Peregrine Systems, Inc.

Get-Services™ 4.2

Tailoring Kit Guide

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Contents

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Introducing the Get-Services Tailoring Kit

The Get-Services Tailoring Kit includes:

- Peregrine Studio
- Source files for Get-Services

The Get-Services is intended for Web application developers who are familiar with Extensible Markup Language (XML), ECMAScript, Structured Query Language (SQL), and back-end database systems such as AssetCenter and ServiceCenter.

Peregrine Studio is a graphical development tool that you can use to customize Get-Services. Get-Services consists of a series of Web-based interfaces that allow users to, for example, open tickets, assign tickets to IT employees, and view historical information on incidents. The Peregrine Portal common interface determines what portions of Get-Services the user sees.

The Web-based interfaces are the result of the following components:

- A collection of XML form definitions that provide the browser interfaces for Get-Services. The Get-Services XML form definitions are created with Peregrine Studio and then dynamically converted into HTML at runtime.
- A Web server to host the Get-Services JSP content.
- A Java-enabled application server to run the Archway servlet and convert XML form definitions into HTML. The Archway servlet routes and formats data requests between Get-Services and the back-end database.
- A collection of ECMAScripts that allow for dynamic parsing and formatting of Get-Services data sent to and received from the client Web browser.

The Get-Services files produced during a build are the result of the following Peregrine Studio components:

- A project file that describes Get-Services. Each project file contains only the code necessary to produce and deploy Get-Services.
- A collection of XML form definitions that define the functionality of Get-Services. The Get-Services XML form definitions are built in Peregrine Studio and deployed to the application server at runtime.
- A back-end database or application to store the data accessed by Get-Services forms, track workflow tasks, and store personalization changes.
- Document schema definitions used to format message objects between the Archway servlet and the back-end database. All message objects are formatted as XML documents.
- ECMAScripts to generate and send message objects to the Archway servlet. The messenger objects can be used to query the back-end database for specific data and format the results for display in Get-Services forms.

About this guide

This guide is developers who tailor Get-Services from the source code provided with the tailoring kit.

Use this guide in conjunction with the following:

- The Get-Services installation, administration, and basic tailoring guides.
- The back-end database documentation for your installation.
- The application server documentation for your installation.

Conventions used in this guide

Screen shots in this guide are included as examples only. Get-Services forms are shown using the Classic theme.

This guide uses the following documentation conventions.

Text Formatting	Meaning
Bold	Information that you must type exactly as shown appears in bold. The names of buttons, menus, and menu options also appear in **bold**.
Italics	Variables and values that you must provide are in *italics*. New terms are in *italics*.

`Monospace`	Code or script examples, output, and system messages are in `monospace` font.
	`var msgTicket = new Message( "Problem" );`
	…
	`msgTicket.set( "_event", "epmc" );`
	
	An ellipsis (…) indicates omitted portions of a script. Samples of code are not entire files, but they are representative of the information discussed in a particular section.
	Filenames, such as `login.asp`, appear in a `monospace` font.

Need more information?

For further information and assistance with this release, you can download documentation or schedule training.

Customer Support

For further information and assistance, contact Peregrine Systems' Customer Support at the Peregrine CenterPoint Web site.

To contact customer support:

1   In a browser, navigate to *http://support.peregrine.com*

2   Log in with your user name and password.

3   Follow the directions on the site to find your answer. The first place to search is the KnowledgeBase, which contains informational articles about all categories of Peregrine products.

4   If the KnowledgeBase does not contain an article that addresses your concerns, you can search for information by product; search discussion forums; and search for product downloads.

Documentation Web site

For a complete listing of current Get-Services documentation, see the Documentation pages on the Peregrine Customer Support Web.

To view the document listing:

1   In a browser, navigate to *http://support.peregrine.com*.

2   Log in with your login user name and password.

3   Click either Documentation or Release Notes at the top of the page.

4   Click the Get-Services link.

5   Click a product version link to display a list of documents that are available for that version of Get-Services.

6   Documents may be available in multiple languages. Click the Download button to download the PDF file in the language you prefer.

You can view PDF files using Acrobat Reader, which is available on the Customer Support Web site and through Adobe at *http://www.adobe.com*.

Important: Release Notes for this product are continually updated after each release of the product. Ensure that you have the most current version of the Release Notes.

Education Services Web Site

Peregrine Systems offers classroom training anywhere in the world, as well as "at-your-desk" training using the Internet. For a complete listing of Peregrine's training courses, refer to the following web site:

http://www.peregrine.com/education

You can also call Peregrine Education Services at +1 858.794.5009.

1 Installing on Windows

CHAPTER

The Get-Services Tailoring Kit installation allows you to install Peregrine Studio and the source files for Get-Services.

Before you begin the installation, you should have already installed Get-Services.

This chapter covers the following topics:

Installing the Get-Services Tailoring Kit

The following sections describe how to install the Get-Services Tailoring Kit on a Windows system.

Note: The Get-Services Tailoring Kit does not run on UNIX, although files built by the Tailoring Kit can be deployed to a UNIX system.

Tip: Do not install the Get-Services Tailoring Kit on your production system. Instead, install the tailoring kit on a development environment and then deploy your changes to your production environment after you have had a chance to test them.

To install the Get-Services Tailoring Kit:

1   Insert the Get-Services installation CD into the CD-ROM drive.

     If you are installing on a system that has autorun enabled, the CD browser
     starts automatically. If autorun is disabled, you can manually start the CD
     browser.

     ▪ Use Windows Explorer to navigate to the CD-ROM directory.
        Double-click **autorun.exe**.
     ▪ Start the Get-Services installation from the Windows command prompt.
        Type **D:\>autorun.exe** where D identifies the CD-ROM drive. Substitute
        your CD-ROM drive identifier.

     The Get-Services Tailoring Kit splash screen opens displaying a list of
     installation options.

2   Install the required platform components for the Get-Services Tailoring Kit.

Component	Action
Install Studio	Click this button to install Peregrine Studio 2.2.0.1068 on your system.
Install Get-Services Tailoring Kit	Click this button to install Get-Services Tailoring Kit 4.2 on your system.

Note: If you do not have Peregrine Studio, you must install it prior to installing the Get-Services Tailoring Kit.
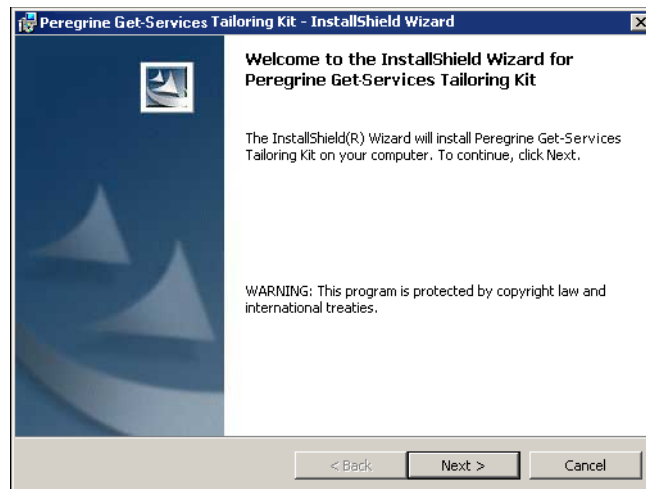
3   Click **Next** to read and accept the licensing agreement.
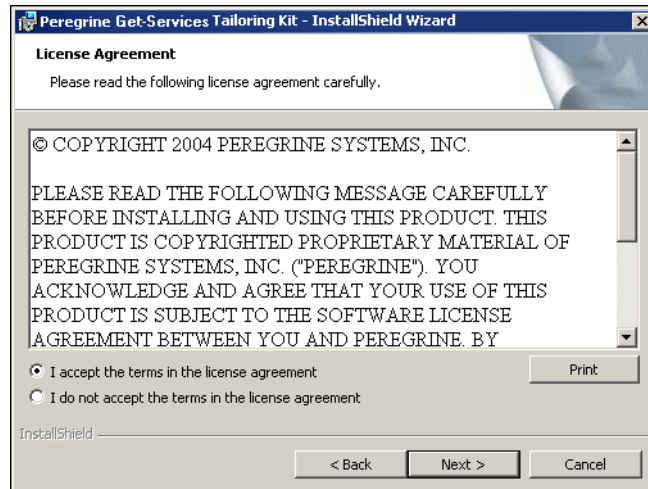
4   Select **I accept the terms in the license agreement**.

5   Click **Next** to select your destination folder.
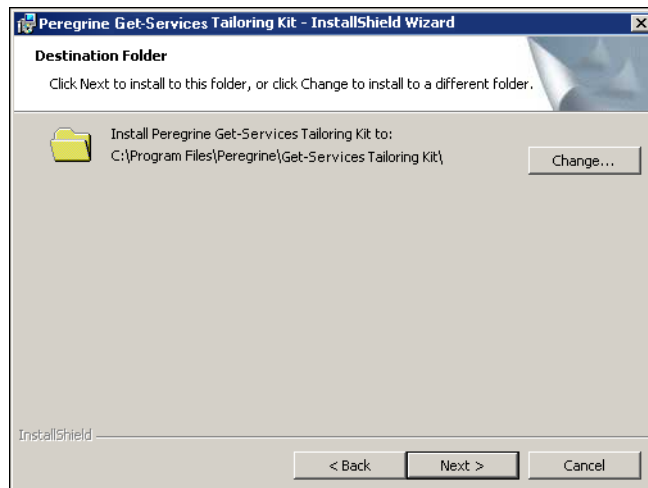
6   Click **Next** to accept the default installation location, or click **Change** to select another installation location, and then click **Next**.
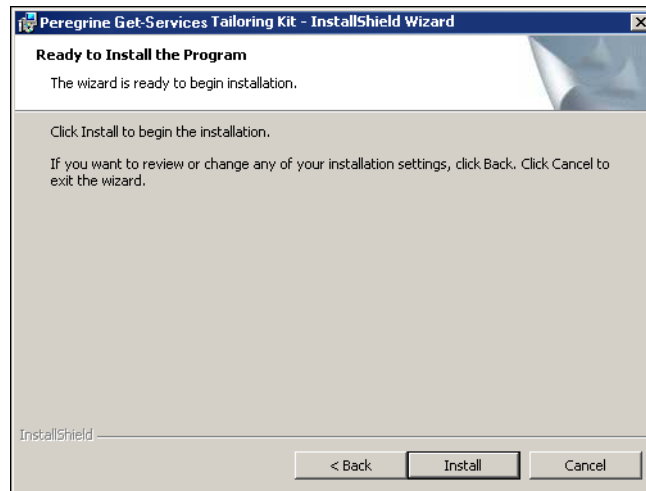
7   Click **Install**.

After the installer copies and deploys the files to your system, the InstallShield Wizard Complete page opens.
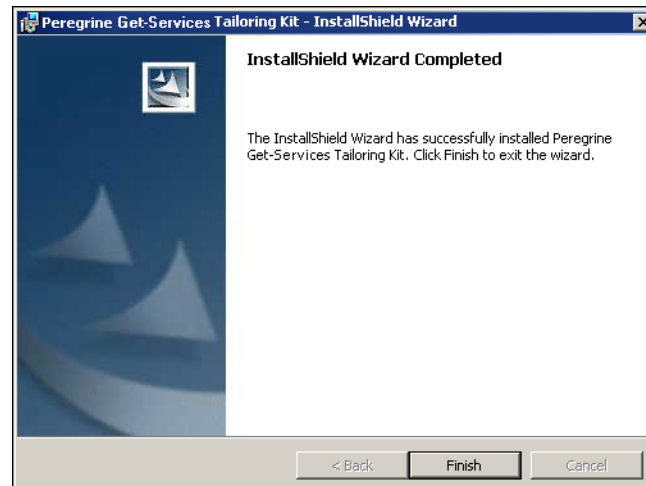
8   Click **Finish** to close the InstallShield Wizard.

Upgrading the Get-Services Tailoring Kit

During an upgrade installation, the customized changes are safe because studio stores the changes in a specific *package*, and all the corresponding files are stored in a folder that the upgrade does not touch.

After an upgrade, you can reload the customizations (patch package) into the new project, using the menu *File/Add package to project*.

The upgrade of tailored projects is always a challenge because the very same files that you patch with the tailoring kit are changed by the Peregrine product development team. Therefore, the following can occur:

Scenario	Description
1	If an element changed in the product between the two releases, and you patched it, the product change is not accounted for in the resulting build. If the change was either a bug fix or a new feature, you would not benefit from the change, even though the new version is installed. The patched element masks the product changes.
2	If an element is removed between two releases of the product, and you patched it, the result is a partial definition of the element that might not work.
3	If a group of elements changes between two releases of the product, and you patched only one element, the result might be an inconsistent group of elements that do not work properly.

As a result, there is always some work involved after upgrading a product to adapt the customization to the new product. To take care of the first scenario, you need to check what changed between two releases on every element that you patched, and merge in the changes you want to keep (bug fixes and new features). To solve the second scenario, you must verify if your patches still apply on an existing element. If not, the customization must be redone based on the new product.

Solving the third scenario is more complex. For every patch in your project, you need to assess if the changes are consistent with the way an element was patched. If the merge (as made by fixing scenario 1) is made properly, there should not be any problem.

Opening the Get-Services project

After the installation is complete, you can open the Get-Services project in Peregrine Studio using the following procedure.

Important: If you did not receive a Peregrine Studio authorization file, contact Peregrine Customer Support. You need this file to edit your Get-Services files.

To open the Get-Services project in Peregrine Studio:

1   Click **Start** > **Programs** > **Peregrine** > **Studio** > **Peregrine Studio**.

2   Click **Tools** > **Authorization file**.

3   In any text editor, open the authorization file provided for Peregrine Studio.

4   Copy the contents of the authorization file into the Authorization file dialog box in Peregrine Studio.

5   Click **OK**.

6   Click **File** > **Open project**.

7   Browse to the location of your Get-Services project files (`.adw` files). For example:

    C:\Program Files\Peregrine\Get-Services Tailoring Kit\get-services

8   Select your Get-Services project file:

     Get-Services.adw
     Get-Services-Change.adw
     Get-Services-Change-Request.adw

9   Click **Open**.

Setting up a tailoring environment

You can set up one or more development environments separately from your production environment. A development environment lets you modify and build Get-Services on a separate computer system from your test or production environments.

Setting up a development environment

You need the following minimum components for a Get-Services Tailoring Kit development environment:

- Peregrine Studio.
- Java Runtime Environment 1.3 or later (necessary to run Studio), or the Java Development Kit provided with your Web application installation.
- Get-Services Tailoring Kit (includes the Get-Services source files).
- J2SDK 1.3 or later if you want to create or edit your own wizards for Peregrine Studio.

With this minimal development environment, you can modify Get-Services using the built-in Peregrine Studio tools and wizards. You can then do one of the following:

- Build your Get-Services projects on the development computer and copy the results to a production environment.

  or

- Enter the network path to the production environment in your Peregrine Studio Build Settings.

Important: If you are using source control software to store your project files, you will need to configure your Peregrine Studio to check out and check in the source files. You can add your source control settings from **Tools** > **Options** > **Source control**.

Setting up a testing environment

You need the following components to test or debug your modifications:

- Peregrine Studio.
- Java Runtime Environment 1.3 or later (necessary to run Peregrine Studio).
- Get-Services Tailoring Kit (includes the Get-Services source files).
- If you want to create or edit your own wizards for Peregrine Studio, you will need to install J2SDK 1.3 or later.
- An installed instance of Get-Services.
- A Web server.
- A Java-enabled application server.
- JavaScript-enabled Web browser (necessary to view changes to Get-Services).

Note: See the latest compatibility matrix on the Peregrine support site for a list of supported Web servers, application servers, and Web browsers.

With this testing environment, you can build and view your changes from a single computer. To set up a testing environment, you must install both Get-Services and the Get-Services Tailoring Kit. Refer to the Get-Services Installation Guide for instructions and requirements for installing Get-Services.

Tip: You can save multiple versions of Get-Services in separate project files. When you are ready to test a particular tailored version, you can load the tailored project, build it, and deploy it to your test environment.

2 Using Studio

CHAPTER

This chapter provides an overview of the Peregrine Studio interface. For more information about configuring or using Peregrine Studio, refer to the Peregrine Studio online help.

This chapter covers the following topics:

- The Peregrine Studio interface on page 27
- Best practices on page 32

The Peregrine Studio interface

The Peregrine Studio interface includes:

- Project Explorer
- Properties window
- Edit toolbar
- General information display
- Contextual help
- Address
- Package selector
- Advanced information

You can hide all elements of the interface except the Project Explorer and the Properties Window by clearing them on the View menu.

Edit toolbar

Package selector

Address

Project Explorer

Properties window

General information   Contextual help   Advanced information
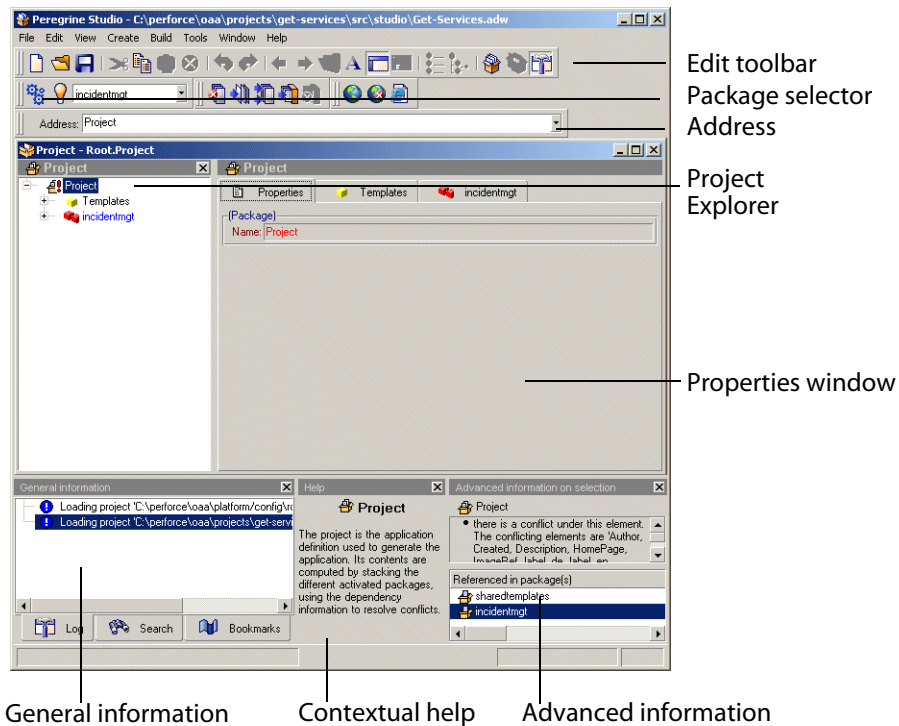
Project Explorer

The Project Explorer provides a hierarchal view of all the components that comprise a Peregrine Studio project. The Project Explorer window displays each component as a separate node within the tree.

Group of Templates

Group of Modules

Module
Activity

Form
DocExplorer

Actions
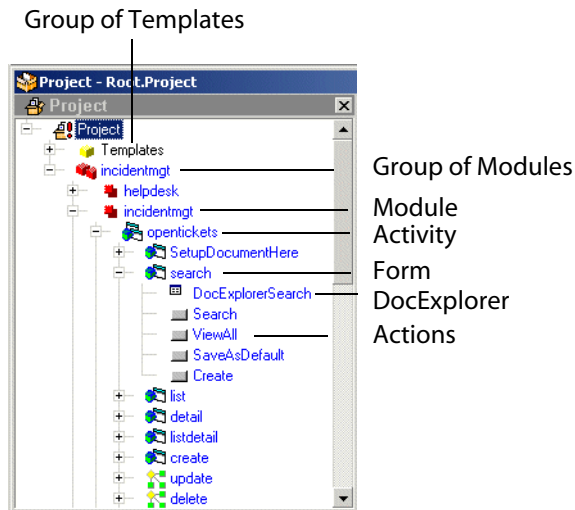
Left-click a node

Click the node listing the component you want to change and the properties of the component display in a window of the Properties pane.

Right-click a node

Right-click a node to display a list of context-sensitive options.

The options listed in the following table are available for all nodes.

Menu item	Description
New	Provides a context-sensitive menu of allowed components that you can add from the current node. The list of components in this menu is dynamically updated for each node of the Project Explorer tree.
Open	Displays the properties of the selected component in a window of the Properties pane.
Open in New Window	Displays the properties of the selected component in a new window of the Properties pane.

Menu item	Description
Rename	Renames the selected node to the new name typed by the user. This option will only be available when a package extension has been activated as the save location for changes.
Cut	Removes the selected node, and all child nodes underneath, and places a copy in the Windows clipboard.
Copy	Copies the selected node, and all child nodes underneath, to the Windows clipboard.
Paste	Inserts the contents of the Windows clipboard. If the clipboard contains a Studio component, it will be automatically placed within the tree according to the type of component it is.
Delete	Deletes the selected node and all child nodes. This option will only be available when a package extension has been activated as the save location for changes.
Help	Displays the Studio help system.
Export node	Saves a copy of the selected node, and all child nodes underneath, as an XML file, which can be imported into a Studio project.
Import node	Opens a user-selected XML file describing Studio nodes and inserts it into the tree. The imported node will be inserted below the node you right-clicked.
Add Bookmark	Adds a bookmark link to the node you currently have open in Studio. If you browse to another location and then want to return to this node, click the Bookmarks tab in the General Information window and select the appropriate bookmark.

The following image shows how some of the common Peregrine Studio components are displayed in a Peregrine Systems Web application interface.
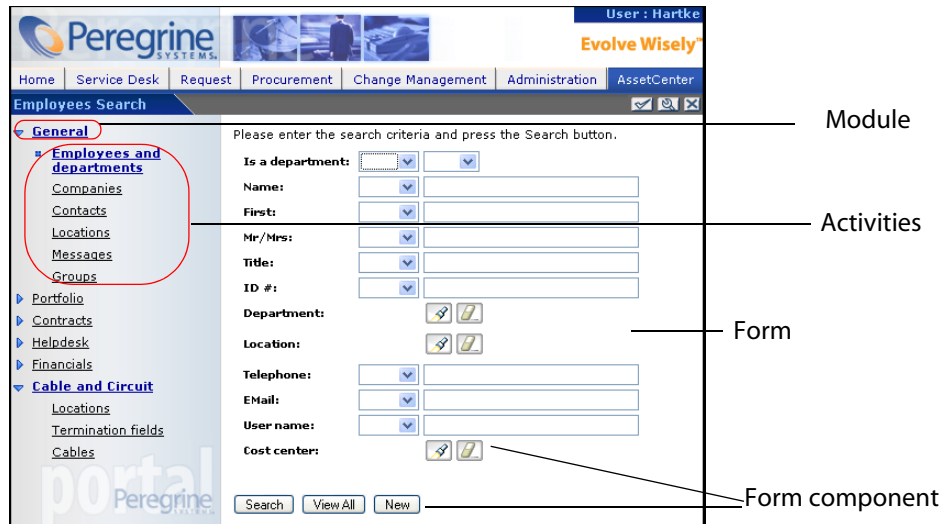
The address bar

You can use the Address Bar to navigate directly to any Peregrine Studio project component. The address bar will display as a text box below the Edit Toolbar.

To display the address bar:

1   Open Peregrine Studio.

2   Click **View** > **Address**.

The Address Bar displays below the menus.

Drag and drop

Peregrine Studio supports drag and drop movement of components within the Project Explorer. Changing the order of nodes in the Project Explorer will change how the items are presented in the Peregrine Studio build.

To move a component within the Project Explorer:

1   Click and hold the left mouse button over the name of the node you want to move.

2   Drag the node to the new location in the Project Explorer tree.

    The node appears underneath the component (of the same level) where you drop the node.

Note: You cannot move components out of the order enforced by the DSD. For example, you cannot move a form out of an activity and place it at the same level as a module. You can, however, change the order of the forms listed under an activity.

Best practices

The following recommendations will make tailoring projects easier and reduce the amount of troubleshooting you need to do.

Do not change form definitions outside Peregrine Studio

Although Get-Services form definitions are XML files, the XML grammar used to build them is specific to Peregrine Studio. If you make changes to the Get-Services form definitions outside of Peregrine Studio you risk corrupting your project file and complicating your troubleshooting efforts. If you want to view the XML form definitions, you can safely enable the source view from within Peregrine Studio.

The source view does not support direct editing of the XML form definitions. All XML source views are listed with a grey background which indicates that the item is read-only.

To view the XML source code within Peregrine Studio:

1   Select the node of the Web application or component you want to view from the Project Explorer.

2   Click the Source view button (the blue capital A).

The XML source appears in the Properties window. The XML source code is color coded as you define in the project settings.

Avoid enabling advanced options

The advanced options found in **Tools** > **Options** > **Advanced** change the way your project is protected and built. In general, Peregrine recommends that you avoid enabling all advanced options except the HTTP Listener. Enabling any other options may overwrite needed source files in your Get-Services project and complicate your troubleshooting efforts. Furthermore, Peregrine cannot support any changes you make to the source packages delivered with Get-Services.

Avoid using the clean the target folders build option

The Clean the target folders build option deletes all files in your build folder. If you build directly into your application server's deployment folder, using this option will delete the files necessary to run Get-Services and require you to reinstall Get-Services. You should only consider using this option if you install the Get-Services Tailoring Kit on a different machine than your Get-Services installation.

Clear application server cache

To ensure that you always see the latest changes in your test environment, Peregrine recommends that you clear your application server's cache. This is especially important if you use Tomcat 4.1.x as your application server.

Use templates to apply global changes

Your Get-Services project contains a Group of Templates node where you can store and change preconfigured form components. Each form that uses a template inherits the properties of the template. If you want to make global changes to Get-Services, search for the relevant templates in the Group of

Templates node. If you want to create a re-usable collection of form components you can create a new template to store your changes. Any template you create appears as an option in the New context-sensitive menu.

To add a template to a form:

1   Click on the node that you want to add a template component.

2   Click **Create** and then select the template name from the list beneath the horizontal rule. You can also Right-click on the node and select New.

    The Create and New menus display only the templates that are valid for the location you selected.

Important: Do not drag and drop or copy and paste a template into a form. In order for Peregrine Studio to recognize the template you must add the template form components from the New menu.

Enable the HTTP listener and form information options

Using the HTTP Listener, you can click on the Form Information address listed for a given form and the appropriate form properties will be displayed in Peregrine Studio. This debugging feature allows you to navigate through Get-Services with a browser and quickly bring up any particular form that needs modification.

Important: The HTTP Listener cannot bring up the administration, home page forms, nor any Get-Services forms that are built using DocExplorer. The source code for these three modules is no longer provided with the Get-Services tailoring kit. You can tailor such forms directly using Personalization.

To enable the HTTP Listener:

1   Open Peregrine Studio.

2   Click **Tools** > **Options** > **Advanced**.

3   Select the Use listener check box from the HTTP Listener section.

4   Select the port number you want the HTTP listener to use (the default port is 81), and then click OK.

5   Save your Peregrine Studio project.

6   Close and then re-open Peregrine Studio to initialize the HTTP listener.

7   Open the project file containing the form you want to change in Peregrine Studio.

Note: Be sure to select or create a package extension in which to save any changes.

To enable the Form Information functionality:

1   Log in to Get-Services as an administrator, or access the Admin module directly from the Administrator login page (`admin.jsp`).

2   Click **Admin** > **Settings** to display the Settings form.

3   On the **Logging** tab, set the **Show form info** setting to *true*.

4   Click **Save** at the bottom of the form to activate your new settings.

5   On the Control Panel form of the Admin module, click **Reset Peregrine Portal** to commit your changes.

Click this link to open the form in Studio.

6   Navigate to the form you want to tailor.

7   Click the Peregrine Studio address displayed in the Form Information banner of the Web application form.

Peregrine Studio will appear as the active window and display the current form's properties page.

Set the color for your extension changes

By default, all changes or additions you make to your Peregrine Studio project are highlighted with blue text. You can change the color Peregrine Studio uses to indicate extension changes with the following procedures.

To change the color Peregrine Studio uses to indicate extension changes:

1   Click T**ools** > **Options** > **Appearance**.

The appearance window opens.

2   From the **Extension color** drop-down box, select the color you want to use to indicate changes to base packages originating from package extensions.

3   Click **OK**.

Within the Project Explorer view, Peregrine Studio highlights each node of the tree that contains a component that has been changed or added. This allows you to navigate through the Project Explorer tree view and locate where you have made changes and additions.

To view the changes made in a project:

1   Select a node displayed with blue text to view the component properties.

2   Review the properties listed in the window displayed to the right of the Project Explorer (the Properties window). Changes that were made to this component will be displayed with blue text. If no blue text is displayed in the

Properties window, then the change or addition is in one of the child nodes below the current node.

3   If necessary, expand any child nodes highlighted with blue text and review the Properties window for changes.

View referenced components with the lookup button

Whenever an item links to or references another component, Peregrine Studio displays a lookups button next to the field.

You can click this button to display the form, image, schema, or script that is called by the reference.

Use Go to Previous View (the orange arrow pointing to the left) to return to the component making the reference.

3

CHAPTER

Peregrine Studio Projects and Packages

Peregrine Studio *projects* contain all of the *packages* that make up an application. A new package must be created when you are making changes to your project. You can then activate or deactivate packages depending on the features you want to be included in your current project.

This chapter includes the following topics:

Peregrine Studio projects

Peregrine Studio saves all the source files for Get-Services as a project file. A Studio project file consists of the following components.

Studio component	Description
Get-Services components	The XML form definitions that specify the functionality of the Get-Services interface. The application server will dynamically render the Get-Services XML form definitions as HTML when a specific form is requested.
ECMAScripts[1]	ECMAScripts create and format message objects to the Archway servlet. Get-Services components will use ECMA message objects to display and process data.

Studio component	Description
Document schema definitions	The XML files that define how the Archway servlet should format the ECMA message objects sent to and received from back-end databases. Get-Services components will use the ECMA message objects to display and process data.
Presentation files	Any supporting files such as images, client-side JavaScript, hand-coded HTML or JSP files, or translation strings that will be included with Get-Services.
Stylesheets	The Cascading Style Sheet (CSS) files that define the colors and fonts that will be used in your Get-Services pages.

[1] ECMAScript is the core language standard shared between JavaScript and JScript.

For a listing of where Peregrine Studio saves and builds these files, see Project files on page 43.

Project components

Peregrine Studio organizes project components into a hierarchy of parent and child elements. The position of a project component determines the individual properties it can have. Properties include, for example, what other project components can be placed within the component and the type of editor used to edit the component. All Peregrine Studio projects conform to the hierarchy listed below:

Template

Group of modules

Module

Activity

Form
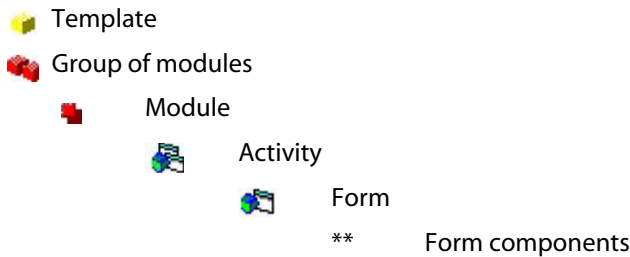
** Form components

Project component descriptions

This table lists and describes some of the common Peregrine Studio components. For a complete list of the components that make up a Peregrine Studio project, see Peregrine Studio Components.

Component	Description
Project	The project component: Is the container for all the elements that are part of your current project file. Is always the top node of the Project Explorer tree. Is represented by an open package icon in the Peregrine Studio Project Explorer tree.
Templates (support files)	The templates component: Is the container for all the common elements reused throughout the project. Appears with a yellow cube icon in the Peregrine Studio Project Explorer tree.
Group of modules	The group of modules component: Is the container for all the XML form definition files and modules that make up Get-Services. Appears with a double red cubes icon in the Peregrine Studio Project Explorer tree. Does not have any one dedicated graphical representation in the built project.
Module	The module component: Is a container for the activities and forms that make up Get-Services. Appears with a double red box icon in the Peregrine Studio Project Explorer tree. Appears as a text link on the navigation sidebar and may also appear on the Get-Services Home Menu. Note: The module component is usually where access restrictions are defined. Setting access restrictions limits a module to particular user roles.
Activity	The activity component: Defines a particular task or action such as searching for records, displaying records, or entering records. Is a container for a particular set of forms. Appears with a cube and two window panes icon in the Peregrine Studio Project Explorer tree. Appears as a text link on the navigation sidebar (Activity Menu).

Component	Description
Form	The form component: Is where Get-Services user interfaces and displays are defined. Appears with a cube and a single window pane icon in the Peregrine Studio Project Explorer tree. Note: Typically, the system displays each form component as a page in the main frame.
Form components	Form components such as fields, actions, tables, and lookups: Define the actual user interfaces and displays used in a Get-Services form. Appear with a variety of icons in the Peregrine Studio Project Explorer Tree. Typically have a graphical element in a Get-Services form.
Group of scripts	The group of scripts component: Is a container for all the server-side ECMAScripts used by Get-Services. Appears with a document with a yellow border icon in the Peregrine Studio Project Explorer tree.
Group of schemas	The group of schemas component: Is a container for all the document schema definitions that Get-Services uses. Appears with a data store and document icon in the Peregrine Studio Project Explorer tree.
Group of files	The group of files component: Is a container for supplemental files that your Web applications can use. You can store images, client-side JavaScript, localized string files, or initialization files here. Appears with a folder icon in the Peregrine Studio Project Explorer tree.
Group of Strings	The group of strings component: Is a container for all the text strings that Get-Services uses. Appears with a globe icon in the Peregrine Studio Project Explorer tree.

Portal Components are available only in the portal module.

Project files

This table describes the files that make up a Studio project and the information they contain. Items listed in *italics* are variables. To determine the actual file name, replace the italic text with the component name.

Warning: Do not edit these files outside of Studio. Manual changes you make outside of Studio will be lost during the build process.

Component	Save and build location	Contains
project	Saved as: `C:\Program Files\Peregrine\ Get-It Tailoring Kit\get-services\ project.adw`	<package> names Path to *package*.xml
package	Saved as: `C:\Program Files\Peregrine\ Get-It Tailoring Kit\get-services\ \package\package.xml`	<package> name <modules> name <module> names Path to *module*.xml Schema Names Path to *schema*.xml Script Names Path to *script*.xml String Resources
modules	Saved as: `C:\Program Files\Peregrine\ Get-It Tailoring Kit\get-services\ \package\package.xml`	<modules> name

module	Saved as a single file:
	`C:\Program Files\Peregrine\ Get-It Tailoring Kit\get-services\ \package\modules\module.xml`
	Built as a collection of forms:
	`C:\OAA\build\WEB-INF\apps\ package\forms\module\activity\ form.xml`
		<module> name
		XML code for <activity>, <form>, and <form> components

Component	Save and build location	Contains

schema	Saved as
	`C:\Program Files\Peregrine\`
	`Get-It Tailoring`
	`Kit\get-services\`
	`\package\modules\Schemas\`
	`schema.xml`
	Built as:
	`C:\OAA\build\WEB-INF\apps\`
	`package\schema\schema.xml`
		XML code for <schema>

script	Saved as:
	C:\Program Files\Peregrine\
	Get-It Tailoring Kit\get-services\
	*package**modules*\
	Scripts*script*.xml
	Built as:
	`C:\OAA\build\WEB-INF\apps\`
	`package\jscript\`
	`script type\script.js`
		XML code for <script>

presentation files	Saved as:
	`C:\Program Files\Peregrine\`
	`Get-It Tailoring`
	`Kit\get-services\`
	`\package\modules\presentation\`
	`presentation file.jsp`
	Built as:
	`C:\OAA\build\presentation`
	`file.jsp`
		Directory where presentation files can be stored to be included in a Studio build.

strings	Saved as:
	`C:\Program Files\Peregrine\`
	`Get-It Tailoring`
	`Kit\get-services\`
	`\package\package.xml`
	Built as:
	`C:\OAA\build\WEB-INF\apps\`
	`package\package_en.str`
		Text strings for English, German, Spanish, Italian, and French.

Building a project

During the build process, Studio compiles all project files and copies them to deployment folder you specified in your Peregrine Studio Build Settings.

Build options

Peregrine Studio offers the following build options from the Build menu.

Build option	Description
Clean the target folders	Deletes the contents of the presentation and deployment folders.
Build element	Builds the currently selected element in the project explorer. This element will not be rebuilt the next time a differential build is performed.
Differential build	Builds only those elements that have changed since the last build.
Rebuild all	Builds all elements of the project.
Stop Build	Stops a currently running build process.

Warning: The Clean the target folders option cleans the folders listed in your build settings. If you build your project directly to your application server, then using this option deletes your installation of Get-Services. It is recommended that you avoid using this option if you have installed Get-Services on your development machine.

Setting project build settings

You can define the build settings option to define the file locations and file formats used during the build process. Each Peregrine Studio project can have its own project settings.

To set project build settings:

1   From the Build menu, select Project settings.
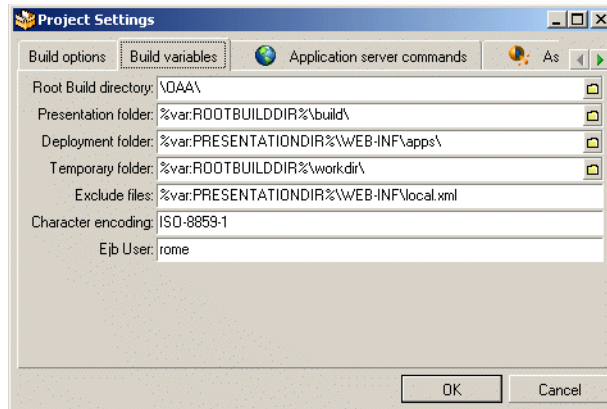
2   Click the **Build Variables** tab.

3   Enter or browse to the proper directory for the following settings.

Setting	Definition
Root Build Directory	This is the drive and folder you want to be root for building Peregrine Studio projects. Whatever path you enter here becomes the variable `%var:ROOTBUILDDIR%`.

Presentation folder	This is the folder where your application is deployed. It can be:
	
	■ the folder where your application server will look for the file to serve (recommended only for interim builds). For example:
	
	`C:\tomcat\webapps\oaa`
	
	■ or the image folder that will be used to create the war file (recommended for final builds). For example:
	
	`C:\Program Files\Peregrine\Portal\image`
	
	Whatever path you enter here becomes the variable `%var:PRESENTATIONDIR%`.

Deployment folder	The folder where scripts, schemas, and XML form definitions are located. You do not need to change the value of this setting. Note: Do not change this option.
Temporary folder	The folder where Peregrine Studio will generate temporary files used in the build process. You do not need to change the value of this setting.
Exclude files	A semicolon-separated list of files or directories that you want Peregrine Studio to exclude from removing or rebuilding during a build. You do not need to change the value of this setting.
Character encoding	Not used. JSP encoding is determined by the character encoding setting on the Settings page of the Admin module. You do not need to change the value of this setting.
Ejb User	Not used. Get-Services does not use the rome adapter. You do not need to change the value of this setting.

4   Click **OK** to save your settings.

Peregrine Studio project packages

Packages contain all the XML form definitions, ECMAScripts, and schemas necessary to run Get-Services. Your Get-Services project is defined by one or more packages, which are either *system* or *extension* packages.

Package type	Definition
System	The system packages provided by Peregrine Systems define the out-of-box functionality of Get-Services.
Extension	Any packages you create are called *extensions*. Package extensions store all of your additions or modifications to the existing system packages.

You can see the system packages and the extensions that make up your project from the Package Activation toolbar. This view displays the active packages that can be edited and built in your project. When a package is activated, the changes or additions will be included in the build. When a package is deactivated, the changes or additions will not be included in the build. The modular design of packages allows you to decide which changes and additions will be included or excluded from the build process.

Tip: Group similar Web application functions in the same package extension. This will allow you to activate or deactivate groups of functions using the Package Activation toolbar. For example, if you are testing different interfaces with the same functionality, you may want to save each interface in a different package extension. After you determine which interface is better, you can implement the new interface by activating that package extension and rebuilding the project.

Packages are not displayed in the Project Explorer *Project* tree. The list of available packages (packages that have been activated) is included in the Package Explorer drop-down list located below the toolbar in Peregrine Studio.

Saving changes with package extensions

All additions and changes to a project must be saved under a package extension name. By default, all of the system packages that ship with Get-Services are write-protected and cannot be used as the save location for your tailoring efforts. To tailor your installation you need to create one or more new package extensions where your changes and additions will be saved.

To create a new package extension:

1   Open Peregrine Studio.

2   Click **File** > **New** package to start the Create New Package wizard.

3   Enter the name and package dependencies for the new package.

Term	Definition
Name	Enter a name for the new package extension. The package extension name cannot contain spaces or special characters.
Dependencies	Select the existing system package or packages that your package extension will be dependent on. Select the system packages that you want to make changes to as the package dependencies. Your new package extension must be dependent on at least one existing package. See Package dependencies on page 50 for more information on package dependencies.

4   Click **OK** to complete the wizard.

5   Save your Peregrine Studio project file.

6   Close and then restart Peregrine Studio.

Any changes or additions you make to Get-Services are saved in your new package.

Activating and deactivating packages

You can control the packages and package extensions that are part of Get-Services by activating or deactivating them from the Package Activation menu. To include a package in Get-Services installation, activate the package, and then build the Studio project. To remove a custom package from your installation, deactivate the package and delete it from the following path:

```
C:\Program Files\Peregrine\Get-It Tailoring
Kit\get-services\package name.
```

Tip: In some cases it is simpler to re-install Get-Services than to delete unwanted custom packages.

To activate a package:

1   To display the package activation toolbar, click **View** > **Package Selector**.

2   Click the Package activation button.

3   Select the check box next to the package name or names you want to activate.

4   Click **OK**.

All active packages will be included in the next build.

To deactivate a package:

1   Click the Package activation button.

2   Clear the check box next to the package name or names you want to deactivate.

3   Click **OK**.

All deactivated packages will be excluded from the next build.

Important: Deactivating a package does not delete it from the Get-Services interface if you have already built it. To delete tailoring changes you have already built you can either re-install or delete the XML form definitions for your package extension.

Package dependencies

Each package has a list of dependencies that define what other packages it can make changes or additions to.

When you create a package extension, you must select the other packages that your extension can change. You will only be able to make changes or additions to the packages that are listed in your extension's package dependencies. If you

try to make changes outside your extension's dependencies, you will produce a dependency conflict.

You can use the package dependency list to determine what other packages a particular extension affects. This information is particularly useful if you are trying to resolve conflicts in your projects.

Package dependencies are first defined by the New Package wizard when you create a package. You can manually change the package dependencies using the procedures described below.

Setting package dependencies

To set package dependencies:

1   Go to **Tools** > **Package Dependencies**.

2   From the left pane, select the package name for which you want to set dependencies.

    The list of defined dependencies appears in the right pane.

3   Select the check boxes next to the package names you want to add as package dependencies. Clear the check boxes next to the package names you want to remove as package dependencies.

Note: Dependent packages activate or deactivate as a group. For example, suppose you create a user extension called *New_Interface* that is dependent on the *Extension* package. If you deactivate the *Extension* package, you will also deactivate the *New_Interface* package. If you activate the *New_Interface* package, you will also activate the *Extension* package.

4   Click **OK** to set the dependencies.

Warnings for conflicts

Peregrine Studio validates your project and ensures that there are no conflicting instructions or missing components. If Peregrine Studio encounters a conflict, it displays an exclamation point ! icon next to each node that contains a conflicting component within the Project Explorer view.

Peregrine Studio will display a conflict warning if any of the following conditions occur.

- Two or more active project components describe the same thing. For example, if you have two active package extensions that rename the same button, you will create a resource conflict.

- You make changes or additions to a package that is not defined as a dependent package. For example, if you create a package called *test* that is solely dependent on the package *changes*, then the *test* package cannot make changes or additions to other packages, such as *incidentmgt*. Attempting to make such changes will create a dependency conflict.

Resource conflicts

Resource conflicts occur when two or more activated package extensions describe the same project components. For example, if the Extension package extension adds a *submit* action to a form, then you will see a resource conflict if another package extension (for example, called *demo*) also adds a submit action to that form. The submit action on that form can only be described by one package extension at a time.

Resolving resource conflicts

To resolve a resource conflict, you can either deactivate the package extension with the conflicting project component or you can delete the project component creating the conflict from one of the package extensions. Continuing the example from above, you could either deactivate the *demo* package extension or you could delete the submit action from the *demo* package extension.

Dependency conflicts

Dependency conflicts occur when you change a project component in a packages that is not listed as a dependency for your current package extension.

For example, if the *demo* package extension is solely dependent on the *incidentmgt* package, then the *demo* package extension cannot make changes to the *sharedtemplates* package without creating a dependency conflict.

Resolving dependency conflicts

To resolve a dependency conflict you can either add a dependency to the package extension, or you can move the changes to another package extension with the proper dependencies. Continuing the example above, you could either make the *demo* package extension dependent on the *sharedtemplates* package or you could move the changes from the *demo* package extension to another package extension such as *extension*, which is already dependent on the *sharedtemplates* package.

Viewing conflict information

The Advanced Information pane tells you whether you have a resource or a dependency conflict.

To view conflict information:

1   Select a node with an exclamation point icon displayed next to the name from the Project Explorer view.

2   Click **View** > **Advanced information**.

A new information window will be displayed at the bottom of the Peregrine Studio interface. This window displays information on the conflict.

For additional information about a particular project component and its possible settings, refer to the Studio Introduction and the Studio online help.

Deploying tailoring changes

After you build your Peregrine Studio project file, you will need to deploy your new files to the application server running Get-Services. The following sections describe how to deploy your tailoring changes to your test and production environments.

Deploying to Windows platforms

You can deploy your tailoring changes directly over your Windows network.

To deploy tailoring changes on Windows platforms:

1   Stop the application server on the target machine.

2   Copy the files from the Peregrine Studio deployment directory to the application server's deployment directory on the target server.

3   Restart the application server on the target machine.

Deploying to UNIX platforms

You can deploy your tailoring changes to UNIX platforms using whatever cross-platform methods you have available such as FTP, shared drives, or e-mail.

4 CHAPTER | Peregrine Studio Components

This chapter contains a list and description of all of the components you can add to a Project in Studio. The information follows the menu structure of these components and subcomponents as you see them in Studio.

The menus that you see when you open the Get-Services package in Peregrine Studio may vary slightly from the menu options documented here. Menu options change depending on the components you created. For example, you must have the folder called `shared templates` in your package to enable DocExplorer Reference as a menu option.

This chapter covers the following topics:

- Adding components on page 56
- Types of form components on page 67

Adding components

To add components to your Project, right-click on the node to which you want to add a component. A menu of options opens.
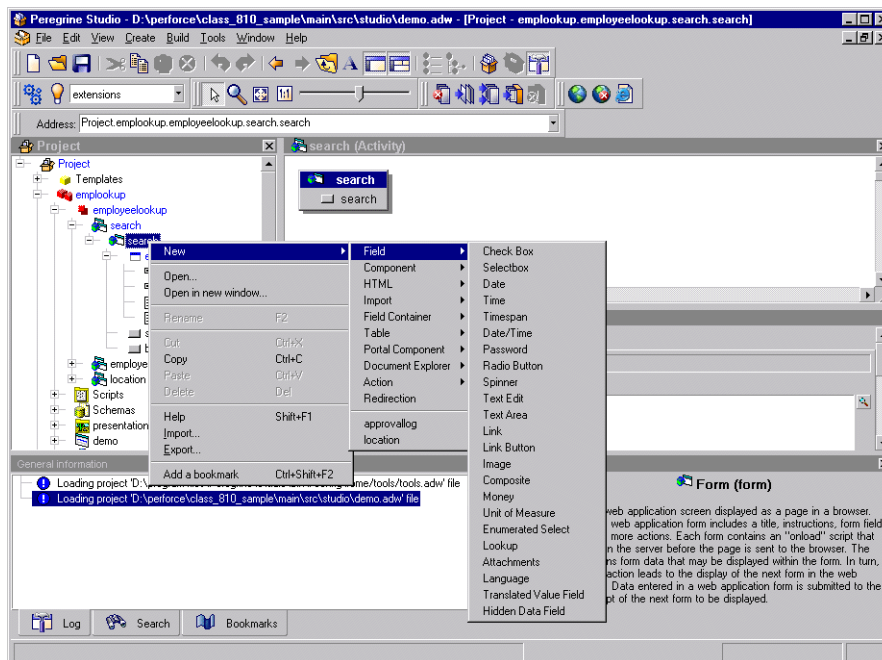
Project > New >

Component	Description
Directory Object	Not supported.

Group of Modules > New >

When you create a Group of Modules component, it includes a folder called Explorers that contains default content for DocExplorer personalization screens. It also includes a Group of Roles, which is a list of roles that control access rights. From the Group of Modules, you can create the following.

Component	Description
Module	Get-Services contains modules. The role that a user takes in performing tasks often determines the modules. For example, you can design one module for employees who open requests for service. Another module can be for managers approving requests. Modules typically have specific access role restrictions so that only those users who need to perform the module's task have permission to do so.
Peregrine Portal Activity	Each module contains one or more activities that define the steps users can take to complete the module's task. For example, a Request module can have activities for browsing catalogs, reviewing a shopping cart, and filling out a request form. Each activity typically displays in Get-Services on a sidebar menu at the left of a form. Activities typically have specific access role restrictions so that only those users who need to perform the activity's task have permission to do so.
Form	Defines a Get-Services screen displayed as a page in a browser. The typical form includes a title, instructions, form fields, and one or more actions. Each form contains an onload script that executes on the server side before the page goes to the browser. The script obtains form data to display within the form. In turn, each form action leads to the display of the next form in Get-Services Data entered in a form is submitted to the onload script of the next form to be displayed.

Component	Description
Field >	
Check Box	Allows you to toggle a value on or off.
Selectbox	Allows you to select a value from a list displayed in a Combo Box field.
Date	Allows you to view or enter a date. You can enable or disable (the default is *enabled*) an optional calendar form component (Date Picker) for users to enter dates. To define a start year for the drop-down list or for the calendar form component, add a + or - sign in front of a number. This number specifies the number of years before or after the current year you want the start and end years to be.
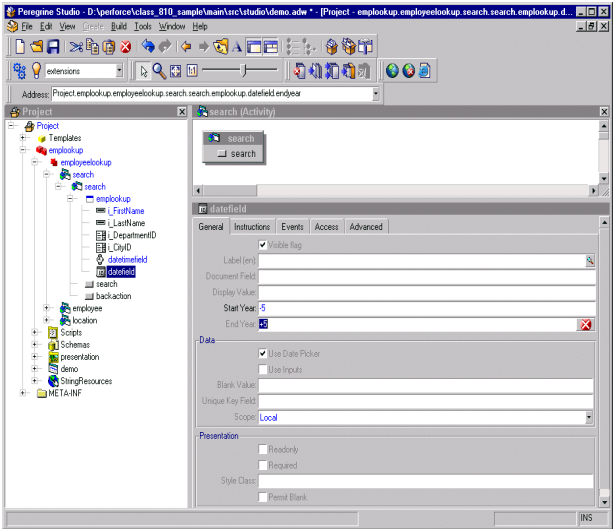
Time	Allows you to view or set a time value.	
Timespan	Allows you to view or edit a timespan value.	
Date/Time	Allows you to view or set a date and time value. There is an optional calendar form component (Date Picker) that you can enable or disable in Studio (the default is *enabled*). See Date component.	
Password	Allows you to enter a password.	
Radio Button	Allows you to select one of several choices using radio buttons.	
Spinner	Allows you to enter a numerical value. The control allows you to type the number in directly. It also allows you to select a number by clicking on the spinner buttons that increase and decrease the value.	

Component		Description
Field> (continued)	Text Edit	Allows you to display or edit a value in a plain text field.
	Text Area	Allows you to enter text into a multiline edit field.
	Link	Displays a hyperlink that the user can click to navigate to another Web location or site.
	Link Button	Displays an image button created out of background images and text.
	Image	Displays an image.
	Composite	Allows the creation of a field that consists of two or more fields placed next to each other.
	Money	Allows you to view or edit a monetary value.
	Unit of Measure	Allows you to view or edit a value that is a unit of measure.
	Enumerated Select	Allows you to select a value from a list displayed in a Combo Box field.
	Lookup	Allows you to enter a value by performing a lookup operation. The lookup is done in a separate pop-up window.
	Attachments	Allows you to view and add attachments to a document.
	Language	Allows you to select a preferred language from a list of supported languages.
	Translated Value Field	Displays text returned by a translation script function.
	Hidden Data Field	Stores data obtained by the form's onload script without displaying it to the user. The data is included when the form is submitted and the user navigates to another form.
Component >		
	Treelink	Displays a treelink component.
	Directory	Displays a directory component based on data received from a document query to an adapter.
	List Builder	Allows you to configure a list by selectively adding items to a listbox from a list of choices.
	Workflow	Displays a workflow diagram.
	OAA Workflow	Displays a workflow diagram.
	Stack	Displays a stack component
	SVG	Displays an SVG component.
	Web Application Menu	Displays a menu of all registered modules or packages in the current Web application.

Component	Description
HTML >	
Blank Line	Adds a blank vertical line to the form.
Free-form HTML	Allows you to insert arbitrary HTML into a form as well as insert client-side JavaScript into a Web page.
	Note: Peregrine Systems recommends that you move large amounts of client-side JavaScript to a presentation file that the page can then import.
Import >	
Static Import	Imports the text content of a file for inclusion in a Web page. You can import files that define static HTML, JSP code or client-side JavaScript functions.
External HTML Plug-in	Includes dynamic content into the form. At run time, the URL that the plug-in references is accessed by the server, returning contents which then insert into the form.
Field Container >	
Field Section	Aligns fields into a column. Displays all field labels in an aligned column to the left of the fields. You can divide fields into groups by inserting Headers and Instructions as needed. To display more than one column of fields, create a Form Columns container and place a Field Section container in each column.
Multicolumn Field Table	Organizes input fields into a multi-column table. Peregrine Systems recommends that you use Form Columns and Field Sections instead.
Entry Table with Field Instructions	Organizes input fields into a multicolumn table with fields on the left and instructions for each field on the right.
Component Template	Allows you to define a group of form elements that can be reused in more than one form. Changes to the template are propagated to all places where the template is used.
Tabs	Adds tabs to a form, each pointing to different content defined by a separate form.
Dynamic Menu	Displays a multicolumn menu based on data received from a document query to an adapter.
Form Columns	Divides the form into columns, allowing content to be grouped and organized.

Component	Description
Table >	
Simple Table	Displays a list of documents resulting from a query.
Document Table	Displays a list of documents resulting from a query.
Tree	Displays a list of documents resulting from a query as a tree.
Portal Component >	
Component Editor	Generates fields elements used to configure a specific portal component. Not intended for general Get-Services use.
Portal Header	Generates the portal page header. Not intended for general Get-Services use.
Corkboard Header	Generates header information needed by any page that includes a corkboard. Not intended for general Get-Services use.
Corkboard Configurator	Generates a list of choices containing all known portal components. The list can be used to configure the components to display in a specific corkboard container.
Corkboard	Displays the portal components chosen and configured by each user.
Custom Configurative	Allows users to define their own custom component configurators.
Document Explorer >	
Search	Displays a personalized list of fields used to perform document searches.
List	Displays a personalized table with the list of documents found as a result of a search.
Detail	Displays a personalized view of a document detail.

Component	Description	
Action >		
	Action	Displays a button for an action. The button can be a link to another page or a submit action.
	Default Action	Defines a form's submit action when no actual buttons are displayed.
	Back	Navigates to the previous page of the Web application.
	Home	Navigates to the home page of the Web application.
	Print	Prints the current Get-Services form.
	Close	Use to close pop-up windows.
	Redirection	Redirects a page to a link depending on the result of the onload script matched against the condition.
	Transition	Contains an onload script and redirect arguments. After the script runs, execution redirects according to the condition that the script returns. The options available from the Transition menu are the same as the Form menu, except there is no Action option.
Group of Strings	List of multilingual strings.	
	Multilingual String	The name of the StringResource is the ID of the string.
Group of Scripts	Server-side ECMAScripts.	
Script	Server-side ECMAScript (JavaScript) file containing functions that the Web application forms uses.	
	Header	Initial comments and imports required in this script file.
	Function	Script function defining application logic executed on the server. Make sure that all functions that have public access accept a Message object as the single input parameter and return a Message object as a response. For example: `function xyz( msg ) {var msgResponse=new Message(); ... return msgResponse;}` A script requires this public access interface if you use it as an onload script for a form or if you call it directly using an Archway HTTP message.
Group of Scripts	Server-side ECMAScripts.	

Component	Description		
Group of Triggers	A collection of triggers. Get-Services does not use this container.		
Trigger	Individual trigger for a document. Get-Services does not use this component.		
	Message action	Message action that the trigger executes.	
	Workflow action	Workflow action that the trigger executes.	
	Script action	Script action that the trigger executes.	
	Bizdoc Java action	Java action that the trigger executes inside Bizdoc.	
Group of Triggers	Collection of triggers. Get-Services does not use this component.		
	Trigger	Individual trigger for a document.	
	Group of Triggers	Collection of triggers.	
Group of Schemas	Database schemas describing documents accessible by Get-Services Schemas define the field table mapping between Get-Services and the back-end database.		
Raw Schema	Description of a document's mapping on a real database.		
Schema	Not supported.		
Group of Images	Folder containing the image files used in your Web application.		
Image	The image loads into the ImageData property as binary data. The system uses the file name property only the first time to load the image.		
Group of Images	Folder containing image files.		
	Image	The image loads into the ImageData property as binary data. The system uses the file name property only the first time to load the image.	
	Group of Images	Folder containing image files.	
Group of Presentation Files	Folder containing files copied directly to the presentation folder for use within the Get-Services Web server.		
Text	Any generic file in the Presentation folder that the Web server needs; for example, client-side JavaScript, static JSP files.		
Binary	Binary file outputted in the presentation folder. Accessed by the Web server and used by the browser.		

Component	Description	
Group	Folder containing files copied directly to the presentation folder for use within the Get-Services Web server.	
	Text Presentation File	Any generic file in the Presentation folder that the Web server needs; for example, client-side JavaScript, static JSP files.
	Binary Presentation File	Binary file outputted in the presentation folder. Accessed by the Web server and used by the browser.
	Group of Presentation Files	Folder containing files copied directly to the presentation folder for use within the Get-Services Web server.
Group of default DocExplorer screens	Folder containing default content for DocExplorer Personalization screens.	
Reference of a file	File object.	
Directory Object	Not supported.	
Group of Portal Components	Components that appear in the portal components menu and that the user can add to the home page.	
Portal Component		
	(contents)	The content of the portal component that is displayed.
	(configure)	Allows configuration of a portal component.
Group of files	A temporary container of miscellaneous files that a Web application uses. For example, string files and `scriptpoller.ini` files are stored here.	
String file	Temporary representation of a string file.	
Ini file	Temporary representation of a `scriptpoller.ini` file.	
Group of Strings	List of multilingual strings.	
Multilingual String	The name of the StringResource is the ID of the string.	
Group of Roles	Not supported.	

Group of Style Sheets > New >

Component	Description
Style Sheet	Not supported.

Group of Roles

Component	Description
Group of Roles	Not supported.

Group of Files > New >

Component	Description
String file	Temporary representation of a string file.
Ini file	Temporary representation of a `scriptpoller.ini` file.

Group of Strings > New >

Component	Description
Multilingual string	The name of the StringResource is the ID of the string.

Entities (collection of business objects) > New >

Component	Description
Entity	Get-Services does not use this component.

Interfaces > New >

Component	Description
Interface	Not supported.

System enumerations > New >

Component	Description
System enumeration	Describes a system enumeration, used to define data attributes where the value stored is not the value displayed to the user. This allows multilingual databases.
Value	Define one value for a system enumeration.

Templates > New

Component	Description
Schema	Not supported.
Field Container Component Template	
Directory Object	Not supported.
Group of Methods	Includes a list of methods. You can create new methods under this element.
Method—Java Method	The name is not significant. You can add a comment to the method
Method—Java Method	The name is not significant. You can add a comment to the method.
Message action	Get-Services does not use this component.
Workflow action	Get-Services does not use this component.
Bizdoc Java action	Get-Services does not use this component.
Script action	Get-Services does not use this component.
Trigger	Get-Services does not use this component.
Group of Images	Allows you to create a group of images.
Attribute	Get-Services does not use this component.
Reference	Get-Services does not use this component.
Contain	Contains an object as an embedded member.
Computed	Computed property.
Structure	Get-Services does not use this component.
Collection	Get-Services does not use this component.
Methods	Get-Services does not use this component.
Entity	Get-Services does not use this component.

Types of form components

The following sections describe some of the more commonly used form components.

Component template containers

A component template is a special type of container that stores groups of preconfigured form components. A component template allows you to reuse the form components stored in the template throughout your project. After you create a component template, the component template name appears in the templates list of the Create and New menus. A component template references all the child form components and attributes settings defined in the template.

If you add a component template to Get-Services and do not modify it, Peregrine Studio saves the form components as links to the component template. If you make changes to the form components in the template, Peregrine Studio saves only the changes you made and links to the form components that you did not change.

Tip: Use component templates to re-use common elements of your forms. For example, if several of your forms contain customized search functionality, then you can create a component template that automatically calls the correct search schema, queries your back-end system, and displays the proper search fields.

To create a component template:

1   Right-click the **Templates** nodes and click **New > Field Container > Component Template**.

   Peregrine Studio adds a new component template node to the Project Explorer Tree.

2   Enter the name for the component template.

3   Right-click the new component template node and use the **New** option to add form components.

4   Configure the form components you add to the template component. Peregrine Studio uses these settings as the default settings of the template component.

5   Save and build your Peregrine Studio project.

The new template component appears as an option in the New menu.

Important: Do not copy and paste or drag and drop items between template components. Instead, add form components using the context-sensitive or Create menus. Studio does not use the linking features of template components on items that you copy from existing template components.

To add a component template to a form:

1   Right-click the form where you want the component template to be.

2   From the **New** menu, select the template you want to add.

Form components you can add to a component template:

▪   All except Action and Redirection.

Tip: You can use a component template as the container for any form components that require a container. This is typically done for form components such as hiddenfields where you are not concerned about the display of the fields.

Attributes
You can set the following attributes for a component template.

Title	User Role Restrictions
Summary	Dynamic Runtime Restrictions
Order	

Fieldsection containers

The fieldsection component is a container that aligns fields into a column. The fieldsection component displays each field on its own line in the column and

aligns the field labels along the left of each field. Each fieldsection can have a border that surrounds the columns and visually indicates that the fields in the container are related. You can also add a header or instructions to your fieldsection as well as add labels and instructions to the individual fields in the fieldsection.

Tip: You can use the fieldsection form component to group and align related input fields. For example, if you have several fields to input search information, you can align the fields in a single fieldsection and add a header and instructions that will apply to all fields.

To create a fieldsection:

1   Right click the form where you want the fieldsection to be.

2   Click **New** > **Field Container** > **Field section**.

Form components
You can add the following form components to a fieldsection.

Field	Header
Component	Import
HTML	Instructions

If you select the Header or Instructions form components, Studio will display the text editor screen for you to enter HTML code for your header and instructions. Peregrine Studio will not check the validity of your HTML code.

Attributes
You can set the following attributes for a fieldsection.

Title	Dynamic Runtime Restrictions
Summary	Border
Order	Readonly
User Role Restrictions	

If you plan on having multiple fieldsections in a form, you can use the border Presentation property to display a line around a fieldsection to help visually distinguish the fieldsection from other elements in your Web application interface. You may also want to add a Form Columns layout container to display

your fieldsections in two or more facing columns rather than a single column down the form.

Text edit fields

A text edit field provides a bordered field in which to display or enter a value as plain text. Text edit fields can only be added to forms within a container such as a component template or fieldsection.

The most common use for text edit fields is to provide a space for users to enter keyboard input. A text edit field saves the text entered into a particular schema field when a user submits the form.

Tip: To use a text edit field for text input, add an action to the form that submits the field information to another form. Set the Document Field attribute of the text edit field to the corresponding attribute name used in the document schema.

You can also use text edit fields to display information by default. To display information in a text edit field, create an onload server script that performs a document query, and then map the text edit field to one of fields of the schema.

Tip: To use a text edit field to display of information by default, add a schema to the parent form that defines the information to be displayed. Set the Document Field attribute of the text edit field to the corresponding attribute name used in the schema. Set the readonly attribute under Presentation to Yes if you do not want users to change the information displayed.

To create a text edit field:

1   Right-click the container where you want the field to be. This displays the context-sensitive menu.

2   Click **New** > **Field** > **Text Edit**.

Form components
You can add the following form components to a text edit field.

None

Attributes

You can set the following attributes for a text edit field.

Instructions	Display Value
Label	Max Characters
Title	Data
Document Field	

Selectbox fields

A selectbox provides a drop-down list box from which users can select predefined values. You can add items to the selectbox in one of two ways.

Option	Value
Explicitly define the options.	The selectbox always displays the options you enter and always displays them in the order you define them in the Order attribute.
Query your back-end database and generate an XML document that provides the display options.	The selectbox displays the options as defined by the schema used to generate the XML document. Typically, the selectbox uses the same schema as the form of which it is a part. If you want to use a schema to display the options in a selectbox, then you must set the Document field attribute to an attribute name in a schema.

Tip: Use the schema query method to avoid duplicating information that is already stored in your back-end database. If you explicitly enter the options in the selectbox, then you have to update, rebuild, and re-deploy your project every time you change the list of selectbox options. If you store the selectbox options on your database, however, then you only need to change the database values, and your schema query will automatically pick up any changes you make.

When you are working with selectboxes, keep in mind that:

- You can only add selectbox fields within a container such as a component template or fieldsection.

- Users cannot add entries to selectbox fields. To implement such functionality, you would need to write a client-side JavaScript to insert any information added into your back-end databases.

- If you have a large number of selections for users to choose from you may want to use a lookupfield in place of a selectbox. The advantage of using lookupfields are:

    - they can be personalized

    - they are not loaded into memory until the lookupfield is selected, which reduces the amount of time necessary to render the form.

- Get-Services uses selectbox fields to constrain user input to a list of predefined items. The selectbox field saves the selected item to a particular field when a user submits the form. The field used to save the information must match a field defined in a document schema.

To create a selectbox field:

1   Right click the container where you want the field to be.

2   Click **New** > **Field** > **Selectbox**.

Form components

You can add the following form components to a selectbox field.

Component	Description
Option	The Option form component allows you to explicitly define the entries displayed in the selectbox.

Attribute categories

You can set the following attribute categories for a selectbox field.

Instructions	Multiple Selection	Dynamic Runtime Restrictions
Label	Permit Blank	Process
Title	Data	Presentation
Document Field	Presentation	Databound
Display Value	Events	
Size	User Role Restrictions	

Databound attributes

The Databound attributes are where you will define what schema and schema attributes provide the information for the selectbox. The following list describes what information to enter in the Databound attributes.

Attribute	Description
Document	Enter the schema name you want to use to query and display the information requested in the selectbox.
Values	Enter the attribute name from your schema that defines what information you want to use to sort and identify the information in the selectbox. This value can be identical to the displaylist attribute, but it is recommended that you use the Id attribute name defined in the schema. The Id attribute is the preferred choice because it is a unique value and requires less memory to sort since it is only a number.
Captions	Enter the attribute name from your schema that defines what database information you want displayed in the selectbox.

Hidden data fields

A hidden data field stores form information without displaying it to the user. Get-Services passes the information stored in a hidden data to other forms when the form is submitted.

Tip: You can use hidden data fields to prevent users from having to input the same information on multiple forms. For example, if a user enters contact information in one form, then you can use hidden data fields to store this contact information in later forms.

To create a hidden data field:

1   Right click the container where you want the field to be.

2   Click **New** > **Field** > **Hidden Data field**.

Form components
You can add the following form components to a hidden data field.

 None

Attributes
You can set the following attributes for a hidden data field:

Document Field	Unique Key Field
Display Value	User Role Restrictions
Visible Flag	Dynamic Runtime Restrictions

Redirections

A redirection takes users to another form when the onload server script generates a certain condition. A conditional redirection requires the parent form to run a server script when it is loaded. To use a conditional redirection, you must create a server script that checks for a particular condition and then outputs a condition message when this condition occurs.

You can only add a redirection to a form. You cannot add a redirection to a form component.

Tip: You can use a redirection to take users to a form when they enter particular information or a particular result, such as when an error occurs or when no results are generated.

To create a redirection:

1   Right-click the form where you want the redirection to be.

    The context-sensitive menu is displayed.

2   Click **New** > **Redirection**.

Form components

You can add the following form components to a redirection.

 None

Attribute categories

You can set the following attribute categories for a redirection.

Visible flag	Parameters
Condition	Target (form, field, or URL)
Frameset	User Role Restrictions
HTTP Submit Method	Dynamic Runtime Restrictions

Redirection attributes

For most redirections, the two most important attributes to set are the condition and the target form.

Attribute	Description
Condition	Enter the message generated by your server script that activates the redirection to another form. If there is no condition, the redirection will activate every time the page is loaded. See *Common message operations* in this guide for more information on setting a condition.
Target form	Enter the full Peregrine Studio path to the form where the user should be redirected.

Simple table

A simple table is a container to display information generated from a schema document query. The simple table form component only has two basic functions by itself. The simple table form:

- Calls the schema that will generate the table data.

- Describes how the data will be displayed in the columns of the table.

A simple table requires columns components to display data.

To create a simple table:

1   Right-click the form where you want the table to be.

2   Click **New** > **Table** > **Simple Table**.

Form components
You can add the following form components to a simple table.

Link	Spinner Column	Image Column
Text Column	Radio Button Column	Link Column
Entry Column	Checkbox Column	Lookup Column

Attributes
You can set the following attributes for a simple table.

Visible Flag	Readonly	Dynamic Headers and Columns
Caption (en)	Required, Column Sorting	Instructions (en)
Accessibility Title (en)	Border	Events
Accessibility Summary (en)	Process	User Role Restrictions
Size	Document	Dynamic Runtime Restrictions
Preview	Data	
Order		

The Document attribute defines the schema the simple table uses. You can enter a schema name or select one from the drop-down list box.

Simple tables include a built interface to view large tables in smaller pages. You can use the size attribute to set the number of rows to display on one page. When users want to view more of the table results, they can click on the next *x* rows button to view the next page of table rows. All simple tables include the link icons to browse forward and backward in the table.

Document table

A document table is a container you can use to display any other form component from within a table. The document table form component only has two basic functions by itself. The document table form:

■   Calls the schema that generates the table data.

■   Describes how the data displays in the columns of the table.

A document table requires columns components in order to display data. Unlike the simple table, the document table only uses one type of column: the formcolumn. However the formcolumn form component allows you to add any other form component to your document table.

To create a document table:

1   Right-click the form where you want the document table to be.

2   Click **New** > **Table** > **Document Table**.

Form components
You can add the following form components to a document table.

Column

Attributes
You can set the following attributes for a simple table.

Visible Flag	Preview	User Role Restrictions
Accessibility Title (en)	Order	Dynamic Runtime Restrictions
Accessibility Summary (en)	Border	
Size	Document	

The Document attribute defines the schema the document table uses. You can enter a schema name or select one from the drop-down list box.

Document tables include a built interface to view large tables in smaller pages. You can use the size attribute to set the number of rows to display on one page. When users want to view more of the table results, they can click on the next *x*

rows button to view the next page of table rows. All document tables include the link icons to browse forward and backward in the table.

Table links

A table link allows you to click on a table row and be redirected to another form. The table link also saves some field information about the row the user selects and submits this information to the target form. Table links typically have two functions:

- To display more information about an item selected in the table.

  or

- To copy certain information about the item selected in the table into a new form such as, for example, the price of an item in a purchase request form.

To create a table link:

1 Right-click the table where you want the table link to be.

2 Click **New** > **Link** > **Table Link**.

Form components
You can add the following form components to a table link.

 None

Attributes

You can set the following attributes for a simple table.

Visible Flag	Data	Events
Label (en)	Image	User Role Restrictions
Title (en)	HTTP Submit Method, Parameters	Dynamic Runtime Restrictions
Balloon (en)	Target (frame, form, field, script, or URL)	
Style Class		

Table link attributes

For most table links, the two most important attributes to set are the Document field and the target form.

Attribute	Description
Document field	Enter the field that describes what information should be passed when a table link is submitted. The Document Field attribute should match the attribute name of an item in your schema. The attribute is typically set to the Id schema attribute.
Target form	Enter the full Peregrine Studio path to the form where the user should be redirected when they click on a table row.

Text columns

A text column displays the results of a document query in a table column as plain text. Each text column displays one field of information from a back-end database. The field must match an attribute name listed in the document schema of the parent table.

When working with text columns, keep in mind that they:

■ Are always read-only and cannot be used to update information in the back-end database.

■ Can only be added as child nodes of a simple table.

To create a text column:

1   Right click the table where you want the text column to be.

2   Click **New** > **Text Column**.

Form components

You can add the following form components to a text column.

  None

Attributes

You can set the following attributes for a text column.

Visible Flag	Support Links	Style Class
Order	Data Type	Events
Label (en)	Document Field	User Role Restrictions
Title (en)	Translation Function	Dynamic Runtime Restrictions

Text column attributes

For most text columns, the two most important attributes to set are the Document field and the Label (en).

Attribute	Description
Document Field	Enter the field that describes what information should be displayed in the text column. The Document Field attribute should match the attribute name of an item in your schema.
Label (en)	Enter the label you want displayed in the first row of the table as the column heading. If you are using dynamic headers and columns, you will want to leave this attribute blank.

Form columns

A form column is a container for any other form component you want to add to a table. Unlike a text column, a form column can display any number of fields of information from your back-end database. Each field, however, must still match an attribute name listed in the document schema of the parent table.

When working with form columns, keep in mind that they:

- Can contain form components that insert or update information in your back-end database.
- Can only be added as child nodes of a document table.

To create a form column:

1   Right click the document table where you want the text column to be.

2   Click **New** > **Column**.

Form components
You can add the following form components to a form column.

 Any

Attributes
You can set the following attributes for a form column.

Visible Flag   User Role Restrictions
Label (en)   Dynamic Runtime
Order   Restrictions

Form column attributes
For most form columns, the two most important attributes to set are the Label
(en) and the User Role Restrictions.

Attribute	Description
Label (en)	Enter the label you want displayed in the first row of the table as the column heading. If you are using dynamic headers and columns, leave this attribute blank.
User Role Restrictions	Enter the user role or roles that you want to have access this form column. Only users with this access level will have access to the form components in the column. If you do not want to set a user role restriction, leave this attribute blank.

Actions

An action is a button that submits form information or follows a particular link.
The following is a list of the possible actions you can include in your forms.

Action	Description
Action	Use to submit form information or follow a link.
Back	Use to navigate back to the previous form.
Close	Use to close pop-up windows.

Action	Description
Default Action	Use to define a form's submit action when no buttons are displayed in a form.
Home	Use to navigate to the portal home page.
Print	Use to print the current form.

To create an action:

1   Right-click the form where you want the action to be.

2   Click **New** > **Action** and then click the action type you want to add.

Form components
You can add the following form components to an action.

 None

Attributes
You can set the following attributes for an action.

Submit Form
Target (frame, form, field, script, or URL)
Label (en)
Title (en)
Balloon (en)

Image
Parameter
HTTP Submit Method
Events
User Role Restrictions

Dynamic Runtime Restrictions
Visible Flag
Presentation

Action attributes
For most actions, the three most important attributes to set are the Image Folder, Target form and the Label (en).

Attribute	Description
Image	Enter the file name of the image to be used for the button.
Target form	Enter the full Peregrine Studio path to the form where the user should be redirected when they click on the button.
Label (en)	Enter the label you want displayed in the button.

5 | Scripting

CHAPTER

This chapter provides an overview of how to use scripts. You must be familiar with JavaScript and ECMAScript and have access to the JavaDocs provided with your Get-Services Tailoring Kit installation CD.

This chapter covers the following topics:

- Overview of scripts on page 83
- Testing scripts on page 92
- Common message operations on page 97
- Using ECMAScript in an object-oriented manner on page 100
- Sample scripts on page 105
- References on page 113

Overview of scripts

Get-Services uses scripts to query back-end databases and to format the results into XML documents based on schemas. Generally, you only need to create new scripts if you create new forms. Most customizations do not require changes to the script, but rather to the schema that the script uses to display data. Before creating or making changes to a script, you must create or activate a writable package extension in which to save your changes.

Tip: You can use the existing scripts as templates for your custom scripts. Try and find a script that has similar functionality to what you want, and then copy and paste the script into your Peregrine Studio project.

Script types

Get-Services uses two types of scripting to transfer and format data between your back-end databases and Web application forms.

Scripting type	Description
Server-side	Server-side scripts run from a Web server. Server-side scripts have access to both user-submitted form data and any data that a back-end system generates. You can return the output of server-side scripts to both a back-end system and the remote browser. All Get-Services server-side scripts use ECMAScript. An example of server-side scripting is querying a back-end system for the list of open tickets that a user submits.
Client-side	Client-side scripting runs from a JavaScript-capable browser. Client-side scripts have access to user data before submitting to a Web server and any back-end data that uploads with the current Web page. Only the client browser uses the output of client-side scripts. All Get-Services client-side scripts are in JavaScript. An example of using client-side scripting is formatting a user's contact information using locale preferences.

Where to store scripts

The following table describes how you can include both types of scripting into your projects.

Script type	Language	Where created and stored
Server-side	ECMAScript	You can author server-side scripts in Peregrine Studio. Each script then becomes an object available for use throughout the project.
		It is possible to create scripts outside of Peregrine Studio that can then be used in schema extensions, or as a Get-Services script interface.
		You can also create scripts as script extensions to modify the behavior of existing scripts (see the Get-Services Admininstration Guide).
Client-side	JavaScript	You can author client-side scripts outside of Peregrine Studio and add them to your project. You can also include client-side scripts as part of the HTML code stored with a form.

Peregrine Studio stores all server-side ECMAScripts as part of your project file. At build time, Peregrine Studio copies the scripts into your application server's deployment folder and creates all necessary Get-Services forms. At run time, the

deployment application server executes the forms along with any server-side scripts that the forms call and sends the output to the client browser. The client browser executes any client-side JavaScript present in the rendered HTML page.

How to use scripts

The Archway servlet supports several different methods to invoke and utilize scripts within Get-Services. The following sections describe the different ways to use ECMAScript and JavaScript within Get-Services.

Forms—server side

All Get-Services forms support invoking onload server-side scripts. Typically, the onload script creates an XML message to gather and format information from a back-end database. The script message can contain queries or updates to the database or to XML documents built from a schema. The scripts typically use a schema, one or more input parameters, and a back-end database query to create an XML document.

Many server onload scripts use one of the following API calls.

This API	Sends the following
sendDocQuery	SQL or XML document query to the back-end database. Archway queries the record using the table and field information that the schema supplies. The database then returns the results of the query as an XML document formatted as defined in the schema.
sendDocInsert	XML document to the back-end database that describes a new record. Archway creates the new record in the database using the table and field information that the schema supplies.
sendDocUpdate	XML document to the back-end database that describes an update to an existing database record. Archway updates the record using the table and field information that the schema supplies.
sendDocDelete	XML document to the back-end database that describes a record in the database to be deleted. Archway deletes the record using the table and field information that the schema supplies.

Get-Services typically uses the following ECMAScript syntax to refer to schemas. For additional methods of formatting these messages, refer to the JavaDocs API documentation provided with your Get-Services installation.

```
archway.sendDocQuery( "adapter name", "schema name", input msg);
archway.sendDocInsert( "adapter name", message object);
archway.sendDocUpdate( "adapter name", message object);
archway.sendDocDelete( "adapter name", message object);
```

Parameter	Value
adapter name	Enter the name for the back-end database adapter. This adapter uses the ODBC connection that you defined in the `archway.ini` file. For most applications, the adapter is a two-letter name.
schema name	Enter the name defined in the `<document name="schema name">` element of the schema file.
input msg	Enter the variable name of a message that OAA uses to store input parameters for the ECMAScript function. The default input message is the msg object defined in all onload functions. The input message is the XML message containing the HTML page parameters.
message object	Enter a variable name of a message object containing a schema name and any input parameters.

For example, the following script sample defines a variable called *msgReturn* that sends a document query to ServiceCenter using the `empdetail` schema and any input parameters stored in the *msg* message object. The variable *msgReturn* then returns the result of the document query.

```
var msgReturn = archway.sendDocQuery( "sc", "empdetail", msg );
return msgReturn;
```

Client side

The browser handles all client-side scripting when a user views a Web application.

Note: Peregrine Systems does not provide customer support for custom client-side scripts.

Editing an existing script

You can edit the ECMAScript in your project directly from the Peregrine Studio interface.

Important: You may lose changes that you make to existing scripts when you next upgrade. Use script extensions whenever possible to avoid this problem.

To edit an existing script:

1 Select the form in the Project Explorer.

2   Click the **Script** tab in the Properties window.
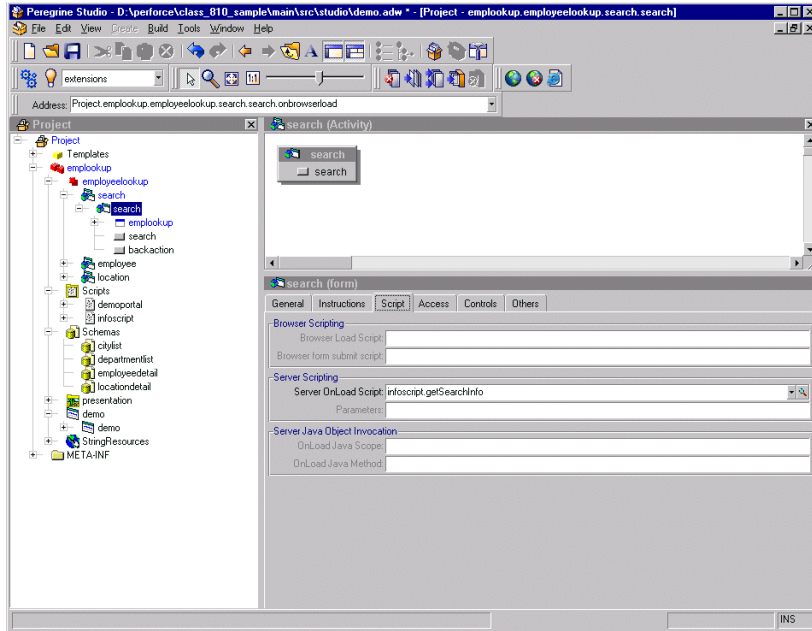
3   In the Server Onload Script field, click the magnifying glass button to view the script in the Peregrine Studio text editor.
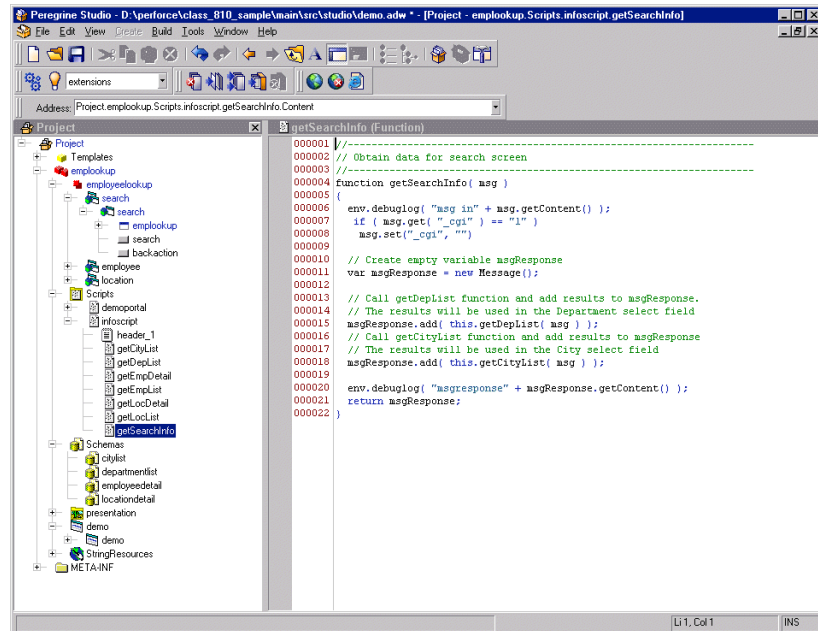
4   Make any changes to the script in the text editor.

5   Save your project.

6   Build your project file.

7   Restart your application server or set the File Change Monitor option from the Administration page.

The script update loads into Get-Services.

Adding a custom script

You can add custom scripts to your Peregrine Studio project for use by forms, schemas, and form components.

To add a custom script:

1   Determine what kind of script you want to create.

    You can create the following script types.

Script type	Description
Form onload script	Run these scripts to gather data for non-DocExplorer forms. Peregrine Studio stores form onload scripts below the first Group of Scripts node. These typically are **Scripts** or **ServerScripts**.
Preexplorer	Run these scripts to manipulate the XML document that renders in the Get-Services interface. Peregrine Studio stores preexplorer scripts below the Preexplorer Group of Scripts node.
Preload	Run these scripts to gather data for DocExplorer forms. Peregrine Studio stores preload scripts below the Preload Group of Scripts node.
Schema	Run these scripts before or after an adapter connects with the back-end database. Peregrine Studio stores schema scripts below the Schema Group of Scripts node.

2   Right-click the appropriate Group of Scripts node, point to **New**, and then click **Script**.

    Peregrine Studio creates a new script node below the Group of Scripts.

3   Type the name of your script and press **ENTER**.

4   Right-click the new Script node, point to **New**, and then click **Header**.

    Peregrine Studio creates a new Header node below the Script node.

5   Using the text editor window, type the header information for your new script.

6   Right-click the new Script node, point to **New**, and then click **Function**.

    Peregrine Studio creates a new Function node below the Script node.

7   Using the text editor window, type the function information for your new script.

8   Save your project.

9   Build your project file.

10   Restart your application server or set the File Change Monitor option from the Administration page.

The new script loads into Get-Services.

Date values in scripts

In server-side scripts, all dates in the XML messages must use the internal format `YYYY-MM-DD`. The format for timestamps is `YYYY-MM-DDTHH:mm:SS.SSSZ`, where

Symbol	Value
T	Is the letter T.
HH	Specifies the hours in 24 hour format.
mm	Specifies the minutes.
SS.SSS	Specifies the number of seconds and milliseconds.
and Z	Indicates the time zone.

The following is an example of the format showing GMT:

`2004-02-19T16:58:23+00:00`

The following is an example of the format using the name of the time zone:

`2004-03-29T07:00:00America/Los_Angeles`

Note: The names of time zones are in the `Java.util.TimeZone class`.

Timestamps are usually in the GMT time zone. However, dates on server machines do not need to be in this format. The user interface automatically converts dates to and from the local date format automatically whenever the system uses date widgets or date columns.

When you set the date manually in an XML message, you may need to manipulate its format. Use the `DataFormatter.getArchwayDate` and `DataFormatter.getArchwayDateTime` functions.

See Working with dates in scripts on page 112 for examples of date manipulation.

Testing scripts

Get-Services offers two means of testing your ECMAScript:

- Rhino JavaScript Debugger
- URL Queries

Rhino JavaScript debugger

You can now configure Get-Services to send script output to the Rhino JavaScript Debugger Mozilla provides. The Rhino JavaScript Debugger provides a graphical user interface for debugging interpreted ECMAScript. When you enable the Rhino JavaScript Debugger, you can log on to the Get-Services server and see debugging information about your installation as you browse through the Get-Services interface.

Important: To use the Rhino JavaScript debugger and configure your application server to run as a service, you must set up your service to interact with the desktop.

To enable the Rhino JavaScript debugger:

1   Log on to the Get-Services administration page.

2   Click **Settings** > **Logging** tab.

3   For the Debug script option, select **Yes**.

4   Click **Save** to store your changes.

5   Log on to the Get-Servicesserver.

6   Browse to the Get-Services deployment directory. By default, the directory path is:

`<application server>\<context>\WEB-INF`

Parameter	Value
<application server>	Enter the installation path to your application server. For example, `C:\Program Files\Peregrine\Common\Tomcat4`
<context>	Enter the path where you deployed the Get-Services files. For example, `webapps\oaa`.

7   Using a text editor, open the file `local.xml`.

8   Add the following line anywhere between the `<settings>` elements:

`<showDebugger>true</showDebugger>`

9   Save the file.

10 Copy the `rhinodebugger.jar` file from the Get-Services Tailoring Kit Installation CD to the following path on your test server:

`<application server>\<context>\WEB-INF\lib`

Parameter	Value
<application server>	Enter the installation path to your application server. For example, `C:\Program Files\Peregrine\Common\Tomcat4`
<context>	Enter the path where you deployed Get-Services the files. For example, `webapps\oaa`.

11 Restart your application server.

The Rhino JavaScript Debugger opens the next time you start your application server on this system.
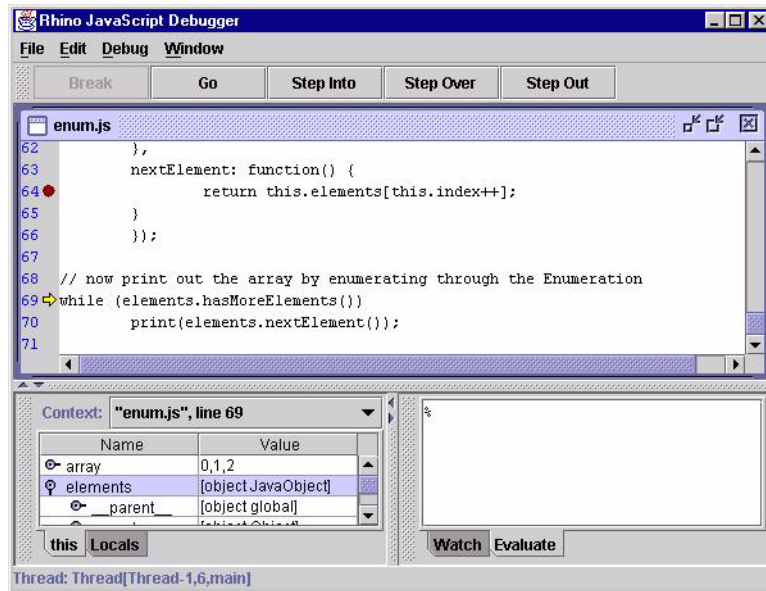
For more information about the Rhino JavaScript Debugger, go to the Mozilla Web site: *http://www.mozilla.org/rhino/debugger.html*.

URL queries

You can test the output that your server-side onload scripts and schemas generates by using URL queries to the Archway servlet.

Archway invokes the server script or schema as an administrative user and returns the output as an XML document. Your browser must have an XML renderer to display the output of the XML message.

Using URL queries can be useful for debugging your tailoring changes and for using the Archway servlet without having to log on to Get-Services.

Note: Your browser may prompt you to save the XML output of the URL query to an external file.

URL script queries

Archway URL script queries use the following format:

```
http://server name/oaa/servlet/archway?script name.function name
```

Parameter	Value
server name	Enter the name of the Java-enabled Web server. If you are testing the script from the computer running the Web server, you can use the variable `localhost` as the server name.
oaa/servlet	This mapping assumes that you are using the default URL mapping that Get-Services automatically defines for the Archway servlet. If you defined another URL mapping, replace the servlet mapping with the appropriate mapping name.
script name	Enter the name of the script you want to run.
function name	Enter the name of the function that the script uses.

URL schema queries

Archway URL schema queries use the following format:

```
http://server name/oaa/servlet/archway?adapter name.Querydoc
&_document=schema name
```

Parameter	Value
oaa/servlet	This mapping assumes that you are using the default URL mapping that Get-Services automatically defines for the Archway servlet. If you defined another URL mapping, replace the servlet mapping with the appropriate mapping name.
adapter name	Enter the name for the back-end database adapter the schema uses. The adapter uses the ODBC connection that you defined in the Admin module Settings page.
schema name	Enter the name defined in the `<document name="schema name">` element of the schema file.

Make sure that your script output resembles the following example.
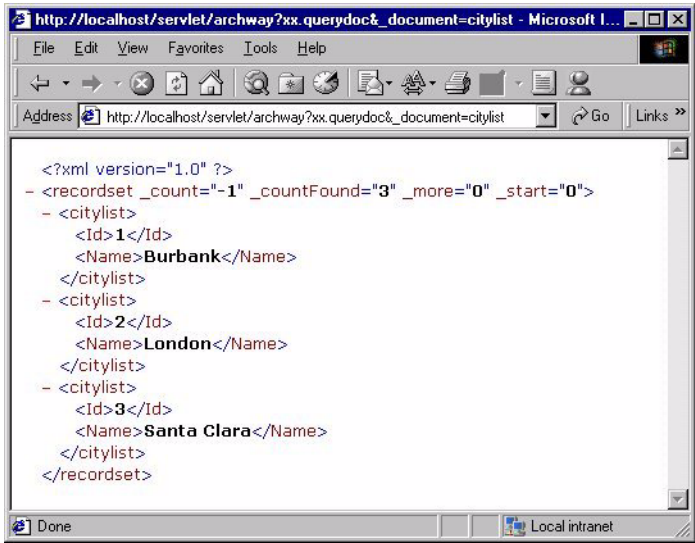
URL SQL queries

Archway URL SQL queries use the following format:

```
http://server name/oaa/servlet/archway?adapter name.query&_table=
table name&field name=value&_[optional]=value
```

Parameter	Value
oaa/servlet	This mapping assumes that you are using the default URL mapping that Get-Services automatically defines for the Archway servlet. If you defined another URL mapping, replace the servlet mapping with the appropriate mapping name.
adapter name	Enter the name for the back-end database adapter the schema uses. This adapter uses the ODBC connection that you defined in the Admin module Settings page.
table name	Enter the SQL name of the table you want to query from the back-end database.
field name	Enter the SQL name of the field you want to query from the back-end database.

Parameter	Value
value	Enter the value you want the field or optional parameter to have.
_[optional]	Enter any optional parameters to limit your query. Examples include:
_return	Returns the values only of the fields you list.
_count	Specifies how many records you want returned with the query.

Common message operations

The following section describes some common methods that server-side scripts use to create XML messages. Refer to the JavaDocs, especially `com.peregrine.oaa.core.Message`, for more information and examples about XML message operations.

- Create a new generic message. You can use `archway.sendDocQuery()` to create a generic XML message. You can then add elements to the XML message with other methods.

  ```
  var msgQuery = new Message();
  ```

  This creates an empty XML message called `msgQuery`.

- Create a new message with a specific XML element tag. You can then use `archway.sendDocUpdate()` and `archway.sendDocInsert()` to send the XML message to the back-end database.

  ```
  var msgRequest = new Message( "Request" );
  ```

  This creates an XML message called `msgRequest` with the element `<Request>`.

- Add a value to a particular XML element. You can use this method to add a new element and value to the XML message.

  ```
  msgQuery.add( "LastName", "Jones" );
  ```

  This adds the value `Jones` to the element `<LastName>`. The output is in standard XML format: `<LastName>Jones</LastName>`.

▪ Set the value of an XML element. You can use this method to overwrite the value of an existing element in the XML message.

```
msgQuery.set( "LastName", "Jones" );
```

This sets the value of the element `<LastName>` to `Jones`. The output is in standard XML format: `<LastName>Jones</LastName>`.

▪ Get the value of an element in the XML message. This method returns an empty string "" if there is no value for the element.

```
var strName = msg.get( "LastName" );
```

This sets the variable `strName` to the value of the element `<LastName>` in the XML message. For example, if the XML message contains the element `<LastName>Jones</LastName>` then `strName` uses the value `Jones`.

▪ Get all of the elements and values (the subdocument) listed under a particular element in the XML message. This method returns an empty string "" if there is no subdocument for the element.

```
var msgRequest = msg.getMessage( "Request" );
```

This sets the variable `msgRequest` to the subdocument listed under the element `<Request>` in the XML message. For example, suppose the XML message contains the following elements:

```
<Request>
    <ID>1234</ID>
    <LastName>Jones</LastName>
    <Status>Approval</Status>
</Request>
```

Then, the `msgRequest` uses the subdocument:
`<ID>1234</ID><LastName>Jones</LastName><Status>Approval</Status>`.

▪ Set a script condition when the script returns a particular XML message result. You can use conditions to control when to activate Peregrine Studio form components such as redirections and access fields.

- For example, the following script checks the value of the `Name` element:

```
if ( msg.get( "Name" ) == "" )
{
msgResponse.setCondition( "error" );
   return msgResponse;
}
```

This function searches the XML message for the value of the `<Name>` element. If the value is empty, then the script sets the `error` condition.

- Return the number of instances that a particular element appears in an XML message. You can use this method to set a condition for further actions. For example, the following script uses the `getList` method to set a condition.

```
var list = msgResponse.getList( "Location" );
if ( list.getLength() == 0 )
msg.setCondition( "noresults" )
var i = 0;
for ( i = 0;i < list.getLength(); i++ )
{
// add function to process records in the list ...
}
```

This sets the variable `list` to the number of `<Location>` elements in the XML message. If the number of instances is zero, then the script sets the `noresults` condition, otherwise the script performs some other action.

- Log the contents of a particular XML message. This method saves the output of the script to the file `archway.log`. This is another way of debugging your ECMAScript in addition to the .

Using a logging domain, you can group log messages from a particular component or script.

```
env.debuglog( "Get-Services",
    "sendDocQuery returned the
message ", msgResponse );
```

Without using a logging domain.

```
env.debuglog( "sendDocQuery returned the message ",
msgResponse );
```

Important: You must enable the Debug Logging option from the Get-Services administrative interface (Administration > Settings > Logging tab).

Tip: Remove or comment out this method before deploying to your production environment because script logging is CPU-intensive and degrades server performance.

Using ECMAScript in an object-oriented manner

ECMAScript implementation in Get-Services

All Scripts defined in Peregrine Studio load as one ECMA script object. The functions defined in the Script are the object's methods, and the variables declared outside a function are the object's attributes. This implementation as an object is what enables you to use the dot syntax to call scripts and functions.

Name resolution in ECMAScript

Every ECMAScript object has a special property: its *prototype*. A prototype is an ECMA script object in the property name resolution for the object.

Every script is run within a scope that holds a set of objects and variables declared in the same scope.

When you access a property or call a function in a given environment, ECMA script tries to resolve the name in the current scope first (usually the function's context). If it does not find it, it tries in the current object's prototype. If it does not find the property in the prototype, or in the prototype's prototype, the ECMAScript engine searches in the parent scope.
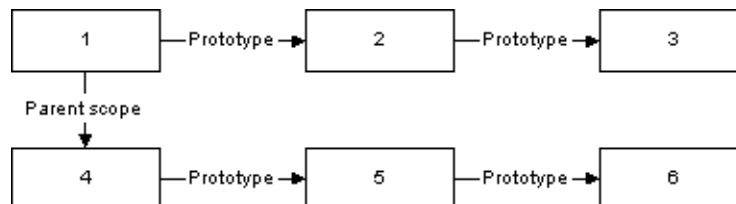
Using the object prototype for object-oriented programming

The fact that ECMAScript looks for a variable name or a function name in the prototype if it does not find it in the object, gives some ability to define a standard behavior as an object's method, and make this object the prototype for another object that can overwrite the behavior by providing a method with the same name.

The following is an example that you can try with the ECMAScript command line utility.

To use an object prototype:

1   In the `WEB-INF/lib` folder, type `java -jar js.jar` to start the command line.

```
function vehicle()
{
  function _start ()
  {
    print("starting " + this.getVehicleName())
  }
  this.start = _start;
  this.getVehicleName = new Function("return 'vehicle'; ");
}

function airplane()
{
  this.getVehicleName = new Function("return 'airplane'; ");
}
airplane.prototype = new vehicle();


function car(make)
{
  this.getVehicleName = new Function("return 'car ' + this.make;");
  this.make = make;
}
car.prototype = new vehicle();
```

2 Create three objects, one for each class.

```
var myVehicle = new vehicle();
var myPlane = new airplane();
var myHonda = new car("Honda");
```

3 Try the start method for each of these objects.

```
js> myVehicle.start()
starting vehicle
js> myPlane.start()
starting airplane
js> myHonda.start()
starting car Honda
```

Although the airplane class and the car class do not implement the start method, start is in their prototype. You can also see that since these two classes overwrite the getVehicleName function, the start method calls the method defined in the object. These are standard behaviors in object-oriented languages.

Overwriting a method to extend the parent class method is more complicated in ECMA script.

To overwrite a method to extend the parent class method:

1   Create a sports car class that derives from the car class, and extend the start
    method to add a warm-up phase before the car actually starts.

```
function sportscar1(make)
{
  // other way to declare that the prototype for the
  // sportscar object is a car object. Contrary to
  // the other way, where only one vehicle object is the
  // prototype of all the car objects, here there will be
  // one car object per sportscar1 object.
  this.parentCar = new car(make);
  this.__proto__ = this.parentCar;
  // Extend the start function
  function _start()
  {
    print("warming up");
    this.parentCar.start();
  }
  this.start = _start;
  // Change also the vehicle name to reflect that this is
  //a sports car
  this.getVehicleName = new Function("return 'sports car ' +
this.make;");
}
```

2   Create an object for this class.

```
var myMaserati = new sportscar1("Maserati");
```

3   Call the start method.

```
js> myMaserati.start();
warming up
starting car Maserati
```

You can see that the new start method is called, that the start method
declared in vehicle is called as well. But the new getVehicleName was not
called, as the second line that prints shows as starting sports car Maserati.
This is because using this.parentcar.start() changes the scope in which
the start function is called from the sportscar1 object to the parentcar
object (car class), and as a result the getVehicleName is resolved in the scope

of the car object. To change this behavior, the parent function must be called in a specific way, as shown in the following `sportscar2 class`.

```
function sportscar2(make)
{
  this.parentCar = new car(make);
  this.__proto__ = this.parentCar;
  // Extend the start function
  function _start()
  {
    print("warming up");
    this.parentCar.start.apply(this, arguments);
  }
  this.start = _start;
  // Change also the vehicle name to reflect that this is
  //a sports car
  this.getVehicleName = new Function("return 'sports car ' +
this.make;");
}
```

To change the start method:

1   Create an object for this class.

```
var myFerrari = new sportscar2("Ferrari");
```

2   Call the start method.

```
js> myFerrari.start();
warming up
starting sports car Ferrari
```

This delivers the expected result. The code is using the apply method of the Function object, passes the object used as `this` first, and the arguments that were passed to the current function (`_start`).

Note: The code uses `this.parentCar instead of this.__proto__`, which seems valid, but can cause an infinite recursive call if another class deriving from `sportscar2` extends the start method and calls it parent, because `this.__proto__` is evaluated against the derived object, and the start function in `sportscar2` continues to call itself. It is therefore preferable to store the parent object in a variable that the subclasses do not overwrite. Here, with a nomenclature that uses the parent prefix and the parent class name, the uniqueness is ensured. Try this with a racecar

class that derives from `sportscar2` and overwrite the start function by calling the parent.

How to use object orientation for tailoring

In Get-Services, objects instantiate automatically from the script files when they load in memory. To implement the prototype hierarchy, you must set the `__proto__` attribute in a script file's header.

For example:

```
import requestinterfacebase;
this.__proto__ = requestinterfacebase.valueOf();
```

The previous `valueOf method` returns a pointer to the `requestinterfacebase` object. The line is equivalent to `this.__proto__ = requestinterfacebase;`.

If you need to call a parent method, you can specify it using the dot format. For example:

```
// Submit the request (Call the parent method)
var msgNewRequest = requestinterfacebase.saveRequest.apply
(this, arguments);
```

As long as each object has a unique name, for example the script name, there is no need to store the parent object in a member variable. In that respect, using object orientation in Get-Services is simpler than in the general case.

Sample scripts

The following sections provide sample server-side ECMAScripts and descriptions that you can use as templates in Get-Services. If you need help with a client-side scripting, see the list of suggested reference materials on .

General script samples

You can use ECMAScript to serve a number of different functions such as creating an XML document from a schema, running a SQL query, or formatting the data received from a database query. The following samples show some of the ways to use ECMAScript to gather data.

Selecting a field from a schema

```
function getCityList ( msg )
{
//Query sample database for the records using the citylist
//schema
var msgQuery=newMessage();
msgQuery.set("_return", "Name");
var msgReturn=archway.sendDocQuery ("xx","citylist", msgQuery);

return msgReturn;
}
```

Input

A message object, `msg`. This script does not typically have input from any previous form. If you change this script to be part of a results form, then the input message can contain form fields or values from a prior list form.

Output

The script produces an XML document built from the schema and adapter specified in the `sendDocQuery` function. The following XML output is an example of the kind of data using a similar script returns.

```
<recordset _count="-1" _countFound="3" _more="0" _start="0">
   <citylist>
      <Id>1</Id>
      <Name>Burbank</Name>
   </citylist>
   <citylist>
      <Id>2</Id>
      <Name>London</Name>
   </citylist>
   <citylist>
      <Id>3</Id>
      <Name>Santa Clara</Name>
   </citylist>
</recordset>
```

Although the `sendDocQuery` function specifies only the `<Name>` element, Archway automatically includes the `<ID>` element in the XML document produced. This is expected behavior of the Archway servlet.

Description

This script gathers a list of city names for an employee search form. The `sendDocQuery` function creates an XML document built from the `citylist` schema and searches for the value of the `<Name>` element. You can use parameters like "`Name`" in your script messages to limit or add to the list of values that your schema query returns.

Calling other scripts and combining the results

```
function getSearchInfo( msg )
{
//Create empty variable msgResponse
var msgResponse = new Message();

//Call getDepList function and add results to msgResponse.
msgResponse.add( this.getDepList( msg ) );
// Call getCityList function and add results to msgResponse
msgResponse.add( this.getCityList( msg ) );

return msgResponse;
}
```

Input

A message object, `msg`. This script does not typically have input from any previous form. If you change this script to be part of a results form, then the input message can contain form fields or values from a prior list form.

Output

The script produces an XML document built from two other scripts, `getDepList` and `getCityList`. Each script adds to the XML document stored in the `msgResponse` variable by running a `sendDocQuery` function with a schema. The

following XML output is an example of the kind of data that using a similar script returns.

```
<_doc>
<recordset _count="-1" _countFound="19" _more="0" _start="0">
    <departmentlist>
        <Id>1</Id>
        <DepartmentName/>
    </departmentlist>
    <departmentlist>
        <Id>2</Id>
        <DepartmentName>Administration</DepartmentName>
    </departmentlist>
    <departmentlist>
        <Id>3</Id>
        <DepartmentName>Administrative Services</DepartmentName>
    </departmentlist>
    <departmentlist>
        <Id>4</Id>
        <DepartmentName>Burbank Agency</DepartmentName>
    </departmentlist>
...




</recordset>
<recordset _count="-1" _countFound="3" _more="0" _start="0">
    <citylist>
        <Id>1</Id>
        <Name>Burbank</Name>
    </citylist>
    <citylist>
        <Id>2</Id>
        <Name>London</Name>
    </citylist>
    <citylist>
        <Id>3</Id>
        <Name>Santa Clara</Name>
    </citylist>
</recordset>
<_form>e_employeelookup_search_search.jsp</_form>
</_doc>
```

Description

This script generates the city and department names that a user can select from in an employee search form. The .add function appends the output of the getDepList and getCityList functions to the msgResponse variable. The two

script references use the relative naming convention (`this`) to indicate that the functions called are part of the same script as `getSearchInfo`.

Form script sample

Most ECMAScripts run during a form's onload processing. Typically, form scripts query and format data for display in a Web application form, but you can also use them to update existing database records or insert new ones. The following examples show how to use server onload scripts to search a database for employee information.

Creating an XML document from a schema

```
function getEmpList( msg )
{
//Add Department subdocument to the input message
var strReturn = msg.get("_return");
if ( strReturn.length > 0 )
   msg.set("_return", strReturn + ";Department");

//In msg, set sort to LastName and then FirstName
msg.add( "_sort", "LastName,FirstName" );

//Query sample database for the records using the
//employeedetail schema and the criteria found in the msg object
var msgReturn = archway.sendDocQuery( "xx", "employeedetail",
msg );
//Test if the number of items returned is zero, if true set
//ListEmpty condition
if ( msgReturn.get("_countFound") == "0" )
   msgReturn.setCondition( "ListEmpty" );

//Return the contents of the msgReturn variable
return msgReturn;
}
```

Input

A message object, `msg`. This script has an input message from a previous search form. In this case, the input message includes a subdocument, `Department`, in addition to any other input data passed to the script. This subdocument searches the `DepartmentName` field data that the database stores in a separate table. In addition to adding a subdocument, the script sorts the input message

by the LastName and FirstName elements. The following XML demonstrates the input message of a search on the CityName of Burbank (CityID=1).

```
<_doc>
<_form>e_employeelookup_employee_emplist.jsp</_form>
<_start>0</_start>
<_return>;employeedetail;CityName;OfficePhone;DepartmentName;
FirstName;LastName;Id;</_return>
<_count>10</_count>
<_ctxobj/>
<_ctxidfld/>
<_ctxidval/>
<CityID>1</CityID>
<search>1</search>
<_blankFields>;FirstName;false;LastName;false;DepartmentID;false
</_blankFields>
<__x>__y</__x>
<_callingform>e_employeelookup_search_search.jsp</_callingform>
<FirstName insertblank="false"/>
<LastName insertblank="false"/>
<DepartmentID insertblank="false"/>
</_doc>
```

Output

The script produces an XML document built from the schema and adapter specified in the sendDocQuery function. The following XML output is an example of the kind of data that using a similar script returns.

```xml
<recordset _count="10" _countFound="2" _more="0" _start="0">
   <employeedetail>
      <Id>10</Id>
      <FirstName/>
      <LastName>Burbank Agency</LastName>
      <OfficePhone>(408) 422-5501</OfficePhone>
      <CityName>Burbank</CityName>
      <DepartmentID>16</DepartmentID>
      <Department>
         <DepartmentName>Sales</DepartmentName>
      </Department>
   </employeedetail>
   <employeedetail>
      <Id>11</Id>
      <FirstName/>
      <LastName>Burbank Unit</LastName>
      <OfficePhone>(650) 572-9000</OfficePhone>
      <CityName>Burbank</CityName>
      <DepartmentID>19</DepartmentID>
      <Department>
         <DepartmentName>Technical Support</DepartmentName>
      </Department>
   </employeedetail>
<_form>e_employeelookup_employee_emplist.jsp</_form>
</recordset>
```

Description

This script displays the results list that the search form generates. The script uses two functions to change the data in the msg input message object. The first function checks the input message to determine the number of elements that the search results return. If there any search results to return, the script adds the Department subdocument to the msg message object. The second function sorts the input message by LastName and then FirstName. Using the adapter name and document schema name, this script then runs a SendDocQuery function to gather any search results that match those listed in the input message. The script then checks the <_countfound> tag that the query generates and determines if the return list is empty. If the list is empty, the script sets the msgReturn variable to the ListEmpty condition. This condition redirects users to the listempty form.

Working with dates in scripts

The following code samples demonstrate tasks related to date manipulation.

To get the string that corresponds to the current date:

```
// Gets current date
var date = new Date();
// Gets the current date and time string
var strDateTime =
DataFormatter.getArchwayDateTime(date.getTime());
// Get the current date string
var strDate = DataFormatter.getArchwayDate(date.getTime() -
date.getTimezoneOffset()*60000);
```

To get a date value from the internal OAA format:

```
var strDAssignment = msg.get("dAssignment");
var lMsAssignment =
DataFormatter.getDateTimeInMilliseconds(strDAssignment);
```

To get a date and time value from the internal OAA format:

```
var strDtInvent = msg.get("dtInvent");
var lMsInvent     =
DataFormatter.getDateTimeInMilliseconds(strDtInvent);
```

Note that these numeric values are very convenient for comparing dates, performing arithmetic calculations on dates (such as calculating a duration and adding an amount of time to a date), and other tasks. From these numeric values, you can get an ECMAScript Date object.

```
var dateAssignment = new Date(lMsAssignment);
var dateInvent = new Date(lMsInvent);
```

In addition, you can get a Java date object.

```
var jdateAssignment = new
Packages.java.util.Date(lMsAssignment);
var jdateInvent = new Packages.java.util.Date(lMsInvent);
```

To display a date value in a user-friendly format:

```
var strUserDtAssignment = user.getUserFormat(strDAssignment,
"date", null);
var strUserDtInvent = user.getUserFormat(strDtInvent,
"datetime", null);
```

To get the internal OAA format for a date and time:

```
var strOAADtInvent1 =
DataFormatter.getArchwayDateTime(lMsInvent);
var strOAADtInvent2 =
DataFormatter.getArchwayDateTime(dateInvent.getTime());
var strOAADtInvent3 =
DataFormatter.getArchwayDateTime(jdateInvent.getTime());
```

To get the internal OAA format for a date only:

```
var strOAADAssignment1 =
DataFormatter.getArchwayDate(lMsAssignment);
var strOAADAssignment2 =
DataFormatter.getArchwayDate(dateAssignment.getTime());
var strOAADAssignment3 =
DataFormatter.getArchwayDate(jdateAssignment.getTime());
```

References

This section contains reference material to help you with scripting.

Sources for client-side JavaScript

- Devguru (JavaScript, VB script, HTML, etc.): *http://www.devguru.com/*
- HTML Writer's Guild: *http://www.hwg.org/*
- JavaScript, The Definitive Guide, David Flanagan, 3rd Edition, O'Reilly Publishing.
- JavaScript articles at IRT.org: *http://www.tech.irt.org/articles/script.htm*
- JavaScript Made Easy*: http://www.easyjavascript.com/*
- JavaScript Source: *http://javascriptsource.com/*
- JavaScript Source master list: *http://javascript.internet.com/master-list/*

- Netscape's Developer Site: *http://developer.netscape.com*

- Netscape's online JavaScript documentation:
  http://developer.netscape.com/docs/manuals/index.html?content=
  javascript.html

- Web Monkey: *http://www.webmonkey.com/*

- ZDNet JavaScript introduction:
  http://www.zdnet.com/devhead/filters/0,,2133214,00.html

JavaDocs for the main Archway package

For in-depth information about the Archway servlet and all the functions it supports, refer to the JavaDocs that are available on the Get-Services Tailoring Kit installation CD. The JavaDocs are in the `\documentation\javadocs` folder of your Get-Services Tailoring Kit installation CD. To view the docs, launch the `index.html` file from this folder.

6 Tailoring Tasks

The following chapter lists all the tailoring tasks you can perform with the Get-Services tailoring kit.

This chapter covers the following topics:

Tailoring workflow

You can use this flowchart to determine how to tailor Get-Services.

Sample Tailoring Tasks

Enable User Self-Registration
Enable Change Password
Enable Automatic Login
Enable Integrated Windows Authenication
Enable/Disable Personalization
Assign Global Capability Words
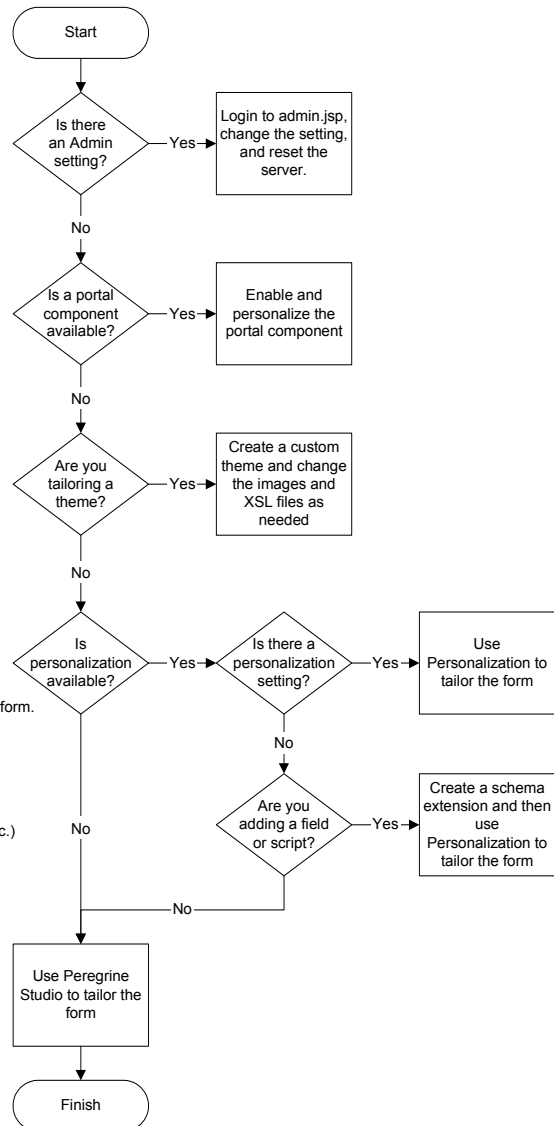Set a maximum row count on tables

Change theme
Add/Remove content from portal page
Perform and save document searches
Change time zone

Change the images used in a theme
Change the size or number of frames
Change the layout of frames
Change how form components are rendered (XSL)
Change the style sheet

Add a field on a form
Remove a field from a form
Make a field read-only or required
Change a field's label
Change a form's title or instructions
Set permissions to update, create, delete documents on a form.

Add or hide a field on the Available Fields column
Display or hide a field on a particular Personalization form
Change a field's attribute type (string, boolean, number, etc.)
Call a script in addition to the form onload script

Add custom forms to your project
Add form components to a form without Personalization
Change the schema used by a form component
Change the onload script launched by a form
Create a new schema

Flowchart:

Start

Is there an Admin setting? — Yes → Login to admin.jsp, change the setting, and reset the server.
No ↓

Is a portal component available? — Yes → Enable and personalize the portal component
No ↓

Are you tailoring a theme? — Yes → Create a custom theme and change the images and XSL files as needed
No ↓

Is personalization available? — Yes → Is there a personalization setting? — Yes → Use Personalization to tailor the form
No ↓ (personalization setting) → Are you adding a field or script? — Yes → Create a schema extension and then use Personalization to tailor the form
No (adding a field or script) →

Is personalization available? No → Use Peregrine Studio to tailor the form

Finish

List of tailoring tasks

The following sections list the tailoring tasks you can perform with the Get-Services Tailoring Kit and Peregrine Studio.

Forms and form components

You can tailor forms and form components in the following ways:

DocExplorers

You can use Peregrine Studio to add and customize DocExplorers in the following ways:

Scripting

You can use the following scripting methods for tailoring:

- Editing an existing script on page 151
- Adding a custom script on page 154

Schemas

You can tailor schemas in the following ways:

- Adding logical and physical mappings to your schema on page 157
- Adding a schema to your Peregrine Studio project on page 156

Data validation

You can use Peregrine Studio to add data validation in the following ways:

- Adding data validation on page 164
- Making a field required on page 164
- Adding data validation with a custom script function on page 165

Default values

You can use Peregrine Studio to assign default values to items in the following ways:

- Assigning default values on page 174

Translation

You can translate your tailored forms in the follow ways.

- Editing existing translation strings files on page 183
- Adding new translation strings files on page 185

Tailoring forms and components

Each page displayed in Get-Services consists of a form and several form components. Each form also has the following supporting elements:

■ An onload script that gathers the data that the form displays or processes information from the previous form.

■ A schema, which maps to fields in the database and determines what information to display.

For a complete list of each component available in Studio, see Peregrine Studio Components.

You can change a form's title, instructions, onload script, and component labels. You can also hide a form component and make a form read-only.

To tailor Get-Services forms

Step 1   Open the project file you want to tailor in Peregrine Studio.

Step 2   Select or create a package extension in which to save your changes.

Step 3   Open your browser and log in to Get-Services.

Step 4   Navigate to the form you want to tailor by doing one of the following:

■ Click the Studio address in the Form Information banner. Peregrine Studio will appear as the active window and display the current form's properties page.

■ In Peregrine Studio, locate the form in the Project Explorer.

Step 5   Modify the Get-Services form in Peregrine Studio.

Step 6   Save the project file.

Step 7   Rebuild the project file.

Tip: If you have only made changes to one or more forms in an activity or
        module, use the Differential Build option to build just the components
        that have changed. This option will reduce the time needed to build your
        Peregrine Studio project.

Step 8   Restart your application server to clear the cache.

Step 9   Refresh the browser to reload the form you modified.

Step 10 Review your changes and test the added functionality.

Tip: If you want to test new access right settings for your components, log on
        to Get-Services with several different users with different access rights.

Changing a form's title

Each form displays a title at the top of the navigation menu. If you want to
change or remove the title displayed for a particular form, set the following form
properties.

To change a form title

1   Open the form's properties in Peregrine Studio.

2   In the **Title (en)** field, enter the new form title.

3   Click the check mark button at the right of the field to accept the new title.

4   Save and build your project file.
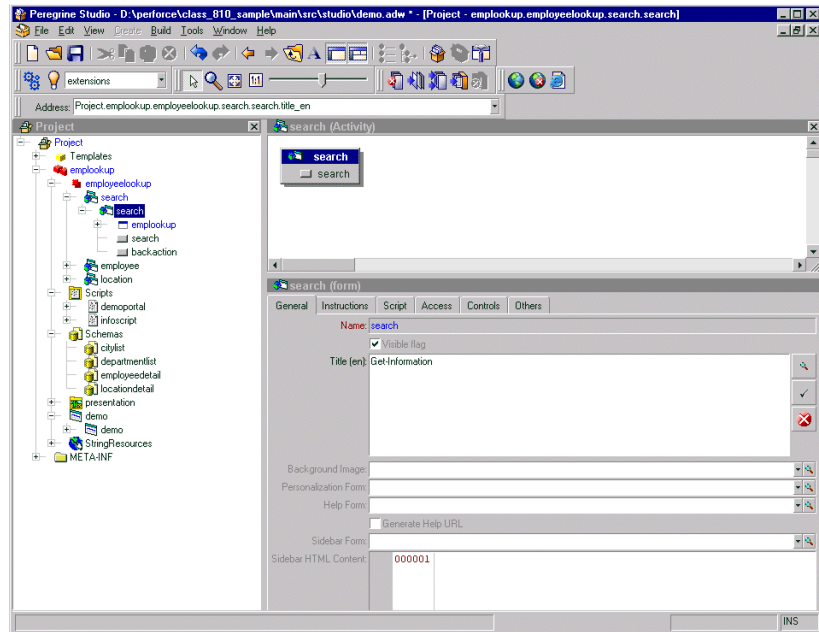
Changing a form's instructions

Most forms display a set of instructions at the top of the frame. You can change the instructions to match any changes you make to the form's interface.

To change form instructions:

1   Select the form in the Project Explorer.

2   Select the Instructions tab in the Properties window.

3   In the Instructions (en) field, enter the new form instructions.

4   Click the check mark button at the right of the field to accept the new form instructions. ☑

5   Save and build your project file.
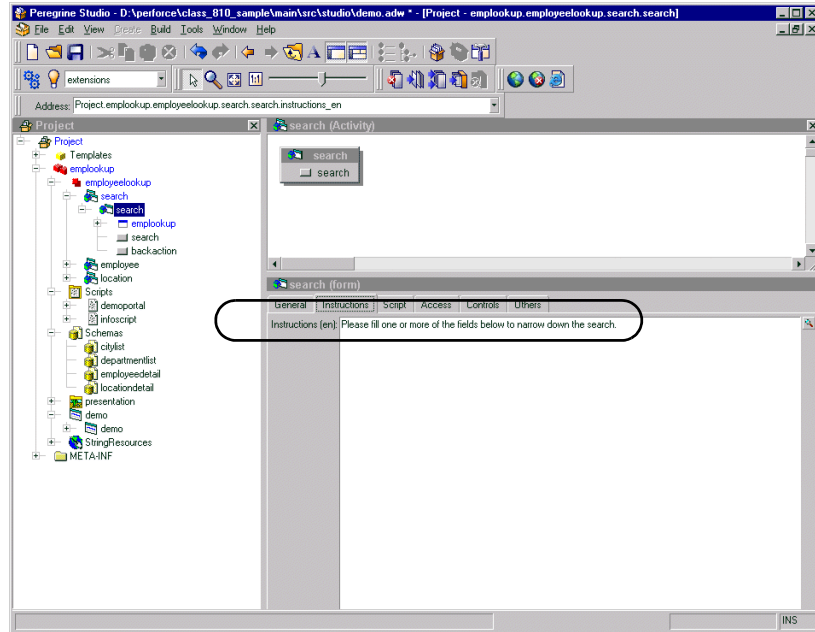
Changing a form's onload script

A form's onload script gathers all the data that the form displays, or processes information from the previous form. Many onload scripts also invoke schemas to present back-end database information in a format that is easier to map to particular form fields or form components.

To change the onload script that a form invokes:

1   Select the form in Studio.

2   Click the Script tab in the Properties window.

3   In the Server Onload Script field, enter or select the script you want to invoke when this form is loaded. You can use the drop-down list to select any of the scripts saved in your project file.

4   Save and build your project file.

5   Restart your application server.

Changing a form component's label

Many form components contain a label that is displayed next to or above the form component. Some of the most commonly configured form components are the field form components (check box, select box, edit field, and so forth).

To change a component label (field label):

1   Select the form in the Project Explorer.

2   On the General tab, select the **Label (en)** field, enter the new form component label, and press ENTER.

3   Save your project.

4   Build your project file.
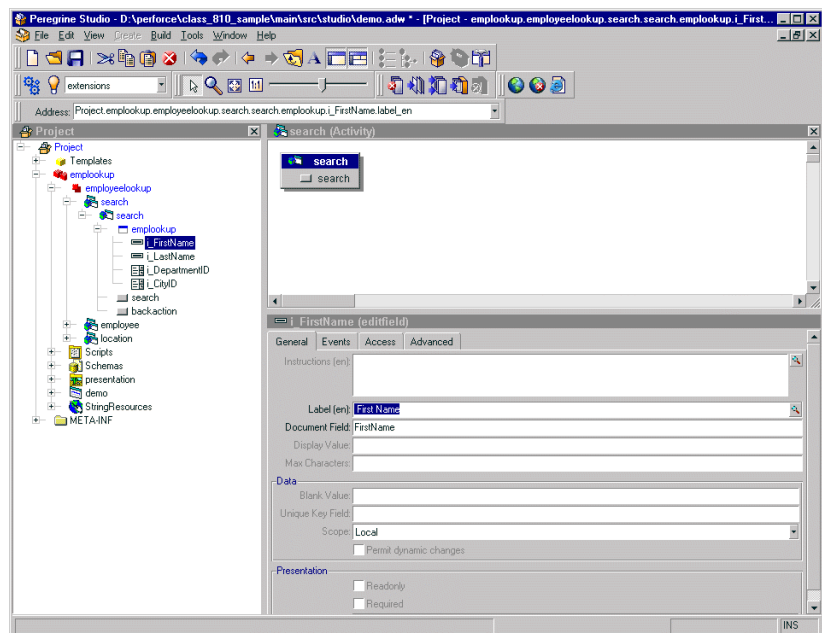
Hiding a form component

All form components have a Visible flag property that hides or displays the component in the Web application interface. If you want to remove a form component from the interface but still have it available in Peregrine Studio, you can toggle the form component's Visible flag to No. This prevents the form component from being part of the next Peregrine Studio build. Non-visible (and thus non-built) form components are displayed with a red X over the form component icon in the Project Explorer tree.

To hide a form component in the interface:

1   Select the form in the Project Explorer.

2   On the Advanced tab, clear the **Visible flag** option.

3   Save your project.

4   Build your project file.

Warning: If you clear the check box beside the Visible flag option, that component is not included in the generated HTML.

Changing a form component to read-only

Certain form components such as edit fields and text areas are available for users to enter and change information. If you want to restrict these form

components so that they only display data, you can set the read-only attribute for the form component. The data displayed by a read-only form component will no longer have a bounding box or area to indicate that it can be edited or changed.

You can change a form component back to its original state by removing the read-only attribute.

To make a form component read-only:

1   Select the form in the Project Explorer.

2   On the General tab, select the **Read-only** check box.

3   Save your project.

4   Build your project file.
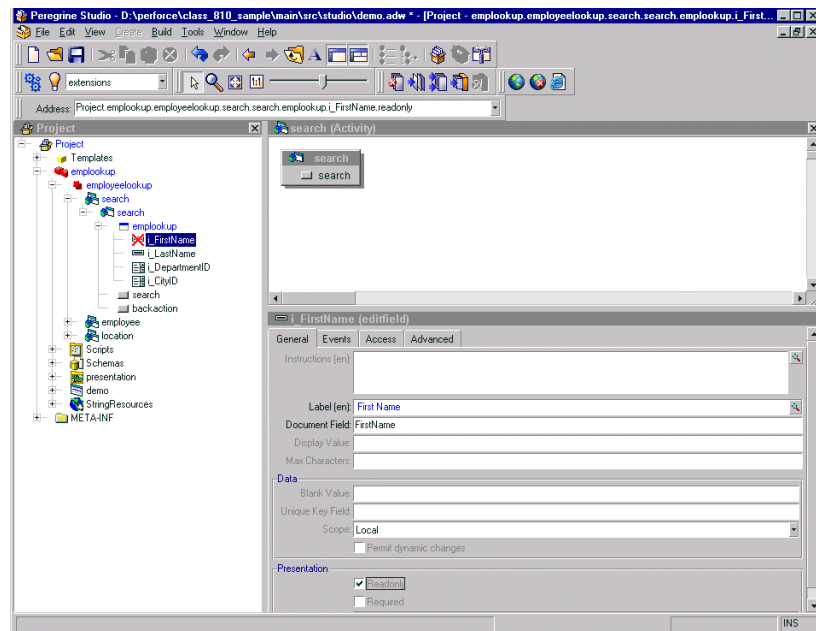
Changing the schema that a form component uses

Certain form components such as selectfields and simple tables use a schema to determine what information to display. You can change the information these

form components display by changing the schema defining the document fields. In some cases you may also need to change other form component attributes that depend on the fields defined in the schema.

To change the schema that a form component uses:

1   Select the form in the Project Explorer.

2   Click the Advanced tab.

3   In the Databound section, select the **Document** field, and enter or select the name of the schema that you want to use as the source document for this form component.
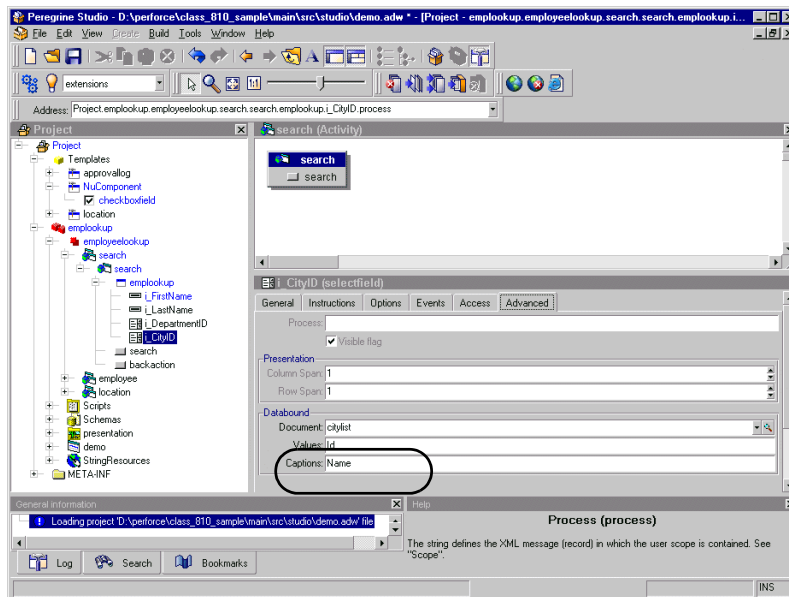
4   Save and build your project file.

Changing the document field that a form component uses

Certain form components such as selectfields and table columns use a particular document field of a schema to determine what information to display. You can change the information these form components display by changing the document fields these components use.

Note: The list of document fields available to a form component is determined by the schema used. Peregrine Studio does not validate the document field you select.

To change the document field that a form component uses:

1   Select the form component in Peregrine Studio to display the component's properties.

2   In the Document Field field, enter the name of the field in the XML message where this form component's information is stored.

Note: The field you select must be defined as an attribute in the schema defined in the form component's properties.

3   Save your project.

4   Build your project file.
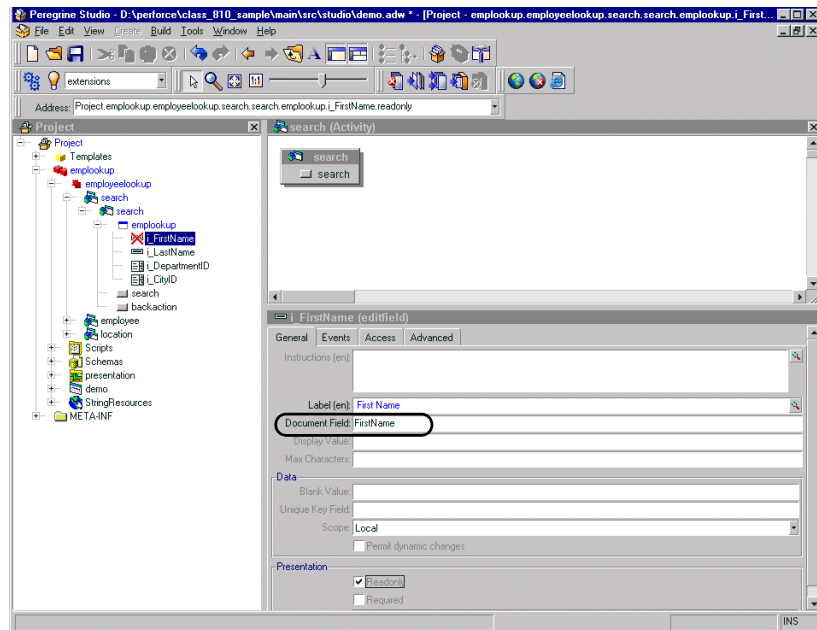
Format of document field name

The Document Field attribute of forms is always mapped to an element in the Message object returned by the form's onload script.

The Archway servlet formats Message objects as XML files using the tag definitions and back-end database table and field information that the schemas provide.

The Document Field attribute of a form component must map to an `<attribute>` element in a schema.

- You can specify the Document Field attribute that a form component uses in one of several ways:
- If the Document Field attribute has a unique `<attribute>` name in the schema, you can list just the `<attribute>` name.
- If the Document Field attribute is repeated in the schema, you must specify the nested `<document>` name or names and the `<attribute>` name. The `<document>` name and the `<attribute>` name must be separated by a slash character (/).
- If the Document Field attribute is part of a nested `<document>` element, you have the choice of either listing the `<attribute>` name by itself or specifying some or all of the path using the syntax of `<documents>/<document>/<attribute>`. This syntax allows Web application developers to specify as much or as little of the document path as is needed to create a field attribute mapping.

Example

Suppose you are creating a form where users can review and submit asset requests. You can format a typical asset request as the following XML message:

```
<request>
   <Number>012345</Number>
   <Purpose>Asset Management</Purpose>
   <EndUser>
     <FirstName>Michaela</FirstName>
     <LastName>Tossi</LastName>
   </EndUser>
   <Requester>
     <FirstName>Richard</FirstName>
     <LastName>Hartke</LastName>
   </Requester>
</request>
```

In this case, the `<FirstName>` and `<LastName>` tags are repeated in two different sections of the XML message. To display these tags in a form, you will need to specify more of the document path when you enter the path of the Document Field attribute. The entries below illustrate the minimum document path needed for the Document Field attribute in a form component.

```
Number
Purpose
EndUser/FirstName
EndUser/LastName
Requester/FirstName
Requester/LastName
```

You can also specify the Document Field attribute path using all the elements of the XML message. The following entries illustrate the full document path that can be used for the Document Field attribute in a form component.

```
request/Number
request/Purpose
request/EndUser/FirstName
request/EndUser/LastName
request/Requester/FirstName
request/Requester/LastName
```

The number of elements that you must specify in the document path is determined by how you set up your schemas.

Changing the priority, severity, or status field strings

Get-Services displays the **Priority**, **Severity**, and **Status** values defined in the project string resources. You can change the value Get-Services displays for each option by changing the value of the string resource.

To change the strings displayed by priority, severity, or status fields:

1   Open the Get-Services project file in Peregrine Studio.

2   Expand the group of modules node for the portion of Get-Services you want to change.

Module	Description
incidentmgt	The group of modules for incident management. This includes the **Service Desk** tab in the Get-Services interface.
changemgt	The group of modules for change management. This includes the **Change Management** tab in the Get-Services interface.

3   Expand the **StringResources** node.

4 Use the following tables to locate the strings resources that you want to change.

Call severity string resources.

Value	String Resource	Default String Value
1	callSeverityCritical	Critical
2	callSeverityMajor	Major
3	callSeverityMedium	Medium
4	callSeverityLow	Low
5	callSeverityVeryLow	Very Low

Call status string resources.

Value	String Resource	Default String Value
1	serviceCallStatusOpen	Open
2	serviceCallStatusIdle	Open - Idle
3	serviceCallStatusCallback	Open - Callback
4	serviceCallStatusLinked	Open - Linked
5	serviceCallStatusClosed	Closed

Incident priority string resources.

Value	String Resource	Default String Value
1	serviceProblemPriority1	Priority 1
2	serviceProblemPriority2	Priority 2
3	serviceProblemPriority3	Priority 3
4	serviceProblemPriority4	Priority 4

Incident severity fields.

Value	String Resource	Default String Value
1	serviceProblemSeverityCritical	Critical
2	serviceProblemSeverityUrgent	Urgent
3	serviceProblemSeverityNormal	Normal
4	serviceProblemSeverityLow	Low
5	serviceProblemSeverityVeryLow	Very Low

Incident status string resources.

Value	String Resource	Default String Value
1	serviceProblemStatusOpen	Open
2	serviceProblemStatusWIP	Work in progress
3	serviceProblemStatusResolved	Resolved
4	serviceProblemStatusClosed	Closed

5 Select the node matching the string resource name that you want to change. For example, **callSeverityCritical**.

6 Type a new value in the **Value (en)** field. For example, System down.
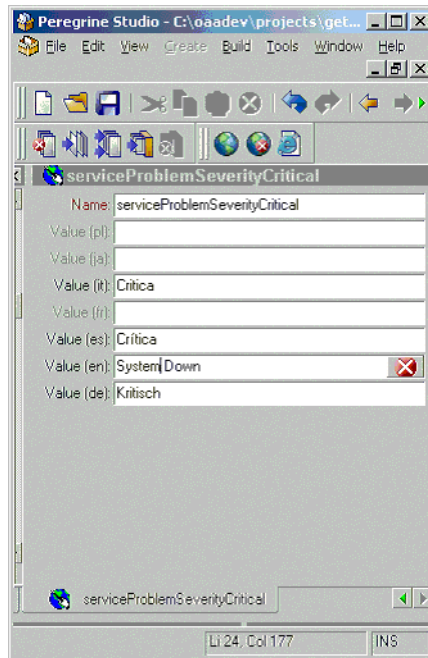
Enter a new value for the string resource in the Value (en) field.

Select the node matching the string resource name

7 Save your Get-Services project file.

8 Click **Build** > **Differential Build**.

Peregrine Studio generates the new field values.

9 Deploy the new build files to your deployment server.

Removing display values for priority, severity, or status

You can remove options from the **Priority**, **Severity**, and **Status** fields by directly editing the custom JSP files that generate these combo boxes.

To remove the Get-Services combo box display values:

1 Locate the custom JSP file used by the combo box component you want to change.

The JSP file called is one of the following files.

File Name	Description
`call_severitycombo.jsp`	Displays the severity field in call tickets
`call_statuscombo.jsp`	Displays the status field in call tickets
`problem_prioritycombo.jsp`	Displays the priority field in incident tickets
`problem_severitycombo.jsp`	Displays the severity field in incident tickets
`problem_statuscombo.jsp`	Displays the status field in incident tickets

2 Create a back-up copy of any file you plan to edit.

3 Open the custom JSP file in any text editor.

By default, the custom JSP files are located in the application server deployment directory. For example:

4 Search for methods that include the string `cw.user.getIDSADW`.

Each display value is listed twice in the JSP file. The first listing gets the string resource to display in the combo box. The second listing adds a value

recognized by ServiceCenter. The first listing uses `if` and `else if`
conditions. The second listing uses `vecValues` and `vecDisplays` methods.

For example, the call severity combo box has five entries.

```
String strSeverity = msgModel.get("Severity");
   if( strSeverity.equals("1") )
      {
          strSeverity = cw.user.getIDSADW(msgModel,
          "incidentmgt,callSeverityCritical");
      }
      else if( strSeverity.equals("2") )
      {
          strSeverity = cw.user.getIDSADW(msgModel,
          "incidentmgt,callSeverityMajor");
      }
      else if( strSeverity.equals("3") )
      {
          strSeverity = cw.user.getIDSADW(msgModel,
          "incidentmgt,callSeverityMedium");
      }
      else if( strSeverity.equals("4") )
      {
          strSeverity = cw.user.getIDSADW(msgModel,
          "incidentmgt,callSeverityLow");
      }
      else if( strSeverity.equals("5") )
      {
          strSeverity = cw.user.getIDSADW(msgModel,
          "incidentmgt,callSeverityVeryLow");
      }
...
vecValues.add( "1" );
   vecDisplay.add(cw.user.getIDSADW(msgModel,
   "incidentmgt,callSeverityCritical"));
vecValues.add( "2" );
   vecDisplay.add(cw.user.getIDSADW(msgModel,
   "incidentmgt,callSeverityMajor"));
vecValues.add( "3" );
   vecDisplay.add(cw.user.getIDSADW(msgModel,
   "incidentmgt,callSeverityMedium"));
vecValues.add( "4" );
   vecDisplay.add(cw.user.getIDSADW(msgModel,
   "incidentmgt,callSeverityLow"));
vecValues.add( "5" );
   vecDisplay.add(cw.user.getIDSADW(msgModel,
   "incidentmgt,callSeverityVeryLow"));
...
```

5   Remove the condition reference for the option you want to remove. For example, to remove the severity 5 entry, remove the following code:

```
else if( strSeverity.equals("5") )
{
    strSeverity = cw.user.getIDSADW(msgModel,
    "incidentmgt,callSeverityVeryLow");
}
```

6   Remove the vecValues and vecDisplays methods for the option you want to remove. For example, to remove the severity 5 entry, remove the following code:

```
vecValues.add( "5" );
    vecDisplay.add(cw.user.getIDSADW(msgModel,
    "incidentmgt,callSeverityVeryLow"));
```

7   Save the custom JSP file.

8   Restart your application server.

The new combo box values display in your Get-Services forms.

Displaying a form within a frameset

You can display forms within multiple frames by creating a special frameset form. All frames within a frameset form will be displayed within the frame normally reserved for forms.

To display forms within a frameset:

1   Right-click the activity where you want the frameset form to be, point to New, and then click Form.

2   Click the Others tab.

3   Select Frameset from the Formtype drop-down list box.

4   Enter row and column sizes in the Frameset pane.

Note: You can use percentage to describe frameset size properties.
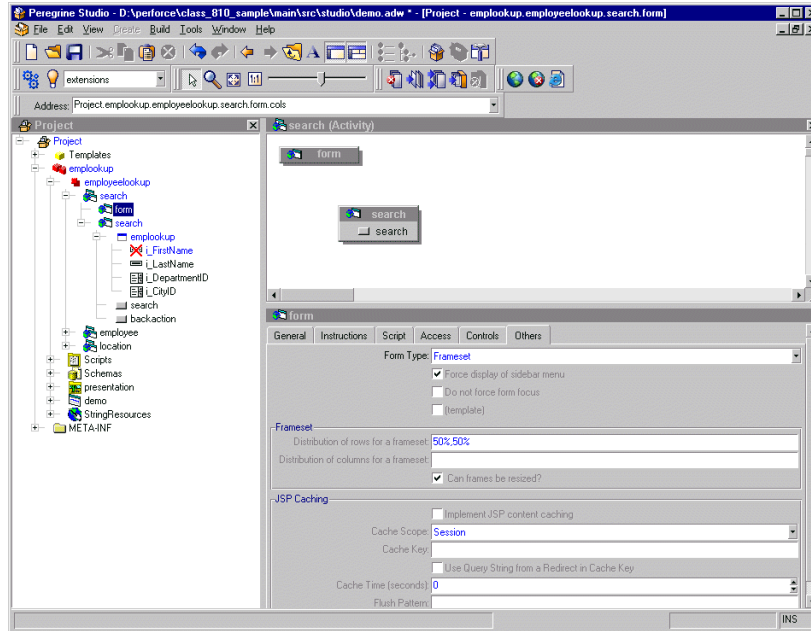
5   Create a new form for each frame in the frameset form.

6   Create a redirection under the frameset form for each target form in the frameset.

7   Save your project.

8   Build your project file.

To display the form title within a frameset:

1   Open the frameset form's component properties in Studio.

2   Create a new server onload script within your project.

3   Add the following lines to the script:

```
top.setTitle("My Title Text");
```

Where `My Title Text` is the title you want to display at the top of the frameset.

4   Open the component properties page for the target form within the frameset.

5   Click the Script tab.

6   Select the server script you created in .

7   Save your project.

8   Build your project file.

Adding Get-Services to an existing frameset

You can add Get-Services to an existing frameset to incorporate into your corporate intranet. To do this, you will need to edit a JavaScript file within your project file and add a reference to Get-Services to the parent frameset.

To add Get-Services to an existing frameset:

1   Open the following file in a text editor:

```
<tomcat installation>\webapps\oaa\js\setDomain.js
```

or locate the file in the equivalent directory in your application server.

2   Add the following line to the bottom of the script:

```
setDomain(server name);
```

where `server name` is the name of the server where the parent frameset is located.

3   Save the file.

4   Add the following line to each JSP file that will include Get-Services in a frameset. These files must be saved on the server listed in step 2.

```
<script language="JavaScript" SRC="js/setDomain.js">
</script>
```

5   Save the updated JSP files.

Displaying a script variable in a form component

You can use script variables to reuse information gathered from other forms in form components such as form titles and instructions.

All script variables begin with a double dollar sign notation and then display the variable name in parentheses; for example, $$(FirstName). All variable names map to an XML element name in the script output of a form. Thus the script variables $$(FirstName) and $$(LastName) map to the elements <FirstName> and <LastName> in the XML output of a script.

The contents of each variable are displayed in the form title.

Note: You must select the **Display form information** option from
Administration > **Settings** in order to see the Script Input and Script
Output options.

Variable names can also include schema attribute names or nested elements
names using a slash notation. For example, the buyer script uses the
$$(Price/currency) variable to pass information from the currency attribute of
the `<Price>` element. Using the sample data, the $$(Price/currency) variable
would pass 1119.00 for the `<Price>` and USD for the `currency` attribute.
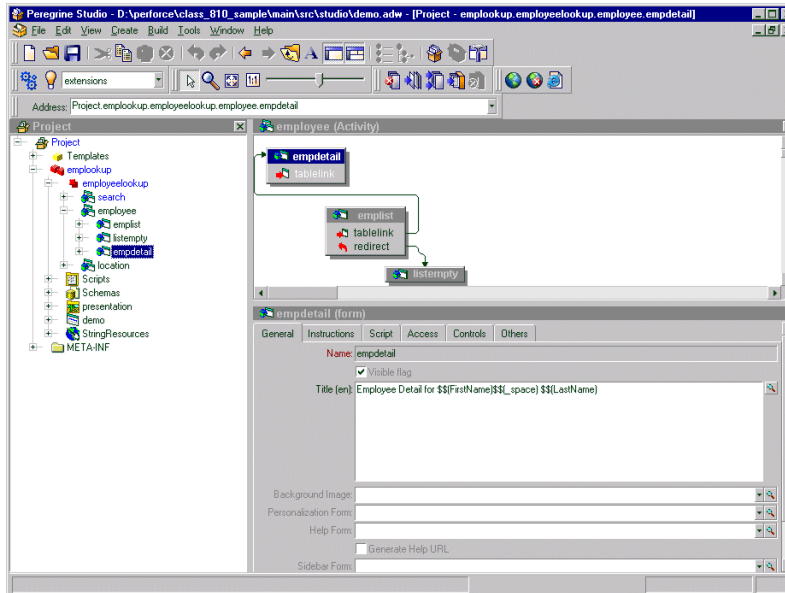
Creating a portal component

Portal components are special forms that display on the Peregrine Portal home
page within special portal frames. To create your own portal components you
need:

- Get-Services packages and source code (included with the Get-Services
  tailoring kit)
- Peregrine Studio

To create a portal component:

1 Open the Get-Services project in Peregrine Studio.

2 Right-click the Group of Modules node to which you want to add a portal
component and then select **New** > **Group of Portal Components**.

You do not have to add another Group of Portal Components if one already
exists in your project.

3 Right-click the Group of Portal Components node from the navigation tree
and select **New** > **Portal Component**.

4 Enter the following properties for the portal component:

Property	Description
Label (en)	Enter the name you want the portal component to have in the Add/Remove content page.
Column type	Select either wide or narrow. This setting determines the size of the portal frame where Get-Services displays the portal component.
Height of IFRAME	Enter a height value if you plan to display this portal component from WebSphere Portal Server.

5 Right-click on the new portal component and select **New** > **Contents**.

A standard form page is added.

6 Enter any form components, onload scripts, parameters, or access restrictions you want the portal component to have.

Tip: You can use existing Get-Services portal components as a template.

Keep in mind the following considerations:

■ Portal components have less space then normal forms to display information. You should design your form component to fit in either a narrow or wide portal component frame.

■ Portal components cannot include the redirection form component. If you want to direct users to another form or HTML page, you will need to use the Business View Authoring tool.

■ You can import a static JSP or HTML page into a portal component.

Note: The procedures listed in Step 7 through Step 11 are optional. You do not have to provide a configuration form for your portal components.

7 Right-click on the new portal component and select **New** > **Configure**.

A standard form page is added.

8 On the configure form, enter the relative URL to form you want to use to configure your portal component in the Alternative HREF field.

Use the following format for the URL:

e_moduleName_activtyName_formName.do?property=value

Parameter	Description
For `moduleName`	Enter the module where your configuration form resides.
For `activityName`	Enter the activity name where your configuration form resides.
For `formName,`	Enter the name of your configuration form.
For `property`	Enter any URL query you want to submit with the URL. This is an optional part of the URL and can be ignored if your configuration form does not require it. Typically, only DocExplorer forms require a property entry.

For example:

e_helpdesk_status_myPortalComp.do

9 Create a new form matching the Peregrine Studio address you entered in Step 8.

This form will be the target configuration form of the Alternates HREF setting.

10 Define the following settings for your configuration form.

Setting	Description
Server OnLoad Script	This script must either be set to or call the `portal.editComponent` script.
	Note: You can only have one server onload script per portal component that runs from either the contents or the configure form.
	If you call the portal.editComponent function from a custom script you must adhere to the following script conventions.
	Your custom script must include code similar to the following.
	`//Contents of your custom script`
	`...`
	`//Combine the messages from your function and portal.editComponent Msg.add(yourMsg);`
	Your custom script must preserve the value of the `_Id` variable that the **portal.editComponent** function passes to it.
Save action	You must add a save action to your configuration form that has a target-form of **portal.edit.save**.
No sidebar navigation	All of the out-of-box Get-Services portal component configuration forms do not display in the navigation sidebar. If you want to follow this convention, then clear the Force display of sidebar menu option on the Others tab.
Optional fields for configuration	All of the following fields are available from the portal.editComponent script. You can use them as document fields in your form components.
`_column`	Determines whether the component displays in a wide or narrow frame.
`_title`	The title you want to display for the portal component.
`_originalTitle`	The default name of the portal component that users can restore to. This field is typically used as a hidden field and should not be visible to users.
`DtLastModify`	The date the portal component was last modified to keep track of changes or revisions. This usually is a hidden field that is not visible to users.

11 Add any additional form components you want to use to configure your portal component.

12 Save your project file.

13 Build your project and deploy your updated Get-Services files to your application server's presentation folder.

Important: You must add an adapter name entry to the **Alias for** field in the **PortalDB** tab in order for Get-Services to display portal components. This setting is available from the Administration page (`admin.jsp`).

Adding personalization

DocExplorers allow end users a means to create and customize searches of Get-Services data. From the end-user perspective, personalization is a collection of standard forms that allow users to change part of the interface to suit their needs. The administrator determines which forms and features of personalization each user has by setting global personalization rights and by granting individual users capability words to do additional personalization.

From an application developer's perspective, a DocExplorer is a template activity that allows for the rapid development of Get-Services changes without the need to rebuild a Peregrine Studio project for every change made. A DocExplorer enables you to add or remove fields, change the layout of a form, and change interface elements such as headers and buttons in real time using the browser interface.

Supporting personalization

Personalization of Get-Services is provided in two ways:

- End-users can use personalization for all forms that have been built using Document Explorers (DocExplorers). Personalization allows authorized

users to change the appearance and functionality of Get-Services directly from the Web interface.

- Developers can use Peregrine Studio to add personalization capabilities to their own Get-Services forms by creating new DocExplorers. This functionality can be enabled only by using Peregrine Studio.

To add Personalization capabilities to Get-Services, you must have these components:

- Aor ServiceCenter back-end database. Personalization requires you to store each user's login rights and personalization changes in a back-end database.
- Adapter aliases defined for the following tabs on the Get-Services Administration settings page:
  - Portal
  - PortalDB

- A user account with personalization rights enabled. A user's login profile determines the level of personalization rights Get-Services grants to the user. A user's personalization rights determine not only what personalized components can be seen and changed, but also determines whether other users will see their personalization changes.
- A configured DocExplorer activity to provide personalization in the Get-Services Peregrine Studio project. You must configure each DocExplorer activity with an adapter name and a schema name. A DocExplorer can only use one schema at a time.

DocExplorer configuration required in Peregrine Studio

In order for users to use a DocExplorer from the Web interface, you must define at least two settings in Peregrine Studio:

- The *schema* the DocExplorer uses. The schema determines what database tables and fields are available to query.
- The *adapter* the DocExplorer uses to connect to the back-end database.

You can use any of the existing schemas provided with Get-Services or create your own schema entries. For more information on schemas, see the Document Schema Definitions chapter.

Adding a DocExplorer reference

A DocExplorer Reference is the preferred method for adding a DocExplorer to a Peregrine Studio project. A DocExplorer Reference is a special template that redirects users to a full DocExplorer activity with two parameters: the schema and adapter to be used. You can use a DocExplorer Reference to call any generic DocExplorer functionality.

To add a DocExplorer Reference:

1   Right-click on a Module component in your project. Select **New** > **DocExplorerReference**.

2   Enter a name for your new DocExplorer Reference activity. The default name is `DocExplorerReference`.

3   Expand the DocExplorerReference activity.

4   Click on the setup form.

5   On the form properties page, click the General tab and enter the following required information:

Title (en).

6   Select the redirect action.

7   On the properties page, click the Link Params tab.

8   Enter the parameters you want to use in the Param field. By default, this field has the following value:

```
_docExplorerContext=<DOCUMENT_NAME>&_DocExplorerBackend=
<TARGET_NAME>&_docExplorerSubType=<SUBTYPE_INSTANCE>
```

Replace `<DOCUMENT_NAME>` with the schema name you want the DocExplorer to use. This is a required parameter.

Replace `<TARGET_NAME>` with the adapter alias you want the DocExplorer to use. For example, enter sc for the ServiceCenter adapter for Get-Services. This is a required parameter.

Replace `<SUBTYPE_INSTANCE>` with the personalization form subtype you want to invoke or leave blank to use no subtype. This is an optional parameter.

Warning: Do not change the target form of the redirect action. This action must go to `docExplorer.default.start`.

9   Save your project.

10 Click the **Differential build of project** button to rebuild your project.

Personalizing a DocExplorer reference

After you add a DocExplorer Reference, you can make changes to this activity directly from the Get-Services Web interface.

To personalize DocExplorer pages:

1   Log on to Get-Services.

2   Click the activity name for your Document Explorer from the navigation sidebar. By default, the Document Explorer name is DocExplorer.

Important: The first time you access a Document Explorer, the interface displays a blank search form.

3   Click the wrench icon from the upper right of the interface.

4 Make your changes to the search form, and then click **Save**.

Your personalized search form displays.

5 Click **Search** to display the results list form.

6 Click the wrench icon from the upper right of the interface.

7 Make your changes to the list form, and then click **Save**.

8 Click on any of the results displayed in your personalized list form to go to the detail form.

9 Click the wrench icon from the upper right of the interface.

10 Make your changes to the detail form, and then click **Save**.

11 If you have user rights to create documents, click the activity name for your Document Explorer from the navigation sidebar to return to the search form.

12 Click **Create** to display the create form.

13 Click the wrench icon from the upper right of the interface. Make your changes to the create form, and then click **Save**.

Adding personalization form components – lookup fields

To personalize your custom forms, add lookup fields to them. Lookup fields use some of the Personalization features found in a DocExplorer template activity.

Note: Lookup fields are already part of the DocExplorer template activity, so you need not add them there. Add lookup fields to the custom forms that you have manually built in Peregrine Studio.

You can add two types of lookup fields to your custom forms:

Lookup type	Reference
Field	See Field lookup on page 148.
Subdocument	See Subdocument lookup on page 149.

Field lookup

You can use the field lookup form component to select the value of one (and only one) particular field of a schema. The Lookup field queries the back-end database for all the values of a pre-defined field, and displays those values in a list. For example, when opening an incident ticket, create a lookup field for a Name field to list all the employee names in the back-end database.

To add a field lookup to a form:

1   Right click the form to which you want to add a lookup field.

2   Go to **New** > **Field** > **Lookup**.

3   Enter the following settings for the Data attributes.

Attribute	Description
Display Field	The label you want displayed for the lookup field in the Get-Services form. If you do not enter a value for this parameter, the label defaults to the Document Field parameter described below.
Document Field	The name of the field you want to use as the unique key for your query. In a field lookup, the value of this field must match the field name portion of the Document Path in Step 4. This value is posted to the onload script when a particular lookup entry is selected.
Unique Key Field	Required if the lookup is added in a document table. Uniquely identifies the field lookup for each row of the table.

4   Enter settings for the following DocExplorer Adapter attributes.

Attribute	Description
Adapter	The name of the back-end database adapter you want to use to lookup the information.
Document Path	The name of the schema and *field* that you want to lookup. The naming convention used with this parameter is *schema name.field name* with a period (.) between them. For example, the entry employee.name will lookup the name field from the employee schema.

5   Enter the following setting for the Link Parameters attribute.

Attribute	Description
Target form	Enter docExplorer.fieldlookup.start as the form name. This value enables personalization if the end-user has sufficient personalization rights.

6   Click the **Differential build of project** button to rebuild your project.

7   Log in to Get-Services, browse to the updated form, and click the magnifying glass lookup icon to display a pop-up lookup form.

The lookup field displays a list of values that match the Document Path you entered in Step 4.

8   If you want to change the field used for the lookup, click the **Personalize this page** link and select the new field you want to use.

Subdocument lookup

You can use a subdocument lookup form component to select all the field values that are part of a subdocument record. (A subdocument typically has its own schema.) A subdocument lookup returns the value of each field defined in the external schema. Any other form components that use the information in the subdocument fields are automatically updated. For example, you could use a subdocument lookup to update several fields such as address, state, zip, and country by selecting a single location.

Tip: Use subdocument lookups to quickly change multiple fields on a form.

To add a subdocument lookup to a form:

1   Right click the form to which you want to add the lookup.

2   Go to **New** > **Field** > **Lookup**.

3   Enter the following settings for the Data attribute.

Attribute	Description
Display Field	The label you want displayed for the lookup field in the Get-Services form. Required. If you do not enter a valid value for this parameter, an error occurs.
Document Field	The name of the field you want to use as the unique key to query the subdocument. The value of this field is used to look up all other document fields in the subdocument. This value is posted to the onload script when a particular lookup entry is selected.
Unique Key Field	Required if the lookup is added to a document table. Uniquely identifies the subdocument lookup for each row of the table.

4   Enter settings for the following for the DocExplorer Adapter attributes.

Attribute	Description
Adapter	The name of the back-end database adapter you want to use to lookup the information.
Document Path	The name of the schema and *subdocument* that you want to lookup. The naming convention for the path is: `schema name.subdocument name` with a period (.) between them. For example, the entry `employee.location` looks up the location subdocument from the employee schema.

5   Enter the following setting for the Link Parameters attribute.

Attribute	Description
Target form	Enter `docExplorer.documentlookup.init` as the form name.

6   Click the **Differential build of project** button to rebuild your project.

7   Log in to your Web application, browse to the updated form and click the magnifying glass lookup icon to display a pop-up lookup form.

The lookup field will display a list of values that match the Document Path you entered in Step 3 on page 150.

8   If you want to change the subdocument used for the lookup, click the **Personalize this page** link and select the new subdocument you want to use.

Tailoring scripts

Although you do not have to use Peregrine Studio to edit or add scripts in your project, the text editor, cross reference checking mechanism, and project navigator make Peregrine Studio a full-featured development platform. The following sections describe how to change scripts from within Peregrine Studio.

Editing an existing script

You can edit the ECMAScript in your project directly from the Peregrine Studio interface.

Tip: You may lose changes that you make directly to existing scripts when you next upgrade. If you want to change an existing script consider using a schema extension to call your custom script in addition to the existing script.
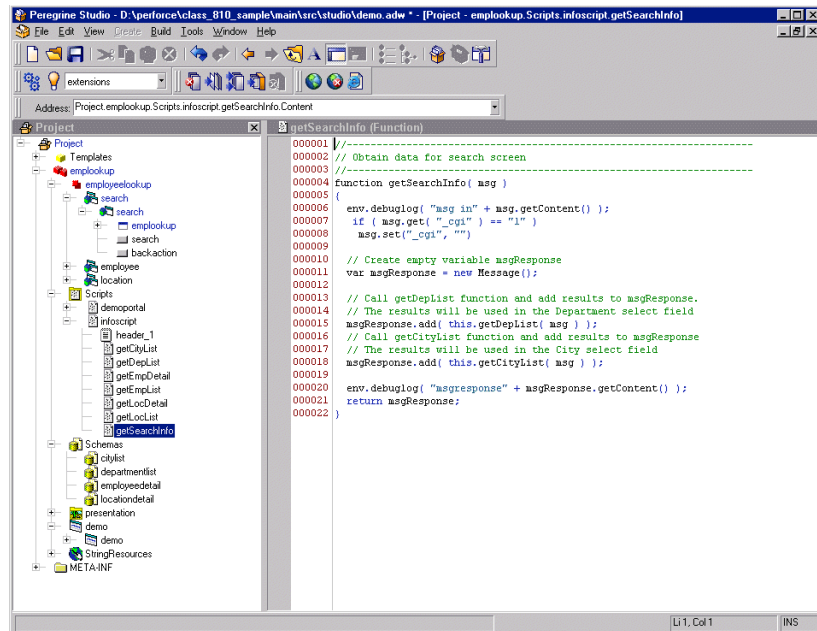
To edit an existing script:

1   Select the form in the Project Explorer.

2   Click the Script tab in the Properties window.
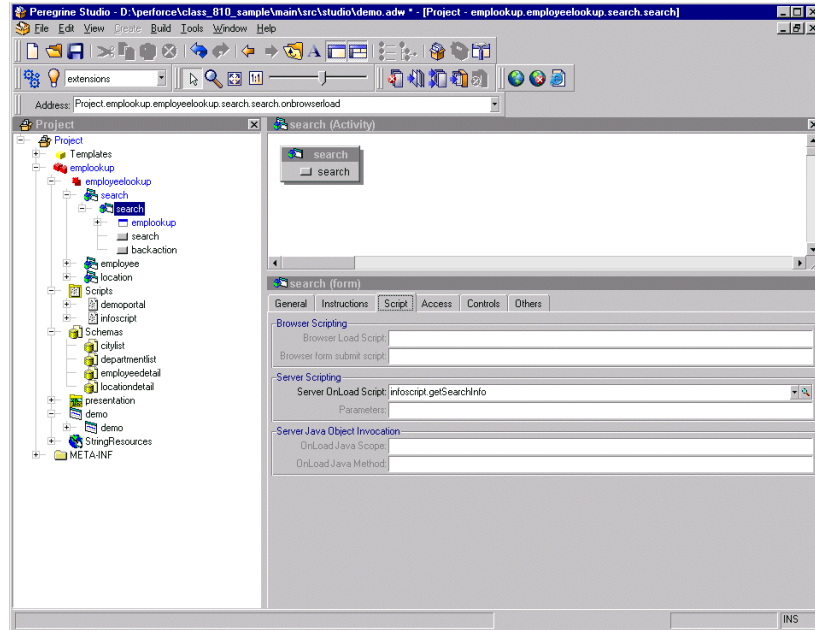
3   In the Server Onload Script field, click the magnifying glass button to view the script in the Peregrine Studio text editor.

4   Make any changes to the script in the text editor.

5   Save your project.

6   Build your project file.

7   Restart your application server or set the **File Change Monitor** option from the Administration page.

Tip: Turn off the File Change Monitor setting on your production system to increase performance.

The script update is loaded into Get-Services.

Adding a custom script

You can add custom scripts to your Peregrine Studio project for use by forms, schemas, and form components.

To add a custom script:

1 Determine what kind of script you want to create.

   You can create the following script types.

Script type	Description
Form onload	These are scripts run to gather data for non-DocExplorer forms. Peregrine Studio stores form on-load scripts underneath the first Group of Scripts node (Typically called **Scripts** or **ServerScripts**).
Preexplorer	These are scripts run to manipulate the XML document that the gets rendered in the Get-Services interface. Peregrine Studio stores preexplorer scripts underneath the **Preexplorer** Group of Scripts node.
Preload	These are scripts run to gather data for DocExplorer forms. Peregrine Studio stores preload scripts underneath the **Preload** Group of Scripts node.
Schema	These are scripts run before or after an adapter connects with the back-end database. Peregrine Studio stores schema scripts underneath the **Schema** Group of Scripts node.

2 Right-click the appropriate Group of Scripts node, point to **New**, and then click **Script**.

   Peregrine Studio creates a new script node underneath the Group of Scripts.

3 Type in the name of your script and press ENTER.

4 Right-click the new Script node, point to **New**, and then click **Header**.

   Peregrine Studio creates a new Header node underneath the Script node.

5 Using the text editor window, type in the header information for your new script.

6   Right-click the new Script node, point to **New**, and then click **Function**.

Peregrine Studio creates a new Function node underneath the Script node.

7   Using the text editor window, type in the function information for your new script.

8   Save your project.

9   Build your project file.

10   Restart your application server or set the **File Change Monitor** option from the Administration page.

The new script is loaded into Get-Services.

Creating custom schemas

You can create custom schemas to instruct the Archway Document Manager how to query, update, or insert information to your back-end databases. A custom schema gives you complete control over the logical and physical mappings used by your forms.

Tip: For most tailoring tasks, you can accomplish the same results using a schema extension. For more information on schema extensions, see the Get-Services Administration Guide.

If you want to create custom schemas you will need to use Peregrine Studio to add the custom schema to your project and then to configure other project components to use the custom schema. Deploying a custom schema will also require building and copying project files to your Get-Services server. The following procedures outline how to create a custom schema.

Step 1   Create or activate a package extension to save your changes in Peregrine Studio. See the Peregrine Studio Projects and Packages chapter.

Step 2   Add a new schema file to your Peregrine Studio project. See Adding a schema to your Peregrine Studio project on page 156.

Step 3 Add logical and physical mappings to your schema file. See Adding logical and physical mappings to your schema on page 157.

Step 4 Configure other project components to use your custom schema. See Tailoring forms and components on page 119.

Step 5 Rebuild your Get-Services project. See the Peregrine Studio Projects and Packages chapter.

Step 6 Deploy your new Get-Services project files. See the Peregrine Studio Projects and Packages chapter.

Adding a schema to your Peregrine Studio project

You can only add a custom schema to a *group of schemas* node. This node will also be a child element of a *group of modules* node, and typically has the name *Schemas*.

To add a schema to your Peregrine Studio project:

1   Right-click the group of schemas node to which you want to add a schema.

      This node will be underneath the group of modules node for Get-Services. If your project contains more than one group of modules, choose the one that has a group of schemas node.

2   Point to **New**, and then click **Raw Schema**.

      A new node appears with the name Schema.

3   Rename your schema using the following conventions.

Schema Naming Conventions

Each custom schema you create should have a unique name to prevent data errors from naming conflicts. Your custom schema name must meet the following criteria:

- The schema name is in all lower case.
- The schema name is unique from any other schema name in the Peregrine Studio project.
- The schema name is unique from any attribute name mapping within the schema.

Adding logical and physical mappings to your schema

After you have added a new schema to your Peregrine Studio project, you are ready to add logical and physical mappings. Studio displays the content of your custom schema in a text editor window. You can use the text editor window to review and edit the XML source code of your schema. You can also use any text editor to edit your schema.

Note: If you use an external text editor to edit your custom schema, Peregrine Studio will not pick up the changes until the next time you open the project file.

All schemas must have both a logical and a physical mapping section. The logical mapping section is where you define what names and labels Get-Services uses for fields in the user interface. The physical mapping section is where you define what back-end database tables and fields are used by each logical mapping. The following sections describe how to create the logical and physical mapping sections.

Creating the logical mappings

Step 1 Add the XML namespace element and the two `<schema>` elements. See Adding required schema elements on page 158.

Step 2 Add two `<documents>` elements for the logical mappings. See Adding logical mapping <documents> elements on page 158.

Step 3 Add two `<document>` elements to define the schema name. See Adding logical mapping <document> elements on page 158.

Step 4   Add one `<attribute>` element for each logical mapping you want to create. See .

Adding required schema elements

1   Add an `<?xml>` element to the top of the file:

```
<?xml version="1.0"?>
```

This element declares that the file uses the XML namespace.

2   Add two `<schema>` elements underneath the namespace declaration:

```
<schema>
</schema>
```

These elements notify the Archway Document Manager that this file is a schema. All schema definitions must be enclosed between these two elements.

Adding logical mapping <documents> elements

1   Add two `<documents>` elements between the `<schema>` element containers:

```
<documents>
</documents>
```

These elements are the container for the logical mappings.

2   Add the `name` attribute to the `<documents>` element:

```
<documents name="base">
```

The attribute value `name="base"` is required. This attribute value notifies the Archway Document Manager that this section is for logical mappings.

Adding logical mapping <document> elements

1   Add two `<document>` elements between the `<documents>` element containers:

```
<document>
</document>
```

These elements are the container for the schema document.

2   Add the `name` attribute to the `<document>` element:

```
<document name="schema_name">
```

For `schema_name`, enter the same name you selected when adding the
schema to the Peregrine Studio project. This attribute value *must* match the
file name of the schema (without the `.xml` extension) or an error will occur.
The Archway Document Manager uses this attribute value to create an XML
document of the same name.

Adding logical mapping <attribute> elements

1   Add one `<attribute>` element between the `<document>` elements for each
logical mapping you want to create:

```
<attribute/>
```

Note: You can use the standard XML self-closing tag syntax `<element />` with
the `<attribute>` element. You can also close every `<attribute>` element
with a `</attribute>` element if you want.

2   Add a `name` attribute to each `<attribute>` element:

```
<attribute name="sample"/>
```

The Archway Document Manager uses this attribute value to create an XML
element in any document message built from this schema. For example, the

Archway Document Manager would convert this attribute into the XML element <sample>.

3   Add a type attribute to each <attribute> element:

```
<attribute name="sample" type="string"/>
```

Get-Services uses this attribute value to determine how to render the field in the user interface. For more information about the type attribute, see the Document Schema Definitions chapter.

4   Add any optional attributes to the <attribute> elements.

For more information about the attributes available for the <attribute> element, see the Document Schema Definitions chapter.

Creating the physical mappings

Step 1   Add two <documents> elements for each adapter you want to support. See Adding physical mapping <documents> elements on page 161.

Step 2   Add two <document> elements to define the back-end database table name. See Adding physical mapping <document> elements on page 162.

Step 3   Add one <attribute> element for each logical mapping you created. See Adding physical mapping <attribute> elements on page 162.

Adding physical mapping <documents> elements

1   Add another set of <document> elements between the <schema> element containers:

```xml
<?xml version="1.0"?>
<schema>
   <documents name="base">
      <document name="schema_name">
         <attribute name="Id" type="id"/>
         <attribute name="sample" type="string"/>
      </document>
   </documents>

   <documents>
   </documents>

</schema>
```

These elements are the container for the physical mappings.

2   Add the name attribute to the <documents> element:

```xml
<documents name="adapter_name">
```

For adapter_name, enter the abbreviation of the adapter you want to use to connect to your back-end database such as sc.

3   Add the version attribute to the <documents> element if you plan to add different physical mappings for each version of your back-end database:

```xml
<documents name="sc" version="4">
```

Important: You can skip to the next section if you are not going to provide different physical mappings for multiple versions of your back-end database.

4   If you want to provide physical mappings for each version of your back-end database, repeat steps 1 through 3 for each version you want to support.

You must provide a different value for the version attribute for each set of <documents> elements.

Adding physical mapping <document> elements

1   Add another two <document> elements between the physical mapping
    <documents> element containers:

```xml
<?xml version="1.0"?>
<schema>
   <documents name="base">
      <document name="schema_name">
         <attribute name="Id" type="id"/>
         <attribute name="sample" type="string"/>
      </document>
   </documents>

   <documents name="sc">
      <document>
      <document/>
   </documents>

</schema>
```

These elements are the container for the back-end database table to be
queried.

2   Add the name attribute to the <document> element:

```
<document name="table_name">
```

For table_name, enter the SQL name of the table you want to map to. The
Archway Document Manager uses this attribute value to query the
back-end database table.

3   Add any optional attributes to the <document> element that you want to use
    to connect to the back-end database or to run process scripts.

For more information about the attributes available for the <document>
element, see the Document Schema Definitions chapter.

Adding physical mapping <attribute> elements

1   Add one <attribute> element between the physical mapping <document>
    elements for each logical mapping you created:

```
<attribute/>
```

Note: You can use the standard XML self-closing tag syntax `<element />` with the `<attribute>` element. You can also close every `<attribute>` element with a `</attribute>` element if you want.

2 Add the identical `name` attribute to each `<attribute>` element as you defined in the logical mappings:

```
<attribute name="sample"/>
```

Each logical mapping `<attribute>` element must have a matching physical mapping `<attribute>` element. The Archway Document Manager uses this value to determine which logical name maps to a particular back-end database field.

3 Add a `field` attribute to each `<attribute>` element:

```
<attribute name="sample" field="field_name"/>
```

For `field_name`, enter the SQL name of the field you want to map to. The Archway Document Manager uses this attribute value to query the back-end database field.

4 Add any optional attributes to the `<attribute>` elements.

For more information about the attributes available for the `<attribute>` element, see Schema Definitions in the Get-Services Administration Guide.

Sample schema

The following is a sample schema that you can use for as a template for your own custom schemas.

```xml
<?xml version="1.0"?>
<schema>

<!--========================================================
Logical Mappings: XML elements and data types defined
========================================================-->
    <documents name="base">
        <document name="sample">
            <attribute name="Id" type="number"/>
            <attribute name="contact" type="string" label="Contact"/>
        </document>
    </documents>

<!--========================================================
Physical Mappings: Logical names mapped to SQL names
========================================================-->
    <documents name="acsc">
        <document name="sample" table="amRequestincidentsamContact"/>
            <attribute name="Id" field="lReqIdincident.idlContactId" />
            <attribute name="contact" field= "lEmplDeptIdcontact.nameName"/>
        <document/>
    </documents>

</schema>
```

Adding data validation

You can have Get-Services validate field values in one of two ways:

- Make an input field required. Users will not be able to submit a form until they have entered all required fields.
- Add a custom validation script or function. If you want to check the validity of the data users submit, you must create a validation script or function.

Making a field required

Personalization forms allows you to mark fields as required, forcing users to fill in a value for that field in order to proceed to the following page. You can use required fields to assure that users complete all the fields that ServiceCenter requires when creating an incident or problem ticket. For example, you can

make every Call ticket (in the Service Management module) require a user to attach an asset to it.

To make a field required:

1   Login to Get-Services with a user account that has
      `getit.personalization.admin` rights.

      The user must have advanced personalization rights to save changes as default.

2   Navigate to the form you want to personalize, and then click the personalization wrench icon.

      The Personalize Document Detail window opens.

3   From the Current Configuration window, double-click the field or subdocument that you want to require.

      The field or subdocument properties window opens.

4   Select one of the following options:

Option	Action
Subdocument	Select the **Required** option under the Explorer Options section.
Field	Toggle the **Required** option to **Yes**.

5   Click **Set as Default** to save your changes as the default view for all users.

      All users who can see this form now see the required field or lookup.

Adding data validation with a custom script function

If you need to validate the actual data submitted on a Get-Services form, you can create a custom script function to check for certain conditions.

To add field validation with a custom script function:

Step 1   Identify the schema that the form uses. See Identifying the schema a form uses on page 166.

Step 2   Locate the schema file. See Locating the schema file on page 168

Step 3   Identify the loadscript, if any, that the schema runs. See Identifying the schema loadscript on page 168.

Step 4   Create a schema extension that calls a custom onload script file. See Creating a schema extension to call a custom loadscript on page 169.

Step 5   Create a custom onload script file. See Creating a custom onload script file on page 171.

Identifying the schema a form uses

You can identify the schema used by a particular form directly from the Get-Services interface. Typically each form uses only one schema, but in some cases a form will use a subdocument that references another schema. The following procedures will help you determine what schema a particular form uses.

To identify the schema used by a particular form:

1   Enable Display form information from the **Administration** > **Settings** page.

The Form information button displays in the banner bar of the Get-Services interface.

2   Browse to the form that you want to tailor.

3   Click the Form information button.

The form information window opens.

4   Search for one of the following entries on the Script Input tab:

Entry	Description
_docExplorerContext	The last value listed after a slash in this element is the schema name. For example: `<_docExplorerContext>incident/ticketcontact</_docExplorerContext>` uses the **ticketcontact.xml** schema file. Note: In this example, ticketcontact.xml is a subdocument of the primary schema document incident.xml. Only DocExplorers will use this document/subdocument format.
_ctxschema	The value listed in this element is the schema name. For example: `<_ctxschema>ticketcontact</_ctxschema>` uses the **ticketcontact.xml** schema file.
_docExplorerSubType	The value listed in this element is the schema name. For example: `<_docExplorerSubType>TicketCreate</_docExplorerSubType>` uses the **TicketCreate.xml** schema file.
document	The value listed in this element is the schema name. For example: `<document>savedRequest</document>` uses the **savedRequest.xml** schema file.

If the schema name you find contains an underscore character, for example, `problem_search`, then this schema extends another existing schema, and the loadscript value you need resides in another schema file.

To determine the parent schema name, open the extending schema, and search for the attribute `extends`. The value of this attribute is the name of the parent schema. For example, the `problem_search` schema has the value `extends="problem"` and therefore extends the `problem` schema.

Locating the schema file

After you have determined the name of the schema that your forms uses, you can find it using your operating system's file search function. The following guidelines are provided to help narrow down your search:

- All schemas files have a .XML extension
- All schemas files are stored in the `WEB-INF\apps` folder of your application server's deployment directory. For example:
  `C:\Program Files\Peregrine\Common\Tomcat4\webapps\oaa`

Identifying the schema loadscript

The schema loadscript is always listed in the logical mapping of the schema `<document>` element.

To identify the schema loadscript:

1   Open the schema XML source file of the schema that you previously identified in any text editor.

2   Locate the logical mapping section contained within the `<documents name="base">` element.

3   Locate the logical mapping `<document>` element.

4   Locate the `loadscript` attribute.

The name of the loadscript is listed in quotation marks for this attribute. For example:

```
<documents name="base">
   <document    name="problem" label="Ticket"
      ACLcreate="getit.service" ACLdelete="oaa.forbidden"
      ACLupdate="getit.service"
      loadscript="preload.problem.imPreload"
      preexplorer="preexplorer.problem.imPreexplorer">
      ...
   </document>
</documents>
```

Creating a schema extension to call a custom loadscript

Creating a schema extension allows you to change the loadscript without changing the original source code for Get-Services.

To create a schema extension to call a custom load script:

1   Copy the schema XML source file for the schema that you previously identified. For example, `problem.xml`.

2   Create a new folder as follows:

Create an `extensions` folder in the same directory where you found the source schema. For example:

```
C:\Program Files\Peregrine\Common\Tomcat4\webapps\oaa\WEB-INF\
apps\incidentmgt\Schemas\extensions
```

3   Paste a copy of the source schema file in each of the folder you created.

4   Open the schema extension file in the `extension` folder.

This file is for your schema extension logical mappings.

5   Delete all the derived definitions listed in the bottom half of the original schema.

The derived definitions section starts after the first `</documents>` element and usually has a comment section describing what back-end databases and versions the derivations apply to.

Important: You must keep the `<?xml>` and `<schema>` elements.

6   Locate the logical mapping `<document>` element.

This element will be directly beneath the `<documents name="base">` element.

7   Record the value of the existing onload script attribute. For example:

```
<?xml version="1.0"?>
<schema>
<documents name="base">
   <document    name="problem" label="Ticket"
      ACLcreate="getit.service" ACLdelete="oaa.forbidden"
      ACLupdate="getit.service"
      loadscript="preload.problem.imPreload"
      preexplorer="preexplorer.problem.imPreexplorer">
   </document>
</documents>
<schema>
```

If you were changing the problem schema, you would record the loadscript
name preload.problem.imPreload.

You will need to know this loadscript name when you create your custom
loadscript in the next section.

8   Edit the existing <document> element and change the value of loadscript
attribute to the name of your custom loadscript. For example:

```
<?xml version="1.0"?>
<schema>
<documents name="base">
   <document    name="problem" label="Ticket"
      ACLcreate="getit.service" ACLdelete="oaa.forbidden"
      ACLupdate="getit.service"
      loadscript="preload.custom.imPreload"
      preexplorer="preexplorer.problem.imPreexplorer">
   </document>
</documents>
<schema>
```

Steps for creating the custom onload script file are in the next section.

9   Save your changes to the schema extension file.

If all you are doing is changing the onload script called by your schema, then
you do not need to create a schema extension for the physical mappings.
See the Get-Services Administration Guide for more information about
schema extensions.

Creating a custom onload script file

You can create your own custom onload script to check incoming and outgoing data for certain conditions. You must create a custom script in order to not overwrite any of the scripts delivered with Get-Services.

To create a custom onload script:

1   Open the Get-Services project file in Peregrine Studio.

2   Expand the group of modules node for the portion of Get-Services you want to change.

Module	Description
incidentmgt	The group of modules for incident management. This includes the **Service Desk** tab in the Get-Services interface.
changemgt	The group of modules for change management. This includes the **Change Management** tab in the Get-Services interface.

3   Expand the **Scripts** node.

4   Right-click the **preload** node, and then click **New** > **Script**.
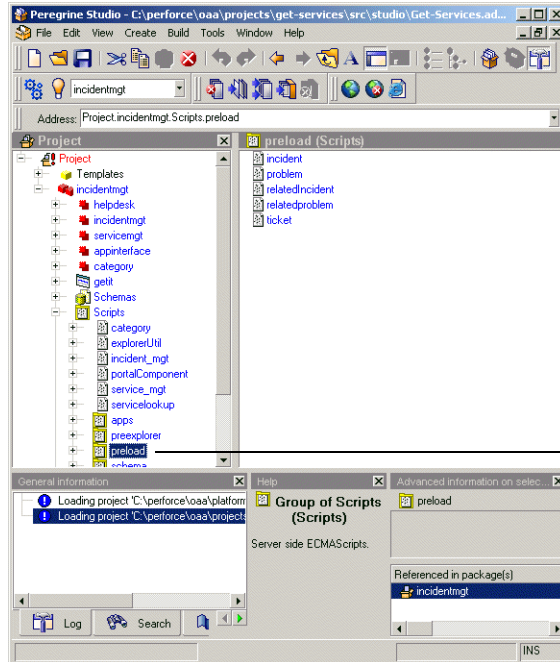
Right-click on the preload node and then click New > Script.

5   Give your script a unique name. For example, `custom`.

6   Right-click your new script node, and then click **New** > **Header**.

You can accept the default Header name `Header`.

7   Use the Peregrine Studio text editor to add a ECMAScript header that imports the original schema onload script. For example:

```
import preload.problem;
```

The script `preload.problem` is the name of the original onload script file called by the `problem` schema.

8   Right-click your new script node, and then click **New** > **Function**.

9   Rename your function to the desired custom onload function name. For example, `imPreload`.

10 Use the Peregrine Studio text editor to add a ECMAScript function to call your data validation functions and then call the original schema onload function for this form. For example:

```
function imPreload(msg)
{
   this.verifyFields(msg);
   if ( msg.testCondition("error", false) )
   {
      return msg;
   }

   msg = preload.problem.imPreload( msg );

   return msg;
}
```

11 Right-click your new script node, and then click **New** > **Function**.

12 Rename your function to the desired custom onload function name. For example, verifyFields.

13 Use the Peregrine Studio text editor to add a ECMAScript function to check the data entered and submitted by this form. For example:

```
function verifyFields(msg)
{
   var action = msg.get("_docExplorerAction");
   var formName = msg.get("_formname");

   if(action == "create" && formName == "new" )
   {
      var priority = msg.get("Priority");
      if (priority == 1)
      {
         msg.setCondition("error");
         user.addMessage("Please call the IT Deptarment at 555-1212
         for Priority 1 Tickets");
      }
      return msg;
   }
}
```

14 Save and build your Get-Services project.

Your new data validation script displays the next time that you go to your the form. For example:

Error message displayed

Priority 1 selected

Assigning default values

You can easily assign default values to fields using a custom preprocess script. A preprocess script runs before the Archway Document Manager queries the back-end database. Since the Get-Services `incident` and `problem` schemas already have existing preprocess scripts, you must create a schema extension to call a custom script.

To assign default values to fields with a custom script function:

Step 1 Identify the schema that the form uses. See Identifying the schema a form uses on page 175.

Step 2 Locate the schema file. See Locating the schema file on page 177

Step 3 Identify the preprocess script, if any, that the schema runs. See Identifying the schema preprocess script on page 177.

Step 4 Create a schema extension that calls a custom preprocess script file. See Creating a schema extension to call a custom preprocess script on page 177.

Step 5 Create a custom preprocess script file. See Creating a custom onload
script file on page 171.

Identifying the schema a form uses

You can identify the schema used by a particular form directly from the
Get-Services interface. Typically each form uses only one schema, but in some
cases a form will use a subdocument that references another schema. The
following procedures will help you determine what schema a particular form
uses.

To identify the schema used by a particular form:

1 Enable Display form information from the **Administration** > **Settings** page.

   The Form information button displays in the banner bar of the Get-Services
   interface.

2 Browse to the form that you want to tailor.

3 Click the Form information button.

   The form information window opens.

4   Search for the following text on the Script Input tab.

Text	Description
_docExplorerContext	The last value listed after a slash in this element is the schema name. For example: `<_docExplorerContext>incident/ ticketcontact</_docExplorerContext>` uses the **ticketcontact.xml** schema file. Note: In this example, ticketcontact.xml is a subdocument of the primary schema document `incident.xml`. Only DocExplorers will use this document/subdocument format.
_ctxschema	The value listed in this element is the schema name. For example: `<_ctxschema>ticketcontact</_ctxschema>` uses the **ticketcontact.xml** schema file.
_docExplorerSubType	The value listed in this element is the schema name. For example: `<_docExplorerSubType>TicketCreate </_docExplorerSubType>` uses the **TicketCreate.xml** schema file.
document	The value listed in this element is the schema name. For example: `<document>savedRequest</document>` uses the **savedRequest.xml** schema file.

If the schema name you find contains an underscore character, for example, problem_search, then this schema extends another existing schema, and the loadscript value you need resides in another schema file.

To determine the parent schema name, open the extending schema, and search for the attribute extends. The value of this attribute is the name of the parent schema. For example, the problem_search schema has the value extends="problem" and therefore extends the problem schema.

Locating the schema file

After you have determined the name of the schema that your forms uses, you can find it using your operating system's file search function. The following guidelines are provided to help narrow down your search:

- All schemas files have a .XML extension
- All schemas files are stored in the `WEB-INF\apps` folder of your application server's deployment directory. For example:
  `C:\Program Files\Peregrine\Common\Tomcat4\webapps\oaa`

Identifying the schema preprocess script

The schema preprocess script is always listed in the physical mapping of the schema `<document>` element.

To identify the schema loadscript:

1   Open the schema XML source file of the schema that you previously identified in any text editor.

2   Locate the physical mapping section contained within the `<documents name="adapter_name">` element.

3   Locate the physical mapping `<document>` element.

4   Locate the `preprocess` attribute.

    The name of the preprocess script is listed in quotation marks for this attribute. For example:

```
<documents name="sc" ...>
    <document name="incident" table="incidents"  insert="esmin"
    update="esmin" postprocess="schema.incident.scPostprocess"
    preprocess="schema.incident.scPreprocess">
       ...
    </document>
</documents>
```

Creating a schema extension to call a custom preprocess script

Creating a schema extension allows you to change the preprocess script without changing the original source code for Get-Services.

To create a schema extension to call a custom preprocess script:

1   Copy the schema XML source file for the schema that you previously identified. For example, `incident.xml`.

2   Add a new folder by creating an `extensions` folder in the same directory where you found the source schema. For example:

```
C:\Program Files\Peregrine\Common\Tomcat4\webapps\oaa\WEB-INF\
apps\incidentmgt\Schemas\extensions
```

3   Paste a copy of the source schema file in each of the folder you created.

4   Open the schema extension file in the `extension` folder.

    This file is for your schema extension logical mappings.

5   Delete all the logical definitions listed in the top half of the original schema.

    The logical definitions section starts after the first `<documents>` element.

Important: You must keep the `<?xml>` and `<schema>` elements.

6   Locate the physical mapping `<document>` element.

    This is directly below the `<documents name="adapter_name">` element.

7   Record the value of the existing preprocess script attribute. For example:

```
<?xml version="1.0"?>
<schema>
<documents name="sc" ...>
   <document name="incident" table="incidents" insert="esmin"
   update="esmin"
   postprocess="schema.incident.scPostprocess"
   preprocess="schema.incident.scPreprocess">
      ...
   </document>
</documents>
<schema>
```

If you were changing the problem schema, you would record the loadscript name schema.incident.scPreprocess.

You must know this preprocess script name when you create your custom preprocess script in the next section.

8   Edit the existing <document> element and change the value of preprocess attribute to the name of your custom preprocess script. For example:

```
<?xml version="1.0"?>
<schema>
<documents name="sc" ...>
   <document name="incident" table="incidents"  insert="esmin"
   update="esmin"
   postprocess="schema.incident.scPostprocess"
   preprocess="schema.custom.scPreprocess">
      ...
   </document>
</documents>
<schema>
```

Steps for creating the custom onload script file are in the next section.

9   Save your changes to the schema extension file.

If all you are doing is changing the onload script called by your schema, then you do not need to create a schema extension for the physical mappings. See the Get-Services Administration Guide for more information about schema extensions.

Creating a custom preprocess script file

You can create your own custom preprocess script to assign default values to fields in the XML document. You must create a custom script in order to not overwrite any of the scripts delivered with Get-Services.

To create a custom preprocess script:

1   Open the Get-Services project file in Peregrine Studio.

2   Expand the group of modules node for the portion of Get-Services you want to change.

Module	Description
incidentmgt	The group of modules for incident management. This includes the **Service Desk** tab in the Get-Services interface.
changemgt	The group of modules for change management. This includes the **Change Management** tab in the Get-Services interface.

3   Expand the **Scripts** node.

4   Right-click the **schema** node, and then click **New** > **Script**.
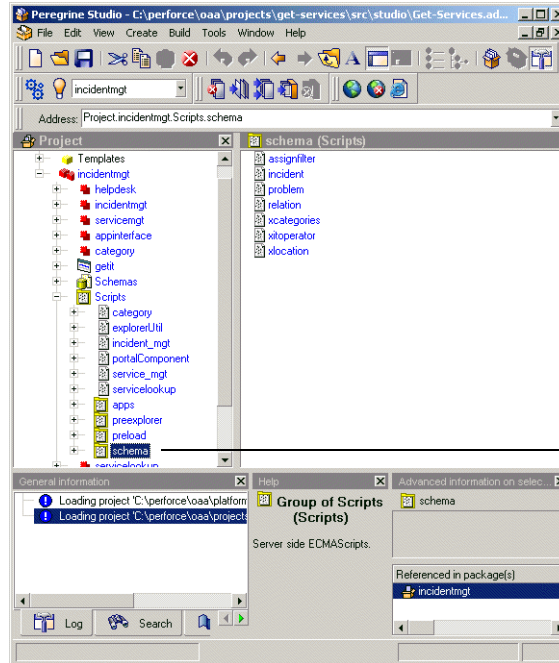
Right-click on the schema node and then click New > Script.

5   Give your script a unique name. For example, `custom`.

6   Right-click your new script node, and then click **New** > **Header**.

You can accept the default Header name `Header`.

7   Use the Peregrine Studio text editor to add a ECMAScript header that imports the original schema onload script. For example:

```
import schema.scPreprocess;
```

The script `schema.scPreprocess` is the name of the original preprocess script file called by the `incident` schema.

8   Right-click your new script node, and then click **New** > **Function**.

9   Rename your function to the desired custom onload function name. For example, `scPreprocess`.

10 Use the Peregrine Studio text editor to add a ECMAScript function to define any default values and then call the original schema onload function for this form. For example:

```
function scPreprocess(msg)
{
    assignDefaultValues(msg);

    msg = schema.incident.scPreProcess( msg );
}
```

11 Right-click your new script node, and then click **New** > **Function**.

12 Rename your function to the desired custom onload function name. For example, `assignDefaultValues`.

13 Use the Peregrine Studio text editor to add a ECMAScript function to add default values submitted to the back-end database. For example:

```
function assignDefaultValues(msg);
{
    var strTemp = msg.get("Category");
    if (strTemp == "")
        {
            msg.set("Category", "business applications“);
        }
}
```

14 Save and build your Get-Services project.

Translating tailored modules

Out-of-box, all Get-It web applications are provided in English. You can order translated versions of Get-Services by purchasing a language pack. Get-Services 4.1 language packs are available in the following languages:

French
Italian
German

Note: Refer to the Peregrine support web site to determine the current availability of Get-Services language packs.

If you tailor your installation of Get-Services, you will need to translate any strings that you added. The following sections describe how you can translate your tailored modules.

If you have a language pack version of Get-Services, you will need to edit the existing string files for these applications and add any new strings that resulted from your tailoring efforts. For more information on the process, refer to Editing existing translation strings files on page 183.

If you do not have a language pack version of Get-Services and you want to create a new translation, refer to the instructions in Adding new translation strings files on page 185.

To configure Get-Services to use your new translation, refer to Configure Get-Services to use new string files on page 186.

Editing existing translation strings files

You can make edits, additions, and deletions to string files outside of Peregrine Studio using any text editor or standard translation software.

To edit an existing translation string file:

1   Open the English string file for your Peregrine Studio project in a text editor or translation program.

    You can find all the translation string files in the application server's deployment directories:

    ```
    <application server install>\webapps\oaa\WEB-INF\strings
    <application server install>\webapps\oaa\WEB-INF\apps\
    <application group of modules name>
    ```

Note: The English string file has the ISO-639 two letter abbreviation EN in the file name.

    All strings files have the STR file extension.

2   Search for any new text that you added to your tailored Peregrine Studio
    project.

    The string file uses the following format:

    `String_label, "translated string"`

    Where `String_label` is the Peregrine Studio name given to the string, and

    Where `translated string` is the actual value of the string to be translated.

    For example if you added a new button, you might look for:

    `EMPLOOKUP_EMPLOYEELOOKUP_SEARCH_LABEL, "Search"`

3   Copy the entire line containing the English string.

4   Open the string file for the target language in which you want to add a
    translation.

Note: The string file will use the ISO-639 two letter abbreviation for the
       language in the file name.

5   Paste the copied English string into the target string file. You can paste the
    string at the end of the string file.

6   Change the `"translated string"` portion of the new string to the target
    language of your translation. For example, to change the string listed above
    to French, you might enter the following:

    `EMPLOOKUP_EMPLOYEELOOKUP_SEARCH_LABEL, "Recherche"`

7   Save the new string file.

    The new translation strings are available as soon as you stop and restart the
    application server.

Adding new translation strings files

You can add new string files to provide additional language support to Get-Services. The translation process can be accomplished using any text editor or standard translation software.

Important: Peregrine does not support any user translated versions of Get-Services.

To edit an existing translation string file:

1   Open the English string file for your Peregrine Studio project in a text editor or translation program.

You can find all the translation string files in your application server's installation directory:

```
<application server install>\webapps\oaa\WEB-INF\strings
<application server install>\webapps\oaa\WEB-INF\apps\
<application group of modules name>
```

Note: The English string file has the ISO-639 two letter abbreviation EN in the file name.

All strings files have the STR file extension.

2   Copy the entire the English string file.

3   Create a new string file for the target language in which you want to add a translation.

Note: The string file must use the ISO-639 two letter abbreviation for the language in the file name.

4   Paste the copied English string file into the new file.

5   Change the "`translated string`" portion of each string to the target language of your translation.

6   Save the new string file.

The new translation strings will be available as soon as you stop and restart the application server.

Configure Get-Services to use new string files

1   Log in as an administrator (the administrator login page is at `admin.jsp`).

2   Click **Settings**.

3   Click the **Common** tab.

4   Enter the two letter ISO-639 language code for the languages you want to support in the **Locales** field. The first code entered is the default language used. The other languages you define are available in a drop-down list.

5   In the **Content type encoding** field, enter the character encoding used for the display language. The following table lists some of the common character encoding formats.

Character Encoding	Character Set
ISO-8859-1	U.S. and Western European character sets. This is the default character set used by Studio.
Shift_JIS	Japanese character set
ISO-8859-2	Polish and Czech character set

6   Click **Save** at the bottom of the Settings form to save your changes.

7   On the Console form, click **Reset Peregrine Portal** to implement your changes.

Users can select the display language for their session used when they login to the Peregrine OAA Platform.

A | Troubleshooting and FAQs

CHAPTER

This appendix contains troubleshooting information for Peregrine Studio and tailoring tasks.

This chapter covers the following topics:

Get-Services environment

This section describes warnings or errors that can be generated while running a Get-Services in your system environment.

Out of memory error

Problem

Your application server has run out of memory resources.

Solution

Get-Services run best on a system with a minimum of 512 MB of RAM. If you cannot add more physical memory to your machine, you can increase the virtual memory space used on your Windows system. Adding virtual memory will require more hard disk space and may degrade system performance as cached information is saved to and retrieved from the hard disk. Refer to your Windows help for information on setting or changing virtual memory.

Cannot start Java – install JRE

Problem

Peregrine Studio produces an error message when you attempt to create a package or build a project.

```
Cannot start Java ('jvm.dll' not found). The JRE (Java Runtime
Environment) must be installed ...
```

Solution

Install a dedicated copy of the Java 2 SDK for Peregrine Studio to use. You can install the Java 2 SDK from the Get-Services Tailoring Kit installation CD.

Peregrine Studio

This section describes common problems with write protections, conflicts, and build errors generated with Peregrine Studio.

Cannot edit — components have grey background

Problem

Peregrine Studio displays some or all of your project components with a grey background, and you cannot make or save changes to the project components.
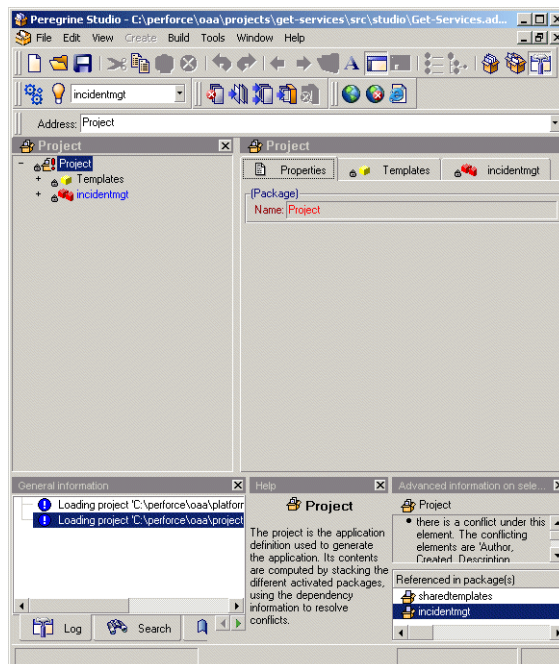
Solution

Peregrine Studio uses the grey background to indicate that an item is write-protected. The most common reasons that Peregrine Studio components are write protected are:

- A write-protected package is selected in the package selector.

- The project (.adw) file is set to read-only.

Packages delivered by Peregrine are write-protected. You must save all of your changes and additions to a user-created package extensions. If the package selection box displays one of the Peregrine Studio default packages, then your project will be write protected until you create and activate a new package extension in which to save your changes.

Red exclamation point displays next to nodes

Problem
Peregrine Studio displays a conflict icon next to one or more of your project components, and you cannot build the project. The conflict could be the result of multiple packages attempting to change or modify the same component, or the conflict could be the result of improperly defined package dependencies.

Solution
To resolve the conflict you should first view more information about the nodes displaying the conflict icon.

To view information about a conflict:

1   Select a node with an exclamation point icon displayed next to the name from the Project Explorer view.

2   Click **View** > **Advanced Information**. Peregrine Studio displays a new information window at the bottom of the interface. This window displays information on the conflict.

The information on selection indicates whether you have a resource or a dependency conflict.

Conflict icon
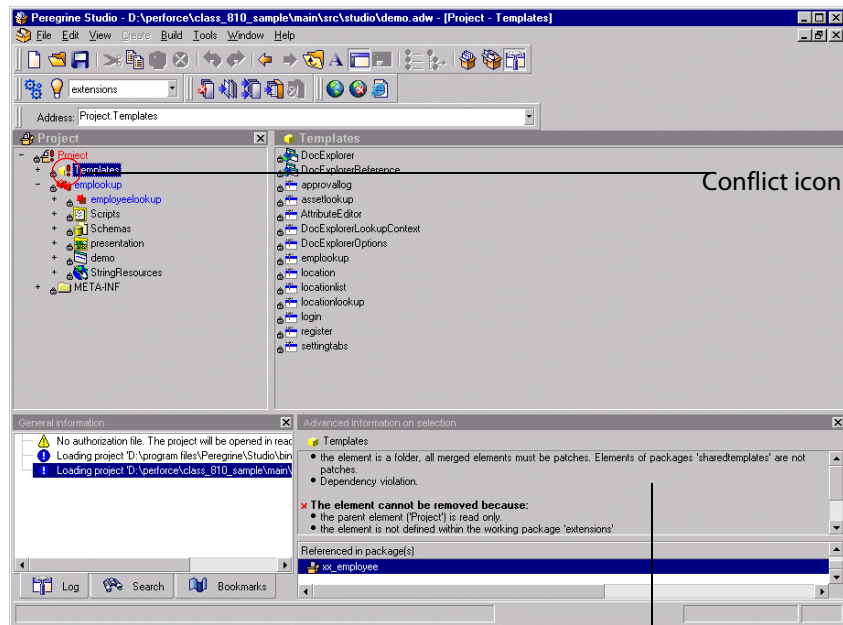
Information about the conflict

Resource conflicts

Resource conflicts occur when two or more project components describe the same thing. To resolve a resource conflict, delete or reconfigure one of the project components that is creating the conflict. If the conflicting components are part of separate package extensions, you can choose to deactivate one of the package extensions to resolve the conflict.

Dependency conflicts

Dependency conflicts occur when a package extension attempts to modify a package that is not listed as a dependent package. To resolve the conflict you can choose one of two solutions:

- Add the package you want to modify as a package dependency of the conflicting package extension.
- Move the changes in the conflicting package extension to another package extension that already has the proper package dependencies.

Scripting errors

Information about scripting errors is displayed as text at the top of the main frame and in the `archway.log` file.

Unable to find script file

Problem

The following error message displays when you select a form:

```
Unable to find script file for <name>
```

This message also appears in the `archway.log` file.

Solution

This error message is usually the result of an invalid script file name or adapter name.

Verify in Peregrine Studio that the form is calling a valid script file name. In particular make sure that the script name does not use mixed case. Script file names should be in all lower case. If you copied a script from another form or Web application you may have renamed the script incorrectly.

Verify that the script calls a valid adapter. If the `<name>` value is the name of a new adapter defined in the script file, then define the new adapter in the Admin Settings module, stop and restart your application server, and then restart the Archway server (using the Admin Control Panel) to correct the problem.

If you have verified that the script file exists and uses the proper adapter, then stop and restart your application server. This will refresh the adapter settings.

Script produces an ECMAScript error

Problem

An ECMAScript Error is displayed with the script name, source code, and line number of the error when a form is displayed.

Solution

Open Peregrine Studio, review the error-producing script for typos, and verify that it uses the correct function and schema names. For example, you might have a function where *msg* is incorrectly listed as *nsg*. Correct any errors and rebuild the project.

Note: ECMAScript is case sensitive and will return an error message if the case does not match the object called.

Tip: If you have enabled the HTTP listener in Peregrine Studio, you can click on the underlined script name listed at the top of the error message to go directly to the script and line number of the error. Peregrine Studio must be open for the hyperlink to work.

ECMAScript error: undefined value or property

Problem

The following error displays when you select a form:

```
ECMAScript Error: Error Message: Runtime error Function called on
undefined value or property
```

This error also displays in the `archway.log` file.

Solution

Verify that the form calls the proper script name in the server onload script attribute. Also check that the script name contains no typos and that it is listed with the proper case. If the script name listed in the form is correct, there is a possibility that there is a script name conflict. Each script in your project needs a unique name. Try renaming your script to a new name, updating the server onload script attribute, and rebuilding your project. If renaming the script fixes the problem then you had a script name conflict.

Tailoring errors

The following sections describe some of the common errors associated with tailoring Get-Services. Refer to the sections below for solutions to common tailoring problems.

Script output not appearing in form component

Problem

Data is not displayed in your Get-Services form component. This problem could be the result of a faulty script that is not generating an XML document or the result of form components that are not properly mapped to the fields of the generated XML document.

Solution

Verify whether your script is generating an XML document by enabling the Show form information option and then looking at the contents of the Script Output tab. If the script is working properly, you should see your Get-Services data encoded as in the XML document displayed on the Script Output page. If you do not see an XML document, then your script has an error.

If you can see data displayed in the Script Output tab, then the problem is how you have mapped the form components to the XML fields. View the form component properties from Peregrine Studio, and verify that the Document Field attribute of the form component maps to an XML tag displayed in the Script Output tab.

Too few parameters error

Problem

The following error message displays when you select a form:

```
ERROR:...: ***SQL Exception caught***
```

The script output displays the following error:

```
-3010: [...][...] Too few parameters. Expected 1.
```

These messages also appear in the `archway.log` file.

Solution

There is an incorrect field mapping or typo in the schema used in this form. Review the schemas used by this form and verify that there are no typos. Also verify that all the attributes defined in the schema map to valid fields in the back-end database. The value in the field attribute must match the field name of the back-end database. This is particularly important for the ID attribute, which must map to a unique numerical value that identifies each record.

Get-Services always goes to redirection form

Problem

You have defined a redirection to another form in Get-Services and the source form always takes users to the redirection form regardless of the search conditions and results.

Solution

Validate that the Condition attribute of the redirection is not blank. The Condition value should match the value defined by the setCondition function of your form's ECMAScript. If the Condition attribute is left blank, the default action is to redirect to the target form regardless of the returned results.

Syntax error in FROM clause

Problem

The following error message is displayed when you select a form:

```
ERROR:...: ***SQL Exception caught***
```

The script output displays the following error:

```
-3506 [...][...] Syntax error in FROM clause.
```

This error also displays in the `archway.log` file.

Solution

The schema name you defined for the form is wrong. The schema name can be listed incorrectly in two places:

- The form's onload script may refer to the wrong schema name.
- The `<document name=value>` does not match the schema file name.

B Copyright Notices

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Notices

finj.jar

The `finj.jar` is covered under the GNU Lesser General Public License version 2.1. The license is included below under section GNU LGPL.

The finj source is included in `finj.jar` file in the `\Program Files\Peregrine\Studio\bin\classes` directory.

GNU LGPL

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Version 2.1, February 1999

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