New World Service Provider Web Application

The sample New World Service Provider (NWSP) web application contains all of the components required for a fully functional web-based user interface. The developer can use the NWSP web components as a starting point for designing and creating an SESM web application. This chapter provides information on how a developer can use and modify the NWSP web components.

The following general considerations apply to this chapter's descriptions of the NWSP web components.

Before you read this chapter, read Chapter 2, "SESM Components and Techniques," for an explanation of SESM components and techniques that are, in general, used in all SESM sample web applications.

- Depending on the SESM software that is used, a deployed SESM web application can be configured for one of two modes:

  - *RADIUS mode*—Service and subscriber information is stored in a RADIUS server.

  - *DESS mode*—Service, subscriber, and policy information is stored in an LDAP-compliant directory, which is accessed with the DESS application programming interfaces.

- The set of web components used for a NWSP web application varies depending on the configuration (RADIUS mode or DESS mode). Where it is required, the descriptions of components in this chapter indicate the mode in which each component is used.

- For simplicity, the NWSP web components and the explanations in this chapter assume that English is the only language used by the subscriber. If an SESM web application must support multiple languages, the images, icons, and message text in the NWSP web components would have to be modified for the other languages.

NWSP Directory Hierarchy

After the Cisco SESM software is installed, the NWSP web application is located in a structured hierarchy of directories. As with any web application, the root of this hierarchy is the document root for serving the NWSP web pages to the subscriber. In this directory hierarchy, the \Web-inf directory contains items related to the web application that are not in the document root. That is, the files and directories in \Web-inf are not part of the public document tree from which files can be directly served to the client.

When Cisco SESM software is installed, the NWSP web application's hierarchy of directories is located below the *install_dir*\nwsp directory (see Figure 3-1). The \pda and \wap directories are currently not used. The following directories and their files are not required in a deployed SESM web application: \assets, \library, \templates, and \docs.

Figure 3-1   NWSP Directories
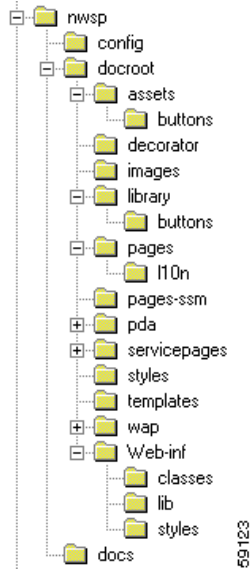
The NWSP directories contain the complete set of files required for the web application and include the PNG source files required to customize the Fireworks images and buttons. The NWSP directories and files are:

config

Contains the web application configuration file `nwsp.xml`. For information on the configuration files, see the *Cisco Subscriber Edge Services Manager and Subscriber Policy Engine Installation and Configuration Guide*.

docroot

Is the web application's document base.

docroot\assets

Contains the PNG source files from which the GIF images and Fireworks buttons were made. You can customize the images in the PNG files using Fireworks or another graphics tool.

docroot\decorator

Contains the JSP pages used for rendering the content according to the user's shape.

docroot\images

Contains the GIF images for the NWSP user interface.

docroot\library

Contains Dreamweaver library items. Library items contain images, text, and other objects that are used frequently throughout NWSP. For information on the NWSP library items, see the "NWSP Library Items" section on page 3-13.

docroot\pages

Contains JSP pages used for both DESS mode and RADIUS mode. The \l10n directory contains JSP pages for localization; they are currently not used. For information on the JSP pages used in NWSP, see the "NWSP JavaServer Pages and Servlets" section on page 3-5.

docroot\pages-ssm

Contains additional JSP pages used for DESS mode. For information on the JSP pages used in NWSP, see the "NWSP JavaServer Pages and Servlets" section on page 3-5.

docroot\servicepages

Contains images for services that the NWSP web application uses in Demo mode.

docroot\styles

Contains the Cascading Style Sheet nwsp_styles.css.

docroot\templates

Contains the Dreamweaver templates. For information on the NWSP templates, see the "NWSP Templates" section on page 3-8.

docroot\Web-inf

Contains various Java-related NWSP components:

- Tag library descriptor (.tld) files for the NWSP tag libraries are in \Web-inf. For information on the .tld files and using a tag library, see the "Configuring a Tag Library" section on page 4-4.

- The web application's deployment descriptor file, web.xml, is in \Web-inf. For information on this file, see the *Cisco Subscriber Edge Services Manager and Subscriber Policy Engine Installation and Configuration Guide*.

- The \lib directory contains the Java archive (JAR) files for some SESM classes. For information on the JAR files required for an SESM web application, see the "SESM Class Libraries" section on page 2-23.

- The \classes directory contains the NWSP properties files. For information on localization and properties files, see Chapter 4, "SESM Internationalization and Localization."

docs

The Javadoc files for the NWSP classes.

NWSP User Interfaces

From the perspective of the subscriber, the Cisco SESM is a web-based user interface that the subscriber uses for subscribing to and selecting services, changing account details, creating subaccounts, and viewing session status and messages. The look-and-feel of the user interface is determined by the service provider. The user interface can be customized for a particular subscriber based on a number of factors, such as:

- Devices and browsers used to connect to an SESM web site

- Branding for the SESM web site so the look-and-feel can be associated with, for example, a retail ISP or a corporation

- Language and country of the subscriber

- Personalization of the SESM web site to include a subscriber-specific set of services

Figure 3-2 shows the service list page from the NWSP web application's user interface.

Figure 3-2   NWSP Service List Page
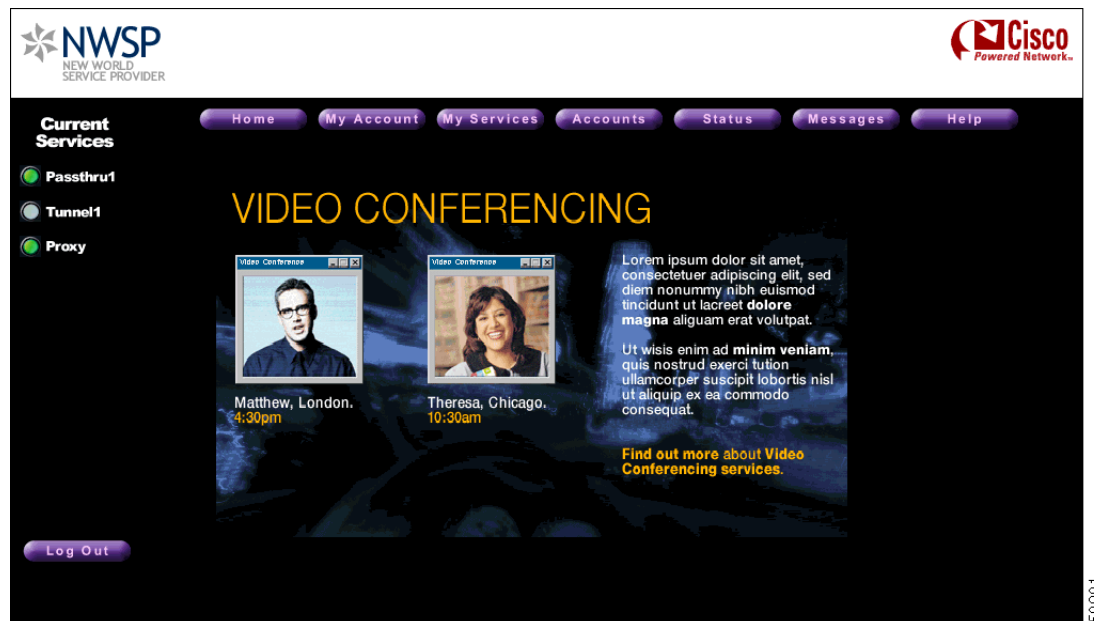
The sample NWSP web application provides a set of functionality that is typical of many directory-enabled SESM applications. The subscriber is able to logon to the user interface with a user name and password. The subscriber can then do the following:

- Subscribe to or unsubscribe from network services that are authorized
- Connect to or disconnect from services that are subscribed
- Change account details, such as address information and passwords
- Create subaccounts for other family members
- View the status of service connections
- View system messages

The features related to account management are possible only with an SESM web application that is operating in DESS mode. The NWSP web application includes the required logic to determine the privileges that were granted to a subscriber and to generate the appropriate content. For example, if a subscriber includes the required privileges to create subaccounts, the NWSP web application displays the Accounts button in the navigation bar, and the subscriber can create subaccounts.

Each button at the top of the user interface is linked to a JSP page that implements the functionality for the specific task or set of tasks. As an example, the My Account button is linked to `accountManage.jsp`, which generates the content for the account management page (Figure 3-3).

Figure 3-3   Account Management Page

The look-and-feel of an SESM user interface can be customized for each subscriber. When the HTTP request is received, the SESM web application has an organization and an infrastructure that allows the page returned in the response to be tailored for the individual subscriber. For example, if the subscriber's browser language is French and receiving device is a desktop PC, the response can be rendered in French using HTML. If another subscriber's browser language is Spanish and the receiving device is a wireless handheld computing device, the response can be rendered in Spanish using Wireless Markup Language (WML).

For information on customization and localization, see Chapter 2, "SESM Components and Techniques," and Chapter 4, "SESM Internationalization and Localization."

NWSP JavaServer Pages and Servlets

The NWSP web application includes a set of JSP pages and servlets that generate content for the web pages and perform other tasks, such as authentication, SESM session handling, and service selection and subscription. The JSP pages contain the elements that the developer modifies for the specific requirements of the service-provider. No servlet programming is required.

After the subscriber logs on to the NWSP user interface, `serviceList.jsp` is the home page for the web application.

Figure 3-4 shows the top levels of the NWSP site map with `serviceList.jsp` as the home page.

Figure 3-4   NWSP Site Map
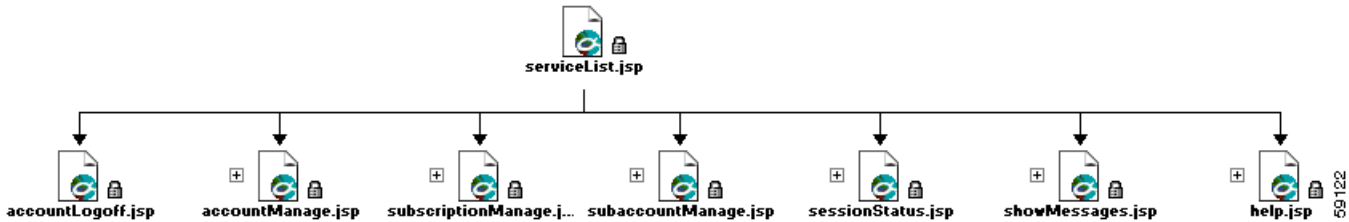
From the `serviceList.jsp` home page, the subscriber can control service subscription and selection and, in DESS mode, can perform account-management, self-subscription, and subaccount functions. The navigation bar at the top of the `serviceList.jsp` links the subscriber to these capabilities.

JSP Pages for Service Selection

Table 3-1 lists JSP pages for service selection. In NWSP, the JSP pages for service selection are located in the \nwsp\pages directory. The service selection pages are used for both RADIUS mode and DESS mode.

Table 3-1   NWSP JSP Pages for Service Selection

Component	Description
accountLogon.jsp	Allows a subscriber to log on to the NWSP web application. The subscriber's user name and password are authenticated.
accountLogoff.jsp	Asks a subscriber to confirm that the Log Out button has been clicked and that the session is to be terminated.
confirm.jsp	Asks a subscriber to confirm a specific action by clicking the OK or Cancel button.
error.jsp	Displays an error message and asks the subscriber to click OK.
groupAccess.jsp	After the subscriber clicks a service group icon in the service list, this page processes the request for the group and redirects the user so that the service list displays the contents of the requested service group.
help.jsp	Allows a subscriber to view deployer-created help information.
home.jsp	Decides the SESM home page name. Other pages can forward to this page without needing to know the home page name.
message.jsp	Displays a message and asks the subscriber to click OK.
redirecting.jsp	Displays a message that the HTTP client was redirected to a different URL.
serviceList.jsp	After a subscriber is logged on to the SESM web interface, this is the SESM home page from which the subscriber can access other functions, such as service subscription and account management. These functions vary depending on whether the web application uses DESS mode or RADIUS mode.

Table 3-1   NWSP JSP Pages for Service Selection (continued)

Component	Description
serviceListDisplay.jspi	Displays the service list, consisting of services and service groups. This page is included in any page using the serviceandsettingsTemplate.dwt template.
serviceLogoff.jsp	After a subscriber clicks a connected service in serviceList.jsp, this page allows the subscriber to disconnect from the service.
serviceLogon.jsp	After a subscriber clicks a disconnected service in serviceList.jsp, this page allows the subscriber to connect to the service.
serviceWindow.jsp	Provides the pop-up window for a service after the user logs on to the service.
sessionStatus.jsp	Displays the status of each connected session: IP address and connect time for each service that the subscriber is or was connected to.
sessionStatus.jsp	Displays information about the current session: user name, IP address, services connected, and elapsed connect times.
showMessages.jsp	Displays messages associated with the current session.

The accountLogon.jsp page includes Standard | Secure hyperlinks below the Log In button. These links let the user choose either standard mode or secure mode. On the page on which accountLogon.jsp appears, the link for the mode that the subscriber is currently not using is available, but the link for the mode that the subscriber is currently using is not available.

When the subscriber logs in using secure mode, the SESM web application uses Secure Sockets Layer (SSL) encryption. The password that the subscriber enters is encrypted by the HTTP client before it is sent to the HTTP server where the SESM web application resides. The HTTP server decrypts the password. The encryption and decryption occurs for all content that passes between the client and the server, not just to the password. With secure mode, pages take longer to download.

If the service provider does not require SSL or does not have a certificate, the developer removes the Standard | Secure elements in the accountLogon.jsp page. In addition, the deployer removes the Jetty web server's SSL listener, which is configured in the \nwsp\config\nwsp.xml file. For more information on SSL and security, see the *Cisco Subscriber Edge Services Manager and Subscriber Policy Engine Installation and Configuration Guide*.

JSP Pages for Service Subscription and Account Management

Table 3-2 lists the JSP pages for service subscription and account management (subscriber self-care and subaccount creation). The service subscription and account management pages are used only with DESS mode. The JSP pages for service subscription and account management are located in the \nwsp\pages-smm directory.

Table 3-2   NWSP JSP Pages for Service Subscription and Account Management

Component	Description
`accountManage.jsp`	Allows a subscriber to change account information such as an address, telephone number, e-mail address, and so on.
`subaccountManage.jsp`	Displays and processes the form that allows a subscriber to create and delete subaccounts and modify subaccount settings: subaccount passwords, enabling single sign-on, and permissions (for example, service subscription).
`subaccountProcess.jsp`	Displays and asks the subscriber to confirm changes to subaccounts specified in `subaccountSubscriptions.jsp`.
`subaccountSubscriptions.jsp`	Displays the form from which a subscriber can modify subaccount subscription attributes.
`subscriptionManage.jsp`	Allows a subscriber to modify attributes associated with subscriptions. For example, a subscriber can specify whether the service is subscribed or is an auto-connect service.
`subscriptionProcess.jsp`	Displays and asks the subscriber to confirm changes to the subscriptions specified in `subscriptionManage.jsp`.

In Table 3-2, the page-to-page flow for account subscription management is from `subscriptionManage.jsp` to `subscriptionProcess.jsp`. The flow for subaccount subscription management is from `subaccountManage.jsp` to `subaccountSubscriptions.jsp` to `subaccountProcess.jsp`. All other subaccount management is processed by `subaccountManage.jsp`.

JSP Pages for Rendering Content

The NWSP web application also includes a set of JSP pages and a servlet that performs these tasks:

- SESM session handling
- Subscriber authentication
- Rendering content based on the user's shape

These components are located in the \docroot\decorator directory and are used in both DESS mode and RADIUS mode configurations. For information on rendering content based on the user's shape, see the "Using the Decorator Components" section on page 2-12.

NWSP Templates

The NWSP components include two Dreamweaver templates for customizing and maintaining the JSP pages:

- `serviceandsettingsTemplate.dwt`
- `headerOnlyTemplate.dwt`

Service and Settings Template

The template `serviceandsettingsTemplate.dwt` is used for NWSP pages that require a service list and navigation buttons as well as a banner with brand icons. Most NWSP JSP pages, including `serviceList.jsp`, use this template. Figure 3-5 shows the `serviceList.jsp` page as its appears in Dreamweaver with its table borders visible.
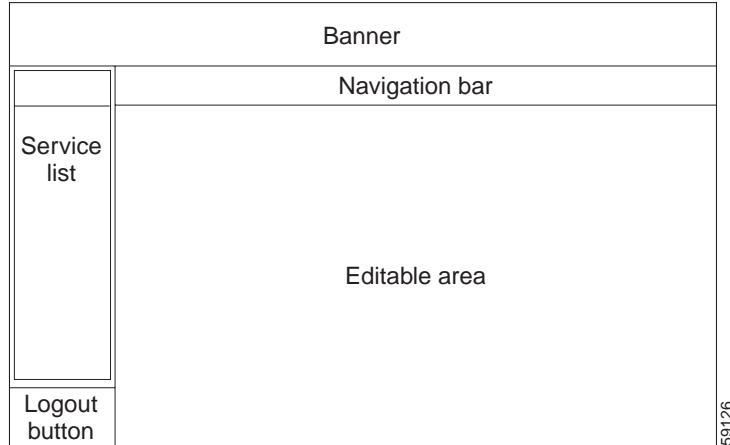
Figure 3-5   Page That Uses the Template serviceandsettingsTemplate.dwt
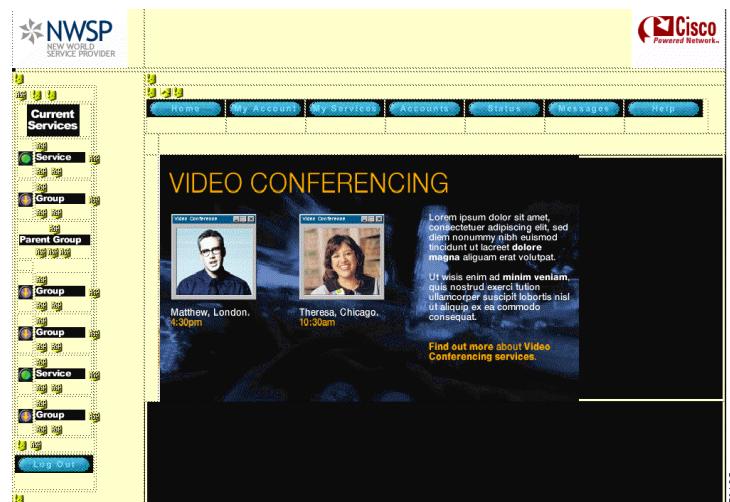
The template `serviceandsettingsTemplate.dwt` (Figure 3-6) is a set of tables and rows that structure the NWSP page content into the following pieces:

- banner
- navigation bar
- editable area
- service list
- logout button

Figure 3-6   Structure of the Template serviceandsettingsTemplate.dwt

The banner contains two images for branding.

The content in the editable area varies depending on the purpose of the page. For example, if the JSP page allows the subscriber to change account information, the editable area contains the appropriate form.

The logout button is similar to the buttons that are described in the "Navigation Bar" section on page 3-12.

Service List

The service list (Figure 3-7) that appears on the left side of the window is dynamically created by the JSP pages based on the service and subscriber information stored in the data repository. In DESS mode, the subscriber can use an SESM web application to add or remove services from the set of subscribed services that are displayed in the service list. This feature is called *self-subscription*.

Figure 3-7   Service List with Buttons and Text
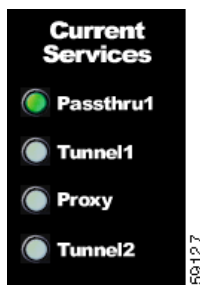
For each service in the service list, a traffic-light icon indicates the state of the service. A gray button indicates that the subscriber is not currently connected to the service, a green button indicates the subscriber is connected, and a red button indicates the session was lost.

Within the service list, the `serviceListDisplay.lbi` library item determines which of the following buttons to display based on the current state of the service:

- `service_loggedoff.gif`
- `service_loggedon.gif`
- `service_sessionlost.gif`

Each button has a corresponding GIF image for the mouseOver state (for example, `service_loggedoff_over.gif`).

Each button is linked to the appropriate "service page." In `serviceList.jsp`, the SESM software uses the `servicePage` variable to store the JSP page to which each service button is linked as determined by the current state of the service. If the current state of the service is logged on, `servicePage` equals `serviceLogoff.jsp`. If the current state of the service is logged off or the session is lost, `servicePage` equals `serviceLogon.jsp`.

When a service group appears in the NWSP service list, the icons used for the service group are as follows:

- `group_access.gif` (a down arrow) indicates access to an unexpanded group.
- `group_up.gif` (an up arrow) indicates movement up one level in the group hierarchy.
- `group_top.gif` (an up arrow) indicates the top level in the group hierarchy.

Similar to the service buttons, each group button has a corresponding GIF image for the mouseOver state (for example, `group_access_over.gif`).

To the right of each traffic-light icon or group icon, the service or group is designated by either text or an icon. The `serviceListDisplay.lbi` library item determines whether text or an icon is used to indicate each service or group by examining the `useIcons` variable.

- If `useIcons` is set to true, each service or group is shown with an icon, whose file name is *service*`.gif` or *group*`.gif`, where *service* and *group* are, respectively the service name or group name in the service or service group profile. If the icon is not found, the service list uses the service or group description from the profile. If there is no description, the service page uses the service or group name from the profile.
- If `useIcons` is not set to true, each service is shown with a text name. The text name is the service or group description from the profile. If there is no description, the service page uses the service or group name from the profile.

For information on configuring the `useIcons` parameter, see the *Cisco Subscriber Edge Services Manager and Subscriber Policy Engine Installation and Configuration Guide*.

In the NWSP sample application, the PNG files for the various service and group icons are in the \nwsp\docroot\assets\buttons directory. In a production SESM web application that uses icons (as opposed to text) to designate a service or group, the developer provides an icon for each service and group. In NWSP, the GIF files for the icons are located in the \nwsp\docroot\images directory. The name of the icon file must be *service*`.gif` or *group*`.gif`, as explained in the preceding discussion.

The easiest way for the developer to create the service and group icons is to use Fireworks to modify an existing `.png` image, save the modified `.png` file with the appropriate name, and export the corresponding GIF image to the *\docroot*\images directory. The developer is not restricted to using Fireworks. The images could be modified with any graphics tool.

Navigation Bar

The Dreamweaver-created navigation bar (Figure 3-8) that appears below the banner consists of a set of buttons whose display changes based on the actions of the user. For example, one image for a button in a navigation bar is used when the pointer is rolled over the button, and another image for the button is used when the button is clicked.

Figure 3-8   Navigation Bar with Buttons for DESS Mode

Figure 3-8 shows the NWSP navigation bar with the buttons for the dynamic update features: My Account, My Services, and Accounts. These buttons are displayed only when the dynamic update functionality associated with DESS mode is available. The Home, Status, Messages, and Help buttons are displayed in both RADIUS and DESS modes.

In DESS mode, the set of buttons that appear in the NWSP navigation bar varies depending on the user's privileges. Various SESM features require that subscriber have appropriate privileges. For example, the ability to create subaccounts or change account information such as a password require that the subscriber have the required privileges. The NWSP web application has the required logic to determine the privileges that were granted to the subscriber and to display the corresponding set of navigation bar buttons.

The navigation bar buttons are Fireworks 4-state buttons. The NWSP sample application includes the required Fireworks buttons in English. In a production SESM web application that uses the NWSP components, the developer provides any customized or localized buttons for each of these functions in the navigation bar. In NWSP, the GIF files for the navigation-bar buttons are located in the \nwsp\docroot\images directory.

In the NWSP sample application, the PNG files for the buttons in the navigation bar exist in the \nwsp\docroot\assets\buttons directory. The easiest way for the developer to create the customized or localized buttons is to use Fireworks to modify a library element in an existing `.png` file, save the modified `.png` file with the appropriate name, and export the corresponding GIF images to the *docroot*\images directory.

A developer is not restricted to using Fireworks. The button images could be directly modified using any graphics tool. The buttons generated by Fireworks consist of a set of GIF images and are delimited in the JSP pages by `BeginLibraryItem` and `EndLibraryItem` comments.

Header-Only Template

The `headerOnlyTemplate.dwt` file (Figure 3-9) is used for those NWSP pages that do not require a service list or navigation buttons but that do require a banner with brand icons.

Figure 3-9   Structure of the Template headerOnlyTemplate.dwt

Most JSP pages that use the template `headerOnlyTemplate.dwt` contain message or help text: `error.jsp`, `help.jsp`, and `message.jsp`. Other JSP pages that use the template have a simple form or button or both: `accountLogon.jsp` and `confirm.jsp`.

NWSP Library Items

The NWSP library items contain `BODY` elements such as images, text, and other objects that are reused throughout the JSP pages. Library items have the file extension `.lbi` and are located in the \nwsp\docroot\library directory. Table 3-3 shows the library items that are included with the NWSP web application software.

Table 3-3   NWSP Library Items

Library Item	Description
accountDetailsForm.lbi	The content of the `accountManage.jsp` page's editable area from which a subscriber can change account information such as an address, telephone number, e-mail address, and so on. This library item is included as an example of how to provide forms as library items.
confirmationLineDisplay.lbi	A line of information for changes to services that the user has made, such as changes to subscriptions, the auto-logon option, user name, and password.
serviceListDisplay.lbi	A list of services and groups available to the user indicating the status of each service: logged on, logged off, or session lost. The image for each state is linked to the `serviceLogoff.jsp` if status is logged on, or to the `serviceLogon.jsp` if status is logged off or session lost.

For information on `serviceListDisplay.lbi`, see the "Service List" section on page 3-10.

NWSP Images and Buttons

The NWSP web components include a set of customizable images and icons in two formats: PNG and GIF. If you use the NWSP components as the starting point for an SESM web application, the PNG-formatted files in the \docroot\assets directory can be used to modify the images, icons, and buttons.

The NWSP web components also include Fireworks buttons for the navigation bar. The PNG-formatted files for the Fireworks buttons are located in the \docroot\assets\buttons directory.