Endeca® Workbench

Administrator's Guide

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Contents

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Preface

Endeca® InFront enables businesses to deliver targeted experiences for any customer, every time, in any channel. Utilizing all underlying product data and content, businesses are able to influence customer behavior regardless of where or how customers choose to engage — online, in-store, or on-the-go. And with integrated analytics and agile business-user tools, InFront solutions help businesses adapt to changing market needs, influence customer behavior across channels, and dynamically manage a relevant and targeted experience for every customer, every time.

InFront Workbench with Experience Manager provides a single, flexible platform to create, deliver, and manage content-rich, multichannel customer experiences. Experience Manager allows non-technical users to control how, where, when, and what type of content is presented in response to any search, category selection, or facet refinement.

At the core of InFront is the Endeca MDEX Engine,™ a hybrid search-analytical database specifically designed for high-performance exploration and discovery. InFront Integrator provides a set of extensible mechanisms to bring both structured data and unstructured content into the MDEX Engine from a variety of source systems. InFront Assembler dynamically assembles content from any resource and seamlessly combines it with results from the MDEX Engine.

These components — along with additional modules for SEO, Social, and Mobile channel support — make up the core of Endeca InFront, a customer experience management platform focused on delivering the most relevant, targeted, and optimized experience for every customer, at every step, across all customer touch points.

About this guide

This guide describes the tasks involved in the configuration and administration of an Endeca implementation using Endeca Workbench, as well as the administration of the Endeca Workbench instance itself.

Endeca Workbench contains configuration and administrative functionality for system administrators as well as business logic functionality for business users. Endeca Workbench provides the primary means to administer your Endeca implementation in a Tools environment.

Note: Unless otherwise indicated, whenever this document specifies Endeca Workbench, it applies to any Workbench edition.

Who should use this guide

This guide is intended for system administrators and others who are managing the day-to-day operations of the Endeca Information Access Platform, as well as developers who are deploying an Endeca implementation.

Endeca Workbench is a Web-based tool intended for business users and system administrators. For business user information, see the Endeca Workbench User's Guide.

With Endeca Workbench, system administrators can perform any of the following tasks:

- Perform system operations such as running baseline updates or starting and stopping the MDEX Engine or Log Server.
- Monitor the status of system components such as Forge, Dgidx, MDEX Engine, Log Server, and Report Generator.
- Configure SSL settings, report generation, and set up a preview application for dynamic business rule testing.
- Provision the hosts available to an Endeca implementation.
- Provision the applications available to an Endeca implementation.
- Provision the scripts, such as the report generator script, or a baseline update script to an Endeca implementation.

Endeca Workbench and Developer Studio require the Endeca Application Controller (EAC) to control and communicate with other components and hosts in an Endeca implementation.

Conventions used in this guide

This guide uses the following typographical conventions:

Code examples, inline references to code elements, file names, and user input are set in `monospace` font. In the case of long lines of code, or when inline monospace text occurs at the end of a line, the following symbol is used to show that the content continues on to the next line: ¬

When copying and pasting such examples, ensure that any occurrences of the symbol and the corresponding line break are deleted and any remaining space is closed up.

Contacting Endeca Customer Support

The Endeca Support Center provides registered users with important information regarding Endeca software, implementation questions, product and solution help, training and professional services consultation as well as overall news and updates from Endeca.

You can contact Endeca Standard Customer Support through the Support section of the Endeca Developer Network (EDeN) at *http://eden.endeca.com*.

Chapter 1

Working with Endeca Workbench

This section discusses a variety of administrative tasks associated with Endeca Workbench.

The Workbench login page

The default URL of the Endeca Workbench login page is `http://WebStudioHost:8006`.

If you used a different HTTP Connector port when you configured Endeca Workbench, substitute that port number for 8006.

Logging in to Endeca Workbench as an administrator

Upon installation, Endeca Workbench has a predefined administrator user with full administration privileges.

To log in to Endeca Workbench:

1. In a Web browser, navigate to the Workbench login page.

   The default login page is `http://WebStudioHost:8006`.
2. Specify a username and password. The username and password for the predefined administrator are both admin.
3. If you have an application provisioned, select the application to access. An admin user can also log in to Endeca Workbench without any applications provisioned in the system.

   Note: If you have not yet provisioned an application, you only have access to the EAC Admin Console and EAC Settings within Endeca Workbench. For information about configuring a sample application, see the *Endeca Getting Started Guide*.
4. Click **Log In**.

After your initial login, you can change the password of the predefined admin user or create additional users and administrators. For details, see “Managing Users in Endeca Workbench."

Related Links

Managing users in Endeca Workbench on page 23

This section describes the Endeca Workbench user and permissions model, and how to manage users within Endeca Workbench.

Application-specific login pages

The URL for an application-specific login page is `http://WebStudioHost:port/login/AppName`. The value of AppName is the name you provided when creating the application using Endeca Workbench (or `eaccmd` or the custom Web services interface).

For example, if you created an application named “wine” on localhost using the default port for the Endeca Tools Service, the URL is `http://localhost:8006/login/wine`.

About backing up and restoring an Endeca project

The backup process allows you to take a snapshot of your project including its users, rule groups, and permissions data.

This process does not include the provisioning information for an application.

For backup purposes, an Endeca project is composed of three pieces:

- Instance configuration — the Endeca project files created by Developer Studio.
- Web Studio store — a directory that contains a database of users, rule groups, and associated permission information.
- Configuration files — XML and properties files that customize the behavior of an Endeca Workbench installation.

Together, the instance configuration and the Web Studio store are the backup. The two are a snapshot of your project and all its associated user and permission information.

Backing up the instance configuration

The instance configuration is created in Developer Studio and consists of pipeline components, Endeca properties and dimensions, precedence rules, dynamic business rules, and user profiles.

To back up the instance configuration:

1. Stop the Endeca Tools Service.
2. Copy the emanager directory, including all its subdirectories, from `%ENDECA_TOOLS_CONF%\state` (on Windows) or `$ENDECA_TOOLS_CONF/state/` (on UNIX) to another location.

   Note: Recall that the default location of `%ENDECA_TOOLS_CONF%` on Windows is `C:\Endeca\Workbench\workspace`.

3. Start the Endeca Tools Service.

Related Links

Restoring a backup of the instance configuration on page 11
You can only restore backups of the instance configuration within the same major.minor release version, for example between 1.0.0 and an installation of a later 1.0.x version, but not between a 1.0.x version and a 1.1.x version.

About downloading the instance configuration on page 11
The Instance Configuration page under Application Settings in Endeca Workbench allows you to view and download the instance configuration that is currently being used by Endeca Workbench.

Restoring a backup of the instance configuration

You can only restore backups of the instance configuration within the same major.minor release version, for example between 1.0.0 and an installation of a later 1.0.x version, but not between a 1.0.x version and a 1.1.x version.

To restore a backup of the instance configuration:

1. Stop the Endeca Tools Service.
2. Delete the emanager directory from `%ENDECA_TOOLS_CONF%\state\` (on Windows) or `$ENDECA_TOOLS_CONF/state/` (on UNIX).
3. Copy the backup emanager directory to `%ENDECA_TOOLS_CONF%\state\` (on Windows) or `$ENDECA_TOOLS_CONF/state/` (on UNIX).
4. Start the Endeca Tools Service.

Related Links

Backing up the instance configuration on page 10
The instance configuration is created in Developer Studio and consists of pipeline components, Endeca properties and dimensions, precedence rules, dynamic business rules, and user profiles.

About downloading the instance configuration on page 11
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The project XML files that make up the instance configuration are zipped into one file. This feature is intended primarily for debugging and support purposes. See the *Endeca Workbench Help* for how to download an instance configuration.

For information on transferring your instance configuration from staging to production environment, and using the emgr_update utility, see the section “Transferring Endeca Implementations Between Environments” in the *Endeca IAP Administrator's Guide*.

Related Links

Backing up the instance configuration on page 10
The instance configuration is created in Developer Studio and consists of pipeline components, Endeca properties and dimensions, precedence rules, dynamic business rules, and user profiles.

Restoring a backup of the instance configuration on page 11
You can only restore backups of the instance configuration within the same major.minor release version, for example between 1.0.0 and an installation of a later 1.0.x version, but not between a 1.0.x version and a 1.1.x version.

Backing up the Web Studio store

The Web Studio store contains information such as users and permissions, as well as preview application settings.

To back up the Web Studio store:

1. Stop the Endeca Tools Service.
2. Copy the webstudiostore directory, including all its subdirectories, from `%ENDECA_TOOLS_CONF%\state` (on Windows) or `$ENDECA_TOOLS_CONF/state/` (on UNIX) to another location.

   Note: Recall that the default location of `%ENDECA_TOOLS_CONF%` on Windows is `C:\Endeca\Workbench\workspace`.

3. Start the Endeca Tools Service.

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Restoring a backup of the Web Studio store on page 12
You can restore backups of the Web Studio store to an installation of the same version or later.

Restoring a backup of the Web Studio store

You can restore backups of the Web Studio store to an installation of the same version or later.

To restore a backup of the Web Studio store:

1. Stop the Endeca Tools Service.
2. Delete the webstudiostore directory from `%ENDECA_TOOLS_CONF%\state\` (on Windows) or `$ENDECA_TOOLS_CONF/state/` (on UNIX).
3. Copy the backup of the webstudiostore directory, including all its subdirectories, to `%ENDECA_TOOLS_CONF%\state` (on Windows) or `$ENDECA_TOOLS_CONF/state/` (on UNIX) to another location.

   Note: Recall that the default location of `%ENDECA_TOOLS_CONF%` on Windows is `C:\Endeca\Workbench\workspace`.

4. Start the Endeca Tools Service.

Related Links

Backing up the Web Studio store on page 11
The Web Studio store contains information such as users and permissions, as well as preview application settings.

Backing up the Endeca Workbench configuration files

Endeca Workbench uses several configuration files located in `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX) to customize the behavior of various aspects of Endeca Workbench.

File name	Description
`Login.conf`	Configuration for user authentication using LDAP

File name	Description
`webstudio.properties`	Miscellaneous configuration parameters for Workbench
`webstudio.log4j.properties`	Configuration for the Endeca Workbench system log and audit log
`ws-extensions.xml`	Definitions of Workbench extensions
`ws-mainMenu.xml`	Definitions of the Endeca Workbench navigation menu and launch page
`ws-roles.xml`	Definitions of custom Workbench user roles

To preserve the settings controlled by each of these files, simply copy them to another location.

Related Links

Restoring a backup of the Endeca Workbench configuration files on page 13
In general, you should only restore backups of configuration files to the same exact version of Workbench, for example, from version 1.0.1 to version 1.0.1, but not from 1.0.1 to any other 1.0.x version.

Restoring a backup of the Endeca Workbench configuration files

In general, you should only restore backups of configuration files to the same exact version of Workbench, for example, from version 1.0.1 to version 1.0.1, but not from 1.0.1 to any other 1.0.x version.

Upgrading your installation may introduce configuration changes that require you to manually merge your configuration files. For more details about changes to the Endeca Workbench configuration files, see the *Endeca Migration Guide*.

To restore a backup of the Endeca Workbench configuration files:

1. Stop the Endeca Tools Service.
2. Copy the backup files to `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).
3. Start the Endeca Tools Service.

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Backing up the Endeca Workbench configuration files on page 12
Endeca Workbench uses several configuration files located in `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX) to customize the behavior of various aspects of Endeca Workbench.

Specifying which MDEX Engine to use with Workbench

Endeca Workbench queries an MDEX Engine for information such as preview status message, BLANK, and BLANK. You can designate a specific Dgraph or Agraph to use with Workbench by defining a `WebStudioMDEX` property on the appropriate component and setting it to `true`.

By default, Endeca Workbench queries the first MDEX Engine returned by the EAC. If you have multiple MDEX Engine components in your environment, you can designate a specific MDEX Engine that Workbench uses for all MDEX queries.

There are two ways to designate a specific Dgraph or Agraph for use with Workbench:

- Specify the property on the Dgraph or Agraph component in the EAC provisioning file, or via the `AppConfig.xml` file in the Deployment Template. For details, see the *Endeca EAC Guide* or the *Deployment Template Usage Guide*, respectively.
- Specify the property on the Dgraph or Agraph component using the EAC Admin Console in Endeca Workbench. For details, see the *Endeca Workbench Help*. This option is provided as a convenience for development or staging environments; however, in a production environment Endeca recommends using the Deployment Template.

You can use this property in combination with the `WebStudioSkipConfigUpdate` property on other Dgraphs in your application. In this case:

- If you set the `WebStudioMDEX` property to `true` on a Dgraph, ensure that it does not also have the `WebStudioSkipConfigUpdate` property set to `true`.
- If you set the `WebStudioMDEX` property to `true` on an Agraph, ensure that none of its child Dgraphs have the `WebStudioSkipConfigUpdate` property set to `true`.

Note: To ensure that the preview application and the status messages are in sync, the preview application should also be configured to point to the same MDEX Engine using the `eneHost` and `enePort` parameters within the preview application URL.

Priority order for selecting an MDEX

Workbench chooses an MDEX Engine to query based on the following order:

1. The first Agraph component returned by the EAC that has `WebStudioMDEX = true`
2. The first Agraph component returned by the EAC that does not have `WebStudioMDEX = true`
3. The first Dgraph component returned by the EAC that has `WebStudioMDEX = true`
4. The first Dgraph component returned by the EAC that does not have `WebStudioMDEX = true`

Related Links

About specifying which Dgraphs to update with configuration changes on page 15

By default, Endeca Workbench updates all Dgraphs that are defined in your application whenever a user saves changes to the instance configuration (including changes to dynamic business rules, keyword redirects, thesaurus entries, and so on).

About specifying which Dgraphs to update with configuration changes

By default, Endeca Workbench updates all Dgraphs that are defined in your application whenever a user saves changes to the instance configuration (including changes to dynamic business rules, keyword redirects, thesaurus entries, and so on).

Beginning in 5.1.5, it is possible to specify which Dgraphs are updated with configuration changes made in Workbench. Omitting some Dgraphs from the update process can offer performance improvements when saving changes. It also allows you to control which servers can be updated directly by business users working in Endeca Workbench. You specify that a Dgraph should not be updated by Endeca Workbench by defining a custom EAC property of WebStudioSkipConfigUpdate set to true on the appropriate component. You can do this using one of the following methods:

- Specify the property on the Dgraph component in the EAC provisioning file or via the AppConfig.xml file in the Deployment Template. For details, see the *Endeca EAC Guide* or the *Deployment Template Usage Guide*.
- Specify the property on the Dgraph component using the EAC Admin Console in Workbench. For details, see the *Endeca Workbench Help*. This option is provided as a convenience for development or staging environments, however, in a production environment Endeca recommends using the Deployment Template.

Because only Dgraphs are updated with configuration changes, this property does not apply to Agraph components.

If you omit one or more Dgraphs from the update process, you may want to specify which MDEX Engine is used for preview to ensure that the information displayed in the preview status messages reflects the configuration changes made in Endeca Workbench.

Related Links

Specifying which MDEX Engine to use with Workbench on page 14

Endeca Workbench queries an MDEX Engine for information such as preview status message, BLANK, and BLANK. You can designate a specific Dgraph or Agraph to use with Workbench by defining a `WebStudioMDEX` property on the appropriate component and setting it to `true`.

About viewing system logs

The Endeca Workbench logs are located in `%ENDECA_TOOLS_CONF%\logs` (on Windows) or `$ENDECA_TOOLS_CONF/logs` (on UNIX).

The following logs can be found in this directory:

File name	Description
`webstudio.log`	System log for Endeca Workbench, including activity such as user logins, updates to instance configuration, and Endeca Workbench errors.
`webstudio_audit.log`	Audit log for activity such as dynamic business rule and search configuration changes. Logging for rules includes the name of the rule being modified, when it was modified, who modified it (based on

File name	Description
	Endeca Workbench user name), and any note associated with the change.

Related Links

Log file naming and rolling on page 16
By default, the Endeca Workbench system log and audit log have a maximum size of 1MB. Each of the logs is part of a four-log rotation.

Configuring the Endeca Workbench logs on page 16
By editing the configuration file, you can control the log level, the maximum file size, and the number of files in the log rotation. You can also optionally direct the output of any Endeca Workbench logger to the console or to another file.

Log file naming and rolling

By default, the Endeca Workbench system log and audit log have a maximum size of 1MB. Each of the logs is part of a four-log rotation.

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About viewing system logs on page 15
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Configuring the Endeca Workbench logs on page 16
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Configuring the Endeca Workbench logs

By editing the configuration file, you can control the log level, the maximum file size, and the number of files in the log rotation. You can also optionally direct the output of any Endeca Workbench logger to the console or to another file.

Both the Endeca Workbench system log and audit log are configured by the `webstudio.log4j.properties` file, located in `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf (on UNIX)`.

To configure the behavior of the Endeca Workbench logs:

1. Stop the Endeca Tools Service.
2. Navigate to `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).
3. Open the `webstudio.log4j.properties` file.
4. Modify the configuration file as needed. For more information, see the comments in `webstudio.log4j.properties` and the log4j documentation at *http://logging.apache.org/log4j/*.
5. Save and close the file.
6. Start the Endeca Tools Service.

Related Links

About viewing system logs on page 15
The Endeca Workbench logs are located in %ENDECA_TOOLS_CONF%\logs (on Windows) or $ENDECA_TOOLS_CONF/logs (on UNIX).

Log file naming and rolling on page 16
By default, the Endeca Workbench system log and audit log have a maximum size of 1MB. Each of the logs is part of a four-log rotation.

About the Endeca Tools Service

The Endeca Tools Service is an application server that runs the Endeca Workbench.

On Windows, the Endeca Workbench installation program starts the service automatically and the service is set to restart automatically during system restarts. If you accept the installation defaults, the service runs on port 8006. In the Windows Services console, the service displays as Endeca Tools Service.

On UNIX, you must manually start the Endeca Tools Service after installation. If you accept the installation defaults, the service runs on port 8006.

Start the Endeca Tools Service using:

```
$ENDECA_TOOLS_ROOT/server/bin/startup.sh
```

Stop the Endeca Tools Service using:

```
$ENDECA_TOOLS_ROOT/server/bin/shutdown.sh
```

About changing the Endeca Tools Service ports

You can change either or both of the Endeca Tools Service ports, as long as you choose a new port that is not being used.

The ports on which the Endeca Tools Service and Endeca Workbench listen are specified in the server.xml file, which is located in the %ENDECA_TOOLS_CONF%\conf directory ($ENDECA_TOOLS_CONF/conf for UNIX).

The server.xml file also specifies the default server port. The default values are:

- Port 8084 for the Endeca Tools Service shutdown port.
- Port 8006 for the Endeca Tools Service port.

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Changing the Endeca Tools Service port on page 18
You can change the Endeca Tools Service port by editing the server.xml file located in the %ENDECA_TOOLS_CONF%\conf directory ($ENDECA_TOOLS_CONF/conf for UNIX).

Changing the Endeca Tools Service shutdown port on page 19
You can change the Endeca Tools Service shutdown port by editing the server.xml file located in the %ENDECA_TOOLS_CONF%\conf directory ($ENDECA_TOOLS_CONF/conf for UNIX).

Changing the Endeca Tools Service port

You can change the Endeca Tools Service port by editing the `server.xml` file located in the `%ENDECA_TOOLS_CONF%\conf` directory (`$ENDECA_TOOLS_CONF/conf` for UNIX).

To change the Endeca Tools Service port:

1. Open the `server.xml` file in a text editor.
2. Find the non-SSL HTTP/1.1 Connector element:

```
 <!-- Define a non-SSL HTTP/1.1 Connector on port 8006 -->
    <Connector port="8006" maxHttpHeaderSize="8192"
               maxThreads="150" minSpareThreads="25" maxSpareThreads="75"

                enableLookups="true" redirectPort="8446" acceptCount="10"

                connectionTimeout="60000" disableUploadTimeout="true" de¬
bug="0"
       URIEncoding="UTF-8"/>
```

3. Change the number in the port attribute to the new port you want Workbench to use.

   Note: You must choose a port not already in use.

4. Save and close the `server.xml` file.
5. Restart the Endeca Tools Service.

   - On UNIX:

     1. Stop the Endeca Tools Service using:

        ```
        $ENDECA_TOOLS_ROOT/server/bin/shutdown.sh
        ```

     2. Restart the Endeca Tools Service using:

        ```
        $ENDECA_TOOLS_ROOT/server/bin/startup.sh
        ```

   - On Windows:

     1. From the Windows Control Panel, select **Administrative Tools**, and then select **Services**.
     2. In the right pane of the Services window, right-click **Endeca Tools Service** and choose **Restart**.
     3. Close the Services window.

Related Links

Changing the Endeca Tools Service shutdown port on page 19

You can change the Endeca Tools Service shutdown port by editing the `server.xml` file located in the `%ENDECA_TOOLS_CONF%\conf` directory (`$ENDECA_TOOLS_CONF/conf` for UNIX).

About changing the Endeca Tools Service ports on page 17

You can change either or both of the Endeca Tools Service ports, as long as you choose a new port that is not being used.

Changing the Endeca Tools Service shutdown port

You can change the Endeca Tools Service shutdown port by editing the `server.xml` file located in the `%ENDECA_TOOLS_CONF%\conf` directory (`$ENDECA_TOOLS_CONF/conf` for UNIX).

To change the Endeca Tools Service shutdown port:

1. Open the `server.xml` file in a text editor.
2. Find the Server element in the file:

   ```
   <!--  NOTE: ENDECA HAS MODIFIED TOMCAT'S DEFAULT SHUTDOWN PORT OF 8005.
          ENDECA'S USES A DEFAULT SHUTDOWN PORT OF 8084 TO AVOID CONFLICTS.

          Note that this is NOT the port that Tomcat serves pages on, it is
    the
          port that Tomcat listens for the shutdown command on.
    -->

   <Server port="8084" shutdown="SHUTDOWN" debug="0">
   ```

3. Change the number in the port attribute to the new port you want to use.

   Note: You must choose a port not already in use.

4. Save and close the `server.xml` file.
5. Restart the Endeca Tools Service.
   - On UNIX:
     1. Stop the Endeca Tools Service using:

        ```
        $ENDECA_TOOLS_ROOT/server/bin/shutdown.sh
        ```

     2. Restart the Endeca Tools Service using:

        ```
        $ENDECA_TOOLS_ROOT/server/bin/startup.sh
        ```

   - On Windows:
     1. From the Windows Control Panel, select **Administrative Tools**, and then select **Services**.
     2. In the right pane of the Services window, right-click **Endeca Tools Service** and choose **Restart**.
     3. Close the Services window.

Related Links

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You can change the Endeca Tools Service port by editing the `server.xml` file located in the `%ENDECA_TOOLS_CONF%\conf` directory (`$ENDECA_TOOLS_CONF/conf` for UNIX).

About changing the Endeca Tools Service ports on page 17
You can change either or both of the Endeca Tools Service ports, as long as you choose a new port that is not being used.

Using Endeca Workbench over a high-latency network

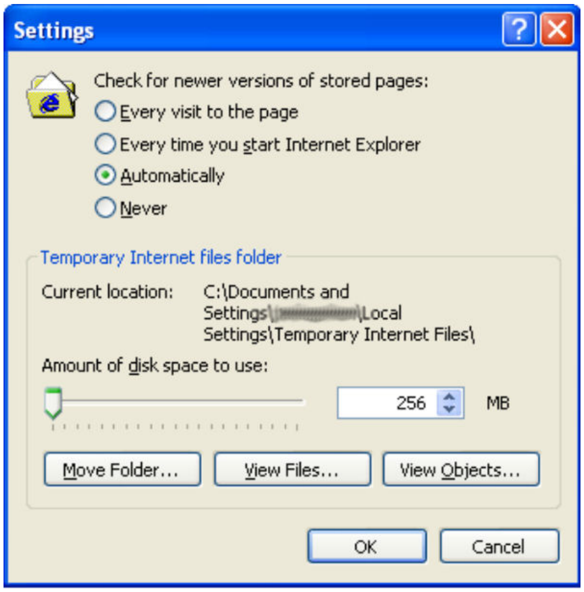
If users are connecting to Workbench over a high-latency network, certain cache settings in the Web browser may improve performance.

Workbench pages reference a number of assets such as images, CSS files, and JavaScript files. These assets are relatively static and are typically cached by the browser. They are served with HTTP headers that instruct the browser not to check for new versions of these files for a period of six hours. This results in better page load performance for users who connect to Endeca Workbench over a high-latency network.

To configure Web browsers for caching of Workbench resources:

1. In Internet Explorer, select **Tools** > **Internet Options**.
2. In the **Temporary Internet files** pane, click **Settings**.
3. Under **Check for newer versions of stored pages:** select **Automatically**.
4. Specify the amount of disk space to use for temporary files. Endeca recommends a value of 256MB or higher.

The following screen shot shows the dialog box for Temporary Internet files Settings in Internet Explorer 6:



Settings

Check for newer versions of stored pages:

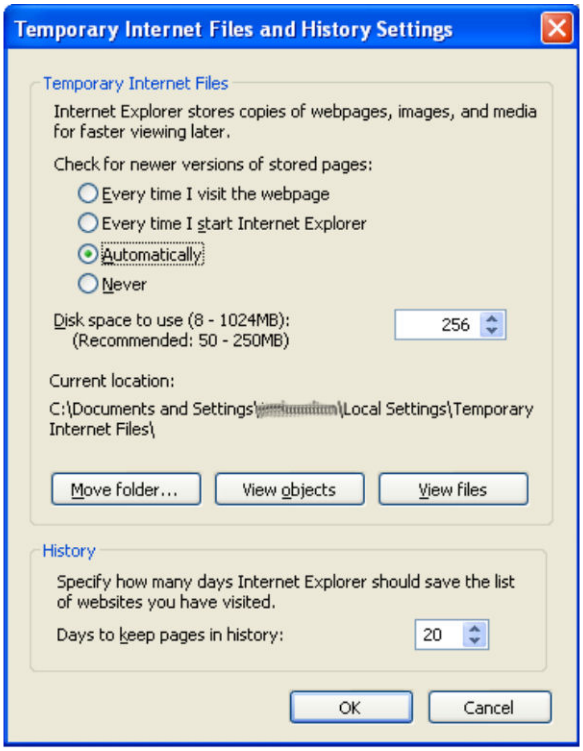
○ Every visit to the page
○ Every time you start Internet Explorer
● Automatically
○ Never

Temporary Internet files folder

Current location: C:\Documents and Settings\[redacted]\Local Settings\Temporary Internet Files\

Amount of disk space to use: 256 MB

The following screen shot shows the dialog box for Temporary Internet Files and History Settings in Internet Explorer 7:



Temporary Internet Files and History Settings

Temporary Internet Files

Internet Explorer stores copies of webpages, images, and media for faster viewing later.

Check for newer versions of stored pages:

- ○ Every time I visit the webpage
- ○ Every time I start Internet Explorer
- ● Automatically
- ○ Never

Disk space to use (8 - 1024MB): 256
(Recommended: 50 - 250MB)

Current location:
C:\Documents and Settings\[redacted]\Local Settings\Temporary Internet Files\

History

Specify how many days Internet Explorer should save the list of websites you have visited.

Days to keep pages in history: 20

Chapter 2

Managing users in Endeca Workbench

This section describes the Endeca Workbench user and permissions model, and how to manage users within Endeca Workbench.

About users, roles, and permissions in Endeca Workbench

Endeca Workbench users, roles, and permissions are defined by an Endeca Workbench administrator.

Endeca Workbench users log in to an application in Endeca Workbench with basic user name and password authentication. Before a business user can log in to an application in Endeca Workbench, an Endeca Workbench administrator or a user with the settings role must create a profile for the user that includes the following:

- user name
- password
- roles and permissions
- user identity information such as first name, last name, and email address

Roles dictate which Endeca Workbench features are available to users. User identity information provides a way to associate name and contact information with user names in Endeca Workbench.

If you have Endeca Workbench configured to use LDAP for user authentication, an administrator can create a user profile where the password and identity information is stored and managed in an LDAP directory. LDAP integration also allows you to assign roles and permissions across an entire LDAP group rather than configuring each user individually. For more information about configuring Endeca Workbench with LDAP, see the section “LDAP Integration with Endeca Workbench.”

Each business user profile is associated with a specific application. A business user profile cannot span multiple applications. In cases where you might want to grant the same user access to multiple applications, an administrator can create a number of identical business user profiles for any number of applications. Administrators, on the other hand, span applications across Endeca Workbench. For information about the process to add users and modify user information, passwords, and roles, see the *Endeca Workbench Help*.

Related Links

LDAP Integration with Endeca Workbench on page 39
This section describes how to configure Endeca Workbench to use LDAP for user authentication.

About Endeca Workbench user roles on page 24
Endeca Workbench user roles control user access to each function in the Endeca Workbench.

About assigning rule group permissions to Workbench users on page 28
Rule group permissions control how Endeca Workbench users access rule groups and the rules contained in the groups.

About the Endeca Workbench predefined admin user

Endeca Workbench has a predefined administrator with full administration privileges.

An administrator is granted all roles in the system. The user name for the predefined Endeca Workbench administrator is admin and the default password is admin. After signing in as the admin user, you can modify the password but not the user name.

The admin user can create additional users and administrators in Endeca Workbench. Only an administrator can create other administrators. An administrator can also delete other administrators, including the predefined admin user, as long as there is always at least one administrator in the system. If you have LDAP authentication enabled, see the section “Administrators in Endeca Workbench with LDAP.”

An administrator is not associated with an application in the same way that business users are. Each business user is associated with a particular application. Administrators span applications, so an administrator can add or remove applications without being affected by that addition or removal.

Related Links

Administrators in Endeca Workbench with LDAP on page 41
If you have LDAP enabled, you can create profiles for both LDAP users and LDAP groups as administrators in Endeca Workbench.

About Endeca Workbench user roles

Endeca Workbench user roles control user access to each function in the Endeca Workbench.

An Endeca Workbench administrator can assign users any of the roles in the table below. A user who does not have any roles assigned is unable to log in to Endeca Workbench. For information about how to add and configure users, see the *Endeca Workbench Help*.

Role name	Role description
dimorder	Provides access to the Dimension Order page.
eacconsole	Provides access to the EAC Admin Console page. Users with this role cannot modify provisioning information on the EAC Admin Console. However, they can start and stop Endeca components and EAC scripts.
pages	Provides access to the Page Builder. **Note:** This role applies only to Workbench editions that feature the Endeca Page Builder.
phrases	Provides access to the Phrases page.

Role name	Role description
redirects	Provides access to the Keyword Redirects page.
reporting	Provides access to the Reporting page.
rules	Provides access to the Rule Manager page.
settings	Provides access to all pages under the Application Settings section. This includes the following pages: Instance Configuration, Resource Locks, User Management, Rule Group Permissions, Preview App Settings.
stopwords	Provides access to the Stop Words page.
thesaurus	Provides access to the Thesaurus page.
admin	This is a cumulative role that provides access to pages enabled by all the predefined user roles in Endeca Workbench. This role cannot be assigned to users, but is automatically assigned to any administrators that you create. It is possible to disable admin users from modifying provisioning information. For more information, see the section “Disabling provisioning in the EAC Admin Console.”

Related Links

Disabling provisioning in the EAC Admin Console on page 30
You can disable the admin role from modifying provisioning information.

About users, roles, and permissions in Endeca Workbench on page 23
Endeca Workbench users, roles, and permissions are defined by an Endeca Workbench administrator.

About assigning rule group permissions to Workbench users on page 28
Rule group permissions control how Endeca Workbench users access rule groups and the rules contained in the groups.

About custom user roles in Endeca Workbench

In addition to the predefined user roles in Endeca Workbench, you can also define custom roles, for instance to control access to Workbench extensions.

Note: For more information about extensions, see the section “Workbench extensions.”

Like the predefined user roles, custom roles span applications. Administrators are automatically granted all roles including custom roles.

Custom roles are defined in the ws-roles.xml file in `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).

The default ws-roles.xml file (which defines no additional roles) is as follows:

```
<?xml version="1.0" encoding="UTF-8"?>

<roles xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:noNamespaceSchemaLocation="roles.xsd">

</roles>
```

Each role is defined in a role element within roles. You can specify as many additional roles as you need by adding more role elements. The following attributes must be defined for each role:

Attribute name	Attribute value
id	A unique string identifying this role. Do not define a custom role with the same id as one of the predefined user roles: admin, dimorder, eacconsole, pages, phrases, redirects, reporting, rules, settings, stopwords, thesaurus. Roles are listed in alphabetical order by id in the User Management page in Endeca Workbench. **Note:** Modifying this value after the rule is created deletes the original role and creates a new role.
defaultName	The display name for this role that appears on the User Management page in Endeca Workbench.
defaultDescription	A brief description of this role that appears on the User Management page in Endeca Workbench.

This example of a ws-roles.xml file defines two custom roles:

```
<?xml version="1.0" encoding="UTF-8"?>

<roles xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:noNamespaceSchemaLocation="roles.xsd">
<role id="roleA" defaultName="roleA"
 defaultDescription="Provides access to an extension
   page" />
<role id="roleB" defaultName="roleB"
 defaultDescription="Provides access to another extension
   page" />
</roles>
```

Related Links

Workbench extensions on page 62

Extensions enable you to incorporate Web applications related to your Endeca implementation as plug-ins to Endeca Workbench.

Enabling custom roles in Endeca Workbench on page 27

You can create custom roles in Endeca Workbench.

About role names and descriptions for multiple locales

If you support multiple locales in Endeca Workbench, you can optionally specify localized names and descriptions for custom roles.

Localized names are defined in a names element within role that contains one or more name elements. Localized descriptions are defined in a descriptions element within role that contains one or more description elements.

The `name` and `description` elements require a locale attribute whose value is a valid ISO language code.

This example of a `ws-roles.xml` file defines a custom role with separate names and descriptions for English and French.

```
<?xml version="1.0" encoding="UTF-8"?>

<roles xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:noNamespaceSchemaLocation="roles.xsd">
 <role id="localized" defaultName="localized"
  defaultDescription="A role with localized names" >
  <names>
   <name locale="en">localized</name>
   <name locale="fr">localisé</name>
  </names>
  <descriptions>
   <description locale="en">A localized role</description>
   <description locale="fr">Un rôle localisé</description>
  </descriptions>
 </role>
</roles>
```

Endeca Workbench checks for a name and description that matches the locale defined in the current installation of Endeca Workbench. If no matching localized name or description is found, the `defaultName` and `defaultDescription` values are used.

Related Links

Enabling custom roles in Endeca Workbench on page 27
You can create custom roles in Endeca Workbench.

Enabling custom roles in Endeca Workbench

You can create custom roles in Endeca Workbench.

To update Endeca Workbench to use custom user roles:

1. Make a backup of your Web Studio store and Endeca Workbench customization files (especially ws-roles.xml).

   For information about backing up your Web Studio store, see the section “About backing up and restoring an Endeca project."
2. Stop the Endeca Tools Service.
3. Navigate to `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).
4. Open the `ws-roles.xml` file in a text editor and add or modify roles as necessary.

   For more information see the section “About custom user roles in Endeca Workbench."

5. Save and close the file.
6. Start the Endeca Tools Service.

Note: Deleting a role causes all the user assignments to that role to be deleted across all applications. Modifying the `id` attribute of a role deletes the original role (and its corresponding user assignments) and creates a new role with the new `id`. Modifications to any other attributes are saved when you update Endeca Workbench and user assignments are preserved. To recover a deleted role along with its user assignments, restore the backups made in Step 1. For information about backing up your project, see the section “About backing up and restoring an Endeca project."

Related Links

About custom user roles in Endeca Workbench on page 25
In addition to the predefined user roles in Endeca Workbench, you can also define custom roles, for instance to control access to Workbench extensions.

About role names and descriptions for multiple locales on page 27
If you support multiple locales in Endeca Workbench, you can optionally specify localized names and descriptions for custom roles.

About assigning rule group permissions to Workbench users

Rule group permissions control how Endeca Workbench users access rule groups and the rules contained in the groups.

An administrator uses Endeca Workbench to assign rule group permissions in either of two ways:

- Assign by group on the Rule Group Permissions page
- Assign by user name on the User Management page

There are four permission levels available for rule group access. A user may have one of the following permissions for each rule group:

- Approve—The user has permission to view, edit, and approve rules in the group.
- Edit—The user has permission to view and edit rules in the group but no permission to approve rules.
- View—The user has permission to view rules in the group but no permission to edit or approve rules.
- None—The user has no permission to view, edit, or approve rules in the group. Users with this permission do not see the rule group displayed in Endeca Workbench.

Administrators are automatically assigned Approve permissions in all rule groups. See the *Endeca Workbench Help* for the procedures to assign rule group permissions to Endeca Workbench users.

Related Links

About users, roles, and permissions in Endeca Workbench on page 23
Endeca Workbench users, roles, and permissions are defined by an Endeca Workbench administrator.

About Endeca Workbench user roles on page 24
Endeca Workbench user roles control user access to each function in the Endeca Workbench.

Chapter 3

Managing System Operations with Endeca Workbench

This section describes the system administration and maintenance tasks available in the Administration section of Endeca Workbench.

About the EAC Administration Console of Endeca Workbench

The EAC Administration Console page provides a way for administrators to establish and modify system provisioning, start and stop system components, and run EAC scripts.

The Administration Console of Endeca Workbench is divided into three sections:

- Hosts – shows a view of your application organized by the hosts you provision. This view indicates the host name, host alias, port and configuration options. You can modify the hosts configuration options, start or stop a component on a host, and see the status of a component on a host.
- Components – shows a view of your application organized by the Endeca components provisioned for an application. You can create components on this tab but not hosts.
- Scripts – show the EAC scripts available to an application and allows you to add, remove, run, and monitor EAC scripts. You can stop and start system operations run by EAC scripts, such as baseline updates.

About provisioning an application using Endeca Workbench

Provisioning is the task of defining the location and configuration of the Endeca resources (such as Forge and the MDEX Engine) that control your Endeca application.

You can use EAC Administration Console page to provision an Endeca application.

The provisioning functionality of the EAC Admin console is provided as a convenience in development and staging environments. For production environments, Endeca recommends using the Deployment Template to provision your application. For more information about the Deployment Template, see the *Deployment Template Usage Guide*.

Provisioning an application using Endeca Workbench

You can use EAC Administration Console page to provision an Endeca application.

Note: The provisioning functionality of the EAC Admin console is provided as a convenience in development and staging environments. For production environments, Endeca recommends using the Deployment Template to provision your application. For more information about the Deployment Template, see the *Deployment Template Usage Guide*.

To provision an application:

1. Using a Web browser, log in to Endeca Workbench.
2. Add one or more applications. The procedure to add or remove an application is described in the *Endeca Workbench Help*.
3. Add one or more hosts. The procedure to add or remove a host is described in the *Endeca Workbench Help*.
4. Add Endeca components to the hosts. You should set one Forge, and at least one Indexer (Dgidx) and one MDEX Engine (Dgraph). The procedure to add components is described in the *Endeca Workbench Help*.
5. Add EAC scripts. The procedure to add EAC scripts is described in the *Endeca Workbench Help*.

Disabling provisioning in the EAC Admin Console

You can disable the admin role from modifying provisioning information.

By default, Endeca Workbench administrators can modify provisioning information on the EAC Admin Console page. If necessary, you can disable the admin role from modifying provisioning information.

Note: Endeca recommends that you use the Deployment Template to manage provisioning in a production environment.

If you disable provisioning, you can still use the EAC Admin Console to start and stop Endeca components and EAC scripts or to monitor the status of components or scripts.

To disable the admin role from modifying provisioning:

1. Stop the Endeca Tools Service.
2. Navigate to `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).
3. Open the `webstudio.properties` file in a text editor.
4. Change the `com.endeca.webstudio.allow.eac.` provisioning property from true to false as shown:

   ```
   com.endeca.webstudio.allow.eac.provisioning=false
   ```

5. Save and close the file.
6. Start the Endeca Tools Service.

About performing system operations

System operations include running updates, starting and stopping Endeca components, backing up projects, and so on.

The Scripts tab of the EAC Administration Console is where you run baseline updates that control Endeca components such as Forge, Dgidx, the MDEX Engine (both Dgraph and Agraph), the Report Generator, and the Log Server. The Hosts and Components tab is where you run individual Endeca components.

For information about other system operations, transferring your instance configuration from a staging to production environment, and using the emgr_update utility, see "Transferring Endeca Implementations Between Environments" in the *Endeca IAP Administrator's Guide*.

About running a baseline update from Endeca Workbench

A baseline update completely rebuilds the Endeca application, including running Forge on the source data, running Dgidx to produce the Endeca records and indices, and starting one or more MDEX Engines with the new indices.

See the *Endeca Workbench Help* for the process to run a baseline update using your EAC script.

About starting and stopping the MDEX Engine

You can view and change the status of an MDEX Engine from the Components tab of the EAC Administration Console.

If the status of the MDEX Engine is Running, the Start link (next to the MDEX Engine label) is disabled and only the Stop link is available. If the status is Stopped, only the Start link can be used. When you start an MDEX Engine, it starts with any options that you specified in Arguments field of component configuration.

See the *Endeca Workbench Help* for the process to start and stop the MDEX Engine.

About starting and stopping the Log Server

You can start and stop the Log Server from the Components tab of the EAC Administration Console.

If the status of the Log Server is Running, the Start link (next to the Log Server label) is disabled and only the Stop link is available. If the status is Pending or Stopped, only the Start link can be used.

See the *Endeca Workbench Help* for the process to start and stop the Log Server.

Rolling Log Server logs

You cannot roll the logs created by the Log Server from the EAC Admin Console. However, you can roll the logs with a URL command.

To roll the logs use the following URL command:

```
http://logserverhost:logserverport/roll
```

For example, this command:

```
http://web002:8002/roll
```

rolls the Log Server that is running on port 8002 on the host named web002.

About monitoring system status

Each host and component that you provision in an Endeca application displays its system status on the EAC Admin Console page of Endeca Workbench.

Endeca Workbench displays a summary of the component’s status in the collapsed view of the Hosts tab and Components tab. You can access details about each component (except the Log Server, which does not log its own activities) via the status link next to each component. Clicking the status link displays start time, duration (how long the component has been running), and the last time Endeca Workbench checked the component’s status. With Auto-Refresh selected, Endeca Workbench automatically refreshes status at frequent intervals.

Viewing component logs

To view the latest log for an Endeca component (except for the Log Server which does not log its own actions), check the value of Log File for a component as indicated on the Components tab of the Administration Console page. Then browse to the Log File directory and open the component log.

Refreshing the status information

You can manually refresh the status display by clicking the **Refresh Status** button.

You can also set the page to be refreshed automatically (at a pre-set interval) by checking the **Auto Refresh** checkbox. This option is useful when a baseline update is in progress and the system state changes frequently. By default, this option is turned off because the overall system state changes infrequently.

Chapter 4

Setting Up the Preview Application for Endeca Workbench

This section describes how to set up a custom Endeca application so that it functions as the Endeca Workbench's preview application.

Preview application overview

The preview application is the end-user application that displays in the bottom frame of the Rule Manager page in Endeca Workbench.

Business users search and navigate to specific locations in the preview application that then become the basis for configured dynamic business rules.

It is important to remember that the only purpose of the preview application is to present the data that you are changing via Endeca Workbench. It is not necessary for the preview application to be an exact representation of your final front-end application, as long as it is using the correct data. The business logic that is built into Endeca Workbench is not tied to the physical representation of the front-end application. It is good practice, however, to make sure that your preview application represents your final application closely enough so that business users know if their changes are correct. By default, Endeca Workbench is configured to use a copy of the JSP reference implementation as the preview application.

Note: The JSP reference implementation that is used as the preview application for Endeca Workbench is stored in `$ENDECA_TOOLS_ROOT/server/webapps/endeca_jspref` (`%ENDECA_TOOLS_ROOT%\server\webapps\endeca_jspref` on Windows). Do not confuse this with the regular JSP reference implementation in `$ENDECA_REFERENCE_DIR/endeca_jspref` (`%ENDECA_REFERENCE_DIR%\endeca_jspref` on Windows).

This chapter describes how to set up your own custom application to be the preview application for the Rule Manager. For additional information about using the preview application with the Page Builder (for Workbench editions that feature the Endeca Page Builder), see the *Endeca Content Assembler API Developer's Guide*.

Endeca Workbench communicates with the preview application via settings you specify on the Preview App Settings page. The URL Mapping subsection lets you change the default preview application to your own custom preview application.

Preview application requirements

In order to use a custom Endeca application as your Workbench preview application, the custom application must meet several requirements. This section describes those requirements.

Domain requirement

The preview application and Endeca Workbench must reside in the same domain (for example, endeca.com).

Javascript domain requirements

If Endeca Workbench and your custom preview application do not reside on the same host and port, you must declare the Javascript domain in two locations inside the preview application's code.

- Navigation results page (the page that shows the set of records that correspond to a user's query).
- Record page (the page that displays information about a single record).

Endeca Workbench communicates with and controls the preview application via Javascript. As a result, both Endeca Workbench and the preview application must have the same Javascript domain property. The domain property provides security for scripts that run in different browser windows but need to communicate with one another.

When you specify the Javascript domain, you can also include the port number of the server. This ensures that you are referring to the exact host machine and port number. For example, if the custom application is on an application server running on port 8080, you can declare the Javascript domain with the following:

```
document.domain = "example.com:8080";
```

You can also use the host machine's IP address, the fully qualified domain name, the machine name (such as `web004`), or `localhost`, but be aware that different browsers have varying support for the different host name formats.

Note: In addition, Endeca Workbench's **Preview App settings** page provides a field where you must enter this information. This is analogous to declaring the domain in your Javascript headers.

Embedded hidden form requirement

You must embed small hidden HTML forms on the preview application's navigation results and record pages.

The Application Instrumentation Library offers convenient methods to do this. See the section "About Instrumenting your application" for more information.

Related Links

About instrumenting your application on page 35

To use a custom application as the preview application in Endeca Workbench, you must embed small, hidden HTML forms.

Frame requirement

The preview application must not use frames, because they are likely to collide with the frames of Endeca Workbench itself.

URL-based state

The preview application must use URLs to handle navigation and search requests, as opposed to a hidden cookie or session state.

The URLs should allow the substitution of search terms and navigation components. See the section “About using pre-existing applications” for more information.

Related Links

About using pre-existing applications on page 37

If you are using a pre-existing application that uses parameters other than the standard Endeca parameters (N, Ntk, Ntt, Nmpt, Nmrf, and R) as your preview application, you can still map the URLs.

Cookie name

Endeca Workbench uses cookies to maintain a user’s session. The name of the session cookie used by Endeca Workbench is `ESESSIONID`.

In rare cases it is possible for the cookie name to collide with a cookie of the same name on the same application server. This conflict can occur if you are running your application on an application server on the same host as Endeca Workbench and using `ESESSIONID` for two purposes. In this situation, a user may have their session unexpectedly terminated. To resolve this issue, you can either run the application on another host (that is, a host other than the one Endeca Workbench is on), or customize your application server to use a different cookie name (other than `ESESSIONID`) through custom directives on the specific application server.

About instrumenting your application

To use a custom application as the preview application in Endeca Workbench, you must embed small, hidden HTML forms.

These hidden HTML forms must be embedded in two places within the preview application pages:

- Navigation results page (the page that shows the set of records that correspond to a user’s query).
- Record page (the page that displays information about a single record).

Endeca provides an Application Instrumentation Library with convenient methods to do this. The Application Instrumentation Library is a simple library, consisting of two functions, one for the navigation results page and one for the record page. A version is provided for both supported languages—Java and .NET.

Note: The Endeca RAD Toolkit for ASP.NET also includes an Instrumentation Library. For details about instrumenting applications built with the RAD Toolkit for ASP.NET, see the *Endeca RAD Toolkit for ASP.NET Developer's Guide*.

Related Links

Embedded hidden form requirement on page 34

You must embed small hidden HTML forms on the preview application's navigation results and record pages.

Instrumenting the navigation results page

You use the `htmlInstrumentNavigation()` function to instrument the navigation results page.

In the examples below, `nav` is the Navigation object for the page.

The following is a Java example of this function:

```
<%
 ETInstrumentor eti = new ETInstrumentor();
%>
<%= eti.htmlInstrumentNavigation(nav) %>
```

The following is a .NET example in C#:

```
ETInstrumentor eti = new ETInstrumentor();
eti.htmlInstrumentNavigation(nav);
```

The code above produces an HTML form that looks similar to this example:

```
<form name="eti_navigation">
 <input type="hidden" name="nav" value="0">
 <input type="hidden" name="srchTerms" value="é">
 <input type="hidden" name="srchKey" value="Wine Types">
</form>
```

Instrumenting the record page

You use the `htmlInstrumentRecord()` function to instrument the record page.

In the examples below, `rec` is the ID of the Endeca record displayed on the page, `NameProp` is the name of the property that represents the record's name, and `UniqueProp` is the name of the property that uniquely identifies the record. (`UniqueProp` is typically the Record spec property that you set in **Developer Studio** > **Properties view** > **Property editor** > **General tab**.

The following is a Java example of this function:

```
<%
 ETInstrumentor eti = new ETInstrumentor();
 eti.htmlInstrumentRecord(rec, "NameProp",
  "UniqueProp") %>
```

The following is a .NET example in C#:

```
ETInstrumentor eti = new ETInstrumentor();
eti.htmlInstrumentRecord(rec, "NameProp", "UniqueProp");
```

The code above produces an HTML form that looks similar to this example:

```
<form name="eti_record">
 <input type="hidden" name="displayName" value="Mustilli, Non-Vintage">
 <input type="hidden" name="recordSpecKey" value="WineID">
 <input type="hidden" name="recordSpecValue" value="1">
</form>
```

About configuring the preview application

After instrumenting your custom application, you must provide URL mappings on the Preview App Settings page of Endeca Workbench.

For the procedure on adding URL mappings on the Preview App Settings page, see the *Endeca Workbench Help*.

About using pre-existing applications

If you are using a pre-existing application that uses parameters other than the standard Endeca parameters (N, Ntk, Ntt, Nmpt, Nmrf, and R) as your preview application, you can still map the URLs.

There are two requirements:

- The URLs must contain parameters that map to navigation, search key, and search term parameters. In order to enable full functionality (including date-based triggers and the ability to preview inactive rules), the URLs must also contain the preview time and rule filter parameters.
- The navigation, search key, search term parameters, record ID, preview time, and rule filter parameters must use the same encoding as the standard Endeca N, Ntk, Ntt, R, Nmpt, and Nmrf parameters, respectively.

Related Links

URL-based state on page 35

The preview application must use URLs to handle navigation and search requests, as opposed to a hidden cookie or session state.

About enabling and disabling the display of the preview application

By default, the URL mappings are filled in with URLs for the preview application of the JSP reference implementation. This enables Endeca Workbench to display the preview application for the JSP reference implementation.

If you clear out the default URL settings, the preview application does not display, and the preview-related options, such as **Show in Preview**, do not appear in the Rule List page of the Rule Manager (or the Page Builder in versions of Endeca Workbench that feature the Endeca Page Builder).

If the display of the preview application is disabled because you previously removed the settings for the URL mappings, you may enable it again.

To enable the display of the preview application, you can use either of the two options:

- Enter the URLs for the preview application of the reference implementation (these URLs originally were filled in as default settings),

  or

- Enter the URL settings for your own application.

For information about the default URL settings used for the JSP reference implementation, see the *Endeca Workbench Help*.

About using the preview application with Page Builder

The Page Builder shares the same preview application as the Rule Manager, but interacts with it somewhat differently.

Because pages created in the Page Builder depend on the specific cartridges in your application, you should replace the default preview application with one that can render pages appropriately based on the templates you have created. This ensures that the preview application can provide an accurate representation of the way pages display in the final front-end application. In addition, in order to allow content administrators to save their progress and preview pages incrementally, the application should be able to gracefully handle empty sections or cartridges that have not been fully configured.

Note that if the Navigation results page of your preview application is not instrumented, the status messages for dynamic pages do not update when previewing by navigating in the preview application, making it difficult to determine why a page may not be firing. (The status messages do update when previewing through the Location links in the List View.)

Although the Rule Manager enables users to specify rule targets by navigating within the preview application, the Page Builder does not have similar functionality in the Record Selector. Therefore, if you are using the preview application only for the Page Builder, the Record page does not need to be instrumented. The Record URL field in the Preview App Settings page in Endeca Workbench cannot be empty, but it is not used by the Page Builder.

Chapter 5

LDAP Integration with Endeca Workbench

This section describes how to configure Endeca Workbench to use LDAP for user authentication.

About LDAP integration with Endeca Workbench

LDAP integration also allows you to assign roles and permissions across an entire LDAP group rather than configuring each user individually.

If you have Endeca Workbench configured to use LDAP for user authentication, an administrator can create a user profile in Endeca Workbench that is associated with a user in an LDAP directory.

For users who are configured in Endeca Workbench to authenticate via LDAP, the password and identity information such as name and email address are maintained in the LDAP directory. Endeca Workbench does not write any data to the LDAP directory. Any roles and permissions assigned to an LDAP user profile in Endeca Workbench are stored in the Endeca Workbench database.

LDAP user and group profiles can be used in combination with the traditional Endeca Workbench user profiles that an administrator configures manually. Users can authenticate via either method on the same instance of Endeca Workbench and in the same application.

Optionally, you can enable SSL for communication between Endeca Workbench and your LDAP server.

Endeca Workbench supports integration with LDAP servers that comply with LDAP version 3.

Authentication of users in Endeca Workbench with LDAP enabled

User authentication via LDAP can be used in combination with the traditional method of authentication for users that are configured manually in Endeca Workbench.

Endeca Workbench follows this order of events when a user attempts to log in:

1. Endeca Workbench checks whether the user name matches the name of any manually configured Workbench user profile in the current application. If such a user exists, Endeca Workbench attempts to authenticate the user against the password stored in the Workbench user profile.
2. If no manually configured user of that name exists, Endeca Workbench attempts to authenticate the user against the LDAP directory.
3. If the user also has a profile configured as an LDAP user in Endeca Workbench, then any associated roles and permissions are applied. If the user is an administrator or if the user profile has the

Override LDAP Group Permissions option selected, then the user enters Endeca Workbench with the roles and permissions specified in the user profile.

4. Otherwise, Endeca Workbench checks the LDAP directory for any groups of which the user is a member. If any of these groups have a profile configured in Endeca Workbench, then any roles and permissions associated with all the groups are applied to the user. For more details about inheritance of LDAP group roles and permissions, see the section "Roles and permissions for LDAP users and groups."

Related Links

Enabling LDAP authentication in Endeca Workbench on page 42
LDAP authentication for Endeca Workbench is disabled by default.

Troubleshooting user authentication in Endeca Workbench with LDAP enabled on page 51
If a user cannot log in to Endeca Workbench, one of several error messages displays.

Roles and permissions for LDAP users and groups on page 40
The user profiles you create in Endeca Workbench allow you to assign roles and rule group permissions to an LDAP user or group.

User profiles for LDAP users and groups

If LDAP authentication is enabled for Endeca Workbench, you have the option of creating user profiles in Endeca Workbench for individual users or groups managed in an LDAP directory.

A user profile is uniquely identified in Endeca Workbench by the combination of the user name and user type (Workbench user, LDAP user, or LDAP group) in each application. Administrators are uniquely identified by the combination of user name and user type across all of Endeca Workbench. In the case that an LDAP directory defines a user and a group with the same name, this allows profiles to exist in Endeca Workbench for both the user and the group. Once a user profile is created and saved in Endeca Workbench, the user type cannot be changed.

Note that because of the order in which Endeca Workbench handles logins, an Workbench user always takes precedence over an LDAP user. For example, if there is a manually configured Endeca Workbench user named lsmith, a user with the name lsmith in the LDAP directory will not be able to log in with the credentials stored in LDAP, even if there is a user profile in Endeca Workbench for lsmith as an LDAP user or as a member of an LDAP group.

However, there is no conflict between manually configured users and LDAP groups. For example, if Endeca Workbench has a manually configured user named Marketing, and also has a profile for an LDAP group named Marketing, members of the Marketing group in LDAP are able to log in to Endeca Workbench using their LDAP credentials as long as there are no conflicts between the LDAP user name and the name of a manually configured Workbench user. (For example, if one of the users in the group has the name Marketing in the LDAP directory, the Workbench user named Marketing will still take precedence.)

For more information on creating user profiles in Endeca Workbench, see the *Endeca Workbench Help*.

Roles and permissions for LDAP users and groups

The user profiles you create in Endeca Workbench allow you to assign roles and rule group permissions to an LDAP user or group.

Users that exist in the LDAP directory but do not have a profile and associated roles specified in Endeca Workbench, either as an individual or as a member of an LDAP group, cannot log in to Endeca Workbench.

A user who authenticates via LDAP is assigned the union of all roles associated with all groups of which that user is a member. For each rule group in the application, a user who is a member of multiple LDAP groups defined in Endeca Workbench is assigned the broadest permission associated with any of the LDAP groups of which that user is a member.

If you create an LDAP user profile in Endeca Workbench for an individual who is also a member of one or more LDAP groups defined in Endeca Workbench, that user is assigned any roles you specify on the User Management page in addition to any roles that the user inherits from membership in LDAP groups. If you specify rule group permissions for an LDAP user who is also a member of an LDAP group, then for each rule group, the user is assigned either the permission specified on the User Management page or the broadest permission associated with any of the user's LDAP groups, whichever is broader. You can override this behavior by specifying Override LDAP Group Permissions when creating the profile in Endeca Workbench. If you select this option, the user is assigned only the roles and permissions you specify in the user profile, and does not inherit any roles or permissions from LDAP groups.

Administrators in Endeca Workbench with LDAP

If you have LDAP enabled, you can create profiles for both LDAP users and LDAP groups as administrators in Endeca Workbench.

Note that the same precedence rules apply when logging in to Endeca Workbench as for non-administrators, so that if a manually configured user profile exists for either an administrator or non-administrator in Endeca Workbench, a user will not be able to log in via LDAP with the same user name.

Note that administrators can delete other administrators, including the predefined admin user, but there must be at least one manually configured Endeca Workbench administrator. This is to ensure that changes to the LDAP directory or disabling of LDAP authentication for Endeca Workbench cannot disable all administrator logins.

Related Links

About the Endeca Workbench predefined admin user on page 24

Endeca Workbench has a predefined administrator with full administration privileges.

Workflow notifications for LDAP users and groups

For users who authenticate via LDAP, Endeca Workbench uses the email address that is stored in the LDAP directory for workflow notification messages.

Any time a user makes a change to the workflow state of a dynamic business rule or a landing page in Endeca Workbench, the user has the option to launch an email client to send a change notification. Workflow notifications are addressed to all approvers associated with a modified rule group or landing page group, and also to the most recent editor of a rule or page if it has a pending request. Whenever a rule or landing page is modified, Endeca Workbench saves the user name of the editor who made the change for notification purposes, whether the user is defined as an Workbench user, an LDAP user, or a member of an LDAP group.

Endeca Workbench looks up a user's email address in the Workbench user profile or in the LDAP directory as appropriate. If an approver for a rule group is an LDAP group, then Endeca Workbench attempts to find an email address associated with the group in LDAP.

When a user changes the workflow state of a rule or page (by activating, deactivating, requesting activation, requesting deactivation, canceling a request for activation, or rejecting a request) and clicks **Save Changes** (or **Save All Changes** in the Page Builder), Endeca Workbench writes a message to the log similar to the following:

```
INFO: User mmartin made a workflow state change.
INFO: Email addresses were retrieved for the following users or groups:
Workbench User batkins, LDAP User lsmith
INFO: Email addresses could not be found for the following users or groups:
 LDAP Group rule_approvers, Workbench User admin
```

This information is only captured in the log; the user in Endeca Workbench does not see any message about whether email addresses could be found.

Because Endeca Workbench launches another application to send the email and the user can edit the list of recipients before sending the message, the Workbench log cannot record whether an email was sent, or the actual recipients of the message.

Enabling LDAP authentication in Endeca Workbench

LDAP authentication for Endeca Workbench is disabled by default.

Because LDAP configuration is unique to each LDAP server and directory, enabling LDAP authentication for Endeca Workbench is a manual process.

To enable LDAP authentication in Endeca Workbench:

1. Stop the Endeca Tools Service.
2. Navigate to `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).
3. Open the `webstudio.properties` file, and locate the `com.endeca.webstudio.useLdap` property, for example:

   ```
   # LDAP Authentication
   com.endeca.webstudio.useLdap=false
   ```

4. Change the value of the property to true, for example:

   ```
   com.endeca.webstudio.useLdap=true
   ```

5. Save and close the file.
6. Open the `Login.conf` file. This file contains a sample configuration for LDAP authentication.

   Note: By default, Endeca Workbench uses the authentication profile in this location. You can specify an alternate configuration file. For more information, see “Specifying the location of the configuration file.”

7. Uncomment and modify the Webstudio profile according to your LDAP configuration.

   For details about profile parameters, see “Configuration of the Webstudio login profile for LDAP.”

8. Save and close the file.
9. Start the Endeca Tools Service.

Related Links

Authentication of users in Endeca Workbench with LDAP enabled on page 39

User authentication via LDAP can be used in combination with the traditional method of authentication for users that are configured manually in Endeca Workbench.

About disabling LDAP authentication for Endeca Workbench on page 43
If you disable LDAP authentication for Endeca Workbench by setting the property `com.endeca.webstudio.useLdap=false` in the `webstudio.properties` file, the options to create a user profile for an LDAP user or an LDAP group do not display in Endeca Workbench.

Troubleshooting user authentication in Endeca Workbench with LDAP enabled on page 51
If a user cannot log in to Endeca Workbench, one of several error messages displays.

Specifying the location of the configuration file on page 49
By default, Endeca Workbench uses `%ENDECA_TOOLS_CONF%\conf\Login.conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf/Login.conf` (on UNIX) as its configuration file.

Specifying the location of the configuration file using Windows Services on page 50
By default, Endeca Workbench uses `%ENDECA_TOOLS_CONF%\conf\Login.conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf/Login.conf` (on UNIX) as its configuration file.

Configuration of the Webstudio login profile for LDAP on page 43
Endeca Workbench uses the Java Authentication and Authorization Service (JAAS) to authenticate users against an LDAP directory.

About disabling LDAP authentication for Endeca Workbench

If you disable LDAP authentication for Endeca Workbench by setting the property `com.endeca.webstudio.useLdap=false` in the `webstudio.properties` file, the options to create a user profile for an LDAP user or an LDAP group do not display in Endeca Workbench.

All new user profiles you create must be manually configured in Endeca Workbench. Any users who were configured as LDAP users or as members of an LDAP group are no longer able to log in to Endeca Workbench. Although they are inactive, any existing user profiles for LDAP users or LDAP groups remain in Endeca Workbench and can be edited by an administrator.

Related Links

Enabling LDAP authentication in Endeca Workbench on page 42
LDAP authentication for Endeca Workbench is disabled by default.

Troubleshooting user authentication in Endeca Workbench with LDAP enabled on page 51
If a user cannot log in to Endeca Workbench, one of several error messages displays.

Configuration of the Webstudio login profile for LDAP

Endeca Workbench uses the Java Authentication and Authorization Service (JAAS) to authenticate users against an LDAP directory.

The configuration information that Endeca Workbench uses for LDAP authentication is stored in a profile named Webstudio in `%ENDECA_TOOLS_CONF%\conf\Login.conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf/Login.conf` (on UNIX). A sample profile is included in this location by default, but you should modify its parameters as needed for your LDAP configuration. You can also specify an alternate location for the configuration file.

If you want to configure JAAS authentication for other applications running in the Endeca Tools Service, for example your own Endeca application or Workbench extensions, create additional profiles with unique names in this same `Login.conf` file. For more information on configuring JAAS authentication for your Endeca application using LDAP or a local password file, see the *Endeca Security Guide*.

Note: A `Login.conf` file exists in `%ENDECA_CONF%\etc` (on Windows) and `$ENDECA_CONF/etc` (on UNIX). This file contains a sample profile for file-based authentication and is not used by Endeca Workbench.

Related Links

Enabling LDAP authentication in Endeca Workbench on page 42
LDAP authentication for Endeca Workbench is disabled by default.

Specifying the location of the configuration file on page 49
By default, Endeca Workbench uses `%ENDECA_TOOLS_CONF%\conf\Login.conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf/Login.conf` (on UNIX) as its configuration file.

Specifying the location of the configuration file using Windows Services on page 50
By default, Endeca Workbench uses `%ENDECA_TOOLS_CONF%\conf\Login.conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf/Login.conf` (on UNIX) as its configuration file.

Templates used in the Webstudio profile

Workbench allows templates to be supplied for certain configuration parameters in the Webstudio JAAS profile.

These templates, indicated by `%{}` escapes, allow values from the authentication operation, such as a user or group name entered in Workbench, or specific values from the user or group objects in LDAP, to be substituted into the parameter value. Templates also allow you to extract information from the LDAP user or group object such as the exact user or group name as specified in the LDAP directory, or identity information that is stored in LDAP. The `%{}` escapes are expanded as follows:

Escape	Description
`%{#username}`	The name of the LDAP user as entered in the **Add User** page in Workbench, or the user name entered by a user at the **Workbench Login** page.
`%{#groupname}`	The name of the LDAP group as entered in the **Add User** page in Workbench.
`%{#dn}`	The distinguished name of the user or group object in the LDAP directory.
`%{#dn:n}`	The value of the path field at index n in the distinguished name of the user or group object in LDAP. For example, if the value in the `%{#dn}` field is `cn=joe,ou=People,dc=foo,dc=com`, then the value “`People`” will be substituted for `%{#dn:1}`, while “`joe`” will be substituted for `%{#dn:0}`. Note that

Escape	Description
	unlike the value of `%{#dn}`, which is the raw value returned from the LDAP server, the values returned by this template are not LDAP escaped.
`%{#fieldname}`	The value in the specified field of the user object (or group object when used in the groupTemplate or findGroupTemplate parameter) under consideration.

About configuration parameters for the Webstudio profile

You specify the values of configuration parameters for LDAP authentication as quoted strings.

If there are any quotation marks (") or backslashes (\) in the string, they must be escaped. For example, if you have the following string:

```
"A string with an "embedded quote" and a \backslash"
```

In the profile, it should be specified as follows:

```
"A string with an \"embedded quote\" and a \\backslash"
```

For most parameter values, single quotation marks (') do not need to be escaped and the values you specify for the parameters can include non-ASCII UTF-8 characters. For additional restrictions on the userPath, groupPath, and findGroupPath parameters, see “LDAP path parameters."

For a full list of the parameters that can be specified in the profile, see the section "Configuration parameters for the Webstudio profile."

Configuration parameters for the Webstudio profile

This section provides a reference of parameters that can be specified in the Webstudio profile.

The following is a full list of the parameters that can be specified in the profile:

Parameter	Description
serverInfo	A URL specifying the name and port of the LDAP server to be used for authentication. You can specify multiple LDAP servers. Note that the protocol portion of the URL (that is, `ldap://`) must be in all-lowercase.
userPath	The query that is passed to the LDAP server to find an individual user. You can use the `%{#username}` template to insert the name entered in the Add User page (when using the Check Name function), or or the name entered in the Endeca Workbench **Login** page, into the query.
userTemplate	A template that specifies how to produce the username from the user object returned by the `userPath` query. This template allows Endeca Workbench to automatically correct the case (capital or lowercase) of the username to match the

Parameter	Description
	name exactly as specified in the LDAP directory. The correction occurs when you add an LDAP user to Endeca Workbench. Therefore, the value returned by this template should match the name entered on the **Add User** page, except for possible differences in case.
groupPath	The query that is passed to the LDAP server to find all the groups of which a user is a member. This query is executed when a user logs in to Endeca Workbench after looking up the user with the `userPath` query. Thus, you can use templates to insert any information from the user object that is returned by the previous query, such as the distinguished name of the user or any other LDAP attributes, into the `groupPath` query. You can specify multiple values for `groupPath.`
groupTemplate	A template that specifies how to produce individual group names from the set of groups returned by the `groupPath` query. The value returned by this template should match the name of the LDAP group as defined in the Endeca Workbench user profile. You can specify multiple values for `groupTemplate.`
findGroupPath	The query that is passed to the LDAP server to find a specific group. You can use the `%{#groupname}` template to insert the name of the group as entered in the **Add User** page into the query.
findgroupTemplate	A template that specifies how to produce the group name from the group object returned by the `findGroupPath` query. Like the `userTemplate`, this template is used to correct the case of a group name when you add LDAP group profiles in Endeca Workbench. Therefore, the value returned by this template should match the name entered on the **Add User** page, except for possible differences in case.
serviceUsername	The user name of an administrator login to the LDAP server specified in the serverInfo parameter. For e xample: "Manager@example.com" or "`cn=Manager,dc=example,dc=com`". If no value is specified for this option, Endeca Workbench attempts to authenticate anonymously.
servicePassword	The password to use in conjunction with the serviceUsername value.
serviceAuthentication	Specifies the method of authentication that should be used in connecting to the LDAP server as the administrator account. The permitted values are `none`, `simple`, or `EXTERNAL`.

Parameter	Description
authentication	Specifies the method of authentication that should be used in rebinding to the LDAP server as a user account. The permitted values are `none`, `simple`, or `EXTERNAL`
ldapBindAuthentication	Optional. By default this is set to `true`, and Endeca Workbench authenticates users by rebinding as the user to the LDAP system, thereby employing the LDAP system's own authentication mechanism.
loginName	Optional. A template login name that will be used to rebind to the LDAP server if ldapBindAuthentication is true. Default value is `%{dn}`.
passwordAttribute	Optional. The name of the attribute on the user object that contains the user's password. Used only if ldapBindAuthentication is set to false. The field specified must contain the user's password in clear text. By default this is set to `userPassword`.
checkPasswords	Optional. Determines whether Endeca Workbench checks passwords during logins. Default value is `true`. If set to `false`, Endeca Workbench uses only the user name to authenticate from the LDAP directory.
useSSL	Optional. Default value is `false`. If set to `true`, Endeca Workbench attempts to make mutually authenticated SSL connections to the LDAP server. If you set the parameter, ensure that you have configured the LDAP server to use SSL and that the value of serverInfo has the protocol specified as `ldaps://` with an SSL port.
keyStoreLocation	Used only if `useSSL=true`. The location of the Java keystore, which stores keys and certificates. The keystore is where Java gets the certificates to be presented for authentication. The location of the keystore is OS-dependant, but is often stored in a file named `.keystore` in the user's home directory. **Note:** Even if this location is on a Windows system, the path uses forward slashes, (/) not backslashes (\).
keyStorePassphrase	Used only if `useSSL=true`. The passphrase used to open the keystore file.

Related Links

LDAP path parameters on page 48

The userPath, groupPath, and findGroupPath parameters, when appended to the URL in the serverInfo parameter, must conform to RFC 2255.

Configuration parameters for identity information stored in LDAP

The LDAP configuration profile allows you to specify templates to extract identity information from LDAP user or group objects.

Endeca Workbench does not store any identity information such as first name, last name, or email address for LDAP users or groups. Instead, Endeca Workbench looks up this information in the LDAP directory when needed, for example, when sending workflow email notifications. The LDAP configuration profile allows you to specify templates to extract identity information from LDAP user or group objects, but they are not required for authentication via LDAP.

Parameter	Description
firstNameTemplate	A template that specifies how to produce the user's first name from the user object, for example, `%{#firstNameAttribute}`.
lastNameTemplate	A template that specifies how to produce the user's last name from the user object, for example, `%{#lastNameAttribute}`.
emailTemplate	A template that specifies how to produce the user's email address from the user object, for example, `%{#emailAttribute}`, or `%{usernameField}@companydomain.com`.
groupEmailTemplate	A template that specifies how to produce the email address associated with a group in LDAP from the group object. This information is used for workflow notifications in the case where an LDAP group is specified as an approver for a rule group.

Endeca Workbench looks up the identity information for a user or group when you use the `Check Name` function on the **Add User** page to confirm that you are adding the correct LDAP user or group. If you do not specify templates for retrieving identity information, the fields are not filled in when you use `Check Name` and workflow email notifications are not automatically addressed to approvers and editors who log in via LDAP.

LDAP path parameters

The userPath, groupPath, and findGroupPath parameters, when appended to the URL in the serverInfo parameter, must conform to RFC 2255.

This means that certain characters must be encoded in order for the path parameters to form a valid LDAP URL when appended to the value of the serverInfo parameter. Both LDAP and URL encoding may apply to these strings depending on your data. If possible, verify the URL by passing it to your LDAP server before specifying it in the configuration for Endeca Workbench.

LDAP encoding affects reserved characters such as the comma (,), equals sign (=), and question mark (?). These characters must be escaped by prepending a backslash (\) when they are not used for their reserved purpose, for example if they appear within a common name or organizational unit.

URL encoding affects characters that are invalid for URLs, such as non-ASCII characters and any unsafe characters as defined in RFC 1738. This includes reserved LDAP characters when they are not used for their reserved purpose. These characters must be replaced with the % sign followed by the appropriate hex code.

For example, if you have the following string as part of your userPath:

```
ou=Endeca Technologies, Inc.
```

Applying LDAP encoding produces the following result:

```
ou=Endeca Technologies\, Inc.
```

And applying URL encoding to the LDAP-encoded string produces:

```
ou=Endeca%20Technologies%5C%2C%20Inc.
```

Any non-ASCII characters or any other characters that are not valid in an LDAP URL must also be properly encoded in the string that you specify in the Webstudio profile.

Related Links

Configuration parameters for the Webstudio profile on page 45

This section provides a reference of parameters that can be specified in the Webstudio profile.

About specifying multiple values for parameters in the Webstudio

You can specify multiple LDAP servers and multiple values for the `groupPath` element.

If you specify multiple LDAP servers, the servers are assumed to be equivalent. The choice of which LDAP server to contact is made randomly. If an LDAP server cannot be reached, the LoginModule plug-in proceeds through the remaining servers in order of configuration, wrapping if necessary. For example, if five servers are configured and Server 3 is the first to be contacted, the remaining order of contact is Server 4, Server 5, Server 1, and finally Server 2.

You can specify multiple LDAP servers with multiple instances of the serverInfo parameter, by using the format:

```
serverInfo.n = ”ldap://server_url:port_number”
```

For example:

```
serverInfo.0="ldap://web01.endeca.com:1234"
serverInfo.1="ldap://web02.endeca.com:1230"
serverInfo.2="ldap://web03.endeca.com:1334"
```

You can also specify multiple values for the groupPath attribute by using the same format, for example:

```
groupPath.0="/ou=groups,dc=endeca,dc=com??sub?(member=%{#dn})"
groupPath.1="/dc=endeca,dc=com?memberOf?sub?(AccountName=%{#username})"
```

If you specify more than one groupPath, Endeca Workbench sends all the queries to the LDAP server to discover the groups of which a user is a member.

You can specify corresponding values for groupTemplate for each groupPath. In this case, the value for `groupTemplate.0` is applied to the results of the `groupPath.0` query, `groupTemplate.1` is applied to the results of `groupPath.1`, and so on.

Specifying the location of the configuration file

By default, Endeca Workbench uses `%ENDECA_TOOLS_CONF%\conf\Login.conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf/Login.conf` (on UNIX) as its configuration file.

If you are running the Endeca Tools Service as a Windows service, see the section "Specifying the location of the configuration file using Windows Services."

You can substitute any configuration file that includes a JAAS profile named Webstudio. The file does not have to be named `Login.conf`, but it should be saved in UTF-8 format.

If you want to store the configuration file in a different location, you can pass this location to the Java JVM. How you specify the location depends on how you run the Endeca Tools Service.

If you want to store the configuration file in a different location, you can pass this location to the Java JVM. How you specify the location depends on how you run the Endeca Tools Service.

If you are running the Endeca Tools Service on Windows from the command line or on UNIX:

1. Navigate to:
   - `%ENDECA_TOOLS_ROOT%\server\bin` (Windows).
   - `$ENDECA_TOOLS_ROOT/server/bin` (UNIX).
2. Open the `setenv.bat` (Windows) or `setenv.sh` (UNIX).
3. Locate the line that begins with set JAVA_OPTS, for example:

```
set JAVA_OPTS=-Xmx1024m -XX:MaxPermSize=128m -Djava.security.auth.lo¬
gin.config=%ENDECA_TOOLS_CONF%/conf/Login.conf
```

4. Change the path of the -Djava.security.auth.login.config parameter to point to the location of your configuration file.

Related Links

Enabling LDAP authentication in Endeca Workbench on page 42
LDAP authentication for Endeca Workbench is disabled by default.

Specifying the location of the configuration file using Windows Services on page 50
By default, Endeca Workbench uses `%ENDECA_TOOLS_CONF%\conf\Login.conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf/Login.conf` (on UNIX) as its configuration file.

Configuration of the Webstudio login profile for LDAP on page 43
Endeca Workbench uses the Java Authentication and Authorization Service (JAAS) to authenticate users against an LDAP directory.

Specifying the location of the configuration file using Windows Services

By default, Endeca Workbench uses `%ENDECA_TOOLS_CONF%\conf\Login.conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf/Login.conf` (on UNIX) as its configuration file.

If you are running the Endeca Tools Service on UNIX or on Windows from a command line, see the section "Specifying the location of the configuration file."

You can substitute any configuration file that includes a JAAS profile named Webstudio. The file does not have to be named `Login.conf`, but it should be saved in UTF-8 format.

If you want to store the configuration file in a different location, you can pass this location to the Java JVM. How you specify the location depends on how you run the Endeca Tools Service.

If you want to store the configuration file in a different location, you can pass this location to the Java JVM. How you specify the location depends on how you run the Endeca Tools Service.

If you are running the Endeca Tools Service on Windows from the command line or on UNIX:

1. Open the Registry Editor and look for the following key:

   ```
   HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation\
    Procrun 2.0\EndecaToolsService\Parameters\Java\Options
   ```

   Note: In the Registry Editor Explorer pane, expand the folders until you reach Java. Then click on the Java folder and look for the **Options** setting in the right pane.

2. Right click **Options**.
3. Choose **Modify**.

   The **Edit Multi-String** dialog box displays.
4. Locate the following parameter:

   ```
   -Djava.security.auth.login.config=%ENDECA_TOOLS_CONF%/conf/Login.conf
   ```

5. Change the path to point to the location of your configuration file.

Related Links

Enabling LDAP authentication in Endeca Workbench on page 42

LDAP authentication for Endeca Workbench is disabled by default.

Specifying the location of the configuration file on page 49

By default, Endeca Workbench uses `%ENDECA_TOOLS_CONF%\conf\Login.conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf/Login.conf` (on UNIX) as its configuration file.

Configuration of the Webstudio login profile for LDAP on page 43

Endeca Workbench uses the Java Authentication and Authorization Service (JAAS) to authenticate users against an LDAP directory.

Troubleshooting user authentication in Endeca Workbench with LDAP enabled

If a user cannot log in to Endeca Workbench, one of several error messages displays.

Incorrect Username or Password

If the user is entering the correct LDAP user name and password, there may be a manually configured Workbench user in the same application with the same user name or a Workbench administrator with the same user name.

A user with a manually configured profile always takes precedence over a user authenticating via LDAP. For more details about the behavior of users with the same name, see “User profiles for LDAP users and groups.”

You have no roles to access Endeca Workbench

This can mean that a profile was created for this user, or for a group of which this user is a member, that was not assigned any roles. This message also displays when a user who exists in the LDAP directory attempts to log in to Endeca Workbench, but no profile exists in Endeca Workbench for the user or for any group of which the user is a member. A user who does not have any associated roles cannot log in to Endeca Workbench.

An error occurred while trying to validate your credentials

This error displays when any error occurs other than a user name-password mismatch or an absence of roles. It can indicate anything from a connectivity issue with the LDAP server to a mistake in the configuration in the Webstudio login profile located in `%ENDECA_TOOLS_CONF%\conf\Login.conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf/Login.conf` (on UNIX). For more information about the login profile, see “Configuration of the Webstudio login profile for LDAP.”

The message “An error occurred while querying the LDAP server” when using the Check Name function in the Add User page indicates the same set of possible issues.

Check the Endeca Workbench log, which is located in `%ENDECA_TOOLS_CONF%\logs\webstudio.#.log` (on Windows) or `$ENDECA_TOOLS_CONF/logs/webstudio.#.log` (on UNIX) for more information about the causes of authentication failures. In most cases, the solution is to adjust the LDAP query strings to return the desired results. If possible, test the query URLs against your LDAP server using an indepedent tool in order to confirm that they behave as expected and that each query for a user or group that exists in the directory returns a unique user or group object.

Related Links

Enabling LDAP authentication in Endeca Workbench on page 42
LDAP authentication for Endeca Workbench is disabled by default.

Authentication of users in Endeca Workbench with LDAP enabled on page 39
User authentication via LDAP can be used in combination with the traditional method of authentication for users that are configured manually in Endeca Workbench.

About disabling LDAP authentication for Endeca Workbench on page 43
If you disable LDAP authentication for Endeca Workbench by setting the property `com.endeca.webstudio.useLdap=false` in the `webstudio.properties` file, the options to create a user profile for an LDAP user or an LDAP group do not display in Endeca Workbench.

User profiles for LDAP users and groups on page 40
If LDAP authentication is enabled for Endeca Workbench, you have the option of creating user profiles in Endeca Workbench for individual users or groups managed in an LDAP directory.

Configuration of the Webstudio login profile for LDAP on page 43
Endeca Workbench uses the Java Authentication and Authorization Service (JAAS) to authenticate users against an LDAP directory.

Chapter 6

SSL Configuration

This section describes how to configure your Endeca Workbench to use SSL for Web browser connections only. For information about configuring Endeca Workbench to use SSL to communicate with the EAC Central Server, see the *Endeca Security Guide*.

About configuring SSL in Endeca Workbench

SSL is disabled by default for Endeca Workbench as a server.

To enable SSL security between Endeca Workbench and its clients, you need to do the following:

- Enable the SSL version of Endeca Workbench.
- Set up a certificate for the Endeca Workbench server. For details, see the *Endeca Security Guide*. The server certificate for Endeca Workbench must be issued to the fully qualified domain name of the server.
- Modify the `server.xml` file for the Endeca Tools Service to enable the HTTPS connector and point to the new keystore.

Clients can make secure connections to Endeca Workbench either by taking advantage of a redirect from the non-SSL port or, if you have disabled the non-SSL port or do not wish to use the redirect, by making an HTTPS connection directly to the SSL port.

Endeca Workbench supports version 3.0 of the Secure Sockets Layer (SSL) protocol for its communication endpoints.

Enabling the SSL version of Endeca Workbench

The non-SSL version of Endeca Workbench is installed by default.

To enable the SSL version of Endeca Workbench:

1. Stop the Endeca Tools Service.
2. Navigate to `%ENDECA_TOOLS_CONF%\conf\Standalone\localhost` (on Windows) or `$ENDECA_TOOLS_CONF/conf/Standalone/localhost` (on UNIX).
3. Open the `ROOT.xml` file.
4. Locate the line in which the `docBase` is defined.
   For example:

```
docBase="C:\Endeca\Workbench\version\server/
workbench-2.0.0.303533.war"
```

Note: The file name in the example may not match the one in your installation.

5. Change this to point to the SSL version of the WAR by adding -ssl to the filename.
   For example:

   ```
   docBase="C:\Endeca\Workbench\version\server/
   workbench-2.0.0.303533-ssl.war"
   ```

6. Save and close the file.
7. Start the Endeca Tools Service.

If you want to restore the non-SSL version at a later date, you can reverse the process by editing the `ROOT.xml` file accordingly.

Modifying the server.xml for the Endeca Tools Service

Before you can use SSL with Endeca Workbench, you must edit its `server.xml` file as described.

This procedure assumes you have already generated server certificates for Endeca Workbench as described in the *Endeca Security Guide* and uploaded them to the Endeca Workbench server.

To enable the HTTPS connector:

1. Stop the Endeca Tools Service.
2. Navigate to `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).
3. Open the `server.xml` file.
4. Locate and remove the comments around the Connector element for port 8446 as follows:

   ```
   <!-- Define a SSL HTTP/1.1 Connector on port 8446 -->
    <Connector port="8446" maxHttpHeaderSize="8192" SSLEnabled="true"
     maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
     enableLookups="false" disableUploadTimeout="true"
     acceptCount="100" scheme="https" secure="true"
     clientAuth="false" sslProtocol="TLS"
     keystoreFile="conf/eac.ks" keystorePass="eacpass"
     truststoreFile="conf/ca.ks" truststorePass="eacpass"
     URIEncoding="UTF-8"/>
   ```

5. Optionally, change the port number to something other than 8446 if you do not want to use that default.

   If you do not use the default port, update the `redirectPort` attribute on the non-SSL HTTP connector to point to the new port as in the following example:

   ```
   <!-- Define a non-SSL HTTP/1.1 Connector on port 8006 -->
    <Connector port="8006" maxHttpHeaderSize="8192"
     maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
     enableLookups="true" redirectPort="8446" acceptCount="10"
     connectionTimeout="60000" disableUploadTimeout="true" debug="0"
     URIEncoding="UTF-8"/>
   ```

6. If you want to disable the redirect from the non-secure port to the secure port, comment out the non-SSL connector in the `server.xml` file. By default, the redirect is enabled.

Caution: If you choose to disable the non-SSL connector, the Deployment Template and the emgr_update utility cannot communicate with Endeca Workbench and you must manually update your application's instance configuration.

7. Update the `keystoreFile`, `keystorePass`, `truststoreFile`, and `truststorePass` with the appropriate values for your certificates.

   The `keystoreFile` and `truststoreFile` values should be the paths to the location where you uploaded your keystore and truststore files. These paths can be specified as absolute paths, or paths relative to `ENDECA_TOOLS_CONF`, although the files themselves can be located anywhere on the server.
8. Save and close the file.
9. Start the Endeca Tools Service.

SSL considerations for the preview application and Workbench extensions

If you have Endeca Workbench running under SSL and your preview application or any Workbench extensions do not use SSL, a browser message displays when you navigate to Endeca Workbench warning you that the site contains both secure and nonsecure items.

In order to prevent this message from displaying, you must do the following:

- Configure the URLs of the preview application to use HTTPS and an SSL port. For information about specifying the URLs for the preview application, see the *Endeca Workbench Help*.
- Configure any Workbench extensions to use HTTPS and an SSL port. For information about configuring Workbench extensions, see “Workbench extensions.”

Note that even if you have an internal redirect set up to forward connections from a non-SSL port to a secure SSL port, the browser warning appears because the initial connection is being made over HTTP.

Related Links

Workbench extensions on page 62
Extensions enable you to incorporate Web applications related to your Endeca implementation as plug-ins to Endeca Workbench.

Configuring the default preview application to require SSL connections

If you want all communication with the preview application to use SSL, you can add a security constraint to the `web.xml` file.

The configuration file for the default preview application is found in `%ENDECA_TOOLS_ROOT%\server\webapps\endeca_jspref\WEB-INF` (on Windows) or `$ENDECA_TOOLS_ROOT/server/webapps/endeca_jspref/WEB-INF` (on UNIX) and includes a commented-out security constraint as follows:

```
<!--
Uncomment the following section if you want to force the jsp_ref app to use
 ssl
-->
<!--
```

```
<security-constraint>
 <web-resource-collection>
  <web-resource-name>Entire Site</web-resource-name>
  <url-pattern>/*</url-pattern>
  <http-method>GET</http-method>
  <http-method>POST</http-method>
 </web-resource-collection>
 <user-data-constraint>
  <transport-guarantee>CONFIDENTIAL</transport-guarantee>
 </user-data-constraint>
</security-constraint>
-->
```

To enable this constraint, remove the comments around the `<security-constraint>` element. This forces connections to the application on the non-SSL port to be redirected to the SSL port defined in `server.xml`.

Chapter 7

Customizing Endeca Workbench

This section describes how to customize the Endeca Workbench interface and how to add extensions to Endeca Workbench.

The navigation menu and launch page

You can configure the items in the navigation menu on the left and on the launch page of Endeca Workbench by modifying the `ws-mainMenu.xml` file in `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).

By editing `ws-mainMenu.xml`, you can do any of the following:

- Add a new menu item.
- Remove an item from the menu.
- Specify the order in which the menu items display.
- Specify whether an item is in the top-level menu or in a submenu.
- Specify whether a menu item displays on the launch page.

Related Links

Updating the Endeca Workbench menu and launch page on page 61

The menu items on the launch page of Endeca Workbench are configurable.

Navigation menu nodes

A menu item is either a leaf or a node. A node is a top-level menu item that does not link directly to any pages.

Instead it has children that are leaf items and are displayed in a submenu. Nodes cannot be displayed on the launch page. Each node is defined in a `<menunode>` element in `ws-mainMenu.xml` that takes the following attributes:

Attribute name	Attribute value
`id`	The `id` of a predefined node in Endeca Workbench or a unique string identifying a custom node. For more information on predefined nodes, see “Predefined menu nodes in Endeca Workbench.”

Attribute name	Attribute value
`defaultTitle`	The display name for this node that appears in the navigation menu. This attribute is required for all custom nodes.

A `menunode` element requires one or more child `menuitem` elements.

This example of a `ws-mainMenu.xml` file defines a custom menu node with extensions as its child items.

```
<?xml version="1.0" encoding="UTF-8"?>

<mainmenu xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:noNamespaceSchemaLocation="mainMenu.xsd">
 <menunode id="myextensions" defaultTitle="My Extensions">
  <menuitem id="extensionA"/>
  <menuitem id="extensionB"/>
 </menunode>
</mainmenu>
```

Related Links

Predefined menuitem elements on page 60

This section is a reference table listing all of the predefined pages and corresponding ids available in the `ws-mainMenu.xml` file.

About navigation menu leaf items on page 59

A leaf is a menu item that links to a page, and can also have an entry on the launch page.

Node titles for multiple locales

If you customize a menu for multiple locales in Workbench, you can optionally specify localized titles for custom menu nodes in a titles element within `menunode` that contains one or more title elements.

The title element requires a locale attribute whose value is a valid ISO language code.

This example of a `ws-mainMenu.xml` file defines a custom menu node with titles in both English and French.

```
<?xml version="1.0" encoding="UTF-8"?>

<mainmenu xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:noNamespaceSchemaLocation="mainMenu.xsd">
 <menunode id="myextensions" defaultTitle="My Extensions">
  <titles>
   <title locale="en">Access Extensions</title>
   <title locale="fr">Accéder aux extensions</title>
  </titles>
  <menuitem id="extensionA"/>
  <menuitem id="extensionB"/>
 </menunode>
</mainmenu>
```

Workbench checks for a title that matches the locale defined in the current installation of Workbench. If no matching localized title is found, the `defaultTitle` value is used.

Predefined menu nodes in Endeca Workbench

There are several predefined menu nodes in Endeca Workbench. You can specify the placement of the predefined nodes in the menu and what items display under them, but you cannot modify the titles or specify localized titles.

The predefined nodes in Endeca Workbench are as follows:

Node id	Node description
`searchConfig`	Search Configuration
`reporting`	View Reports
`settings`	Application Settings
`eacconsole`	EAC Administration

About navigation menu leaf items

A leaf is a menu item that links to a page, and can also have an entry on the launch page.

A leaf can be either in the top-level menu or in a submenu as the child of a node. Leaf items cannot have child items. Menu items display in the order in which they are listed in `ws-mainMenu.xml`.

Each leaf in the menu is defined in a `menuitem` element in `ws-mainMenu.xml` that takes the following attributes:

Attribute name	Attribute value	Required?
`id`	The `id` of a predefined page in Endeca Workbench or the `id` of an extension as defined in `ws-extensions.xml`. For more information about extensions, see “Workbench extensions."	yes
`onLaunchPage`	If set to true, the menu item displays on the launch page in the order in which it is listed in `ws-mainMenu.xml`. Default value is `false`.	no

Note: For a full list of predefined pages and their corresponding ids, see "Predefined `menuitem` elements."

This example of a `ws-mainMenu.xml` file defines a menu that shows top-level leaf items, items nested within a predefined node, and items nested within a custom node. Items that have `onLaunchPage="true"` display in the launch page regardless of whether they are in the top-level menu or in a submenu.

```
<?xml version="1.0" encoding="UTF-8"?>

<mainmenu xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:noNamespaceSchemaLocation="mainMenu.xsd">
 <menuitem id="rules" onLaunchPage="true"/>
 <menuitem id="redirects" onLaunchPage="true"/>
 <menunode id="searchConfig">
  <menuitem id="thesaurus" onLaunchPage="true"/>
  <menuitem id="phrases"/>
  <menuitem id="stopwords"/>
 </menunode>
 <menunode id="myextensions" defaultTitle="My Extensions">
  <menuitem id="extensionA" onLaunchPage="true"/>
  <menuitem id="extensionB"/>
 </menunode>
</mainmenu>
```

Related Links

Predefined menuitem elements on page 60
This section is a reference table listing all of the predefined pages and corresponding ids available in the `ws-mainMenu.xml` file.

Navigation menu nodes on page 57
A menu item is either a leaf or a node. A node is a top-level menu item that does not link directly to any pages.

Workbench extensions on page 62
Extensions enable you to incorporate Web applications related to your Endeca implementation as plug-ins to Endeca Workbench.

Predefined menuitem elements

This section is a reference table listing all of the predefined pages and corresponding ids available in the `ws-mainMenu.xml` file.

The predefined pages and their corresponding ids are as follows:

Workbench page	Menu item id
Rule Manager	`rules`
Keyword Redirects	`redirects`
Thesaurus	`thesaurus`
Phrases	`phrases`
Stop Words	`stopwords`
Dimension Order	`dimorder`
Current Report (Daily)	`reporting.currentDaily`
Current Report (Weekly)	`reporting.currentWeekly`
Daily Reports	`reporting.daily`
Weekly Reports	`reporting.weekly`
EAC Monitor	`eacMonitor`
User Management	`settings.users`
Rule Group Permissions	`settings.permissions`
Resource Locks	`settings.locks`

Workbench page	Menu item id
Report Generation	`settings.reporting`
Preview App Settings	`settings.previewApp`
Instance Configuration	`settings.instanceConfig`
User Settings (for non-admin users)	`userSettings`
EAC Admin Console	`eacconsole.console`
EAC Settings	`eacconsole.settings`
Page Builder **Note:** This menu item is only available in Workbench editions that feature the Endeca Page Builder.	`landing`

Related Links

Navigation menu nodes on page 57

A menu item is either a leaf or a node. A node is a top-level menu item that does not link directly to any pages.

About navigation menu leaf items on page 59

A leaf is a menu item that links to a page, and can also have an entry on the launch page.

Extension element attributes on page 63

This section provides a reference table of required and optional extension element attributes.

Updating the Endeca Workbench menu and launch page

The menu items on the launch page of Endeca Workbench are configurable.

You can configure the items in the navigation menu on the left and on the launch page of Endeca Workbench by modifying the ws-`mainMenu.xml` file in `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).

To update the navigation menu and launch page:

1. Stop the Endeca Tools Service.
2. Navigate to `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).
3. Open `ws-mainMenu.xml` in a text editor and add or modify menu items as necessary.

   For more information, see “The navigation menu and launch page.”
4. Save and close the file.
5. Start the Endeca Tools Service.

Related Links

The navigation menu and launch page on page 57

You can configure the items in the navigation menu on the left and on the launch page of Endeca Workbench by modifying the `ws-mainMenu.xml` file in `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).

Workbench extensions

Extensions enable you to incorporate Web applications related to your Endeca implementation as plug-ins to Endeca Workbench.

An extension can be as simple as a static Web page or it can provide sophisticated functionality to control, monitor, and configure your Endeca applications. Extensions can be hosted on the same server as Endeca Workbench or on another server.

Related Links

SSL considerations for the preview application and Workbench extensions on page 55

If you have Endeca Workbench running under SSL and your preview application or any Workbench extensions do not use SSL, a browser message displays when you navigate to Endeca Workbench warning you that the site contains both secure and nonsecure items.

About navigation menu leaf items on page 59

A leaf is a menu item that links to a page, and can also have an entry on the launch page.

About configuring extensions in Endeca Workbench

Extensions are defined in the `ws-extensions.xml` file in `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).

The default `ws-extensions.xml` file is as follows:

```
<?xml version="1.0" encoding="UTF-8"?>

<extensions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:noNamespaceSchemaLocation="extensions.xsd">

</extensions>
```

Each extension is defined in an extension element within extensions. You can specify as many additional extensions as you need by adding more extension elements. For a full list of list of required and optional attributes, see "Extension element attributes."

This example of a `ws-extensions.xml` file defines a simple extension that enables a link to the Endeca Web site for all admin users.

```
<?xml version="1.0" encoding="UTF-8"?>

<extensions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:noNamespaceSchemaLocation="extensions.xsd">
 <extension id="endecaHome"
   defaultName="Endeca home page"
   defaultDescription="Visit the Endeca home page"
   url="http://www.endeca.com"
   role="admin" />
</extensions>
```

Related Links

Updating the Endeca Workbench menu and launch page on page 61

The menu items on the launch page of Endeca Workbench are configurable.

Enabling extensions in Endeca Workbench on page 64

You enable Workbench extensions by editing the `ws-extensions.xml` file.

Extension element attributes

This section provides a reference table of required and optional extension element attributes.

The extension element takes the following attributes:

Attribute name	Attribute value	Required?
`id`	A unique string identifying this extension. Do not define an extension with the same id as one of the predefined Endeca Workbench pages. For a list of predefined Workbench pages and their ids, see the reference table in “Predefined `menuitem` elements."	yes
`defaultName`	The display name for this extension that appears in the navigation menu and launch page in Endeca Workbench.	yes
`defaultDescription`	A brief description of this extension that appears on the launch page in Endeca Workbench.	yes
`url`	The fully specified URL to this extension. The extension must be a Web application reachable through HTTP or HTTPS, but it does not have to run on the same server as Endeca Workbench.	yes
`launchImageUrl`	The fully specified URL to a custom image for this extension’s entry on the launch page.	no
`role`	The id of the role that is allowed to access this extension. This can be one of the predefined Endeca Workbench user roles, or any custom role. Each extension can have a maximum of one role, although a single role can allow access to many extensions. If no role is specified, the extension is available to all Workbench users.	no
`height`	The height in pixels of the frame in which the extension is displayed. The default value is 500 pixels.	no
`sharedSecret`	A shared key that Endeca Workbench uses to calculate the authentication token.	no

Related Links

Enabling extensions in Endeca Workbench on page 64

You enable Workbench extensions by editing the `ws-extensions.xml` file.

Enabling extensions in Endeca Workbench

You enable Workbench extensions by editing the `ws-extensions.xml` file.

To enable extensions in Endeca Workbench:

1. Stop the Endeca Tools Service.
2. Navigate to `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).
3. Open `ws-extensions.xml` in a text editor and add or modify extensions as necessary.

   Note: In addition to adding an extension to Endeca Workbench, you must also enable links to the new extension in the navigation menu and the launch page.

4. Save and close the file.
5. Start the Endeca Tools Service.

Related Links

Updating the Endeca Workbench menu and launch page on page 61
The menu items on the launch page of Endeca Workbench are configurable.

About configuring extensions in Endeca Workbench on page 62
Extensions are defined in the `ws-extensions.xml` file in `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).

Extension element attributes on page 63
This section provides a reference table of required and optional extension element attributes.

URL tokens and Workbench extensions

Endeca Workbench can pass information to an extension through URL tokens in order to enable the extension to authenticate users, connect to the EAC Central Server, and maintain its state if a user navigates away from the extension and back again during the same session.

You use URL tokens by specifying them in the url attribute of the extension definition in `%ENDECA_TOOLS_CONF%\conf\ws-extensions.xml`. The name of the URL parameter does not have to match the id of the token as listed in the preceding table.

For example, the following extension definition creates a URL that passes the EAC host, port, and application to the extension:

```
<?xml version="1.0" encoding="UTF-8"?>

<extensions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="extensions.xsd">
 <extension id="testExtension"
  defaultName="Test Extension"
  defaultDescription="Demonstrates extensions with tokens."
  url="http://www.example.com:8989/TestExtension/index.jsp?eac-host=
${EAC_HOST}&amp;eac-port=${EAC_PORT}&amp;eac-app=${EAC_APP}"
 </extension>
</extensions>
```

Note the use of the & entity in the url attribute in place of the ampersand in the URL. In general, you should ensure that the `ws-extensions.xml` file validates against the provided schema before updating Endeca Workbench with the new configuration.

Related Links

URL token reference on page 65

This section provides a complete list of all tokens available to pass to Workbench extensions.

Token-based authentication for Workbench extensions on page 66

You can enable extensions to authenticate users coming from Endeca Workbench by including an authentication token in the URL.

URL token reference

This section provides a complete list of all tokens available to pass to Workbench extensions.

The following tokens are available to pass to extensions:

Token ID	Token description
`${AUTH}`	An MD5 hash value used to authenticate users coming from Endeca Workbench.
`${EAC_APP}`	The name of the application that the Workbench user is logged in to.
`${EAC_HOST}`	The host running the EAC Central Server to which Endeca Workbench is currently connected.
`${EAC_PORT}`	The port on the EAC host through which Endeca Workbench and the EAC Central Server communicate.
`${EXTENSION_ID}`	The id of the extension as defined in `ws-extensions.xml`.
`${LOCALE}`	The locale of Endeca Workbench; this is the value of the `com.endeca.webstudio.locale` property in `webstudio.properties`.
`${TS}`	The time, in milliseconds since 00:00:00 UTC January 1, 1970, when the user navigates to the extension.
`${USERNAME}`	The username of the Workbench user accessing the extension.
`${WEBSTUDIO_SESSIONID}`	The id of the user's current Workbench session. The extension can use this in combination with the `${USERNAME}` token to maintain the state of the extension throughout a single Workbench session, for instance by storing the information in a cookie.

Related Links

About Endeca Workbench user roles on page 24

Endeca Workbench user roles control user access to each function in the Endeca Workbench.

URL tokens and Workbench extensions on page 64
Endeca Workbench can pass information to an extension through URL tokens in order to enable the extension to authenticate users, connect to the EAC Central Server, and maintain its state if a user navigates away from the extension and back again during the same session.

About navigation menu leaf items on page 59
A leaf is a menu item that links to a page, and can also have an entry on the launch page.

Token-based authentication for Workbench extensions on page 66
You can enable extensions to authenticate users coming from Endeca Workbench by including an authentication token in the URL.

Token-based authentication for Workbench extensions

You can enable extensions to authenticate users coming from Endeca Workbench by including an authentication token in the URL.

Endeca Workbench calculates the value of the token by generating an MD5 hash from a portion of the URL and a shared secret. The portion of the URL that is used for the hash consists of everything after the host name and port, including the leading slash, but excluding the value of the AUTH token itself. The shared secret is a string that is specified in `ws-extensions.xml` and is also stored in the extension itself.

For example, the following `ws-extensions.xml` file defines an extension with a URL that uses the AUTH and TS tokens:

```
<?xml version="1.0" encoding="UTF-8"?>

<extensions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:noNamespaceSchemaLocation="extensions.xsd">
 <extension id="authExtension"
  defaultName="Authenticated Extension"
  defaultDescription="Demonstrates token-based authentication."
  url="http://localhost:8080/AuthExtension/index.jsp?timestamp=${TS}&amp;
auth=${AUTH}"
  role="admin"
  sharedSecret="secret!@#$%^*(987654321" />
</extensions>
```

In this case, the value of the authentication token is the hash of a string that looks similar to this:

```
/AuthExtension/index.jsp?timestamp=1189702462936&auth=secret!@#$%^*(987654321
```

The extension can verify that a user is coming from Endeca Workbench by calculating the hash of the same string and comparing the result to the value of the `AUTH` token. This ensures that the user visiting the extension has logged in to Endeca Workbench and has the role (if any) that is required to access the extension.

Because the `AUTH` token is based in part on the URL, it is recommended that you include the time stamp of the request to introduce some variation in the value of the token. The time stamp can also be used to filter out stale requests and limit the possibility of an eavesdropper reusing the same URL to gain access to the extension.

The following Java code shows how the extension defined in the preceding example can authenticate users from Endeca Workbench:

```
// These values depend on what you defined in ws-extensions.xml
String extensionSecret="secret!@#$%^*(987654321";
final String authTokenParameterName = "auth";
final String timeStampParameterName = "timestamp";

// Set the tolerance, in milliseconds, before a request is considered too
 old
int allowedTimeStampSlackInMS = 5 * 60 * 1000;

// Calculate the hash of the substring of the URL and the shared secret
String url = request.getRequestURI() + "?" + request.getQueryString();
String findAuthToken = "&" + authTokenParameterName + "=";
url = url.substring(0, url.indexOf(findAuthToken) + findAuthToken.length());
String authCode = request.getParameter(authTokenParameterName);

MessageDigest md = MessageDigest.getInstance("MD5");
byte[] md5Hash = md.digest((url + extensionSecret).getBytes("UTF-8"));

StringBuffer hashCode = new StringBuffer();

for(int i : md5Hash)
{
 String str = Integer.toHexString(i+128);
 if (str.length() < 2)
 {
  str = "0" + str;
 }
 hashCode.append(str);
}

// Compare the hash to the value of the AUTH token
if (!hashCode.toString().equals(authCode))
{
 // Authentication fails because AUTH token did not match
}

// Compare the time stamp of the request to the current time stamp
long currentTime = new Date().getTime();
long ts = Long.parseLong(request.getParameter(timeStampParameterName));

if ( Math.abs(ts - currentTime) > allowedTimeStampSlackInMS)
{
 // Authentication fails because request is too old
}
```

The example extension places the AUTH token at the end of the URL, making it more convenient to build the substring of the URL for the hash.

However, the AUTH token can be in any position in the URL. For instance, the URL can be defined in `ws-extensions.xml` is as follows:

```
url="http://localhost:8080/AuthExtension/index.jsp?auth=${AUTH}&amp;
timestamp=${TS}"
```

This would result in a URL similar to this:

```
http://localhost:8080/AuthExtension/in¬
dex.jsp?auth=dc40570f2e7111fbe1af820a854ca817&timestamp=1189702462936
```

The value of the authentication token would be the hash of a string similar to this:

```
/AuthExtension/index.jsp?auth=&timestamp=1189702462936secret!@#$%^*(987654321
```

In this case the code in the extension to remove the value of the authentication token from the URL would be more complex.

Related Links

URL tokens and Workbench extensions on page 64

Endeca Workbench can pass information to an extension through URL tokens in order to enable the extension to authenticate users, connect to the EAC Central Server, and maintain its state if a user navigates away from the extension and back again during the same session.

Theming extensions to match Endeca Workbench

Endeca Workbench provides a public cascading style sheet that includes the most common style elements in Endeca Workbench.

You can use the style sheet in your extension to give it a look and feel similar to that of the Endeca Workbench interface.

To use the Endeca Workbench public cascading style sheet:

1. Add the following line within the head element of your HTML document:

   ```
   <link rel="stylesheet" type="text/css"
    href="http://hostname:8006/stylesheets/public.css"/>
   ```

   The host name is the name or IP address of the Endeca Workbench server.

2. Replace 8006 with the Endeca Workbench port if it is not running on the default port.

Note: The `public.css` file cannot be edited. If you want to specify additional styles or modify the default styles, create a separate style sheet and apply it to your application.

For more information about the styles defined in the public style sheet, see the comments within the `public.css` file. The file can be viewed at the following URL on the Endeca Workbench server:

```
http://hostname:port/stylesheets/public.css
```

Troubleshooting Workbench extensions

This section provides troubleshooting information about Workbench extensions.

If the extension does not have a link in the navigation menu or launch page:

- Stop and restart the Endeca Tools Service. Changes to the XML configuration files for extensions, roles, and the navigation menu do not go into effect until the service is restarted.
- Ensure that you have the required Workbench user role to access the extension.
- Ensure that a menu item for the extension is specified in `ws-mainMenu.xml` and that the id attribute matches the id of the extension as defined in `ws-extensions.xml`. Defining an extension in `ws-extensions.xml` does not automatically add a link to the navigation menu in Endeca Workbench.

  If you want an extension to have an entry on the launch page, specify `onLaunchPage="true"` in the menuitem element for the extension in `ws-mainMenu.xml`.

- If you have no applications defined in Endeca Workbench, the only links that display in the navigation menu are for the EAC Admin Console and EAC Settings. To enable display of the full Endeca Workbench menu, you must first provision an application.

If the link displays in the menu but the extension does not display when you click the link:

- Ensure that the URL for the extension specified in `ws-extensions.xml` is a valid HTTP or HTTPS URL. A Workbench extension must be a Web application running in a Web server.

If an error message displays after updating ws-extensions.xml:

There may be a problem with your XML configuration files that prevents Endeca Workbench from starting up. The error messages in the Endeca Workbench log can help you identify whether one of the following is the case:

- One or more of the XML configuration files is missing. The following files must be present in `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX):

  - `ws-extensions.xml` and its associated schema, `extensions.xsd`
  - `ws-mainMenu.xml` and its associated schema, `mainMenu.xsd`
  - `ws-roles.xml` and its associated schema, `roles.xsd`

  The files are created in this location when you install Endeca. By default, the `ws-extensions.xml` and `ws-roles.xml` files define no extensions or additional roles. The `ws-mainMenu.xml` file controls the display of the navigation menu and launch page.

  If you have deleted one of these files, you can restore the default file by copying it from `%ENDECA_TOOLS_ROOT%\workspace_template\conf` (on Windows) or `$ENDECA_TOOLS_ROOT/workspace_template/conf` (on UNIX).

- One or more of the configuration files contains badly formed or invalid XML.

  Ensure that the configuration files contain well-formed XML. In particular, check that any ampersand that is used within an attribute value is specified as the & entity.

  Use an XML tool to validate any configuration files that you have edited against the associated schema in `%ENDECA_TOOLS_CONF%\conf` (on Windows) and `$ENDECA_TOOLS_CONF/conf` (on UNIX).

Related Links

Updating the Endeca Workbench menu and launch page on page 61
The menu items on the launch page of Endeca Workbench are configurable.

Other customization options

You can customize other aspects of Endeca Workbench functionality.

Hiding the list of applications on the login page

By default, Endeca Workbench shows all available Endeca applications in a drop-down list on the login page.

Business users can log in to any application that an administrator has added them to. In cases where you do not want Endeca Workbench users to see all available Endeca Workbench applications on the login page, you can hide the drop-down list of applications displayed in Endeca Workbench.

To hide the drop-down list of applications on the login page of Endeca Workbench:

1. Stop the Endeca Tools Service.

2. Open the `webstudio.properties` file located in `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF\conf` (on UNIX).
3. Locate the `com.endeca.webstudio.hide.login.application.dropdown` property, for example:

   ```
   # Hides the dropdown for selecting an application
   # on the login page.
   com.endeca.webstudio.hide.login.application.dropdown=false
   ```

4. Set the value of the property to true, for example:

   ```
   com.endeca.webstudio.hide.login.application.dropdown=true
   ```

5. Save and close the `webstudio.properties` file.
6. Start the Endeca Tools Service.

Customizing the number of rules displayed in Rule Manager

You can customize the number of rules that display per page in the rule list, as well as other pagination settings.

To customize the pagination settings in Rule Manager:

1. Stop the Endeca Tools Service.
2. Navigate to `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).
3. Open the `webstudio.properties` file in a text editor.
4. Edit the Rule Manager rule list settings as desired.

Option	Description
`com.endeca.webstudio.numPageLinks`	Sets the maximum number of page links that display at the bottom of the rule list. By default, the maximum is set at 11.
`com.endeca.webstudio.defaultRulesPerPage`	Sets the number of rules that display per page in the rule list. The default setting is 20. Any value that is not defined in `com.endeca.webstudio.rulesPerPageChoices` defaults to 20.
`com.endeca.webstudio.rulesPerPageChoices`	A comma-separated list of values that defines the options to supply for the number of rules to display per page in the rule list. By default, the choices are 20, 50, 100, and All. Any non-integer value displays all available rules. **Note:** If there are groups in your application that have very large numbers of rules, it is recommended that you avoid viewing all rules at once. Doing so may increase the page load time.

5. Save and close the file.
6. Start the Endeca Tools Service.

About encoding workflow emails

You can configure Endeca Workbench to support non-ASCII characters in workflow emails.

Any time a user makes a change to the workflow state of a dynamic business rule or a landing page in Endeca Workbench, the user has the option to launch an email client to send a change notification. For more information about workflow in Endeca Workbench, see the *Endeca Workbench User's Guide* and the *Endeca Workbench Help*.

To support non-ASCII characters in workflow emails, you can configure Endeca Workbench to use UTF-8 encoding. Note that some email clients, including Microsoft Outlook 2003, do not support UTF-8 encoding in mailto URLs, which causes extended characters not to display properly. You should only enable UTF-8 encoding if you are certain that it is supported on all email clients in your organization.

The default setting in Endeca Workbench encodes workflow email notifications using the escape function in JavaScript. On most systems this results in ISO-8859-1 encoding (which is supported by Outlook), but the actual encoding may depend on system settings on the client machine.

Enabling UTF-8 encoding for workflow emails

To support non-ASCII characters in workflow emails, you can configure Endeca Workbench to use UTF-8 encoding.

Note: Although UTF-8 support varies depending on the default email client on each user's machine, this setting applies to all workflow email messages created by Endeca Workbench.

To enable UTF-8 URL encoding in workflow emails:

1. Stop the Endeca Tools Service.
2. Navigate to `%ENDECA_TOOLS_CONF%\conf` (on Windows) or `$ENDECA_TOOLS_CONF/conf` (on UNIX).
3. Open the `webstudio.properties` file, and locate the `com.endeca.webstudio.useUTF8InMailToUrls` property, for example:

   ```
   # URL encoding for workflow emails
   com.endeca.webstudio.useUTF8InMailToUrls=false
   ```

4. Change the value of the property to `true`, for example:

   ```
   com.endeca.webstudio.useUTF8InMailToUrls=true
   ```

5. Save and close the file.
6. Restart the Endeca Tools Service.

   - On UNIX:

     1. Stop the Endeca Tools Service using:

        ```
        $ENDECA_TOOLS_ROOT/server/bin/shutdown.sh
        ```

     2. Restart the Endeca Tools Service using:

        ```
        $ENDECA_TOOLS_ROOT/server/bin/startup.sh
        ```

   - On Windows:

     1. From the Windows Control Panel, select **Administrative Tools**, and then select **Services**.

2. In the right pane of the Services window, right-click **Endeca Tools Service** and choose **Restart**.
3. Close the Services window.

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