width of the stroke for an object:

1. Select the object.
2. Do one of the following:

- Type a new value into the Width field.
- Click on the Width slider and drag its thumb to the desired rotation setting.

To change the pattern (dash) of the stroke for an object:

1. Select the object.
2. Choose a new pattern from the Dash menu.

To change the shape (caps) drawn at the ends of an open object:

1. Select the object.
2. Do one of the following:

- To set the shape drawn at the point on the object where you first clicked and started drawing, choose a new shape from the Begin menu.
- To set the shape drawn at the point on the object where you finished drawing, choose a new shape from the End menu.

To change the shape of the corners (joins) of an object:

1. Select the object.
2. Choose a new shape for the corners from the Join menu.

To change the shape (radius) of the corners of a rounded rectangle:

1. Select the object.
2. Do one of the following:

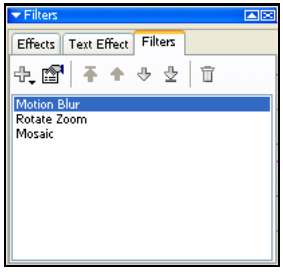
- To set the X component of the radius, type a number between 0 and 100 into the X value field or adjust the adjacent slider.
- To set the Y component of the radius, type a number between 0 and 100 into the Y value field or adjust the adjacent slider.

The greater the X and Y radius values, the greater the curvature. In other words, if X and Y are zero, the object is a rectangle. If X and Y are both 100, the object is an ellipse.

If you change any of the radius value from one frame to another, the radius of a rounded rectangle is animated. For more information on how to animate objects, see “Animating between points” on page 120.

The Filters tab

The Filters tab provides a way to add, change and delete the filters associated with an object.



Filters change the appearance of objects using a complex mathematical formula. Certain filters, such as wind and wave, produce striking results that are immediately obvious. Other filters, such as vortex and mosaic only reveal their power when animated or on objects with gradient or pattern fills.

Multiple filters can be applied to an object. The order that filters are applied determines how they interact with the object and with each other.

If you change a filter's properties from one frame to another, you animate that filter. For more information on animating filters, see "Animating filters and effects" on page 122.

To add a filter to an object:

1. Select the object.
2. Click the Add Filter button and choose a filter from the popup menu.
3. Customize the settings for the filter in the specific filter dialog.

To edit an existing filter applied to an object:

1. Select the object.
2. Do one of the following:

- Click the Filter Properties button.
- Double-click on the filter name in the list of applied filters.

3. Change the settings for the filter in the specific filter dialog.

To change the order in which multiple filters are applied to an object:

1. Select the object.
2. Select the filter you want to move in the filters list.
3. Do one of the following:

- To move the filter to the beginning of the filters list, click the Move to Top button.
- To move the filter one level higher in the filters list, click the Move Up button.
- To move the filter one level lower in the filters list, click the Move Down button.
- To move the filter to the end of the filters list, click the Move to Bottom button.

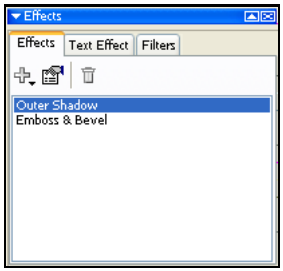
To delete a filter from an object:

1. Select the object.
2. Select the filter in the filters list.
3. Click the Delete Filter button.

The Effects tab

The Effects tab provides a way to add, change and delete special effects associated with an object. The

available special effects include inner and outer shadows, glows, and bevels, as well as a full emboss.



Effects are created using slight variations on the drop-shadow concept. When you add an effect to an object, Mobile Designer creates a copy of the object, gives it a solid fill, blurs and/or changes the opacity of the copy and/or offsets it from the original, and masks the copy with the original (or vice-versa).

Multiple effects can be applied to an object. The order that the effects are applied determines how they interact with the object and with each other.

If you change an effect's properties from one frame to another, you animate that effect. For more information on animating effects, see "Animating filters and effects" on page 122.

To add an effect to an object:

1. Select the object.
2. Click the Add Effect button and choose an effect from the popup menu.
3. Customize the settings for the effect in the specific effect dialog.

To edit an existing effect applied to an object:

1. Select the object.
2. Do one of the following:

- Click the Effect Properties button.
- Double-click on the effect name in the list of applied effects.

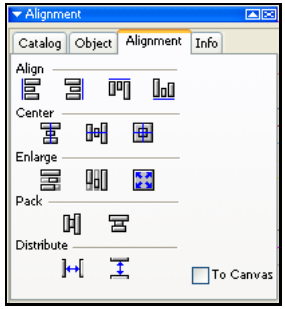
3. Change the settings for the effect in the specific effects dialog.

To delete an effect from an object:

1. Select the object.
2. Select the effect in the effects list.
3. Click the Delete Effect button.

The Alignment tab

The Alignment tab provides a way to align one or more objects with each other or on the canvas.

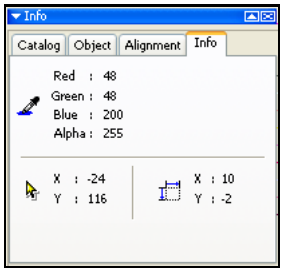


The Alignment tab and other methods of aligning objects are discussed in "Aligning Objects" on page 111.

The Info tab

The Info tab provides real time feedback on the color the mouse pointer is over, its coordinates, and when drawing or dragging, the difference between the

current pointer location and the point where the dragging or drawing was initiated.



The Red, Green, Blue and Alpha values show you color values for any object visible in the document window, but not the canvas color or overscan area color. The colors components shown are true whether you are on the canvas or in the overscan area.

If you want to select a color on the canvas, the easiest way to do so is to use the Eye Dropper tool. For more information on using the eye dropper tool, see “Selecting colors using the Eye Dropper” on page 70.

The Info tab is the only tab that does not allow you to enter or edit attributes; it is for informational purposes only.

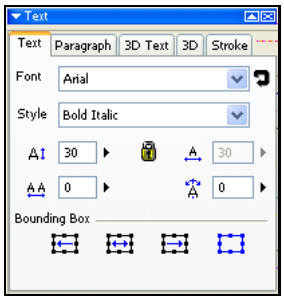
Text attributes

Text of all varieties, whether it is drawn using one of the text tools or it appears as part of a chart or legend, is customized using one or more of the text handling tabs.

Four tabs are dedicated to handling the various nuances of text. The Text tab provides a means of setting general text properties. The Paragraph tab deals specifically with paragraph related properties. The Text Effects tab allows you to enhance text using built-in text effects, and the 3D tab covers 3D text specific features. Each tab is described in detail below.

The Text tab

The Text tab is used to set common text attributes including font face, style, text size, character spread, and shearing. In addition, the Text tab provides controls for specifying how text behaves when it is dynamically replaced using external applications or XML.



Customization options

When customizing text using the text tab, you can edit items on an object by object basis, or you can edit portions of a single text object as you would in a word processor.

To edit an entire text object:

1. Select the text object.
2. Edit it using the controls in the Text tab.

To edit only a portion of a text object:

1. Select the text object.
2. Do one of the following to enter text edit mode:

- Double-click on the selected object.
- Press the Enter key.

3. Highlight the portion of the text you wish to edit.
4. Edit the text using the controls in the Text tab.

The remaining sections describe how to use particular Text tab controls. You can use these to edit either entire objects or characters within an object using one of the selection methods described above.

To change the font:

1. Select the text object.
2. Do one of the following:

- Click on the Font popup menu and choose a new font from the font list.
- Click on the Cycle Fonts button adjacent to the Font popup menu to display the next font in the font list.

To change the style:

1. Select the text object.
2. Click on the Style popup menu and choose a new style from the style list.

To change the font size:

1. Select the text object.
2. Do one of the following:

- To resize text using the same font height and width, click on the padlock icon until it appears locked and do one of the following:
  - Type a new number into the Font Height value field.
  - Click on the Font Height slider and drag its thumb to the desired setting.
- To resize the font height and width separately, click on the padlock icon until it appears unlocked and do one of the following:
  - Type a new number into the Font Height or Font Width value field.
  - Click on the Font Height or Font Width slider and drag its thumb to the desired setting.

You can also change the font height and font width of regular text, text on curve and 3D text by dragging the corners and edges of the object's bounding box.

When the padlock icon is locked, resizing is proportional. When the padlock is unlocked, the font height and width resize independently. If you press the Shift key while resizing, the font height and width resize proportionally.

To change the distance (tracking) between characters:

1. Select the object.
2. Do one of the following:

- Type a new number into the Tracking value field.
- Click on the Tracking slider and drag its thumb to the desired setting.

To change the shearing:

1. Select the object.
2. Do one of the following:

- Type a new number into the Shearing value field.
- Click on the Shearing slider and drag its thumb to the desired setting.

Bounding box options

The Bounding Box section of the Text tab comes into play whenever you are using either XML or an external application such as Beatware Live Assets to replace the contents of a text object with a new string of text.

For example, say your movie calls for you to dynamically replace:

```
score text
```

with a daily basketball score such as:

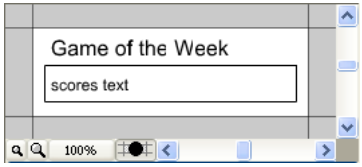
```
Cardinal 103, Golden Bears 55
```

As you can see, the replacement text is much longer than the original placeholder text. Thus, when the placeholder text is replaced, the bounding box for the text (and thus the text object) will need to grow horizontally.

Depending on your design, you may want the text to expand symmetrically, or only from one end or the other. By selecting the appropriate bounding box behavior, it is easy to generate the correct results.

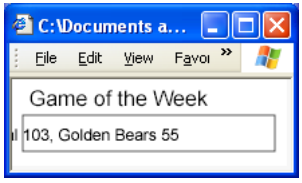
In the illustration that follows, you see the generic Mobile Designer layout followed by the first 3 bounding box options, align left, center and align right. Obviously the align left option works the best in this situation because the placeholder text was placed near the left edge of the surrounding rectangle.

Original Design

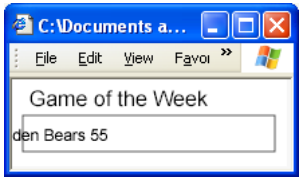


Align Left in Bounding Box

Center in Bounding Box



Align Right in Bounding Box



The Bounding Box information can also be animated. Thus, if you have text bouncing around your movie, you can rest assured that even text you dynamically replace will behave as expected regardless of its size.

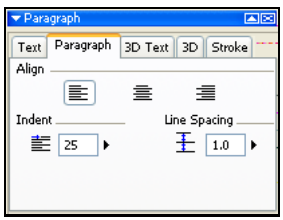
To set the Bounding Box for dynamically replaced text:

1. Select the object.
2. Do one of the following:

- For text that resizes only to the right (i.e. the left edge remains fixed), click the Align Left in Bounding Box button.
- For text that resizes symmetrically, click the Center in Bounding Box button.
- For text that resizes only to the left (i.e. the right edge remains fixed), click the Align Right in Bounding Box button.
- To keep the bounding box size the same and have the font size adjust so that the replacement text fits in the space available, click the Keep Bounding Box button.

The Paragraph tab

The Paragraph tab provides a way to control the alignment, indentation and line spacing for multiline text. Multiline text can be created using both the regular text tool and the paragraph text tool.



To change the alignment of multiline text:

1. Select the object.
2. Do one of the following:

- For left justified text, click the Left Justify button.
- For centered text, click the Center Justify button.
- For right justified text, click the Right Justify button.

To change the indentation of paragraph text:

1. Select the object.
2. Do one of the following:

- Type a new number into the Indent value field.
- Click on the Indent slider and drag its thumb to the desired setting.

Indentation is measured in pixels.

To change the spacing between lines in multiline text:

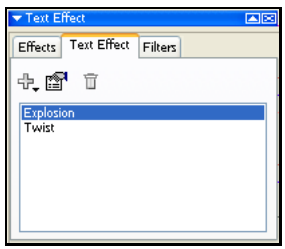
1. Select the object.
2. Do one of the following:

- Type a new number into the Line Spacing value field.
- Click on the Line Spacing slider and drag its thumb to the desired setting.

The distance between lines depends on the font size. A value of 1 represents single spaced lines, 2 represents double spaced lines, etc.

The Text Effect tab

The Text Effect tab provides a way to add one or more text effects to text objects. Text effects can be added to regular text, paragraph text or text on curve.



Text effects are actually short animations that are created through a text effect dialog instead of using conventional animation techniques. Because they are created using mathematical computations, they

produce dramatic results in SVG without adding significantly to the export file size.

Each text effect has a different set of customizable parameters you can set. These parameters allow you to precisely determine how each text effect behaves and looks.

The one parameter that is common to all text effects is the duration. The duration is the number of frames over which the text effect takes place. When you add a text effect, if there are not enough frames in your animation beyond the current frame to accommodate the text effect, additional frames are added for you as needed.

To add a text effect:

1. Select the text object.
2. Click the Add button and choose an effect from the popup menu.
3. Customize the settings for the text effect in the specific text effect dialog.

To edit a text effect:

1. Select the text object.
2. Do one of the following:

- Click the Edit button.
- Double-click on the text effect name in the list of applied text effects.

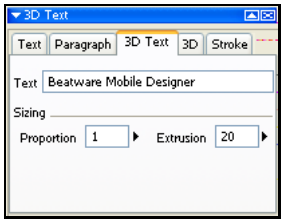
3. Change the settings for the text effect in the specific text effect dialog.

To delete a text effect:

1. Select the text object.
2. Select the text effect in the list of applied text effects.
3. Click the Delete button.

The 3D Text tab

The 3D Text tab provides controls for changing the text, proportions (akin to the height and with of regular text) and extrusion (visual depth) for 3D text.



The front and side colors for 3D text are set directly in the Toolbox. The 3D rotation and lighting attributes are set in the 3D tab. For more information on setting 3D attributes, see “3D Attributes” on page 87.

To edit 3D text:

1. Select the 3D text object.
2. Change the text string in the Text field.

Unlike other forms of text, 3D text can only be changed via the 3D Text tab after creation.

To change the 3D text proportions:

1. Select the 3D text object.
2. Do one of the following:

- Type a new number into the Proportion value field.
- Click on the Proportion slider and drag its thumb to the desired setting.

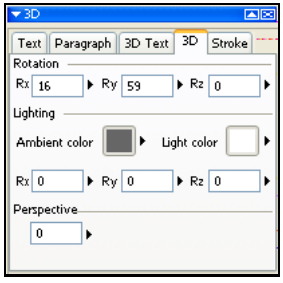
To change the 3D text extrusion:

1. Select the 3D text object.
2. Do one of the following:

- Type a new number into the Extrusion value field.
- Click on the Extrusion slider and drag its thumb to the desired setting.

3D Attributes

The rotation and lighting for 3D text created in Mobile Designer and 3D models imported into Mobile Designer are controlled through the 3D tab.



In addition to translating 3D objects like you do any other object, you can animate the object to rotate in 3 dimensions as it translates. You can also specify the color and positioning of the light sources and animate those, too.

For more information on animating objects, see "Animating 3D objects" on page 123.

To rotate an object in 3D:

1. Select the 3D object.
2. Do one of the following:

- To rotate the object around the x-axis, change the number in the Rx value field or click on the Rx slider and drag its thumb to the desired setting.
- To rotate the object around the y-axis, change the number in the Ry value field or click on the Ry slider and drag its thumb to the desired setting.
- To rotate the object around the z-axis, change the number in the Rz value field or click on the Rz slider and drag its thumb to the desired setting.

The Rx, Ry and Rz rotation settings are all measured in degrees.

You can also change the rotation of a 3D object by dragging it on the canvas in edit mode.

About Lighting

There are two different types of light you can manipulate when working with 3D objects: ambient light and point light.

Ambient light is the light that illuminates an object from all directions. Point light is actually two light sources located on opposite sides of a 3D object. They produce the objects highlights. You can set the color for both ambient light and point light.

To change the ambient color or light color:

1. Select the 3D object.
2. Do one of the following:

- Click on the Ambient Color sample or the small triangle adjacent to it to open the Color dialog where you can select a new ambient color.
- Click on the Light Color sample or the small triangle adjacent to it to open the Color dialog where you can select a new light color.

For more information using the Color dialog, see "Using the Color dialog" on page 68.

To change the position of the light sources:

1. Select the 3D object.
2. Do one of the following:

- To rotate the light sources around the x-axis, change the number in the Rx value field or click on the Rx slider and drag its thumb to the desired setting.

- To rotate the light sources around the y-axis, change the number in the Ry value field or click on the Ry slider and drag its thumb to the desired setting.
- To rotate the light sources around the z-axis, change the number in the Rz value field or click on the Rz slider and drag its thumb to the desired setting.

The Rx, Ry and Rz rotation settings are all measured in degrees.

Each 3D object has its own light source.

About Perspective

Perspective controls the perspective effect for 3D objects. It increases (smaller values) or decreases (larger values) the apparent depth of 3D objects.

To change the perspective:

1. Select the 3D object.
2. Do one of the following:

- Type a new number into the Perspective value field.
- Click on the Perspective slider and drag its thumb to the desired setting.

Chart and Legend attributes

Mobile Designer provides a comprehensive set of tools for creating business charts and graphs. Using these built-in tools, you can create everything from simple dashboards that graphically display a single value to complex 3D bar charts packed full of data.

Working with the charting tabs

The Chart tab is the first of five inspector tabs devoted exclusively to creating and manipulating charts, graphs and legends.

Each charting tab deals with a specific chart facet:

- The **Chart tab** is used to select the type of chart used.
- The **Axis tab** is used to set the units and colors associated with each axis in the chart.
- The **Labels tab** is used to specify the type of labels, if any, that are used on the chart axes.
- The **Walls tab** is used to specify what is shown extending up as a plane from each axis.
- The **Curves tab** is used to specify the colors and markers displayed for each data point and series.

External data

One of the underlying assumptions when working with charts is that the data to populate the charts will be provided in an external XML data file. No matter what type of chart you create, while you are designing, it will appear with random data. At preview or export time, the data from the data file you specify will replace the dummy data giving you the actual chart.

For more information on populating charts with data, see “Associating XML data with charts” on page 198.

The Chart tab

The Chart tab is used to customize both charts and legends. Its contents change depending on what is selected.

When a chart is selected, the Chart tab is used to choose the type of chart as well as edit those parameters

that are specific to that chart type. When a legend is selected, the Chart tab is used to customize the look of the legend.

Chart types

Charts come in three different genres:

- **Single value charts** such as speedometers are used to display single data points in a graphical format.
- **Single series charts** such as pie charts are used to display the relationship between elements in a single series.
- **Multiple series charts** such as bar charts are used to display multiple series of data in a graphical format.

You select which genre of chart you are using when you choose your charting tools in the Toolbox. Once you have drawn a chart of a given genre, you cannot convert it to a different genre of chart. You can, however, switch between different types of charts in a given genre at any time.

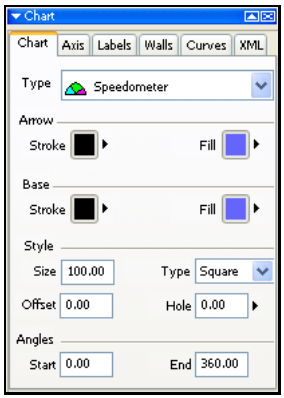
The table that follows shows the available genres and chart types within those genres. Each is explained in greater detail below.

Genre	Chart Type
Single value chart	Speedometer
Single value chart	Linear meter
Single series chart	Pie
Single series chart	3D pie
Single series chart	Bar valuator
Multiple series chart	Line
Multiple series chart	Area
Multiple series chart	Bar
Multiple series chart	3D Bar
Multiple series chart	Radar
Multiple series chart	Aligned 3D
Multiple series chart	Line 3D

Speedometer charts

The speedometer chart is a single value chart that displays information on an analog dial reminiscent of a car speedometer. It is composed of three parts: the dial (arrow), the base, and the background area.

The Chart tab is used to set the colors for the dial and its base, the size and shape of the dial, and the area covered by the speedometer (i.e. is it a complete circle.



To set the stroke and fill color for the dial and its base:

1. Select the chart object.
2. Do one of the following:

- Click on the Arrow Stroke color sample or the small triangle adjacent to it to open the Color dialog where you can select a new stroke color for the dial.
- Click on the Arrow Fill color sample or the small triangle adjacent to it to open the Color dialog where you can select a new fill color for the dial.
- Click on the Base Stroke color sample or the small triangle adjacent to it to open the Color dialog where you can select a new stroke color for the base.

- Click on the Base Fill color sample or the small triangle adjacent to it to open the Color dialog where you can select a new fill color for the base.

To set the size (length) of the dial:

1. Select the chart object.
2. Enter a new number in the Size value field.

The size is the length of the dial as measured from the center of the speedometer to its outer edge. It is a percent value. Sizes greater than 100 result in dials that extend outside the speedometer. Sizes less than 100 result in dials that do not reach the edge of the speedometer.

To set the offset of the dial from the center of the base:

1. Select the chart object.
2. Enter a new number in the Offset value field.

The offset is the distance between the center of the speedometer and where the dial is drawn. It is a percent value. A value of 0 results in a dial that is drawn starting at the center of the speedometer. Values greater than 0 results in the drawing starting some distance away from the center.

To set the shape of the dial where it meets the base:

Do one of the following:

- For a square shaped end, select Square in the Type menu.
- For a diamond shaped end, select Diamond in the Type menu.
- For a round shaped end, select Round in the Type menu.

To set the size of the hole at the center of the base:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Hole value field.
- Click the Hole slider and drag its thumb to the desired setting.

Hole values greater than 0 create a doughnut effect for the background of the chart. The hole is measured in pixels.

To set the starting and ending positions of the speedometer background:

Done one of the following:

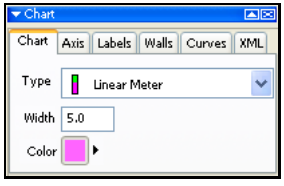
- To set the starting angle, enter a new number in the Start value field.
- To set the ending angle, enter a new number in the End value field.

The angles are measured in degrees. The 0 degree point corresponds to 3 o'clock, 90 degrees corresponds to 12 o'clock, 180 degrees corresponds to 9 o'clock, 270 degrees corresponds to 6 o'clock.

Linear meter charts

The linear meter chart is a single value chart that displays information through a single bar reminiscent of a thermometer.

The Chart tab is used to set the width and color of the meter.



To set the width of the line:

1. Select the chart object.
2. Enter a new number in the Width value field.

A meter width of 25 exactly covers the background of the linear meter. Widths smaller than 25 reveal the background. Widths greater than 25 overflow the background.

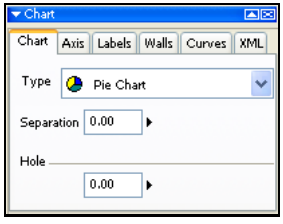
To set the color of the line:

1. Select the chart object.
- Click on the Color sample or the small triangle adjacent to it to open the Color dialog where you can select a new color for the meter.

Pie charts

The pie chart is a single series chart that displays information using a familiar pie or doughnut shape.

The Chart tab is used to set the separation between pie wedges and the size of the hole in the center of the chart.



To set the distance between pie wedges:

1. Select the chart object.
2. Do one of the following:
- Enter a new number in the Separation value field.
- Click the Separation slider and drag its thumb to the desired setting.

The Separation is the distance between the different wedges in the pie chart. A separation of 0 results in a solid looking chart. Separation values greater than 0 add increasing amounts of space between each wedge.

To set the size of the center hole:

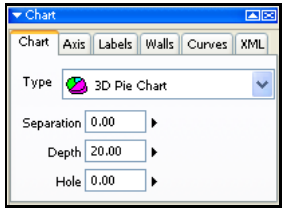
1. Select the chart object.
2. Do one of the following:
- Enter a new number in the Hole value field.
- Click the Hole slider and drag its thumb to the desired setting.

The Hole is the distance from the center of the object until the pie chart first appears. A value of 0 produces a no hole. A value greater than 0 results in a doughnut effect for the pie chart.

3D pie charts

The 3D pie chart is a single series chart that displays information using a familiar pie or doughnut shape. Unlike the standard pie chart, it also has a 3D depth.

The Chart tab is used to set the separation between pie wedges, the size of the hole in the center of the chart, and the depth of the chart.



To set the distance between pie wedges:

1. Select the chart object.
2. Do one of the following:
- Enter a new number in the Separation value field.
- Click the Separation slider and drag its thumb to the desired setting.

The Separation is the distance between the different wedges in the pie chart. A separation of 0 results in a solid looking chart. Separation values greater than 0 add increasing amounts of space between each wedge.

To set the depth of the chart:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Depth value field.
- Click the Depth slider and drag its thumb to the desired setting.

The Depth determines how 3D the object looks. A value of 1 indicates no depth (a standard pie chart). Values greater than 1 increase the apparent depth of the object.

The impact of changing the Depth may not be apparent unless the chart has been rotated in 3D. For more information on rotating 3D objects, see "3D Attributes" on page 87.

To set the size of the center hole:

1. Select the chart object.
2. Do one of the following:

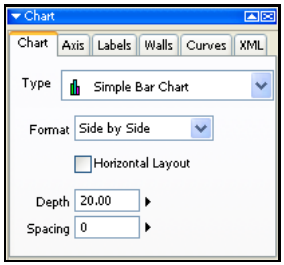
- Enter a new number in the Hole value field.
- Click the Hole slider and drag its thumb to the desired setting.

The Hole is the distance from the center of the object until the 3D pie chart first appears. A value of 0 produces a no hole. A value greater than 0 results in a doughnut effect for the 3D pie chart.

Simple bar charts

The simple bar chart is a single series, 3D chart that displays information using one or more bars.

The Chart tab is used to set the format of the chart, the spacing between bars, and the depth of the chart.



To set the format of the chart:

1. Select the chart object.
2. Do one of the following:

- For a chart containing bars that appear next to each other, choose Side by Side in the Format menu.
- For a chart with bars that are stacked one on top of another with their sizes proportional to their values, choose Stacked in the Format menu.
- For a chart with bars stacked one on top of another with their sizes shown as a percentage of the total, choose 100% Stacked in the Format menu.

3. Check the Horizontal Layout box to show the bars with a horizontal orientation.

To set the depth of the chart:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Depth value field.
- Click the Depth slider and drag its thumb to the desired setting.

The Depth determines how 3D the object looks. A value of 1 indicates no depth (a standard pie chart). Values greater than 1 increase the apparent depth of the object.

The impact of changing the Depth may not be apparent unless the chart has been rotated in 3D. For more information on rotating 3D objects, see "3D Attributes" on page 87.

To set the space between bars in the chart:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Spacing value field.
- Click the Spacing slider and drag its thumb to the desired setting.

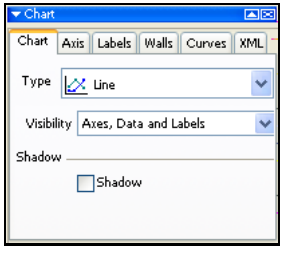
The Spacing determines the distance between each bar. Because the total width of the chart is fixed, increasing the spacing effectively reduces the width of each bar. A spacing value of 0 indicates that each bars is touching the adjacent bars.

Spacing is only used by charts with a Side by Side format.

Line charts

The line chart is a multiple series chart that displays information on a standard graph. Each line in a line chart displays information on one series of data.

The Chart tab is used to specify which elements of the graph are displayed and which are hidden, and whether the plotted lines appear with background shadows.



To set the visibility of the chart elements:

1. Select the chart object.
2. Do one of the following:

- To view all of the elements that make up the chart (axes, axis labels and plotted data), choose Axes, Data and Labels in the Visibility menu.
- To view the axes but hide the axis labels and plotted data, choose Axes in the Visibility menu.
- To view the plotted data but hide the axes and axis labels, choose Data in the Visibility menu.
- To view the axis labels but hide the axes and plotted data, choose Labels in the Visibility menu.
- To view the axes and axis labels but hide the plotted data, choose Axes and Labels in the Visibility menu.
- To view the axes and plotted data but hide the axis labels, choose Axes and Data in the Visibility menu.
- To view the plotted data and axis labels but hide the axes, choose Data and Labels in the Visibility menu.

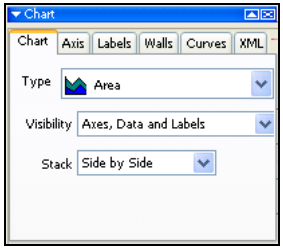
To display a background shadow for each plotted line:

Check the Shadow box.

Area charts

The area chart is a multiple series chart that displays information by filling the area under each curve on a standard graph. Each area in an area chart displays information on one series of data.

The Chart tab is used to specify which elements of the chart are displayed and which are hidden, and how the area data is presented.



To set the visibility of the chart elements:

1. Select the chart object.
2. Do one of the following:

- To view all of the elements that make up the chart (axes, axis labels and plotted data), choose Axes, Data and Labels in the Visibility menu.
- To view the axes but hide the axis labels and plotted data, choose Axes in the Visibility menu.
- To view the plotted data but hide the axes and axis labels, choose Data in the Visibility menu.
- To view the axis labels but hide the axes and plotted data, choose Labels in the Visibility menu.
- To view the axes and axis labels but hide the plotted data, choose Axes and Labels in the Visibility menu.
- To view the axes and plotted data but hide the axis labels, choose Axes and Data in the Visibility menu.
- To view the plotted data and axis labels but hide the axes, choose Data and Labels in the Visibility menu.

To set the appearance of the chart:

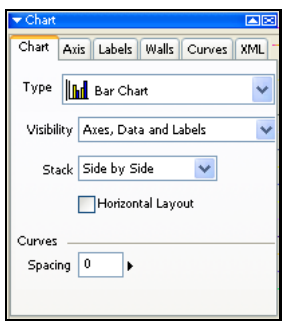
1. Select the chart object.
2. Do one of the following:

- For a chart containing ares that are plotted one in front of another, choose Side by Side in the Stack menu.
- For a chart with areas that are stacked one on top of another with their sizes proportional to their values, choose Stacked in the Stack menu.
- For a chart with areas stacked one on top of another with their sizes shown as a percentage of the total, choose Stacked 100% in the Stack menu.

Bar charts

The bar chart is a multiple series chart that displays data using different sized bars. Each series of data in a bar chart is given a different color to distinguish it from other series in the chart.

The Chart tab is used to specify which elements of the chart are displayed and which are hidden, how the data is presented, and the spacing between bars.



To set the visibility of the chart elements:

1. Select the chart object.
2. Do one of the following:

- To view all of the elements that make up the chart (axes, axis labels and plotted data), choose Axes, Data and Labels in the Visibility menu.

- To view the axes but hide the axis labels and plotted data, choose Axes in the Visibility menu.
- To view the plotted data but hide the axes and axis labels, choose Data in the Visibility menu.
- To view the axis labels but hide the axes and plotted data, choose Labels in the Visibility menu.
- To view the axes and axis labels but hide the plotted data, choose Axes and Labels in the Visibility menu.
- To view the axes and plotted data but hide the axis labels, choose Axes and Data in the Visibility menu.

To set the appearance of the chart:

1. Select the chart object.
2. Do one of the following:

- For a chart containing bars that appear next to each other, choose Side by Side in the Stack menu.
- For a chart with bars that are stacked one on top of another with their sizes proportional to their values, choose Stacked in the Stack menu.
- For a chart with bars stacked one on top of another with their sizes shown as a percentage of the total, choose Stacked 100% in the Stack menu.

3. Check the Horizontal Layout box to show the bars with a horizontal orientation.

To set the space between bars in the chart:

1. Select the chart object.
2. Do one of the following:

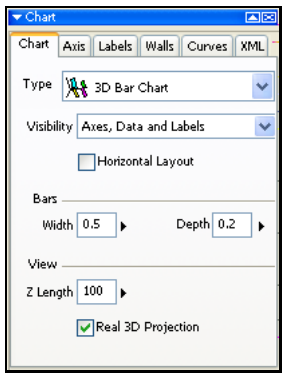
- Enter a new number in the Spacing value field.
- Click the Spacing slider and drag its thumb to the desired setting.

The Spacing determines the distance between each bar. Because the total width of the chart is fixed, increasing the spacing effectively reduces the width of each bar. A spacing value of 0 indicates that each bars is touching the adjacent bars.

3D bar charts

The 3D bar chart is a multiple series 3D chart that displays data using different sized bars. Unlike the standard bar chart, it also has a 3D depth. Each series of data in a 3D bar chart is given a different color to distinguish it from other series' in the chart.

The Chart tab is used to specify which elements of the chart are displayed and which are hidden, the width and depth of the bars, and the overall depth of the chart.



To set the visibility of the chart elements:

1. Select the chart object.
2. Do one of the following:

- To view all of the elements that make up the chart (axes, axis labels and plotted data), choose Axes, Data and Labels in the Visibility menu.
- To view the axes but hide the axis labels and plotted data, choose Axes in the Visibility menu.

- To view the plotted data but hide the axes and axis labels, choose Data in the Visibility menu.
- To view the axis labels but hide the axes and plotted data, choose Labels in the Visibility menu.
- To view the axes and axis labels but hide the plotted data, choose Axes and Labels in the Visibility menu.
- To view the axes and plotted data but hide the axis labels, choose Axes and Data in the Visibility menu.

To display the 3D bar chart with a horizontal orientation:

Check the Horizontal Layout box.

To set the width of the bars in the chart:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Width value field.
- Click the Width slider and drag its thumb to the desired setting.

Increasing the width reduces the space between bars in the same series (i.e. adjacent bars) and vice versa.

To set the depth of the bars in the chart:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Depth value field.
- Click the Depth slider and drag its thumb to the desired setting.

Increasing the depth reduces the space between each series of bars (i.e. bars drawn one in front of another) and vice versa.

The impact of changing the Depth may not be apparent unless the chart has been rotated in 3D. For more information on rotating 3D objects, see "3D Attributes" on page 87.

To set the depth of the chart itself:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Z Length value field.
- Click the Z Length slider and drag its thumb to the desired setting.

The Z Length sets the length of the z-plane. The smaller the value, the less deep the chart and vice versa.

The impact of changing the Z Length may not be apparent unless the chart has been rotated in 3D. For more information on rotating 3D objects, see "3D Attributes" on page 87.\

To allow the chart to be rotated in 3D:

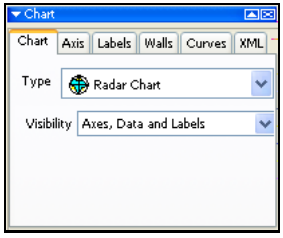
Check the Real 3D Projection box.

Real 3D Projection, when checked, results in a chart that can be rotated in all 3 dimensions. When not checked, the chart has a 3D appearance, but true 3D rotation is not possible.

Radar charts

The Radar Chart is a multiple series chart that maps data using different areas starting from a central point.

The radar chart inspector is used to specify which elements of the chart are displayed and which are hidden.



To set the visibility of the chart elements:

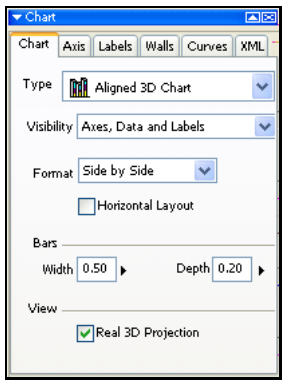
1. Select the chart object.
2. Do one of the following:

- To view all of the elements that make up the chart (axes, axis labels and plotted data), choose Axes, Data and Labels in the Visibility menu.
- To view the axes but hide the axis labels and plotted data, choose Axes in the Visibility menu.
- To view the plotted data but hide the axes and axis labels, choose Data in the Visibility menu.
- To view the axis labels but hide the axes and plotted data, choose Labels in the Visibility menu.
- To view the axes and axis labels but hide the plotted data, choose Axes and Labels in the Visibility menu.
- To view the axes and plotted data but hide the axis labels, choose Axes and Data in the Visibility menu.

Aligned 3D charts

The Aligned 3D Chart is a multiple series chart that looks 3D but all of the bars in the chart are in a 2 dimensional plane. Each series of data in an aligned 3D chart is given a different color to distinguish it from other series' in the chart.

The Chart tab is used to specify which elements of the chart are displayed and which are hidden, the width and depth of the bars, and whether the chart can be rotated in 3D or not.



To set the visibility of the chart elements:

1. Select the chart object.
2. Do one of the following:

- To view all of the elements that make up the chart (axes, axis labels and plotted data), choose Axes, Data and Labels in the Visibility menu.
- To view the axes but hide the axis labels and plotted data, choose Axes in the Visibility menu.
- To view the plotted data but hide the axes and axis labels, choose Data in the Visibility menu.
- To view the axis labels but hide the axes and plotted data, choose Labels in the Visibility menu.
- To view the axes and axis labels but hide the plotted data, choose Axes and Labels in the Visibility menu.

- To view the axes and plotted data but hide the axis labels, choose Axes and Data in the Visibility menu.

To set the appearance of the chart:

1. Select the chart object.
2. Do one of the following:

- For a chart containing bars that appear next to each other, choose Side by Side in the Format menu.
- For a chart with bars that are stacked one on top of another with their sizes proportional to their values, choose Stacked in the Format menu.
- For a chart with bars stacked one on top of another with their sizes shown as a percentage of the total, choose Stacked 100% in the Format menu.

3. Check the Horizontal Layout box to show the bars with a horizontal orientation.

To set the width of the bars in the chart:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Width value field.
- Click the Width slider and drag its thumb to the desired setting.

Increasing the width reduces the space between bars in the same series (i.e. adjacent bars) and vice versa.

To set the depth of the bars in the chart:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Depth value field.
- Click the Depth slider and drag its thumb to the desired setting.

The impact of changing the Depth may not be apparent unless the chart has been rotated in 3D. For more information on rotating 3D objects, see "3D Attributes" on page 87.

To allow the chart to be rotated in 3D:

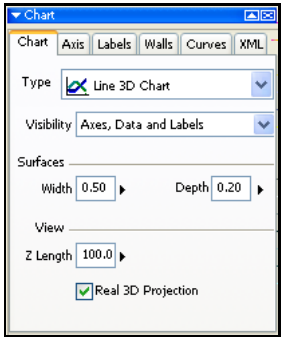
Check the Real 3D Projection box.

Real 3D Projection, when checked, results in a chart that can be rotated in all 3 dimensions. When not checked, the chart has a 3D appearance, but true 3D rotation is not possible.

Line 3D charts

The Line 3D Chart is a multiple series, 3D chart that is in essence an area chart where each area includes an added depth factor resulting in a 3D appearance.

The Chart tab is used to specify which elements of the chart are displayed and which are hidden, the depth of the curves, and the overall depth of the chart.



To set the visibility of the chart elements:

1. Select the chart object.
2. Do one of the following:

- To view all of the elements that make up the chart (axes, axis labels and plotted data), choose Axes, Data and Labels in the Visibility menu.

- To view the axes but hide the axis labels and plotted data, choose Axes in the Visibility menu.
- To view the plotted data but hide the axes and axis labels, choose Data in the Visibility menu.
- To view the axis labels but hide the axes and plotted data, choose Labels in the Visibility menu.
- To view the axes and axis labels but hide the plotted data, choose Axes and Labels in the Visibility menu.
- To view the axes and plotted data but hide the axis labels, choose Axes and Data in the Visibility menu.

To set the depth of the bars in the chart:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Depth value field.
- Click the Depth slider and drag its thumb to the desired setting.

Increasing the depth reduces the space between each area (drawn one in front of another) and vice versa.

The impact of changing the Depth may not be apparent unless the chart has been rotated in 3D. For more information on rotating 3D objects, see "3D Attributes" on page 87.

To set the depth of the chart itself:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Z Length value field.
- Click the Z Length slider and drag its thumb to the desired setting.

The Z Length sets the length of the z-plane. The smaller the value, the less deep the chart and vice versa.

The impact of changing the Z Length may not be apparent unless the chart has been rotated in 3D. For more information on rotating 3D objects, see "3D Attributes" on page 87.

To allow the chart to be rotated in 3D:

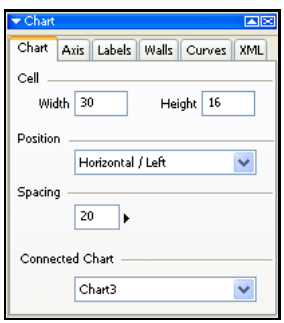
Check the Real 3D Projection box.

Real 3D Projection, when checked, results in a chart that can be rotated in all 3 dimensions. When not checked, the chart has a 3D appearance, but true 3D rotation is not possible.

Legends

A Legend is an object that associates the colors used in a chart with their labels. Objects created with the Legend tool and the three different Chart tools all make use of the Chart tab.

The Chart tab is used to specify which chart a legend is associated with, the dimensions of the color sample associated with each series in the chart, and the format of the legend.



Note: until you have associated a legend with a chart using the Connected Chart menu (see below), the legend object will be blank.

To set the dimensions of the color samples:

Do one of the following:

- To set the width of the color sample, enter a new number in the Width value field.
- To set the height of the color sample, enter a new number in the Height value field.

The colors shown in the sample correspond to the colors shown in the associated chart. These colors are specified in the Curves tab. For more information on using the Curves tab, see "The Curves tab" on page 105.

To change the font and font attributes for text displayed in a legend:

Use the Text tab. For more information on the Text tab, see "The Text tab" on page 82.

To set the layout of the legend:

Do one of the following:

- To display the items in the legend in a horizontal format that is left justified in the legend bounding box, choose Horizontal / Left in the Position menu.
- To display the items in the legend in a horizontal format that is centered in the legend bounding box, choose Horizontal / Center in the Position menu.
- To display the items in the legend in a horizontal format that is right justified in the legend bounding box, choose Horizontal / Right in the Position menu.
- To display the items in the legend in a vertical format that is aligned to the top of the legend bounding box, choose Vertical / Top in the Position menu.
- To display the items in the legend in a vertical format that is centered in the legend bounding box, choose Vertical / Center in the Position menu.
- To display the items in the legend in a vertical format that is aligned to the bottom of the legend bounding box, choose Vertical / Bottom in the Position menu.

To set the spacing of the items in the legend:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Spacing value field.
- Click the Spacing slider and drag its thumb to the desired setting.

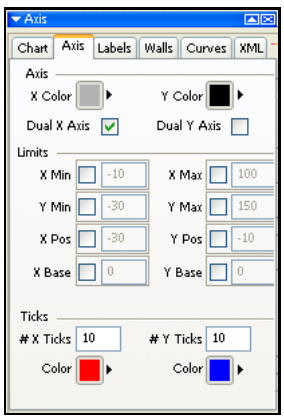
Spacing is shown in pixels.

To associate the legend with a chart:

Click the Connected Chart menu and select a chart from the popup menu.

The Axis tab

The Axis tab is used to specify various aspects of the axes shown for certain charts, including the axis colors, value ranges and number of ticks.



Several values set in the Axis tab including the number of ticks and the value ranges are used by the Labels tab

to determine how many and what labels to display. For more information on the specifying labels, see "The Labels tab" on page 103.

Not all charts require the same axis information, but many similarities exist in the types of axis information displayed. The information below is grouped by chart type. Charts within each group may contain only a subset of the information listed.

Single value charts

Single value charts can be customized in the Axis tab by setting the range of values displayed and the number of ticks shown in the chart.

To set the minimum or base value shown for a chart:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Min value field.
- Click the Min slider and drag its thumb to the desired setting.

To set the maximum or ceiling value shown for a chart:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Max value field.
- Click the Max slider and drag its thumb to the desired setting.

To set the number of tick marks displayed on a chart:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Number of Ticks value field.
- Click the Number of Ticks slider and drag its thumb to the desired setting.

Single series charts

Of the single series charts, only the simple bar chart has any axis information that can be set (pie charts to not have an axis).

To change the minimum value used for a chart:

1. Check the X Min box.
2. Enter a new number in the X Min value field.

To change the maximum value used for a chart:

1. Check the X Max box.
2. Enter a new number in the X Max value field.

Multiple series charts

Multiple series charts, having either 2 or 3 dimensions, all have a plethora of axis information that can be set. This information includes axis color settings, axis value ranges, and tick specifications.

Not all multiple series charts share exactly the same information, so not all descriptions provided below apply to every chart.

To set the X axis and Y axis colors:

1. Select the chart object.
2. Do one of the following:

- To set the color of the X axis, click on the X Color sample or the small triangle adjacent to it to open the Color dialog and choose a new color.
- To set the color of the Y axis, click on the Y Color sample or the small triangle adjacent to it to open the Color dialog and choose a new color.

For more information on using the Color dialog, see "Using the Color dialog" on page 68.

To display the X axis or Y axis on both sides of the chart:

1. Select the chart object.
2. Do one of the following:

- To display a second X axis on the opposite side of the chart, check the Dual X Axis box.
- To display a second Y axis on the opposite side of the chart, check the Dual Y Axis box.

To set custom minimum and maximum X and Y axis values:

1. Select the chart object.
2. Do one of the following:

- To set a custom X axis minimum value, check the X Min box and enter a number in the X Min value field.
- To set a custom X axis maximum value, check the X Max box and enter a number in the X Max value field.
- To set a custom Y axis minimum value, check the Y Min box and enter a number in the Y Min value field.
- To set a custom Y axis maximum value, check the Y Max box and enter a number in the Y Max value field.

Note: when the above boxes are not checked, the minimum and maximum values are calculated based on the data used to create the chart.

To set the point on each axis where it intersects the other axes:

1. Select the chart object.
2. Do one of the following:

- To set the point to be used as the origin for the X axis, check the X Pos box and enter the value in the adjacent X Pos value field.
- To set the point to be used as the origin for the Y axis, check the Y Pos box and enter the value in the adjacent Y Pos value field.
- To set the point to be used as the origin for the Z axis, check the Z Pos box and enter the value in the adjacent Z Pos value field.

To specify the number of ticks on the X and Y axes:

1. Select the chart object.
2. Do one of the following:

- To set the number of ticks on the X axis, enter a number in the # X Tics value field.
- To set the number of ticks on the Y axis, enter a number in the # Y Tics value field.

To set the color of the ticks on the X and Y axes:

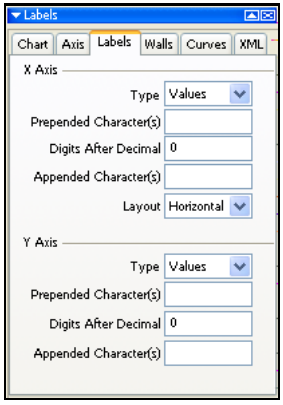
1. Select the chart object.
2. Do one of the following:

- To set the color of the ticks on the X axis, click on the Color sample below the # X Ticks value field or the small triangle adjacent to it to open the Color dialog and choose a new color.
- To set the color of the ticks on the Y axis, click on the Color sample below the # Y Ticks value field or the small triangle adjacent to it to open the Color dialog and choose a new color.

For more information on using the Color dialog, see "Using the Color dialog" on page 68.

The Labels tab

The Labels tab is used to set the labels that appear along each axis or adjacent to the curves in a chart.



The contents of the Labels tab vary slightly depending on the type of chart selected. In general, the more complex the chart, the more label options there are available.

The location and function of the labels themselves also differ by chart type:

- For single value charts, the labels are associated with the background of the speedometer or linear meter.
- For single series charts, a label is associated with each item in the series.
- For multiple series charts, the labels are associated with one of the variables such as the x-coordinate or y-coordinate.

The Labels tab works very closely with the Axis tab and the Curves tab. In particular, the Number of Ticks specified in the Axis tab determines the number of labels shown, and the Name specified in the Curves tab is shown when the label type is set to Labels. For more information on setting the number of ticks, see "The Axis tab" on page 100. For more information on setting curve names, see "The Curves tab" on page 105.

Similarly, the font and related information displayed by the labels is set in the Text tab. For more information on setting font information, see "The Text tab" on page 82.

All of the possible Labels tab options are described below, though not all apply in every situation.

To set the type of label shown for a chart:

1. Select the chart object.
2. In the Type menu, select one of the following:

- To hide all labels, select None.
- To display the name of each curve as specified in the Curves tab, select Labels.
- To display the values used in plotting the curves, select Values.

To prepend one or more characters to a value label:

1. Select the chart object.
2. Enter the characters into the Prepended Characters text field (i.e. "$").

The Prepended Characters field is only enabled when the label Type is set to Values.

To set the number of digits that appear in every value label:

1. Select the chart object.
2. Enter a number into the Digits After Decimal value field.

The Digits After Decimal field is only enabled when the label Type is set to Values.

To Append one or more characters to a label:

1. Select the chart object.

2. Enter the characters into the Appended Characters text field (i.e. “kg”).

The Appended Characters field is only enabled when the label Type is set to Values.

To specify where the labels should appear in a simple bar chart:

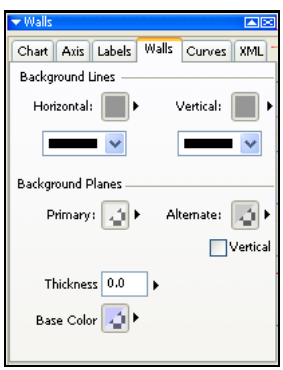
1. Select the chart object.
2. In the Layout menu, select one of the following:

- For labels that appear above the bars in the chart, select Top in the Layout menu.
- For labels that appear inside the bars in the chart, select Inside in the Layout menu.
- For labels that appear below the bars in the chart, select Bottom in the Layout menu.

The Layout menu is only enabled when Type is set to Values.

The Walls tab

The Walls tab is used to set the look of the planes extending along each axis for multiple series charts (single value and single series charts have no walls).



Walls can be used to clarify the values displayed in a chart or even jazz up the look of a chart by incorporating interesting gradients and patterns into the chart. By default, no walls are displayed.

The contents of the Walls tab vary slightly depending on the type of chart selected. All of the possible options are described below, though not all apply in every situation.

To display the horizontal and vertical background lines for a chart:

1. Select the chart object.
2. Do one of the following:

- To show the horizontal background lines, check the Horiz box.
- To show the vertical background lines, check the Vert box.

The number of horizontal and vertical background lines is determined by the number of ticks as specified in the Axis tab. For more information on setting the number of ticks, see “The Axis tab” on page 100.

To set the color of the horizontal and vertical background lines for a chart:

1. Select the chart object.
2. Do one of the following:

- To set the color of the horizontal background lines, click on the Horiz color sample or the small triangle adjacent to it to open the Color dialog and choose a new color.
- To set the color of the vertical background lines, click on the Vert color sample or the small triangle adjacent to it to open the Color dialog and choose a new color.

The color of the background lines can only be changed when their adjacent boxes have been checked.

To set the dash pattern for the horizontal and vertical background lines for a chart:

1. Select the chart object.
2. Do one of the following:

- To set the dash pattern for horizontal background lines, choose a pattern from the Horiz menu.
- To set the dash pattern for vertical background lines, choose a pattern from the Vert menu.

The pattern of the background lines can only be changed when their associated boxes have been checked.

To display background planes for a chart:

1. Select the chart object.
2. Do one of the following:

- To show the background planes, check the Primary box.
- To show the rear background plane with an alternating pattern, check the Alt box.

To set the color of the primary and alternating background planes for a chart:

1. Select the chart object.
2. Do one of the following:

- To set the color of the primary background planes, click on the Primary color sample or the small triangle adjacent to it to open the Color dialog and choose a new color.
- To set the color of the alternating background plane, click on the Alt color sample or the small triangle adjacent to it to open the Color dialog and choose a new color.

The color of the background planes can only be changed when their adjacent boxes have been checked. Besides solid colors, you can also assign gradients and patterns to the background in the color dialog.

To set the rear background plane to have a vertical orientation:

1. Select the chart object.
2. Check the Vertical box below the Alt box.

The orientation of the alternating background plane can only be changed when the Alt box is checked.

To set the depth of the background planes on a chart:

1. Select the chart object.
2. Do one of the following:

- Enter a new number in the Thickness value field.
- Click the Thickness slider and drag its thumb to the desired setting.

To set the color of the bottom plane of a chart:

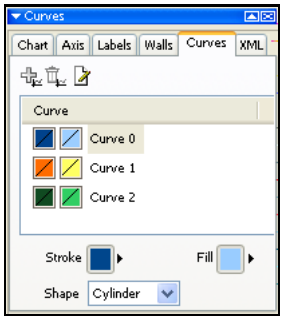
1. Select the chart object.
2. Do one of the following:

- Click on the Base Color sample to it to open the Color dialog and choose a new color.
- Click on the small triangle adjacent to the Base Color sample to it to open the Color dialog and choose a new color.

The Curves tab

The Curves tab is used to set the look of the lines, curves, bars and areas used to display chart data. Using the Curves tab, you can change the colors and

appearance of the data in your charts, and in certain cases, highlight particular information.



The word "curve" has a different meaning for each type of chart.

- For single value charts, a "curve" is a single background wedge or bar.
- For single series charts, a curve is a single wedge in the pie or a bar in the chart.
- For multiple series charts, a curve is one data series.

The contents of the Curves tab varies slightly depending on the type of chart selected. All of the possible options are described below, though not all apply in every situation.

To add a curve to a chart:

1. Select the chart object.
2. Click the Add Curve button.

To delete a curve from a chart:

1. Select the chart object.
2. Select the curve in the Curves list.
3. Click the Delete Curve button.

To rename a curve in a chart:

1. Select the chart object.
2. Select the curve in the Curves list.
3. Do one of the following:

- Click the Rename Curve button and type a new curve name into the text edit field that appears.
- Click on the curve name and type a new curve name into the text edit field that appears.

The name associated with a curve is shown when the Type field in the Labels tab is set to Labels. For more information on setting label types, see "The Labels tab" on page 103.

To change the stroke or fill color for a curve in a chart:

1. Select the chart object.
2. Select the curve in the Curves list.
3. Do one of the following:

- To change the stroke color, click the Stroke color sample or the small triangle adjacent to it to open the Color dialog and choose a new color.
- To change the fill color, click the Fill color sample or the small triangle adjacent to it to open the Color dialog and choose a new color.

To change the size of a curve in a single value chart:

1. Select the chart object.
2. Select the curve in the Curves list.
3. Do one of the following:

- Enter a new number in the Value field.
- Click the Value slider and drag its thumb to the desired setting.

The relative size of each curve is determined by dividing each value into the total of all values.

To separate a wedge in a pie chart from the other wedges:

1. Select the chart object.
2. Select the curve in the Curves list.
3. Do one of the following:

- Enter a new number in the Breakup field.
- Click the Breakup slider and drag its thumb to the desired setting.

The breakup field is used to position a single pie wedge away from the others. To add a uniform amount of space between all wedges, use the Separation field in the Chart tab. For more information on setting the separation between wedges, see "Pie charts" on page 91.

To change the shape of a curve in any bar chart:

1. Select the chart object.
2. Select the curve in the Curves list.
3. Select a shape from the Shape menu.

To change the width of a curve in a line chart:

1. Select the chart object.
2. Select the curve in the Curves list.
3. Do one of the following:

- Enter a new number in the Width field.
- Click the Width slider and drag its thumb to the desired setting.

To change the shape and size of the markers in a line chart:

1. Select the chart object.
2. Select the curve in the Curves list.
3. Select a marker type in the Markers menu. The default is not to show any markers.
4. Set the market size by doing one of the following:

- Enter a new number in the Marker value field.
- Click the Marker value slider and drag its thumb to the desired setting.

Components and XML

Two subsystems in Mobile Designer, components and XML data mapping, have tabs in the inspector panels but are so powerful that they merit their separate chapters in this reference guide.

Components - buttons, menu buttons, animation clips, navigation bars and books - are controlled primarily through the Component tab, with related memory and time saving features available through the Catalog and Sharing tabs. Components are described in "Components" on page 140.

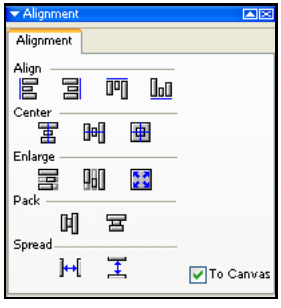
XML data mapping, that is the mapping of external XML data to objects in Mobile Designer, is orchestrated through the XML tab. XML data mapping is described in "Associating XML data with objects" on page 177.

Chapter 7: Aligning Objects

Creating clean looking content is made easier using tools that allow you to precisely align and format the objects in your movie. These tools, which include the Alignment tab, rulers, grid and guides, provide formatting control over everything from a couple of objects to your entire movie.

Aligning objects with each other

The Alignment tab provides numerous options for aligning and formatting objects relative to each other or to the canvas itself.



Each group of alignment options is described below.

Note: the bounding box for each object is actually what is used when aligning objects. Some objects such as paragraph text don't always occupy their entire bounding box and may therefore appear not to align properly.

Aligning object edges

The buttons in the Align group position the selected objects along their left, right, top and bottom edges, respectively.

If you visualize an imaginary rectangle encompassing all of the selected objects, the effect of clicking one of the align buttons is to align all of the objects on the indicated edge of this rectangle. The one exception to this is when the To Canvas box is checked. In this case, the objects are aligned on the indicated edge of the canvas.

Aligning object centers

The buttons in the Center group position the selected objects such that their vertical, horizontal, and both vertical and horizontal centers are aligned, respectively.

If you visualize an imaginary rectangle encompassing all of the selected objects, the effect of clicking one of the center buttons is to center all of the objects as indicated within the rectangle. The one exception to this is when the To Canvas box is checked. In this case, the objects are centered as indicated on the canvas.

Enlarging objects

The buttons in the Enlarge group resize the selected objects such that each has the same width, height or dimensions, respectively.

If you visualize an imaginary rectangle encompassing all of the selected objects, the effect of clicking one of the enlarge buttons is to resize all of the objects in the

indicated dimension to match that of the imaginary rectangle. The one exception to this is when the To Canvas box is checked. In this case, the objects are resized to match the indicated dimension of the canvas.

Packing objects together

The buttons in the Pack group position the selected objects such that the objects are placed as close together as possible without overlapping each other in the horizontal and vertical directions, respectively.

When using the pack buttons, only one dimension is modified at a time. For example, when packing objects horizontally, their vertical spacing remains unchanged.

The To Canvas box has no effect when using the pack buttons.

Distributing objects evenly

The buttons in the Spread group position the selected objects such that the horizontal or vertical center (not the rotation center) of each object is equidistant from the other selected objects.

The topmost and bottommost (vertical distribution) or leftmost and rightmost (horizontal distribution) objects determine the end points and are not moved. Thus, for the spread buttons to have any effect, three or more objects must be selected.

The To Canvas box has no effect when using the spread buttons.

Using the Alignment tab

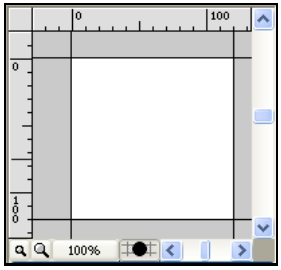
The steps for aligning and formatting objects using the Alignment tab are identical no matter which alignment option you choose.

To align objects:

1. Select the objects you wish to align or format.
2. (Optional) Check the To Canvas box if you want the canvas to be treated like an object in the alignment process.
3. Click one of the alignment buttons.

Using Rulers

Rulers provide you with feedback regarding distances, in pixels, in the document window. When shown, they are displayed along the left and top edges of the window.



Usually, rulers are used in conjunction with either the grid or guides. See “Using the Grid” on page 113 for more information on the grid, and “Using Guides” on page 113 for more information on guides.

By default, the (0,0) point on the ruler corresponds to the upper left hand corner of the canvas. The grid is drawn starting at this origin point.

To show or hide the rulers:

Choose View > Show Rulers.

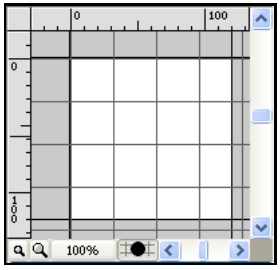
To change the origin of the ruler:

1. Position the mouse pointer over the rulers where they intersect in the upper left corner of the document window.
2. Do one of the following:

- Click and drag the mouse pointer to the position where you want the new origin to be.
- Click and release to restore the origin to the top left corner of the canvas.

Using the Grid

The grid is an evenly spaced series of horizontal and vertical lines that overlay the canvas. It can be used to evenly space and align objects, or when drawing it can be used to add a greater degree of precision to your shapes. When turned on, it is visible for all scenes in the movie.



You have numerous options when using the grid, including showing and hiding the grid, separately defining the distance between the horizontal and vertical grid lines, setting the color of the grid, specifying that objects should snap to the grid, and setting the origin of the grid.

To show or hide the grid:

Choose View > Show Grid.

To set the distance between grid lines and the color of the grid lines:

1. Choose View > Set Grid Options.
2. Set the grid options:
   - To set the distance between the horizontal grid lines, change the number in the Horizontal text field.
   - To set the distance between the vertical grid lines, change the number in the Vertical text field.
   - To set the color of the grid lines, click on the color sample and choose a new color in the Color dialog. For more information on using the Color dialog, see “Selecting and storing solid colors” on page 68.

To snap objects to the grid:

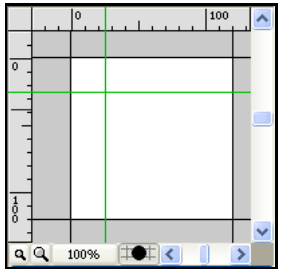
Choose View > Snap to Grid. A check mark appears next to the Snap to Grid menu item when snap to grid is active.

To change the location of the origin of the grid:

Drag the mouse pointer from the intersection of the two rulers to establish a new grid origin. See “Using Rulers” on page 112 for more information.

Using Guides

Guides are horizontal or vertical lines that you manually position on your canvas. They are valuable for positioning objects in exactly the same location across multiple scenes and book pages as well as within a given scene.



You have several options when using guides, including creating and deleting guides, showing and hiding guides, specifying that objects should snap to the guides, and locking the guides. You can use as many guides as you wish in your movie.

To create a guide:

1. Choose View > Show Rulers (if the rulers are not already visible).
2. Do one of the following:

- Position the mouse over the vertical ruler, click and drag into the document window to create a vertical guide.
- Position the mouse over the horizontal ruler, click and drag into the document window to create a horizontal guide.

✻ *The Info tab provides information on the current (x,y) mouse coordinates. You can use this information to precisely position a guide at a specific pixel location.*

To lock the guides in place:

Choose View > Lock Guides. A check mark appears next to the Lock Guides menu item when guides are locked.

To move or delete a guide:

1. Choose View > Lock Guides (if the guides are locked).
2. Do one of the following:

- To move a guide, click and drag it to a new location in the document window.
- To delete a guide, click and drag it outside the bounds of the document window.

To show or hide the guides:

Choose View > Show Guides.

To snap objects to the guides:

Choose View > Snap to Guides. A check mark appears next to the Snap to Guides menu item when snap to guides is active.

Chapter 8: Animation Methods and Techniques

Mobile Designer provides tremendous flexibility when it comes to animation. Virtually every attribute of an object can be animated, often in multiple ways. This chapter provides an overview of the animation methods and techniques available to you in Mobile Designer.

General principles

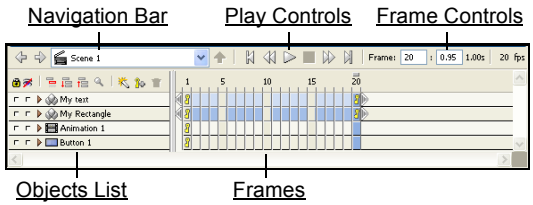
Animation is simply a change in an object over time. Often this means movement (translation) from one spot on your canvas to another, but not always. Animation can also involve color changes, opacity changes, size changes, and so on.

You can animate virtually any object in Mobile Designer. For example, primitives, components and groups can be animated in scenes. Similarly, animation clips and buttons can be built using animated primitives. In fact, because primitives can be animated in components and components can be animated it scenes, it is easy to get multiple levels of animation going, each of which might be operating on a different timeline.

The Animation panel

The Animation panel is the centralized control area for animation. The contents of the Animation panel vary depending on what you are working on. When working on a scene, the Animation panel displays all of the objects in that scene, but not objects in other scenes. When working in a component designer, the Animation panel displays only those objects that make up the current component.

A complete description of the Animation panel is provided in "The Animation panel" on page 28. However, the most commonly used portions of the panel are reviewed here.



The Navigation bar

The Navigation bar is used to select the different scenes and components in your movie. When you select a scene in the nav bar, the objects in that scene are displayed on the canvas and in the objects list (see below).

The play controls

The play controls are used to preview the current animation. The play controls work just like the controls on a VCR.

The frame controls

The frame controls provide you with feedback on where you are in the current animation both frame-

wise and time-wise. The Total field is used to change the number of frames in the current animation.

The objects list

The objects list displays all of the objects in the current scene or component. You can reorder the objects in the list by dragging them. You can also show and hide the properties that make up each object.

The frames

The grid that occupies the majority of the Animation panel displays all of the frames in your animation. You select a particular frame by clicking on its frame number. The current frame is highlighted and a bar appears above the frame number.

Animating Objects

The process by which you create an animation is the same no matter what you are animating. The basic steps are as follows:

1. Select the frame number in the Animation panel where you want the animation to begin.
2. Establish the look of the object you wish to animate. Mobile Designer records the position, colors, size and other attributes of your object in the starting frame.
3. Select the frame number in the Animation panel where you want the animation to end.
4. Change the attributes of your object until the object appears as you want it to at the end of the animation. Mobile Designer records those attributes that have changed in the ending frame.

The frames in which you change the attributes of an object are called "key frames." Visually, a small key icon appears in the animation for every object and object property that has been changed.

Because Mobile Designer only records properties where you set them, you are free to modify the attributes in the first or last frames without any concern for changing your animation in the in-between frames. When you play your animation, these in between frames will be computed to produce as smooth an animation as possible. This process is called "tweening."

The real time computation of in between frames is the reason that animations played from the Animation panel may not run as fast as in the final exported movie.

Animating between points

The most common form of animation takes place between two points. In most cases, this simply means that an object is moving from one point on (or off) your canvas to another. However, it can also mean that, for instance, the color or opacity of the object is changing over time. Whether there is physical movement or not, animating between points is the simplest application of the general animation process described above.

Common attributes that are frequently animated between points include:

- Position or Translation
- Opacity
- Size or Scaling
- Stroke Color
- Fill Color

For example, to animate a text object to translate across the canvas between frames 1 and 10, you would do the following:

1. Select frame 1 in the Animation panel.
2. Type in some text.
3. Position the text on one side of your canvas.
4. Select frame 10.
5. Reposition the text on the other side of the canvas.

That all there is to it. Click the Play button in the Animation panel to view the 10 frame animation (you may need to rewind the animation before playing it).

You could further animate the text to translate to the top of the canvas between frames 10 and 20 by selecting frame 20 and repositioning the text again. If you did this, the text would move across the canvas for the first half of the animation, then up to the top of the canvas in the second half of the animation. By stringing together multiple animations between points as described here, objects can take on more complex paths.

Of course, you are not restricted to animating just one attribute of an object at a time. If you wish, you could also have the text change color and size as it animates, too.

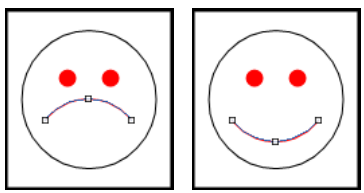
Animating curves

Both Bezier curves and polylines can have their points individually animated. When used alone, this technique makes the object appear to change or "morph" its shape over time. When used in combination with other techniques (see "Animating text to move along a curve" on page 121 for one example), the results can be even more impressive.

To animate one or more points on a curve, first create the curve in the starting frame. Then select the ending frame, double-click on the curve to enter edit mode (or press Enter), and click and drag any of the points. Those points that you move between the starting and ending frames will be animated.

For example, to create a sad face that morphs into a happy face between frames 1 and 25, do the following:

1. Select frame 1.
2. Create a sad face. Be sure to use the Bezier tool when drawing the frown.
3. Select frame 25.
4. Double-click on the Bezier (mouth) object to enter edit mode.
5. Drag one or more of the points to change the frown to a smile.
6. Deselect the Bezier object and press Play.



Frame 1 Frame 25

Because multiple points can be animated in any Bezier or polyline object, much more complex changes can be created with just a few clicks of your mouse.

Animating text to move along a curve

Text not only can be placed on a curve, it can also be animated to slide along a curve. The impact of this can be far more eye catching that simply having text move

along a straight line or fade in by gradually changing its opacity from 0 to 100.

For example, to have a product tag line slide in over a company name or logo between frames 15 and 30 in an animation as shown above, you would do the following:

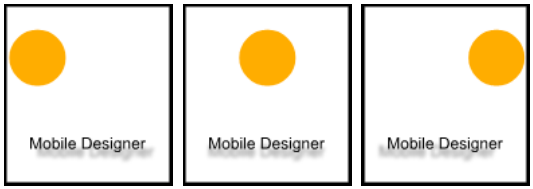
1. Select frame 15.
2. Import and position your company logo.
3. Draw an ellipse around the logo. This will become the path the text follows.
4. Type text on the ellipse. This is done by clicking on the ellipse with the Text on Curve tool and typing in the tag line.
5. Double-click on the text to enter text edit mode, then press the Alt key and drag the text to its starting position.
6. Select frame 30.
7. Repeat step 5 above, this time dragging the text to its ending position.
8. Deselect the text and click Play.

Text can be placed upon and slide along the following objects:

- Beziers
- Lines
- Polylines
- Rectangles
- Rounded rectangles
- Ellipses

Animating filters and effects

Filters and special effects are treated like any other property when it comes to animation. You can have one or more filters that animate during an animation, creating virtually endless combinations of looks that become clear or drift away throughout the course of an animation. Likewise, special effects can be animated to create growing shadows or shrinking glows.



For example, to have the sun pass over a text object and cast a shadow that animates in coordination with the movement of the sun, do the following:

1. Create and animate an orange ellipse (the sun) that follows a path across the top of your movie. For a primer on how to do this, see “Animating between points” on page 120.
2. Add and position some text beneath the sun.
3. In the first frame of the animation, add an Outer Shadow to the text that appears opposite the ellipse using the Offset X and Offset Y values in the Outer Shadow dialog. For more information on working with effects, see “The Effects tab” on page 80.
4. In the middle frame of the animation when the ellipse is directly above the text, edit the outer shadow created in the previous step by changing the Offset X and Offset Y values so the shadow goes straight down.

5. In the last frame of the animation, edit the outer shadow again such that the shadow is cast away from the ellipse. When you play the animation, the shadow will change in each frame as the sun passes overhead.

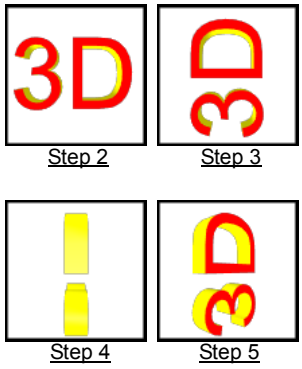
Filters are animated in exactly the same way. For example, you can animate the amplitude, phase, and orientation properties of a wave filter that has been applied to an object.

Certain filters produce more striking results than others when animated. Some of the most popular filters to animate include blur, rotate zoom, vortex, and wave. For more information on working with Filters, see "The Filters tab" on page 80.

Animating 3D objects

When rotating 3D objects, you may get unexpected results if you rotate different axes in different frames. The following example illustrates the potential problem. (There is no need to repeat these steps yourself).

1. Create a 7 frame animation.
2. In frame 1, use the 3D Text tool and type "3D." By default, its Rx, Ry and Rz rotation values are all set to 0 in the 3D tab. For more information on using the 3D tab, see "3D Attributes" on page 87.
3. In frame 4, set the Rz value to 90. The text now appears rotated 90 degrees counterclockwise.
4. In frame 7, set the Ry value to 90. The text is now head on and barely visible.
5. Return to frame 4. Notice that the text now appears at an entirely different angle than it did in step 3.



Why did this happen? The Rz value is being animated between frames 1 and 4, while the Ry value is being animated between frames 1 and 7. Thus, after the last step, frame 4 has the Ry rotation as 45, halfway to its final value of 90.

If you wanted the text to rotate to the position seen in step 3, then to the position in step 4, you would need to manually add a key for the Ry property in frame 4. Manually adding keys is discussed in "Property manipulation" on page 127.

The different levels of animation

One of the strengths of Mobile Designer is the very fine level of control that you have when creating and manipulating objects. While most creative and even detailed work usually takes place on the canvas at the object level as described in the previous section, there may be times when it becomes necessary to make more refined changes or more global changes to your animation.

Through the Animation panel and the Animation menu, you have control at the frame level (i.e. multiple frames are manipulated at once), the object level, and the property level. At all of these levels, the basic premise is the same. You are adding, deleting or moving keys to change the behavior of your animation.

Each level of manipulation has specific uses, as explained below.

Frame level manipulation

Frame or animation level manipulation is generally used to increase or decrease the overall length of a portion or all of an animation. For example, if part of your animation is a little too "jumpy," one possible solution is to add frames between the two key frames that define the jumpy region. Similarly, you may find that the export size of your animation is too large. In this case, the best alternative may be to delete frames from your animation.

Manually adding and deleting frames

Besides modifying the Total frames field which adds or removes frames from the end of an animation, you can also manually add frames and delete frames from the middle of an animation.

To manually insert a frame into an animation:

1. Select the frame where you want to add a frame to your animation.
2. Choose Animation > Insert Frame from the main menu.

The frame you add is placed before the selected frame.

To manually delete one or more frames from an animation:

1. Do one of the following:

- To select one frame, click on it.
- To select multiple frames, click on the first frame, then press Shift and click on the last frame in the range you want to delete.

2. Choose Animation > Delete Frames in the main menu.

Using the Animation Wizard

For more extensive changes to part or all of an animation, the easiest solution is to use the Animation Wizard. The Animation Wizard is a powerful built-in tool for adding and deleting frames as well as resizing the overall length of an animation.

To resize the overall length of an animation:

1. Click on the Animation Wizard button to open the Animation Wizard.
2. Select the Resize Animation Length radio button.
3. Click the Next button.
4. Type the number of frames you wish to have in your animation in the To section (the From section shows your current animation length).
5. Select one of the following radio buttons to determine how overlapping keys are handled (applies to animations that are reduced in length):

- Compute average length determines the averages for properties (i.e. fill color) that must be merged due to resizing the animation.

- Use minimum value uses the smallest value for properties that must be merged due to resizing the animation.
- Use maximum value uses the largest value for properties that must be merged due to resizing the animation.

6. Press the Finish button.

To insert frames into an animation:

1. Click on the Animation Wizard button to open the Animation Wizard.
2. Select the Insert Frames radio button.
3. Click the Next button.
4. In the Parameters section, do the following:

- Type in the number frames that you wish to insert in the first value field.
- Select where you wish to insert the frames in the drop down menu.
- Type in the number of where you want to insert the new frames in the second value field.

5. Press the Finish button.

To delete frames from an animation:

1. Click on the Animation Wizard button to open the Animation Wizard.
2. Select the Delete Frames radio button.
3. Click the Next button.
4. In the Parameters section, type in the frames that you wish to delete.
5. Press the Finish button.

Adding keys to a frame

The last frame manipulation option available is to add keys to every property in every object in the selected frame. This is useful if you needed to guarantee that every element in your animation looks exactly as it does at that moment no matter what other changes you make in other frames.

To add keys to all of the objects in one or more frames:

1. Do one of the following:

- To select one frame, click on it.
- To select multiple frames, click on the first frame, then press Shift and click on the last frame in the range.

2. Choose Animation > Add Keys to Frames in the main menu.

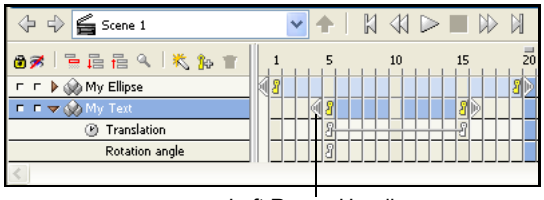
Object level manipulation

Object level manipulation allows you to operate on individual objects in ways that parallel how you use frame level manipulation to operation on an entire animation. Using object level manipulation you can resize and move the animation of an object, add keys to every property of an object, and move all of the keys for an object from one frame to another.

Resizing the animation of an object

Animation is a change in an object's appearance over time. In the Animation panel, animated objects have keys on each of their keyframes, and animation range handles before the first object key and after the last object key. The animation range handles provide not only a visual indicator of the total length or range of the

animation, but also a way to resize the animation for the object.



To resize an object's animation:

Do one of the following:

- To resize an object's animation starting from the first animated frame, click on the left range handle and drag it to a new frame.
- To resize an object's animation starting from the last animated frame, click on the right range handle and drag it to a new frame.

Mobile Designer automatically adjusts any keys to keep the animation events proportional to the original animation.

For example, if you have an object whose opacity changes from 0 to 100 and back to 0 in frames 1, 5 and 9, respectively, and you realize that the object would look better animating over 15 frames, you can drag the right animation range handle from frame 9 to frame 15. The intermediate key in frame 5 is automatically moved to frame 8 in order to keep the animation even.

Moving the animation of an object

You can change the frame at which an animation starts without impacting the running time for the animation or the relative key placement. This is valuable when you realize that one object's animation doesn't look right in relation to other animated objects.

To shift an object so its animations starts in a different frame:

Click between any of the keys (but not on a key) for the object in the Animation panel and drag the animation to a new starting frame.

Adding keys to an object

An alternative to adding keys to every object in a particular frame is to only record the properties of a single object. This limits the impact of adding keys to only the specified object and therefore does not risk locking in the look of other tweened objects that you may want to change later.

To add keys to an object in a particular frame:

Right-click at the intersection of the object and frame number where you want to add the keys and choose Fix Object Properties from the popup menu.

Moving all of the keys for an object

At some point, you may realize that the object properties you carefully set in one frame would be much better in a different frame. Instead of deleting the keys in the current frame and recreating everything in a different frame, it is much easier to simply move the frames.

To move all of an object's keys from one frame to another:

Click at the intersection of the object name and the current keyframe and drag the key to the desired frame.

When you click on the object key, it turns red to indicate that it is selected (as will all of the property keys for the object if they are visible.

Property manipulation

Property manipulation provides the finest level of control over objects in your animation. By manipulating individual object properties you can change how individual aspects of a given object appear and animate.

Every object has a specific set of properties - those attributes that when taken together determine the look of the object. Some common properties include translation, rotation angle, scaling, opacity, stroke color and fill color.

Property manipulation is primarily used to fine tune the look and feel of an animation. This is usually accomplished by moving individual property keys from one frame to another or adding and deleting individual property keys.

Displaying property keys

Because every object has numerous property keys, in the interest of saving space they are hidden by default in the Animation panel. They are always available if you need them though.

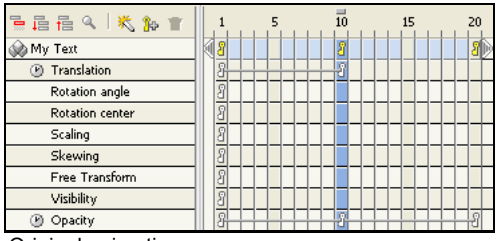
To display the property keys for an object:

Click the Show/Hide Properties button in the Animation panel object list.

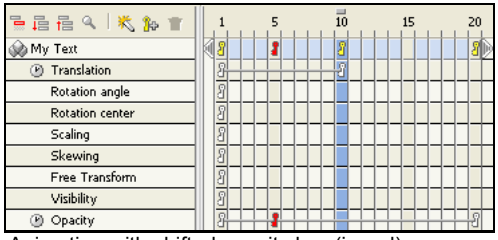
Moving property keys

You can move individual property keys just like you can move object keys. However, when you move individual property keys, only the indicated property is changed; the other properties in the object are not impacted.

For example, you may have an existing animation consisting of some text which moves (the translation property) from the top of the canvas to the bottom over the first 10 frames, then fades away (the opacity property) from frame 10 to frame 20. If you want to overlap the fade with the movement, you can simply drag the opacity key from frame 10 to an earlier frame.



Original animation



Animation with shifted opacity key (in red)

The same principle applies for any property that you want to manipulate.

To move a property key:

1. Select an object in the Animation panel and display its property keys.
2. Click on the key at the intersection of the property name and the frame you wish to move and drag the key to the desired frame.

When you click on a property key, it will turn red to indicate that it is selected

Creating and deleting property keys

You can both add and delete individual property keys to either record the state of a property in the current frame or remove a property that was previously recorded either manually or automatically.

For example, during the design of an animation you might decide you want to lock in a particular fill color for an object in frame 10. To do this you add a key to the fill color property of the object in frame 10. Later, you decide that the tweening doesn't look right with this property key in place and you decide to eliminate it. To do this, you delete the fill color property key in frame 10.

To add a property key:

1. Select an object in the Animation panel and display its property keys.
2. Click the Add Key button in the Animation panel.
3. Do one of the following:

- To add a single property key, click at the intersection of the property and frame number in the Animation panel.
- To add multiple property keys, press the Shift key and click at the intersection of the property and frame number in the Animation panel for every property you wish to enter.

To delete a property key:

1. Select an object in the Animation panel and display its property keys.
2. Click on the property you wish to delete.
3. Press the Delete button in the animation panel.

Note: because every property for every object must have at least one key, attempting to delete the last remaining key for a given property will fail with an error message.

Non-linear animation

Translated objects, when selected, display a blue line showing the path of the object. On that blue line, little dots (the reference points) show where the object will be drawn in each frame.

By default, when Mobile Designer tweens an attribute, the attribute changes are computed to produce an even (linear) change across those frames. This is most evident when viewing translations.

There are times, however, when a non-linear change is desired. A classic example of this is when you are trying to include an acceleration such as gravity in your animation. Because such calculations can be complex when done by hand, Mobile Designer includes a built-in Tweening Wizard to automate this and other similar effects.

The Tweening Wizard

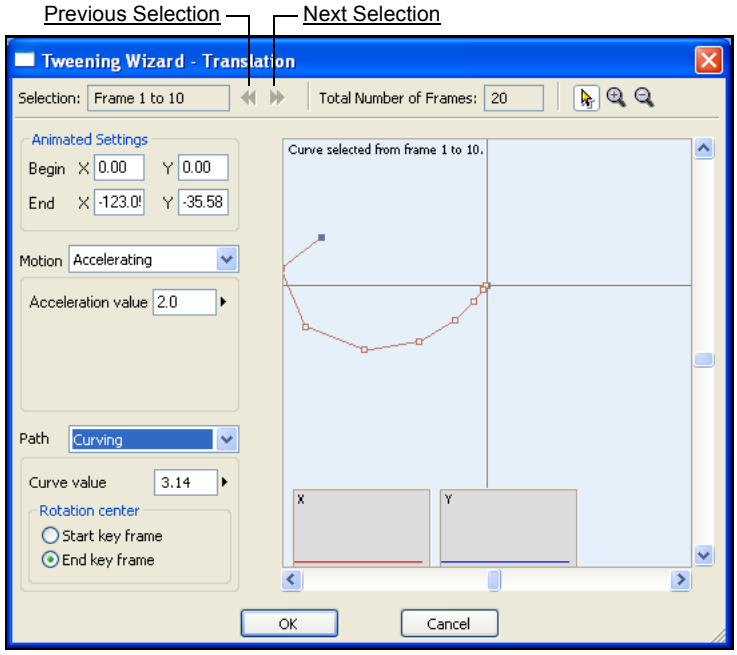
The Tweening Wizard is a powerful computational engine that makes it easy to add complex motion to your animated objects. Using the Tweening Wizard, you can change both the motion (i.e. linear vs. acceleration) and the path (i.e. straight line vs. curve) that the object follows.

To open the Tweening Wizard:

Click the Tweening Wizard button or the adjacent property name for any animated property in the Animation panel.

The Tweening Wizard dialog

The Tweening Wizard dialog includes mechanisms for selecting different animation segments, and for each segment, changing the animation settings, the motion and the path of the selected property.



To change the current animation segment of a property in the Tweening Wizard:

1. Open the Tweening Wizard for the property.
2. Do one of the following:

- To switch to the previous animation segment, click the Previous Selection button.
- To switch to the next animation segment, click the Next Selection button.

A property with *N* keys will have *N-1* animation segments. For example, if a rectangle translates to the top of the canvas in frames 1-5 (one animation segment), then translates to the bottom of the canvas in frames 5-12 (another animation segment), there will be keys in frames 1, 5 and 12.

To change the animation settings for an object property:

1. Open the Tweening Wizard for the property and select the desired animation segment.
2. Edit the contents of the Animated Settings section.

The animation settings vary by property type. If you are animating fill color, for example, the animation settings section will contain editable color samples for the beginning and ending colors for the current animation segment. If you are animating translation, the animation settings section contains the starting and ending coordinates for the current animation segment.

To change the motion of an object property:

1. Open the Tweening Wizard for the property and select the desired animation segment.

2. Choose one of the following from the Motion menu:

- Constant, the default, results in a linear motion (i.e. equidistant spacing) between the beginning and ending points in the animation segment.
- Accelerating results in either an increasing or decreasing motion between frames in the animation segment. The precise acceleration is controlled through the Acceleration value field. Positive values produce accelerations and negative values decelerations.
- Oscillating results in a motion that "bounces" back and forth between the beginning and ending points in the animation segment. The precise oscillation is controlled by setting the Period count, Attenuation and Amplitude value fields.
- Overshoot results in a motion that "bounces" around the ending point in the animation segment. The precise overshoot is controlled by setting the Period count, Attenuation, Amplitude and Speed value fields.

To change the path of an object property:

1. Open the Tweening Wizard for the property and select the desired animation segment.
2. Choose one of the following from the Path menu:

- Linear, the default, results in a linear path (i.e. straight line) between the beginning and ending points in the animation segment.
- Curving results in a path that takes on a rotation in a spiral shape. The precise path is determined by the Curve value and whether you designate the starting or ending key frame as the rotation center.
- Wave results in a path that follows a sine wave pattern. The precise path is determined by the Period count, Attenuation and Amplitude, and whether you start the path in an upward or downward direction.
- Circle results in a path that traces half (180 degrees) of a circle. The clockwise vs. counterclockwise rotation is determined by the Invert setting.

Not all properties have Motion and Path options.

Chapter 9: Movies, Scenes and Components

Movies, scenes and components are all higher level constructs in Mobile Designer. As such, they are much more powerful and versatile than simple primitives. Using the various properties of movies, scenes and components, you can control everything from the frame rate of your movie to what action or actions take place when an animation ends or a button is clicked.

In this chapter, you learn how to work with movies, scenes and all of the components.

Overview

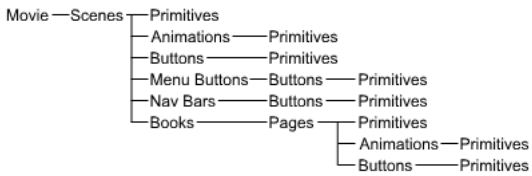
Mobile Designer documents are called movies. A movie is what you create through the Movie Creator dialog and what you save at the end of your design session.

In general, when you see the term "movie" it refers to a Mobile Designer movie (i.e. the file you create in Mobile Designer). This is different from the file exported by Mobile Designer, the SVG movie.

Movies contain one or more scenes. A scene is akin to a web page. When you export and view your SVG Movie, you view it one scene at a time.

Scenes can contain both primitives and components; everything you need to create rich, interactive mobile content. Primitives (basic shapes) are described extensively in the early chapters of this reference guide. Components are described later in this chapter.

A sample hierarchy is shown below.



Movies

Those Mobile Designer actions and properties that apply across all scenes are controlled at the movie level. Many of these, including the frame rate, the canvas dimensions and the canvas background color, impact both the design and exported version of your movie. Other settings, such as to the magnification level with which you view the canvas, only influence what you see at design time.

All movie level actions and properties are discussed in this section.

Setting and changing movie properties

Besides choosing a file name, the very first thing you do when creating a new movie is to establish your initial movie properties. This is done in the Movie Creator dialog.

The choices you make in the Movie Creator dialog determine the initial look of each and every scene you create. While this information can be changed later, it

is often easier to invest a few seconds up front getting everything set up correctly rather than making the changes after you create your movie.

The Movie Creator dialog

The Movie Creator dialog is used to establish the initial file name, canvas dimensions, background color and profile. All of these items can be edit to meet your design needs.

The Movie Creator dialog is opened when you first launch Mobile Designer or when you choose File > New.

To name your new movie:

Type a new name into the Name field.

To set the canvas (movie) dimensions:

Do one of the following:

- To use an existing device template, choose a template from the Canvas Size menu. A list of popular templates is provided. Each template definition include both the dimensions of the canvas and its background color.
- To set a specific canvas width or height, type a number into the Width and Height value fields.

To set the background color for the movie:

Click on the Background Color sample or the small triangle adjacent to it to open the Color dialog where you can select a new background color.

To choose a target profile:

Choose a profile from the Profile menu. For more information on profiles and how to use them, see "About Profiles" on page 55.

To create a new movie template:

1. Click the New Template button.
2. In the New Template dialog, do the following:

- Type a name for the template in the Name field.
- Enter the width and height of the template by typing a number into the Width and Height value fields or by clicking on the associated spin controls.
- Click on the Background color sample or the small triangle adjacent to it to open the Color dialog where you can select a new background color.

3. In the New Template dialog, click Create.

Your new template is appended to the Canvas Size menu and selected automatically.

To edit an existing movie template:

1. Select a template in the Canvas Size menu.
2. Click the Edit Template button.
3. In the Edit Template dialog, do the following:

- Edit the name of the template in the Name field.
- Enter the new width or height for the template by typing a number into the Width or Height value field or by clicking on the associated spin controls.
- Click on the Background color sample or the small triangle adjacent to it to open the Color dialog where you can select a new background color.

4. In the Edit Template dialog, click Change.

To delete an existing movie template:

1. Select a template in the Canvas Size menu.
2. Click the Delete Template button.

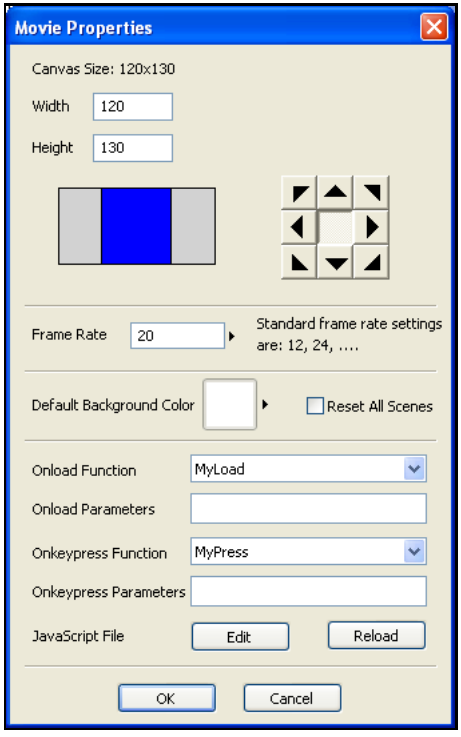
To restore the list of templates to its default state:

Click the Default Settings button.

This button removes all custom templates and restores modified templates to their original states.

The Movie Properties dialog

The Movie Properties dialog is used to change the properties of an existing movie as well as to enable certain movie level JavaScript functions. JavaScript support is described in the next section.



Changes you make in the Movie Properties dialog are applied when you click OK to close the dialog.

To open the Movie Properties dialog:

Choose Movie > Movie Properties.

To change the dimensions of the canvas:

1. Do the following:

- To change the width of the canvas, enter a new number in the Width value field.
- To change the height of the canvas, enter a new number in the Height value field.

2. Select how you want the changes to the canvas size to be applied, as follows:

- To have the changes applied symmetrically to the canvas, click the Center button. This is the default.
- To have the changes applied at one of the four corners of the canvas, click the appropriate corner button.
- To have changes applied at one edge of the canvas, click the appropriate edge button.

In the canvas preview, the new canvas is shown in blue and the current canvas is shown as a black rectangle with a white fill.

To change the frame rate used throughout the movie:

Do one of the following:

- Enter a new number into the Frame Rate value field.
- Click on the Frame Rate slider and drag it to a new position.

The frame rate is given in frames per second (fps). The default frame rate is 20 fps.

To change the movie background color:

Click on the Default Background Color sample or the small triangle adjacent to it to open the Color dialog where you can select a new background color.

To override any scene background colors with the movie background color:

Check the Reset All Scenes box.

About JavaScript

Mobile Designer allows you to call JavaScript functions at the movie level as well as at the component action level. For more information on using JavaScript at the component action level, see "Component Level" on page 206.

At the movie level, you can define functions to handle Onload and Onkeypress events. You create and specify these through the Movie Properties dialog.

To create or edit Onload and Onkeypress JavaScript functions:

1. Click the Edit button in the Movie Properties dialog to open the JavaScript function editor (Notepad).
2. Add or edit the JavaScript functions.
3. Save your changes and close the editor.
4. Click the Reload button in the Movie Properties dialog.

The JavaScript functions that you define are stored inside your Mobile Designer save file. Thus, if you transfer your file to a different machine, you do not need to worry about separately moving the JavaScript file.

If you wish to use existing JavaScript functions or your own JavaScript editor, you will have to copy and paste the JavaScript code into the editor opened by Mobile Designer.

To select the Onload function to use:

Choose the function from the Onload Function menu.

Note: when you edit a function, you must press the Reload button before your changes are available.

To specify parameters to pass to the Onload function:

Type the parameters into the Onload Parameters field.

For an in depth discussion of how to pass parameters to JavaScript functions, see "Component Level" on page 206.

To select the Onkeypress function to use:

Choose the function from the Onkeypress Function menu.

Note: when you edit a function, you must press the Reload button before your changes are available.

To specify any parameters to pass to the Onkeypress function:

Type the parameters into the Onload Parameters field.

For an in depth discussion of how to pass parameters to JavaScript functions, see "Component Level" on page 206.

Changing the size of the canvas

In addition to setting the canvas size at movie creation time and through the Movie Properties dialog, you can also change it to match the size of objects and selections as well as by adjusting the limits. As with the other methods, any changes you make to the canvas size using these methods are applied across all scenes in the movie.

Cropping to objects

Objects themselves can be used to define a new canvas size. This is especially valuable when, for example, you draw a shape or import an image and want to create a canvas of that size.

To change the canvas size to match a rectangle that encompasses the selected objects:

1. Select one or more objects.
2. Select Movie > Crop Movie to Object Selection.

Cropping to selections

Selection areas can be used to define a new canvas size. This is useful when you want resize the canvas to a particular area you define by clicking and dragging with one of the area selection tools.

To change the canvas size to match a rectangle that encompasses the selection area:

1. Create a selection area using one of the area selection tools. For more information on the selection tools, see "Selection tools" on page 24.
2. Select Movie > Crop Movie to Selection.

Changing Limits

The limits define the boundaries of the canvas and provide a visual cue for aligning objects along a particular canvas edge when working in the overscan area.

Limits also can be dragged offering an interactive way of resizing the canvas.

To resize the canvas by dragging the limits:

1. Unlock the limits (if locked) by choosing View > Lock Limits.
2. Click on one of the limits and drag it to resize the canvas.

It is recommended that you repeat the first step above to lock the limits after adjusting them. When the limits are unlocked, it is easy to drag them by mistake.

To show or hide the limits:

Choose View > Show Limits.

Changing the view of the canvas

Changes in the way that you view the canvas such as magnifying and scrolling do not appear in the exported SVG file, but do get applied across the entire movie.

Magnifying

By default, the canvas and overscan area are displayed at 100%, or normal, magnification. At times, you may want to increase the magnification to focus on a particular object, or decrease the magnification to see more of your movie.

Mobile Designer comes with 10 preset magnification levels to choose from. Levels greater than 100% zoom in on the canvas. Levels less than 100% zoom out. The preset levels are:

- 25%
- 33%
- 50%
- 75%
- 100% (default)
- 150%
- 200%
- 400%
- 800%
- 1600%

To increase the magnification to the next higher level:

Do one of the following:

- Click on the Zoom tool in the Toolbox then click on the canvas.
- Click the Zoom In tool at the bottom of the document window.

- Choose View > Zoom In from the main menu.

To decrease the magnification to the next lower level:

Do one of the following:

- Click on the Zoom tool in the Toolbox then hold down the Alt key and click on the canvas.
- Click the Zoom Out tool at the bottom of the document window.
- Choose View > Zoom Out in the main menu.

To select a particular magnification level:

Do one of the following:

- Choose a new magnification level in the Zoom menu at the bottom of the document window.
- Choose View > Zoom in the main menu and choose a new magnification level in the Zoom submenu.

Panning

In addition to scrolling the document window, you can also position it using the Pan tool.

To use the Pan tool to position the canvas:

1. Click on the Pan tool in the Toolbox.
2. Click and drag in the document window.

Showing and hiding objects in the overscan area

The overscan area, that part of the document window that falls outside of the canvas, is a perfectly valid drawing area. Its best use though is probably as a staging area for objects about to move onto or off of the canvas.

By default, objects on both the canvas and the overscan area are visible. You can hide the contents of the overscan area at any time and just view objects on the canvas.

To show and hide objects in the overscan area:

Click the Show/Hide Objects in the Overscan Area button at the bottom of the document window.

Rulers, Guides and the Grid

The built in alignment features in Mobile Designer are turned on and off at the movie level. Specifically, rulers, guides and the grid are movie level controls used to precisely position objects on the canvas.

Rulers, guides and the grid are described in “Aligning Objects” on page 111.

Scenes

A movie is composed of one or more scenes, only one of which is visible at any given time. All of the work that you do in Mobile Designer takes place in a scene or one of the objects in it.

A scene is roughly equivalent to a web page on the internet. It is within your scenes that you add primitives and components to create a unique and engaging user experience.

Setting and changing scene properties

A scene is essentially a container for all of the primitives and components that make up your movie.

Most of the time, you may think of a scene as a place to draw, but a scene does have several unique characteristics that you can leverage in your designs.

For example, you can animate objects on a scene, not just within components. In addition, changing scenes provides one of the most important means of switching the content displayed on the screen.

To create a new scene:

Do one of the following:

- Choose Scene > Insert Scene from the main menu.
- Right-click on the document window and choose Insert > Scene.

To delete a scene:

Choose Scene > Remove Scene from the main menu.

Every movie must have at least one scene, hence you cannot delete the last scene in your movie.

To change the name of a scene:

1. Do one of the following:
- Choose Scene > Scene Properties from the main menu.
- Right-click on the document window and choose Scene Properties.
2. In the Scene Properties dialog, type a new name into the Scene Name text field and click OK.

As with components, the scene name appears in the Navigation menu and the Locator bar.

To change the background color of a scene:

1. Do one of the following:
- Choose Scene > Scene Properties from the main menu.
- Right-click on the document window and choose Scene Properties.
2. In the Scene Properties dialog, click on the Background Color sample or the triangle adjacent to it and choose a new color in the Color dialog. For more information on choosing colors, see "Using the Color dialog" on page 68.

The scene background color overrides the movie background color. Changing the scene background color only affects the current scene.

To stop all sounds when you first enter a scene:

1. Do one of the following:
- Choose Scene > Scene Properties from the main menu.
- Right-click on the document window and choose Scene Properties.
2. In the Scene Properties dialog, check the **Stop sounds at the beginning of the scene** box and click OK.

By default, any sounds that you play continue until they finish (if not looped), you manually stop them, or the user leaves the SVG movie.

To set the current scene as the first scene:

Choose Scene > Set the current scene as the first scene.

The first scene is the one that is played when you first start an SVG movie.

Creating an animating objects on scenes

With the exception of books (which can contain other components), you draw all of the primitives and components in your movie on the current scene. In fact, unless you enter one of the component designers (see "Components" on page 140 for more information), you are always working directly on a scene (or at the "scene level").

You can draw or create any type of object supported in Mobile Designer on a scene. This includes not only primitives, but also every type of component. You can also drop sounds onto a scene and play them there.

In addition, you can animate any object you draw on the scene. However, you cannot loop any scene level animations you create. Thus, when you first enter a scene, it will play the scene level animation once and when it reaches the final frame it will wait for the user to take action.

To create an object on a scene:

Draw it! For more information on drawing primitives and components, see "Working with Objects" on page 37.

To add a sound to a scene:

Drag and drop the sound onto the canvas.

The sound will appear at the top of the list of objects in the Animation panel. The frame where it starts playing can by changed by dragging the sound wave left or right in the Animation panel.

To animate an object on a scene:

1. If necessary, add frames to the scene in the Animation panel by changing the Total field and pressing Enter. By default, every scene starts with 1 frame.
2. Select a frame and establish the attributes for the object in that frame.
3. Select a different frame and modify the attributes for the object in that frame.

Animation principles are the same whether you are animating at the scene level or within a component. For more information on the different ways you can animate objects and their attributes, see "Animation Methods and Techniques" on page 119.

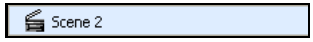
Navigating between scenes

Scene navigation is important both when working within Mobile Designer and in the exported SVG file. The latter is accomplished using components and is discussed in more detail in "The Event Options dialog" on page 143. The former is discussed here.

To determine the current scene:

Do one of the following:

- Look at the left most entry in the Locator bar above the document window. This entry is always the current scene.



- Look at the Navigation menu. When at the scene level, the item displayed in the Navigation menu is the current scene. When in one of the component designers, the object tree for the current scene is displayed with the scene at the top of the tree.

To edit a different scene in Mobile Designer:

Do one of the following:

- Choose Scene > Go to scene in the main menu and choose a new scene in the Go to scene submenu.
- Click on the Navigation menu and choose a new scene. The scenes in your movie are listed after the separator at the bottom of this menu.

Components

Components (buttons, menu buttons, navigation bars, animation clips and books) are the key to producing rich, interactive movies in Mobile Designer. Without

them, you can produce simple animations within a scene, but not a lot more.

Components are different from primitives in three important respects:

- They are designed using primitives, but outside of the component designer they are treated as a single entity.
- They include a behavior that allows them to be interactive, animated or both.
- They each have their own timeline (i.e. they operate independently from other primitives and components in your movie).

The component designers

Components are manipulated both at the scene level and through the component designers.

When working with a component at the scene level, you have access to the component as a unified whole, but not to the individual elements (primitives) that make up the component. You can create, delete, position, align, order and rotate components. In addition, you assign actions to components at the scene level. Assigning actions to take in response to events are discussed in the next section.

In order to manipulate the graphics that make up a component, you use the component designer. The component designer is essentially a special editing mode in which you can only draw, format and animate the elements that comprise your component.

For simplicity, when referring to the component designer for a particular component type, the component name is included (i.e. buttons are edited in the "button designer").

All components share many common attributes:

- To edit any component (i.e. enter the component designer) when you are at the scene level:
  - Double-click on the component.
  - Choose the component in the Navigation menu.
  - Right-click on the component and choose Edit Component in the popup menu.
  - Right-click on the component name in the Animation panel and choose Edit Component in the popup menu.
- At the scene level, all components display a green bounding box when selected. Primitives have a red bounding box.
- To exit the component designer for any component, click the Up One Level button adjacent to the Navigation menu.
- Whenever a component is selected at the scene level, the Component tab contains options specific to that component type.
- All components trigger events upon which you can take action.

Events and Actions

All components trigger *events*. Events are simply notifications. Events are generated automatically (i.e. they are an inherent part of a component).

For example, when the user clicks on a button, this automatically triggers a "mouse click" event.

In the course of creating your Mobile Designer movie, you decide which events you want to respond to and which you wish to ignore.

You respond to an event by assigning an *action* to it. An action is simply what you do as a result of a particular event. By default, no actions are assigned for you; you

add them manually. You can assign more than one action to a given event.

For example, when a user clicks on a button (the event), you may play a sound and display a new scene (the actions).

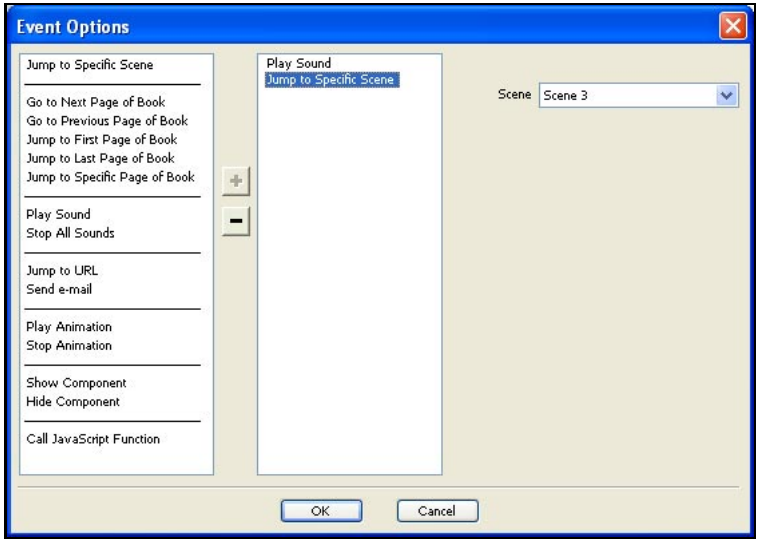
The types of events differ between the various components. They are described in the specific component sections below. The actions you can take in response to any event are the same for all components.

The general process for assigning an action to an event is:

1. Select a component on the scene.
2. Select the event in the Component tab (details in the specific component sections below).
3. In the Event Options dialog, select one or more actions and when applicable, customize the settings for those actions.

The Event Options dialog

The Event Options dialog is where you specify the actions to take in response to a particular event.



The first column of the Event Options dialog shows the List of Available Actions. This is an exhaustive list of all of the actions you can take in response to an event.

The middle column of the Event Options dialog shows the List of Current Actions. These are the actions that you have chosen to take when the event you selected in the Component tab is triggered.

The last column of the Event Options dialog is used to specify any settings associated with the action selected in the List of Current Actions.

To add an action to the List of Current Actions from the List of Available Actions:

Do one of the following:

- Double-click on an item in the List of Available Actions.
- Select an item in the List of Available Actions and press the "+" button.

To remove an item from the List of Current Actions:

Press the "-" button.

Available Actions

The first column of the Event Options dialog contains the complete list of available actions.

While generally self-explanatory, a brief description of each action including its specific settings is provided below.

- **Jump to Specific Scene** replaces the current scene with the scene you specify in the Scene menu.
- **Go to Next Page of Book** displays the next page of the book you specify in the Book menu. When the Wrap box is checked, you return to the first page in the book after the last page is reached.
- **Go to Previous Page of Book** displays the previous page of the book you specify in the Book menu. When the Wrap box is checked, you skip to the last page in the book after the first page is reached.
- **Jump to First Page of Book** displays the first page of the book you specify in the Book menu.
- **Jump to Last Page of Book** displays the last page of the book you specify in the Book menu.
- **Jump to Specific Page of Book** displays the specific page in the specific book that you choose.
- **Play Sound** plays the sound you select in the Sound menu. To load a new sound, click the Add button.
- **Stop All Sounds** stops all sounds currently playing in your movie.
- **Jump to URL** displays the Web page at the URL you specify. To display this content in a new window, check the **Open in new window** box. Otherwise, the indicated Web page will replace the current movie content.
- **Send e-mail** launches the default e-mail editor in a separate window and fills in the To address with the e-mail address you specify.
- **Play Animation** starts the animation you specify in the Animation menu from its beginning. Play Animation has no effect on animations that are already playing.
- **Stop Animation** stops the animation you specify in the Animation menu. Stop Animation has no effect on animations that are already stopped.
- **Show Component** displays the component you specify in the Component menu. Show Component has no effect on components that are already visible.
- **Hide Component** hides the component you specify in the Component menu. Hide Component has no effect on components that are already hidden.
- **Call JavaScript Function** calls the JavaScript function you specify in the Function menu passing it the parameters specified in the Parameters menu. To create or edit a function, press the Edit button. You must press Reload before your changes take effect.

Buttons

Buttons are the simplest interactive components (animations are arguably simpler than buttons, but they are not interactive). Buttons are also the building blocks for navigation bars and menus.

The button creation process, including creating buttons from scratch, sharing and the catalog, is described in detail in “Drawing Components” on page 43.

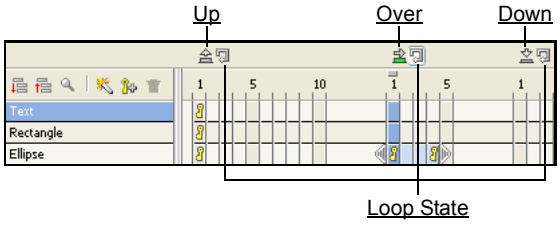
When you create a new button or edit the contents of an existing button, you do so in the button designer. You enter the button designer by double-clicking on an existing button at the scene level. The button designer is also automatically opened for you whenever you create a new button using the button tool. When you have finished editing the primitives in your button, click the Up One Level button to leave the button designer.

Button states

Buttons have 3 different graphical states (appearances) you can customize while in the button designer. The state that is displayed in the SVG movie depends on what the user is doing with the mouse. The button states are:

- **Up State**. The Up state is displayed whenever the focus is not on the button or the mouse pointer is outside the bounds of the button.
- **Over State**. The Over state is displayed whenever the focus is on the button or the mouse pointer is inside the bounds of the button but the button is not pressed/clicked.
- **Down State**. The Down state is displayed whenever the focus is on the button or the mouse pointer is inside the bounds of the button and the button is pressed/clicked.

By default, each button state starts with one frame, but each state can be independently animated. Thus, you can specify any number of frames by clicking on a button state and typing a new value into the Total field in the Animation panel.



Within each button state, you follow the same animation rules you do when working elsewhere in Mobile Designer. You animate by selecting one frame and setting an object’s attributes, then you select another frame and change that object’s attributes. For a complete description of how to animate, see “General principles” on page 119.

In general, each button state is treated as a separate animation; there is no tweening across the different button states. The one exception to this is when a button state does not contain any property settings (i.e. no keys). In this case, the nearest previous key for each object property will be used even if it was set in the previous button state. If no previous object properties exist, then the property settings in the next button state are used.

For example, the color of a rectangle is animated as follows:

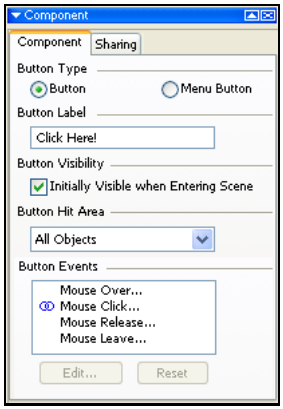
- The Up State is animated to change from blue to red.
- Over State contains no color information.
- The Down State is animated to change from green to purple.

In this case, the Up and Down states contain keys for the color properties, so you know exactly what they will do. The Over State, with no keys, will look to the Up

State and "adopt" the most recent color it can find there, which in this example is red.

The Component tab for buttons

While you design the look of your button in the button designer, you specify the feel, or interactivity, for your button at the scene level.



The Component tab for buttons is used to change the button label, assign actions to the various button events, and to set a button's initial visibility. You can also specify that a button is to be used as the top button in a popup menu (i.e. a menu button). Menu buttons are described in the next section.

To change the text used as the button label:

1. Select the button.
2. In the Component tab, type a new label into the Button Label text field.

If a button has more than one label, the characters in the topmost text object will be replaced by the text you type. The new text will use the same font information as the original text.

To set a button to be hidden when its scene is first displayed:

1. Select the button.
2. In the Component tab, uncheck the Visible box.

By default, all components are visible (checked).

To assign actions to a button's events:

1. Select the button.
2. In the Component tab, do one or more of the following:

- To assign actions to the Mouse Over (has focus) event, either double-click on the event in the Button Events list or select this event and click the Edit button.
- To assign actions to the Mouse Click (button pressed) event, either double-click on the event in the Button Events list or select this event and click the Edit button.
- To assign actions to the Mouse Release (button released) event, either double-click on the event in the Button Events list or select this event and click the Edit button.
- To assign actions to the Mouse Leave (loses focus) event, either double-click on the event in the Button Events list or select this event and click the Edit button.

3. In the Event Options dialog, choose those actions you wish to execute for this event. For more information on events and actions, see "Events and Actions" on page 141.

To remove actions assigned to a button's events:

1. Select the button.
2. In the Component tab, do one of the following:

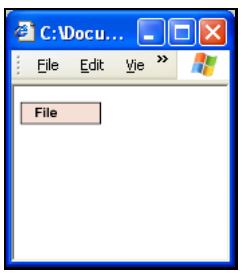
- To remove all actions assigned to a given event, select the event in the Button Events list and click the Reset button.

- To remove a particular action assigned to a given event, select the event and click the Edit button, then in the Event Options dialog, select the assigned action you wish to remove and click the "-" button.

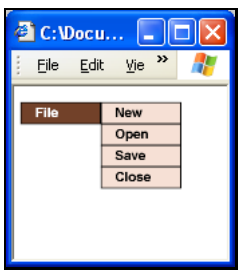
Menu Buttons

Menu buttons are a derivative of the standard buttons described above. Both are created in the button designer in exactly the same way, complete with identical up, over and clicked states. In fact, in an SVG movie you have no way of discerning whether you are looking at a button or a menu button until you use it.

Unlike standard buttons that take action when activated, when you activate a menu button in an SVG movie, a previously hidden menu appears (hence the name "menu button"). This "popup menu" is itself composed of buttons.



Menu Button (inactive)



Menu Button and Popup Menu

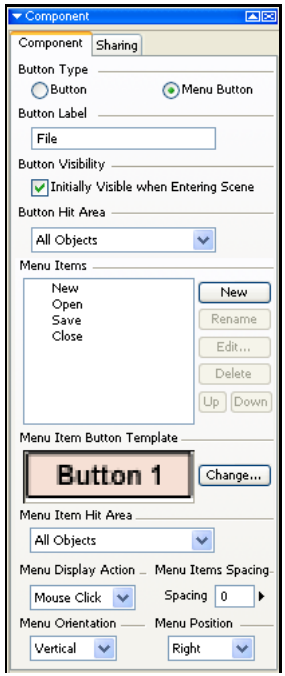
You use menu buttons whenever you work in Mobile Designer. The File menu is a menu button, and the menu that appears when you click it is a popup menu.

The menu button and the buttons used in the popup menu are not required to be identical. However, all of the buttons in the popup menu are the same except for their button text and associated actions.

For a complete description of the different button states and how to create buttons, see "Buttons" on page 144.

The Component tab for menu buttons

The decision to turn a button into a menu button and vice versa is made at the scene level after creating the button in the button designer. In the Component tab, the first item is the Button Type. The Button and Menu Button radios switch between the two button types. The remaining contents of the Component tab adjust accordingly when you do this.



When the Menu Button radio is selected, the Component tab is used to both set the attributes for the menu button and its accompanying popup menu. Specifically, the Button Label and Initial Visibility at

Export items apply to menu buttons, with the remaining items applying to the popup menu.

To change the text used as the *menu button* label:

1. Select the menu button.
2. In the Component tab, type a new label into the Button Label text field.

If a menu button has more than one text object, the characters in the topmost text object will be replaced by the text you type. The new text will use the same font information as the original text.

To set a *menu button* to be hidden when its scene is first displayed:

1. Select the menu button.
2. In the Component tab, Uncheck the Visible box.

By default, all components are visible (checked).

To add menu items to the *popup menu*:

1. Select the menu button.
2. In the Component tab, click the New button.
3. In the New Menu Item dialog, type in the text for your new popup menu item and click OK.

Note: the text that you enter in the New Menu Item dialog is displayed both in the Menu Items list in the Component tab and as the popup menu button text in your SVG movie.

To rename a *popup menu* item:

1. Select the menu button.
2. In the Component tab, select the item in the Menu Items list.
3. Click the Rename button and type a new name.
4. Press Enter to finish the new name.

The text displayed in the Menu Items list is also used for the popup menu button text in your SVG movie.

To delete an item from a *popup menu*:

1. Select the menu button.
2. In the Component tab, select the popup menu item in the Menu Items list.
3. Click the Delete button.

To reorder the items in a *popup menu*:

1. Select the menu button.
2. In the Component tab, select the popup menu item you wish to reorder in the Menu Items list.
3. Do one of the following:

- Click the Up button to move the selected popup menu item up in the list.
- Click the Down button to move the selected popup menu item down in the list.

The order the popup menu items appear in the Menu Items list is the order that they will appear in your SVG movie.

To assign an action to a *popup menu* item:

1. Select the menu button.
2. In the Component tab, select the popup menu item in the Menu Items list.
3. Click the Edit button.
4. Assign the desired actions in the Mouse Click Event Options dialog.

Popup menu items only trigger events when they are clicked. For more information on assigning actions, see “Available Actions” on page 144.

To remove actions assigned to a *popup menu* item:

1. Select the menu button.

2. In the Component tab, select the popup menu item in the Menu Items list.
3. Click the Edit button.
4. In the Event Options dialog, select the assigned action you wish to remove and click the "-" button.

To change the template used for the *popup menu* buttons:

1. Select the menu button.
2. In the Component tab, click the Change button.
3. In the Customize Menu Item dialog, do one of the following:

- To select a new button from the Catalog, choose the Create Popup Menu Buttons from the Catalog radio and select a new template from the list.
- To select a new button template (look) from Sharing, choose the Create Popup Menu Buttons from Sharing radio and select a new template from the list.

The selected template is used for all buttons in the popup menu.

To set which event displays the *popup menu*:

1. Select the menu button.
2. In the Component tab, do one of the following:

- To display the popup menu when the mouse is over the menu button, choose Mouse Over from the Menu Display Action menu.
- To display the popup menu when the menu button is clicked, choose Mouse Click from the Menu Display Action menu.

To set the spacing between the *popup menu* items:

1. Select the menu button.
2. In the Component tab, do one of the following:

- Enter a new number in the Spacing value field.
- Drag the Spacing value slider to a new setting.

By default, the buttons in the popup menu are set to have their bounding boxes touching. Because the popup menu disappears whenever the mouse is not over any of its buttons, non-rectangular buttons may produce gaps in the popup menu. To compensate for this, the Spacing field can be used to set the buttons in the popup menu to overlap.

To set the orientation of the buttons in the *popup menu*:

1. Select the menu button.
2. In the Component tab, do one of the following:

- To display the buttons in the popup menu stacked one on top of another, choose Vertical from the Menu Orientation menu.
- To display the buttons in the popup menu adjacent to one another, choose Horizontal from the Menu Orientation menu.

The Menu Orientation determines whether the popup menu buttons are displayed vertically or horizontally, not where the popup menu itself appears. This is determined by the Menu Position.

To set where the popup menu appears in relation to the menu button:

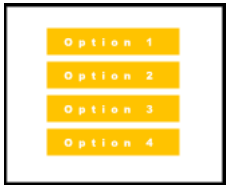
1. Select the menu button.
2. In the Component tab, do one of the following:

- To display the popup menu below the menu button, choose Bottom from the Menu Position menu.
- To display the popup menu above the menu button, choose Top from the Menu Position menu.

- To display the popup menu to the left of the menu button, choose Left from the Menu Position menu.
- To display the popup menu to the right of the menu button, choose Right from the Menu Position menu.

Navigation Bars

Navigation bars, or "nav bars," provide a quick and easy shortcut for creating a set of buttons that are evenly spaced.



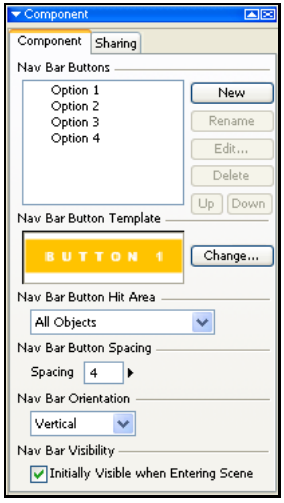
Drawing navigation bars

Nav bars are drawn using buttons from either the Catalog or from Sharing. That is, when you click on the Navigation Bar tool, you must select the button you wish to use from the Catalog or from Sharing before you can draw the nav bar itself. You can change the template used for the nav bar buttons at any time.

Once you have selected the button template to use in your nav bar, you create the nav bar by clicking and dragging on the canvas. You see the outline of each button appear as you increase your drag area. By dragging down, you create a vertical nav bar. By dragging across, you create a horizontal nav bar. The orientation and the number of buttons in a nav bar can be changed at any time.

The Component tab for navigation bars

The Component tab for navigation bars is used to set the number, order and actions associated with the buttons in the nav bar, the template used for the nav bar buttons, the spacing between the buttons in the nav bar, and the nav bar orientation.



To add buttons to a nav bar:

1. Select the nav bar.
2. In the Component tab, click the New button.
3. In the New Menu Item dialog, type in the text for your new nav bar button.

Note: the text that you enter in the New Menu Item dialog is displayed both in the Nav Bar Items list in the Component tab and as the nav bar button text in your SVG movie.

To rename a nav bar button:

1. Select the nav bar.
2. In the Component tab, select the button in the Nav Bar Items list.
3. Click the Rename button and type a new name.
4. Press Enter to finish the new name.

The text displayed in the Nab Bar Items list is also used as the nav bar button text in your SVG movie.

To delete a button from a nav bar:

1. Select the nav bar.
2. In the Component tab, select the button item in the Nav Bar Items list.
3. Click the Delete button.

To reorder the buttons in a nav bar:

1. Select the nav bar.
2. In the Component tab, select the button you wish to reorder in the Nav Bar Items list.
3. Do one of the following:

- Click the Up button to move the selected button up in the list.
- Click the Down button to move the selected button down in the list.

The order the buttons appear in the Nav Bar Items list is the order that they will appear in your SVG movie.

To assign an action to a nav bar button:

1. Select the nav bar.
2. In the Component tab, select the button in the Nav Bar Items list.
3. Click the Edit button.
4. Assign the desired actions in the Mouse Click Event Options dialog.

Nav bar buttons only trigger events when they are clicked. For more information on assigning actions, see "Available Actions" on page 144.

To remove actions assigned to a nav bar button:

1. Select the nav bar.
2. In the Component tab, select the button in the Nav Bar Items list.
3. Click the Edit button.
4. In the Event Options dialog, select the assigned action you wish to remove and click the "-" button.

To change the template used for the nav bar buttons:

1. Select the nav bar.
2. In the Component tab, click the Change button.
3. In the Customize Menu Item dialog, do one of the following:

- To select a new button from the Catalog, choose the Create Nav Bar Buttons from the Catalog radio and select a new template from the list.
- To select a new button template (look) from Sharing, choose the Create Nav Bar Buttons from Sharing radio and select a new template from the list.

The selected template is used for all buttons in the nav bar.

To set the spacing between the nav bar buttons:

1. Select the nav bar.
2. In the Component tab, do one of the following:

- Enter a new number in the Spacing value field.
- Drag the Spacing value slider to a new setting.

By default, buttons in a nav bar are set to have their bounding boxes touching. Using the Spacing field, you can set the buttons to overlap or have as much as one button width/height between buttons in your nav bar.

To set the orientation of the buttons in the nav bar:

1. Select the nav bar.
2. In the Component tab, do one of the following:

- To display the buttons in the nav bar stacked one on top of another, choose Vertical from the Nav Bar Orientation menu.
- To display the buttons in the nav bar adjacent to one another, choose Horizontal from the Nav Bar Orientation menu.

Animation Clips

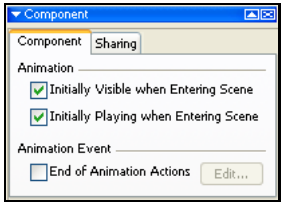
Animation clips are the only non-interactive components in Mobile Designer. As the name implies, the animation clip is an animation that operates independent from the other objects in your movie.

The animation clip creation process, including creating animation clips from scratch, sharing and the catalog, is described in detail in "Drawing Components" on page 43.

Briefly, when you create a new animation clip or edit the contents of an existing animation clip, you do so in the animation designer. You enter the animation designer by double-clicking on an existing animation clip at the scene level. The animation designer is also automatically opened for you whenever you create a new animation using the animation clip tool. When you have finished editing the primitives in your animation clip, click the Up One Level button to leave the animation designer.

The Component tab for animation clips

While you design the look of your animation clip in the animation designer, you specify the characteristics for your animation clip at the scene level.



The Component tab for an animation clip includes controls for specifying its initial visibility and playing/stopped status at export, and what action, if any, should be taken when the animation clip finishes playing.

To set the visibility of an animation clip at the start of a scene:

1. Select the animation clip.
2. In the Component tab, do one of the following:

- To set an animation clip to be visible, check the Initially Visible at Export box. This is the default.
- To set an animation clip to be hidden, uncheck the Initially Visible at Export box.

Animation clips can also be shown and hidden via button and animation clip events and actions. For more information see "Events and Actions" on page 141.

To specify whether an animation clip is playing or not at the start of an SVG movie:

1. Select the animation clip.
2. In the Component tab, do one of the following:

- To play an animation clip at the start of a scene, check the Initially Playing at Export box. This is the default.

- To pause an animation clip until it is triggered to play by another event, uncheck the Initially Playing at Export box.

Animation clips can also be stopped and played via button and animation clip events and actions. For more information see “Events and Actions” on page 141.

To specify any action to take when an animation clip finishes playing:

1. Select the animation clip.
2. In the Component tab, check the Animation Stops box.
3. Click the Edit button and choose the action to take in the Event Options dialog. For more information on the available actions, see “The Event Options dialog” on page 143

Animation clips that are set to loop a fixed number of times will only trigger the specified action after that number of iterations. Animation clips that are set to loop infinitely will never trigger any events.

Books

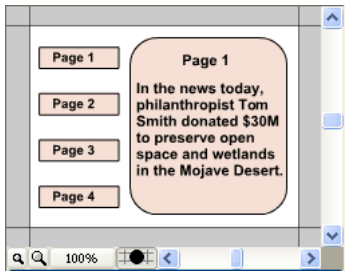
Books are the most powerful and flexible of all components. In fact, they share many of the same characteristics as scenes. For instance, you can include buttons and animations in books, easily vary what is displayed in them, and jump to specific parts of them just as you can jump to specific scenes.

Books are composed of three different elements: a foreground, one or more pages, and a background.

You place any objects you always want to appear in either the foreground or the background; these are always visible. As their names imply, objects in the foreground will appear on top of everything else, and objects in the background will appear behind everything else.

Sandwiched in between the foreground and background of a book are its pages. A book can have any number of pages, only one of which is ever visible at a time.

When you view a book, you do so one page at a time. What you see is actually a composite image formed by drawing the background, overlaying this with the page, then overlaying that with the foreground.



In the image above, the rounded rectangle is in the background, the news blurb sits on the page, and the buttons for switching pages are in the foreground. Clicking on the “Page 2” button displays a new page which is composited with the same foreground and background.

Typically, you add a page to your book whenever you have new content to display. The foreground and background are used to display those objects you want to display (i.e. background decorations or buttons used to navigate between the pages) regardless of which page you are on.

Creating and working with books

Books are created using the Book tool in the Toolbox. You can either create a new book from scratch or select a book from the Catalog. As with other tools, you

actually create the book by clicking and dragging on the canvas.

When you create a new book, it contains 3 elements: the foreground, one page and the background.

By default, you remain at the scene level when you create a book. This makes it very convenient to immediately add pages to your book. Just remember that in order to start adding content to your book, you must first enter the component designer for the foreground, background or page you wish to work on.

Adding content to books is done in the same way as with other components - you draw it directly or pull it from the Catalog or from Sharing. The only difference is that unlike with other components, with books you can include buttons and animation clips as well as primitives.

This ability to add components to your book implies that you can also edit those components. Since editing a component means opening the component designer for that component, when working with books you can have multiple component designers open at once (one for the book and one for the component you are editing).

This could get confusing. Fortunately there are visual cues and shortcuts to help you get to where you want to go and always know where you are.

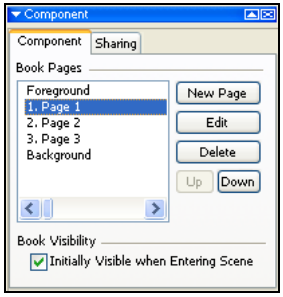
The Locator Bar always shows the level at which you are working starting with the current scene. Thus, when you are working in the foreground of a book, it shows you exactly where you are:

Likewise, if you are editing the primitives inside a button in your book, it will show that:

The Up One Level button in the Navigation Bar exits the current component designer are places you up one level. If you are editing a button within a book, clicking once results in your being placed in the book designer, and clicking twice returns you back to the scene level.

The Component tab for books

The Component tab for books is used to manage the pages in your book and to set the visibility of everything in a book when you first open the scene containing the book.



To add a page to a book:

1. Select the book.
2. In the Component tab, click the New Page button

New pages are added after the last page in the book but before the Background.

To open the book designer for the foreground, background or page in a book:

1. Select the book.
2. In the Component tab, do one of the following:

- Select the page in the Book Pages list and click the Edit button.
- Double-click on the page in the Book Pages list.

You can also open the book designer for a page by selecting it in the Navigation menu.

To delete a page from a book:

1. Select the book.
2. In the Component tab, select the page in the Book Pages list.
3. Click the Delete button.

To reorder the pages in a book:

1. Select the book.
2. In the Component tab, select the page you wish to reorder in the Book Pages list.
3. Do one of the following:

- Click the Up button to move the selected page up in the list.
- Click the Down button to move the selected page down in the list.

The order the pages appear in the Book Pages list is the order that they will appear if you cycle through them sequentially in your SVG movie.

To set the visibility of a book at the start of a scene:

1. Select the book.
2. In the Component tab, do one of the following:

- To set a book to be visible, check the Visible box. This is the default.
- To set an book to be hidden, uncheck the Visible box.

Books can also be shown and hidden via button and animation clip events and actions. For more information see “Events and Actions” on page 141.

Chapter 10: Loading and Importing Files

Mobile Designer is capable of opening or importing a wide variety of graphics and sound files. In addition to all of the file formats it can either export or save, several 3D file formats are supported as well as Adobe Illustrator, Windows Meta Files and sound files.

In this chapter, you learn the various supported open and import file formats and how to open and start working with them.

Opening and Importing

Mobile Designer offers two different methods of loading files:

- File > Open is used to open a document in a separate Mobile Designer session. The file that is opened does not become part of an existing movie; it stands alone. You can open any supported graphics file using File > Open. For a list of these graphics formats, see "Supported file formats" on page 166.
- File > Import is used to load a file into the current movie. The loaded file becomes part of the movie. You can import both image and sound files, but you cannot import one Mobile Designer file into another.

To open a supported graphics file:

Do one of the following:

1. Choose File > Open from the main menu and select the file in the Windows Open dialog.
2. Drag and drop the file onto Mobile Designer when no movies are currently open.

When you drag and drop a file onto Mobile Designer, how that file is handled depends on whether a movie is currently open or not. If no movie is currently open, then the drop is treated as a file open and a new movie is created. If a movie is currently open, then the drop is treated as a file import and the contents of the file become part of the existing movie.

To import a supported graphics file into the current movie:

Do one of the following:

1. Choose File > Import > Graphics from the main menu and select the graphics file in the Windows Open dialog.
2. Drag and drop the graphics file onto the canvas of the current movie.

To import a supported sound file into the current movie:

Do one of the following:

1. Choose File > Import > Sound from the main menu and select the sound file in the Windows Open dialog.
2. Drag and drop the sound file onto the canvas of the current movie.

To import multiple images as an animated sequence:

1. Choose File > Import > Created Animated Sequence from the main menu.
2. In the Windows Open dialog, select all of the images that you wish to import.

The imported files form an animated sequence. That is, all the image are imported as a single object, with one image shown per frame. Additional frames are created in the animation panel as necessary.

When importing images as an animated sequence, the dimensions of the first image determine the dimensions of the entire imported object.

If you have a series of images that you want to display as a slide show, importing them as an animated sequence is one way of achieving this result.

Supported file formats

Mobile Designer is capable of loading a wide variety of vector, bitmap, 3D and sound file formats in addition to the native Mobile Designer file format.

While many of these formats have a very specific file structure that makes them easy to load, others such as SVG are broad, flexible formats that may include elements not supported by Mobile Designer (or most other graphics applications for that matter). Any special considerations associated with a particular file format are included when that format is discussed.

Mobile Designer files

Mobile Designer saves its files in an internal file format that uses a ".md" file extension. Mobile Designer files contain all of the information needed to reload your movie in exactly the state you last saved it.

Generally speaking, a Mobile Designer file should load without issue on the machine in which you created it. However, because Mobile Designer files can contain computer specific information (such as uncommon fonts), when transferred to a different machine, these files may report one or more errors.

When Mobile Designer encounters an error when trying to load a saved file, it records the error in an online error log. This log file is displayed at the end of the load process.

Vector file formats

Mobile Designer supports the most widely used vector file formats. Of these, SVG offers capabilities most similar to those found in Mobile Designer.

The following vector file formats are supported:

- SVG
- Adobe Illustrator (up to Version 8.0)
- Windows MetaFile (WMF)

In general, none of the vector file formats provides a perfect mapping to the features in Mobile Designer. In fact, all of these formats can include elements that have no counterpart. For Illustrator and WMF files, when such elements are encountered, they are ignored. Therefore, you are advised to visually inspect any Illustrator or WMF files you load into Mobile Designer.

SVG is a special case. As the primary export target of Mobile Designer, SVG does have a very close relationship with Mobile Designer. However, many of the conceptual features that make Mobile Designer easy to use (such as books and pages) have no equivalent in SVG. The result is that any SVG file you

open or import will likely not match the original Mobile Designer file.

Not surprisingly, hand coded SVG files, files generated in other applications, and Mobile Designer generated SVG files from a different machine may contain unsupported features or unavailable items such as fonts. Plus, not all SVG files are even structured in the same way.

For all of these reasons, Mobile Designer maintains an online error log of any issues that are encountered. This log file is displayed at the end of the load process.

Bitmap file formats

Mobile Designer supports all of the popular bitmap file formats. Mobile Designer should always import these file formats completely and without incident.

The following bitmap file formats are supported:

- Animated GIF
- GIF
- JPEG
- PNG
- BMP
- TIFF
- Targa
- Adobe Photoshop (up to Version 7.0; support for text layers is limited)

Note: Adobe Photoshop is a proprietary file format that goes well beyond the other bitmap formats listed above in capability and function. Photoshop files can include elements that are not supported by Mobile Designer. If any of these are encountered, they are ignored. You are advised to visually inspect any Photoshop files you load into Mobile Designer.

3D file formats

Mobile Designer can load many of the most popular static 3D model file formats. Once loaded these can be rotated and animated in full 3D just as you can do with 3D text.

The following 3D formats are supported:

- 3D Studio Max
- Lightwave 3D
- DXF

Sound file formats

Mobile Designer can read a wide array of sound file formats and include links to them inside SVG movies. Due to file size and licensing constraints, sound files are never embedded inside of SVG movies upon export.

The following sound file formats are supported:

- MP3
- WAV (uncompressed, ADPCM, MP3, DivX)
- AIFF
- WMV (audio track only)
- WMA
- AVI (audio track only)
- MPEG (audio track only)

Mobile Designer uses DirectX to import sounds. If you encounter difficulties loading an audio track, it may be because you are missing the proper codec required by DirectX.

When loading a sound from a movie, only the first sound track is used.

Chapter 11: Working with External Data Files

An important feature for delivering dynamic content to SVG powered devices is the ability to include up to the minute information. For example, title and paragraph fields can be populated from a News data feed (i.e. RSS). Another example is in a real-time traffic application where information from road sensor measurements is used to alter the color of a road segment on a map (red if congested and green if not).

This chapter explains how Mobile Designer allows you to develop such applications and deploy them on Live Assets server for rendering and distribution.

Introduction to XML

XML is the acronym for eXtensible Markup Language, the universal format for structured documents and data on the Web. XML is an industry-standard protocol administered by the World Wide Web Consortium (W3C) and is becoming the preferred way of extracting data from one application and making it available to other applications. Various industry sectors are adopting common XML models to exchange data and software platform vendors have released middleware that makes the exchange of XML data very easy.

The following example shows how weather data is represented in XML:

```
<internal />
<Location>San Carlos, CA</Location>
<RecordedAt>San Carlos, CA</RecordedAt>
<Updated>947 AM PDT THU APR 8 2004</Updated>
<Conditions>Mostly Cloudy</Conditions>
<Visibility>10 Mi</Visibility>
<Temp>59 F</Temp>
<Humidity>77 %</Humidity>
<Wind>ESE 6 MPH</Wind>
<Barometer>30.02 in.</Barometer>
<Dewpoint>52 F</Dewpoint>
<HeatIndex>59 F</HeatIndex>
<WindChill>58 F</WindChill>
```

The association between XML data and charts, shapes and other objects are discussed below.

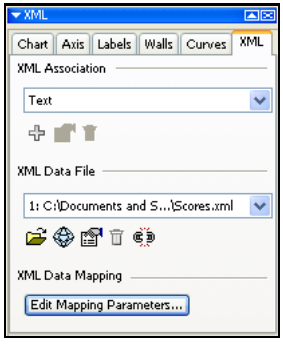
Associating XML data with objects

The following objects can be associated with XML data:

- Rectangles
- Rounded rectangles
- Ellipses
- Polylines
- Lines
- Beziers
- Text
- Paragraph text
- Text on curve
- 3D Text

- Buttons
- Animation clips
- Books
- Image URLs

When one of these objects is selected, the XML tab becomes active.



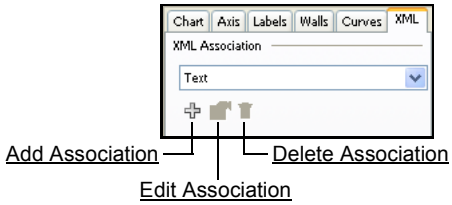
The XML tab has three different sections:

- The **XML Association** section is used to associate object properties and their parameters with the XML data.
- The **XML Data File** section is used to specify where the XML data file is located. XML data files can be local or remote and are accessible via HTTP and FTP addressing.
- The **XML Data Mapping** section is used to open the Mapping Parameters dialog where object properties are mapped to individual data records.

Each of the XML tab sections play an integral part in creating a link between the XML data and the object properties to be altered. Each section is described below.

XML Associations

The first step in the XML association process consists of selecting the properties of an object that you want to alter using XML data.



The XML Association menu displays those properties that are currently available for alteration. Included in this list are any properties you have added manually and those specific properties that are automatically included based on object type (i.e. text objects automatically receive a text association in this menu).

To add an XML Association for the current object:

1. Click the Add XML Association button.
2. Select the desired association and customize it in the Add XML Association dialog.

The XML associations are described below.

To edit an XML Association for the current object:

1. Select an association in the XML Association menu.
1. Click the Edit XML Association button.
2. Customize the association in the Edit XML Association dialog.

To delete an XML Association for the current object:

1. Select the association in the XML Associations menu.
2. Click the Delete XML Association button.

Complete list of XML Associations

The list that follows shows all of the possible XML associations. Not every association is supported for every type of object (i.e. rectangles do not support the text association).

- Fill color
- Stroke color
- Horizontal translation
- Vertical translation
- Horizontal scaling
- Vertical scaling
- Rotation
- Opacity
- Visibility
- Replication
- Text
- Button label
- Button Link
- Script parameters
- Bitmap

Fill color

The Fill Color association enables an object's fill color to be modified based on XML data.

Applicable objects: Rectangle, rounded rectangle, ellipse, polyline, Bezier, text, paragraph text, text on curve, 3D text.

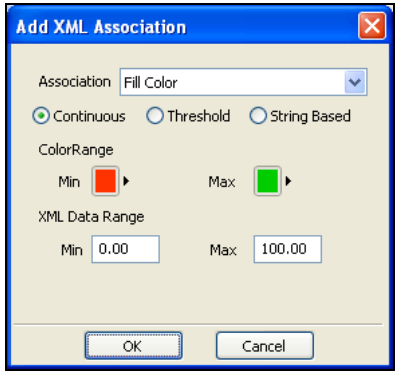
Pre-populated: Never

This XML association has three modes:

- Continuous
- Threshold
- String Based

Continuous mode

Continuous mode is used to map XML data to colors. When using Continuous mode, you specify an expected range of data values as well as a range of colors to display. XML data that falls into the specified range is assigned the equivalent color in the specified color range.



This mode is selected by clicking the Continuous radio button.

To specify the color range:

Do one of the following:

- To set the minimum color in the range, click on the Min color sample and select a color in the Color dialog.
- To set the maximum color in the range, click on the Max color sample and select a color in the Color dialog.

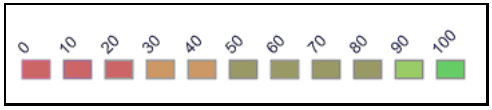
To set the range of expected XML data values:

Do one of the following:

- To set the minimum XML data value in the range, enter a new number in the Min value field.

- To set the maximum XML data value in the range, enter a new number in the Max value field.

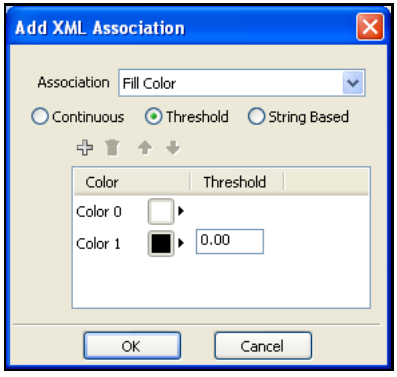
Depending on the XML data, an interpolated color is assigned as illustrated in the graph below (assuming a data range of 0 to 100)



If the XML data is out of the specified range, the color is assigned by extrapolation. It is recommended that you properly indicate the range of XML data values.

Threshold mode

Threshold mode is used to map continuous XML data values into discrete values. When the XML data crosses a certain threshold value, the next color in the sequence is used. For example, you could color-code an alert level based on a real time measurements using threshold mode.

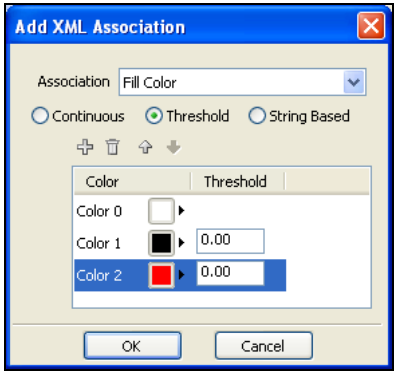


This mode is selected by clicking the Threshold radio button. By default, two colors are created. The second color accepts a threshold value. XML data greater than this value receives this color. XML data below this value receives the first color.

To add a new color/threshold pair:

Press the Add Color button.

This creates a third line in threshold table as shown below:



As above you can specify a different threshold value in the Threshold text box.

To delete a threshold value:

Press the Delete Color button.

To rearrange the colors in the list:

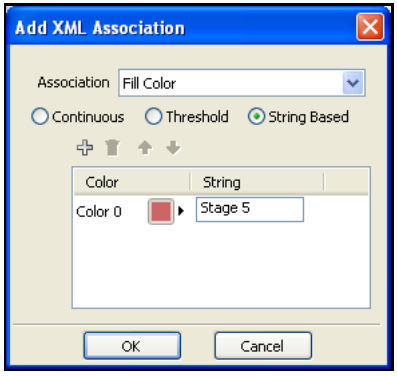
Do one of the following:

- Press the Move Color Up button to move the selected color/threshold pair up in the list.
- Press the Move Color Down button to move the selected color/threshold pair down in the list.

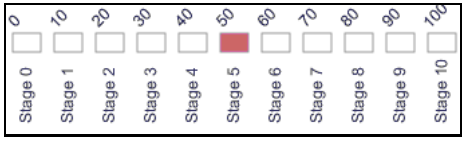
The example below is a rendering of four equal thresholds between 0 and 100:

String Based mode

String Based mode is used to set the fill of an object when the XML data matches the value specified in the XML Association dialog. The data is not required to be numerical.



The result for the test on the string value Stage 5 is illustrated below:



Note: the string comparison is case-sensitive.

Stroke color

The Stroke Color association enables an object's stroke color to be modified based on XML data.

Applicable objects: Rectangle, rounded rectangle, ellipse, line, polyline, Bezier, text, paragraph text, text on curve, 3D text.

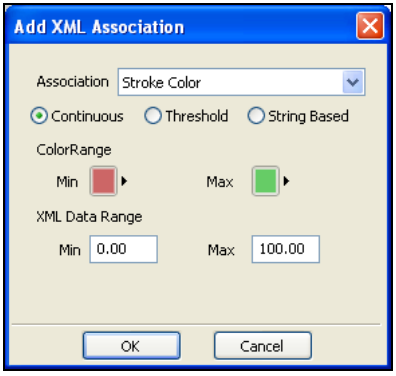
Pre-populated: Never

This XML association has three modes:

- Continuous
- Threshold
- String Based

Continuous mode

Continuous mode is used to map XML data to colors. When using Continuous mode, you specify an expected range of data values as well as a range of colors to display. XML data that falls into the specified range is assigned the equivalent color in the specified color range.



This mode is selected by clicking the Continuous radio button.

To specify the color range:

Do one of the following:

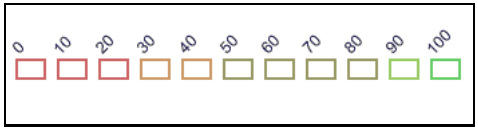
- To set the minimum color in the range, click on the Min color sample and select a color in the Color dialog.
- To set the maximum color in the range, click on the Max color sample and select a color in the Color dialog.

To set the range of expected XML data values:

Do one of the following:

- To set the minimum XML data value in the range, enter a new number in the Min value field.
- To set the maximum XML data value in the range, enter a new number in the Max value field.

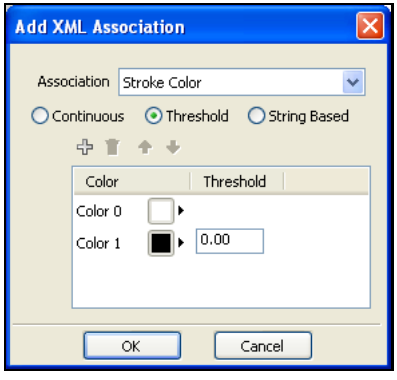
Depending on the XML data, an interpolated color is assigned as illustrated in the image below (assuming a data range of 0 to 100)



If the XML data is out of the specified range, the color is assigned by extrapolation. It is recommended that you properly indicate the range of XML data values.

Threshold mode

Threshold mode is used to map continuous XML data values into discrete values. When the XML data crosses a certain threshold value, the next color in the sequence is used. For example, you could color-code an alert level based on a real time measurements using threshold mode.

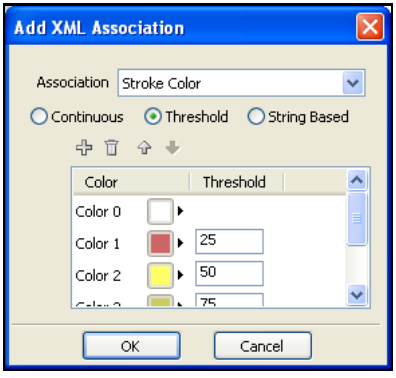


This mode is selected by clicking the Threshold radio button. By default, two colors are created. The second color accepts a threshold value. XML data greater than this value receives this color. XML data below this value receives the first color.

To add a new color/threshold pair:

Press the Add Color button.

This creates additional lines in threshold table as shown below:



As above you can specify a different threshold value in the Threshold text box.

To delete a threshold value:

Press the Delete Color button.

To rearrange the colors in the list:

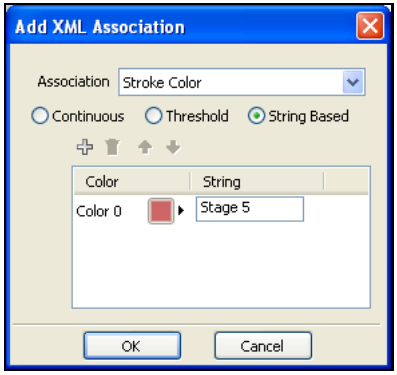
Do one of the following:

- Press the Move Color Up button to move the selected color/threshold pair up in the list.
- Press the Move Color Down button to move the selected color/threshold pair down in the list.

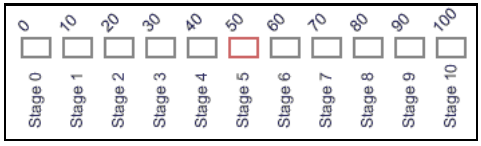
The example below is a rendering of four equal thresholds between 0 and 100:

String Based mode

String Based mode is used to set the stroke of an object when the XML data matches the value specified in the XML Association dialog. The data is not required to be numerical.



The result for the test on the string value Stage 5 is illustrated below:



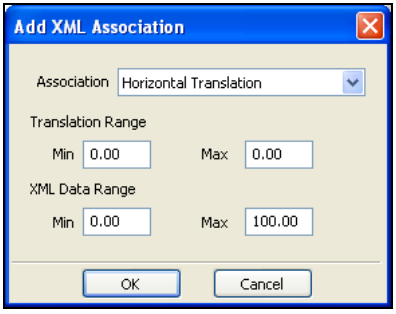
Note: the string comparison is case-sensitive.

Horizontal/Vertical Translation

The Horizontal and Vertical Translation associations enable an object's position to be modified based on XML data.

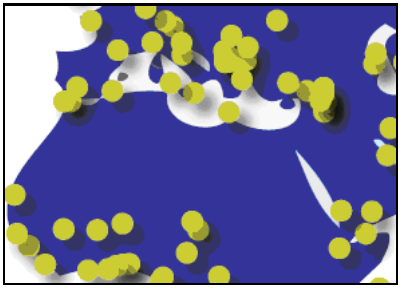
Applicable objects: Rectangle, rounded rectangle, ellipse, line, polyline, Bezier, text, paragraph text, text on curve, 3D text, button, animation, book, bitmap.

Pre-populated: Never



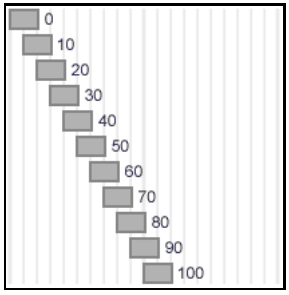
Using horizontal and vertical translation associations, for example, you could display an object on a geographical map and adjust its location based on longitude and latitude information contained in a XML data feed.

In the image below, the yellow dots represent cities. The dots were created with (0,0) coordinates and translated horizontally based on the latitude XML data and vertically on longitude data (both ranging between -180 and 180).

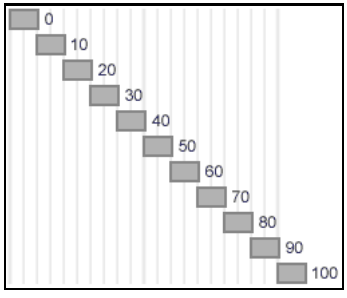


Note: the horizontal translation starts on the left and grows to the right. The vertical translation starts at the top grows down.

In the this example, the XML Data has 11 values ranging from 0 to 100 with increments of 10. Mobile Designer has 11 identical rectangles that are translated using each of the XML data values (using the Replication XML association described below).:



When the Translation range is from 0 to 200 the same XML data is represented as follows:



Note: while the ranges are defined by the Min and Max values, nothing prevents you from having a Min value greater than the Max Swapping the values will simply change the direction of the translation.

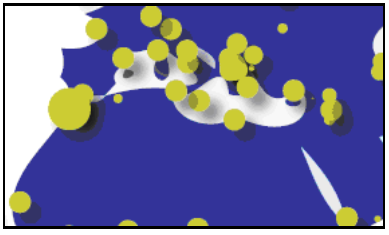
Vertical/Horizontal scaling

The Horizontal and Vertical Scaling associations enable an object's size to be modified based on XML data.

Applicable objects: Rectangle, rounded rectangle, ellipse, line, polyline, Bezier, text, paragraph text, text on curve, 3D text, button, animation, bitmap.

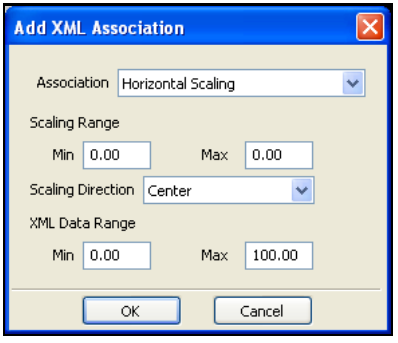
Pre-populated: Never

For instance, in the map example, the dots could be scaled (both horizontally and vertically) to represent the city population.



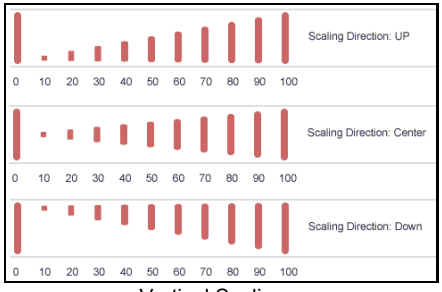
When you select Vertical or Horizontal scaling from the menu, you're presented with three sections:

- Scaling Range
- Scaling Direction
- XML Data range



The Scaling Range sets to the factor by which the objects will be stretched. A factor of zero will not affect the size.

The Scaling Direction indicates which way the object will grow or shrink. The following images illustrate the three possibilities for vertical and horizontal scaling:



Vertical Scaling

Horizontal Scaling

The XML data range represents the span of values for the variable that will be attached to this transformation. Ensure that you calibrate this range properly. If the XML data falls outside of the range, the object will be scaled linearly beyond the Scaling Range.

In order to preserve the size ratio of an object when applying scaling, you will have to apply both horizontal scaling and vertical scaling with the exact same Scaling and Data ranges.

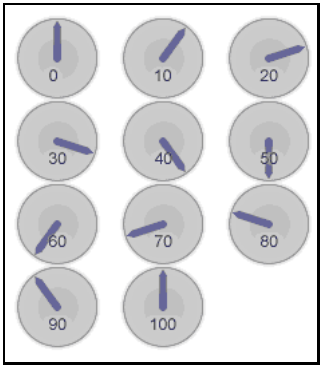
Rotation

The Rotation association enables an object's rotation to be modified based on XML data.

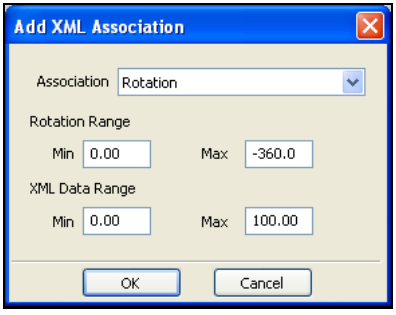
Applicable objects: Rectangle, rounded rectangle, ellipse, line, polyline, Bezier, text, paragraph text, text on curve, 3D text, button, animation, book, bitmap.

Pre-populated: Never

This is very useful when building a Speedometer. for example:



The Rotation dialog contains fields for you to specify a Rotation Range and an XML Data Range.



The Rotation Range is expressed in degrees and runs counter-clockwise. In the Example shown above, the Min value is 0 and the Max is set to -360 in order to obtain a clockwise rotation.

As with other XML associations, when the XML data values are out of range, an extrapolation occurs. In the

example above, an XML data value of 200 will be translated into two full rotations.

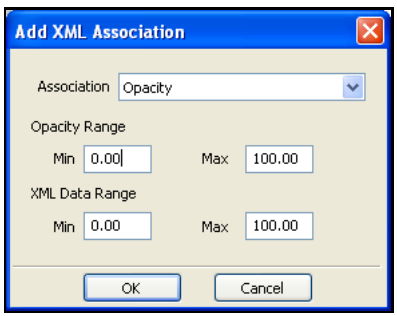
Opacity

The Opacity association enables an object's opacity to be modified based on XML data.

Applicable objects: Rectangle, rounded rectangle, ellipse, line, polyline, Bezier, text, paragraph text, text on curve, 3D text, button, animation, book, bitmap.

Pre-populated: Never

The Opacity dialog contains fields for you to specify a Opacity Range and an XML Data Range



The Opacity Range is expressed is expressed numerically. This range acts as a multiplier for the original object's opacity. An opacity of 0 results in a transparent object. An opacity of 100 results in an opaque object.

As with other XML association, when the XML data is out of the specified XML Data Range, the value is extrapolated. For example if the original object's opacity is 50, the XML Data Range Max is 50 and the Min value in the Opacity Range is 100, if the XML data value turns out to be 100, the object will have an opacity of 100.

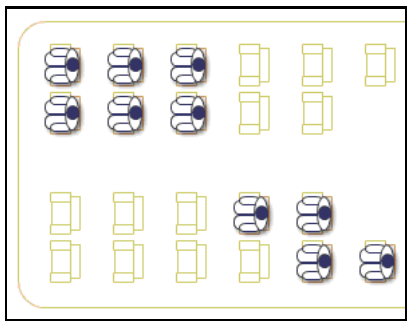
Visibility

The Visibility association enables an object's visibility to be modified based on XML data.

Applicable objects: Rectangle, rounded rectangle, ellipse, line, polyline, Bezier, text, paragraph text, text on curve, 3D text, button, animation, book, bitmap.

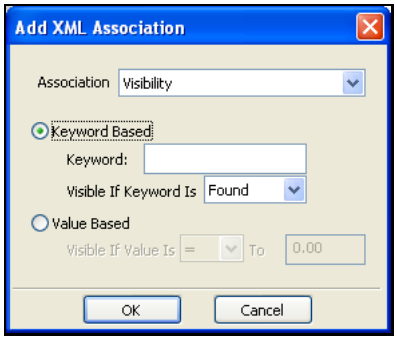
Pre-populated: Never

In the image below, the occupancy of a plane is determined based on XML data values. The XML data file contains one node per seat and an associated attribute Occupied with the possible values Yes and No.



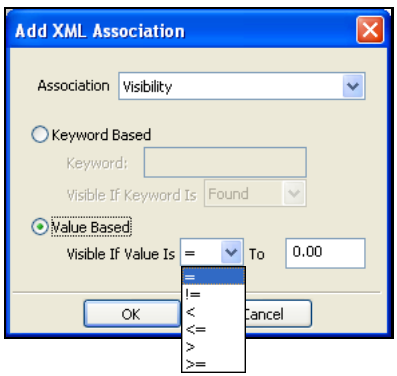
The Visibility dialog offers two modes: Keyword Based and Value Based.

Keyword Based



Keyword mode tests for the presence of the specified Keyword. Depending on the selection in the drop-down list of the interface, the presence of the Keyword will make the object visible or invisible.

Value Based



Value mode will compare, in many possible ways, a numeric variable to a value and make the object visible or not.

Note: an object marked as invisible in the original design will not be made visible by the XML association no matter what the value is in the XML data.

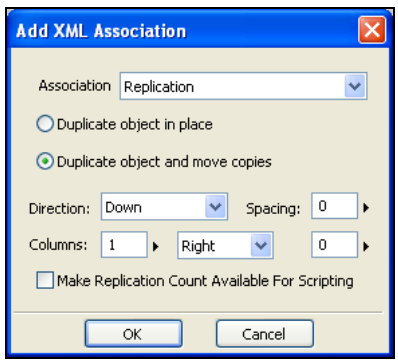
Replication

The Replication association creates duplicates of an existing object but does not otherwise modify those objects. The number of duplicates is determined by the data in the linked XML data file. These duplicates can subsequently be modified using other associations.

Applicable objects: Rectangle, rounded rectangle, ellipse, line, polyline, Bezier, text, paragraph text, text on curve, 3D text, button, animation, book, bitmap.

Pre-populated: Never

The Replication dialog provides maximum flexibility regarding the location of the replicated objects. They can be all stacked at the same location, using **Duplicate object in place**, to be moved later (using translation and/or rotation XML associations), or can be automatically positioned, using **Duplicate object and move copies**.



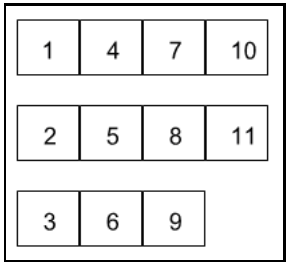
Duplicate object and move copies offers several options that define how the copies are positioned.

The Direction menu is used to specify which direction the copies are moved. You can move replicated objects Up, Down, Left and Right. You can also specify the number of pixels between each replicated object using the adjacent Spacing value field or slider.

The Columns field (which becomes Rows when Direction is set to Left or Right) is used to specify how many rows/columns of replicated objects are created. The adjacent menu is used to specify on which side of the original object the rows/columns are created. The last field is used to specify the spacing between the rows/columns.

The image that follows illustrates replication using the following parameters:

- Direction: Right. Spacing: 0.
- Rows: 3; Down; Spacing: 20.



Replication and Books

Books can only be replicated in place (i.e. the Replicate and move copies radio button is disabled).

With books, the book itself is not replicated. Instead, the first page of the book (page 1; the foreground and background pages remain and are not replicated) is replicated and added to the book as a normal page. Any other pages in the book are ignored.

Replication and Scripting

The final option in the replication dialog, **Make replication Count Available For Scripting** is used if you are writing scripts to manipulate your SVG file and need to access the objects that are replicated.

When this scripting box is checked, the replicated objects are renamed to include a replication index. This index will have a range from 0 to the replication count minus 1.

For example, if the object "Rectangle" is replicated twice, the replicated object names are "Rectangle__0" and "Rectangle__1".

Two underscore characters always precede the replication index.

Note: in order to export the object names effectively making them accessible to JavaScript, the **Export ID** *box for each of these objects must be checked in the Object tab. For more information on the Object tab, see "The Object tab" on page 77.*

When a component are replicated, the objects inside the replicated component are renamed using the pattern described above. This ensures that all objects have unique names.

If you have written a script to be used by buttons and have checked the option to have the replication count available in scripting, a global script variable is added automatically. The variable name for this is based on the replicated object name with the suffix "__count" (two underscore characters followed by the word "count").

For example:

```
var Rectangle__count = 11;
```

This allows you to dynamically generate names to access replicated objects in scripts.

Replicating objects inside of components and groups

You can also replicate objects inside components and groups that are themselves replicated. In this case you may have objects with several replication indices.

For example, you could have a replicated component named “button” that contains a replicated object named “rectangle”. In this case, you may generate objects with the following Export IDs:

- button__0
- rectangle__0__0
- rectangle__0__1
- rectangle__0__2
- button__1
- rectangle__1__0
- button__2
- rectangle__2__0
- rectangle__2__1
- rectangle__2__2

The global scripting variable however is not going to be “rectangle__2__count” as it would be impossible to access the variable by dynamically generating its name (“rectangle” + “__” + first_index + “__count”).

Instead, you will have only one variable “Rectangle__x__count”. This is an array, whose size is determined by the “count” of the top replication, containing all the count.

For example:

```
var button_count = 3;

var rectangle__x__count = new
Array(3, 1, 3);
```

Text

The Text association enables an object’s text to be modified based on XML data.

Applicable objects: text, paragraph text, text on curve, 3D text.

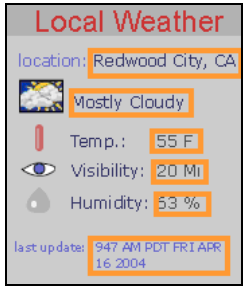
Pre-populated: When applicable.

The example below shows how a subset of a weather XML data stream is translated into a weather visualization application.

The data:

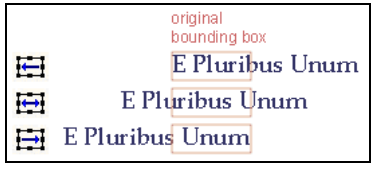
```
<internal />
<Location>Redwood City, CA</Location>
<RecordedAt>Recwood City, CA<RecordedAt>
<Updated>947 AM PDT FRI APR 16 2004</Updated>
<Conditions>Mostly Cloudy</Conditions>
<Visibility>20Mi</Visibility>
<Temp>55 F</Temp>
<Humidity>53 %</Humidity>
<Wind>SE 5 MPG</Wind>
<Barometer>30.04 in</Barometer>
<Dewpoint>39 F</Dewpoint>
<Heatindex>57 F</Heatindex>
<Windchill>57 F</Windchill>
```

The visualization:



The Text field properties are be preserved including the font, font size, proportions and alignment in the bounding box.

The image below shows how dynamic content can outgrow the original bounding box of a Text field depending on the alignment settings.



The case of the text in the XML data file will be preserved and may override the case setting of the original place holder text.

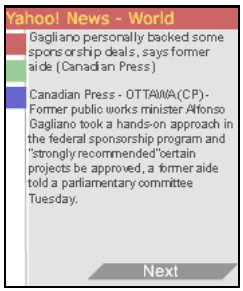
Button Label

The Button Label association allows you to change the label on a button based on XML data.

Applicable objects: buttons.

Pre-populated: on buttons that contain at least one text, paragraph text or text on curve object.

For example, a viewer for the syndicated news XML format RSS will have a button with the News Channel as a label, as shown below:



This XML association has no parameters.

If a button has multiple eligible fields, Mobile Designer will inspect the button's contents starting with the frontmost object and replace the first qualified field it encounters. If this field is also the subject of a Text association, the Button Label association will override it.

Button Link

The Button Label association allows you to change a button action (specifically the Jump to URL link) based on XML data.

Applicable objects: buttons.

Pre-populated: for buttons with a "Jump to URL" action associated with a particular event (i.e. mouse click); the action must be populated with a valid URL in Mobile Designer.

In many XML data feeds such as RSS files, some of the variables hold HTTP URLs that point to other web pages. Mobile Designer allows you to design buttons with actions that will open a new web page. Using this XML association you can dynamically alter the URL with one from the XML data feed.

When the Button Link association is pre-populated, no additional parameters are required except for the common XML mappings described in following sections of this chapter. It is, however, for the URL included in the XML to be explicit and include the protocol prefix (HTTP://, HTTPS://, FTP://, C:/, etc.).

Dynamic Script Parameters

The Dynamic Script Parameters association allows you to provide parameters to a script function using XML data. This association is unique in that you can add as many dynamic script parameters to a given object as you want or need.

Applicable objects: buttons.

Pre-populated: never.

When dynamic script parameters are added to a button, the parameter name in the XML Association menu changes to reflect its index. This index is also the placeholder name it will replace).

For example, if you add three dynamic script parameters, they will be named as follows:

```
Dynamic Script Parameter (%1)

Dynamic Script Parameter (%2)

Dynamic Script Parameter (%3)
```

To use dynamic script parameters, you must add the Call JavaScript Function to your button. In the parameters of the function to be called you can specify dynamic parameters by using the placeholders %1, %2, %3, etc.

Depending on the type of parameter you may need to quote the parameter (if it's a string).

For example, you could have the following function parameters and parameters:

```
ShowAlert('Warning', '%1');
```

Once the association is linked to an XML value, the script call inside the SVG will actually contain the value from the XML file.

```
ShowAlert('Warning', 'string from XML!');
```

Since the placeholder nomenclature uses the '%' sign, using that particular character will require special handling: you will need to write '%%'.

For example:

```
DisplayValue(%1, 'Unit: %%');
```

When exported to SVG, the call will be converted to:

```
DisplayValue(27.5, 'Unit: %');
```

Note: you can add more dynamic parameter associations than you really need, however adding fewer than you really need will result in script/parsing errors.

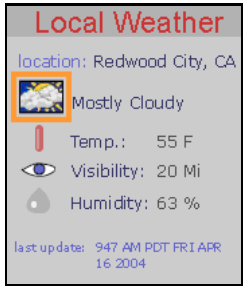
Image URL

The Image URL association allows you to replace an image by another one based on XML data.

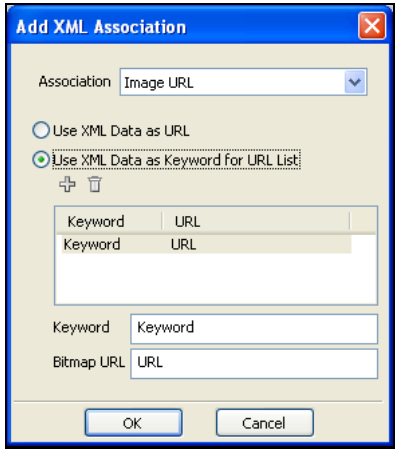
Applicable objects: images.

Pre-populated: available for selection from a list when an image is selected.

For example, in the Weather application, the weather condition image changes to reflect the current conditions.



The Image URL association window has two different modes: Use XML Data as URL and Use XML Data as Keyword for URL List:



Use XML Data as URL

Use XML Data as URL allows you to get the URL for the image directly from the XML data feed.

For example the RSS format offers a URL that can be used directly:

```
- <image>
    <title>Yahoo! News</title>
    <width>142</width>
    <height>18</height>
    <link>http://news.yahoo.com/</link>
    <url>http://us.i1.yimg.com/us.yimg.com/
  </image>
```

Use XML Data as Keyword for URL List

Use XML Data as Keyword for URL List allows you to map values in an XML file to image representations. In this mode, you create a list of keyword/URL pairs. These are edited by selecting a pair in the list and changing their respective fields below.

XML Data files

Once you have defined at least one XML association, it is possible to attach XML data feeds to your Mobile Designer documents. Each XML data feed can be used by more than one XML association.

The XML associations are considered to be object parameters (i.e. they are associated with a particular object or object attribute), however XML Data feeds are document parameters (i.e. they are available to the entire document).

From the XML tab, you can add, edit and remove XML Data feeds. Because XML Data feeds can be associated with multiple objects, doing this can affect not only the current object, but other object associations.

Once a data file has been added to the document, it is listed in the XML Data File menu and available for all objects in your document. Adding the same file twice does not add a second entry in the list; it does automatically select the first file though.

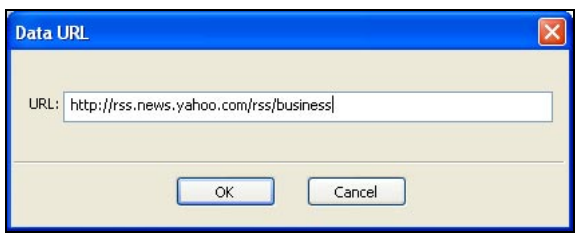
When deleting an XML Data feed, every association linked to this loses its association.

When editing the location of an XML Data feed, every association linked to it is updated with the new location.

The XML Data feed files can be specified using a local file or a file on the internet.

To use a local file, click on the File Open button and select a .xml or .txt file in the standard Windows Open dialog.

To use a file o the internet, click on the Open XML File via URL button. This opens the Data URL box where you can enter a valid URL. This URL must include a valid prefix such as HTTP:// or FTP://.



When you click the OK button, the URL is added as the current selection to the list of available XML data files with an index prefix.

To edit the location of the selected XML Data feed

To delete the selected XML Data feed from the list of available files, click the Delete button. Upon doing this, all existing links to this file will be lost.

To disconnect a previously established XML Data feed for the current association without removing the feed from the XML Data File list or impacting any other associations, click the Unlink button.

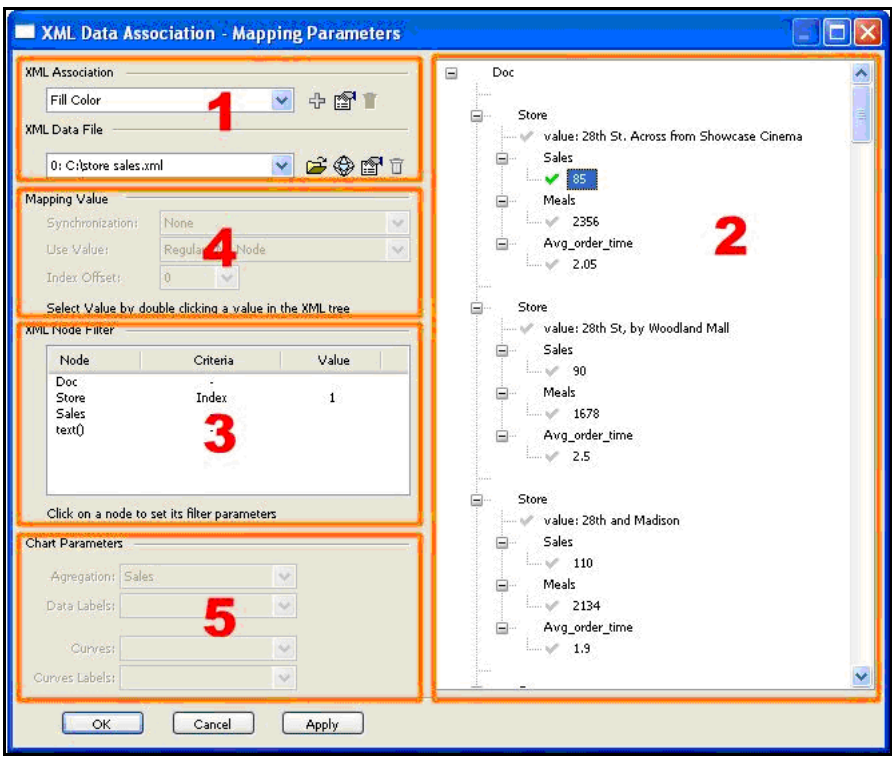
Note: the validity of the XML Data file is not checked when the file is added to the list. It is only checked when there's an attempt to edit the XML parameters (see below).

It is your responsibility to ensure that the XML Data files used conform to the XML standard as defined and maintained by the W3C (available online at http://www.w3.org/XML/).

XML Data Mapping

Once the XML Association has been created and an XML Data file has been loaded and selected, you can define the XML data mapping.

Click the **Edit Mapping Parameters** button to open the XML Data Association Mapping Parameters dialog.



This dialog has five sections.

Area 1 is a copy of the XML tab and allows you to easily add/edit/remove XML associations and data files without having to close and re-open the dialog to access the tab.

Area 2 displays the XML Data feed you selected. Through this tree view, you select the node you want to map to your association.

Area 3 displays the nodes of the XPath you selected in the Area 2. You apply filters to the nodes in this area.

Area 4 is used to fine tune your mapping when you use replication.

Area 5 is used to select more than one node to do the data mapping when working with charts. This area allows you to select nodes for chart curves, labels, etc.

Mapping data

XML data mapping is done by selecting a node, the content of a node, or the content of a node attribute, and then choosing parameters for this node and its parent nodes.

The selection of the node content is done in the tree view (Area 2) by double-clicking on the data elements. Valid nodes have a grey check mark next to them.

Not all associations accept the same kinds of data.

For instance, opacity, scaling and translation require numerical values. Only nodes and attributes with numerical content will be selectable for these.

Similarly, Text and Image URLs require string values. Only nodes and attributes with string content will be selectable for these (in this case, any non-empty node or attribute qualifies).

Other associations like visibility and fill/stroke color have different needs depending on their parameters. The tree view always reflects which nodes are selectable and which are not for the current association.

Replication is a special kind of association. It does not require node or attribute content, but rather a node itself. It is the presence (and number) of this node in the XML feed that drives the replication of the object.

Selecting a node content, attribute content, or node in the tree view changes the check mark color to green and fills in the node list (Area 3).

The image above contains the following nodes:

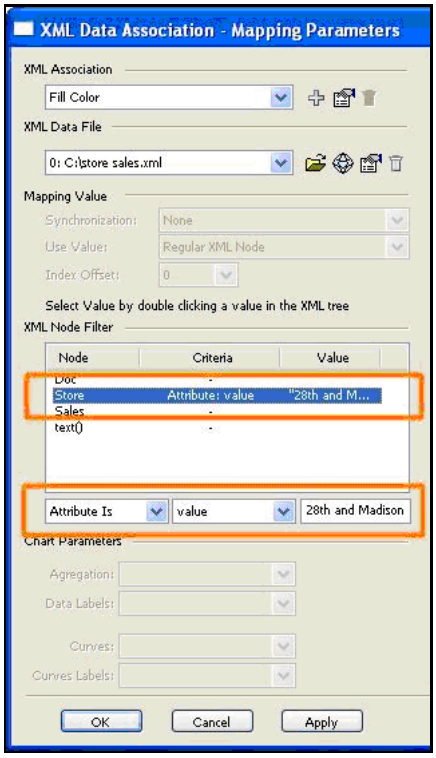
- Doc
- Store
- Sales
- text()

The last entry indicates the content of the node Sales. If an attribute of the node Sales is chosen, the name of the attribute, preceded by the "@" character is displayed.

For all of the nodes in the list except "text()" and "@<attribute>", you can set filters to specify one particular node in the XML feed if that node is present several times.

For example, the node Store appears multiple times in the tree view above. Therefore, it has an index number associated with it.

The filter can also be defined by attribute, as shown below.



Present attributes include value. After selecting the node in the list, you can select the type of filter from the menu directly under the node list. Selecting attribute node, the attribute "value" and entering a value automatically moves the green check mark to the content that matches the filters.

The possible node filters are:

- **Attribute Is**. This node filter displays the list of attributes found for the node in the XML feed. Once an attribute is chosen, enter the value for this attribute. Only nodes with this attribute (there can be more than one) are valid.
- **Index Is**. This node filter displays an edit field. Enter an index in this field. Only nodes with this attribute (there can be more than one) are valid.
- **All**. All of that particular node are valid.

When selecting node or attribute content, the default filters are set using the following rules:

- If a node is present multiple times, the filter is automatically set to Index and the filter value is set to match whichever node was selected in the tree view.
- If the node is present only once, the filter is automatically set to All.

In the example above, selecting the content of the node Sales of the first store results in the following:

- Doc. There is only one node called Doc so the filter is set to All
- Store. Multiple nodes called Store exist, therefore the filter is set to Index and the value to 1 (or whatever value matches where you double-clicked).
- Sales. There are multiple nodes Sales in the feed, but only one falls under "Doc -> Store (index 1)". Therefore this node has no filter (i.e. the filter is set to All).

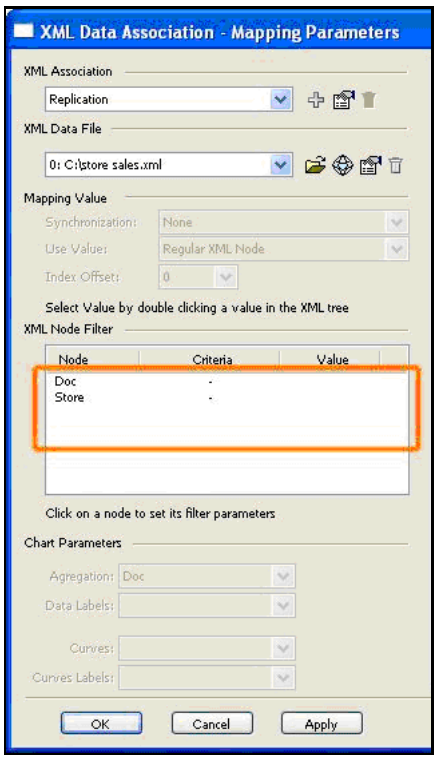
Except for the replication, all associations require only one value. If the node filters result in several valid nodes (in which case they will all be shown as green), only the first node content or the first attribute content will be used to modify the object.

Setting up parameters for replication

As discussed earlier in the XML Association section, the replication association allows you to replicate a shape, image, button, animation clip or book page depending on the number of XML nodes in an XML Data file.

When this association is selected, the tree view shows grey check marks directly in front of nodes, instead of node contents or node attribute contents.

When selecting a node, the last node is automatically set to All since this is most likely the node you want to use.



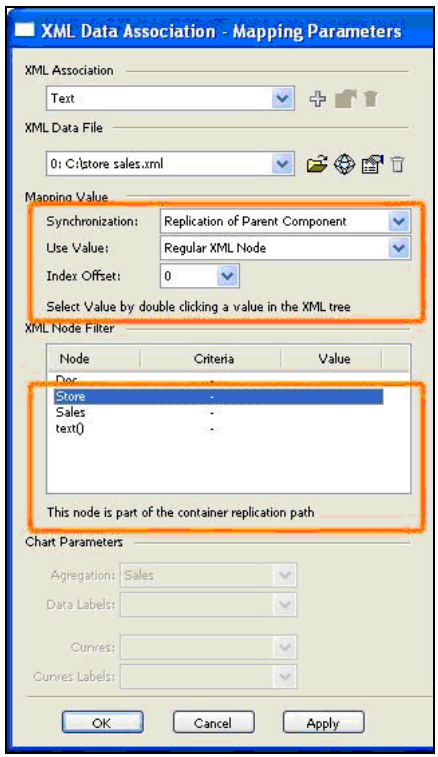
Notice that the node list does not include any “text()” or “@<attribute>” items since a node is selected.

One of the important features of replication is to set other parameters to display data depending on the replicated node.

In the example above, if the replication is applied to a book, elements in the replicated pages can have values set to reflect each Store node.

To do this, each association of objects inside the pages needs to synchronize with the replication of the book.

When editing the associations of an object containing a replication association or of an object inside a replicated component, the Synchronization menu is active in the Mapping Value section.



The image above shows Text association for an object inside the replicated page.

Possible values for the Synchronization menu are:

- **Replication of Parent Component**. This option is available only if the object is inside a button, animation clip or book that is replicated. This is the case here where we want to display the sales value in each page for each store.
- **Replication of object**. This option is available if the object also has a Replication association.
- **None**. Even though the object is replicated somehow (replicated itself or inside a replicated component), you do not want to synchronize this association with the replication association(s).

With these parameters, the text in the first page will be "85", the text in the second page will be "90" and so forth, for as many nodes as are present in the XML feed (and therefore for as many pages present in the book).

Note: selecting None in the Synchronization menu and selecting the content of the node Sales with no filter on any nodes (especially Store) will show all Sales nodes as selected (as indicated by a green check mark). But the result will be entirely different. As explained earlier, associations that need only one value will always take the first value when presented with several possible nodes. In this case, the text objects in each replicated page will show the sales number of the first store.

An object inside a replication component can also be replicated. In this case, the replication association of the object will be synchronized with the replication of the component, while the other associations of the object will most likely be synchronized with the replication of the object itself. Synchronizing the other associations of the object on the component replication will result in all replicated objects inside the same component being identical.

Two other replication parameters, Use Value and Index Offset, allow you to display special values.

The Use Value options are:

- Regular XML Node
- Replication Index
- Replication Count

Regular XML Node lets you simply use the value of a node, synchronized on the replication. This is the default option and is used in the example above.

Replication Index does not use the XML, but simply uses the index of the replication as a numerical or string value. This is very useful for displaying page number in a replicated book, for instance.

Replication Count is similar to Replication Index except it uses the total count of the replication as its value.

The Index Offset values are -1, 0 and 1. The default is 0.

Index Offset allows you to access the content of the previous or next node from a replicated node.

For example, in the case of a replicated book, you could use it to customize the next page or previous page buttons to display some information about the next or previous pages.

Finally, notice that the node filter list does not allow you to set filters for the nodes that are part of the replication path. Changing their filters would break the synchronization.

The filter menu is replaced by a warning: "This node is part of the replication path."

However, changing the filters in the replication path nodes does update the filters for the nodes of all the associations that synchronized with it. If one of those associations is a replication that has other associations synchronized with it, they are also be updated.

Associating XML data with charts

In Mobile Designer, user data is associated with charts only at Preview and Export. Until you preview or export, the data used to populate a chart or graph is generated dynamically to help you visualize how your chart will look.

XML files are used to provide data and labels to charts. The other formatting information is set in Mobile Designer.

Every time you create a chart, a chart XML association is created for you in the XML tab. Each kind of chart (i.e. single value, single series or multiples series) requires a different format of data. These are detailed in the sections that follow.

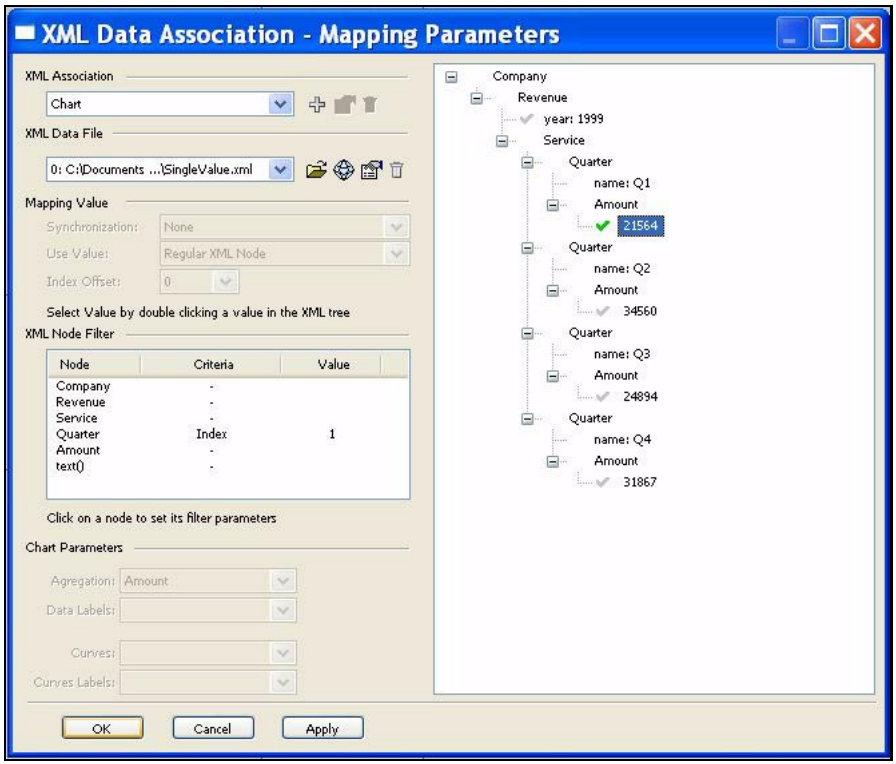
Single value charts

Applicable objects: single value charts.

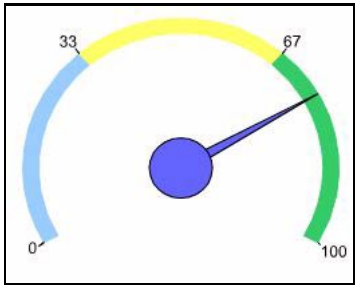
Pre-populated: No options available.

Single value charts require only one (and only one) value to be fully functional. For example, for a speedometer chart, this value would be used to set the speedometer dial.

For example, the following image shows an XML file in the Data Association dialog with one Amount selected.



This mapping produces the following single value chart upon export:



Single series charts

Applicable objects: single series charts.

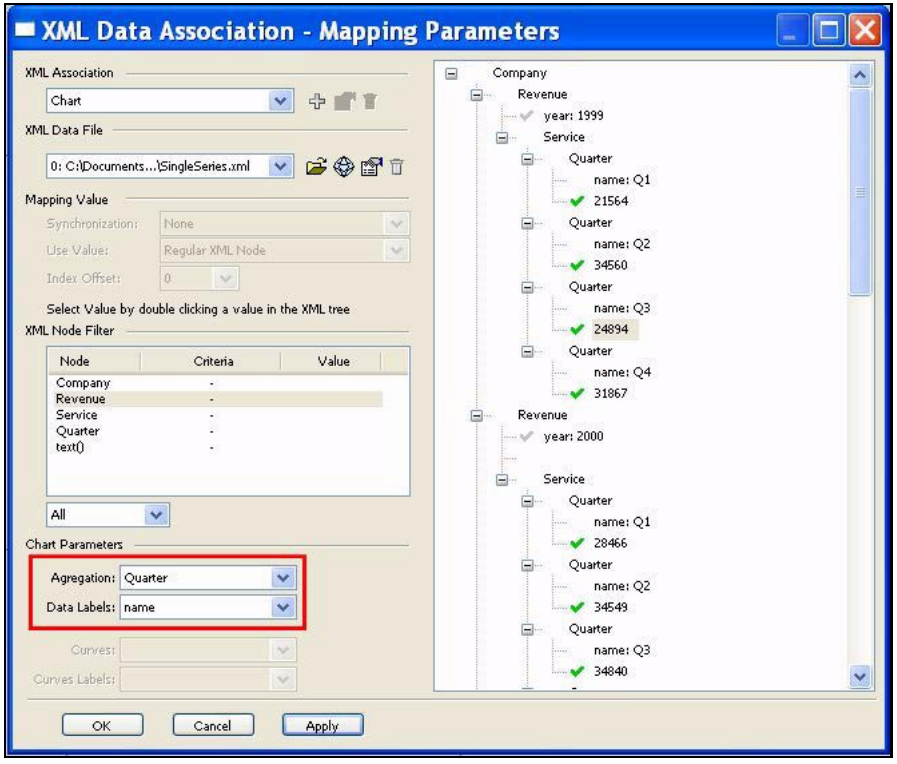
Pre-populated: No options available.

Single series charts are populated using a set of values. You can also optionally include a set of labels in the XML data file.

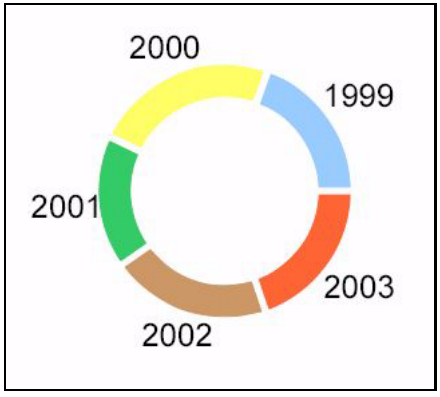
Once an XML data file has been loaded, the first step is to map the data values to the chart. Because it is likely that more than one value will be used to create the chart, the XML Node Filter must be modified to indicate a range of values. The path definition will also need to be modified to reflect this choice.

If necessary, Mobile Designer can add several values located under the same node level through a process called "aggregation" (see image below)

If the node selected for an aggregation level supports attributes, then these attributes can be selected as labels for the chart values. It is then possible to access these values from the Labels tab.



Using the settings and associations in the XML Data Association dialog shown above, the following chart is generated at export:



Multiple series charts

Applicable objects: multiple series charts.

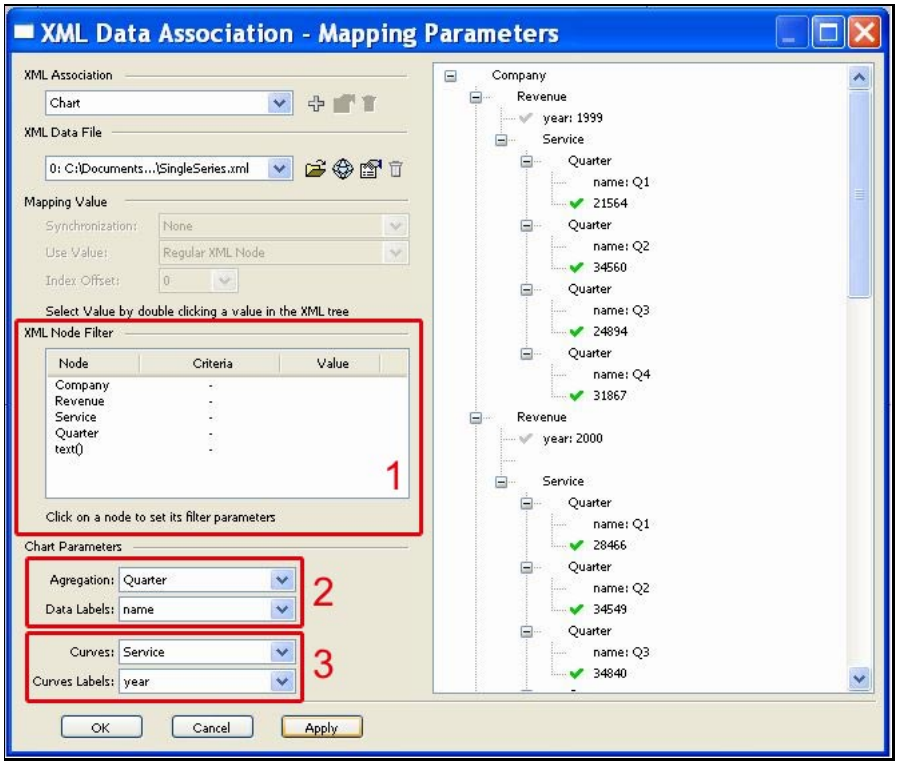
Pre-populated: No options available.

A multiple series chart requires two additional pieces of information when compared to single series charts: a node level to define the curves, and the label for the curves.

After selecting an XML file, the following steps are used map the XML data with the chart elements (see image below):

1. Select the data used to create the chart by selecting a field in the XML tree and adjusting the XML Node Filter parameters.
2. Select the aggregation level and the field used for the labels in the Chart Parameters section.

3. Select a node level for the curves and the field used for the curves labels.



Chapter 12: Working with JavaScript

Beatware Mobile Designer includes support for calling JavaScript functions contained in external JavaScript files. There are two levels at which these external files can be integrated within Mobile Designer:

- At the SVG Tag Level via the Onload or Onkeypress events.
- At the Component Level, via the Onmouseover, Onclick, Onmouseup, Onmouseout and Onend events.

General Behavior

No matter what level you wish to access your external JavaScript files, access to all of your JavaScript functions is provided through the use of drop down menus within Mobile Designer. As indicated in the image below, you both select a specific function as well as provide parameters for that function all from within Mobile Designer's easy to use dialog system.

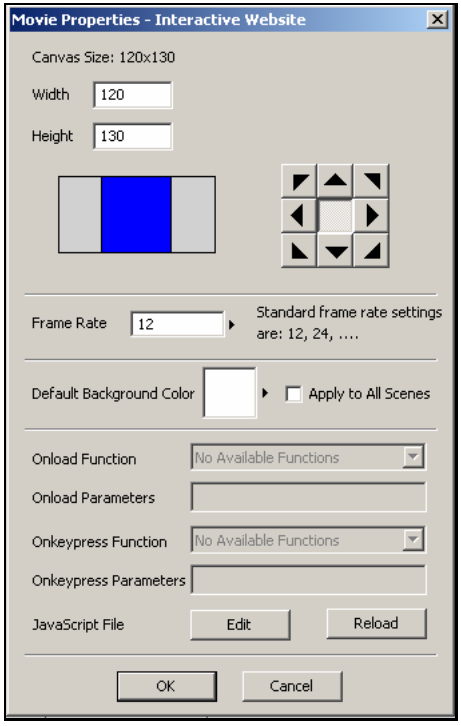
You can even create or edit your JavaScript files on the fly by using the built-in **Edit** button, or if you prefer, you can edit the files outside of Mobile Designer using your editor of choice and **Reload** them when finished. Either way, the list of available functions is automatically updated, and the parameters field is available for any changes to your parameters list.

SVG Tag Level

You use SVG Tag Level JavaScript calls when you want to take a specific action when your SVG file is loaded or when a particular key on the keyboard is pressed. For example, you may wish to use SVG Tag Level JavaScript to initialize your parameters or trigger an animation when the user presses the space bar.

SVG Tag Level calls are specified in the Movie Properties dialog. The Movie Properties are accessible by choosing Image > Movie Properties or by right-clicking on the canvas and selecting Movie Properties.

Within the Movie Properties dialog, you can create or load a function and specify its parameters for the onload and Onkeypress events.



By default, if you're exporting JavaScript functions in SVG, a bwInit(evt) function will be called with the Onload event in order to set a global variable svgdoc to the SVGDocument node. This variable is necessary to access the elements of your SVG DOM.

Component Level

Two components in Mobile Designer are capable of generating or handling events that in turn can call JavaScript functions. These are:

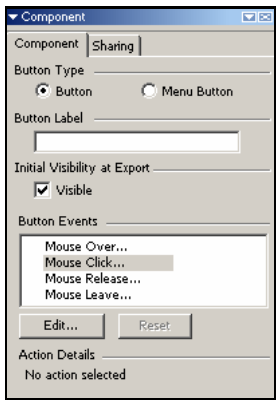
- Buttons
- Animation Clips

Buttons

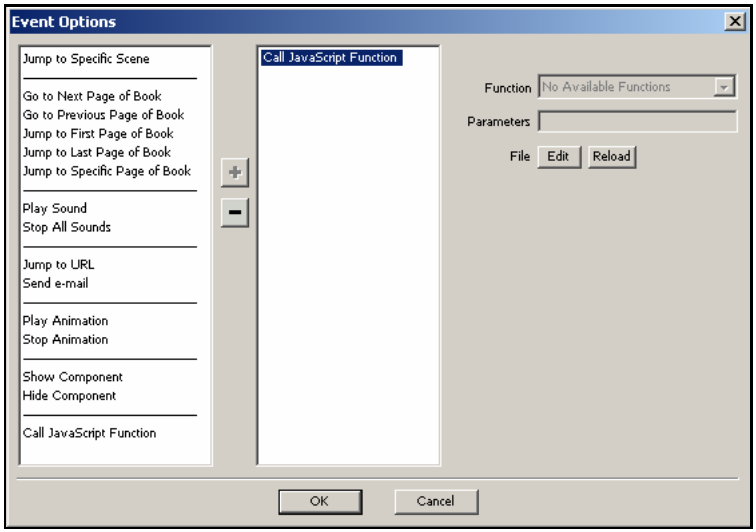
There are four events associated with buttons: mouse over, mouse click, mouse release, and mouse leave. Any or all of these events can be set to trigger a call to one or more JavaScript functions.

For example, if you have a movie called MyButton.md with a button in it, and you want to call the function AlertMe(WarningMessage) located in an external JavaScript file, you would do the following (see "Buttons" on page 144 for more information on creating buttons):

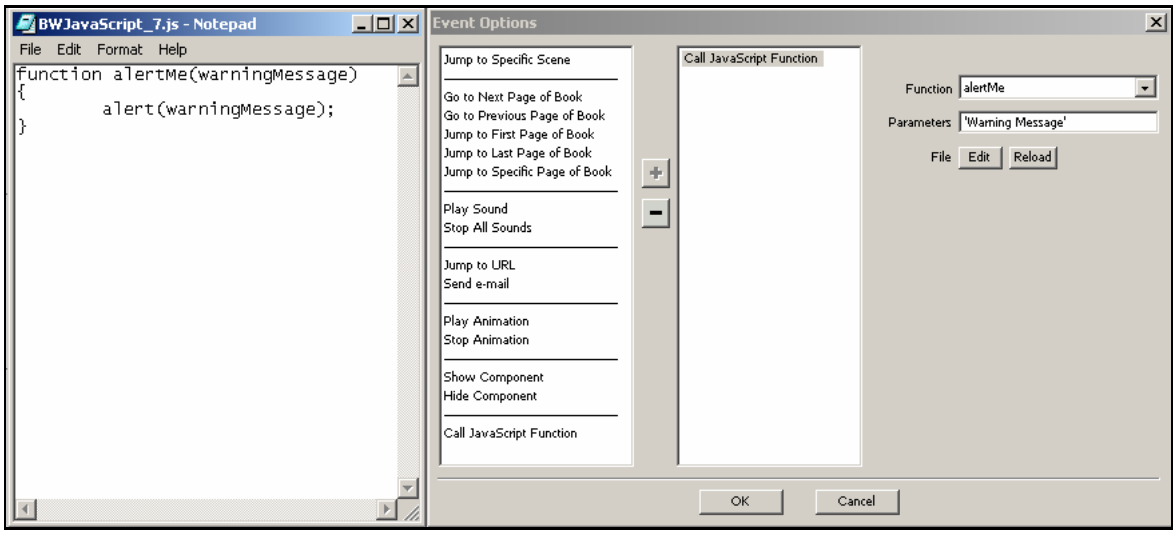
1. Select the button in your scene.
2. Click on the Component tab in the Inspector panel.
3. Double-click on the Mouse Click event (shown below).



4. In the Event Options dialog, double-click on the Call JavaScript Function item in the first column to select it.



5. Assuming the JavaScript file does not yet exist, you would then click on the Edit button and create the AlertMe() function in the editor provided (probably NotePad).

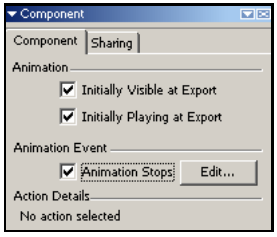


6. When finished in the in the editor, you would then save the file, close the editor, and press the Reload button in Mobile Designer to make this function available.
7. Lastly, select AlertMe in the function menu and add the text, 'Warning Message' (note the single quotes) or any other text you want to display.

All that is left to do is Save MyButton.md and Export it to SVG (the saved file is used later in this document). That's all there is to calling a JavaScript function in response to a button event.

Animation

Animation events are much more limited than button events in that there is only one event that an animation clip can trigger: Animation Stops. The Component tab for animation clips is correspondingly simpler, with only a single check box to indicate that an action is to be taken as a result of this event.



In order to set the desired response to the Animation Stops event, press the adjacent Edit button. This opens the Event Options dialog. The remainder of the process for calling a JavaScript function is identical to that used for buttons, described above.

Remember to disable the loop button for the animation, otherwise your animation will never stop and your JavaScript function will never be called!

Connecting to XML

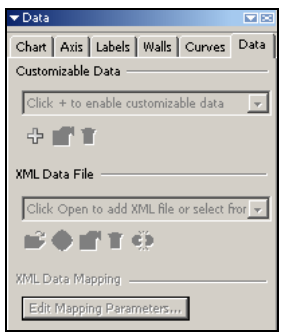
It is also possible to tie parameters to data values stored in an separate XML file. For example, instead of entering 'Warning Message' as the parameter that is displayed by the JavaScript above, you could display a message that is stored in an external XML file.

In order to accomplish this, do the following:

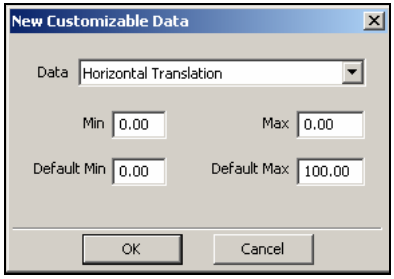
1. Open any text editor (i.e. NotePad) and type the following line:

```
<message>Hello World!</message>
```

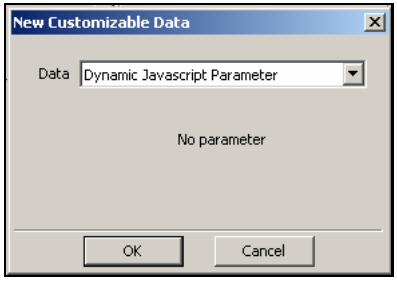
2. Save this file as Message.xml.
3. Open MyButton.md in Mobile Designer.
4. Select the button.
5. Click on the Data tab in the Inspector panel, expanding it to show all of its contents, if necessary.



6. Click on the "+" button in the Customizable Data section to open the New Customizable Data dialog.

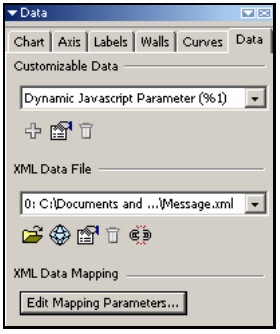


7. In the Data menu, select Dynamic JavaScript Parameter.

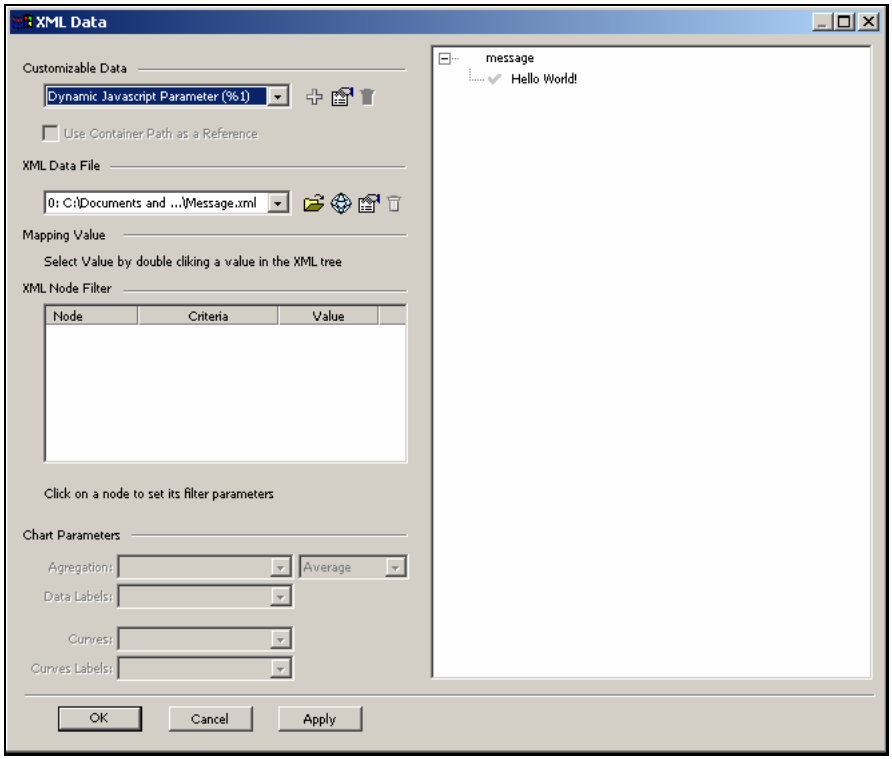


8. Click OK create the dynamic parameter, close this dialog and return to the Data tab.

9. Click on the Open Folder icon in the XML Data File section of the Data tab to load the XML data file, Message.xml, created earlier.



10. Click the Edit Mapping Parameters button to open the XML Data dialog.



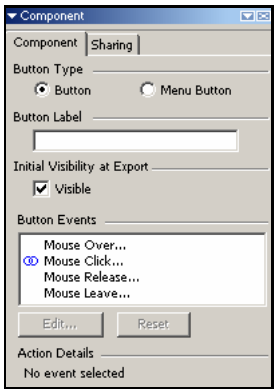
11. Double-click on “Hello World!” in the XML tree on the right to link the JavaScript parameter to this text.

Note that the Customizable Data section in the screen shot above displays “%1”. You will see this value later when you change the parameter of the JavaScript function.

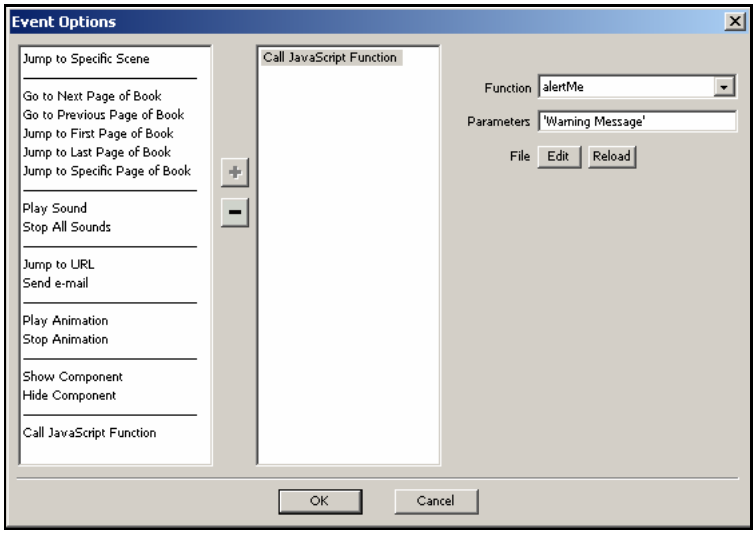
12. Click OK to close this dialog.

In order to reprogram the component to use the XML value in the JavaScript function, the button events must now be changed slightly.

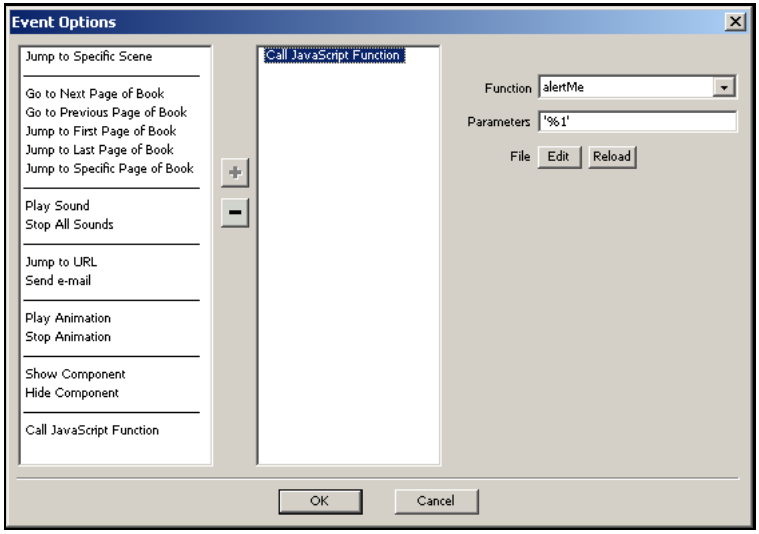
13. Select the button and click on the Component tab to display it.



14. Double-click on the Mouse Click event to open the Event Options dialog.



15. Change the Parameters field from 'Warning Message' to '%1' (including the single quotes). This value will be replaced at export time by the “Hello World!” text contained in the XML file you loaded earlier.



16. Click OK.

17. Save and export your document.

That's it. You have now created an SVG document that dynamically reads an XML data file and displays it using an external JavaScript function.

Chapter 13: Saving, Previewing and Exporting

Mobile Designer saves and export your movies in a variety of formats depending on the desired use and destination for the file. It also supports numerous options that provide control over how the output file looks and behaves.

In this chapter, you learn the various file storage formats, their uses, and how to customize and optimize their various settings.

Saving files

Mobile Designer saves movies in a proprietary format using a ".md" file extension. This proprietary file format contains all of the settings, properties and hierarchies required to open and edit the file in Mobile Designer at a later date.

Mobile Designer offers two options when saving files:

- The File > Save command saves the movie using the current name and path information.
- The File > Save As command lets you save the movie under a different name and path than was used previously.

Generally speaking, you always save a Mobile Designer movie at the end of a design session (if not also during), and export the movie to SVG or another file format when you are ready to preview or distribute it.

Previewing and exporting files

In order to view a movie as it will appear on a target device or in a specific file format, you must either preview or export it. When you perform one of these actions, Mobile Designer converts the internal movie format into one that is compatible with other popular viewing devices.

Preview vs. export

Both preview and export output a movie in the file format you designate (i.e. SVG) using the export options you specify (i.e. compress the output file). The difference between the two is what they do with the generated output file.

Movie preview

When you preview a movie, Mobile Designer generates a movie and displays that movie in the browser or display device you specify. It does not open the standard save file dialog as part of the preview process, so you do not end up with an exported file as part of the preview process.

Preview is intended to provide you with a quick and easy way to view the current state of your Mobile Designer movie while you are creating it.

Movie preview is controlled through the Format toolbar. Using this toolbar you can set the output

format, the viewer used to display the movie, and the preview settings. The Format toolbar also includes buttons to generate the preview and to export the movie.

To select a format for preview:

Choose a file format from the Format menu in the Format toolbar.

To select a viewer to display the preview:

Choose a display device from the Viewer menu in the Format toolbar.

To specify the settings for the selected preview format:

1. Click the Preview Settings button in the Format toolbar.
2. In the Export dialog, choose the settings desired settings for the selected preview format. The preview settings are described below in "File formats" on page 218.
3. Click OK.

To preview the movie:

Click the Preview button in the Format toolbar. The preview is generated in the format selected and then automatically shown in the viewer specified.

Movie export

When you export a movie, the export process generates a movie that is saved on your computer using the file name and path you specify. This exported file can be played on any compatible display device or transferred to another machine.

Export does not automatically play the output movie as part of the export process.

To export a movie:

1. Do one of the following:
   - Choose File > Export from the main menu and select a file format in the export submenu.
   - Click the Export button in the Format toolbar to export the movie using the format specified in this toolbar.
2. In the Export dialog, choose the settings desired settings for the selected export file format. The export file settings are described below in "File formats" on page 218.
3. Click OK in the Export dialog and save the export file.

File formats

Mobile Designer, though primarily designed to produce SVG movies, is capable of outputting portions of movies to a wide variety of static and animated (non-interactive) graphics formats.

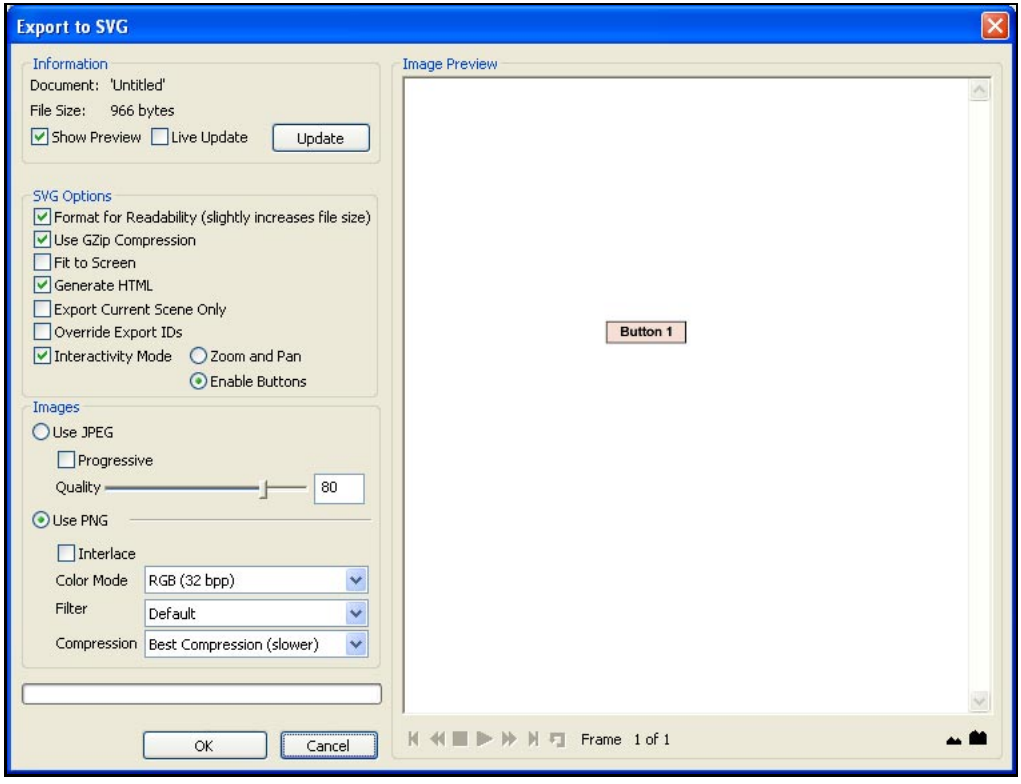
Mobile Designer can output files in:

- SVG
- Animated GIF
- GIF
- JPEG
- PNG
- Targa
- TIFF
- BMP

All of the export file formats share a few common settings, but the majority of the settings are specific to each format. The common settings are described in the next section. The format specific options are described in the named sections that follow.

Common export dialog elements

The Information section of the Export dialog contains general information about the selected export file format. This section is common to all export dialogs.



The **Document** field shows the name specified for the movie. If none has been specified, "Untitled" is shown.

The **File Size** field displays the output size of the file computed using the current export settings.

The **Show Preview** box displays the export dialog's preview panel. The preview display is also affected by the Live Update box and Update button.

The **Live Update** box causes the file size to be recomputed whenever you change any of the export settings. You can always manually recompute the file size and refresh the preview panel by clicking the **Preview** button.

The SVG export dialog

The SVG export dialog is used to specify the settings for SVG Tiny, SVG Basic and full SVG output files.

SVG Options

Format for Readability results in an SVG export file that is suitable for easy reading and modification by those familiar with the SVG file format. Use of this option results in a slightly larger output file due to the spaces included for formatting purposes. The SVG content itself is not changed by this option.

Use GZip Compression results in an SVG export file that has been compressed. Compressed SVG files are small in size but cannot be read without first uncompressing them. In order to use a compressed file in certain browsers, the ".svgz" file extension on the output file must first be changed to ".svg".

Fit to Screen results in an SVG export file that will automatically be resized to be displayed on as much of the target output device as possible. When the canvas dimensions are not proportional to the dimensions of the output device screen, a portion of the output device screen will not be used.

Generate HTML produces a separate HTML file that loads and displays the generated SVG file. The HTML file includes instructions describing the HTML code segment needed to display the SVG movie in your own HTML file.

Export Current Scene Only results in an SVG export file that only contains the current scene (i.e. the scene that is active when you choose File > Export > SVG). Any buttons or events that connect to other scenes in the movie have their actions removed. The buttons themselves are not otherwise impacted.

Override Export IDs results in an SVG export file that contains all of the object IDs (object names). These names are helpful when trying to read or modify an SVG file by hand, but are not required to render the SVG file. They are also necessary for certain JavaScript calls. Export IDs can be also included on an object by object basis for JavaScript purposes. For information on how to do this, see "SVG Tag Level" on page 205. Checking the Override Export IDs box results in an increased export file size.

The **Interactivity Mode** radio buttons determine which operating mode is initially used on a mobile device. The device user can always switch between modes using the built-in controls on the mobile device:

- **Zoom and Pan** is appropriate for SVG files that are large or where viewing the file is a more likely course of action than accessing its interactive elements.
- **Enable Buttons** is appropriate for SVG files that fit on the screen of the target device or those where the interactive elements are of primary interest.

Image options

The Images section is used to specify how imported images (i.e. digital photos) are stored and compressed in the SVG export file. Changing the image file format and adjusting the image quality can have a substantial impact on the exported file size.

Use JPEG radio specifies that all images are to be converted and stored in the JPEG file format in the SVG export file. You have the following options when storing images in JPEG:

- The **Progressive** box is used to generate progressive JPEG files in the SVG export file.
- The **Quality** slider determines the overall quality of the image. The higher the quality, the better the image quality and the larger the file. Depending on the image and the target display device, using higher settings may not result in any noticeable difference in image quality.

Use PNG radio specifies that all images are to be converted and stored in the PNG file format in the SVG export file. You have the following options when storing images in PNG:

- The **Interlace** box is used to generate interlaced PNG files (using Adam7) in the SVG export file.
- The **Color Mode** menu is used to specify how many bits to use when storing the colors in the image. RGB (32 bits per pixel) produces truer color but larger file size than Palette (8 bits per pixel).
- The **Filter** menu sets the filter algorithm that is applied to the entire image before compression. This enhances the ability of the compression phase to produce the smallest possible file size. A complete discussion of filter options is beyond the scope of this document; only a general description of each option is provided here:

  - Default uses an internally determined filter on the data.
  - None leaves the image data unchanged by filtering.
  - Sub uses the difference between the current and preceding pixels to filter the data.
  - Up uses the difference between the current pixel and the pixel directly above it to filter the data.
  - Average uses the average of the current pixel with those to the left and above it to filter the data.
  - Paeth uses a simple formula involving the current pixel and those to its left, above and above left to filter the data.
  - All uses a combination of the above filters to filter the data.

- The **Compression** menu specifies the type of compression to use during export; the quality of the resultant file is identical for each of these options. Unless your export file is extremely large, you will not notice any substantial time difference between these options when exporting.

  - Default uses an internally determined compression method that balances speed with compression levels and generally produces good results.
  - None results in an uncompressed PNG file.
  - Best Compression produces the most highly compressed output file possible based on the data from the filter selected above. This option can be

somewhat slower than the other compression options, which may not be a factor unless using dynamic imaging.

- Best Speed produces a compressed file as quickly as possible. The compression is typically not as tight as when using Best Compression, but the results are available more quickly.

Embedded vs. linked files

Imported images can be embedded in the SVG export file or the export file can simply contain a link to them. Which option is used depends on the settings in your current profile. For more information on setting and customizing profiles, see "Working with Profiles" on page 58.

The Animated GIF export dialog

The Animated GIF export dialog is used to specify the settings for animated GIF output files.

Generic Options

Override Background Color uses the adjacent background color in place of the background color specified in your movie. Click on the color sample to bring up the Color dialog. For more information on using the Color dialog, see "Using the Color dialog" on page 68.

Generate HTML produces a separate HTML file that loads and displays the generated animated GIF file. The HTML file includes instructions describing the HTML code segment needed to display the animated GIF in your own HTML file.

Use Temporary Image Cache improves performance when previewing different export settings or re-exporting a document that has not been changed. With larger images, the cache can consume a lot of memory and, depending on how much RAM is available, may need to be turned off.

Animated GIF Options

Interlace produces an image that, when displayed, appears to fade in as if it were appearing slowly through a Venetian blind.

Loop results in an animation that will repeat the number of times specified in the Count box. If checked with no Count is specified or the count is 0, the image will for all practical purposes loop endlessly. (To be precise, it will repeat 65,536 times.)

Override Document Speed sets a new duration for every frame in the document. Frame rates are in units of 1/100th of a second.

Color Reduction options

The Color Reduction Options section contains settings that determine how color is handled in the Animated GIF file.

The **Palette** menu specifies which set of 256 (or fewer) colors will be used in the exported animation. The Palette menu choices are:

- Adaptive, which automatically selects a set of colors that best approximate the original.
- Web-safe, which uses a standard set of 216 Web colors that can be displayed by virtually any browser on any platform.
- Windows and Mac OS, which select colors that will give the best results when displayed in an 8-bit color mode on the indicated operating system.

The **Colors** value field and adjacent menu specify the number of colors used in the exported animation. Depending on the kinds of objects used, setting this below 256 can seriously degrade image quality. On the

other hand, reducing the number of colors can often significantly reduce file size.

The **Color Reduction** menu specifies the method used to reduce the number of colors in the image during export. Because results vary depending on your animation, you should experiment with both methods to determine which produces the best results.

The **Dithering** box may produce more pleasing results by blending colors to approximate colors that have been eliminated. However, dithering can also substantially increase file size.

The GIF export dialog

The GIF export dialog is used to specify the settings for (static) GIF output files.

Generic Options

Override Background Color uses the adjacent background color in place of the background color specified in your movie. Click on the color sample to bring up the Color dialog. For more information on using the Color dialog, see "Using the Color dialog" on page 68.

Generate HTML produces a separate HTML file that loads and displays the generated GIF file. The HTML file includes instructions describing the HTML code segment needed to display the GIF image in your own HTML file.

Use Temporary Image Cache improves performance when previewing different export settings or re-exporting a document that has not been changed. With larger images, the cache can consume a lot of memory and, depending on how much RAM is available, may need to be turned off.

GIF Options

Interlace produces an image that, when displayed, appears to fade in as if it were appearing slowly through a Venetian blind.

Color Reduction options

The **Palette** menu specifies which set of 256 (or fewer) colors will be used in the exported image. The Palette menu choices are:

- Adaptive, which automatically selects a set of colors that best approximate the original.
- Web-safe, which uses a standard set of 216 Web colors that can be displayed by virtually any browser on any platform.
- Windows and Mac OS, which select colors that will give the best results when displayed in an 8-bit color mode on the indicated operating system.

The **Colors** value field and adjacent menu specify the number of colors used in the exported file. Depending on the kinds of objects used, setting this below 256 can seriously degrade image quality. On the other hand, reducing the number of colors can often significantly reduce file size.

The **Color Reduction** menu specifies the method used to reduce the number of colors in the image during export. Because results vary depending on your image, you should experiment with both methods to determine which produces the best results.

The **Dithering** box may produce more pleasing results by blending colors to approximate colors that have been eliminated. However, dithering can also substantially increase file size.

The JPEG export dialog

The JPEG export dialog is used to specify the settings for JPEG output files.

Generic Options

Override Background Color uses the adjacent background color in place of the background color specified in your movie. Since the JPEG file format does not support background transparency, this field always shows a solid color and is always active. Click on the color sample to bring up the Color dialog. For more information on using the Color dialog, see "Using the Color dialog" on page 68.

Generate HTML produces a separate HTML file that loads and displays the generated JPEG file. The HTML file includes instructions describing the HTML code segment needed to display the JPEG image in your own HTML file.

Use Temporary Image Cache improves performance when previewing different export settings or re-exporting a document that has not been changed. With larger images, the cache can consume a lot of memory and, depending on how much RAM is available, may need to be turned off.

JPEG Options

The **Progressive** box is used to generate progressive JPEG files in the SVG export file.

The **Quality** slider determines the overall quality of the image. The higher the quality, the better the image quality and the larger the file. Depending on the image and the target display device, using higher settings may not result in any noticeable difference in image quality.

The PNG export dialog

The PNG export dialog is used to specify the settings for PNG output files.

Generic Options

Override Background Color uses the adjacent background color in place of the background color specified in your movie. Click on the color sample to bring up the Color dialog. For more information on using the Color dialog, see "Using the Color dialog" on page 68.

Generate HTML produces a separate HTML file that loads and displays the generated GIF file. The HTML file includes instructions describing the HTML code segment needed to display the GIF image in your own HTML file.

Use Temporary Image Cache improves performance when previewing different export settings or re-exporting a document that has not been changed. With larger images, the cache can consume a lot of memory and, depending on how much RAM is available, may need to be turned off.

PNG Options

The **Color Mode** menu is used to specify how many bits to use when storing the colors in the image. RGB (32 bits per pixel) produces truer color but larger file size than Palette (8 bits per pixel).

The **Interlace** box is used to generate interlaced PNG files (using Adam7).

The **Filter** menu sets the filter algorithm that is applied to the entire image before compression. This enhances the ability of the compression phase to produce the smallest possible file size. A complete discussion of filter options is beyond the scope of this document;

only a general description of each option is provided here:

- Default uses an internally determined filter on the data.
- None leaves the image data unchanged by filtering.
- Sub uses the difference between the current and preceding pixels to filter the data.
- Up uses the difference between the current pixel and the pixel directly above it to filter the data.
- Average uses the average of the current pixel with those to the left and above it to filter the data.
- Paeth uses a simple formula involving the current pixel and those to its left, above and above left to filter the data.
- All uses a combination of the above filters to filter the data.

The **Compression** menu specifies the type of compression to use during export; the quality of the resultant file is identical for each of these options. Unless your export file is extremely large, you will not notice any substantial time difference between these options when exporting.

- Default uses an internally determined compression method that balances speed with compression levels and generally produces good results.
- None results in an uncompressed PNG file.
- Best Compression produces the most highly compressed output file possible based on the data from the filter selected above. This option can be somewhat slower than the other compression options, which may not be a factor unless using dynamic imaging.
- Best Speed produces a compressed file as quickly as possible. The compression is typically not as tight as when using Best Compression, but the results are available more quickly.

Color Reduction options

The **Palette** menu specifies which set of 256 (or fewer) colors will be used in the exported image. The Palette menu choices are:

- Adaptive, which automatically selects a set of colors that best approximate the original.
- Web-safe, which uses a standard set of 216 Web colors that can be displayed by virtually any browser on any platform.
- Windows and Mac OS, which select colors that will give the best results when displayed in an 8-bit color mode on the indicated operating system.

The **Colors** value field and adjacent menu specify the number of colors used in the exported image. Depending on the kinds of objects used, setting this below 256 can seriously degrade image quality. On the other hand, reducing the number of colors can often significantly reduce file size.

The **Color Reduction** menu specifies the method used to reduce the number of colors in the image during export. Because results vary depending on your file, you should experiment with both methods to determine which produces the best results.

The **Dithering** box may produce more pleasing results by blending colors to approximate colors that have been eliminated. However, dithering can also substantially increase file size.

The Targa export dialog

The Targa export dialog is used to specify the settings for Targa output files.

Generic Options

Override Background Color uses the adjacent background color in place of the background color specified in your movie. Click on the color sample to bring up the Color dialog. For more information on using the Color dialog, see "Using the Color dialog" on page 68.

Use Temporary Image Cache improves performance when previewing different export settings or re-exporting a document that has not been changed. With larger images, the cache can consume a lot of memory and, depending on how much RAM is available, may need to be turned off.

Targa Options

Save Alpha includes the 8-bit alpha channel in the exported file. Because not all applications handle alpha transparency, you have the option of including it as part of your export. Excluding the alpha transparency will result in a smaller export file size.

The TIFF export dialog

The TIFF export dialog is used to specify the settings for TIFF output files.

Generic Options

Override Background Color uses the adjacent background color in place of the background color specified in your movie. Click on the color sample to bring up the Color dialog. For more information on using the Color dialog, see "Using the Color dialog" on page 68.

Use Temporary Image Cache improves performance when previewing different export settings or re-exporting a document that has not been changed. With larger images, the cache can consume a lot of memory and, depending on how much RAM is available, may need to be turned off.

TIFF Options

The **Compression** menu is used to set which compression method is used in he exported TIFF image. The options are:

- None, which uses no compression, allocating either 24 or 32-bits for each pixel in your image (see Save Alpha below) and producing very large, lossless files.
- LZW, which uses the LZW compression algorithm to produce smaller, lossless files. It is usually the best lossless compression choice in terms of file size.
- JPEG, which uses a lossy compression algorithm to produce smaller files. With JPEG compression, you have control over the quality level (see JPEG Quality below).
- PackBits, which is a lossless compression algorithm similar to LZW. It may be slightly faster but produce slightly larger files than LZW.
- Deflate, which uses a lossy, differential compression algorithm. It compares favorably with LZW compression though some image degradation is possible.

The **Byte Order** radios are used to select which byte order, Macintosh or IBM PC, is used in the exported TIFF image.

Save Alpha includes the 8-bit alpha channel in the exported file. Because not all applications handle alpha transparency, you have the option of including it as part of your export. Excluding the alpha transparency will result in a smaller export file size.

The **JPEG Quality** slider, which is only available when the Compression menu (see above) is set to JPEG,

determines the overall quality of the image. The higher the quality, the better the image quality and the larger the file. Depending on the image and the target display device, using higher settings may not result in any noticeable difference in image quality.

The BMP export dialog

The BMP export dialog is used to specify the settings for BMP output files (of which there is only one option).

Generic Options

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Index