

# Administering My webMethods Server

Version 9.8

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This document applies to My webMethods Server Version 9.8 and to all subsequent releases.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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## About This Guide

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This guide explains how to configure and manage My webMethods Server as a system administrator. The guide explains how, as a My webMethods Administrator (not the same as a system administrator), you can manage users, groups, and roles for the applications that run on My webMethods Server. In addition, the guide describes how to develop and manage pages for display by My webMethods Server.

## Software AG Command Central

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Software AG Command Central is a tool that release managers, infrastructure engineers, system administrators, and operators can use to perform administrative tasks from a single location. Command Central can assist with the following configuration, management, and monitoring tasks:

- Infrastructure engineers can see at a glance which products and fixes are installed, and where. Engineers can also easily compare installations to find discrepancies.
- System administrators can configure environments using a single web UI, command-line tool, or API so maintenance can be performed with a minimum of effort and risk.
- Release managers can prepare and deploy changes to multiple servers using command-line scripting for simpler, safer lifecycle management.
- Operators can monitor server status and health, as well as start and stop servers from a single location. They can also configure alerts to be sent to them in case of unplanned outages.

For more information about Software AG Command Central, see the Command Central documentation.

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## Exporting My webMethods Server Assets

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For information on extracting My webMethods Server assets for use with Deployer, see the "MWS Runtime Assets" topic in the *webMethods CAF Development Help*.

### Document Conventions

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Convention	Description
<b>Bold</b>	Identifies elements on a screen.
Narrowfont	Identifies storage locations for services on webMethods Integration Server, using the convention <i>folder.subfolder:service</i> .
UPPERCASE	Identifies keyboard keys. Keys you must press simultaneously are joined with a plus sign (+).
<i>Italic</i>	Identifies variables for which you must supply values specific to your own situation or environment. Identifies new terms the first time they occur in the text.
Monospace font	Identifies text you must type or messages displayed by the system.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the   symbol.
[ ]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [ ] symbols.
...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

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## Online Information

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### Software AG Documentation Website

You can find documentation on the Software AG Documentation website at <http://documentation.softwareag.com>. The site requires Empower credentials. If you do not have Empower credentials, you must use the TECHcommunity website.

### Software AG Empower Product Support Website

You can find product information on the Software AG Empower Product Support website at <https://empower.softwareag.com>.

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To get information about fixes and to read early warnings, technical papers, and knowledge base articles, go to the [Knowledge Center](#).

### Software AG TECHcommunity

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- Access product documentation, if you have TECHcommunity credentials. If you do not, you will need to register and specify "Documentation" as an area of interest.
- Access articles, code samples, demos, and tutorials.
- Use the online discussion forums, moderated by Software AG professionals, to ask questions, discuss best practices, and learn how other customers are using Software AG technology.
- Link to external websites that discuss open standards and web technology.



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# I Startup and Configuration

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# 1 Getting Started with My webMethods Server

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## Introduction to My webMethods Server

My webMethods Server is a run-time container for functions made available by webMethods applications. The user interface in which you perform these functions is called My webMethods. My webMethods provides a ready-made environment in which users can perform functions on webMethods applications, and administrators can manage access to those functions. In addition, My webMethods Server gives you the capability to develop additional user interface pages, and a broad-based set of administrative tools with which to manage the increased capabilities.

My webMethods Server recognizes two types of administrators, based on the functions they perform:

Administrator	Description
My webMethods Administrator	The default administrator of My webMethods. This user can perform user management functions and manage external directory services. As installed, the user ID is "Administrator and the password is "manage. For more information about functions available to this user, see " <a href="#">My webMethods Administrator Functions</a> " on page 81.
System administrator	The system administrator for My webMethods Server. This user can manage My webMethods Server, including analysis, configuration, content, and user management. As installed, the user ID is "SysAdmin and the password is "manage. This administrator does not use the My webMethods user interface. For more information about functions available to this account, see " <a href="#">System Administrator Functions</a> " on page 205.

In some cases, both types of administrator can perform the same functions, such as performing user management. Where there are differences between the My webMethods and system user interfaces, the procedures describe both.

This guide is organized into multiple parts:

These activities...	Are described here...
Getting started as an administrator, changing the configuration of My webMethods Server, using external	" <a href="#">Startup and Configuration</a> " on page 19

These activities...	Are described here...
web servers, and running servers from the command line.	
Managing users, groups and roles as a My webMethods Administrator.	" My webMethods Administrator Functions" on page 81
Managing the advanced capabilities of My webMethods Server as a system administrator.	"System Administrator Functions" on page 205
Developing and managing user interface pages.	"Server Page Development" on page 317

For additional information:

These activities...	Are described here...
Installation and initial configuration of My webMethods Server.	<i>Installing webMethods and Intelligent Business Operations Products</i>
The basic activities an individual user can perform on My webMethods applications.	<i>Working with My webMethods</i>

## Starting My webMethods Server on Windows

If My webMethods Server is configured on Windows computers as a service, you can start it with this command.

### To start My webMethods Server on a Windows host

1. Open the Control Panel and double-click the Administrative Tools icon.
2. In the Administrative Tools window, double-click the Services icon.
3. In the Services window, double-click the service named Software AG My webMethods Server 9.8.

If there is more than one instance of the service, the second instance has an index value of (2), the third instance has an index value of (3), and so forth.

4. Click **Start**.

After a few seconds, the status changes to Started.

For information on controlling My webMethods Server from the command line, see ["Running My webMethods Server from the Command Line" on page 51](#).

## Stopping My webMethods Server on Windows

If My webMethods Server is configured on Windows computers as a service, you can stop it with this command.

### To stop My webMethods Server on a Windows host

1. Open the Control Panel and double-click the Administrative Tools icon.
2. In the Administrative Tools window, double-click the Services icon.
3. In the Services window, double-click the service named Software AG My webMethods Server 9.8.

If there is more than one instance of the service, the second instance has an index value of (2), the third instance has an index value of (3), and so forth.

4. Click **Stop**.

After a few seconds, the status changes to Stopped.

For information on controlling My webMethods Server from the command line, see ["Running My webMethods Server from the Command Line" on page 51](#).

## Getting Started as an Administrator

The following sections describe some basic functions you can perform to get started using My webMethods Server:

Functions	Described here...
Log in	<a href="#">"Logging Into My webMethods Server" on page 24</a>
Log out	<a href="#">"Logging Out of My webMethods Server" on page 25</a>
Change your password	<a href="#">"Changing the Administrator Password" on page 26</a>

## Logging Into My webMethods Server

My webMethods Server has a user interface that you access using a web browser.

To log into My webMethods Server

1. Access the My webMethods Server Login page by entering a URL in a web browser:

`http://host:port`

where:

- *host* is the host name of the machine on which My webMethods Server is installed.
- *port* is the port on which My webMethods Server listens for incoming requests. The default port for My webMethods Server is 8585.

For example, if the host name is `rubicon.company.com` and it uses the default port (8585), type the following URL:

`http://rubicon.company.com:8585`

2. **User Name** and **Password** fields:

<b>If you are...</b>	<b>User Name</b>	<b>Password</b>
My webMethods Administrator	Administrator	manage
System administrator	SysAdmin	manage

**Note:** When logging in, the value you specify in the user name is case insensitive. However, after logging in, My webMethods Server uses the case of the user name that is defined in your user account. For example, if the user account is defined as "Administrator, you can log in using "administrator. When My webMethods Server needs to use the user name, for example, for HTTP authentication, it uses the version defined in the user account, which is "Administrator.

**Important:** To keep My webMethods Server secure, you should change the default administrator password. For instructions about how to change the password, see "[Changing the Administrator Password](#)" on page 26.

3. Click **Login**.

After you log in, My webMethods Server displays the Administrator home page.

## Logging Out of My webMethods Server

Perform the following procedure to log out of My webMethods Server.

### To log out of My webMethods Server

- Click the **Logout** link, which is located at the top of all My webMethods pages.

## Changing the Administrator Password

Change your password by editing the fields on the **User Information** panel of your profile.

---

### To change your password

1. Click **My Profile**, located at the top of all My webMethods pages.
2. On the **User Information** panel, type your new password in the **Password** field.
3. In the **Confirm Password** field, type your new password again for confirmation.
4. Click **Apply**.

---

## 2 Changing the My webMethods Server Configuration

---

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## Post-Installation Configuration Changes

When you install My webMethods Server, it has a default configuration. You can specify the type and location of the database used by the server and the HTTP port the server uses, but nothing else. After the installation is completed and you have a default instance of My webMethods Server running, you can make changes to the configuration, a few of which are shown here:

Configuration change	Where to find more information
Change the HTTP port or add an HTTPS port for an external web server.	<a href="#">"Changing Listener Ports" on page 30</a>
Change the levels of logging messages collected by the server	<a href="#">"Controlling Server Logging" on page 250</a>
Add or remove components deployed with the server	<a href="#">"Installing Portlets or Other Deployable Server Components" on page 279</a> and <a href="#">"Uninstalling Portlets or Other Deployable Server Components" on page 280</a>
Add server instances on the same machine	<a href="#">"Guidelines for Multiple My webMethods Server Instances" on page 29</a> and <a href="#">"Creating a New Server Instance" on page 58</a>

## The My webMethods Server Embedded Database

Under some circumstances, you can configure My webMethods Server during installation to use an embedded database instead of an external RDBMS. You can use the embedded database when you are:

- Installing My webMethods Server for the sole purpose of running the Broker Messaging user interface in My webMethods.
- Installing My webMethods Server for the sole purpose of running Command Central.
- Not installing My webMethods Server in a production environment.
- Not clustering instances of My webMethods Server.

If you are installing My webMethods Server for any other purpose, you must use an external RDBMS.

**Important:** You cannot later switch to write data to an external RDBMS instead of the embedded database.

**Important:** My webMethods Server uses Derby, a file-based database, as its embedded database. If one database file gets corrupted, the entire database might become unusable. Software AG therefore recommends backing up the *My webMethods Server\_directory\MWS\server\server\_instance\data\db* folder regularly so you will be able to return to the last known good state if necessary. If you do not take a backup, you can restore the database to an empty state from the *My webMethods Server\_directory\MWS\server\template-derby.zip\data\db* directory.

## Did You Install Without Specifying a Database?

It is possible to install My webMethods Server without either the embedded database or an external database. In this case, if you want to use an external database, you need to configure a database connection for My webMethods Server before the server will start. To set or modify external database connections, use the `mws.db.xml` file, which you can find at this location:

*Software AG\_directory\MWS\server\server\_name\config*

You need to specify the following values:

Element	Value
<URL>	The URL to the database server
<USER>	The database user name
<PASSWORD>	The password of the database user

After you save and close the `ms.db.xml` file, start My webMethods Server.

## Guidelines for Multiple My webMethods Server Instances

You can run multiple instances of My webMethods Server on the same machine, but each server instance must have its own external resources. This is not the same as clustering, which is described in "[My webMethods Server Clustering](#)" on page 171. The following guidelines apply to running two or more server instances on the same machine:

- Each My webMethods Server instance must have its own database; for a given database server, the following configuration entries must be unique among all My webMethods Server instances that use the same database server:

- Database user name
- Database name or tablespace name
- For My webMethods Server instances running concurrently on the same machine, the following host/port number combinations, if used, must be unique among all servers:
  - HTTP port. The default is 8585.
  - HTTPS port (if used).
  - Java Management Extensions (JMX) port. The default is 5002.

## Changing Listener Ports

You can change the HTTP listener port or add an HTTPS listener port for an external web server. Management of listener ports takes place in Cluster Administration.

**Note:** In you are using webMethods Monitor and configure My webMethods Server to use anything other than the default listening port of 8585, you will get an Access Denied error on the **Administration > Business Processes** (Monitor portlet) page. To resolve this issue, you need to enter the correct non-default port number in the **MWS SAML Resolver URL** value defined on the **Settings > Resources** page of the Integration Server Administrator.

## Changing the HTTP Listener Port for a Standalone Server

To change only the HTTP listener port for a standalone server instance

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Cluster Settings > Basic Configuration.**
  - As system administrator: **Administration Dashboard > Configuration > Cluster Administration > Basic Configuration.**
2. In the **HTTP PORT** field, type the new port number and click **Submit**.
3. Restart My webMethods Server for the new setting to take effect.

## Changing HTTP and HTTPS Listener Ports

To change HTTP and HTTPS listener ports for a server instance

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Cluster Settings > Advanced or Cluster Configuration.**

- As system administrator, click **Administration Dashboard > Configuration > Cluster Administration > Advanced or Cluster Configuration**.
2. In the **HTTP PORT** field, type the port number to be used by the HTTP listener.  
This field must always have a valid port number.
  3. In the **HTTPS PORT** field, type the port number to be used by the HTTPS listener.  
A value of 0 (zero) in this field disables the listener.  
The default digital certificates use by the HTTPS Listener are described in "[Certificates Used for Secure Connections](#)" on page 38.
  4. Click **Submit** to save your settings.
  5. Restart My webMethods Server for the new setting to take effect.

## Changing the JMX Listener Port

The default Java Management Extensions (JMX) listener port is 5002. If multiple instances of My webMethods Server are running on the same computer, or if some other application is already using that port, you need to assign a different port number. You can change the JMX listener port in the `com.softwareag.jmx.connector.pid-5002.properties` file.

### To change the JMX listener port

1. In a text editor, open the `com.softwareag.jmx.connector.pid-5002.properties` file for the server instance. You can find the file at this location:  

```
Software AG_directory
\profiles\MWS_server_name \configuration\
com.softwareag.platform.config.propsloader
```
2. Edit the `port=` statement with the new JMX listener port number and save the file.
3. Restart My webMethods Server for the new setting to take effect.

## Changing the JCR Repository RMI Listener Ports

When using a remote Java Content Repository (JCR), the connection to the JCR is implemented using an RMI to communicate with the client My webMethods Server. My webMethods Server uses the following ports for the JCR RMI connection:

- **rmiPort**. The port for the RMI registry. The default port number is 10999.
- **rmiServerObjectPort**. The port used by the remote client to communicate with the remote object that is provided by My webMethods Server. The default port number is 10998. A value of 0 (zero) generates a random port number.

**Important:** If your server is protected by a firewall and you want to allow remote JCR connections to My webMethods Server, you must configure your firewall to open both the `rmiPort` and the `rmiServerObjectPort`. In that scenario, you should use a non-zero value for the `rmiServerObjectPort` so that the port number does not change every time My webMethods Server is restarted.

### To change the `rmiPort` or `rmiServerObjectPort` number from the default

1. As system administrator, go to **Administrative Folders > Administration Dashboard > Configuration > CAF Application Runtime Configuration**.
2. In the **Keywords** field, type `wm_mws_config` to search for the `wm_mws_config` deployed application.  
My webMethods Server returns the Administration application in the search results.
3. Click **Administration > Web Application > Environment Entries**.
4. In the **`rmiPort`** and **`rmiServerObjectPort`** fields, type new values for the port numbers and click **Apply**.

## Specifying the Java Location for My webMethods Server

My webMethods Server must point to a Java location. By default, My webMethods Server points to the location of the JDK installed in the `Software AG_directory/jvm` directory.

You can specify a non-default JDK or JRE to be used by My webMethods Server. If you do so, do not delete the default JDK because it is used by the Software AG Installer.

**Important:** If you specify a non-default JRE or JDK, apply maintenance updates from the appropriate vendor on a regular basis, as you would for JREs and JDKs you install yourself.

**Note:** Software AG tests products only with the JDKs installed by the Software AG Installer. If you redirect products to use a different JDK or JRE and encounter issues, Software AG might require you to reproduce the issues with the JDK that is installed by the Software AG Installer.

To specify a non-default JDK or JRE, you must make changes in multiple locations.

### Setenv File under `/MWS/bin/`

You must modify the Java location specified in the `setenv.bat` or `.sh` file located here:

`Software AG_directory/MWS/bin/setenv.[bat | sh]`

Open the `setenv.bat` or `setenv.sh` file in a text editor. Edit the `JAVA_HOME` parameter to point to the non-default JDK or JRE installation directory, then save and close the file. For example:

```
set JAVA_HOME= C:\myjava17
```

### Setenv File under /profiles

You must modify the Java location specified in the setenv.bat or .sh file located here:

*Software AG\_directory/profiles/MWS\_server\_name/bin/setenv.[bat | sh]*

Open the setenv.bat or setenv.sh file in a text editor. Edit the JAVA\_EXEC parameter to point to the non-default JDK or JRE installation directory, then save and close the file.

For example:

```
set JAVA_EXEC= "C:\myjava17\bin\java"
```

### The wrapper.conf File

You must modify the Java location specified in the wrapper.conf file located here:

*Software AG\_directory/profiles/MWS\_server\_name/configuration/wrapper.conf*

Open the wrapper.conf file in a text editor. Edit the wrapper.java.command parameter to point to the non-default JDK or JRE installation directory, then save and close the file.

For example:

```
wrapper.java.command=C:\myjava17\bin\java
```

### The custom\_wrapper.conf File

You must modify the Java location specified in the custom\_wrapper.conf file located here:

*Software AG\_directory/profiles/MWS\_server\_name/configuration/custom\_wrapper.conf*

Open the custom\_wrapper.conf file in a text editor. Edit the set.JAVA\_HOME parameter to point to the non-default JDK or JRE installation directory, then save and close the file.

For example:

```
set.JAVA_HOME=C:\\ myjava17
```

## Managing Redirection in My webMethods Server

---

In My webMethods Server, when you click a button or other action on a page, it can result in a redirection that takes you to an external site. While redirection is a useful feature, it has the potential to point a user to a malicious external site. Direct links created using the Link control or the Bookmark workspace tool are not affected by this issue.

A *whitelist* is a list of trusted entities, in this case trusted servers. Using the Redirection Whitelist Administration page, you can create a whitelist containing servers to which My webMethods Server can safely redirect a request.

By default, My webMethods Server does not allow redirection to any external site, making it less prone to malicious exploitation. The server does allow redirection to the cluster frontend, localhost, and the loopback address (127.0.0.1), which are required for operation.

If you need to allow redirection to external servers, you can add them using the Redirection Whitelist Administration page. Servers are identified by host name or IP address. The whitelist is stored in the server database, making it available to all servers in a My webMethods Server cluster.

## Adding Servers to a Whitelist

You can allow redirection to an external address by adding it to the whitelist. By default, the cluster front end, `localhost`, and the loopback address (127.0.0.1), are included in the list.

---

### To add an external address to the whitelist

1. As system administrator, click **Administration Dashboard > Configuration > Redirection Whitelist Administration**.
2. Click **Add Server**, type in the hostname or IP address of a trusted server, click **Apply**, and then click **Save**.

My webMethods Server will now allow URL redirection to the new server.

## Removing Servers from a Whitelist

If an external address is included in the whitelist, you can remove it. By default, the cluster front end, `localhost`, and the loopback address (127.0.0.1), are included in the list and cannot be removed.

---

### To remove an external address from the whitelist

1. As system administrator, click **Administration Dashboard > Configuration > Redirection Whitelist Administration**.
2. Click the check box for the server to be removed, click **Remove Server**, and click **Save**.

The server is now removed from the whitelist.

# 3 My webMethods Server and HTTPS

---

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- Managing Authentication Certificates as My webMethods Administrator ..... 40

## Using My webMethods Server as an HTTPS Client

If you want to connect My webMethods Server to a server using HTTPS, you must set up the trusted CA store file (the cacerts file) that the JVM running in the My webMethods Server machine uses. The trusted CA store file must contain the CA certificates of the servers to which My webMethods Server will be issuing HTTPS requests.

For example, if you use webMethods Monitor or the WmTaskClient Package, you must identify the Integration Server to which My webMethods Server issues requests on behalf of Monitor pages. If you choose to have the requests issued using HTTPS, you must then set up the trusted CA store file of the JVM running in the My webMethods Server machine to contain the CA certificate of the Certificate Authority that signed the Integration Server certificate.

You import CA certificates into the trusted CA store file of the JVM using the JVM's keytool command. By default, the trusted CA store file is located in the following location where *Software AG\_directory* is the location where you installed your webMethods *operating\_system* identifies the operating system you use:

```
Software AG_directory
\jvm\operating_system\jre\lib\security\cacerts
```

For example, if you are using Windows, the location of the trusted CA store file is:

```
Software AG_directory
\jvm\jvm\jre\lib\security\cacerts
```

## Importing CA Certificates

### To import CA certificates into the trusted CA store file of the My webMethods Server JVM

1. Locate the CA certificate you need to add to the trusted CA store file and ensure it is available on the machine running My webMethods Server.
2. At a command line prompt, type the following command to move to the `jvm\lib\security` directory:

```
cd Software AG_directory\jvm\operating_system\jre\lib\security
```

3. Type the following command to import the CA certificate into the trusted CA store file:

```
..\..\..\bin\keytool -import -v -keystore
cacerts -file <cacert.der> -alias <aliasName>
```

where:

- `-file <cacert.der>` identifies the path and file name of the file that contains the CA certificate you want to import

- `-alias <aliasName>` assigns an alias to the certificate to identify the entry in the key store file. Select a value that is meaningful to you.

For example, to import the CA certificate named `serverCAcert.der`, which is stored in the same directory as the `cacerts` file, and identify the new entry in the key store file as `SERVERCA`, you would use the following command:

```
..\..\..\bin\keytool -import -v -keystore
cacerts -file serverCAcert.der -alias SERVERCA
```

4. After entering the `keytool` command, the command prompts you for the password for the `cacerts` file. Type the password. By default, the password is `changeit`.
5. After entering the password, the `keytool` command prompts to verify that you want to import the CA certificate. Type `y` for yes.
6. To ensure that the CA certificate was successfully imported into the trusted CA store file, enter the following command:

```
..\..\..\bin\keytool -list -keystore cacerts
```

The `keytool` command prompts for the password for the `cacerts` file. Type the password.

### Example

Assume that you want the `WmTaskClient` Package to communicate with Integration Server on the same computer using SSL. In this example, we use the default My webMethods Server truststore.

1. If you have not already done so, configure My webMethods Server to use an HTTPS port, as described in "[Communicating with webMethods Applications Using HTTPS](#)" on page 39. For example, set the HTTPS port to 8586.
2. In Integration Server, configure the `WmTaskClient` Package to communicate using the HTTPS port configured in the previous step (8586).
3. Create a temporary directory in which to store the CA certificate, such as `C:\temp`.
4. At a command line prompt, move to the directory of the JVM `keytool` command:
 

```
cd Software AG_directory\jvm\operating_system\jre\lib\security
```
5. Type the following command to extract the CA certificate from the default My webMethods Server truststore:
 

```
keytool -export -alias "softwareag demo" -file c:\temp\sagca.crt
-keystore Software AG_directory\MWS\server\default\config\
security\sagdemoca.jks
```
6. At the prompt, type the truststore password. For the default My webMethods Server truststore, the password is `manage`.
7. To import the CA certificate into the trusted CA store of the JVM, type the following command:

```
keytool -import -trustcacerts -file c:\temp\sagca.crt
-alias "softwareag demo" -keystore Software AG_directory\jvm\
jvm160_32\jre\lib\security\cacerts
```

**Note:** If you are running on a 64-bit operating system, change `jvm160_32` to `jvm160_64`.

8. At the prompt, type the password for the trusted CA store file of the JVM. By default, the password is `changeit`.
9. To verify that you want to import the CA certificate, type `y` for yes.
10. Restart Integration Server so it will use the new CA certificate.

## Certificates Used for Secure Connections

My webMethods Server includes two default keystores you can use to set up and test your HTTPS listener:

- A *keystore*, which contains a key pair used to set up encrypted connections between client and server. The default keystore file is `localhost.p12`, which contains a demonstration certificate and a private key for the Jetty SSL server used by My webMethods Server.
- A *truststore*, which contains trusted digital certificates from a certification authority (CA). The default truststore file `sagdemoca.jks` contains a Software AG CA certificate that allows one instance of My webMethods Server to trust SSL (Secure Sockets Layer) connections from another instance, or from other webMethods products.

My webMethods Server stores these keystores at this location for each server instance:

*Software AG\_directory*\MWS\server\*server\_instance* \config\security\

For production environments, you can use certificates from a commercial authority such as Verisign or use an internal authority.

## Replacing Keystores

The `wrapper.conf` file sets the values the `javax.net.ssl` system properties use for communication using SSL. You can edit the `custom_wrapper.conf` file to replace the keystore or truststore for an instance of My webMethods Server.

### To replace the keystore or truststore

1. Open the `custom_wrapper.conf` file for the server instance in a text editor. You can find the file at this location:

*Software AG\_directory*\profiles\MWS\_*server\_name* \configuration\

2. In the `custom_wrapper.conf` file, add or change the values of the SSL properties as needed and save the file:

```
# SSL Properties
set.JAVA_KEYSTORE=Software AG_directory\MWS\server\default\config
  \security\localhost.p12
set.JAVA_KEYSTORETYPE=pkcs12
set.JAVA_KEYSTORE_PASSWORD=encrypted_password
set.JAVA_TRUSTSTORE=Software AG_directory\MWS\server\default\config
  \security\sagdemoca.jksset.JAVA_TRUSTSTORETYPE=
```

```
jkssset.JAVA_TRUSTSTORE_PASSWORD=encrypted_password
```

- Restart My webMethods Server.

To provide an encrypted password for the keystore, see ["Generating an Encrypted Password" on page 39](#).

## Generating an Encrypted Password

When replacing keystores, you should provide an encrypted password. Use the following procedure to generate the password, and then copy and paste it into the appropriate location in `custom_wrapper.conf` file.

**Note:** This procedure requires the installation of a Java Development Kit (JDK), preferably Java 7 or later. If the installed Java package is not included in your `PATH` environment variable, you must run the command from the `\bin` directory of your Java installation.

### To generate an encrypted password

- Open a command prompt window in the webMethods installation directory.
- Run the following command:

```
java -cp common/lib/wm-caf-common.jar
com.webmethods.caf.common.CipherUtil <password to encrypt>
```

- The command returns an encrypted version of the specified password. Copy this encrypted password and paste it into the appropriate location in the file.

## Communicating with webMethods Applications Using HTTPS

By default, My webMethods Server communicates with other webMethods applications using the HTTP protocol. You can change to the HTTPS protocol by doing the following:

### To cause My webMethods Server to communicate only through the HTTPS protocol

- In My webMethods Server do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Cluster Settings > Advanced or Cluster Configuration.**
  - As system administrator: **Administration Dashboard > Configuration > Cluster Administration > Advanced or Cluster Configuration.**
- In the MWS **Front End URL** field, modify the URL as follows:
  - Change `http` to `https`.
  - Change the port number.

For example, change this URL:

```
http://my_host:8585
```

To this:

```
https://my_host:7238
```

3. In the **HTTP Port** field, do either of the following:
  - If you are running My webMethods Server as a standalone server, change the value to 0 (zero).
  - If you are running My webMethods Server in a cluster, type the port number to be used by the HTTP listener. This field must always have a valid port number.
4. In the **HTTPS Port** field, change the value to the port number and click **Submit**.
5. Restart My webMethods Server.
6. Notify administrators of all webMethods applications that communicate with My webMethods Server of the new HTTPS port number.

## Managing Authentication Certificates as My webMethods Administrator

As My webMethods Administrator you can manage authentication certificates for users who connect to Integration Server or other webMethods applications. Authentication certificates do not govern a connection between a user and My webMethods Server. To be assigned a certificate, the user must be a member of the system directory service or an external directory service connected to My webMethods Server (see "[Managing Directory Services](#)" on page 84).

The assignment of users to authenticates follows these rules:

- A user can be assigned to multiple certificates.
- An instance of a certificate can have only one user assigned to it, but you can add multiple instances of a certificate, each with a different certificate type, and assign a different user to each instance.

You can perform the following actions with Certificates:

Function	For more information see...
Add a certificate	<a href="#">"Adding an Authentication Certificate" on page 41</a>
Search for a certificate	<a href="#">"Searching for Authentication Certificates" on page 42</a>
View details of a certificate	<a href="#">"Viewing Details of an Authentication Certificate" on page 43</a>

Function	For more information see...
Assign a user to a certificate	<a href="#">"Assigning a User to an Authentication Certificate" on page 44</a>
Change users for a certificate	<a href="#">"Changing Users for an Authentication Certificate" on page 44</a>
Delete a certificate	<a href="#">"Deleting an Authentication Certificate" on page 45</a>

## Adding an Authentication Certificate

To add a certificate, do the following:

### To add an authentication certificate

1. In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Certificates.**
2. Click **Add New Certificate.**
3. Click **Browse**, navigate to the location of the certificate file you want to add, and click **Open.**
4. From the **Certificate Type** list, choose the type authentication certificate to be used by a client connecting to Integration Server or other webMethods application:

Certificate Type	Purpose
<b>SSL (default)</b>	Authenticates the message sender. The credentials are supplied in the protocol header.
<b>Verify</b>	Verifies the digital signature on incoming messages to Integration Server.
<b>Encrypt</b>	Encrypts outgoing messages from Integration Server.
<b>Verify and Encrypt</b>	Both verifies the digital signature on incoming messages and encrypts outgoing messages. Used if a user has the same certificate for sending and receiving messages.
<b>Message Authentication</b>	Authenticates the message sender. The credentials are supplied in the message header.

5. Click **Upload.**

The certificate appears on the Certificates panel.

## Searching for Authentication Certificates

You can search for authentication certificates based on a number of criteria.

### To perform a search for authentication certificates

1. In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Certificates > Search > Advanced.**
2. Select any criteria that can define the certificate you want to find.

Criteria	How to enter it
<b>CERTIFICATE INFO</b>	
<b>Type</b>	Choose the certificate type assigned to the certificate. Valid types are described in <a href="#">"Adding an Authentication Certificate" on page 41</a> . The default is <b>Any</b> .
<b>Issuer Name</b>	Type the common name of the certificate issuer. This field is not used if you leave it blank.
<b>Serial Number</b>	Type the serial number assigned to the certificate. This field is not used if you leave it blank.
<b>Subject Name</b>	Type the common name of the subject. This field is not used if you leave it blank.
<b>VALID NOT BEFORE DATE</b>	
<b>Range</b>	Choose a range of dates from the selection provided. The default is <b>All</b> .
<b>Start Date</b>	Type a start date using the format M/D/YYYY; if you use an incorrect format, the border turns red. Or click the Choose Date icon  .
<b>End Date</b>	Type an end date using the format M/D/YYYY; if you use an incorrect format, the border turns red. Or click Choose Date icon  .
<b>VALID NOT AFTER DATE</b>	

Criteria	How to enter it
Range	Choose a range of dates from the selection provided. The default is <b>All</b> .
Start Date	Type a start date using the format M/D/YYYY; if you use an incorrect format, the border turns red. Or click Choose Date icon  .
End Date	Type an end date using the format M/D/YYYY; if you use an incorrect format, the border turns red. Or click Choose Date icon  .

- After you have selected search criteria, click **Search**.

## Viewing Details of an Authentication Certificate

You can view the details associated with an authentication certificate.

### To view the details of an authentication certificate

- In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Certificates**.
- If the certificate is not visible in the **Certificates** panel, use the **Search** panel to locate it, as described in "[Viewing Details of an Authentication Certificate](#)" on page 43.
- Locate the certificate and click the Details icon .

The following details are available:

Certificate Detail	Description
Type	The certificate type assigned when the certificate was added, as described in " <a href="#">Adding an Authentication Certificate</a> " on page 41.
Subject CN	The common name of the host being authenticated.
Issuer CN	The common name of the issuer.
Serial Number	The serial number assigned to the certificate.
Valid Not Before	The date before which the certificate is not valid.
Valid Not After	The date after which the certificate is not valid.

Certificate Detail	Description
User	The user's name.

- To return to the list of certificates, click **Close**.

## Assigning a User to an Authentication Certificate

You can assign only one user to an instance of an authentication certificate. The procedure for doing so is described here. To assign the same certificate to multiple users, add a separate instance of the certificate ("[Adding an Authentication Certificate](#)" on page 41) for each user.

### To assign a user to an authentication certificate

- In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Certificates**.
- If the certificate is not visible in the **Certificates** panel, use the **Search** panel to locate it, as described in "[Searching for Authentication Certificates](#)" on page 42.
- Locate the certificate and click the Details icon .
- On the Edit Certificate area, click **Set**.
- In the Keywords field, type a user ID, click **Search**, move the user to the **Selected** box, and click **Apply**.
- Click **Close**.

## Changing Users for an Authentication Certificate

You can exchange one user for another in an existing authentication certificate.

### To change users for an authentication certificate

- In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Certificates**.
- If the certificate is not visible in the **Certificates** panel, use the **Search** panel to locate it, as described in "[Searching for Authentication Certificates](#)" on page 42.
- Locate the certificate and click the Details icon .
- On the Edit Certificate area, click **Set**.
- In the Keywords field, type the user ID for the new user, click **Search**, move the user to the **Selected** box, and click **Apply**.

This action replaces the former user with the new user.

- Click **Close**.

## Removing a User from an Authentication Certificate

You can remove a user who is assigned to an existing authentication certificate.

---

### To remove a user from an authentication certificate

1. In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Certificates.**
2. If the certificate is not visible in the **Certificates** panel, use the **Search** panel to locate it, as described in "[Searching for Authentication Certificates](#)" on page 42.
3. Locate the certificate and click the Details icon .
4. On the Edit Certificate area, click **Remove**.
5. Click **Close**.

## Deleting an Authentication Certificate

You can view the details associated with an authentication certificate.

---

### To view the details of an authentication certificate

1. In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Certificates.**
2. If the certificate is not visible in the **Certificates** panel, use the **Search** panel to locate it, as described in "[Searching for Authentication Certificates](#)" on page 42.
3. In the search results, select the check boxes beside the certificates you want to delete, and click **Delete**.



# 4 Using My webMethods Server with Web Servers

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## Integration with Web Servers

---

My webMethods Server can integrate with the leading web servers, such as Microsoft Internet Information Server or Apache HTTP Server. The primary mechanism for integrating My webMethods Server with a third party web server in a distributed deployment scenario requires the use of a small plug-in that is installed and configured on the web server. This plug-in forwards HTTP requests from the web server to My webMethods Server.

My webMethods Server provides an integrated servlet engine with Jetty, which is a built-in web server that supports both HTTP and HTTPS. As such, having a separate web server tier is not a hard requirement.

There are several reasons for configuring My webMethods Server with an external web server (or cluster of web servers). The most notable reason is to adhere to corporate IT policies and procedures. My webMethods Server supports a flexible deployment model that allows an external web server (or cluster of web servers) to handle all HTTP requests that can be separately load balanced.

Integrating an external web server to handle HTTP requests requires configuring a web server plug-in on the external web server machine(s). The web server plug-in leverages code from the Jakarta web server project which is used extensively across many production-quality web server products.

## My webMethods Server and Apache

---

You can use My webMethods Server on UNIX platforms with the Apache HTTP Server, from the Apache Software Foundation. If you want to use the Apache HTTP Server, you may find these external references useful:

- For information on using the Apache `mod_proxy_http` module: [http://httpd.apache.org/docs/2.2/mod/mod\\_proxy\\_http.html](http://httpd.apache.org/docs/2.2/mod/mod_proxy_http.html)
- For information on using the Apache `mod_proxy` module: [http://httpd.apache.org/docs/2.2/mod/mod\\_proxy.html](http://httpd.apache.org/docs/2.2/mod/mod_proxy.html)
- For information on using the Apache `mod_proxy_balancer` module: [http://httpd.apache.org/docs/2.2/mod/mod\\_proxy\\_balancer.html](http://httpd.apache.org/docs/2.2/mod/mod_proxy_balancer.html)

## My webMethods Server and IIS

---

Software AG does not include Internet Information Services (IIS) components in an installation of My webMethods Server, nor does My webMethods Server explicitly support the use of IIS as a web server. However, if you want to use IIS, you may find these external references useful:

- For general information and discussions on using IIS as a reverse proxy: <http://www.iis.net/>
- To use IIS with Apache Tomcat: [http://tomcat.apache.org/connectors-doc/webserver\\_howto/iis.html](http://tomcat.apache.org/connectors-doc/webserver_howto/iis.html)



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# 5 Running My webMethods Server from the Command Line

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## Command Syntax for My webMethods Server

There are times when it is useful to start and stop the server from the command line. Starting the server this way, for example, allows you to use debug mode so you can record or display server activity. There are several commands you can use to control operation of the server, as described in the following procedure.

### To control the server from the command line

1. At a command line prompt, type the following command to move to the server's bin directory:

```
cd Software AG_directory\MWS\bin
```

2. Type the following command:

For Windows: `mws.bat -option -option ... command`

For UNIX: `mws.sh -option -option ... command`

where *option* is any of the following:

Option	Description
<code>-d[debug]</code>	Starts the server in debug mode. DEBUG statements appear in the console window and a Java debug listener opens on port 10033.
<code>-n nodename</code>	In a clustered environment, the nodename assigned to the server instance. Not required if the server is running standalone, or if it is the master node of a cluster. See " <a href="#">My webMethods Server Clustering</a> " on page 171 for information on clusters.
<code>-s server name</code>	The name of the server instance. Not required if you are controlling the default server. You can find the server instances on a machine by looking here:  <code>Software AG_directory\MWS\server</code>

and *command* is any command in the following table. Note that when you execute the following commands, you cannot add Java parameters using the command line:

- - start
- - stop
- - restart

■ - installservice

In this case, you can add these Java parameters by editing the corresponding `custom_wrapper.conf` file and adding the parameters as additional properties. For more information, see ["Configuring JVM Settings for My webMethods Server" on page 67](#).

Command	Description
help	Prints command syntax in the console window.
init	Starts My webMethods Server, initializes the My webMethods Server database, and then stops the server.
ping	If the server is stopped, indicates this fact. If the server is running, returns information, including what ports the server is using.
restart	Stops a running server and then starts it again.
run	Starts the server in the same console.
start	Starts the server in a new console window. On UNIX based operating systems the process is started in background execution mode.
stop	Stops a running server.
updatesinfo	Displays information about any fixes that have been installed to My webMethods Server, the My webMethods Server Common Library, or the user interfaces of installed webMethods applications.

**The following commands are for Windows only:**

installservice	Registers the server as a Windows service.
restartservice	Stops a server that is registered as a Windows service and then starts it again.
startservice	Starts a server that is registered as a Windows service.
stopservice	Stops a server that is registered as a Windows service.

Command	Description
<code>uninstallservice</code>	Unregisters the server as a Windows service.
<b>The following commands are for UNIX only:</b>	
<code>installservice</code>	Registers the server as a UNIX service. The following parameters are required by the command: <ul style="list-style-type: none"> <li>■ <code>mws.user=&lt;A user that MWS runs with&gt;</code></li> <li>■ <code>platform=&lt;suse or redhat&gt;</code></li> </ul> The <code>platform</code> parameter is mandatory only when My webMethods Server is installed on Linux based operating systems, such as SuSE, or RedHat
<code>uninstallservice</code>	Unregisters the server as a UNIX service. The following parameter is required by the command: <ul style="list-style-type: none"> <li>■ <code>platform=&lt;suse or redhat&gt;</code></li> </ul> The <code>platform</code> parameter is mandatory only when My webMethods Server is installed on Linux based operating systems, such as SuSE, or RedHat
<b>The following commands configure or delete server instances:</b>	
<code>delete</code>	Deletes an existing instance of My webMethods Server. Accepts only the <code>-s</code> option. See <a href="#">"Deleting a Server Instance" on page 61.</a>
<code>getconfig</code>	Downloads a configuration file from the My webMethods Server database. See <a href="#">"Modifying Configuration Files Stored in the Database" on page 71.</a>
<code>putconfig</code>	Uploads a configuration file to the My webMethods Server database
<code>new</code>	Creates a new server instance. See <a href="#">"Creating a New Server Instance" on page 58.</a>
<code>update</code>	Used as part of a product fix, updates classpaths and deploys new or updated components. Accepts only the <code>-s</code> option.

Command	Description
	<b>Note:</b> Use this command only as directed while installing a fix supplied by Software AG.

## Initial Server Startup

The first time you start an instance of My webMethods Server, you need to initialize the My webMethods Server database. This requirement exists for a new installation of the product or a new server instance that uses a separate database (see "[Creating a New Server Instance](#)" on page 58).

### To initialize a new instance of My webMethods Server

1. At a command line prompt, type the following command to move to the server's bin directory:

```
cd Software AG_directory\MWS\bin
```

2. At the same command prompt, initialize the server instance using this command:

For Windows: `mws.bat -s servername init`

For UNIX: `mws.sh -s servername init`

The `-s servername` option is required only if this is not the default server instance. After the database is initialized, the server automatically stops.

3. Restart My webMethods Server.

## Simple Start and Stop Commands

If you want to start or stop a server, without having to use the server name or node name as part of the command syntax, there are commands associated with each server instance on a machine. This feature is not necessary for a standalone server, but may be useful if you have multiple servers on a machine.

### To start or stop a specific server

1. At a command line prompt, type the following command to move to the server's home directory:

```
cd Software AG_directory\MWS\server\server_instance\bin
```

where `server_instance` is the name of the server.

2. Type one the following commands:

Purpose	Operating system	Command
Start the server in the same console window	Windows	run.bat
	UNIX	run.sh
Start the server in a new console window	Windows	startup.bat
	UNIX	startup.sh
Stop the server	Windows	shutdown.bat
	UNIX	shutdown.sh

## Start, Stop and Execute My webMethods Server Commands on Multiple Server Instances

If you want to start, stop, or execute a My webMethods Server command on all server instances at one go, there are commands associated with all server instances, installed on a machine.

### To start, stop, or execute a command on all server instances

1. At a command line prompt, type the following command to move to the command's home directory:

```
cd Software AG_directory\MWS\bin
```

2. Type one the following commands:

Purpose	Operating system	Command
Execute a command on all server instances.	Windows	mwsall.bat
	UNIX	mwsall.sh
<p><b>Note</b> The following commands are not supported:</p> <pre>run new ant</pre>	Windows	startall.bat
	UNIX	startall.sh
Start all server instances. The server instances are started consequently in alphabetical order. On Windows operating systems, the command	Windows	startall.bat
	UNIX	startall.sh

Purpose	Operating system	Command
starts a server instance as a service if it has a registered service, otherwise it starts the instance as a process. On UNIX based operating systems, the command starts the instances as processes only.		
Stop the server instances. The command calls	Windows	stopall.bat
<code>mws.bat (or .sh) stop</code> for all server instances.	UNIX	stopall.sh

## The OSGi Profile Commands

When using My webMethods Server from the command line, there are several commands you can use to manage the OSGi profile for a server instance. The command syntax is:

```
mws -s servername OSGi-profile-command
```

If the server is the default server, the `-s` option is not needed.

Command	Description
<code>create-osgi-profile</code>	Uses the My webMethods Server bundles to create an OSGi profile for the specified server instance. The profile name is the name specified by the <code>-s</code> option with <code>MWS_</code> preceding it.
<code>delete-osgi-profile</code>	Deletes the OSGi profile for the specified server instance.
<code>deprecate-osgi-profile</code>	Renames the OSGi profile for the specified server instance with a date and time value. You can then use the <code>create-osgi-profile</code> command to create a new profile.
<code>update-osgi-profile</code>	Updates the OSGi profile for the specified server instance. Resets the server name, the service name, and the <code>JAVA_HOME</code> variable, and updates the OSGi bundles associated with the server instance.

**When do I need to create an OSGi profile?**

If you create a new server instance, you need to create an OSGi profile for it as well. The `create-osgi-profile` command is included in ["Creating a New Server Instance" on page 58](#).

**When do I need to update an OSGi profile?**

You need to use the `update-osgi-profile` command when you modify the configuration of a server instance or install a new webMethods application to run on an existing server instance. See ["The OSGi Profile Commands" on page 57](#).

Before updating an OSGi profile, you should consider making a backup copy of the `custom_wrapper.conf` file, which is described in ["Modifying Configuration Files" on page 63](#).

**When do I need to deprecate an OSGi profile?**

When you deprecate an OSGi profile, you rename the profile so it is no longer associated with the server instance. In this case, you use the `deprecate-osgi-profile` command, followed by the `create-osgi-profile` command for the same server instance. It is the equivalent of performing an `update-osgi-profile` command and saving a backup copy.

**When do I need to delete an OSGi profile?**

Strictly speaking, either deleting the OSGi profile or deleting the server instance (`mws delete`) would have the same effect. Using both commands would completely remove the server configuration from the installation directory. Using the `delete-osgi-profile` command this way is shown in ["Deleting a Server Instance" on page 61](#).

Also, you could use the `delete-osgi-profile` command, followed by the `create-osgi-profile` command for the same server instance. It is the equivalent of performing an `update-osgi-profile` command.

Before deleting an OSGi profile, you should consider making a backup copy of the `custom_wrapper.conf` file, which is described in ["Modifying Configuration Files" on page 63](#).

## Creating a New Server Instance

---

You can run multiple instances of My webMethods Server on the same machine, but each server instance must have its own external resources. For more information, see ["Guidelines for Multiple My webMethods Server Instances" on page 29](#).

When you start a new instance of My webMethods Server the first time, it takes about five minutes to initialize. The server then stops and restarts automatically.

Use the following command-line syntax to create an instance of My webMethods Server on the current machine.

**Note:** Unless you are using the embedded database, the four `db.xxx` parameters are required. If you do not include them, the command will fail.

### To create an instance of My webMethods Server from the command line

1. If you have not already done so, use the Database Component Configurator to create a unique database or tablespace for this server instance, as described in *Installing webMethods and Intelligent Business Operations Products*. This step is not required if the server is using the embedded database.

2. At a command line prompt, type the following command to move to the server's bin directory:

```
cd Software AG_directory\MWS\bin
```

3. Type the following command:

```
mws new [-Dparameter=value...]
```

where *parameter* is any of the following:

Parameter	Description						
<code>server.name</code>	Name of the server instance. The default server name is <code>default</code> .						
<code>http.port</code>	Port number on which the server instance listens. Must be unique among server instances on the machine. The default port number is 8585.						
<code>db.type</code>	(Required for all but embedded database) The type of database used by the server instance. The choices are: <table border="0" style="margin-left: 20px;"> <tr> <td><code>ms</code></td> <td>Microsoft SQL Server</td> </tr> <tr> <td><code>oracle</code></td> <td>Oracle</td> </tr> <tr> <td><code>db2</code></td> <td>DB2</td> </tr> </table>	<code>ms</code>	Microsoft SQL Server	<code>oracle</code>	Oracle	<code>db2</code>	DB2
<code>ms</code>	Microsoft SQL Server						
<code>oracle</code>	Oracle						
<code>db2</code>	DB2						
<code>db.url</code>	(Required for all but embedded database) Database connection URL, based on the type of database and the driver. See the following example.						
<code>db.username</code>	(Required for all but embedded database) User name assigned to the My webMethods Server database.						
<code>db.password</code>	(Required for all but embedded database) Password of the My webMethods Server database user.						

Parameter	Description
<code>https.port</code>	(Optional) The HTTPS listener port. A value of 0 disables the listener.
<code>debug.port</code>	(Optional) The Java debug port. The default port number is 10033.
<code>http.proxy.host</code>	(Optional) The proxy host name.
<code>http.proxy.port</code>	(Optional) The proxy port number.
<code>http.proxy.user</code>	(Optional) The proxy user name.
<code>http.proxy.password</code>	(Optional) The proxy password.
<code>http.proxy.hosts</code>	(Optional) Bypass proxy hosts. Separate the entries omitting any spaces and using a vertical bar(  symbol).
<code>server.features</code>	The set of component features configured with the server instance: The choices are: <ul style="list-style-type: none"> <li><code>core</code> The minimum set of features needed to support development of JSR 168 portlets using Software AG Designer. This is a pure runtime, with a single skin and shell, and no administration or configuration features.</li> <li><code>default</code> The standard set of My webMethods Server features, but without extras or development tools found in the MWS/components folder. This is the default value.</li> <li><code>fabric</code> The default My webMethods Server taxonomy with all installed My webMethods Server user interfaces.</li> <li><code>all</code> The standard set of features plus all components found in the MWS/components folder.</li> </ul>

The command creates the instance of My webMethods Server based on the input parameters you have provided.

4. At the same command prompt, create the new OSGi profile for the server instance using this command:

```
mws -s server_name create-osgi-profile
```

The `-s servername` option is required only if this is not the default server instance.

5. Restart My webMethods Server.

### Examples:

Example with an external database:

Server name: test

HTTP port: 8090

Database server (SQL Server): db\_server

Database name: my\_wm\_msql

Database user name: mws\_user

Database password: password

```
> mws new -Dserver.name=test -Dhttp.port=8090
-Ddb.type=ms -Ddb.url=jdbc:wm:sqlserver:db_server:1433;
DatabaseName=my_wm_msql;SelectMethod=direct;MaxPooledStatements=100
-Ddb.username=mws_user -Ddb.password=password
[Configuration output displayed in console window....]
> mws -s test run
```

Same example, but with the embedded database:

```
> mws new -Dserver.name=test -Dhttp.port=8090
```

## Deleting a Server Instance

**Important:** When you issue this command, there is no confirmation before the delete operation takes place. Use this command with extreme caution.

### To delete an instance of My webMethods Server from the command line

1. Stop the My webMethods Server instance.

See "[Command Syntax for My webMethods Server](#)" on page 52.

2. At a command line prompt, type the following command to move to the server's bin directory:

```
cd Software AG_directory\MWS\bin
```

3. Type this command:

```
mws -s server_name delete
```

where *server\_name* is the name of the server to be deleted.

**Example:**

```
> mws -s test delete
```

## Log Files for mws Commands

---

Every time you issue one of the `mws` commands from the command line, My webMethods Server creates a log file of information written to the console. The command name takes this form:

```
command-name_server-instance.log
```

where:

- *command-name* is the name of the `mws` command.
- *server-instance* is the name of the server instance affected by the command.

For example, if you issue this command:

```
mws -s alpha create-osgi-profile
```

The resulting log file has the name `create-osgi-profile_alpha.log`.

The log files are written to this location:

```
Software AG_directory\MWS\bin
```

When you issue an `mws` command and a log file for that command already exists, My webMethods Server completely overwrites the existing log file. If you want to maintain the old log file, make a backup copy of it before reissuing the command.

If the `mws` command is unsuccessful, one quick way to check the log file is to search for the existence of this exit code:

```
ExitCode: 13
```

Following that code, you should find the missing requirement, possibly an missing bundle or feature ID. If you cannot find an obvious reason for the failure, be prepared to make a copy of the log file available to Software AG Global Support.

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# 6 Modifying Configuration Files

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## The Java Service Wrapper

My webMethods Server runs on the on the Software AG Common Platform, which in turn runs in a Java Virtual Machine (JVM). The Java Service Wrapper is an application developed by Tanuki Software, Ltd. It is a utility program that launches the JVM in which My webMethods Server runs.

In addition to launching the JVM, the Java Service Wrapper offers features for monitoring the JVM, logging console output, and generating thread dumps. The following sections describe how My webMethods Server uses the features of the Java Service Wrapper. For an overview of the Java Service Wrapper, see the webMethods cross-product document, *Working with the webMethods Product Suite and the Java Service Wrapper*.

### The Java Service Wrapper Configuration Files

For My webMethods Server, the configuration files for the Java Service Wrapper reside in the following directory.

*Software AG\_directory/profiles/MWS\_instanceName /configuration*

When you start My webMethods Server, property settings in the following files determine the configuration of the JVM and the behavior of the logging and monitoring features of the Java Service Wrapper.

File name	Description
wrapper.conf	<p>Contains property settings that are installed by My webMethods Server.</p> <p>Do not modify the contents of this file unless asked to do so by Software AG.</p>
custom_wrapper.conf	<p>Contains properties that modify the installed settings in wrapper.conf.</p> <p>If you need to modify the property settings for the Java Service Wrapper, you make your changes in this file.</p>
wrapper.conf.template	<p>Contains settings that are applied to the wrapper.conf file when My webMethods Server is updated or upgraded. Do not modify this file.</p> <p>The file is located here:</p> <p><i>Software AG_directory\MWS\server\server_name \config\</i></p>

## JVM Configuration

When the Java Service Wrapper launches the JVM, it provides configuration settings that, among other things, specify the size of the Java heap, the size of the PermGen area, and the directories in the classpath.

### *The JVM Configuration Properties*

The `wrapper.java` properties in the Java Service Wrapper configuration files determine the configuration of the JVM in which My webMethods Server runs.

The JVM property settings that My webMethods Server installs are suitable for most environments. However, you can modify these properties if the installed settings do not suit your needs. For procedures and additional information, see "[Configuring JVM Settings for My webMethods Server](#)" on page 67.

## The Wrapper Log

My webMethods Server has its own logging mechanism, described in "[Controlling Server Logging](#)" on page 250. In addition, the Java Service Wrapper records console output in a log file. The log contains the output sent to the console by the wrapper itself and by the JVM in which My webMethods Server runs. The wrapper log is especially useful when you run My webMethods Server as a Windows service, because console output is normally not available to you in this mode.

The Java Service Wrapper log for My webMethods Server is located in the following file:

```
Software AG_directory\profiles\MWS_server_name \logs\wrapper.log
```

To view the log, open the log file in a text editor.

### *The Logging Properties*

The `wrapper.console` and `wrapper.log` properties in the wrapper configuration files determine the content, format, and behavior of the wrapper log.

The logging settings that My webMethods Server installs are suitable for most environments. However, you can modify the following properties if the installed settings do not suit your needs. For procedures and additional information, see the webMethods cross-product document, *Working with the webMethods Product Suite and the Java Service Wrapper*.

Property	Value
<code>wrapper.logfile.maxsize</code>	Maximum size to which the log can grow.
<code>wrapper.logfile.maxfiles</code>	Number of old logs to maintain.

## Fault Monitoring

The Java Service Wrapper can monitor the JVM for the specified conditions and then restart the JVM or perform other actions when it detects these conditions.

The following table describes the fault-monitoring features My webMethods Server uses or allows you to configure. To learn more about these features, see the webMethods cross-product document, *Working with the webMethods Product Suite and the Java Service Wrapper*.

Feature	Enabled?	User configurable?
JVM timeout	Yes	Yes. See the <code>wrapper.ping</code> properties in <a href="#">"Configuring My webMethods Server Settings"</a> on page 67.
Deadlock detection	No	Yes. See the <code>wrapper.check.deadlock</code> properties in <a href="#">"Configuring Wrapper JVM Checks"</a> on page 69.
Console filtering	Yes	Yes. See <a href="#">"Console Filtering Properties"</a> on page 66.

### Console Filtering Properties

The `wrapper.filter` properties in the wrapper configuration files determine whether the wrapper monitors the console for specified messages. My webMethods Server installs pre-defined filters that monitor the console for certain messages. For information about the installed filters, see ["Configuring JVM Out-of-Memory Checks"](#) on page 69.

You can add additional filters to the Java Service Wrapper using the following properties. See the webMethods cross-product document, *Working with the webMethods Product Suite and the Java Service Wrapper* for procedures and additional information.

Property	Value
<code>wrapper.filter.trigger.n</code>	String of text that you want to detect in the console output.
<code>wrapper.filter.action.n</code>	Action that occurs when the Java Service Wrapper detects the string of text.
<code>wrapper.filter.allow_wildcards.n</code>	Flag (TRUE or FALSE) that specifies whether the Java Service Wrapper

Property	Value
	processes wildcard characters that appear in <code>wrapper.filter.trigger.n</code> .
<code>wrapper.filter.message.n</code>	Message that displays when the Java Service Wrapper detects the string of text.

## Generating a Thread Dump

The Java Service Wrapper provides a utility for generating a thread dump when My webMethods Server is running as a Windows service. A thread dump can help you locate thread contention issues that can cause thread blocks or deadlocks.

For information about generating a thread dump using the Java Wrapper Service, see the webMethods cross-product document, *Working with the webMethods Product Suite and the Java Service Wrapper*.

## Configuring JVM Settings for My webMethods Server

The following topics describe modifications you can make to JVM settings. To modify JVM settings, you make changes to the `custom_wrapper.conf` file.

### To modify JVM settings

1. In a text editor, open the `custom_wrapper.conf` file for the server instance. You can find the file at this location:  
`Software AG_directory\profiles\MWS_server_name \configuration\`
2. Add or modify statements as needed and save the file.
3. Restart My webMethods Server for the new setting to take effect.

## Configuring My webMethods Server Settings

You can use the `custom_wrapper.conf` file to configure the following setting for a My webMethods Server instance:

Parameter	Value	Description
<code>wrapper.ping.timeout=</code>	120	If set to 0, the wrapper will never time out, but a real indicator whether the server

Parameter	Value	Description
		is suspended will not exist either.

## Setting Initial and Maximum Memory Limits

You can configure the initial and maximum amount of memory that is allocated by the JVM at startup. The Java Service Wrapper uses these parameters, shown with their default values:

Parameter	Value in megabytes
<code>wrapper.java.initmemory=</code>	128
<code>wrapper.java.maxmemory=</code>	1024

To use the default values that are configured in the JVM itself, specify zero (0) in the properties of the `custom_wrapper.conf` file. For example:

```
wrapper.java.maxmemory=0
```

**Note:** If you specify a value for the `wrapper.java.initmemory` memory property, make sure that it is smaller than the value of the `wrapper.java.maxmemory` property.

### Raising the Maximum Memory Limit on UNIX

On UNIX or Linux systems, if My webMethods Server fails to initialize, you may need to increase the maximum amount of available memory or the maximum open files limit. This need can occur if you have multiple language packs installed, or if there are multiple webMethods components installed on the server.

In the `custom_wrapper.conf` file, specify the maximum memory limit in megabytes. To double the maximum available memory, for example, change this value:

```
wrapper.java.maxmemory=1024
```

to this:

```
wrapper.java.maxmemory=2048
```

Each UNIX platform has its own method for configuring Open File limits. Here is an example on how to increase the maximum Open Files limit parameters on Linux:

```
ulimit -c unlimited
ulimit -n 8192
```

Check with your administrator to make these changes on Linux or other UNIX platforms.

For information on editing this `custom_wrapper.conf`, see ["Configuring JVM Settings for My webMethods Server"](#) on page 67.

## Configuring Wrapper JVM Checks

The Java Service Wrapper can perform internal detection of deadlock threads or out of memory conditions within the JVM. By default, the deadlock detection is disabled in the My webMethods Server service and if you want to use this functionality, you need to enable it manually in the `custom_wrapper.conf` file.

The following table describes the available parameters.

Parameter	Default Value	Description
<code>wrapper.check.deadlock=</code>	FALSE	Controls the operating state of the functionality.
<code>wrapper.check.deadlock.interval=interval</code>	60	Controls the deadlock detection interval in seconds.
<code>wrapper.check.deadlock.action=action</code>	RESTART	Controls the action if a deadlock condition occurs.
<code>wrapper.check.deadlock.output=output</code>	FULL	Controls the output of the wrapper. Valid values are: <ul style="list-style-type: none"> <li>■ FULL</li> <li>■ SIMPLE</li> <li>■ NONE</li> </ul>

## Configuring JVM Out-of-Memory Checks

You can configure the properties that control and resolve the out-of-memory conditions by filtering the console output of the JVM. These properties use this syntax:

```
wrapper.filter.element.<n>=parameter
```

The number *n* starts from one and increases by one for each consecutive element. As a rule, the chain of additional parameters must start at 1 and be consecutive. However, if you enable `wrapper.ignore_sequence_gaps` property, the sequence can be broken.

The following table describes the available parameters, the recommended values, and the corresponding descriptions.

Parameter	Recommended Value	Description
<code>wrapper.filter.trigger.n=</code>	<code>java.lang.OutOfMemoryError</code>	Enables a query for an out-of-memory condition on the console output of the JVM.
<code>wrapper.filter.action.n=</code>	RESTART	Controls the action if the configured filter is met (an out-of-memory condition occurs).
<code>wrapper.filter.message.n=</code>	The JVM has run out of memory.	Controls the message that is displayed if the filter is met (an out-of-memory condition occurs).

## Additional JVM Parameters

There are some parameters that do not relate to My webMethods Server but to the JVM itself. These parameters use this syntax:

```
wrapper.java.additional.n=parameter
```

The number *n* starts from one and increases by one for each consecutive element. As a rule, the chain of additional parameters must start at 1 and be consecutive. For example:

```
# Java Additional Parameters
wrapper.java.additional.1=-Dosgi.install.area="%OSGI_INSTALL_AREA%"
wrapper.java.additional.2=-Declipse.ignoreApp=true
wrapper.java.additional.3=-Dosgi.noShutdown=true
```

The following table describes some available parameters.

Parameter and Description
<pre>wrapper.java.additional.n=-XX:MaxPermSize=size</pre> <p>The permanent generation space available in the JVM. The default is 128m</p>
<pre>wrapper.java.additional.n=-DproxySet=true</pre> <p>Starts the program without a graphical user interface window.</p>
<pre>wrapper.java.additional.n=-Dhttp.proxyHost=host_name</pre> <p>The host name of the proxy server.</p>

**Parameter and Description**

```
wrapper.java.additional.n=-Dhttp.proxyPort=port_number
```

The port number on the proxy server.

```
wrapper.java.additional.n=-Dhttp.proxyUser=user_name
```

A user name used for authentication.

```
wrapper.java.additional.n=-Dhttp.proxyPassword=password
```

A password used for authentication.

```
wrapper.java.additional.n=-Dhttp.nonProxyHosts=bypass_hosts
```

A list of hosts that should be reached directly, bypassing the proxy. Entries are separated by a vertical bar ( | ).

## Modifying Configuration Files Stored in the Database

Many configuration files that could be found in the directory structure of earlier versions of My webMethods Server are now stored in the server database. You can get those configuration files from the database using the `mws getconfig` command.

Most of the configuration files are stored in the My webMethods Server database by default, instead of in the local file system. To edit any My webMethods Server configuration file, you need to download the file from the database. The following table shows the files you can download using the `mws getconfig` command.

**Note:** File names and file contents are case sensitive.

Configuration file	Purpose
cache.xml	Increase cache size.
cluster.xml	Contain configuration data for each node in a cluster.
defaultPortletAppWeb.xml	Modify properties of a web application.
defaultPartitionPortlets.properties	List the portlets affected by the phase provider for the default cluster partition. If you have multiple cluster partitions, it is possible to have multiple portlets

Configuration file	Purpose
	properties files, each having the file name <i>partition_name</i> PortletsProperties.xml
email.properties	Configure email servers.
iconMap.properties	Map mime types (Content types) to icons located in the ui\images directory.
jetty.xml	Configure the Jetty server.
log4j.init.properties	Turn internal debugging on or off (Apache Log4J logging package).
log4j.override.properties	Modify properties of the Apache Log4J logging package.
logging.properties	Customize logging folders, patterns, and so forth.
mimeTypes.properties	Customize mime types.
perfUtil.properties	Enable and disable the performance service
phaseProvider.xml	Modify the server polling interval. If you have multiple cluster partitions, it is possible to have multiple phase provider files, each having the file name <i>partition_name</i> PhaseProvider.xml.
storageConfig.xml	Configure content services.
systemPaths.properties	Configure the location of logs or the temp folder.
systemProperties.properties	Contain persisted System.properties.
defaultPortletAppWeb.xml	Modify properties of a web application.
email.properties	Configure email servers.
<b>Note:</b>	It is not necessary that a My webMethods Server instance be running, but the My webMethods Server database needs to be running.

---

### To edit configuration files for My webMethods Server

1. At a command line prompt, type the following command to move to the server's bin directory:

```
cd Software AG_directory\MWS\bin
```

2. To retrieve a configuration file from the My webMethods Server database, type this command:

```
mws getconfig file name
```

where *file name* is the name of the configuration file you intend to edit.

For example:

```
mws getconfig cluster.xml  
mws getconfig logging.properties
```

3. Open the downloaded configuration file in a text editor and modify it as needed.

You can find the file at this location:

```
Software AG_directory\MWS\server\server_name \config
```

4. To deploy the revised file to the My webMethods Server database, type this command:

```
mws putconfig file name
```

5. Delete the file from the `\server_name \config` directory.

If you do not delete the file, this server instance will continue to use the local version of the configuration file.

6. Restart the node using this command:

```
mws -s server_name restart
```

Changes to configuration files are not applied until after a restart.

## Configuring My webMethods Server to Run in 32-bit on Solaris, HP-UX, or Linux

---

On Solaris, HP-UX, or Linux systems, it is necessary to specify whether the computer has a 32- or 64-bit architecture. By default, My webMethods Server is configured to run in 64-bit mode. You can switch the server to 32-bit mode.

### To configure My webMethods Server to run in 32-bit mode on Solaris or HP-UX

1. Use this command to stop My webMethods Server:

```
mws -option stop
```

Options are described in "[Command Syntax for My webMethods Server](#)" on page 52.

2. Open this file in a text editor:

*Software AG\_directory/MWS/bin/setenv.sh*

3. Locate this text:

```
rem to use 64 bit JVM uncomment next line
set JAVA_D64=-d64
```

and comment the second line:

```
rem to use 64 bit JVM uncomment next line
rem set JAVA_D64=-d64
```

4. Save and close the file.
5. Use this command to update the OSGi profile:
 

```
mws -option update-osgi-profile
```
6. Restart My webMethods Server.

## Configuring Role or Group Cache Lifecycle Calculation

---

By default, the role cache or group cache for a user is recalculated on every user login. Conditions in which the calculation involves user or group searches that take a long time can result in poor performance in My webMethods Server and in LDAP servers to which it is connected. A configuration option in the cache.xml file enables the role cache or group cache to be persisted across user log-ins, causing large performance improvements.

Because the roles are no longer calculated at user login, this optimization modifies the dynamic role capability. With the default setting, where the roles are calculated at user login, the user gains or loses role changes at that time. With the new setting, if a dynamic query role changes the results, the user does not immediately get the change. Role changes made by the system administrator will, however, be recognized. In this mode, static roles function correctly with the new setting. Dynamic roles do not return expected changes until an administrator changes role membership or adds a description, or until the various caches time out.

Under optimization, because My webMethods Server does not control group definition, the Group cache is not updated until the cache entry times out or a system restart occurs. If users change group membership frequently, group cache optimization may not be desirable.

The choice of whether to perform role cache or group cache recalculation at login is a trade-off between performance and functionality.

---

### To configure role cache or group cache lifecycle calculation

1. At a command line prompt, type the following command to move to the server's bin directory:
 

```
cd Software AG_directory\MWS\bin
```
2. To retrieve the cache.xml file from the My webMethods Server database, type the following command:

```
mws getconfig cache.xml
```

- Open the downloaded cache.xml file in a text editor and modify it as needed.

You can find the file at this location:

*Software AG\_directory*\MWS\server\*server\_name* \config

- Open the cache.xml file in a text editor and locate the cache.

- Role cache:

```
<cache name="RoleCache"
class="com.webmethods.portal.service.cache.impl.RoleCache"
  maxSize="1000"
  defaultCacheTimeout="3600000"
  roleCacheLifecycle="0"
  isClustered="true"
  ID="11"
  enabled="true"/>
```

- Group cache:

```
<cache name="GroupCache"
class="com.webmethods.portal.service.cache.impl.GroupCache"
  maxSize="1000"
  defaultCacheTimeout="3600000"
  groupCacheLifecycle="0"
  isClustered="true"
  ID="19"
  enabled="true"/>
```

- Modify the value of `roleCacheLifecycle` or `groupCacheLifecycle` as needed:

Value	Action
0	(Default) Causes the cache to be recalculated at user login.
1	Causes the cache to be persisted across user logins.

- Save and close the file.
- To deploy the revised file to the My webMethods Server database, type the following command:

```
mws putconfig cache.xml
```

- Delete the file from the `\server_name \config` directory.

If you do not delete the file, this server instance will continue to use the local version of the configuration file.

- Restart the node using the following command:

```
mws -s server_name restart
```

Changes to configuration files are not applied until after a restart.

---

## Configuring HTTP Listeners to Use a Single IP Address

---

My webMethods Server binds its listener ports on all available IP addresses. When you have installed My webMethods Server on server hardware with multiple network interfaces, you can bind the HTTP listener ports to a single IP address, as described in the following topics.

### Configuring Jetty Listeners to Use IP Addresses

Jetty creates several listening ports on the My webMethods Server.

- Ports for HTTP, HTTPS, and Apache JServ Protocol (AJP)
- Random socket acceptor ports for HTTP, HTTPS, and AJP

If you have installed My webMethods Server on server hardware with multiple network interfaces, you can bind the HTTP listener ports to a single IP address. Use this procedure to configure a specific IP address to the port used by the Jetty listeners.

Configuring the Jetty listening ports requires specifying the IP addresses in the `jetty.xml` configuration file.

---

#### To configure specific IP addresses to be used by Jetty listeners

1. Open the `jetty.xml` file in an editor, go to the HTTP, HTTPS, or AJP connectors element.
2. In each element, look for the following property set.

```
<Set name="Host">0.0.0.0</Set>
```

When the value is 0.0.0.0, Jetty can use all available IP addresses.

3. Replace the 0.0.0.0 value to bind a listener to a specific IP address.

### Configuring IP Addresses in GLUE Web Services Registry

If your instance of My webMethods Server has Central Configuration installed, the GLUE web services registry was created to use a range of ports from 16000 to 16025. You configure the IP address in the `GlueServiceRegistryProperties.xml` file to use a specific IP address.

If you have installed My webMethods Server on server hardware with multiple network interfaces, you can bind the HTTP listener ports to a single IP address. Use this procedure to configure a specific IP address to the port used by the GLUE web services registry.

---

### To configure a specific IP address

1. Go the installation directory for My webMethods Server, navigate to `MWS/server/default/config/engine`, and open the `GlueServiceRegistryProperties.xml` file in an editor.
2. Look for the following property:

```
<entry key="service.address">0.0.0.0</entry>
```
3. Replace the value, `0.0.0.0`, with the IP address.

## Configuring an IP Address for the SOAP Monitor Portlet

The SOAP Monitor portlet that is used to debug issues with web service calls from other portlets opens port 5001.

If you have installed My webMethods Server on server hardware with multiple network interfaces, you can bind the HTTP listener ports to a single IP address.

In the `custom_wrapper.conf` file, specify a value for the following parameter:

```
wrapper.java.additional.203=-Dsoap.monitor.bind.address=IP-address | host name
```

where *IP-address* or *host name* is the IP address or host name of the SOAP Monitor portlet listener.

For information on editing this file, see "[Configuring JVM Settings for My webMethods Server](#)" on page 67.

## Configuring an IP Address for the JCR Repository RMI Server

When using a Java Content Repository (JCR), the connection to the JCR is implemented using an RMI to communicate with My webMethods Server. The default JCR listener port is 10999.

If you have installed My webMethods Server on server hardware with multiple network interfaces, you can bind the HTTP listener ports to a single IP address.

In the `custom_wrapper.conf` file, specify a value for the following parameter:

```
wrapper.java.additional.204=-Dmws.jcr.rmi.bind.address=IP-address | host name
```

where *IP-address* or *host name* is the IP address or host name of the JCR repository RMI server listener.

For information on editing this file, see "[Configuring JVM Settings for My webMethods Server](#)" on page 67.

## Configuring My webMethods Server on Multi-Home Machines

If you are configuring My webMethods Server on multi-home machines (that is, machines that have multiple network interfaces and IP addresses), follow the steps below to bind My webMethods Server listeners to a single IP address.

1. Shut down My webMethods Server.
2. Bind the HTTP, HTTPS, and AJP listeners to the IP address as described below. Perform the steps for only one server instance. When you save the changes to the My webMethods Server database, they will take effect for all server instances.

- a. Go to the *Software AG\_directory /MWS/bin* directory, open a command window, and run the following command:

```
mws.{bat|sh} -s instance_name getconfig jetty.xml
```

- b. Go to the *Software AG\_directory /MWS/server/instance\_name /config* directory and open the *jetty.xml* file in a text editor.

- c. For each listener, remove the following element if present:

```
<Set name="host"><Property name="jetty.host" /></Set>
```

Add the following element:

```
<Set name="host">IP_address</Set>
```

- d. Save the changes to the My webMethods Server database by running this command:

```
mws.{bat|sh} -s instance_name putconfig jetty.xml
```

- e. Go to the *Software AG\_directory /MWS/server/instance\_name /config* directory and delete the *jetty.xml* file.

3. For each cluster node, go to the *Software AG\_directory /MWS/server/instance\_name /config/engine* directory, open the *GlueServiceRegistryProperties.xml* file, and specify the IP address on the following element:

```
<entry key="service.address">IP_address</entry>
```

4. For each cluster node, bind the SOAP monitor and JCR servers to the IP address as follows:

- a. Go to the *Software AG\_directory /profiles/MWS\_instance\_name /configuration* directory and open the *wrapper.conf* and *custom\_wrapper.conf* files.

- b. Specify values for the following parameters:

```
wrapper.java.additional.203=-Dsoap.monitor.bind.address=IP_address|host_name
```

where *IP-address* or *host name* is the IP address or host name of the SOAP Monitor portlet listener.

```
wrapper.java.additional.204=-Dmws.jcr.rmi.bind.address=IP_address|host_name
```

where *IP-address* or *host name* is the IP address or host name of the JCR repository RMI server listener.

5. The JMX server will not use the `wrapper.conf` directive to bind to an IP address, so you must specify the binding in the JMX connector properties file instead. For each cluster node, do the following:
  - a. Go to the *Software AG\_directory* /profiles/MWS/instance\_name /configuration/com.softwareag.pl atform.config.propsloader directory and back up the `com.softwareag.jmx.connector.pid-500number.properties` file.
  - b. Open the file and add the following line:
 

```
host=IP_address
```
6. Restart My webMethods Server.

## Configuring Whether Diagnostics Are Executed at Startup

By default at startup, My webMethods Server performs the following diagnostic actions:

- Determines the fixes that have been applied to My webMethods Server
- Executes the `dbintegritycheck` tool that searches for potential database errors

You can prevent My webMethods Server from performing one or both of these diagnostic actions by updating the `phaseProvider.xml` configuration file. The `phaseProvider.xml` configuration file is located in the database or under *My webMethods Server\_directory* \server \server instance \config.

## Preventing My webMethods Server from Listing Installed Fixes at Startup

My webMethods Server determines the installed fixes at server startup and logs the list of installed fixes to the `_full_.log` file.

Because determining the list of fixes might take a few minutes, you might want to disable this action at server startup. To prevent My webMethods Server from listing installed fixes at startup, edit the `startupDiagnostics` section of the `phaseProvider.xml` configuration file as shown below.

```
<Phase class="com.webmethods.portal.system.init.impl.DefaultPhase"
      enabled="true" name="startupDiagnostics">
  <PhaseInfo class="com.webmethods.portal.system.impl.UpdatesInfo"
    enabled="false" name="updatesInfo"/>
  .
  .
  .
</Phase>
```

## Preventing My webMethods Server from Executing dbintegritycheck at Startup

The My webMethods Server automatically executes the dbintegritycheck tool at startup and logs the results to the \_full\_.log file. The dbintegritycheck tool reviews the dynamic business objects (DBOs) deployed to My webMethods Server to search for potential errors that might have occurred if a DBO was installed or upgraded incorrectly.

Although it is recommended that you keep this action enabled, you can prevent My webMethods Server from executing dbintegritycheck at startup. To do so, edit the startupDiagnostics section of the phaseProvider.xml configuration file as shown below.

```
<Phase class ="com.webmethods.portal.system.init.impl.DefaultPhase"
  enabled="true" name="startupDiagnostics">
  <PhaseInfo
    class="com.webmethods.portal.system.impl.DbIntegrityCheckLauncher"
    enabled="false" name="dbIntegrityCheck"/>
  .
  .
</Phase>
```

## II My webMethods Administrator Functions

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# 7 Managing My webMethods Configuration

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## Overview of My webMethods Configuration

You can perform the following configuration functions as My webMethods Administrator or as a system administrator.

This function...	Is described here...
Manage internal and external directory services.	<a href="#">"Managing Directory Services" on page 84</a>
Connect to external data sources (such as databases) to make them available to My webMethods Server.	<a href="#">"Managing External Data Sources" on page 100</a>
Configure the mail server settings used by the server when processing email.	<a href="#">"Managing Email Settings" on page 108</a>
Manage My webMethods Server clusters.	<a href="#">"My webMethods Server Clustering" on page 171</a>

Where there are differences between the My webMethods and system user interfaces, the procedures describe both.

## Managing Directory Services

A *directory* is similar to a database in that it contains a collection of entries (in this case, individuals), each of which has a set of attributes, such as names, email addresses, and so forth. A *directory service* provides a mechanism for delivering information about the entries in the directory.

My webMethods Server includes an internal directory service. However, if you are using an external directory (for example, if you are using Lightweight Directory Access Protocol (LDAP), you can configure My webMethods Server to also access user and group information from the external directory service.

- **Internal directory service.** The internal directory service that is provided with My webMethods Server is called the *system directory service*. My webMethods Server stores information about users, groups, and roles that you define in this system directory service to the My webMethods Server database.

Use the system directory service if you need to maintain only a moderate number of users and groups. When you install My webMethods Server, the users described in the following table are automatically defined in the system directory service.

For instructions about how to change passwords for these users, see ["Editing Information for a User" on page 124](#).

User Name	Description
My webMethods Administrator	<p>The default administrator of My webMethods. This user can perform user management functions and manage external directory services. As installed, the user ID is Administrator and the password is "manage".</p> <p><b>Important:</b> Change the password for this user.</p>
System Admin	<p>The system administrator for My webMethods Server. This user can manage My webMethods Server, including analysis, configuration, content, and user management. As installed, the user ID is SysAdmin and the password is "manage". This administrator does not use the My webMethods user interface. For more information about functions available to this account, see <a href="#">"System Administrator Functions" on page 205</a>.</p> <p><b>Important:</b> Change the password for this user.</p>
Deleted Items	<p>A user account that is used internally by My webMethods Server to store work done by a user with administrative privileges when that user is deleted from the system. As installed, the user account is DeletedItems and the password is "manage".</p> <p><b>Important:</b> For security reasons, change the password for this user.</p>
Designer	<p>The page designer for My webMethods Server. This user has privileges My webMethods Server similar to those of the system administrator. As installed, the user ID is Designer and the password is "manage". For more information about functions performed by this account, see <a href="#">"Server Page Development" on page 317</a>.</p> <p><b>Important:</b> Change the password for this user.</p>
Guest	<p>An anonymous user. This user can read pages that allow anonymous access, such as the login page. Otherwise, this user cannot read, modify, or delete content unless permission is explicitly granted by an administrator. As installed, the user ID for this user is Guest.</p>
Portal Developer	<p>Portal Developer. This user can customize the look and feel of the portal user interface by modifying shells and skins. Can</p>

User Name	Description
	<p>develop portal pages and add content. As installed, the user ID for this user is PortalDev and the password is "password".</p> <p><b>Important:</b> For security reasons, change the password for this user.</p>
webMethods System	<p>A user account that is used internally by My webMethods Server to invoke web services. My webMethods Server uses this account for web service authentication from one server to another. As installed, the user account is WEBM_SYSUSER and the password is "manage".</p> <p><b>Important:</b> Do not delete this user account. For security reasons, change the password for this user. Changes to the password for this account must be provided to administrators for webMethods applications that use it when communicating with My webMethods Server.</p>
webMethods Cluster	<p>A user account that is used internally by My webMethods Server for authentication among servers in a cluster. As installed, the user account is WEBM_CLUSTERUSER and the password is "manage".</p> <p><b>Important:</b> Do not delete this user account. For security reasons, change the password for this user on one node of the cluster and then restart all nodes for the password to take effect.</p>

- External directory services.** In addition to the system directory service, My webMethods Server can support multiple external directory services, allowing you to manage a much larger and diverse group of users. If your company has one or more directory services, My webMethods Server can connect to those services. In addition, you can use a database as a directory service.

**Note:** During login, conditions in which the role cache or group cache calculation involves user or group searches that take a long time can result in poor performance in My webMethods Server and in LDAP servers to which it is connected. See "[Configuring Role or Group Cache Lifecycle Calculation](#)" on page 74.

## Setting Up the Internal System Directory Service

No set up is required for the internal system directory service beyond configuring the My webMethods Server database. Configuring the database was required during the installation of My webMethods Server, as described in *Installing webMethods and Intelligent Business Operations Products*

## Managing External Directory Services

You can perform the following functions for external directory services:

Function...	For more information, see...
Identify an external LDAP, ADSI, or ADAM directory service.	<a href="#">"Configuring an External LDAP, ADSI, or ADAM Directory Service" on page 87</a>
Identify an external database directory service.	<a href="#">"Configuring an External Database Directory Service" on page 94</a>
Allow users defined in an external directory access to My webMethods.	<a href="#">"Allowing Externally Defined Users to Perform Actions from My webMethods" on page 96</a>
Update the properties defined for an external directory service.	<a href="#">"Updating the Configuration for a Directory Service" on page 98</a>
Modify the order in which My webMethods Server searches directory services for information.	<a href="#">"Updating the Search Order for Search Directory Services" on page 99</a>
Delete the configuration for a directory service to stop My webMethods Server from using the directory service.	<a href="#">"Deleting a Directory Service Configuration" on page 100</a>

## Configuring an External LDAP, ADSI, or ADAM Directory Service

Use the following procedure to configure My webMethods Server to use an external LDAP, ADSI, or ADAM directory service.

### To configure an external LDAP, ADSI, or ADAM directory service

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Directory Services > Create New Directory Service.**
  - As system administrator: **Administration > User Management > Directory Services Administration > Create New Directory Service.**
- In **Directory Type** field: the option that describes the type of directory service:

<u>This option...</u>	<u>Configures this type of directory service...</u>
<b>LDAP</b>	Lightweight Directory Access Protocol. An internet protocol that allows client programs to query LDAP directory servers about entries using their attributes.
<b>ADSI</b>	Active Directory Service Interfaces. A set of interfaces for querying and manipulating objects in Microsoft Active Directory, providing an LDAP view of the objects. Active Directory is tightly coupled with the Windows operating system.
<b>ADAM</b>	Active Directory Application Mode, a standalone directory server offered by Microsoft. ADAM is an LDAP implementation that can be installed and uninstalled without affecting the Active Directory structure of a network.

3. Click **Next**.
4. Fill in the appropriate form fields for the directory service you want to add. You should be prepared to provide the following information:

<u>Section</u>	<u>Property</u>	<u>Description</u>
<b>General</b>	<b>Name</b>	A name to identify the external directory service. My webMethods Server uses this name when it needs to identify the external directory service in the user interface.
	<b>Description</b>	(Optional) A descriptive comment about the external directory service.
	<b>Keywords</b>	One or more keywords to be used in searching for external directory services.
<b>Cache</b>	<b>Cache Capacity</b>	The number of database queries you want to cache. The default is 1000.
	<b>Cache Timeout</b>	The length of time that queries should remain in the cache unless the cache capacity is exceeded. The default is 1 hour.
<b>Connection Information</b>	<b>Service Enabled</b>	Specifies whether the service is active. Settings are: <ul style="list-style-type: none"> <li>■ <b>Yes. This service is enabled</b> (the default)</li> </ul>

Section	Property	Description
		<ul style="list-style-type: none"> <li>■ <b>No. This service is disabled</b></li> </ul>
	<b>Connection Error Threshold</b>	The number of connection errors that should occur before the service is disabled. The default is 10.
	<b>Provider URL</b>	<p>The URL for the external directory service using this syntax:</p> <p><i>ldap://host_name:port_number</i></p> <p>For example: <code>ldap://my_host:389</code></p>
	<b>Base DN</b>	The base distinguished name for the external directory service. For example, <code>ou=mywebMethods,o=webmethods.com</code>
	<b>Groups DN</b>	(Optional) The distinguished name for a group.
	<b>User DN</b>	(Optional) The base distinguished name to find groups or users, which might be a different location than the distinguished name specified for <b>Base DN</b> .
	<b>Security Principal</b>	The distinguished name required to log in to the external directory service.
	<b>Security Credentials</b>	The password required to log in to the external directory service.
	<b>Failover URLs</b>	Other LDAP servers that the system can use in the event that the primary LDAP server (identified by <b>Provider URL</b> ) fails. If you specify more than one failover provider URLs, separate each with a space.
	<b>Search Timeout</b>	The maximum length of time (in seconds) that the system allows an LDAP query to run before the query times out. If you do not want the query to time out, specify 0. The default is 0.
	<b>Enable Default Wildcard Searches</b>	<p>Specifies whether you want to enable wildcard searches.</p> <ul style="list-style-type: none"> <li>■ <b>Yes. Enable default wildcard searches</b> (the default)</li> </ul>

Section	Property	Description
		<ul style="list-style-type: none"> <li>■ <b>No. Disable default wildcard searches</b></li> </ul> <p>Disabling wildcard searches might help performance for large servers. By default, all queries have wildcards appended. When using wildcards, servers do not use any internal indexes for search performance.</p>
	<b>Enable Group Across Directory Service</b>	<p>If you have multiple external directory services configured on My webMethods Server, the server can query for group membership across all of the configured directory services. This feature is useful for large organizations that have multiple directory services but need to support group memberships that span those services. Enabling this option can noticeably degrade login performance.</p> <ul style="list-style-type: none"> <li>■ <b>No. Group Across Directory Service</b> (the default)</li> <li>■ <b>Yes. Enable Group Across Directory Service</b></li> </ul> <p>See "<a href="#">Group Membership across Directory Services</a>" on page 93.</p>
	<b>Enable GroupQuickSearch</b>	<p>(Active Directory only) Enables the server to determine the group membership of a user using one query instead of a recursive search. Users must be members of an Active Directory security or regular group. Enabling this option can noticeably improve login performance.</p> <ul style="list-style-type: none"> <li>■ <b>No. Do not use GroupQuickSearch</b> (the default)</li> <li>■ <b>Yes. Enable GroupQuickSearch</b></li> </ul>
	<b>ActiveDirectory Domain URLs</b>	<p>(Active Directory only) Enables you to specify multiple Active Directory Domain URLs, separated by spaces.</p>
<b>Advanced Object Filters</b>	<b>User Object Filter</b>	<p>Specifies an LDAP query that My webMethods Server applies to all queries when searching for users. Use a technical ldap query that limits the type of objects that are exposed via My webMethods Server.</p>

Section	Property	Description
		<p><b>Note:</b> It is recommended that you examine the My webMethods Server directory debug logs to ensure that the query is working correctly.</p>
	<b>Group Object Filter</b>	<p>Specifies an LDAP query that My webMethods Server applies to all queries when searching for groups. Use a technical ldap query that limits the type of objects that are exposed via My webMethods Server.</p>
		<p><b>Note:</b> It is recommended that you examine the My webMethods Server directory debug logs to ensure that the query is working correctly.</p>
<b>User Attributes</b>	<b>User Object Class</b>	<p>The User Object Class attribute for the external directory service.</p>
	<b>User ID</b>	<p>The User ID attribute for the external directory service.</p>
	<b>First Name</b>	<p>The First Name attribute for the external directory service.</p>
	<b>Last Name</b>	<p>The Last Name attribute for the external directory service.</p>
	<b>Full Name</b>	<p>The Full Name attribute for the external directory service.</p>
	<b>E-mail Address</b>	<p>The Email Address attribute for the external directory service.</p>
	<b>Password</b>	<p>The Password attribute for the external directory service.</p>
	<b>User Disabled</b>	<p>(Optional) The name of an attribute in the external directory service that identifies a user as being disabled.</p>
	<b>User Disabled Value Regex</b>	<p>(Optional) A regular expression used to evaluate the User Disabled attribute for the external directory service.</p>

<b>Section</b>	<b>Property</b>	<b>Description</b>
<b>Group Attributes</b>	<b>Group Object Class</b>	The Group Object Class attribute for the external directory service.
	<b>Group ID</b>	The Group ID attribute for the external directory service.
	<b>Group Name</b>	The Group Name attribute for the external directory service.
	<b>Group Members</b>	The Group Members attribute for the external directory service.
	<b>Group E-mail</b>	The Group Email attribute for the external directory service.
<b>Connection Pool</b>	<b>Minimum Connections</b>	The minimum number of connections to the external directory service that you want kept open at all times.
	<b>Maximum Connections</b>	The maximum number of connections to the external directory service that you want open at any time.
	<p><b>Note:</b> In some LDAP implementations, the paging cookie is bound to a specific LDAP connection. Make sure the maximum connections value is large enough to handle concurrent LDAP searches and the maximum connection time value is long enough to ensure that searches can be finished.</p>	
	<b>Maximum Connection Time</b>	The maximum amount of time you want to allow an open connection to the external directory service before the connection is recycled. The server resets this time for each LDAP search to make sure the same LDAP connection stays alive during the search process.
	<b>Auto Reconnect</b>	Whether you want My webMethods Server to automatically reconnect to the directory service server if the connection to the server is closed, for example, if there is a network outage or if the server is shut down for planned maintenance. Select the <b>Auto Reconnect</b> check box if you

Section	Property	Description
		want My webMethods Server to automatically reconnect when the server becomes available.
	<b>Clean Up Interval</b>	The interval between times My webMethods Server cleans up expired LDAP connections.

- At the bottom of the page, click **Finish**.

**Tip:** To test your configuration to ensure you have correctly configured the external directory service, perform a query to search for users or groups that are defined in the external directory service. For instructions for how to perform a query, see "[Searching for Existing Users, Groups, or Roles](#)" on page 112.

### **Group Membership across Directory Services**

If you have multiple LDAP, ADSI, or ADAM directory services configured on My webMethods Server, the server can query for group membership across all of the configured directory services. This feature is useful if Users need to be in a branch of the Directory Tree that is distant enough from Groups that it is inefficient to have only one directory service mounted at a root that encompasses both users and groups. Instead, you might configure two directory services. One service points at the root of the User branch while the other points at the root of the Group branch. For example, you might have a directory structure similar to this:

```
o=MyCompany, ou=Americas, ou=US, ou=Groups
o=MyCompany, ou=Americas, ou=US, ou=Users
o=MyCompany, ou=Americas, ou=Mexico, ou=Groups
o=MyCompany, ou=Americas, ou=Mexico, ou=Users
and so forth...
```

My webMethods Server would not perform well with a single directory service pointing to o=MyCompany. Instead the administrator might create multiple directory services pointing to ou=Americas and other regional OUs. But suppose that Groups can have members from multiple regions, as might be common in large international organizations. In that case, it is possible for the membership of a Group to span multiple directory services.

To make it possible to query for group membership across all configured directory services, set **Enable Group Across Directory Service** for each directory service to **Yes. Enable Group Across Directory Service**.

**Note:** Enabling this feature can noticeably degrade login performance.

## Configuring an External Database Directory Service

Use the following procedure to configure My webMethods Server to use an external database directory service.

**Note:** To use a database directory service, you must first connect to the database as an external data source. See "[Managing External Data Sources](#)" on page 100.

### To configure an external database directory service

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Directory Services > Create New Directory Service.**
  - As system administrator: **Administration > User Management > Directory Services Administration > Create New Directory Service.**
- In **Directory Type** field, click **Database**:
- Click **Next**.
- Fill in the appropriate form fields for the database directory service. You should be prepared to provide the following information:

Section	Property	Description
General	Name	A name to identify the external database directory service. My webMethods Server uses this name when it needs to identify the external database directory service in the user interface
	Description	(Optional) A descriptive comment about the external database directory service.
Attributes	User ID	The name of the query field containing the user ID value.
	User DN	The name of the query field containing the distinguished name value for the user.
	User First Name	The name of the query field containing the user first name.

<b>Section</b>	<b>Property</b>	<b>Description</b>
	<b>User Last Name</b>	The name of the query field containing the user last name.
	<b>User Full Name</b>	(Optional) The name of the query field containing the user full name. If you do not supply an attribute, the full name is derived from the <b>User First Name</b> and <b>User Last Name</b> attributes.
	<b>User E-mail</b>	(Optional) The name of the query field containing the user email address.
	<b>User Disabled</b>	(Optional) The name of an attribute in the external directory service that identifies a user as being disabled.
	<b>User Disabled Value Regex</b>	(Optional) A regular expression used to evaluate the User Disabled attribute for the external directory service.
	<b>Group ID</b>	The name of the query field containing the group ID value.
	<b>Group DN</b>	The name of the query field containing the distinguished name value for the user.
	<b>Group Name</b>	The name of the query field containing the group name.
	<b>Group E-mail</b>	(Optional) The name of the query field containing the group email address.
<b>Configuration</b>	<b>Authentication Handler</b>	The page that handles authentication for the database. By default, My webMethods Server provides a clear-text authentication handler.
<b>Database</b>	<b>Datasource</b>	The database to be used as a data store. For a database to appear in the list, you must first use the DataSource Administration page to connect to the external database.

Section	Property	Description
	<b>Query Lookup User by ID</b>	A SQL query that returns a user record based on the user ID.  This query must return all user attributes, as described under <b>Attributes</b> in this table.
	<b>Query Authenticate</b>	A SQL query that returns persisted user credentials for authentication.
	<b>Various queries</b>	(Optional) You can define several additional SQL queries, as needed. Sample language is provided for each type of query.
<b>Cache</b>	<b>Cache Enabled</b>	Determines whether My webMethods Server will attempt to save the load on the database by using cached data whenever possible. Select: <ul style="list-style-type: none"> <li>■ <b>Yes</b> to enable caching</li> <li>■ <b>No</b> to disable caching</li> </ul>
	<b>Cache Capacity</b>	The number of database queries you want to cache. The default is 1000.
	<b>Cache Timeout</b>	The length of time that queries should remain in the cache unless the cache capacity is exceeded. The default is 1 day.

- At the bottom of the page, click **Finish**.

**Tip:** To test your configuration to ensure you have correctly configured the external directory service, perform a query to search for users or groups that are defined in the external directory service. For instructions for how to perform a query, see "[Searching for Existing Users, Groups, or Roles](#)" on [page 112](#).

## Allowing Externally Defined Users to Perform Actions from My webMethods

By configuring an external directory service, you provide My webMethods Server with the information it needs to connect to and retrieve information from the external directory service. After configuring the external directory service, users defined in the external directory service will be able to log into My webMethods *but will not have*

*permission to do anything else.* You need to take the following additional steps to allow users to perform actions from My webMethods:

- Create one or more LDAP query roles or database roles to identify the users who should be granted access to My webMethods, described in [Creating a Role to Define Externally Defined Users You Want to Access My webMethods](#) next in this chapter.
- Add the roles you have created to the My webMethods Users role, described in ["Adding a Role to the My webMethods Server Users Role"](#) on page 97.

### **Creating a Role to Define Externally Defined Users You Want to Access My webMethods**

For each external directory service that you configure, create one or more roles that identify the users or groups of users that you want to allow access to My webMethods Server.

- For an LDAP, ADSI, or ADAM directory service, create an LDAP query role.
- For a database directory service, create a database role.

---

#### **To create a role to identify users who will be granted access to My webMethods**

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System Wide > User Management > Roles > Add Role.**
  - As system administrator: **Administration Dashboard > User Management > Manage Roles > Add Role.**
2. In the **Role Name** field, specify the name you want to assign to the new role, for example, "SystemX-My webMethods Users.
3. To specify the type of role you want to create, move it to the **Selected Items** box:
  - **LDAP Query Role Provider**—LDAP, ADSI, or ADAM directory service
  - **Database Role Provider**—database directory service
4. Click **Create Role.**
5. Specify the membership for the role. For more information about how to define the membership:
  - For an LDAP, ADSI, or ADAM directory service, see ["Adding an LDAP Query Role"](#) on page 160.
  - For a database directory service, see ["Adding a Database Role"](#) on page 164.
6. Click **Save.**

### **Adding a Role to the My webMethods Server Users Role**

To grant those users who are identified by the roles you created access to My webMethods, add the roles to the My webMethods Server Users role.

---

### To grant users access to My webMethods

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System Wide > User Management > Roles.**
  - As system administrator: **Administration Dashboard > User Management > Manage Roles.**
2. In the **Keyword** text box, type `My webMethods Users`, and click **Search**.
3. In the search results panel, click **Edit** for the My webMethods Users role.
4. Click the **Members** tab.
5. Click **Edit Members**.
6. Search for the principals you want to add and for each you want to make a member of the My webMethods Users role, move the role name to the **Selected** panel.
7. After you have selected all roles that identify users you want to assign to the My webMethods Users role, click **Apply**.
8. Click **Save** to make the membership changes to the My webMethods Users role.

## Updating the Configuration for a Directory Service

After you initially configure an external directory service or database directory service, you might need to update the values you specified for one or more of the properties. Use the following procedure to update the values of properties associated with a directory service.

---

### To update the configuration for a directory service

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Directory Services > List Directory Services.**
  - As system administrator: **Administration Dashboard > User Management > Directory Services Administration > List New Directory Services.**
2. On the **List Directory Services** panel, do one of the following:
  - Click the name of the directory service configuration you want to modify.
  - Click the Tools icon  (∇ in My webMethods) for the directory service configuration and then click **Properties**.
3. Make your changes to the properties for the directory service.
4. After making your changes, click **Apply**.

## Updating the Search Order for Search Directory Services

Some actions that you can perform using My webMethods Server can result in the system querying multiple directory services. Use the following procedure to order your directory services to control the order in which My webMethods Server searches your directory services.

---

### To update the order in which My webMethods Server searches external directory services

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Directory Services > Modify Directory Search Order.**
  - As system administrator: **Administration Dashboard > User Management > Directory Services Administration > Modify Directory Search Order.**

My webMethods Server searches the external directory services in the order they are listed in the **Select** list.
2. To reorder the list, move directory services up or down as needed.
3. After you have set the search order, click **Apply**.
4. Restart Integration Server for the changes to take affect.

**Note:** Setting the search order does not affect the order in which My webMethods Server displays directory services in lists throughout the user interface.

## Disabling User Accounts

You can prevent users from logging into My webMethods Server based on the value of a specified attribute in an external directory service.

**Note:** webMethods products that use Common Directory Services for authentication, such as Integration Server and Optimize are affected by this feature. A user disabled in My webMethods Server is disabled in those other products as well.

---

### To disable user accounts for an external directory service.

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Directory Services > List Directory Services.**
  - As system administrator: **Administration Dashboard > User Management > Directory Services Administration > List New Directory Services.**
2. On the **List Directory Services** panel, do one of the following:

- Click the name of the directory service.
  - Click the Tools icon  (▼ in My webMethods) for the directory service and then click **Properties**.
3. Locate the properties needed to disable user accounts.
    - For an LDAP, ADSI, or ADAM directory service, look in the **User Attributes** section.
    - For a database directory service, look in the **Attributes** section.
  4. In the **User Disabled** field, type the name of the attribute in the external directory service that will determine the User Disabled status.
 

The exact value is dependent on the external directory service and the class of users you want to disable.
  5. In the **User Disabled Value Regex** field, type a regular expression to match against the value of the **User Disabled** property. When the value matches, the user is disabled
  6. After making your changes, click **Apply**.

## Deleting a Directory Service Configuration

If you no longer want My webMethods Server to have access to users and groups defined in an external directory service, you can delete the configuration information for that external directory service using the following procedure.

---

### To delete the configuration for an external directory service

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Directory Services > List Directory Services**.
  - As system administrator: **Administration Dashboard > User Management > Directory Services Administration > List Directory Services**.
2. Click the Tools icon  (▼ in My webMethods) for the directory service configuration and then click **Delete**.

## Managing External Data Sources

On the Data Source Administration page, you can connect to external data sources (such as databases) and make them available to My webMethods Server. Before you can create and use a database directory service, for example, you need to configure the data source.

The Data Source Administration page supports connections to Microsoft SQL Server, Oracle, DB2 Universal, Sybase Adaptive Server, or Informix databases. There are also options for configuring ODBC and custom connections.

**Note:** Before you configure a data source for connecting to DB2 Universal, Sybase Adaptive Server, or Informix databases, you must have a corresponding database driver for each respective database application. My webMethods Server distribution does not include database drivers for DB2 Universal, Sybase Adaptive Server, or Informix databases.

You can connect the following external data sources to My webMethods Server:

External data source...	For more information, see...
Microsoft SQL Server	<a href="#">"Adding a Microsoft SQL Server Data Source" on page 101</a>
Oracle	<a href="#">"Adding an Oracle Data Source" on page 102</a>
DB2 Universal	<a href="#">"Adding a DB2 Universal Data Source" on page 103</a>
Sybase Adaptive Server	<a href="#">"Adding a Sybase Adaptive Server Data Source" on page 103</a>
Informix	<a href="#">"Adding an Informix Data Source" on page 104</a>
Generic ODBC	<a href="#">"Adding a Generic ODBC Data Source" on page 105</a>
Custom JDBC	<a href="#">"Adding a Custom Data Source" on page 105</a>

You can perform the following additional functions for external data sources:

Function...	For more information, see...
Modify the properties of the connection to the external data source.	<a href="#">"Modifying a Data Source" on page 107</a>
Deleting a connection to an external data source.	<a href="#">"Deleting a Data Source" on page 108</a>

## Adding a Microsoft SQL Server Data Source

To connect a Microsoft SQL Server data source to My webMethods Server, use the following procedure:

---

### To add a new data source for Microsoft SQL Server databases

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Data Sources > Add DataSource.**
  - As system administrator: **Administration Dashboard > Configuration > DataSource Administration > Add DataSource.**
2. Type a unique **DataSource Name** to be used by My webMethods Server on the **View DataSources** panel.
3. Type a **Display Name** to be used when you identify a data source to use for a database directory service.
4. Select **MS SQL Server** from the **Server Type** list and click **Next**.
5. Type the SQL Server host name.
6. Type the port number used by the SQL Server. The default port is 1433.
7. Type the database name.
8. Type a valid SQL Server user name and password that, at a minimum, has READ access to the database to which you will connect.
9. Click **Submit**.

## Adding an Oracle Data Source

To connect an Oracle data source to My webMethods Server, use the following procedure:

---

### To add a new data source for Oracle databases

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Data Sources > Add DataSource.**
  - As system administrator: **Administration Dashboard > Configuration > DataSource Administration > Add DataSource.**
2. Type a unique **DataSource Name** to be used by My webMethods Server on the **View DataSources** panel.
3. Type a **Display Name** to be used when you identify a data source to use for a database directory service.
4. Select **Oracle** from the **Server Type** list and click **Next**.
5. Type the Oracle host name.
6. Type the port number on which the Oracle host is running. The default port is 1521.

7. Type the instance name (SID) for the database.
8. Type a valid Oracle database user name and password that, at a minimum, has READ access to the database to which you will connect.
9. Click **Submit**.

## Adding a DB2 Universal Data Source

To connect a DB2 Universal data source to My webMethods Server, use the following procedure:

---

### To add a new data source for DB2 Universal databases

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Data Sources > Add DataSource**.
  - As system administrator: **Administration Dashboard > Configuration > DataSource Administration > Add DataSource**.
2. Type a unique **DataSource Name** to be used by My webMethods Server on the **View DataSources** panel.
3. Type a **Display Name** to be used when you identify a data source to use for a database directory service.
4. Select **DB2 Universal** from the **Server Type** list and click **Next**.
5. Type the DB2 host name.
6. Type the port number that DB2 is running on.
7. Type the instance name for the database.
8. Type a valid DB2 user name and password that, at a minimum, has READ access to the database to which you are connecting.
9. Click **Submit**.

## Adding a Sybase Adaptive Server Data Source

To connect a Sybase Adaptive Server data source to My webMethods Server, use the following procedure:

---

### To add a new data source for Sybase Adaptive Server databases

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Data Sources > Add DataSource**.

- As system administrator: **Administration Dashboard > Configuration > DataSource Administration > Add DataSource.**
2. Type a unique **DataSource Name** to be used by My webMethods Server on the **View DataSources** panel.
  3. Type a **Display Name** to be used when you identify a data source to use for a database directory service.
  4. Select **Sybase Adaptive Server** from the **Server Type** list and click **Next**.
  5. Type the Sybase Server host name.
  6. Type the port number that Sybase Server is running on.
  7. Type the instance name for the database.
  8. Type a valid Sybase Server user name and password that, at a minimum, has READ access to the database to which you are connecting.
  9. Click **Submit**.

## Adding an Informix Data Source

To connect a Informix data source to My webMethods Server, use the following procedure:

---

### To add a new data source for Informix databases

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Data Sources > Add DataSource.**
  - As system administrator: **Administration Dashboard > Configuration > DataSource Administration > Add DataSource.**
2. Type a unique **DataSource Name** to be used by My webMethods Server on the **View DataSources** panel.
3. Type a **Display Name** to be used when you identify a data source to use for a database directory service.
4. Select **Informix** from the **Server Type** list and click **Next**.
5. Type the Informix host name.
6. Type the port number on which the Informix host is running.
7. Type the database name.
8. Type the Informix server name.
9. Type a valid Informix user name and password that, at a minimum, has READ access to the database to which you are connecting.

10. Click **Submit**.

## Adding a Generic ODBC Data Source

**Note:** My webMethods Server can use any ODBC connection that is manually configured at the operating system level (such as Windows Server). My webMethods Server uses a standard Java JDBC-ODBC bridge driver to connect to the ODBC data sources on the underlying operating system. Consult your Microsoft vendor documentation for details on how to configure an ODBC data source at the operating system level.

To connect a generic ODBC data source to My webMethods Server, use the following procedure:

---

### To add a new data source for generic ODBC databases

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Data Sources > Add DataSource**.
  - As system administrator: **Administration Dashboard > Configuration > DataSource Administration > Add DataSource**.
2. Type a unique **DataSource Name** to be used by My webMethods Server on the **View DataSources** panel.
3. Type a **Display Name** to be used when you identify a data source to use for a database directory service.
4. Select **Generic ODBC** from the **Server Type** list and click **Next**.
5. Type the ODBC data source name that matches the ODBC data source configured at the operating system level.
6. Type a valid user name and password that, at a minimum, has READ access to the database to which you are connecting.
7. Click **Submit**.

## Adding a Custom Data Source

**Note:** This option is an advanced data source configuration and requires you to specify a valid JDBC driver class name, connection URL, user name, and password. Consult your vendor documentation to get specific instructions on where to locate the proper database drivers for the database application that you wish to connect to from the server.

To connect a custom data source to My webMethods Server, you need to declare the driver JAR file as a fragment of the `com.webmethods.caf.server` bundle and then use the My webMethods Server user interface to add the datasource.

---

### To add a new data source for a custom database

1. If My webMethods Server is running, stop it.
2. Copy the driver `*.jar` files into the `Software AG_directory \MWS\lib` directory.
3. In the `Software AG_directory \MWS\lib` directory, create a text file with the name `driver-name.bnd`, where `driver-name` is the name of the driver `.jar` file.

For example, if you are using the oracle thin driver, `ojdbc6.jar`, the file name is `ojdbc6.bnd`.

4. In the file, provide instructions for the OSGi bundle conversion.

In the following example, replace the values in *italics* as appropriate. For `Bundle-Version`, it is typical to use the version number of the JAR file, but any unique number is valid. You can, in fact, just use the value in this example:

```
# attach as fragment to the caf.server bundle
Fragment-Host: com.webmethods.caf.server
Bundle-SymbolicName: mws.jar.ojdbc6 Bundle-Version: 0.9.0.v${tstamp}
Include-Resource: ojdbc6.jar
-exportcontents: *
Bundle-ClassPath: ojdbc6.jar
Import-Package: *;resolution:=optional
```

5. At a command line prompt, move to the server's bin directory:

```
Software AG_directory \MWS\bin
```

6. Type this command:

```
mws.bat -s default update-osgi-profile
```

7. Restart your My webMethods Server instance.
8. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Data Sources > Add DataSource.**
  - As system administrator: **Administration Dashboard > Configuration > DataSource Administration > Add DataSource.**
9. Type a unique **DataSource Name** to be used by My webMethods Server on the **View DataSources** panel.
10. Type a **Display Name** to be used when you identify a data source to use for a database directory service.
11. Select **Custom JDBC** from the **Server Type** list and click **Next**.
12. Type the JDBC Connection class for the custom drivers you want to use for the data source connection.
13. Type a valid connection URL.

14. Type a valid user name and password that, at a minimum, has READ access to the database to which you are connecting.
15. Click **Submit**.

## Modifying a Data Source

**Note:** You cannot modify the default data source, which is the My webMethods Server database.

To modify a data source connection to My webMethods Server, use the following procedure:

### To modify an existing data source

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Data Sources > View DataSources**.
  - As system administrator: **Administration Dashboard > Configuration > DataSource Administration > View DataSources**.
2. Click the Tools icon  (  in My webMethods) for the data source you want to modify, and then click **Modify**.
3. In the first page of the Datasource Properties wizard, modify one or more of these fields:

In this field...	Do this...
<b>Datasource Name</b>	Type a different unique data source name to be used by My webMethods Server on the <b>View DataSources</b> panel.
<b>Display Name</b>	Type a different display name for the data source to be used when you identify a data source to use for a database directory service.
<b>Server Type</b>	From the list, select a different database type.

4. Click **Next**.
5. In the second page of the Datasource Properties wizard, modify one or more of the fields identify the location, names, and passwords for the data source.
6. Click **Submit**.

## Deleting a Data Source

**Note:** You cannot delete the default data source, which is the My webMethods Server database.

To delete a data source connection to My webMethods Server, use the following procedure:

### To delete a data source

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Administration > My webMethods > Data Sources > View DataSources.**
  - As system administrator: **Administration > Configuration > DataSource Administration > View DataSources.**
- Click the Tools icon  (  in My webMethods) for the data source you want to modify, and then click **Remove**.

## Managing Email Settings

The E-mail Administration page is used to configure the mail server settings used by the server when processing email.

### To configure an email server to send server notifications

- Navigate to one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > E-Mail Servers**
  - As system administrator: **Administration Dashboard > Configuration > E-mail Administration.**
- Type the following information:

Property	Description
<b>Transport Protocol</b>	Identifies the email protocol to be used. The default and only valid value is <code>smtp</code> .
<b>SMTP Hosts</b>	Identifies the SMTP server. Specify the server's host name. For example: <code>smtp.server.com</code> . If you specify two or more hosts, type one address per line.

Property	Description
<b>SMTP Port</b>	Identifies the port number. Specify the SMTP server's port number. For example, 25.
<b>SMTP Username</b>	Optional. Identifies the user name that My webMethods Server is to supply for authentication. If the SMTP server requires authentication, specify the user name to supply to satisfy the authentication challenge.
<b>SMTP Password</b>	Optional. Identifies the password associated with the <b>SMTP Username</b> . If the SMTP server requires authentication, specify the appropriate password.
<b>SMTP TLS Enabled</b>	Optional. Indicates whether to use an encrypted SMTP connection (by means of TLS). If the SMTP server requires authentication, set to one of the following: <ul style="list-style-type: none"> <li>■ <code>true</code> TLS is enabled.</li> <li>■ <code>false</code> (default) TLS is not enabled.</li> </ul>
<b>SMTP Timeout</b>	Defines the maximum period of time to wait for a response from the server, specified in milliseconds. Default value is 60000.
<b>SMTP Connection Timeout</b>	Defines the maximum period of time for a given SMTP session, specified in milliseconds. Default value is 60000.
<b>SMTP Debug Enabled</b>	Optional. Indicates whether to enable debugging for email activities. My webMethods Server writes the debugging information to the My webMethods Server logs. Set to one of the following: <ul style="list-style-type: none"> <li>■ <code>true</code> Debugging is enabled.</li> <li>■ <code>false</code> (default) Debugging is not enabled.</li> </ul>
<b>From Name</b>	Defines the default "From" name. Specify the default name to use in the "From" field of the email messages that My webMethods Server sends using the SMTP server.

**Note:** Text in this field is subject to the requirements of the RFC822 Internet Text Message standard. For example, text in parentheses, as in "(Important)", is treated as a comment and is removed when the message is created,

Property	Description
	and bracketed text, such as "[Status]", is treated as an optional element and is also removed.
<b>From E-Mail Address</b>	Defines the default "From" email address. Specify the default email address to use in the "From" field of the email messages that My webMethods Server sends using the SMTP server.
<b>Skin</b>	Optional. Identifies the skin to use when rendering My webMethods Server email notifications. Specify a My webMethods Server skin.
<b>Admin E-mail Address</b>	Defines the email address of the My webMethods Server administrator. This is used as the 'from' address for administrative email messages sent on behalf of the server.

3. Click **Save Settings**.

## Managing Calendars

Software AG Designer and My webMethods Server support the use of business calendars and user calendars to assist with task definition, assignment, and behavior. Both business and user calendars are set up and configured in My webMethods Server. Each type of calendar is configured separately, and you can define business calendars only, user calendars only, or both.

User and business calendars are most often used by the Task Engine in the assignment and scheduling of tasks. For complete information about creating and managing user and business calendars, see the PDF publication *webMethods Task Engine User's Guide*.

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# 8 Searches for Users, Groups, and Roles

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## Searching for Existing Users, Groups, or Roles

You can search for the following:

- Users and groups defined in the internal system directory service
- Users and groups defined in external directory services
- Roles

### To search for users, groups, or roles

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > User Management > User\_type > Search** .
  - As system administrator: **Administration Dashboard > User Management > Manage User\_type > Search** .

where **User\_type** is **Users, Groups, or Roles**.
2. For users and groups, from the **Name** list select the directory service where the users or groups are defined.  
If you select **Any Directory**, all directory services connected to the server are searched.
3. In the **Keyword** field of the **Search** panel, do one of the following:

<u>For...</u>	<u>Type any of these search criteria...</u>
Users	First name
	Last name
	Email address
	User ID
Groups	Group name
	Group ID
	Group email address
Roles	Role name
	Role ID

The search is *not* case sensitive. If you leave the text box blank, My webMethods Server returns information for all entries in the selected directory service.

4. Click **Go**.

My webMethods Server displays the results in a table format.

For information on exporting the results of a search, see ["Exporting Search Results to a .csv File" on page 117](#)

## Advanced Searches

As a system administrator, you can perform an advanced search for users or groups, based on user or group information and extended attributes. You cannot perform an advanced search for roles.

### To perform an advanced search for users or groups

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > User Management > User\_type > Search.**
  - As system administrator: **Administration Dashboard > User Management > Manage User\_type > Search .**

where *User\_type* is **Users, Groups, or Roles.**
- For users or groups, from the **Directory Service** list select the directory service where the users or groups are defined.
 

If you select **Any Directory**, all directory services connected to the server are searched.
- For users, in the **Core Attributes** panel, fill in any of the following fields that are part of User Information:

In this field...	Do this...
<b>First Name</b>	Type a first name for the saved search.
<b>Last Name</b>	Type a last name for the saved search.
<b>User ID</b>	Type a user ID for the saved search.
<b>E-mail Address</b>	Type a user email address for the saved search.

- For groups, in the **Core Attributes** panel fill in any of the following fields that are part of Group Information:

In this field...	Do this...
<b>Group Name</b>	Type a group name for the saved search.

In this field...	Do this...
<b>Group ID</b>	Type a group ID for the saved search.
<b>E-mail Address</b>	Type a group email address for the saved search.

5. In the **Extended Attributes** panel, choose an extended attribute by doing the following:
  - a. From the **Attribute Provider** list, choose an attribute provider.  
For more information on attribute providers, see ["Attribute Providers" on page 207](#).
  - b. In the **Attribute Value** field, type or modify the value to be used in the saved search.
6. Click **Go**.

My webMethods Server displays the results in a table format.

For information on exporting the results of a search, see ["Exporting Search Results to a .csv File" on page 117](#)

## Using Saving Searches

If there is a search you perform regularly, you can save search criteria that you can reuse. The following sections describe some actions you can perform with saved searches:

This action...	Is described here...
Create a new saved search	<a href="#">"Creating a Saved Search" on page 114</a>
Use a saved search	<a href="#">"Using a Saved Search" on page 115</a>
Modify a saved search	<a href="#">"Modifying a Saved Search" on page 116</a>
Delete a delete a saved search	<a href="#">"Deleting a Saved Search" on page 117</a>

## Creating a Saved Search

To create a saved search for a user, group, or role, follow these steps:

---

### To create a saved search

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > User Management > User\_type > Search.**
  - As system administrator: **Administration Dashboard > User Management > Manage User\_type > Search.**

where *User\_type* is **Users, Groups, or Roles.**
- For users and groups, in the **Directory Service** list choose the directory service that contains the users you want to find.  
If you select **Any Directory**, all directory services connected to the server are searched.
- In the search field of the **Search** panel, do one of the following:

For...	Type this to be used as search criteria...
Users	The complete or partial user ID
Groups	The complete or partial group ID
Roles	The complete or partial role name

- Click **Save.**
- In the **Search Name** field of the Save Searches dialog box, type a name by which you can identify the search criteria and click **OK.**

## Using a Saved Search

You can use a saved search to find users, groups, or roles that match the criteria.

---

### To perform a saved search

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > User Management > User\_type > Saved.**
  - As system administrator: **Administration Dashboard > User Management > Manage User\_type > Saved.**

where *User\_type* is **Users, Groups, or Roles.**
- In the **Saved Search** list, choose the name of the saved search and click **Go.**

## Modifying a Saved Search

You can modify an existing saved search.

### To modify a saved search

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > User Management > User\_type > Saved.**
  - As system administrator: **Administration Dashboard > User Management > Manage User\_type > Saved.**  
where **User\_type** is **Users, Groups, or Roles.**
- In the **Saved Search** list, choose the name of the saved search to be modified and click **Details.**
- Do any of the following:
  - In the search field of the **Saved** panel, change the search criteria.
  - For users and groups, in the **Directory Service** list change the directory service in which to perform the search.
  - For users, in the **Core Attributes** panel modify any of the following fields that are part of the **User Information** panel described in "[User Information](#)" on page 125.

<u>In this field...</u>	<u>Do this...</u>
<b>First Name</b>	Add, modify, or remove a first name for the saved search.
<b>Last Name</b>	Add, modify, or remove a last name for the saved search.
<b>User ID</b>	Add, modify, or remove a user ID for the saved search.
<b>E-mail Address</b>	Add, modify, or remove an email address for the saved search.

- For groups, in the **Core Attributes** panel modify any of the following fields that are part of the **Group Information** panel described in "[Group Information](#)" on page 135.

<u>In this field...</u>	<u>Do this...</u>
<b>Group Name</b>	Add, modify, or remove a group name for the saved search.

- | In this field...      | Do this...   |
|-----------------------|--|
| <b>Group ID</b>       | Add, modify, or remove a group ID for the saved search.            |
| <b>E-mail Address</b> | Add, modify, or remove a group email address for the saved search. |
- In the **Extended Attributes** panel, choose an extended attribute by doing the following:
    - i. From the **Attribute Provider** list, choose an attribute provider.  
For more information on attribute providers, see "[Attribute Providers](#)" on page 207.
    - ii. In the **Attribute Value** field, type or modify the value to be used in the saved search.
4. To update the saved search, click **Save**.

## Deleting a Saved Search

When you no longer need a saved search, you can delete it.

### To delete a saved search

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > User Management > User\_type > Saved**.
  - As system administrator: **Administration Dashboard > User Management > Manage User\_type > Saved**.  
where *User\_type* is **Users**, **Groups**, or **Roles**.
2. In the **Saved Search** list, choose the name of the saved search to be deleted and click **Delete**.

## Exporting Search Results to a .csv File

You can export search results to a comma-delimited text file (.csv file) if the search results panel includes the **Export Table** function.

After exporting search results to a .csv file, you can then import the .csv file into Microsoft Excel, Microsoft Access, or any other application that accepts the .csv file format.

### To export search results

1. In the search results panel, click **Export Table**.

2. From the **Character Encoding** list, select the character encoding to use.
3. Click **Export**.
4. Use the file-download mechanism in your browser to browse to the location where you want to save the .csv file.

# 9 Managing Users and Groups

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## Overview of Users and Groups

---

You can manage users and groups as My webMethods Administrator or as a system administrator (or as a user with administrator privileges, as described in ["Overview of Roles" on page 156](#). Where there are differences between the My webMethods and system user interfaces, the procedures describe both.

### Users

To access My webMethods, the system must have access to a definition for the user. To define users, you can:

- **Add users to the internal system directory service.** You provide all information about the user, for example the user ID the user is to supply to log into the system and the user's password. The following sections in this chapter describe how to manage users in the internal system directory:
  - ["Adding Users" on page 122](#)
  - ["Searching for Existing Users, Groups, or Roles" on page 112](#)
  - ["Editing Information for a User" on page 124](#)
  - ["Disabling Login for a User" on page 124](#)
  - ["Assigning a User to a Group" on page 131](#)
  - ["Deleting a User" on page 132](#)
- **Access users already defined in external directory services.** If your users are defined in one or more external directory services, you can configure My webMethods Server to use the external directory services. As a result, those users can access and use My webMethods. For more information, see ["Managing External Directory Services" on page 87](#).

**Note:** With My webMethods Server, you can use a combination of users that are defined in both the internal system directory service and external directory services.

### Groups

You can logically organize collections of users into groups, which allows you to identify a group of users by a group name rather than identifying each user individually. For example, if you want to assign a group of users to a role, you can simply assign the group containing the users to the role, rather than identifying each user individually.

To define a group, you can do the following:

- **Add groups to the internal system directory service.** You provide information about the group and define its membership. You can assign both individual users or other groups to be a members. The users and groups that you assign to a group that is defined in the internal system directory service must also be defined in the internal system directory service. That is, you cannot assign users or groups that are defined in an external directory service to an internally-defined group. The following sections in this chapter describe how to manage groups in the internal system directory:
  - ["Adding Groups" on page 134](#)
  - ["Searching for Existing Users, Groups, or Roles" on page 112](#)
  - ["Editing Group Information" on page 135](#)
  - ["Managing Members of a Group" on page 137](#)
  - ["Making a Group a Member of Another Group" on page 138](#)
  - ["Deleting Groups" on page 139](#)
- **Access groups already defined in external directory services.** If you want to use groups that are defined in one or more external directory services, you can configure My webMethods Server to use the external directory services. For more information, see ["Managing External Directory Services" on page 87](#).

**Note:** With My webMethods Server, you can use a combination of groups that are defined in both the internal system directory service and external directory services.

## Managing Users

The following table lists the functions you can perform for users based on whether they are defined in the internal system directory service or an external directory service, and where in this guide you can find more information about how to perform the function:

Where the user is defined	Function	For more information, see...
Internal system directory service	Add users	<a href="#">"Adding Users" on page 122</a>
	Disable user log-in	<a href="#">"Disabling Login for a User" on page 124</a>
	Edit user information	<a href="#">"Editing Information for a User" on page 124</a>

Where the user is defined	Function	For more information, see...
	Assign users to groups	"Assigning a User to a Group" on page 131
	Delete users	"Deleting a User" on page 132
External directory service	Allow users defined in an external directory service access to My webMethods	"Allowing Externally Defined Users to Perform Actions from My webMethods " on page 96
Either:	Search for users	"Searching for Existing Users, Groups, or Roles" on page 112
■ Internal system directory service		
■ External directory service	Assign a user to a role	"Creating Roles" on page 158
	Assign user-specific values for dynamic attributes that are associated with a role	"Setting User-Specific Values for Dynamic Attributes" on page 167
	Allow users access to view functions and take actions within them.	"Access Privileges and Functional Privileges" on page 144
	Locate a user's home folder.	"Locating a User's Home Folder (System Administrator Only)" on page 132

## Adding Users

Before a user can access and use My webMethods, you must either add the user to the internal system directory service or configure My webMethods Server to use the external directory service where the user is defined. For more information about configuring an external directory service, see "[Managing External Directory Services](#)" on page 87. The following procedure describes how to add a user to the internal system directory service.

**Note:** When a My webMethods Administrator adds a new system user, that user is automatically added to the My webMethods Users role. When a system

administrator adds a new user, that user is not automatically added to the My webMethods Users role.

### To add a user

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Users > Add User.**
  - As system administrator: **Administration Dashboard > User Management > Manage Users > Add User.**
- Fill in the following fields for the user you want to add to the internal system directory service:

In this field...	Specify...
<b>User ID</b>	<p>The user ID that you want to assign to the user you are adding. My webMethods Server uses the user ID when forming the distinguished name (DN) for the user.</p> <p>The user ID can be 1 through 255 characters and can contain only alphanumeric ASCII characters with no spaces. The user ID is not case sensitive.</p> <p><b>Note:</b> My webMethods Server adds the user ID to the internal system directory service using the case you specify. My webMethods Server typically regards user IDs as case-insensitive; however, My webMethods Server uses the case you specify for actions that are case-sensitive, for example, HTTP authentication.</p>
<b>Password</b>	The password for the new user.
<b>Confirm Password</b>	The same password you specified in the <b>Password</b> field.
<b>First Name</b>	The first name of the user you are adding. My webMethods Server uses the user's first and last name when displaying the user's name on pages in the user interface.
<b>Last Name</b>	The last name of the user you are adding.
<b>E-mail Address</b>	(Optional) The email address for the user you are adding. My webMethods Server uses the email address

In this field...

Specify...

when it needs to send a notification to the user by means of an email message.

3. Click **Create**.

## Editing Information for a User

You can edit the information for a user defined in the internal system directory service. If a user is defined in an external directory service, you can edit only My webMethods Server-specific information. You must update the external directory service directory to change settings that My webMethods Server obtains from the external directory. For a list of the fields that My webMethods Server maintains for a user, see "[User Information](#)" on page 125.

### To edit a user

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Users**.
  - As system administrator: **Administration Dashboard > User Management > Manage Users**.
2. Search for the user you want to edit. For more information, see "[Searching for Existing Users, Groups, or Roles](#)" on page 112.
3. In the search results, click any link in the row of the user you want to edit or click the Edit icon .
4. Make the changes you want to the user's information and click **Save**.

For a description of all the fields on each panel, including whether you can update a field or whether a field is view-only, see [User Information](#) next in this chapter.

**Important:** My webMethods Server displays the information grouped on various panels. After making changes to information on a single panel, be sure to click **Save** to save your changes *before* selecting another panel.

## Disabling Login for a User

You can deny a user defined in the internal system directory service the ability to log into My webMethods Server. To disable login for users defined in an external directory service, see "[Disabling User Accounts](#)" on page 99.

**Note:** webMethods products that use Common Directory Services for authentication, such as Integration Server and Optimize are affected by this

feature. A user disabled in My webMethods Server is disabled in those other products as well.

### To disable log-in for a user

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Users.**
  - As system administrator: **Administration Dashboard > User Management > Manage Users.**
- Search for the user you want to edit. For more information, see "[Searching for Existing Users, Groups, or Roles](#)" on page 112.
- In the search results, click any link in the row of the user you want to disable or click the Edit icon .
- Select the **Login Disabled** option and click **Save**.

## User Information

The following table lists the information that My webMethods Server maintains for a user. In the table, the Panel column identifies the panel on the Edit User page where the field is maintained.

**Note:** The order of panels on the Edit User page differs between administrator and system administrator. Additionally, the Calendar, LDAP Attributes, and Database Attributes panels are only provided on the administrator Edit User page.

Panel	Description						
<b>User Information</b>	Attributes that you specify when you add a user to the internal system directory service. This panel is not editable for users in an external directory service.						
	This panel is part of the user's profile, and users can update some of the fields; that is users can update the password and email address.						
	<table border="1"> <thead> <tr> <th>Fields</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>User ID</b></td> <td>The user ID that a user supplies to log into My webMethods. The user ID is defined when the user is added and cannot be changed.</td> </tr> <tr> <td><b>Password</b></td> <td>The password the user must supply to log into My webMethods. My webMethods Server</td> </tr> </tbody> </table>	Fields	Description	<b>User ID</b>	The user ID that a user supplies to log into My webMethods. The user ID is defined when the user is added and cannot be changed.	<b>Password</b>	The password the user must supply to log into My webMethods. My webMethods Server
Fields	Description						
<b>User ID</b>	The user ID that a user supplies to log into My webMethods. The user ID is defined when the user is added and cannot be changed.						
<b>Password</b>	The password the user must supply to log into My webMethods. My webMethods Server						

Panel	Description
	<p>masks this field when it is displayed in the user interface.</p> <p>If you want to change the user's password, update the <b>Password</b> and <b>Confirm Password</b> fields.</p>
<b>Confirm Password</b>	The same as the <b>Password</b> field.
<b>First Name</b>	The first name of the user.
<b>Last Name</b>	The last name of the user.
<b>E-mail Address</b>	An optional email address for the user that My webMethods Server can use when it needs to send a notification to the user via an email message.
<b>Login Disabled</b>	The user is not allowed to log in. This option applies only to users in the internal system directory.
<b>Distinguished Name (DN)</b>	The distinguished name for the user. You cannot update this field. My webMethods Server forms this field using information defined for the user.
<b>User Profile</b>	<p>Attributes that My webMethods Server maintains regardless of the directory service the user is a member of.</p> <p><b>Note:</b> Values in this panel that relate to a locale, and which display as <b>Default</b>, do not represent the user's default locale. Rather, they represent a null value.</p>
Fields	Description
<b>First Name</b>	The first name of the user from the <b>User Information</b> panel. You cannot edit this field on the <b>User Profile</b> panel. To change the first name, edit the value on the <b>User Information</b> panel.
<b>Last Name</b>	The last name of the user from the <b>User Information</b> panel. You cannot edit this field on

Panel	Description
	the <b>User Profile</b> panel. To change the last name, edit the value on the <b>User Information</b> panel.
<b>Middle Name</b>	The user's middle name.
<b>Title</b>	The user's title, for example, Mr., Mrs., or Ms. If the title you want to use does not appear in the list, select <b>Other</b> . My webMethods Server prompts you for the title you want to use.
<b>Name Suffix</b>	The suffix that should appear after the user's name, if any, for example, Jr., Sr., PhD, III. If the suffix you want to use does not appear in the list, select <b>Other</b> . My webMethods Server prompts you for the suffix you want to use.
<b>Preferred Language/ Locale</b>	The user's language and locale.
<b>Address 1 Address 2</b>	The street address for the user.
<b>Custom Address</b>	(Optional) Additional information that is needed when more than a postal code is required for the user's address, for example, special instructions.
<b>City</b>	The city where the user is located.
<b>State/Province</b>	The state or province where the user is located.
<b>Postal Code</b>	The postal code for the user, for example, a ZIP Code if the user is located in the United States.
<b>Country/Region ID</b>	The country where the user is located.
<b>Phone 1 Area Code</b>	The user's area code.
<b>Phone 1 Number</b>	The user's phone number.
<b>Phone 1 Extension</b>	The extension at which the user can be reached, if any.

Panel	Description								
<b>Phone 1 Country Code</b>	The country code associated with the user's phone number.								
<b>Default Date Format</b>	The date format that is used by default.								
<b>Default Time Format</b>	The time format that is used by default.								
<b>Default Time Zone</b>	The time zone that is used by default.								
<b>Default Number Format</b>	The number format that is used by default.								
<b>Default Currency Format</b>	The currency format that is used by default.								
<b>User Preferences</b>	<p>User preferences for the display of information in My webMethods. This panel is part of the user's profile, and as a result, users can update these fields from their profiles. For more information, see the <i>Working with My webMethods</i> guide.</p> <table border="1"> <thead> <tr> <th>Fields</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>Start Page</b></td> <td> <p>Provides the ability to specify one of the following as a start page.</p> <ul style="list-style-type: none"> <li>■ <b>Application Page.</b> Specifies an application page to open as a start page.</li> <li>■ <b>Workspace.</b> Specifies a workspace to open as a start page.</li> <li>■ <b>Clear.</b> Restores default start page settings.</li> </ul> </td> </tr> <tr> <td><b>Items Per Page</b></td> <td>The number of items to display on one page when My webMethods Server displays items in a table for this user. If the number of items to display exceeds the number you specify for <b>Items Per Page</b>, the user can navigate to subsequent pages to view the remaining items.</td> </tr> <tr> <td><b>Close Open Tabs on Login</b></td> <td>You can select the check box to cause all previously open tabs in the last user session to automatically be closed upon login.</td> </tr> </tbody> </table>	Fields	Description	<b>Start Page</b>	<p>Provides the ability to specify one of the following as a start page.</p> <ul style="list-style-type: none"> <li>■ <b>Application Page.</b> Specifies an application page to open as a start page.</li> <li>■ <b>Workspace.</b> Specifies a workspace to open as a start page.</li> <li>■ <b>Clear.</b> Restores default start page settings.</li> </ul>	<b>Items Per Page</b>	The number of items to display on one page when My webMethods Server displays items in a table for this user. If the number of items to display exceeds the number you specify for <b>Items Per Page</b> , the user can navigate to subsequent pages to view the remaining items.	<b>Close Open Tabs on Login</b>	You can select the check box to cause all previously open tabs in the last user session to automatically be closed upon login.
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<b>Close Open Tabs on Login</b>	You can select the check box to cause all previously open tabs in the last user session to automatically be closed upon login.								

Panel	Description				
<b>Open Last Active Tab on Login</b>	You can select the check box to open the last active tab after the user logs in.				
<b>Show Delete Workspace Confirmation</b>	You can select the check box to display a confirmation dialog box when a user deletes a workspace.				
<b>Show Delete Window Confirmation</b>	When you delete a window from a workspace, this preference indicates whether you want My webMethods to prompt you to confirm the action. When this check box is cleared and you delete a window from a workspace, My webMethods immediately deletes the window without asking for confirmation.				
<b>Show Close All Tabs Confirmation</b>	You can select the check box to display a confirmation dialog box when a user closes all of the tabs.				
<b>Auto-Save when Navigating to a Different Workspace</b>	You can select the check box to automatically save a workspace before you navigate to a different workspace.				
<b>Roles</b>	<p>Roles to which a user is assigned and the dynamic attributes associated with each role. For more information about:</p> <ul style="list-style-type: none"> <li>■ <a href="#">"Creating Roles" on page 158</a></li> <li>■ Defining dynamic attributes and setting their values, see <a href="#">"Defining Dynamic Attributes Associated with a Role" on page 166</a>.</li> </ul> <p><b>Note:</b> If a user is assigned to dynamic roles, the list of roles might not always be completely accurate. My webMethods Server determines the roles to which a user belongs when a user logs into the system. If a characteristic of a user changes that would make the user ineligible to be a member of the role, the system will continue to consider the user a member of the role until the next login when the system determines the user's roles for the session.</p>				
	<table border="1"> <thead> <tr> <th>Fields</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>Role Precedence</b></td> <td>A list of roles to which the user is assigned. The roles are listed in precedence order.</td> </tr> </tbody> </table>	Fields	Description	<b>Role Precedence</b>	A list of roles to which the user is assigned. The roles are listed in precedence order.
Fields	Description				
<b>Role Precedence</b>	A list of roles to which the user is assigned. The roles are listed in precedence order.				

Panel	Description
<b>Role Member Attributes</b>	<p>To reorder the roles, move them up or down as needed.</p> <p>A list of dynamic attributes associated with the selected role. Dynamic attributes provide more information about a role. For example, if there is a "Customer Service" role, you might add a "Location" attribute to identify where the user assigned to the "Customer Service" role is located. For each attribute, the following information is listed:</p> <ul style="list-style-type: none"> <li>■ <b>Attribute</b>, which is the display name specified when the attribute is added to the role.</li> <li>■ <b>Data Type</b>, which is the data type of the attribute.</li> <li>■ <b>Role Value</b>, which is the default value for the attribute. All users are assigned this value unless specifically overridden by a user-specific value. For more information about setting the default value, see <a href="#">"Defining Dynamic Attributes Associated with a Role" on page 166</a>.</li> <li>■ <b>User Value</b> which the user-specific value for the attribute. For more information about setting a user-specific value, see <a href="#">"Setting User-Specific Values for Dynamic Attributes" on page 167</a>.</li> </ul>
<b>Calendar</b>	<p>A calendar for business or personal use.</p> <p><b>Note:</b> For information about creating and managing user and business calendars, see the PDF publication <i>webMethods Task Engine User's Guide</i>.</p>
<b>User Business Calendar</b>	Provides a calendar to be used as a business calendar.
<b>User Personal Calendar</b>	Provides a calendar to be used as a personal calendar.
<b>LDAP Attributes</b>	If the user is defined in an external directory service, this panel lists a set of attributes from the external directory service. The fields on this panel are based on the external directory service. LDAP

Panel	Description										
	attributes must be set by the system administrator. See <a href="#">"Exposing LDAP Attributes from an External Directory Service"</a> on page 211.										
<b>Database Attributes</b>	If the user is defined in an external database directory service, this panel lists a set of attributes from the external database directory service. The fields on this panel are based on the external database directory service. Database attributes must be set by the system administrator; see <a href="#">"Exposing Database Attributes from an External Directory Service"</a> on page 213.										
<b>Groups</b>	Groups to which the user belongs.										
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**Note:** Values in this panel that relate to a locale, and which display as **Default**, do not represent the user's default locale. Rather, they represent a null value.

## Assigning a User to a Group

You can assign users that you have defined in the internal system directory service to groups that you have also defined in the internal system directory service. For information on creating groups, see ["Adding Groups"](#) on page 134.

**Note:** You cannot assign users that are defined in an external directory service to a group defined in the internal system directory. Similarly, you cannot assign users defined in the internal system directory service to an externally-defined group. You can, however, assign both internal and external users to a role. See ["Managing Roles and Access to My webMethods "](#) on page 155.

---

**To assign a user in the system directory service to a group in the system directory service**

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Users.**
  - As system administrator: **Administration Dashboard > User Management > Manage Users.**
2. Search for the user that you want to assign to a group. For more information, see ["Searching for Existing Users, Groups, or Roles" on page 112](#). Be sure to select **system** from the **Name** list.
3. In the search results, click any link in the row of the user you want to edit or click the Edit icon .
4. Click **Groups**.
5. For each group to which the user should be a member, move it to the **Selected Items** box.
6. With all groups in the **Selected Items** box, click **Save** (**Apply** in system administration).

## Deleting a User

You can remove users that you have previously defined in the internal system directory service.

---

**To delete users from the internal system directory service**

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Users.**
  - As system administrator: **Administration Dashboard > User Management > Manage Users.**
2. Search for the users that you want to delete. For more information, see ["Searching for Existing Users, Groups, or Roles" on page 112](#). Be sure to select **system** from the **Name** list.
3. In the search results, select the check boxes beside the user IDs for the users you want to delete, and click **Delete**.

## Locating a User's Home Folder (System Administrator Only)

A system administrator can locate and browse to a user's personal folders. Use this feature if items become unavailable to the user because of permissions changes, or to remove content when a user is no longer actively using the server.

---

### To locate a user's Home folder

1. As system administrator: **Administration Dashboard > User Management > Locate a User's Home Folder.**
2. Click **Browse.**
3. To select a user, move that user to the **Selected Items** box and click **Select.**
4. To open the home folder for the user you selected, click **Apply.**

## Managing Groups

---

The following table lists the functions you can perform for groups based on whether they are defined in the internal system directory service or an external directory service, and where in this guide you can find more information about how to perform the function:

Where the group is defined	Function	For more information, see...
Internal system directory service	Add groups	<a href="#">"Adding Groups" on page 134</a>
	Edit group information	<a href="#">"Editing Group Information" on page 135</a>
	Define the membership for a group	<a href="#">"Managing Members of a Group" on page 137</a>
	Make a group a member of another group	<a href="#">"Making a Group a Member of Another Group" on page 138</a>
	Delete groups	<a href="#">"Deleting Groups" on page 139</a>
External directory service	Allow My webMethods Server to use groups defined in an external directory service	<a href="#">"Allowing Externally Defined Users to Perform Actions from My webMethods " on page 96</a>

---

Where the group is defined	Function	For more information, see...
Either: <ul style="list-style-type: none"> <li>■ Internal system directory service</li> <li>■ External directory service</li> </ul>	Search for groups	"Searching for Existing Users, Groups, or Roles" on page 112
	Assign a group to a role	"Creating Roles" on page 158
	Allow users access to view functions and take actions within them.	"Access Privileges and Functional Privileges" on page 144

## Adding Groups

You can define groups of users in the internal system directory service. To do so, first create the group. After the group is created, you can add members to the group.

### To create a group

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Groups > Add Group.**
  - As system administrator: **Administration Dashboard > User Management > Manage Groups > Add Group.**
- Fill in the following fields for the group you want to add to the internal system directory service:

In this field...	Specify...
<b>Group ID</b>	An ID for the group. My webMethods Server uses this ID in the distinguished name (DN) for the group.  The group ID can be 1 through 255 characters and can contain only alphanumeric ASCII characters with no spaces. The group ID is not case sensitive.
<b>Group Name</b>	The name that you want to assign to the group you are adding. The group name can be 1 through 255 characters.
<b>E-mail Address</b>	(Optional) The email address for the group you are adding.

- Click **Create**.

## Editing Group Information

You can edit the information for a group defined in the internal system directory service. If a group is defined in an external directory service, you must update the external directory service directory to change settings that My webMethods Server obtains from the external directory. For a list of the fields that My webMethods Server maintains for a group, see ["Group Information" on page 135](#).

### To edit a group

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Groups**.
  - As system administrator: **Administration Dashboard > User Management > Manage Groups**.
- Search for the group you want to edit. For more information, see ["Searching for Existing Users, Groups, or Roles" on page 112](#).
- In the search results, click any link in the row of the group you want to edit or click the Edit icon .
- Make the changes you want to the group information and click **Save (Apply** in system administration).

For a description of all the fields on each panel, including whether you can update a field or whether a field is view-only, see [Group Information](#) next in this chapter.

**Important:** My webMethods Server displays the information grouped on various panels. After making changes to information on a single panel, be sure to click **Save (Apply** in system administration) to save your changes *before* selecting another panel.

### Group Information

The following table lists the information that My webMethods Server maintains for a group. In the table, the Panel column identifies the panel on the Edit Group page where the field is maintained.

Panel	Description		
<b>Group Information</b>	Attributes that you specify when you add a group.		
	<table border="1"> <thead> <tr> <th>Fields</th> <th>Description</th> </tr> </thead> <tbody> </tbody> </table>	Fields	Description
Fields	Description		

<b>Panel</b>	<b>Description</b>										
<b>Group ID</b>	The group ID assigned to a group. The group ID is defined when the group is added and cannot be changed.										
<b>Group Name</b>	The group name for the group.										
<b>E-mail Address</b>	The email address for the group.										
<b>Distinguished Name (DN)</b>	The distinguished name for the group. You cannot update this field. My webMethods Server forms this field using information defined for the group.										
<b>Groups</b>	Groups to which the current group belongs.										
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<b>Search</b>	You can use the <b>Search</b> field to help you search for and quickly locate an item in the <b>Group Membership</b> left panel. This is useful when the left panel contains more items than will display on a single page.										
<b>Group Members</b>	The members that are assigned to this group. The members can be users and other groups.										
	<table border="1"> <thead> <tr> <th><b>Fields</b></th> <th><b>Description</b></th> </tr> </thead> <tbody> <tr> <td><b>Location</b></td> <td>Identifies where My webMethods Server obtains the items it displays in the left panel of <b>Group Members</b> field.</td> </tr> <tr> <td><b>Group Members</b></td> <td>The left panel lists the items available to select.</td> </tr> </tbody> </table>	<b>Fields</b>	<b>Description</b>	<b>Location</b>	Identifies where My webMethods Server obtains the items it displays in the left panel of <b>Group Members</b> field.	<b>Group Members</b>	The left panel lists the items available to select.				
<b>Fields</b>	<b>Description</b>										
<b>Location</b>	Identifies where My webMethods Server obtains the items it displays in the left panel of <b>Group Members</b> field.										
<b>Group Members</b>	The left panel lists the items available to select.										

Panel	Description
	<p><b>Selected Items</b> The right panel, <b>Selected Items</b>, lists the users and groups that are members of the group.</p> <p><b>Search</b> You can use the <b>Search</b> field to help you search for and quickly locate an item in the <b>Group Members</b> left panel. This is useful when the left panel contains more items than will display on a single page.</p>
<b>LDAP Attributes</b>	If the group is defined in an external directory service, this panel lists a set of attributes from the external directory service. The fields on this panel are based on the external directory service. LDAP attributes must be set by the system administrator. See " <a href="#">Exposing LDAP Attributes from an External Directory Service</a> " on page 211.
<b>Database Attributes</b>	If the user is defined in an external database directory service, this panel lists a set of attributes from the external database directory service. The fields on this panel are based on the external database directory service. Database attributes must be set by the system administrator; see " <a href="#">Exposing Database Attributes from an External Directory Service</a> " on page 213.

## Managing Members of a Group

Members of a group can be users or other groups. You can add members to a group defined in the internal system directory service if they are also defined in the same directory service.

**Note:** To work with users and groups defined in external directory services, use the mechanisms provided by the external directory services.

### To manage members in a group defined in the internal system service directory

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Groups**.
  - As system administrator: **Administration Dashboard > User Management > Manage Groups**.
- Search for the group you want to edit. For more information, see "[Searching for Existing Users, Groups, or Roles](#)" on page 112.
- In the search results, click any link in the row of the group you want to edit or click the Edit icon .

4. Click **Group Members**.
5. To manage the members of the group, do any of the following:
  - To add users (in the system directory service) to the group, move them to the **Selected Items** box.
  - To remove users from the group, move them from the **Selected Items** box.
  - To add groups (in the system directory service) to the group, move them to the **Selected Items** box.
  - To remove groups from the group, move them from the **Selected Items** box.
6. When the **Selected Items** box lists all the members you want in the group, click **Save** (**Apply** in system administration).

## Making a Group a Member of Another Group

You can make a group a member of another group as long as both groups are defined in the internal system directory service. When one group becomes a member of a second group, all members of the first group also become members of the second group.

**Note:** You cannot assign groups that are defined in an external directory service to a group defined in the internal system directory. Similarly, you cannot assign groups defined in the internal system directory service to an externally-defined group. You can, however, assign both internal and external groups to a role. See "[Managing Roles and Access to My webMethods](#)" on page 155.

---

### To make a group a member of another group

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Groups**.
  - As system administrator: **Administration Dashboard > User Management > Manage Groups**.
2. Search for the group you want to edit. For more information, see "[Managing External Directory Services](#)" on page 87.
3. In the search results, click any link in the row of the group you want to edit or click the Edit icon .
4. Click **Groups**.
5. To manage the membership of the group in other groups, do either of the following:
  - To make the current group a member of other groups (in the system directory service), move the parent groups to the **Selected Items** box.
  - To remove the current group as a member of other groups, move the parent groups from the **Selected Items** box.

6. When the **Selected Items** box lists all the groups of which the current group should be a member, click **Save** (**Apply** in system administration).

## Deleting Groups

You can remove groups that you have previously defined in the internal system directory service.

**Note:** When you delete a group, the definition for the group is removed, but the individual members of the deleted group (users and/or other groups) are not deleted.

---

### To delete groups from the internal system directory service

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Groups.**
  - As system administrator: **Administration Dashboard > User Management > Manage Groups.**
2. Search for the groups you want to delete. For more information, see "[Searching for Existing Users, Groups, or Roles](#)" on page 112. Be sure to select **system** from the **Name** list.
3. In the search results, select the check boxes beside the names for the groups you want to delete, and click **Delete**.



# 10 Managing Permissions

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■ Access Privileges and Functional Privileges .....	144
■ Managing Permissions for an Individual Resource .....	146
■ Using Security Realms .....	148

## Managing Permissions in My webMethods

The My webMethods administrator and the system administrator can manage permissions as shown here:

This administrator...	Can manage permissions for these resources...
My webMethods	webMethods applications, Tasks, and Workspaces.
System	webMethods applications, Tasks, Workspaces, Content Objects, Portlet Types, and Security Realms.

You can manage permissions for users, groups, and roles in whatever combination is needed.

## Adding Permissions

The basic workflow in assigning permissions is to search for the resources on which to assign permissions.

### To assign permissions

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > Permissions Management.**
  - As system administrator: **Administration Dashboard > Configuration > Permissions Management.**
- On the Search panel, from the **Resource Type** list, choose the resource type to be managed.

Resource type	Description
<b>webMethods Applications</b>	webMethods applications that are installed in this instance of My webMethods.
<b>Tasks</b>	Tasks associated with webMethods Task Engine.
<b>Workspaces</b>	Workspaces that have been created on this instance of My webMethods.
<b>Content Object</b>	(System administrator only) Any resource on this instance of My webMethods Server, including files, folders, and pages.

Resource type	Description
<b>Portlet Types</b>	(System administrator only) Portlet types installed on this instance of My webMethods Server.
<b>Security Realm</b>	(System administrator only) Security realms created on this instance of My webMethods Server. See <a href="#">"Using Security Realms" on page 148</a> .

- If needed, apply a filter to narrow the search.

When you choose a Resource Type, a **FILTER** list appears with a defined set of filtering criteria. There are no filtering criteria for the webMethods Applications Resource Type because all installed applications are included.

- From the **FILTER** list, choose the filtering criteria.  
For example, Workspace Name.
- Type a value to be searched for.
- If you need to add an additional filtering criterion, click  or  (depending on what type of administrator you are).

- Click **Search**.

The results of the search appear in the **Found** list.

- Move resources into the Selected list.

You can perform multiple searches to add resources to the list. Also, you can save searches to make it easier to locate the same resources again. See ["Using Saving Searches" on page 114](#).

- On the Edit Permissions panel, click **Add Users/Groups/Roles**, search for Principals and move them to the **Selected** list.

You can perform multiple searches to add Principals to the list. For more information, see ["Searching for Existing Users, Groups, or Roles" on page 112](#).

- After all Principals have been selected, click **Add**.

The Permissions panel is displayed in a tree format containing the permissions that can be granted or denied for the Resource Type.

- Click the **Grant** or **Deny** option for the settings, click **OK**, and then click **Apply**.

If neither option is selected, permissions for a setting will be determined from another source.

## Modifying Permissions

You can modify previously set permissions to server resources. You can modify permissions for users, groups, or roles (Principals), or delete them entirely.

---

### To modify permissions

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > Permissions Management.**
  - As system administrator: **Administration Dashboard > Configuration > Permissions Management.**
2. If you have a saved search for the resources to be modified, do the following:
  - a. Click the Saved tab, choose the saved search from the **Saved Search** list and click Search
  - b. Move the result of the search to the **Selected** list and click **Next**.
3. Otherwise search for the resources by doing the following:
  - a. On the Search panel, from the **Resource Type** list, choose the resource to be managed.
  - b. If needed, apply a one or more filters to narrow the search.
  - c. Click **Search**.
  - d. Move resources into the Selected list.
  - e. Click **Next**.
4. To modify permissions for a Principal, do the following:
  - a. In the **Permissions** column of the Edit Permissions panel, click the link for the user, group, or role.
  - b. Modify permissions for the various settings as needed, and click **OK**.
5. To delete permissions for a user, group, or role, select the checkbox in that row and click **Delete**.
6. Click **Apply**.

---

## Access Privileges and Functional Privileges

Two important ways in which permissions are used in My webMethods are Access Privileges and Functional Privileges.

Privilege type	Description
Access Privileges	The rights of a user, group, or role to view applications and features in the Navigation panel and access pages associated with them in My webMethods. The granting of Access Privileges, by itself, allows only the capability to view.
Functional Privileges	The rights of a user, group, or role to make changes within an application or feature, such as to create and modify a workspace. The granting of Functional Privileges is meaningless unless Access Privileges are also granted.

The list of Access Privileges and Functional Privileges is determined by which webMethods applications are installed. Both the My webMethods administrator and the system administrator can grant or deny these privileges for users, groups, or roles.

**Tip:** If you need to set the same set of privileges for multiple users, groups, and roles, you should consider aggregating all of them into a single role.

### To manage Access Privileges and Functional Privileges

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > Permissions Management.**
  - As system administrator: **Administration Dashboard > Configuration > Permissions Management.**
- On the Search panel, from the **Resource Type** list, choose **webMethods Applications**.  
By default, My webMethods applications are already in the **Selected** list.
- Click **Next**.
- On the Edit Permissions panel, click **Add Users/Groups/Roles**, search for users, groups or roles, move them to the **Selected** list, and click **Add**.

**Note:** You can add only users or groups or roles in this action. You cannot mix the three types.

The Permissions panel is displayed, showing a tree list containing the permissions that can be granted or denied for Access Privileges and Functional Privileges.

- In the tree list, select options as needed to assign Access Privileges and Functional Privileges.
  - Click **Grant** for each privilege that is to be granted.

- Click **Deny** for each privilege that is to be denied.
  - Clear both options to neither explicitly grant or deny the privilege. Permissions will be determined from another source.
6. Click **OK** and then click **Apply**.

## Managing Permissions for an Individual Resource

As system administrator you can manage individual resources within My webMethods Server. You can control the access of any Principal (user, group, or role) to a server resource or a hierarchy of server resources. Denying access to a server resource also prevents a Principal from seeing the resource in server navigation, such as in any listing of the resource's siblings or the contents of the resource's parent.

**Note:** The information in this section relates to managing permissions to pages and other server resources you develop that are not part of a webMethods application.

This function...	Is described here...
Determine the owner of a server resource and change owners if needed.	<a href="#">"Viewing and Changing the Owner of a Server Resource" on page 146</a>
Add a Principal to the permissions list for a server resource.	<a href="#">"Adding a Principal to the Permissions for a Server Resource" on page 147</a>
Modify the permissions for a Principal who currently has access rights assigned for the server resource.	<a href="#">"Modifying Permissions for a Server Resource" on page 147</a>
Remove a Principal from the permissions list for a server resource.	<a href="#">"Removing a Principal from Server Resource Permissions" on page 148</a>
Setting an Authentication Scheme for a server resource.	<a href="#">"Assigning an Authentication Scheme to a Server Resource" on page 232</a>

## Viewing and Changing the Owner of a Server Resource

To view and change the owner of a server resource

1. For a server resource, such as a page, click the Tools icon (🔧 or ⚙) and then click **Permissions**.

2. Click the Owner tab.

The Owner panel shows the owner of the server resource.

3. To change the resource owner, do the following:
  - a. In the Keywords field, type a user ID, click **Search**, move the user to the **Selected** box, and click **Apply**.
  - b. Click **Apply**.

## Adding a Principal to the Permissions for a Server Resource

Remember that a Principal is a user, group, or role.

---

### To add a Principal to the permissions for a server resource

1. For a server resource, such as a page, click the Tools icon (🔍 or ▼) and then click **Permissions**.
2. On the Edit Permissions panel, click **Add Users/Groups/Roles**, search for Principals, and move them to the **Selected** list.

You can perform multiple searches to add Principals to the list. For more information, see "[Searching for Existing Users, Groups, or Roles](#)" on page 112.

3. After all Principals have been selected, click **Add**.

The Permissions panel is displayed in a tree format containing the permissions that can be granted or denied for the resource.

4. In the tree list, select options as needed.
  - Click **Grant** to explicitly grant permission.
  - Click **Deny** to explicitly deny permission.
  - Clear both options to neither explicitly grant nor deny permission. Permissions will be determined from another source.
5. Click **OK** and then click **Apply**.

## Modifying Permissions for a Server Resource

---

### To modify the permissions for a server resource

1. For a server resource, such as a page, click the Tools icon (🔍 or ▼) and then click **Permissions**.
2. To modify permissions for a Principal, do the following:
  - a. In the **Permissions** column of the Edit Permissions panel, click the link for the Principal.
  - b. Modify permissions for the various settings as needed, and click **OK**.

- Click **Grant** to explicitly grant permission.
  - Click **Deny** to explicitly deny permission.
  - Clear both options to neither explicitly grant nor deny permission. Permissions will be determined from another source.
3. Click **Apply**.

## Removing a Principal from Server Resource Permissions

Remember that a Principal is a user, group, or role.

**To remove a Principal from the permissions for a server resource**

1. For a server resource, such as a page, click the Tools icon (▶ or ▼) and then click **Permissions**.
2. On the Edit Permissions panel, select the checkbox for a Principal and click **Delete**.
3. Click **Apply**.

## Using Security Realms

As a system administrator, when you manage permissions, as described in "[Managing Permissions for an Individual Resource](#)" on page 146, you do so one resource at a time. This method is satisfactory for small servers, but can be cumbersome as the number of pages and users increases. Security Realms allow system administrators to manage permissions for resources based on users, groups, or roles, making it easier to manage large servers. After a Security Realm is applied to a resource, individually set permissions do not apply unless you specifically choose to set them.

For convenience, you can organize Security Realms into folders called *containers*. My webMethods Server has the following Security Realm containers by default:

This container...	Holds...
Forum Realms	Security Realms that manage permissions for forums.
My webMethods Security Realms	Security Realms that manage permissions for My webMethods resources.
Portal Resources	Security Realms that manage permissions for My webMethods Server resources

The Security Realms Administration page allows you to create, rename, and remove containers, as described in these sections:

This function...	Is described here...
Create a container	<a href="#">"Creating a Container" on page 150</a>
Remove a container	<a href="#">"Removing a Container" on page 151</a>
Rename a container	<a href="#">"Renaming a Container" on page 151</a>

There are several default Security Realms that manage permissions for My webMethods Server resources, all of which reside in the Portal Resources container. System administrators have the right to read, modify or delete the server resources; other users have permissions as described here:

This Security Realm...	Manages permissions for these My webMethods Server resources...
Administrative Commands	Administrative resources. Permits only server administrators to read, modify, or delete the resource.
Directory Management Commands	Resources that manage users, group, and roles. Permits users to view or execute the resource. Anonymous users are denied access.
Directory Service Commands	Resources that manage directory services. Permits users to view or execute the pages. Anonymous users are denied access.
Portal Developer Commands	Resources for the development and maintenance of pages and content. Members of the Developers group are granted the right to read, modify, or delete the resource. Permits users to view or execute the resource. Anonymous users are denied access.
Public Commands	Resources for interacting with a server, such as logging in. Permits all users, including anonymous users, to read or execute the resource, but not to modify or delete it.
Restricted Commands	Resources for interacting with a server after one has logged in. Permits users who have logged in to read or execute the resource, but not to modify or delete it. Anonymous users are denied access.

This Security Realm...	Manages permissions for these My webMethods Server resources...
User Profile Management Commands	Resources that control the look and feel of the server. Permits users to view or execute the resource. Anonymous users are denied access.

The Security Realms Administration page allows you to create and manage Security Realms you can use for your content. There are several functions you can perform on this page:

This function...	Is described here...
Create a Security Realm	"Creating a Security Realm" on page 151
Remove a Security Realm	"Removing a Security Realm" on page 152
Rename a Security Realm	"Renaming a Security Realm" on page 153
Add resources to a Security Realm	"Adding Resources to a Security Realm" on page 153
Remove resources from a Security Realm	"Removing Resources from a Security Realm" on page 153

## Creating a Container

You can create a container at the same level as the default containers or you can create a container within a container.

### To create a new container

1. As system administrator, click **Administration > Configuration > Security Realms Administration**.
2. Do one of the following:

#### To create a container...

At this level

#### Do this...

Go on to the next step.

**To create a container...**

Within a container at this level

**Do this...**

Click the name of the container to reveal its contents.

3. Click **Create New Container**.
4. In the **Name** field, type a display name for the container.
5. (Optional) In the **Description** field, type a description.
6. Click **Create Container**.

## Removing a Container

**Important:** If you remove a container, any Security Realms or other containers within it are also removed.

**To remove a container**

1. As system administrator, click **Administration Dashboard > Configuration > Security Realms Administration**.
2. Click the Tools icon  for the container you want to remove, and then click **Remove Container**.

## Renaming a Container

To rename a container, do the following:

**To rename a container**

1. As system administrator, click **Administration Dashboard > Configuration > Security Realms Administration**.
2. Click the Tools icon  for the container you want to rename, and then click **Modify Container**.
3. In the **Name** field, type the new name.
4. (Optional) In the **Description** field, type a new description.
5. Click **Update**.

## Creating a Security Realm

**To create a new Security Realm**

1. As system administrator, click **Administration Dashboard > Configuration > Security Realms Administration**.

- Click the name of the container in which to create the Security Realm.

**Note:** After you have created a Security Realm within a container, you cannot move it to another container.

- Click **Create New Security Realm**.
- In the **Name** field, type a display name for the Security Realm.
- (Optional) In the **Description** field, type a description.
- (Optional) To add an extended type, move it to the **Selected Items** box and click **Select**.
- (Optional) To add an external policy provider, move it to the **Selected Items** box.
- Click **Create Security Realm**.
- Click the Tools icon  for the new Security Realm, and then click **Configure Permissions**.
- On the Edit Permissions panel, click **Add Users/Groups/Roles**, search for Principals, and move them to the **Selected** list.

You can perform multiple searches to add Principals to the list. For more information, see "[Searching for Existing Users, Groups, or Roles](#)" on page 112.

- After all Principals have been selected, click **Add**.

The Permissions panel is displayed in a tree format containing the permissions that can be granted or denied for the Security Realm.

- In the tree list, select options as needed.
  - Click **Grant** to explicitly grant permission.
  - Click **Deny** to explicitly deny permission.
  - Clear both options to neither explicitly grant nor deny permission. Permissions will be determined from another source.
- Click **OK** and then click **Apply**.

## Removing a Security Realm

To remove a Security Realm, do the following:

### To remove a Security Realm

- As system administrator, click **Administration Dashboard > Configuration > Security Realms Administration**.
- Click the name of the container in which the Security Realm resides.
- Click the Tools icon  for the Security Realm you want to remove, and then click **Remove Security Realm**.

## Renaming a Security Realm

To rename a Security Realm, do the following:

---

### To rename a Security Realm

1. As system administrator, click **Administration Dashboard > Configuration > Security Realms Administration**.
2. Click the name of the container in which the Security Realm resides.
3. Click the Tools icon  for the Security Realm you want to rename, and then click **Modify Security Realm**.
4. In the **Name** field, type the new name.
5. (Optional) in the **Description** field, type a new description.
6. Click **Update**.

## Adding Resources to a Security Realm

To add resources to a Security Realm, do the following:

---

### To add resources to a Security Realm

1. As system administrator, click **Administration Dashboard > Configuration > Security Realms Administration**.
2. Click the name of the container in which the Security Realm resides.
3. Click the Tools icon  for the Security Realm you want to manage, and then click **Manage Objects**.
4. On the **Manage Security Realm** panel, click **Add Portal Resource**.
5. In the left panel, browse to a server resource to be added to the Security Realm.
6. To have the Security Realm manage a server resource, move the resource to the **Selected Items** box and click **Add Items**.

## Removing Resources from a Security Realm

To remove resources from a Security Realm, do the following:

---

### To remove resources from a Security Realm

1. As system administrator, click **Administration Dashboard > Configuration > Security Realms Administration**.
2. Click the name of the container in which the Security Realm resides.

3. Click the Tools icon  for the Security Realm you want to manage, and then click **Manage Objects**.
4. For the resource you want to remove, Click the Tools icon  and then click **Remove**.

---

# 11 Managing Roles and Access to My webMethods

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## Overview of Roles

A *role* is a collection of users, groups, or other roles. For information about creating roles, see ["Creating Roles" on page 158](#).

A set of default roles is installed with My webMethods Server, to which you can add users, groups, and other roles as needed:

Default role	Description
Admin Role	Provides access to all My webMethods Server resources. By default, the SysAdmin and Designer users are members of this role.
My webMethods Administrators	Provides access to user management and other functions needed by the My webMethods Administrator, who is a default member of this role.
My webMethods Users	Provides access to the My webMethods user interface for all users of My webMethods applications. By default, the My webMethods Server Administrator is a member of this role, but you must add all other users to it. See <a href="#">"Granting Users Access to My webMethods and the My webMethods Users Role" on page 157</a> .

The members assigned to a role can span across multiple directory services. That is, their membership can include users, groups, and roles defined in the internal directory service, as well as, users and groups defined in external directory services. The membership of a role can be static, like groups where each member is specifically assigned. However, you can also make the membership of a role dynamic. It is valid for roles to be recursive, making it possible for roles to be members of each other. The following table lists the different ways you can define the membership of a role, whether the membership is static or dynamic, and where to find more information in this chapter about how to define membership for each type of role.

Membership of a role defined by specifying...	Static or Dynamic	For more information, see...
The users, groups, and other roles you want to be members of the role	Static	<a href="#">"Adding a Static Role" on page 159</a>

Membership of a role defined by specifying...	Static or Dynamic	For more information, see...
An LDAP query that queries an external directory service to determine the users or groups assigned to the role	Dynamic	<a href="#">"Adding an LDAP Query Role" on page 160</a>
The criteria for a rule that My webMethods Server executes to determine the users and groups assigned to the role	Dynamic	<a href="#">"Adding a Rule-Based Role" on page 161</a>
A database query that queries a database directory service to determine the users or groups assigned to the role	Dynamic	<a href="#">"Adding a Database Role" on page 164</a>

You can associate dynamic attributes with a role to provide more information about a role. For example, if there is a “Customer Service role, an administrator might add a “Location attribute to identify where the user assigned to the “Customer Service role is located. When you add the attribute to the role, you assign it a value. This becomes the default value for the attribute. Continuing with the example, assume your main service center is in Ohio. As a result, when you add the “Location attribute to the “Customer Service role, you assign it the value `Ohio`. You can also assign user-specific values to a dynamic attribute. Once again, continuing with the example, assume you have a user that is a member of the “Customer Service role, but who is located in Colorado rather than Ohio. You can assign that user a specific value of `Colorado` for the “Location attribute in the “Customer Service role.

For more information about dynamic attributes, see the following sections in this chapter:

- ["Setting User-Specific Values for Dynamic Attributes" on page 167](#)
- ["Deleting Dynamic Attributes Assigned to a Role" on page 168](#)

## Granting Users Access to My webMethods and the My webMethods Users Role

My webMethods Server includes the My webMethods Users role, which is already defined for you. The My webMethods Users role governs access to My webMethods. That is, a user *must* be a member of the My webMethods Users role for the system to allow the user to log into the user interface. The My webMethods Users role is a static role; that is, the membership of the My webMethods Users role is a specified list of users, groups, and other roles.

## Users Defined in the Internal System Directory Service

When you add users to the internal system directory service, My webMethods Server automatically assigns the new users to the My webMethods Users role. You do not need to take any further action.

## Externally-Defined Users

You can configure My webMethods Server to obtain information about users and groups from external directory services. After configuring an external directory service, you need to take further action to identify the externally-defined users that you want to be able to access My webMethods. These users must be identified in the My webMethods Users role. For information about using external directory services with My webMethods Server, see ["Configuring an External LDAP, ADSI, or ADAM Directory Service" on page 87](#) and ["Allowing Externally Defined Users to Perform Actions from My webMethods " on page 96.](#)

## Creating Roles

The following table describes the types of roles you can create. The differences in these roles are only in how you identify the membership of the role, and not how My webMethods Server uses the roles. My webMethods Server uses all roles, regardless of type, in the same manner.

Role	You identify the membership of the role by specifying...
<b>Static Role</b>	A collection of users, group, and roles that are members of the role you are creating. The membership of the role does not change unless you manually edit the role and change its membership. See <a href="#">Adding a Static Role</a> next in this chapter.  <b>Note:</b> This is similar to a group except that role membership can span multiple directory services.
<b>LDAP Query Role</b>	An LDAP query. The users, groups, and roles that match the query become members of the role. The membership of the role is dynamic based on the outcome of the query at run time. See <a href="#">Adding an LDAP Query Role</a> .
<b>Rule Based Role</b>	A rule that My webMethods Server executes to determine the membership. The users, groups, and roles that match the rule become members of the role. The membership of the role is dynamic

<b>Role</b>	<b>You identify the membership of the role by specifying...</b>
	based on the outcome of the execution of the rule at run time. See <a href="#">"Adding a Rule-Based Role" on page 161.</a>
<b>Database Role</b>	A query for a database directory service. The users, groups, and roles that match the query become members of the role. The membership of the role is dynamic based on the outcome of the query at run time. See <a href="#">"Adding a Database Role" on page 164.</a>

## Adding a Static Role

A static role is a simple collection of users, groups, and other roles.

### To create a static role

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Roles > Add Role.**
  - As system administrator: **Administration Dashboard > User Management > Manage Roles > Add Role.**
- In the **Role Name** field, type the name you want to assign to the new role.
- To select the **Static Role Provider**, move that role provider to the **Selected Items** box.
- Click **Create Role**.

## Editing Members of a Static Role

To edit the members of a static role, do the following:

### To edit members in a static role

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Roles**
  - As system administrator: **Administration Dashboard > User Management > Manage Roles**
- Search for the static role to which you want to add members. For more information, see ["Searching for Existing Users, Groups, or Roles" on page 112.](#)
- In the search results, click the role name or click the Edit icon .
- On the Members panel, click **Edit Members**.
- To add members, do the following:

- a. Under **Search For**, choose the **Users, Groups, or Roles** option.
  - b. In the **Keywords** field, type a keyword representing the users, groups, or roles you want to search for, and click **Search**.
  - c. Move one or more users, groups, or roles to the **Selected** box.
6. To delete members from the static role, move them from the **Selected** box.
  7. Click **Apply**.

## Adding an LDAP Query Role

An LDAP query role is based on an LDAP query to an external directory service. Any user or group that meets the requirements of the query is a member of the role.

---

### To create an LDAP query role

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Roles > Add Role**.
  - As system administrator: **Administration Dashboard > User Management > Manage Roles > Add Role**.
2. In the **Role Name** field, type the name you want to assign to the new role.
3. To select the **LDAP Query Role Provider**, move that role provider to the **Selected Items** box.
4. Click **Create Role**.
5. In the **LDAP Query** field type a valid LDAP query.
6. Select the **Simple Query** option if the query in the **LDAP Query** field contains simplified LDAP query syntax.

Unless you are creating a complex LDAP query, the query syntax can be cumbersome to use. With the **Simple Query** option, the syntax is filled in for you. For example, to find all persons whose manager has the user ID abrown, the simple query syntax is `manager=abrown`.
7. In **LDAP Directory Service**, click **Browse**.
8. Move the LDAP directory service to the **Selected Items** box and click **Select**.
9. In the **Principal Type** list, choose whether the query searches for **Users** or **Groups**.
10. To update the LDAP query, click **Save (Apply in system administration)**.

## Adding a Rule-Based Role

A rules-based role is based on a server rule. Any user, group, or role that matches the rule is a member of the role.

---

### To create a rule-based role

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Roles > Add Role.**
  - As system administrator: **Administration Dashboard > User Management > Manage Roles > Add Role.**
2. In the **Role Name** field, type the name you want to assign to the new role.
3. To select the **Rule Based Role Provider**, move that role provider to the **Selected Items** box.
4. Click **Create Role**.
5. Under the **Match Criteria** heading, select **Match All Criteria Below** or **Match Any Criteria Below** as the criteria for the rule-based role.
6. Fill in the appropriate match criteria for the rule-based role using the following guidelines:

**User DN Value(s):** A regular expression that matches any part of the current user's directory distinguished name (DN). In the field, type the portions of the DN to which you want a match.

For example, `ou=Engineering.*ou=US` matches a user with the following DN:

```
uid=joe,ou=Development,ou=Engineering,ou=Midwest,ou=US,o=webMethods
```

**Domain Name Expression:** A regular expression that matches any part of the name of the current user's directory service as registered in My webMethods Server. In the field, type the directory service name to which you want a match.

For example, `US` (without quotes) matches a user from the US Corporate directory service. This is a very effective way to govern the look and feel for users that may be in different user directories, such as partners.

**Group DN and Role DN Expression:** A regular expression that matches any part of any group or role of which the current user is a member. In the field, type the portions of the DN to which you want a match.

For example, `ou=Engineering` matches a user belonging to a group with the following DN:

```
cn=portal,ou=Engineering,ou=Midwest,ou=US,o=webMethods.
```

**User Attributes:** One or more pairs of user attributes and their values from the user's record. If you have more than one user attribute, the value set in **Match Criteria** determines how attributes are matched:

<u>Match Criteria value</u>	<u>How the rule is applied</u>
<b>Match All Criteria Below</b>	Each regular expression must match some part of the corresponding attribute value for the current user.
<b>Match Any Criteria Below</b>	Any regular expression in the list can match some part of the corresponding attribute value for the current user.

For example, if the rule is configured to match all criteria, and the configured user attribute pairs are the following:

<u>Name</u>	<u>Value</u>
office	Bellevue
telephonenumber	(425) 564-0000

and the current user's attribute values are the following:

<u>Name</u>	<u>Value (current user)</u>
office	Bellevue
telephonenumber	(206) 123-4567

the rule does not match the current user because it matches the `office` attribute value but not the `telephonenumber` attribute value. If, however, the rule is configured to match any criteria, the preceding example rule does match the current user.

To create an attribute-value pair, click **Add**. At the prompt, type the attribute name and click **OK**. At the prompt, type the value to be matched and click **OK**.

**Request Headers:** One or more pairs of HTTP header attributes and values. You can match anything that appears within an HTTP header, such as the browser agent string or the kinds of MIME types the user will accept. The rule can be a regular expression, or a simple text string. If you have more than attribute-value pair, the value set in **Match Criteria** determines how attributes are matched:

<u>Match Criteria value</u>	<u>How the rule is applied</u>
<b>Match All Criteria Below</b>	Each regular expression must match some part of the corresponding attribute value for the request header.
<b>Match Any Criteria Below</b>	Any regular expression in the list must match some part of the corresponding attribute value for the request header.

For example, if the rule is configured to match all criteria, and the configured request header pairs are the following:

<u>Name</u>	<u>Value</u>
Accept-Charset	utf-8
Accept-Language	ja

and the request header values for the current user are the following:

<u>Name</u>	<u>Value (current user)</u>
Accept-Charset	ISO-8859-1,utf-8;q=0.7
Accept-Language	en-us,en;q=0.5

the rule does not match the current user because it matches the Accept-Charset header value but not the Accept-Language header value. If, however, the rule was configured to match any criteria, the rule does match the current user.

To create an attribute-value pair, click **Add**. At the prompt, type the attribute name and click **OK**. At the prompt, type the value to be matched and click **OK**.

**Parent Resource:** A resource that matches the current resource or a parent of the current resource. To select a resource, click **Browse** to open the resource selector and select a resource against which to match the rule. If you want match a resource that is referenced by an alias, you can optionally click **Use Alias** to select an existing alias on My webMethods Server.

**Resource Type:** A resource type that matches the current resource type. To select a resource type, click **Browse** to open the resource selector and select a resource type, from the Extended Types folder, against which to match the rule. If you want match a resource type that is referenced by an alias, you can optionally click **Use Alias** to select an existing alias on My webMethods Server.

**Resource Property:** One or more pairs of resource properties and values. If you know the internal name of a property associated with a resource, you can match it. If you have more than one property-value pair, the value set in **Match Criteria** determines how properties are matched:

<b>Match Criteria value</b>	<b>How the rule is applied</b>
<b>Match All Criteria Below</b>	Each regular expression must match some part of the corresponding attribute value for the request header.
<b>Match Any Criteria Below</b>	Any regular expression in the list must match some part of the corresponding attribute value for the request header.

For example, if you want to match files that are PDFs, the property-attribute pair is `mimeType=pdf`.

To create a property-value pair, click **Add**. At the prompt, type the attribute name and click **OK**. At the prompt, type the value to be matched and click **OK**.

- Click **Apply**.

## Adding a Database Role

A database role is based on a query to a database directory service. Any user, group, or role that matches the rule is a member of the role.

**Note:** To create a database role, you must first connect to the database as an external data source. See "[Managing External Data Sources](#)" on page 100.

### To create a database role

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Roles > Add Role**.
  - As system administrator: **Administration Dashboard > User Management > Manage Roles > Add Role**.
- In the **Role Name** field, type the name you want to assign to the new role.
- To select the **Database Role Provider**, move that role provider to the **Selected Items** box.
- Click **Create Role**.
- From the **Datasource** list, select the database to be used as a data store.
- If the role can include users, in the **Query User** field, type a SQL query that returns a record for a given user in the database who should be a member of the role.

The parameters to the query are:

- {uid}—Principal unique ID
- {dn}—Principal distinguished name

An example of a valid query is:

```
select * from user-roles where roleID='Admin' and userid='{uid}'
```

7. If the role can include groups, in the **Query Group** field, type a SQL query that returns a record for a given group in the database that should be a member of the role.
8. Click **Save**.

## Editing Information for a Role

To update the information for a role, perform the following procedure:

### To edit a role

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Roles**
  - As system administrator: **Administration Dashboard > User Management > Manage Roles**
2. Search for the role that you want to edit. For more information, see "[Searching for Existing Users, Groups, or Roles](#)" on page 112.
3. In the search results, click the role name or click the Edit icon .
4. Make the changes you want to the role and click **Save (Apply)** in system administration).

**Important:** My webMethods Server displays the information grouped on various panels. After making changes to information on a single panel, be sure to click **Save (Apply)** in system administration) to save your changes *before* selecting another panel.

The following table lists the panels displayed for a role and the sections in this chapter that contains a procedure that describes how to edit the information on that panel:

Panel	See...
Role Information	"Adding a Static Role" on page 159 "Adding an LDAP Query Role" on page 160 "Adding a Database Role" on page 164

---

Panel	See...
Dynamic Attributes	<a href="#">"Defining Dynamic Attributes Associated with a Role" on page 166</a>

---

## Deleting Roles

---

If you no longer need a role, you can delete it.

**Note:** When you delete a role, the members of the role (users, groups, and/or other roles) are not deleted.

---

### To delete a role

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Roles**
  - As system administrator: **Administration Dashboard > User Management > Manage Roles**
- Search for the roles you want to delete. For more information, see ["Searching for Existing Users, Groups, or Roles" on page 112](#).
- In the search results, select the check boxes beside the roles you want to delete, and click **Delete**.

---

## Defining Dynamic Attributes Associated with a Role

---

You can associate dynamic attributes with a role. Some webMethods applications use dynamic attributes.

When you define the attribute in the role, you assign it a value. The value you assign to the role is considered the default value. The default value is used for all users unless a user-specific value is defined for the attribute.

---

### To define a dynamic attribute for a role

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Roles**
  - As system administrator: **Administration Dashboard > User Management > Manage Roles**
- Search for the role. For more information, see ["Searching for Existing Users, Groups, or Roles" on page 112](#).

3. In the search results, click the role name or click the Edit icon .
4. Click **Dynamic Attributes**.
5. Click **Add Attribute**.
6. Fill in the following fields:

In this field...	Specify...
<b>Attribute Name</b>	The internal name for the dynamic attribute. There are no restrictions on what characters you can use for this name.
<b>Display Name</b>	The name you want My webMethods Server to use when it displays information about this attribute in the user interface.
<b>Data Type</b>	The data type of the attribute. Select a data type from the list.
<b>Value</b>	The value you want assigned to the attribute. This is the default value for the attribute. This value will be used for all users assigned to this role unless a user-specific value is defined for the attribute. For more information, see " <a href="#">Setting User-Specific Values for Dynamic Attributes</a> " on page 167.

7. Click **Save**.

## Setting User-Specific Values for Dynamic Attributes

The default value assigned to a dynamic attribute is the default for all users unless you assign a user-specific value for the attribute. To assign a user-specific value to a dynamic attribute, perform the following procedure.

### To assign a user-specific value to a dynamic attribute

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Users**.
  - As system administrator: **Administration Dashboard > User Management > Manage Users**.
2. Search for the user for which you want to assign a user-specific value to a dynamic attribute. For more information, see "[Searching for Existing Users, Groups, or Roles](#)" on page 112.
3. In the search results, click any link in the row of the user or click the Edit icon .
4. Click **Roles**.

5. In the **Role Member Attributes** panel, locate the dynamic attribute for which you want to assign a user-specific value, and type the value in the **User Value** column.

Note that in the display the attributes are grouped by role; the role name appears before the list of attributes assigned to the role.

6. Click **Save** (**Apply** in system administration).

## Changing the Order of Dynamic Attributes Assigned to a Role

You can change the order in which dynamic attributes display for a role. Changing the order affects only how the system displays the attributes in the **Role Member Attributes** panel for a user, but does not otherwise affect how the attributes are used by My webMethods Server or by webMethods applications.

---

### To change the order of dynamic attributes assigned to a role

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Roles**
  - As system administrator: **Administration Dashboard > User Management > Manage Roles**
2. Search for the role. For more information, see "[Searching for Existing Users, Groups, or Roles](#)" on page 112.
3. In the search results, click the role name or click the Edit icon .
4. Click **Dynamic Attributes** and then click **Change Attribute Order**.
5. To reorder dynamic attributes, move them up or down as needed.
6. When the dynamic attributes are in the order you want, click **Save** (**Apply** in system administration).

## Deleting Dynamic Attributes Assigned to a Role

If you no longer want one or more dynamic attributes assigned to a role, you can delete them.

---

### To delete one or more dynamic attributes assigned to a role

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > User Management > Roles**
  - As system administrator: **Administration Dashboard > User Management > Manage Roles**

2. Search for the role. For more information, see "[Searching for Existing Users, Groups, or Roles](#)" on page 112.
3. In the search results, click the role name or click the Edit icon .
4. Click **Dynamic Attributes**.
5. Select the check boxes beside the dynamic attributes you want to delete, and click **Delete Selected Attributes**.
6. Click **Save**.



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# 12 My webMethods Server Clustering

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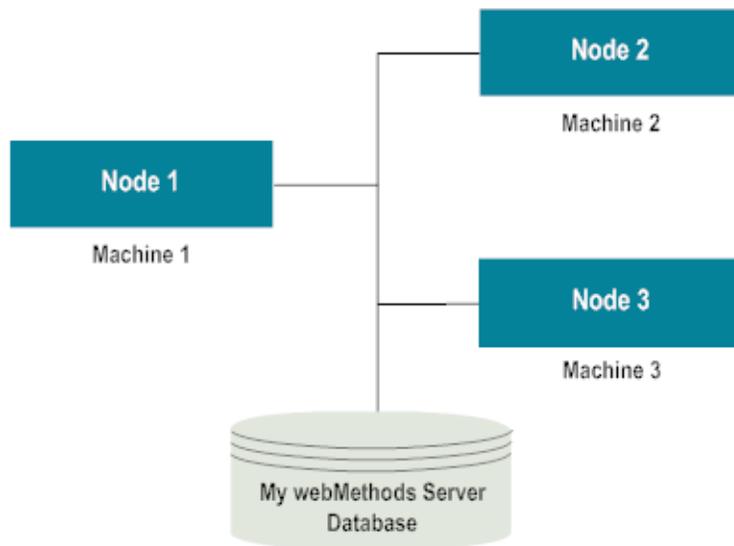
## How a My webMethods Server Cluster Works

A My webMethods Server cluster is an active/active environment in which multiple server instances run at the same time, sharing the My webMethods Server database. A My webMethods Server cluster achieves high scalability by distributing the workload among multiple servers. This model is different from an active/passive environment, which makes use of a standby server. A My webMethods Server cluster achieves high availability through the use of shared resources, allowing the cluster to continue to function when a node is taken out of service.

To create a cluster, you need to install an instance of My webMethods Server on each machine in the cluster. All nodes of the cluster share the same My webMethods Server database, which contains shared configuration information and a system content service. You should install the same set of webMethods applications (such as Task Engine), My webMethods User Interfaces, and language packs on each node in the cluster. If an application is not installed on a particular node, the components of the application are not functional on that node.

The system content service stores and retrieves files published by individual users and various objects used by webMethods applications running on My webMethods Server. The system content service is installed as part of My webMethods Server and does not require any configuration before use. Once published, content is available to all nodes in the cluster. The system content service works well for small files. However, if you need to store large files (1 MB or larger) or a large number of files you should consider the use of an optional network file system.

### Cluster architecture



The nodes in the cluster exchange information when they run. There are two methods of communication:

- Through the My webMethods Server database. Cluster bookkeeping is maintained this way.
- Through HTTP. When a server delegates another server to run a command, it does so through the HTTP port of the target server.

## Content Services

The default system content service stores files in the My webMethods Server database. You cannot modify the system content service configuration.

If users of My webMethods Server will store large files (1 MB or larger) or a large number of files, the system content service may not be adequate for your file storage needs. In such cases, you should use a network content service to provide higher capacity. My webMethods Server supports network file storage by means of a file system content service, which requires a file share.

On Windows, the file system content service uses a UNC (Uniform Naming Convention) path to connect to a network file storage device. On UNIX, the network file storage must be mounted as a local resource. To support cluster high availability, the network file storage device should have failover support.

For information on configuring a network content service, see ["Managing Content Storage" on page 188](#).

## The Front End URL

In a production environment, all users and all webMethods applications that communicate with the My webMethods Server cluster need to use the Front End URL established for the cluster, described in ["Setting the Front End URL" on page 179](#). In addition, a production cluster should include the use of a load balancer or external web server, as shown in ["High Availability in a My webMethods Server Cluster" on page 174](#).

In practice, users log into the Front End URL through the load balancer. In turn, the load balancer distributes calls to the nodes. A cluster can have only one Front End URL.

**Note:** The load balancer must be set up to use sticky sessions. A user session, once established, is routed to the same server machine until the session is closed.

When an HTTP request is issued to produce a My webMethods Server page, My webMethods Server uses the actual host name and port number of that request, no matter how the request is routed: directly or indirectly through the load balancer or web server. In these cases a Front End URL is not necessary.

For several use cases, like generating My webMethods Server URLs from within email notifications or creating links to tasks from within Task Engine, Front End URL configuration is required because no HTTP request is available at that time.

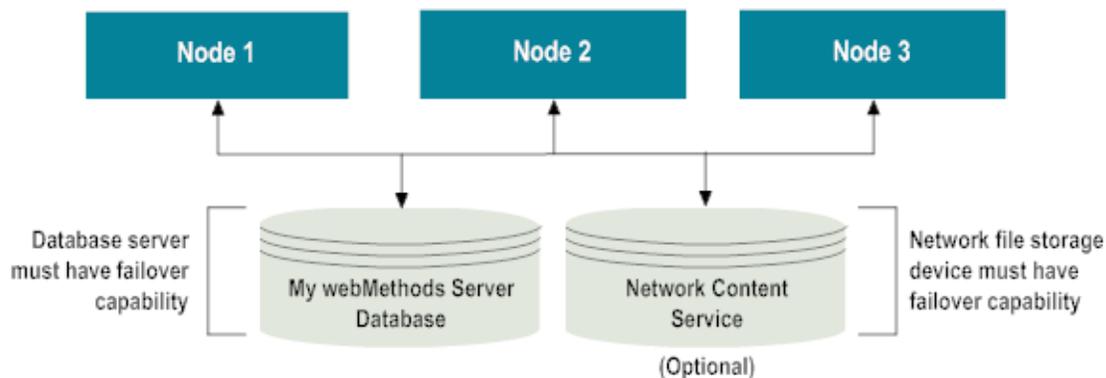
## High Availability in a My webMethods Server Cluster

By itself, a My webMethods Server cluster does not provide high availability. You must also ensure the availability of data stored by the nodes in the cluster. To provide high availability, the database server used by the My webMethods Server database must have a failover capability.

If the cluster uses the default system content service, it in turn uses the My webMethods Server database, so it is covered by the database server failover capability. However, if you use a network content service, the network file storage device must have failover capability to support cluster high availability.

Any description of the configuration of third-party failover devices is beyond the scope of this guide.

### Requirements for a highly available My webMethods Server cluster



## Component Deployment in a My webMethods Server Cluster

A My webMethods Server cluster uses an asymmetrical mode of deploying components such as portlets or deployable packages.

In Asymmetrical component deployment mode, a component deployed to a node is not automatically deployed to other nodes in the cluster. In Asymmetrical deployment mode, you need to manually deploy a component locally to each node where it is needed. In this mode it is possible to have different versions of a component running at the same time on different nodes of a cluster. Because component registration is centralized in the My webMethods Server database, the registration is performed only once by the first node on which the component is deployed. Because of this dependency, changes made to a component that can affect component registration or My webMethods Server taxonomy can potentially break other versions of the component residing on a different node. Some examples of changes to a component that can cause changes to the My webMethods Server database schema are:

- Adding or removing a portlet preference.

- Adding, removing, or changing a field in a DBO (Dynamic Business Object) table.
- Adding, removing, or changing a field in a task type business data.
- Adding, removing, or updating My webMethods Server taxonomy

Asymmetrical component deployment mode enables you to deploy and test a modified component on one or more nodes before deploying it to the entire cluster.

## Cluster Roles

There are several cluster roles that can be assigned to a node in a cluster. These include:

- The **Auto Deploy** cluster role allows for the automatic deployment of portlets that are copied to the *Software AG\_directory\MWS\server\server\_instance\deploy* directory (of a node that has the Auto Deploy role). A cluster can have multiple Auto Deploy nodes. This role is enabled by default, but is only needed if you want the automatic deployment capability. It is often desirable to have this role disabled in a production environment to reduce the possibility of unauthorized modification of the server. This role does not affect cluster high availability.
- The **Notification** cluster role is responsible for formatting and sending email notifications, and notifications that are sent to a user. A cluster can have multiple Notification nodes. The Notification role is enabled by default, but is needed only if you use notifications in your production environment. For example, if you are running Task Engine, users will not receive task notifications if the Notification role is not enabled. For high availability it is recommended that you have more than one cluster node in this role. If all Notifications nodes go down, notification request messages continue to accumulate in the queue. No notifications are generated or delivered until one or more Notification nodes comes back online and starts processing them.
- The **Search** role is responsible for indexing all content that is exposed to the embedded search engine, maintaining the search index, and performing the searches. The Search role is enabled by default, and should be enabled on all cluster nodes where the search functionality will be needed. The Search role is important to server operation and there are core features that will not operate without it.
  - Permissions Management
  - Workspace Management and Add to Workspace

Each cluster node maintains a local copy of the search index, improving the performance and reliability of searches. If the search index becomes corrupted on one cluster node, you can remove that node from the load balancer while the search index is rebuilt on that node. In the meantime, the other nodes can continue servicing requests.

- The **Task engine** cluster role is responsible for all Task Engine activities, such as queuing tasks, processing task rules, searching and retrieving task data. A cluster can have multiple Task Engine roles. This role is enabled by default, but is needed only if you actually have Task Engine running on your cluster. For high availability

it is recommended that all nodes have this role enabled unless a specific node is not included in the load balancer configuration and never services end-user or Process Engine requests.

## Guidelines for Assigning Specific Cluster Roles

You can assign cluster roles to each node in a cluster following the guidelines that follow. Any time you change the roles assigned to a cluster node, you need to restart the node for the assignments to take effect.

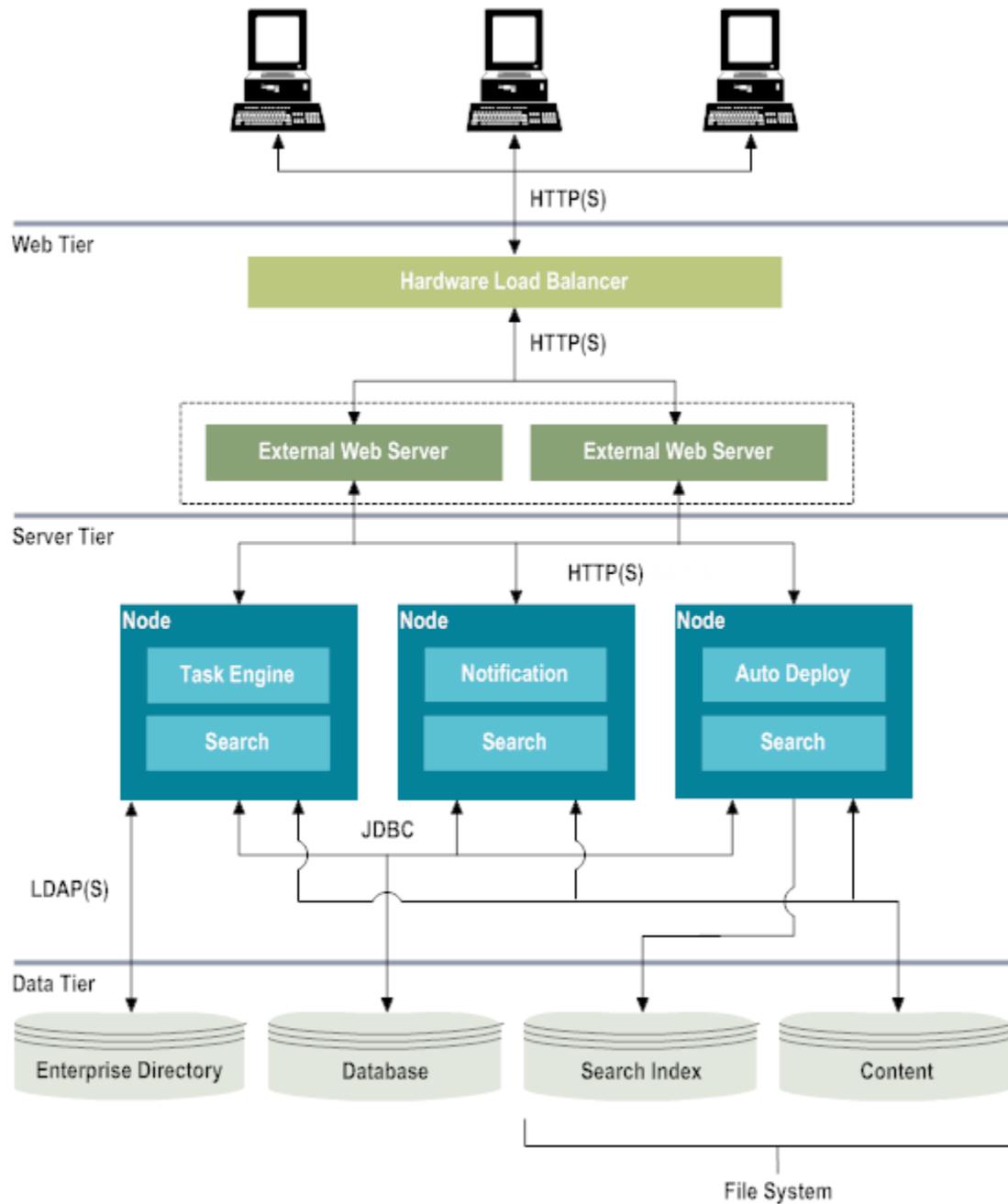
- The Auto Deploy, Task Engine, and Notification roles can be assigned to as many nodes as you need.
- Nodes that are running one or more roles can be further broken down and separately clustered. This may be necessary if your scalability requirements warrant setting up additional cluster roles to handle increased traffic.
- The configuration data for each node is stored in the cluster.xml file. It is possible to edit the data for your cluster directly in the cluster.xml file, provided you know the proper data structures and values for the properties of your cluster. For more information, see ["The cluster.xml File" on page 190](#).
- Any changes to the cluster configuration will require each node to be restarted.

## Planning your My webMethods Server Cluster

---

The following diagram shows just one of many types of distributed deployments that can be configured with My webMethods Server.

### A My webMethods Server Cluster Network Diagram



The preceding diagram assumes that there will be three server machines operating in a cluster, each with its own cluster roles. The machines defined in the web tier include a hardware-based load balancer and two web server machines. The following sections illustrate the process that an administrator would work through to build a cluster.

The procedure for configuring Apache in an external load-balanced web server cluster configuration with your deployment is explained in ["Using My webMethods Server with Web Servers"](#) on page 47.

## Building a My webMethods Server Cluster

Consider the following when building a My webMethods Server cluster:

- All servers in the cluster must use *the same* My webMethods Server database. Make sure that you use the same My webMethods Server database JDBC URL when you install each node in the cluster.
- You must install *the same* set of webMethods applications (such as Task Engine), My webMethods User Interfaces, and language packs on each node in the cluster.
- To build a My webMethods Server cluster, install each node in the cluster following the instructions provided in *Installing webMethods and Intelligent Business Operations Products*. You must provide the following information:

- The HTTP port number for each server instance. The default value is 8585.

**Note:** If you install two server nodes on the same machine, you must use a different HTTP port for each node.

- The JDBC URL for the My webMethods Server database. The URL must include any additional properties needed to support database server failover.

The Installer creates a default instance of My webMethods Server.

- You can start the nodes in the cluster concurrently or one after the other, depending on your needs. The first time you start each node, it performs bootstrap activities and loads shared configuration files from the My webMethods Server database. The node is automatically added to the cluster. You can also add nodes to a cluster manually, as described in ["Adding a Node to a Cluster"](#) on page 180.

**Important:** Do not make any cluster configuration changes while you are starting cluster nodes for the first time. If you do so, you may lose the configuration of the nodes that perform self-configuration automatically when starting for the first time.

If the startup of a node completes successfully, you can open a browser window and log into My webMethods Server as system administrator to verify that the node is running correctly.

- If you are building a production cluster, perform the following steps:
  - If you know you will need a network content service, set it up as described in ["Managing Content Storage"](#) on page 188.

- If you already have a load balancer or external web server set up, change the Front End URL to point there as described in ["Setting the Front End URL" on page 179](#).

## Modifying the Cluster Configuration

You can perform several functions to modify the configuration of a standalone server, a cluster, or a node in a cluster.

This function...	Is described here...
Specify a Front End URL to be used by the cluster.	<a href="#">"Setting the Front End URL" on page 179</a>
Specify the webMethods Universal Messaging Server to be the JMS provider.	<a href="#">"Using the Universal Messaging Server as a JMS Provider" on page 180</a>
Add a node to the cluster.	<a href="#">"Adding a Node to a Cluster" on page 180</a>
Modify properties of a standalone server or a node in a cluster.	<a href="#">"Modifying a Node in a Cluster" on page 181</a>
Delete a node from a cluster.	<a href="#">"Deleting a Node from a Cluster" on page 183</a>

## Setting the Front End URL

All users and all webMethods applications that communicate with the My webMethods Server cluster need to use the Front End URL established for the cluster. By default, this value is the URL of the first node of the cluster. This URL can point to a load balancer or external web server. A cluster can have only one Front End URL.

### To change the Front End URL for a cluster

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Cluster Settings > Advanced or Clustered Configuration**.
  - As system administrator: **Administration Dashboard > Configuration > Cluster Administration > Advanced or Clustered Configuration**.
- In the **MwS Front End URL** field, type a fully qualified URL:

`http://host_name :port number`

3. Click **Submit**.

## Using the Universal Messaging Server as a JMS Provider

You can use the webMethods Universal Messaging Server as a JMS (Java Message Service) provider.

---

### To use the Universal Messaging server as a JMS provider

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Cluster Settings > Advanced or Clustered Configuration**.
  - As system administrator: **Administration Dashboard > Configuration > Cluster Administration > Advanced or Clustered Configuration**.
2. Select the **Universal Messaging Server** option.
3. In the **JNDI Provider URL** field, type the following URL:  
`nsp://localhost:9000`
4. Click **Submit**.

## Adding a Node to a Cluster

A node is automatically added to the cluster when you start it for the first time. The new node must have the same My webMethods Server database as the other nodes in the cluster and should have the same set of webMethods applications (such as Task Engine), My webMethods User Interfaces, and language packs on each node in the cluster.

---

### To add a node to a cluster

1. Install the cluster node following instructions provided in *Installing webMethods and Intelligent Business Operations Products* . You need to provide the following information:
  - The HTTP port number for this server instance. The default value is 8585.
  - The JDBC URL for the My webMethods Server database used by the cluster. This URL should include any additional properties needed to support database server failover.

The Installer creates a default instance of My webMethods Server.
2. Start the My webMethods Server instance.  

The first time you start an additional node, it performs bootstrap activities and loads shared configuration files from the My webMethods Server database. The node is automatically added to the cluster.

## Modifying a Node in a Cluster

You can modify several properties for a node in a cluster or a standalone instance of My webMethods Server. Common reasons to modify a node are to add security by specifying an HTTPS port, add support for an external web server, or change cluster roles. You can also modify the properties of a cluster node or a standalone server manually. See ["The cluster.xml File" on page 190](#).

---

### To modify a standalone server or a node in a cluster

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Cluster Settings > Advanced or Clustered Configuration**.
  - As system administrator: **Administration Dashboard > Configuration > Cluster Administration > Advanced or Clustered Configuration**.
2. For a standalone server or a node in the cluster, do any of the following.
  - In the **HOST** field, change the host name (including domain if appropriate) or IP address of the machine where the node is to run.

The specified host name or IP address must resolve to the correct machine running the node. It must be valid for all nodes in the cluster. See your network administrator for information about host names and network setup at your site.
  - In the **HTTP PORT** field, change the port number to be used by the HTTP listener.

This field must always have a valid port number.
  - In the **HTTPS PORT** field, type the port number to be used by the HTTPS listener.

A value of 0 (zero) in this field disables the listener.

**Note:** My webMethods Server includes a sample HTTP certificate that you can use to set up and test your HTTPS listener. The sample is located in the *Software AG\_directory \MWS\server\server\_instance \config \localhost.p12* file (see ["Certificates Used for Secure Connections" on page 38](#)). For production environments, be sure to obtain an actual Certificate from a qualified authority such as Verisign.
  - To select one or more roles for a node, select the check box for the role.
3. Click **Submit**.
4. Restart the cluster or standalone server for the changes to take affect, as described in ["Restarting or Stopping All Nodes in a Cluster" on page 188](#) or ["Restarting or Stopping Individual Nodes in a Cluster" on page 187](#).

## Assigning a Search Role to a Node

The Search role is enabled by default. You can assign the Search role to nodes on the cluster as needed.

### To assign the Search role to a node

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Cluster Settings > Advanced or Clustered Configuration.**
  - As system administrator: **Administration Dashboard > Configuration > Cluster Administration > Advanced or Clustered Configuration.**
- Select the **Search** option for nodes that are to be assigned the role and clear the option for nodes that should not have the Search role.
- Restart the cluster or standalone server for the changes to take affect, as described in ["Restarting or Stopping All Nodes in a Cluster" on page 188](#) or ["Restarting or Stopping Individual Nodes in a Cluster" on page 187](#).

## Renaming a Node

Nodes in a cluster are automatically given node names when you add them to the cluster. This name appears in these locations in the My webMethods Server user interface:

Field Name	My webMethods Server page
NAME	Advanced or Clustered Configuration
NODE NAME	Cluster Status and Control

You can change the name of any node manually by doing the following:

### To rename a node in a cluster

- At a command line prompt on the machine that contains the node, move to the bin directory of the server instance:

```
Software AG_directory\MWS\bin
```

- To retrieve the cluster.xml file from the My webMethods Server database, type this command:

```
mws getconfig cluster.xml
```

- Open the cluster.xml file in a text editor.

You can find the file at this location:

*Software AG\_directory\MWS\server\server\_name \config*

4. In the cluster.xml file, change the name attribute of the Component element for this node and save the file:

```
<Component
  class="com.webmethods.portal.system.cluster.impl.Server"
  enabled="true"
  name="node_name "><Properties
```

5. To deploy the revised cluster.xml file to the My webMethods Server database, at the command line prompt type this command:

```
mws putconfig cluster.xml
```

6. Delete the cluster.xml file from the *\server\_name \config* directory.

If you do not delete the cluster.xml file, this node will continue to use the local version of the file.

7. Open the custom\_wrapper.conf file for the server instance in a text editor. You can find the file at this location:

*Software AG\_directory\profiles\MWS\_server\_name \configuration\*

8. In the custom\_wrapper.conf file, change the value of the NODE\_NAME statement and save the file:

```
set.NODE_NAME=node_name
```

9. Open either the cluster.node.properties or cluster.node.properties.bak file (whichever file is present) in a text editor. You can find the file at this location:

*Software AG\_directory\MWS\server\server\_name \config\*

10. Edit the `name=node_name` statement and save the file.
11. Restart the node, as described in ["Restarting or Stopping Individual Nodes in a Cluster" on page 187](#).

## Deleting a Node from a Cluster

When a node in a My webMethods Server cluster is no longer in use, you should delete it from the cluster by doing the following:

---

### To delete a node from a cluster

1. From another node, stop the node to be deleted from the cluster, as described in ["Restarting or Stopping Individual Nodes in a Cluster" on page 187](#).
2. To retrieve the cluster.xml file from the My webMethods Server database, type this command:

```
mws getconfig cluster.xml
```

3. Open the cluster.xml file in a text editor, which you can find at this location:

*Software AG\_directory\MWS\server\server\_name \config*

4. In the cluster.xml file, locate the node to be deleted, remove the entire <Component> element for this node, and save the file. For example:

```
<Component
  class="com.webmethods.portal.system.cluster.impl.Server"
  enabled="true"
  name="node_name "><Properties
  .
  .
  .
</Component>
```

5. To deploy the revised cluster.xml file to the My webMethods Server database, type this command:

```
mws putconfig cluster.xml
```

6. Delete the cluster.xml file from the \server\_name\config directory.
7. Restart the cluster, as described in ["Restarting or Stopping All Nodes in a Cluster" on page 188](#).

## Uninstalling a Node

If you uninstall a My webMethods Server instance that is a node in a cluster, the node is automatically deleted from the cluster configuration. If the My webMethods Server database is not available at the time of uninstallation, you must delete the node manually as described in ["Deleting a Node from a Cluster" on page 183](#).

## Modifying Database Connection Retries

If a server loses its connection with the My webMethods Server database, it tries to reestablish the connection. This would be the case if a database failover occurs in a high availability environment. You can modify the number of times the server retries the connection and the interval it waits between retries. If you have multiple servers in a cluster, you need to modify these values individually on each machine. Also, if you have multiple server instances on the same machine (the default server plus one or more additional servers), you need to modify the values for each server instance.

My webMethods Server database connection information for each server instance is maintained in the mws.db.xml file found in this location:

```
Software AG_directory\MWS\server\server_name \config
```

You can modify the following database retry values:

Value	Description
Retry count	The number of times My webMethods Server attempts to re-execute a SQL statement in the case of connection loss, deadlock, or any other SQL error not normally expected If the value is:

Value	Description
	<ul style="list-style-type: none"> <li>■ 0—the server does not try to reestablish the connection.</li> <li>■ An integer of 1 or more—the server retries the connection that number of times.</li> </ul> <p>Typically, you should set the retry count to no more than three. If the server needs more than that number, there are problems with the connection or with the database server.</p>
Retry delay	The time in milliseconds the server waits between retries. The retry delay value should be large enough to allow for a failover to occur, and is dependent on the configuration of your database server.

To modify retry behavior for a single My webMethods Server database connection, do the following.

#### To modify database retry behavior for a server instance

1. Open the `mws.db.xml` file, which you will find at the following location, in a text editor:

*Software AG\_directory\MWS\server\server\_name \config*

2. To change the number of retries, for each node in the cluster, add the `<RETRYCOUNT>` element to `mws.db.xml` within the `<PARAMS></PARAMS>` tags:

```
<RETRYCOUNT>2</RETRYCOUNT>
```

3. To change the number of milliseconds to delay between retries, for each node in the cluster, add the `<RETRYDELAY>` element to `mws.db.xml` within the `<PARAMS></PARAMS>` tags:

```
<RETRYDELAY>300</RETRYDELAY>
```

The combined elements might look like this:

```
<PARAMS>
.
.
.
<!-- retry count on error -->
<RETRYCOUNT>2</RETRYCOUNT>
<!-- delay in ms between retries -->
<RETRYDELAY>300</RETRYDELAY>
</PARAMS>
```

4. Save the file and restart the My webMethods Server instance.
5. Repeat this procedure for each node in the cluster.

## Cluster Status and Control

You can see status information about a node in a cluster or a standalone server, restart or stop an individual node, or restart or stop an entire cluster.

This function...	Is described here...
Display a page of status information for the nodes in the cluster.	"See Status Information About a Cluster" on page 186
Restart or stop an individual node in a cluster.	"Restarting or Stopping Individual Nodes in a Cluster" on page 187
Restart or stop all nodes in a cluster at once.	"Restarting or Stopping All Nodes in a Cluster" on page 188

## See Status Information About a Cluster

You can update status information for the nodes in a cluster or a standalone server manually. To see status information about the nodes in a cluster or a standalone server, do the following:

### To see status information about nodes in a cluster

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Cluster Settings > Cluster Status and Control.**
  - As system administrator: **Administration Dashboard > Configuration > Cluster Administration > Cluster Status and Control.**
- To update the status information on the **Status and Control** page, click **Refresh**.

The **Status and Control** page has the following fields:

Field	Description
	Indicator of whether the node is running or not. Click the icon for a node to update individual status. Click  to update status for all nodes. The status icons are: <ul style="list-style-type: none"> <li> The node is running</li> <li> The node is stopped</li> </ul>

Field	Description
<b>NODE NAME</b>	The node name assigned to the node. If you click the node name, the browser connects directly to the node using the current window. You can change this name manually, as described in <a href="#">"Renaming a Node" on page 182</a> .
<b>ROLES</b>	The cluster roles currently assigned to the node.
<b>UP TIME</b>	The time since the node was last started in days, hours, and minutes.
<b>ACTIVE USERS</b>	The number of active users for the node. This number may not equal the exact number of logged-in users because it can include guest sessions and abandoned sessions.
<b>ACTIONS</b>	Actions you can take on the node, as described in <a href="#">"Restarting or Stopping Individual Nodes in a Cluster" on page 187</a> .

## Restarting or Stopping Individual Nodes in a Cluster

You can restart or stop an individual node in a cluster.

### To restart or stop individual nodes in a cluster

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Cluster Settings > Cluster Status and Control**.
  - As system administrator: **Administration Dashboard > Configuration > Cluster Administration > Cluster Status and Control**.
- For the node to be acted upon, do either of the following:
  - Click **Restart**.  
The node is stopped, causing the  icon to be displayed. After the node is restarted, the  icon returns.
  - Click **Shutdown**.  
The node is stopped. After you have stopped the node, you cannot restart it from this page. You need to start the My webMethods Server instance on the host machine.

## Restarting or Stopping All Nodes in a Cluster

You can restart or stop all nodes in a cluster with a single command.

---

### To restart or stop all nodes in a cluster

1. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Cluster Settings > Cluster Status and Control.**
  - As system administrator: **Administration Dashboard > Configuration > Cluster Administration > Cluster Status and Control.**

2. Do either of the following:

- Click **Restart Cluster.**

The nodes are stopped and restarted one at a time beginning with the first node in the table. If the first node is the one from which you issue this command, the restart will begin with the next node. Your node is restarted after all other nodes have restarted. The page does not automatically refresh after the node is restarted. You should manually refresh the browser after a minute or so. The login screen is displayed when the clustered is fully restarted.

- Click **Shutdown Cluster.**

All nodes are stopped. To restart the nodes, you need to start the My webMethods Server instance on each host machine.

## Removing a Component from a Cluster

---

Because all nodes in a cluster use the same My webMethods Server database, registration information for all deployed components is shared among the nodes. If you remove a component from one node, the registration is removed from the database and the component is no longer available on any node.

---

### To remove a component from a cluster

- Remove the component file from each node's deploy folder (if each node has the Autodeploy role enabled)  
—OR—
- Use Deployer to roll back the component on each node in the cluster

## Managing Content Storage

---

The Content Service page allows system administrators to manage the storage locations available for content published to the server, which is physically stored in the locations

configured in the content service. It typically resides on a separate file server for backup purposes and to provide a failover capability for high availability in a My webMethods Server cluster.

The default system content service stores files in the My webMethods Server database. You cannot modify the system content service but it is visible on the Content Service page.

If users of My webMethods Server store large files (1 MB or larger) or a large number of files, the system content service may not be adequate for your file storage needs. In such cases, you should provide a network content service to provide higher capacity. My webMethods Server supports network file storage by the use of a file system.

My webMethods Server stores the binary content of a file in a content service (either system or network) when you:

- Publish a file to the server
- Update a file
- Check in a new version of a versioned file

The physical binary content is stored in the content service as long as the file object exists in My webMethods Server. The binary content is marked for deletion when you delete the corresponding file object on My webMethods Server, but the actual file is not deleted until the regularly scheduled purging period. Typically, My webMethods Server purges deleted objects at 2 A.M, server time.

When you set a new default content service, all new content is directed to that service, but content stored in an existing service, such as the system content service, continues to be accessed from that service.

---

### To configure a new Content Service for the server repository

1. As system administrator: **Administration Dashboard > Content > Content Service > Create New Content Service.**
2. In the **Service Name** field, type a name for your new content service.  
The user ID can be 1 through 255 characters and can contain only alphanumeric ASCII characters with no spaces.
3. From the **Type** list, select **File System** and click **Next**.
4. Type a physical storage location for your content service.

On Windows, use a valid UNC path. The format of a UNC path is:

```
\\server\volume\directory\
```

and is not case-sensitive. For example:

```
\\my_sys\C$\temp
```

On UNIX, use the path the mounted location of the network storage:

```
\mounted_location\folder
```

**Note:** There are many ways to configure an external content repository for My webMethods Server. This example assumes your network administrator has provided the proper security settings to allow all servers in a cluster to have read/write access to the network file system. If My webMethods Server runs as a Windows service, make sure the user account used to run the service has the right access privileges for the network file system.

- Click **Apply**.
- To make the new content service the default content service, click  **Tools** for the new service and then click **Set As Default**.

The new Content Service becomes the default location for storing new content that is published to the server.

## The cluster.xml File

The cluster.xml file contains configuration information for a standalone server or for all servers in a cluster. This file resides in the My webMethods Server database. My webMethods Server adds new servers to this file when you add nodes to a cluster, and modifies it when you make changes in the Cluster Administration page. You can also modify the cluster.xml file manually, as shown in ["Renaming a Node" on page 182](#) and ["Deleting a Node from a Cluster" on page 183](#). The following fragment shows a basic configuration for a node in a cluster, including these properties:

Property	Description
Node name	server-one-node59581
Host name	server-one
HTTP port	8585
HTTPS port	0—Indicates the HTTP listener is disabled.
Roles	Indicates the cluster roles supported by this server are autodeploy, taskengine, and notification.

```
<Component
  class="com.webmethods.portal.system.cluster.impl.Server"
  enabled="true"
  name="server-one-node59581"><Properties
    host="server-one" name="http"
    port="8585"/>
  <Properties
    host="server-one" name="https"
    port="0"/>
  <Role
```

```

        name="autodeploy"/>
    <Role
        name="taskengine"/>
    <Role
        name="notification"/>
/Component>

```

You can perform the following actions in the cluster.xml file:

Action	Description
Add a node	Add a complete <Component> element to the file, as shown in the preceding example. In this case, the node must already exist and must use the same My webMethods Server database as other nodes in the cluster. The node name in the cluster.xml file must agree with the node name in the custom_wrapper.conf file on the host machine for that node, or must be specified in the command line used to start the node: <code>mws -n <i>node_name</i> start</code>
Rename a node	Change the node name of a node.
Modify attributes	Edit any of the attributes for a node, including node name, HTTP, and HTTPS ports, and cluster roles.
Delete a node	Remove the complete <Component> element that defines the node.
Modify the Front End URL	Edit the frontEndUrl attribute, not shown in the example.

## Editing the cluster.xml File

To edit the cluster.xml file a My webMethods Server instance does not have to be running, but the My webMethods Server database does.

### To edit the cluster.xml file

1. At a command line prompt on any machine that hosts a cluster node, move to the bin directory of the server instance:
 

```
Software AG_directory\MWS\bin
```
2. To retrieve the cluster.xml file from the My webMethods Server database, type this command:
 

```
mws getconfig cluster.xml
```
3. Open the cluster.xml file in a text editor.

You can find the file at this location:

*Software AG\_directory*\MWS\server\*server\_name* \config

4. Make a backup copy of the cluster.xml file.
5. Modify the contents of the cluster.xml file as needed.
6. To deploy the revised cluster.xml file to the My webMethods Server database, at the command line prompt type this command:  

```
mws putconfig cluster.xml
```
7. Delete the cluster.xml file from the \*server\_name* \config directory.  
If you do not delete the cluster.xml file, this node will continue to use the local version of the file.
8. Restart the cluster, as described in ["Restarting or Stopping All Nodes in a Cluster" on page 188](#).

## Backing Out of a Change to the cluster.xml File

If you use the Cluster Administration page to make a change to a cluster.xml file that introduces an error, you can return to the previous configuration using the cluster.xml.bak file. A My webMethods Server instance does not have to be running, but the My webMethods Server database does.

---

### To back out of a change to the cluster.xml file

1. At a command line prompt on any machine that hosts a cluster node, move to the bin directory of the server instance:  

```
Software AG_directory\MWS\bin
```
2. To retrieve the cluster.xml.bak file from the My webMethods Server database, type this command:  

```
mws getconfig cluster.xml.bak
```
3. Change the name of cluster.xml.bak to cluster.xml.
4. To deploy the revised cluster.xml file to the My webMethods Server database, at the command line prompt type this command:  

```
mws putconfig cluster.xml
```
5. Delete the cluster.xml file from the \*server\_name* \config directory.  
If you do not delete the cluster.xml file, this node will continue to use the local version of the file.
6. Restart the cluster, as described in ["Restarting or Stopping All Nodes in a Cluster" on page 188](#).

---

## Creating a Cluster Node From an Image

---

One method to create a cluster is to save an image of a machine with an installed My webMethods Server instance and other products, and move it to a new machine. This effort saves installation time and results in an identical configuration on the new machine. It is recommended that you create an image of a fully initialized My webMethods Server instance instead of just a My webMethods Server installation. The My webMethods Server instance becomes fully initialized after it has been started for the first time and the administrator successfully logs in and then stops it.

Before you can use the new node in a cluster, you need to make a few changes. The new machine needs to have access to the My webMethods Server database, but you should not start My webMethods Server before making the following changes.

---

### To add a node created from an image

1. On the machine with a new image, at a command line prompt, move to the bin directory of the server instance:

```
Software AG_directory\MWS\bin
```

2. To retrieve the cluster.xml file from the My webMethods Server database, type this command:

```
mws getconfig cluster.xml
```

3. Open the cluster.xml file in a text editor.

You can find the file at this location:

```
Software AG_directory\MWS\server\server_name \config
```

4. Copy the entire <Component> element for the server instance on the original machine and paste it back into the cluster.xml file.
5. For the new <Component> element, make these changes:

- a. Change the `name-` value to a node name descriptive of the new node.
- b. Change the `host-` property to host name of the new machine

For example:

```
name="server-one-node59581"><Properties  
host="server-one" name="http"
```

might be changed to this:

```
name="node2"><Properties  
host="server-two" name="http"
```

- c. As needed, change the <Role> values to reflect the cluster roles to be assumed by the new node.
6. To deploy the revised cluster.xml file to the My webMethods Server database, at the command line prompt type this command:

```
mws putconfig cluster.xml
```

7. Delete the cluster.xml file from the `\server_name \config` directory.

If you do not delete the cluster.xml file, this node will continue to use the local version of the file.

8. Open the custom\_wrapper.conf file for the server instance in a text editor. You can find the file at this location:

```
Software AG_directory\profiles\MWS_server_name \configuration\
```

9. In the custom\_wrapper.conf file, change the value of the NODE\_NAME statement and save the file:

```
set.NODE_NAME=node_name
```

10. Start the My webMethods Server instance.

11. If the startup completes successfully, open a browser window and log into My webMethods Server as SysAdmin, to verify it is running correctly.

12. Restart each node in the cluster.

You can restart nodes manually, or you can do so from within My webMethods Server, as described in ["Restarting or Stopping All Nodes in a Cluster" on page 188](#).

## Partitioning Applications on Cluster Nodes

---

In a My webMethods Server cluster, *partitioning* is the division of applications among nodes of the cluster. By configuring cluster partitions, you can control which applications run on a node and which do not run. Partitioning is not the same as asymmetrical mode (["Component Deployment in a My webMethods Server Cluster" on page 174](#)), which causes components to be deployed to a node manually. Partitioning controls the actual execution of components.

### Why Would I Want Partitions?

There are several practical reasons why you might want to create partitions in your cluster:

- Separation of clients

Through the use of load balancer rules, you can route one set of users to one node and another set of users to a different node. Users on a partition have access to only the set of applications you choose to provide for them.

- Better control over application management

Because you run certain applications only within one partition, it is easier to update an application while the rest of the cluster continues to operate normally.

- Cache stability and memory usage

If a particular node experiences slow performance due to heavy traffic, users on other nodes are not affected. In the current Task Engine architecture for example, tasks typically reside in an in-memory cache. The existence of too many task instances in the cache will overrun the available memory.

### Guidelines for Partitions

There are a few things you should know about how partitions are created within a cluster:

- By default, a cluster has a single partition. If there is only one partition, all nodes are part of it, regardless of whether you have explicitly listed them as part of the partition.
- Each node is part of a partition. Any nodes you have not specifically listed as part of a partition become members of the last partition defined in the configuration files. See ["Creating and Modifying Partitions" on page 195](#)
- Each partition is associated with a `phaseProvider.xml` file, which governs whether portlets are enabled or disabled. If a partition is not associated with a specific phase provider file, it is associated with the default phase provider by default.

## Creating and Modifying Partitions

By default, there is one partition that includes all cluster nodes, as described in ["The Default Partition Configuration" on page 198](#). To create or modify additional partitions, you need to modify the partition configuration files.

My webMethods Server uses configuration files to manage partitioning on a cluster.

- `clusterPartitions.xml`—Modify this file to add partitions to the cluster and assign nodes to each partition. See ["The Cluster Partition File" on page 196](#).
- `partition_name` `PhaseProvider.xml`—Create and modify these files to specify whether portlets are enabled or disabled. See ["The Phase Provider File" on page 196](#).

Each partition can have its own phase provider file. A partition that does not have a unique phase provider associated with it uses the default `phaseProvider.xml` file.

- `partition_name` `Portlets.properties`—Create and modify one of these files for each phase provider. This file lists the portlets affected by the phase provider for a specific partition. See ["The Portlets Properties File" on page 197](#).

Each partition can have its own portlets properties file. If all portlets in the partition are enabled, a portlets properties file is not required.

**Note:** File names and file contents are case sensitive.

My webMethods Server stores these configuration files in the My webMethods Server database. To get access to these files so you can modify them, see ["Modifying Configuration Files Stored in the Database" on page 71](#).

## The Cluster Partition File

The cluster partition file, `clusterPartitions.xml`, defines the partitions on the cluster and assigns nodes to each partition. The data structure for a partition in the `clusterPartitions.xml` file looks like this:

```
<ClusterPartitions>
  <Partition name="partition_name "
    frontEndUrl="http://some.url.com">
    <Component name="component_name">
    </Component>
  </Partition>
</ClusterPartitions>
```

where:

*partition\_name* Is the name assigned to the partition. Other configuration files use this name to identify the partition.

*some.url.com* An alternate Front End URL.

The `frontEndUrl` attribute is optional, allowing the partition to use a different Front End URL than the cluster as a whole. If you omit this attribute, the partition uses the `frontEndUrl` value in the `cluster.xml` file.

*component\_name* The name of a component (a cluster node) that is part of the partition. The component name is the same as the component name in the `cluster.xml` file.

Entries in `clusterPartitions.xml` conform to the following rules:

- There is one `Partition` element for each partition in the cluster. There is always at least one `Partition` element.
- Each `Component` element represents a cluster node that is a member of the partition. There can be zero or more nodes specified for a partition.
- If there is only one `Partition` element in the file, all cluster nodes are members of that partition, regardless of whether they are represented by a `Component` element.
- Any cluster node not specifically represented within a `Partition` element is automatically a member of the last partition defined in the file.

## The Phase Provider File

A phase provider file, `partition_name PhaseProvider.xml`, determines whether portlets are enabled or disabled for a partition. Each partition can have its own phase provider file. A partition that does not have a unique phase provider associated with it uses the default `phaseProvider.xml` file. The portion of the phase provider file that applies to this topic is in the `portlet` phase nested inside the `CoreServices` phase:

```
<!-- All services come on line -->
```

```

<Phase name="CoreServices" enabled="true"
  class="com.webmethods.portal.system.init.impl.DefaultPhase">
  .
  .
  <PhaseInfo name="portlet" enabled="true"
    class="com.webmethods.portal.service.portlet.impl.PortletProvider"
    initFile="config:/adminPortlets.properties"
    initFileComponentsEnabled="false"
  />
  .
  .
/>

```

where:

<code>initFile</code>	Specifies the portlets properties file containing a list of portlets to be affected by the phase provider for the partition.
<code>initFileComponentsEnabled</code>	Specifies whether the portlets listed in the partition portlets properties file are to be enabled or disabled: <ul style="list-style-type: none"> <li>■ <code>false</code>: The listed portlets will be disabled.</li> <li>■ <code>true</code>: The listed portlets are the only ones that will be enabled.</li> </ul>

In the example above, the portlets properties file is `adminPortlets.properties` and the `initFileComponentsEnabled` attribute is `false`, meaning that file contains a list of portlets to be disabled.

The `initFile` and `initFileComponentsEnabled` attributes are not required. If you omit these attributes, all portlets are enabled in the partition.

**Note:** To create a new phase provider file for a partition, make a copy of the default `phaseProvider.xml` file and make changes as needed.

### The Portlets Properties File

The portlets properties file, `partition_name` `Portlets.properties`, lists the portlets affected by the phase provider for a specific partition. For development or testing purposes, you can override the phase provider for individual portlets.

The structure of the portlets properties file is simple. Each portlet resides on a separate line, followed by the = sign, as shown in this example:

```

wm_task_chart__taskchart=
wm_task_search__taskinboxsearchbar=
wm_task_search__taskinboxsearchresults=
wm_task_search__tlmsearchresults=
wm_task_search__tlmsearchquery=

```

A portlets properties file is not required for a partition in which all portlets are enabled. In this case, you can omit the `initFile` and `initFileComponentsEnabled` attributes

in the phase provider file, which would otherwise manage use of the portlets properties file.

### Temporarily Overriding the Phase Provider File

For development or testing, you can temporarily override the default behavior of the phase provider for an individual file. By prefixing a + or - sign to the = sign, you can specify how the portlet will act:

`+=` Causes the portlet to be enabled, regardless of the phase provider.

`--` Causes the portlet to be disabled, regardless of the phase provider.

Say, for example, the `initFileComponentsEnabled` attribute is `false`, which causes all portlets listed in the portlets properties file to be disabled. To enable any portlet in the list above, change `=` to `+=`, such as this:

```
wm_task_search__processsearchbar+=
```

When you later remove the + sign, the portlet will be disabled along with the other portlets in the list.

### The Default Partition Configuration

By default, there is one partition that includes all cluster nodes. The partition name is "default". The set of configuration files for the default partition is:

- `clusterPartitions.xml`—In the default state, this file defines only the default partition.
- `phaseProvider.xml`—This phase provider file supports the default partition. These attributes are set:
 

```
initFile="config:/defaultPartitionPortlets.properties"
initFileComponentsEnabled="false"/>
```
- `defaultPartitionPortlets.properties`—This file is empty by default.

In the default configuration, all portlets in the default partition are enabled.

### Example: Creating Cluster Partitions

The following procedure shows the creation of cluster partitions by editing configuration files. This procedure is intended as a demonstration and is not a real-world example. Prior to this procedure, a cluster exists, having five nodes:

```
default
node2
node3
node4
node5
```

The example creates three partitions for the cluster:

```
default (all portlets are enabled)
```

partition2 (a specified group of portlets is disabled)  
 partition3 (a specified group of portlets is disabled, but some are temporarily enabled)

---

### To create partitions through editing configuration files

1. At a command line prompt, type the following command to move to the server's bin directory:

```
cd Software AG_directory\MWS\bin
```

2. To retrieve the clusterPartitions.xml file from the My webMethods Server database, type this command:

```
mws getconfig clusterPartitions.xml
```

3. To retrieve the phaseProvider.xml file from the My webMethods Server database, type this command:

```
mws getconfig phaseProvider.xml
```

4. To retrieve the defaultPartitionPortlets.properties file from the My webMethods Server database, type this command:

```
mws getconfig defaultPartitionPortlets.properties
```

5. Open the downloaded clusterPartitions.xml file in a text editor.

You can find all the downloaded files at this location:

```
Software AG_directory\MWS\server\server_name \config
```

6. Edit the clusterPartitions.xml file using the syntax in ["The Cluster Partition File" on page 196](#) to add partition2 and partition3 to the cluster.

The modified clusterPartitions.xml file looks like this:

```
<?xml version="1.0" encoding="UTF-8"?>
<ClusterPartitions>
  <Partition name="default" frontEndUrl="http://my.company.server:8585">
    <Component name="default">
    </Component>
  </Partition>
  <Partition name="partition2">
    <Component name="node2">
    </Component>
    <Component name="node3">
    </Component>
  </Partition>
  <Partition name="partition3">
  </Partition>
</ClusterPartitions>
```

Based on this file:

- The default partition contains the default node
- partition2 contains node2 and node3
- partition3 contains node4 and node5 (the last partition in the file contains all nodes not specifically assigned to other partitions)

7. Save and close the clusterPartitions.xml file.

As a result, the default partition is established according to the [The Default Partition Configuration](#), with all portlets enabled.

8. Make a copy of phaseProvider.xml and name it partition2PhaseProvider.xml.
9. Open the partition2PhaseProvider.xml file in a text editor.
10. In the portlet phase nested inside the CoreServices phase, change defaultPartitionPortlets.properties to partition2Portlets.properties so the file looks like this:

```
<PhaseInfo name="portlet" enabled="true"
  class="com.webmethods.portal.service.portlet.impl.PortletProvider"
  initFile="config:/partition2Portlets.properties"
  initFileComponentsEnabled="false"/>
```

The phase provider now points to partition2Portlets.properties. Because initFileComponentsEnabled is set to false, portlets listed in that file will be disabled.

11. Save and close the partition2Portlets.properties file.
12. Make a copy of defaultPartitionPortlets.properties and name it partition2Portlets.properties.
13. Open the partition2Portlets.properties file in a text editor and add a list of the portlets that are to be disabled in partition2.

For example:

```
# These portlets will not be initialized.
wm_task_chart__taskchart=
wm_task_search__taskinboxsearchbar=
wm_task_search__taskinboxsearchresults=
wm_task_search__tlmsearchresults=
wm_task_search__tlmsearchquery=
```

In the user interface, these portlets have the following uses:

- "taskchart" displays Task Charts
- "tlmsearchquery" displays Task List Management
- The remaining portlets display My Inbox

14. Save and close the partition2Portlets.properties file.

As a result, certain portlets will be disabled on partition2 (node2 and node3).

**Note:** The procedure steps for partition3 demonstrate how to temporarily override a phase provider file ("[Temporarily Overriding the Phase Provider File](#)" on page 198). As a result, the steps are abbreviated because they largely duplicate the steps for partition2.

15. Make a copy of phaseProvider.xml and name it partition3PhaseProvider.xml.
16. In partition3PhaseProvider.xml change, defaultPartitionPortlets.properties to partitionPortlets.properties.

17. Make a copy of `partition2Portlets.properties` and name it `partition3Portlets.properties`.

As a result, `partition3` is configured to disable the same portlets as `partition2`.

18. In `partition3Portlets.properties`, prefix the `=` at the end of the last two portlets with a `+`.

For example:

```
# These portlets will not be initialized.
wm_task_chart__taskchart=
wm_task_search__taskinboxsearchbar=
wm_task_search__taskinboxsearchresults=
wm_task_search__tlmsearchresults+=
wm_task_search__tlmsearchquery+=
```

**Note:** The choice of portlets is arbitrary for this example.

As a result, `partition3` (`node4` and `node5`) has the same portlets disabled as `partition2`, but a subset of the portlets are enabled.

19. To deploy the new and revised files to the My webMethods Server database, type this command for each file:

```
mws putconfig file name
```

20. Delete all of these files from the `\server_name\config` directory.

If you do not delete the files, cluster will continue to use the local version of the configuration file.

21. Restart each node in the cluster using this command:

```
mws -s server_name restart
```

Changes to configuration files are not applied until after a restart.

### **Verifying the Components are Disabled**

To verify that portlets are disabled in the scenario described in "[Example: Creating Cluster Partitions](#)" on page 198, you would take the following general actions.

1. In the `clusterPartitions.xml` file, assign a separate `frontEndUrl` attribute for each partition.
2. Browse to the Front End URL of the default `partition2` and log in as My webMethods Administrator.
3. In the navigation pane, click Task List Management.

This choice corresponds to these portlets:

```
wm_task_search__tlmsearchresults=
wm_task_search__tlmsearchquery=
```

The Task List Management displays without errors

4. Browse to the Front End URL of `partition2` and log in as My webMethods Administrator.

- In the navigation pane, click Task List Management.

Because the portlets are disabled, you will see an error.

## Viewing Partitions in the My webMethods Server User Interface

To create and modify partitions, you need to use the configuration files described in ["Creating and Modifying Partitions" on page 195](#). But you can view information about existing partitions in the My webMethods Server User Interface.

### To view information about partitions

- To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Cluster Settings > Cluster Partitions.**
  - As system administrator: **Administration Dashboard > Configuration > Cluster Administration > Cluster Partitions.**

The Cluster Partitions page contains the following information:

Column Name	Purpose
<b>Name</b>	The partition name as defined in the cluster partition file. You can click the partition name to display a page with information about the partition.
<b>Front End URL</b>	The Front End URL used by the partition.
<b>Nodes</b>	The number of nodes in the partition.
<b>Partition Rule</b>	The rule applied to the partition by the phase provider file, which determines whether components are <b>Enabled</b> or <b>Disabled</b> .
<b>Managed Components</b>	The number of components (web applications and portlets) in the partition that are managed by the portlets properties file. The status of managed components can differ from the Partition Rule set by the phase provider file. For status of individual components, see <a href="#">"The Components Tab of the Partition Page" on page 203</a> .
<b>Detail</b>	 — A link to the page containing specific information about the partition.

- To find information about a specific partition, click the **Name** column or the  icon.

### ***The Nodes Tab of the Partition Page***

The **Nodes** tab of a partition page contains information about the nodes that are part of that partition. The information on this tab reflects the nodes defined in the cluster partition file.

Column	Purpose
<b>Name</b>	The name assigned to the node, as defined in the cluster partition file.
<b>Host</b>	The name of the host machine on which the node resides.
<b>HTTP Port</b>	The HTTP port used by the node.
<b>HTTPS Port</b>	The port used by the HTTPS listener of the node. A value of 0 indicates the HTTPS listener is disabled.

### ***The Components Tab of the Partition Page***

The **Components** tab of a partition page contains information about the web applications and portlets that are part of that partition. The information on this tab reflects the settings you have created in the phase provider and partition properties files for the partition.

There are two tree views, depending on how you want to list the components.

Tree View	Description
Categories	Lists components by category.
Portlets	Lists components in order, regardless of category.

To switch between the two views, choose the **Category Tree View** option or the **Portlet Tree View** option.

Column	Purpose
<b>Component</b>	A tree view of components. Expand a node to reveal the portlets that are part of the web application.
<b>Category</b>	(Portlets tree view only) The name of the category to which a component belongs. Examples are Administration and Communication.

---

Column	Purpose
<b>Name</b>	The name of the component as it is installed in My webMethods Server. This name is different from the descriptive name used in the <b>Component</b> column.
<b>Status</b>	The status of the component. The status icons are: <hr/>  The component is enabled in this partition. <hr/>  The component is disabled in this partition.

---

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# III System Administrator Functions

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# 13 Attribute Providers

---

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## What are Attribute Providers?

There are a variety of ways to provide and use attributes belonging to My webMethods Server users. Basic to each user are the My webMethods Server attributes: home page, skin, and number of lines displayed per page. In addition, there are Principal Attribute Providers:

Attribute provider	Description
Core Attributes	A set of core attributes such as user ID and email address. If the user is in the system directory service, some fields are editable. If the user is in an external directory service, all fields are read only. See " <a href="#">The Core Attributes Attribute Provider</a> " on page 210.
User Profile	A rich set of user attributes that you can maintain regardless of which directory service the user is a member of. The attributes are stored in the My webMethods Server database. Once established for each user, the User Profile Attributes can be used for wiring globally within My webMethods Server. See " <a href="#">The User Profile Attribute Provider</a> " on page 211.
LDAP	A set of attributes from the external directory service. You can specify which attributes are exposed from a given directory service. See " <a href="#">The LDAP Attribute Provider</a> " on page 211.
Database	A set of attributes from an external database directory service. You can specify which attributes are exposed from a given directory service. See " <a href="#">The Database Attribute Provider</a> " on page 212.
Notification	A set of addresses, such as email, at which the user can receive notifications from My webMethods Server. See " <a href="#">The Notification Attribute Provider</a> " on page 213.
Dynamic	A set of attributes whose values can change depending on the roles the user is a member of. See " <a href="#">The Dynamic Attribute Provider</a> " on page 214.

Principal Attribute Providers are useful because any attribute they expose can be made available as wiring for a portlet. For example, suppose a portlet uses a postal code to display certain information when a user views a page. If the postal code is provided by

wiring from a Principal Attribute Provider, when the postal code attribute is modified within a directory service, the portlet uses the modified attribute value.

Principal Attribute Providers are not enabled by default. To enable them, use the Principal Profile Administration page, described in ["Managing the Display of Principal Attribute Providers" on page 214](#).

## Using Attribute Providers

The Profile page for a user, group, or role displays the various sets of attributes as well as memberships in groups or roles. Depending on the directory service to which a user or group belongs, you can edit some attributes, or expose them for use in global wiring.

To see an example of the Profile page, as a system administrator, in the standard links, click **My Profile**. The page displayed is the Profile page for SysAdmin.

To see the Profile page for any user, group, or role, follow this search procedure:

### To find the Profile page for a user, group, or role

1. As system administrator: **Administration Dashboard > User Management > Manage *User\_type* > Search**.  
where *User\_type* is **Users, Groups, or Roles**.
2. Search for the user you want to edit. For more information, see ["Searching for Existing Users, Groups, or Roles" on page 112](#).
3. In the search results, click any link in the row of the user, group, or role, or click the Edit icon .

The Profile page for the user, group, or role is displayed.

4. The following sections describe the Attribute Providers available in My webMethods Server.

This Attribute Provider...	Is described here...
Core Attributes	<a href="#">"The Core Attributes Attribute Provider" on page 210</a>
User Preferences	<a href="#">"The User Preferences Attribute Provider" on page 210</a>
User Profile Attributes	<a href="#">"The User Profile Attribute Provider" on page 211</a>
Ldap Attributes	<a href="#">"The LDAP Attribute Provider" on page 211</a>

<u>This Attribute Provider...</u>	<u>Is described here...</u>
Database Attributes	<a href="#">"The Database Attribute Provider" on page 212</a>
Notification Attributes	<a href="#">"The Notification Attribute Provider" on page 213</a>
Dynamic Attributes	<a href="#">"The Dynamic Attribute Provider" on page 214</a>

## The Core Attributes Attribute Provider

The Core Attributes Attribute Provider contains a set of attributes such as user ID and email address. Some fields are editable, depending on directory service membership.

### *User Information Panel*

For individual users, the contents of the Core Attributes Attribute Provider appears on the Profile page as the **User Information** panel. For users in the system directory service, some fields, such as the email address, are editable. To edit information in this panel, see ["Editing Information for a User" on page 124](#).

For members of external directory services, this information is not editable, but it is available for the global wiring feature described in ["Wiring a Principal Attribute to a Portlet Property" on page 337](#).

### *Group Information Panel*

For groups, the contents of the Core Attributes Attribute Provider appears on the Profile page as the **Group Information** panel. For groups in the system directory service, some fields, such as the email address, are editable. To edit information in this panel, see ["Editing Group Information" on page 135](#).

For groups in external directory services, this information is not editable but it is available for the global wiring feature described in ["Wiring a Principal Attribute to a Portlet Property" on page 337](#).

### *Role Information Panel*

For roles, the contents of the Core Attributes Attribute Provider appears on the Profile page as the **Role Information** panel. The fields are not editable, but the information is available for the global wiring feature described in ["Wiring a Principal Attribute to a Portlet Property" on page 337](#).

## The User Preferences Attribute Provider

User preferences are basic to any user of My webMethods Server. A My webMethods Server Administrator, system administrator, or the individual user (if given permission)

can edit these basic attributes. To edit user preferences, see ["Editing Information for a User" on page 124](#).

## The User Profile Attribute Provider

The User Profile Attribute Provider has a rich set of user attributes that you can maintain regardless of which directory service the user is a member of. The attributes are stored in the My webMethods Server database. Once established for each user, the User Profile Attributes can be used with the global wiring feature described in ["Wiring a Principal Attribute to a Portlet Property" on page 337](#).

A My webMethods Server Administrator, system administrator, or the individual user (if given permission) can edit the User Profile attributes. You need to enter the user profile attributes individually for each user, or allow the user to do so. You can use all of the attributes or a subset that is appropriate to your needs. To edit the User Profile attributes, see ["Editing Information for a User" on page 124](#).

## The LDAP Attribute Provider

The LDAP Attribute Provider displays a specified set of attributes from the external directory service to which a user or group belongs. The attributes displayed in the **LDAP Attributes** panel are not editable but they are available for the global wiring feature described in ["Wiring a Principal Attribute to a Portlet Property" on page 337](#).

**Note:** If the LDAP Attribute Provider is not enabled by default. See ["Managing the Display of Principal Attribute Providers" on page 214](#).

This attribute provider is not applicable to users or groups in the system directory service. Similar attributes are included in the User Profile Attribute Provider described in ["The User Profile Attribute Provider" on page 211](#).

### ***Displaying the LDAP Attribute Provider***

You cannot modify the contents of the **LDAP Attributes** panel on a Profile page, but you can display it if needed. To search for the Profile page of a user or group, see ["Searching for Existing Users, Groups, or Roles" on page 112](#).

### ***Exposing LDAP Attributes from an External Directory Service***

The LDAP Attributes Provider displays user attributes that are exposed from an external directory service. You can expose selected attributes that are then available for the global wiring feature.

---

#### **To expose LDAP attributes from an external directory service**

1. As system administrator: **Folders > System > Service\* > Directory > Principal Attribute Providers > Provider\_type**.

where *Provider\_type* is **User Principal Attribute Providers** or **Group Principal Attribute Providers**.

\* You might have to click **Next** multiple times to find **Service** displayed in the table.

- For **Ldap Attributes**, click the Tools icon  and then click **Properties**.

You should now be on the Properties of LDAP Attributes page.

- Under **LDAP Attribute Names**, click **Add**.
- Type the attribute name exactly as it is used in the external directory service and click **OK**.

For example, the attribute name for email on a particular directory service might be `mail`.

- Under **LDAP Attribute Titles**, click **Add**.
- Type a display name for the attribute for use within My webMethods Server and click **OK**.

For example, for the `mail` attribute, you might type a display name of `Email`.

- If you have multiple LDAP attributes, make sure the order in the **LDAP Attribute Names** and **LDAP Attribute Titles** lists are the same.

The order in which attributes and titles appear in the lists determine the order in which they are displayed in the **Ldap Attributes** panel on the Profile page.

- Click **Apply**.

## The Database Attribute Provider

The Database Attribute Provider displays a specified set of attributes from the external database directory service to which a user or group belongs. The attributes displayed in the **Database Attributes** panel are not editable but they are available for the global wiring feature described in "[Wiring a Principal Attribute to a Portlet Property](#)" on page 337.

**Note:** If the Database Attribute Provider is not enabled by default. See "[Managing the Display of Principal Attribute Providers](#)" on page 214.

This attribute provider is not applicable to users or groups in the system directory service. Similar attributes are included in the User Profile Attribute Provider described in "[The User Profile Attribute Provider](#)" on page 211.

### *Displaying the Database Attribute Provider*

You cannot modify the contents of the **Database Attributes** panel on a Profile page, but you can display it if needed. To search for the Profile page of a user or group, see "[Searching for Existing Users, Groups, or Roles](#)" on page 112.

## Exposing Database Attributes from an External Directory Service

The Database Attributes Provider displays user or group attributes that are exposed from an external database directory service. You can expose selected attributes that are then available for the global wiring feature.

### To expose database attributes from an external database directory service

1. As system administrator: **Folders > System > Service\* > Directory > Principal Attribute Providers > Provider\_type**.

where *Provider\_type* is **User Principal Attribute Providers** or **Group Principal Attribute Providers**.

\* You might have to click **Next** multiple times to find **Service** displayed in the table.

2. For **Database Attributes**, click the Tools icon  and then click **Properties**.

You should now be on the Properties of Database Attributes page.

3. Under **Attribute Names**, click **Add**.

4. Type the attribute name exactly as it is used in the external database directory service and click **OK**.

**Important:** An attribute used here must be returned by the Query Lookup User by ID attribute in the database directory service. See "[Configuring an External Database Directory Service](#)" on page 94.

For example, the attribute name for postal code on a particular directory service might be `zipcode`.

5. Under **Attribute Titles**, click **Add**.
6. Type a display name for the attribute for use within My webMethods Server and click **OK**.

For example, for the `zipcode` attribute, you might type a display name of `Zip Code`.

7. If you have multiple database attributes, make sure the order in the **Attribute Names** and **Attribute Titles** lists are the same.

The order in which attributes and titles appear in the lists determine the order in which they are displayed in the **Database Attributes** panel on the Profile page.

8. Click **Apply**.

## The Notification Attribute Provider

The Notification Attribute Provider allows you to specify the various addresses at which a user can receive notifications. A My webMethods Server Administrator, system administrator, or the individual user (if given permission) can edit these basic attributes. To edit user preferences, see "[Editing Information for a User](#)" on page 124.

**Note:** The Notification Attribute Provider is not enabled by default. See "[Managing the Display of Principal Attribute Providers](#)" on page 214.

User preferences are basic to any user of My webMethods Server. A My webMethods Server Administrator, system administrator, or the individual user (if given permission) can edit these. To edit user preferences and notifications, see "[Editing Information for a User](#)" on page 124.

## The Dynamic Attribute Provider

The Dynamic Attribute Provider allows you to provide an attribute for a role. A user, group, or role that is a member of a role has all dynamic attributes of the role. If a user is a member of multiple roles, and multiple roles have attributes with the same key, you can determine which role will have precedence. In addition, you can assign an attribute value to a user, overriding the attribute values provided by roles. Dynamic attributes are available for the global wiring feature described in To edit user preferences, see "[Editing Information for a User](#)" on page 124.

**Note:** The Dynamic Attribute Provider is valid only for roles. Users and groups have dynamic attributes based on roles of which they are members.

For information on functions you can perform on dynamic attributes, see "[Defining Dynamic Attributes Associated with a Role](#)" on page 166.

## Managing the Display of Principal Attribute Providers

If all Principal Attribute Providers were displayed on a Profile page by default, the page would be crowded and potentially difficult to read. On the Principal Profile Administration page, you can choose which Principal Attribute Providers to display on a Profile page and the order in which they appear. You can set Principal Attribute Providers for users, groups, and roles:

This list...	Configures the display of...
<b>USER Attribute Providers</b>	The Profile page for a user. By default, the Core Attributes Provider is displayed as the <b>User Information</b> panel. Other default attribute providers are Groups, Roles, and User Preferences. You can add any Principal Attribute Provider applicable to an individual user.
<b>GROUP Attribute Providers</b>	The Profile page for a group. By default, the Core Attributes Provider is displayed as the <b>Group Information</b> panel. The default attribute providers

This list...	Configures the display of...
	are Groups and Group Members. You can add any Principal Attribute Provider applicable to a group.
<b>ROLE Attribute Providers</b>	The Profile page for a role. By default, the Core Attributes Provider is displayed as the <b>Role Information</b> panel. The other default attribute provider is Dynamic Attributes.

You can perform the following functions on the Principal Profile Administration page:

This function...	Is described here...
Add a Principal Attribute Provider to the Profile page	<a href="#">"Adding a Principal Attribute Provider" on page 215</a>
Rearrange the position of Principal Attribute Providers on the Profile page	<a href="#">"Changing the Display Order for Principal Attribute Providers" on page 215</a>
Remove a Principal Attribute Provider from the Profile page	<a href="#">"Removing a Principal Attribute Provider" on page 216</a>

## Adding a Principal Attribute Provider

To add a Principal Attribute Provider to a Profile page, use the following procedure.

### To add a Principal Attribute Provider to a Profile page

1. As system administrator: **Administration Dashboard > User Management > Principal Profile Administration**.
2. In the **USER, GROUP, or ROLE Attribute Providers** area, click **Add**.
3. To specify the Principal Attribute Provider want to add, move it to the **Selected Items** box and click **Select**.
4. At the bottom of the page, click **Apply**.

## Changing the Display Order for Principal Attribute Providers

To change the order in which Principal Attribute Providers appear on a Profile page, use the following procedure.

---

### To change the display order for Principal Attribute Providers

1. As system administrator: **Administration Dashboard > User Management > Principal Profile Administration**.
2. In the **USER, GROUP, or ROLE Attribute Providers** area, To reorder Principal Attribute Providers, move them up or down as needed.

The first attribute provider in the list has the left-most position on the Profile page, followed by the second attribute provider, and so on.

3. At the bottom of the page, click **Apply**.

## Removing a Principal Attribute Provider

To remove a Principal Attribute Provider from a Profile page, use the following procedure.

---

### To remove a Principal Attribute Provider from a Profile page

1. As system administrator: **Administration Dashboard > User Management > Principal Profile Administration**.
2. In the **USER, GROUP, or ROLE Attribute Providers** area, select a Principal Attribute Provider from the list and then click **Remove**.
3. At the bottom of the page, click **Apply**.

---

# 14 Managing Security

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## Overview of My webMethods Server Security

My webMethods Server has many different features and functions that contribute to its overall security infrastructure. When discussing security, it is always necessary to separate the discussion of authentication (Auth) from Authorization (AZ). While they are almost always related, the two concepts are distinct and work together to contribute to an overall security solution.

Authentication is defined as an assurance that a party to some computerized transaction is not an impostor. Authentication typically involves using a password, certificate, PIN, or other information that can be used to validate identity. The goal of authentication is to simply verify that “you are who you say you are.”

Authorization is defined as the process of determining, by evaluating applicable access control information, whether a party is allowed to have the specified types of access to a particular resource. Usually, authorization is in the context of authentication. Once a party is authenticated, that party may be authorized to perform different types of activities.

My webMethods Server provides built-in infrastructure for both authentication and authorization. My webMethods Server is also designed in a way that allows it to be extended so that existing security infrastructure can be re-used and leveraged for both authentication and authorization. This chapter discusses both the built in mechanisms and the extensible mechanisms.

In My webMethods Server, you can apply both authentication and authorization to the entire server or to individual server resources, which include folders, pages, portlets, links, documents, files, or custom objects.

### Server Authentication

My webMethods Server supports many different ways for users to identify themselves. These different methods are called Authentication Schemes. These schemes are simply different ways to gather user credentials and validate their authenticity. The different types of authentication schemes that are supported are:

This authentication scheme...	Is described here...
Forms authentication	<a href="#">"Forms Authentication" on page 219</a>
Anonymous authentication	<a href="#">"Anonymous Authentication" on page 219</a>
Basic authentication	<a href="#">"Basic Authentication" on page 219</a>

This authentication scheme...	Is described here...
NTLM authentication	<a href="#">"NTLM Authentication" on page 219</a>
HTTP header authentication	<a href="#">"HTTP Header Authentication" on page 220</a>
User-defined authentication schemes	<a href="#">"Extended and Extensible Authentication Schemes" on page 221</a>

## **Forms Authentication**

Forms authentication is the default authentication scheme for My webMethods Server. This authentication scheme presents a form to a user and gathers the necessary credentials that are passed to the server by means of a form POST (data is passed to the server's standard input). It is simple to customize the form or page that is used for authentication. It is also easy to present different forms and pages based on a wide variety of different criteria. For example, it is very likely that you would want to provide different login experiences for users accessing a server from mobile devices than for users accessing the server from a browser.

## **Anonymous Authentication**

The anonymous authentication scheme is used when you do not want to challenge users for credentials. My webMethods Server honors an anonymous request and establishes a session with the server as a special Guest user, but the user is never prompted for credentials. The anonymous authentication scheme is used for unprotected areas of the server that might be public facing and do not contain sensitive information. By associating the request with a session and a user ID of Guest, an administrator can extend behaviors of anonymous access by controlling permissions of the Guest user. Guest is one of the default users installed as part of the system directory service. It is also possible to track session activity of anonymous users for reporting requirements.

## **Basic Authentication**

Basic authentication is one of the original and most compatible authentication schemes for programs using HTTP as a transport mechanism. Unfortunately, it is also one of the least secure, as it sends the username and password unencrypted to the server. The credentials are typically passed in as HTTP header parameters. The user experience for basic authentication is a popup window that renders in the native windowing system. For example, when you use basic authentication on Windows, a Windows dialog box opens to prompt the user for credentials before the request can be honored.

## **NTLM Authentication**

NTLM (Windows NT LAN Manager) is an authentication protocol used in various Microsoft network protocol implementations and supported by the NTLM Security

Support Provider (NTLMSSP). Originally used for authentication and negotiation of secure DCE/RPC, NTLM is also used throughout Microsoft's systems as an integrated single sign-on mechanism. On Windows deployments, when NTLM is set up and configured as an authentication scheme for My webMethods Server, users do not need to re-authenticate for server resources if they are already logged into a Windows domain. You can choose either NTLM or NTLM version 2 (NTLMv2) authentication.

To use NTLM authentication you need to explicitly specify the Primary Domain Controller for the domain, as described in ["Configuring NTLM Authentication" on page 234](#).

To use NTLMv2, you need to purchase the Jespa Java software library from IOPLEX Software. For information on configuring NTLMv2, see ["Configuring NTLMv2 Authentication" on page 235](#).

**Note:** You can use either the webMethods NTLM authentication or NTLMv2, but not both at the same time.

## ***HTTP Header Authentication***

My webMethods Server can be configured to accept External HTTP authentication credentials from third-party security and access control products (such as Computer Associates, Oblix, and so forth). These credentials are case sensitive, depending on platform and web server and are most likely to be headers such as sm\_user or SM\_USER.

When you configure and set up HTTP header authentication within My webMethods Server, the server uses credentials from a third-party authentication engine. Typically, these third parties use a security agent to intercept the request prior its getting to the server. The basic flow of events in this request is:

1. The user attempts to go to a server resource.
2. Prior to connecting to the server, if the third-party security agent does not see the proper credentials, the agent redirects the user to a mechanism that gathers credentials.
3. The user provides the credentials and is then redirected back to the server resource.
4. The server reads the appropriate HTTP header and maps the user appropriately.

To configure this interaction between the server and the third-party security agent, you need to take these actions.

5. After My webMethods Server installation, configure the third-party product to protect the server, which typically involves creating a policy that protects the server URL.
6. Verify that the server and the third-party security product are configured to look at the same directory store. See ["Managing External Data Sources" on page 100](#) for more information on directory services.

7. Configure the server to look for the right HTTP header. See ["Configuring External Configuration Credentials"](#) on page 275.

**Note:** In the case of SiteMinder from Computer Associates, it is also necessary to specify the Logout URI in SiteMinder. In the SiteMinder Administrator applet, modify the logoutURI attribute to be '/?method=logout' (without the quotes)

**Important:** The HTTP Header Authentication Administration page should only be enabled if you are using a third-party security provider. After the page is enabled, the server acts as though all users have been authenticated.

### ***Extended and Extensible Authentication Schemes***

My webMethods Server provides hooks for developers to provide their own custom authentication schemes. To develop a custom authentication scheme, create a portlet, implement the correct interfaces, and register it with the server. Once created, the new authentication scheme participates in the security infrastructure just like any other authentication scheme that is provided as part of My webMethods Server.

My webMethods Server has a concept of a default authentication scheme that is applied to an entire deployment. A newly configured server uses forms as its default authentication scheme. The server challenges initial requests for protected resources with a form requiring the user to type a user name and password.

At any time, you can change the default authentication scheme for a server to one of the registered authentication schemes. For more information, see ["Specifying a Default Authentication Scheme"](#) on page 231.

Every server resource can have an authentication scheme that overrides the setting for the entire deployment. For example, you might have one set of pages and portlets that are completely anonymous and others that require user credentials to be presented. You would do this by associating the anonymous authentication scheme with the resources that do not require authentication. For information on managing authentication schemes for individual server resources, see ["Assigning an Authentication Scheme to a Server Resource"](#) on page 232.

### ***Extending Login and Splash Page Behavior***

To understand the login process and flow of events, it helps to analyze an example of how a system administrator would extend a deployment to have custom login page behavior. The following set of steps uses the concepts of anonymous access, forms-based authentication, and login pages to form a solution. Some of the steps require developer knowledge.

1. Design a page that has a login portlet on it. Once the page is created, set the authentication scheme of the page to "anonymous" so everyone can get to the page and be presented with the login portlet.

Optionally, you can set access rights on other parts of the page so that the login page has different appearances, depending on the identities of users. To address even

broader requirements of personalizing the login page, it is also easy to set up custom login pages based on rules themselves.

2. After setting the authentication scheme of the page to anonymous, make sure the login portlet itself can be seen by a Guest user (see Guest in "[Managing Directory Services](#)" on page 84).

You may also want to modify the look and feel of the page by removing title bars, adding explicit instructions, or implementing other business requirements.

3. You can control where a user is redirected after login. In the Properties page for the login portlet, modify the Login Target property to the page where the user is redirected. Keep in mind that the Login Target be static or it can be an alias. If you use an alias like `/user.current.start.page`, you can alternatively set up start page rules to govern different start pages based on information about the user logging in.

It is also possible to redirect a request, if not authenticated, to go to the appropriate login page. To do so, modify the Redirect URI property of the authentication scheme assigned to the page. When an unauthenticated user requests the page, the user is redirected to the specified page. As with login targets, a redirect URI can be either static or an alias.

### ***Making a Custom Authenticator Available to Integration Server***

If you implement a custom authenticator portlet to be used with a database directory service for My webMethods Server, and if Integration Server is configured to use Common Directory Services, you need to take additional steps to enable authentication for users logging into Integration Server.

---

#### **To make a custom authenticator available to Integration Server**

1. Stop all webMethods components.
2. Open the custom authenticator .pdp file using the .zip extractor of your choice.
3. Extract the `/WEB-INF/lib/custom_authenticator.jar` from the .pdp (the name will vary with the naming convention of your custom component).
4. To make the custom authenticator available to all Integration Server instances, copy the extracted .jar file into this location:

*Integration Server\_directory/lib/jars/*

5. To make the custom authenticator available to a specific Integration Server instance, copy the extracted .jar file into this location:

*Integration Server\_directory/instances/instance\_name/lib/jars/*

6. Modify Common Directory Services configuration files by doing the following:
  - a. Locate the following .jar file:

*Software AG\_directory\common\lib\wm-mws-library.jar*

- b. Extract these two files from the `wm-mws-library.jar` file.

- `initPortlets.properties`  
`initXTypes.properties`
- c. Open each of these files in a text editor and use this syntax to add the name of the custom authenticator portlet as the last line of the file:
 

```
custom_authenticator=
```

Use the other portlet names in these files as examples.
  - d. Save each file and repackage them both in the `wm-mws-library.jar` file.
7. Restart all webMethods components.

## Security Assertion Markup Language

My webMethods Server supports single sign-on through the Security Assertion Markup Language (SAML), an XML-based framework for the exchange of security information. Using SAML, an application on a target computer grants access based on an assertion from the source computer.

My webMethods Server can be the calling program, or Security Provider, or can be configured to authenticate the user sign-on for a target web application. For information, see ["Setting up Single Sign-On" on page 281](#).

## Server Authorization

After a user request has been authenticated by the server, it is usually necessary to do some authorization checks to make sure that the user making the request has the necessary privilege to act on that resource. In My webMethods Server, the most common way to do authorization checks is by evaluating Access Control Lists (ACLs). ACLs can be associated with every kind of server resource, such as pages, portlets, and so forth.

More advanced concepts like verbs and mechanics (groupings of business logic) are server resources as well, and therefore also participate in the ACL evaluation model. This feature allows developers to programmatically lock down capabilities of the server.

To understand the authorization engine in My webMethods Server, look at the composition of an ACL. An ACL is a list of Access Control Entries (ACEs). An ACE is a simple structure containing an element called a Principal and an element called a Right Set.

A *Principal* is a user, group or role. Some examples of Principals are:

Principal	Example of a Principal
User	Myles Perkins
Group	Members of the Perkins family
Role	A role definition that resolves to Myles, such as, "Users who have the 'Job Title' attribute value set to 'Product Manager.'

Right Sets are groupings of actions that can be performed on a server resource. An example of a Right Set is “Grant the ability to read. Right Sets themselves are broken down into two distinct parts, Capabilities and Settings. Different types of server resources have different Capabilities associated with them. For example, pages have Capabilities that include “Add Portlet To Page” while folders have Capabilities that include “Create Sub Folder” and “Can Read Items in this Folder.”

The other part of a Right Set, the Setting, can have four possible values: DELEGATE, DENY, GRANT or NONE. Each Capability that makes up a Right Set has a Setting value. Right Sets are made up of many Capability-Setting pairings. Here is an example of a Right Set:

```
DENY + create sub folder
GRANT + read
```

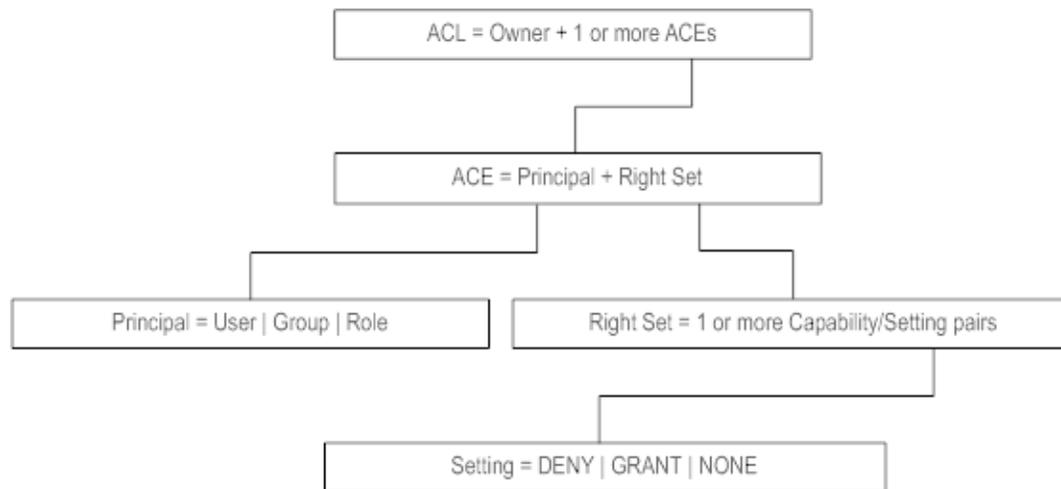
This particular Right Set is made up of two Capability-Setting pairings. If associated with a folder resource, this Right Set is resolved to deny a Principal the ability to create sub folders but grant the ability to actually read the folder.

The values for Settings have the following meanings:

This Setting value...	Has this effect for the Principal...
DENY	Denies the access to perform the capability.
GRANT	Explicitly grants access to perform the capability.
DELEGATE	Explicitly grants access and gives the right to assign the capability to another Principal.
NONE	Provides no explicit Setting. Authorization for this server resource will be determined from another source.

The following figure shows the relationships described in this section.

## Anatomy of an ACL



As an example, to deny read access to Brian and the Marketing Group from the Engineering page, we would have the following setup:

- The server resource is the Engineering page.
- The Engineering page has an ACL associated with it that contains two ACEs:

Principal	Right Set
Brian	DENY read
Marketing Group	DENY read

## Controlling Permissions on Server Resources

If you have authorization to change access to a server resource, you use the Permissions portlet of My webMethods Server to assign access control to it. For example, if you are the owner of the Engineering folder in the previous example, a wizard in the Permissions portlet allows you to select one or more Principals and Right Sets, and associate them with that folder. For more information on controlling permissions, see ["Managing Permissions" on page 141](#).

You do not have to explicitly grant and deny access for every newly created object. If you give your taxonomy a little forethought, you can keep the potential maintenance burden to a minimum. My webMethods Server employs a method called *static propagation* of its access rights on server objects when they are created. This means that at creation time, a server resource receives its access rights from its parent resource. If subsequent changes are made to the parent's access rights, these rights are not dynamically updated in the child object. However, you can use the Permissions portlet to cause parent objects to apply access rights explicitly to their children.

To illustrate static propagation and parent-child interaction as it relates to access rights, we will return to the previous example of the Engineering folder. In that example, the Engineering folder has BRIAN DENY. As the owner of the Engineering folder, a user creates a sub folder called Secret Project. Because of static propagation, the new Secret Project folder has BRIAN DENY at the time of creation. If the owner goes back and changes the permissions of the Engineering Folder to allow Brian access, Brian still does not have access to the Secret Project sub folder.

## Authorization Determination

Now that you have a background in the concepts of making an authorization decision, you can see how access is actually determined at run time. When a server resource is requested, the server evaluates the ACL associated with that resource against the context in which the current request is generated. If a user requests access to a page, the ACL for that page is evaluated to determine whether the user request should be honored.

There are a few simple rules in determining authorization that handle a large percentage of any conflicts that may arise:

- DENY always takes precedence over Allow (It is good to be paranoid in dealing with security)
- Users always take precedence over groups and roles

To illustrate these rules and how they are applied to resolve conflict, we return to the example Engineering folder. In the following example, there are three ACE entries in the ACL associated with the Engineering folder:

```
BRIAN + DENY READ  
MARKETING GROUP + DENY READ  
BRIAN + GRANT READ
```

If Brian is a member of the Marketing group (and even if he wasn't) he is denied access to the Engineering folder. The user-based ACE takes precedence over the group-based ACE so the MARKETING GROUP ACE has no effect. Subsequently, the conflict between BRIAN being granted and denied access is resolved by denying access because DENY always wins.

### Lists, pages, child objects and Searches

As mentioned earlier, a Principal can be a user, group, or role. Information about a Principal comes from a directory service. My webMethods Server has an embedded system directory service, described in ["Managing Directory Services" on page 84](#), as well as the ability to tie to external directory servers. Examples of these external directory servers are Active Directory, LDAP servers, ADAM, and an RDBMS. In addition, group and role information for My webMethods Server authorization decisions is determined when a user logs into the server. If a user's group membership changes during an active session, the change is not reflected in the server until the user logs out and logs back in. See ["Managing Users and Groups" on page 119](#) for more information about users, groups, roles, and directory services.

## Security Realms

My webMethods Server provides a feature called Security Realms to augment its security model. *Security Realms* are collections of server resources that share the same ACL. The use of Security Realms makes it possible to easily manage permissions on large numbers of server resources. By adding the resources directly to a Security Realm, a system administrator can add Principal information to that realm to control access.

Security Realms become very useful if you have a large number of server resources and only a few access levels. For example, you may have a large customer-facing server that has a large number of portlets, pages and areas of taxonomy. However, this server may only have three levels of access that need to be managed: Gold, Silver and Bronze. With each level represented by a Security Realm with the appropriate pages, portlets and taxonomy elements in them, a system administrator needs only to add a new customer to the appropriate Security Realm, granting the customer the correct level of access. Likewise, changing a customer from one level to another is a simple one-step operation.

Used in the appropriate deployments, Security Realms add value, not only by minimizing the administrative burden, but by greatly reducing the number of underlying records required to support the security model. For example, assume a server has 500,000 server resources and you are managing permissions for 50 users, all of whom have the same access:

- Managing permissions by ACL requires 25 million records in the My webMethods Server database.
- Managing permissions by Security Realm uses one Security Realm and one role with 50 members, requiring a total of three records in the My webMethods Server database.

It should be noted that if a server resource is added to a Security Realm, the Security Realm access control has precedence over an individual ACL and authentication scheme for that resource.

For information on managing Security Realms, see ["Using Security Realms" on page 148](#).

## Server Verbs and Access Control

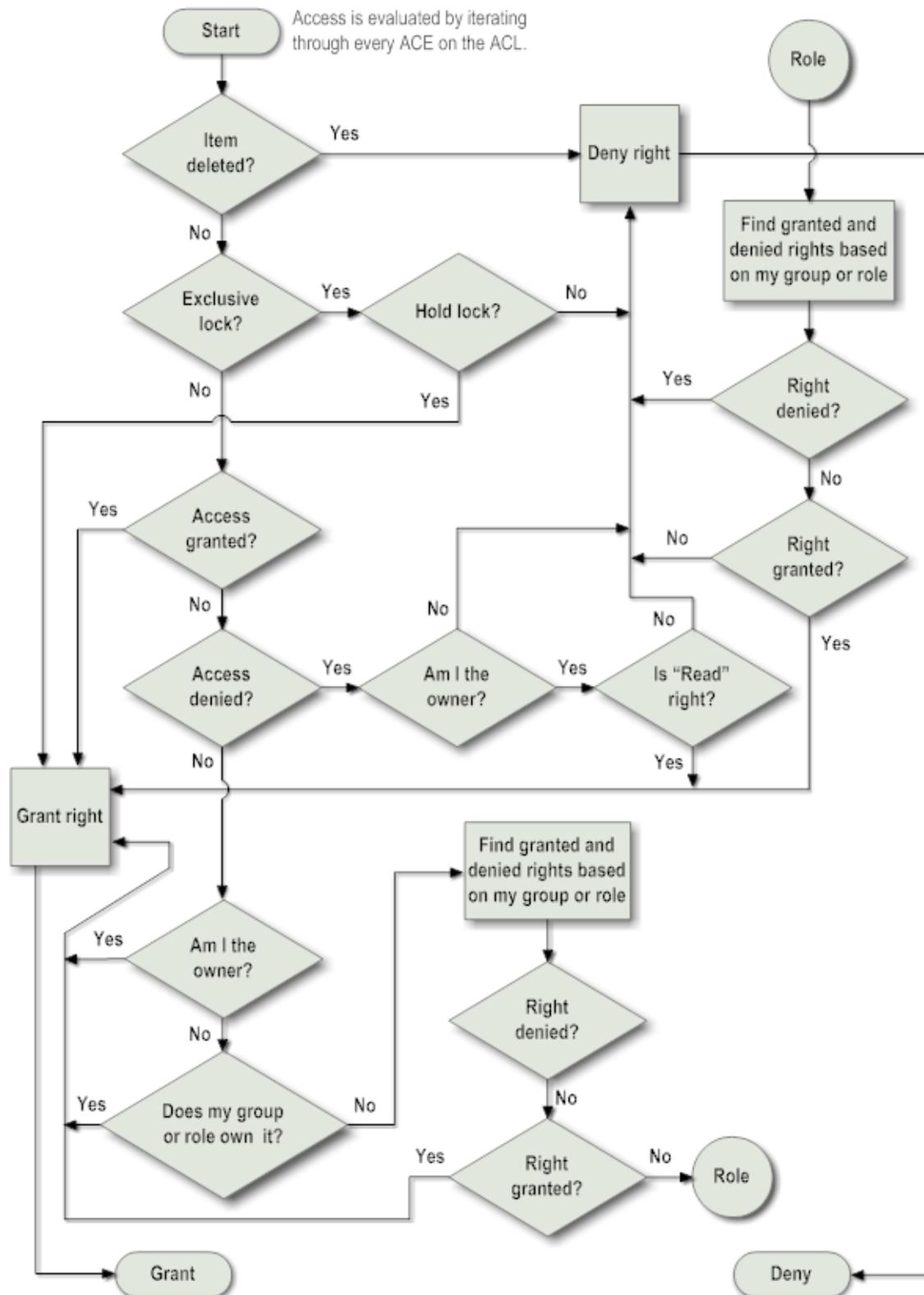
A *server verb* is an operation such as publishing, deleting, updating, subscribing, and setting permissions, which is available through the My webMethods Server API. As noted earlier, server verbs are server resources that can also participate in the security model of the server. In this way, one can control granular access to server capabilities programmatically as well as through the Administrative Dashboard. It should be noted that server verbs typically have two levels of security checks, performed in this order:

1. Does the user have access to the server verb itself?
2. Does the user have the rights to the resource upon which the server verb is trying to act.

A system administrator can control access to server verbs using the Security Realms Administrative page. My webMethods Server ships with default Security Realms to

help administrators manage access to different server capabilities. The default Security Realms are described in ["Using Security Realms" on page 148](#).

Authorization Decisions in My webMethods Server



## Managing Authentication

An authentication scheme is a way to gather user credentials and validate their authenticity. Within My webMethods Server, you can manage authentication for a server as a whole by specifying a default authentication scheme. As delivered, the forms authentication scheme is the default for all server resources. In addition, every server resource can have an authentication scheme that overrides the setting for the entire deployment.

**Note:** A Security realm always takes precedence over an authentication scheme.

My webMethods Server uses the following authentication schemes:

Scheme	Description
Anonymous	Allows unrestricted access to a server resource. Used for unprotected areas of the server that might be public facing and do not contain sensitive information. Because a user is not challenged for credentials, the anonymous authentication scheme is appropriate for login pages.
Forms	Presents a form to an unauthenticated user and gathers the necessary credentials that are passed to the server. The forms authentication scheme is the default for all server resources because it redirects unauthenticated requests to a default login page.
Basic	Typically passes credentials as HTTP header parameters. The user experience for basic authentication is a popup window that renders in the native windowing system.
HTTP Header	Accepts external HTTP authentication credentials from third-party security and access control products (such as Computer Associates, Oblix, and so forth). After this authentication scheme is enabled, the server ignores all other authentication schemes. See <a href="#">"Configuring External Configuration Credentials" on page 275</a> .
NTLM	Used for authentication in various Microsoft network protocol implementations. On Windows deployments, when the ntlm authentication scheme is the default for a server, users do not need to re-authenticate for server resources if they are already logged into a Windows domain. To use NTLM authentication, see one of these topics:

Scheme	Description
	<ul style="list-style-type: none"> <li>■ <a href="#">"Configuring NTLM Authentication" on page 234</a></li> <li>■ <a href="#">"Configuring NTLMv2 Authentication" on page 235</a></li> </ul>
SAML	Supports single sign-on through the Security Assertion Markup Language (SAML). Using SAML, an application on a target computer grants access based on an assertion from the source computer. See <a href="#">"Setting up Single Sign-On" on page 281</a> .

You can perform the following types of functions to manage authentication in My webMethods Server.

This function...	Is described here...
Change the default authentication scheme to be used for My webMethods Server.	<a href="#">"Specifying a Default Authentication Scheme" on page 231</a>
Specify an authentication scheme for an individual server resource	<a href="#">"Assigning an Authentication Scheme to a Server Resource" on page 232</a>
Redirect a user to a page other than the login page after logging in.	<a href="#">"Redirecting a User After Login" on page 233</a>
Redirect an unauthenticated request for a protected server resource to a specified login page other than the default login page.	<a href="#">"Redirecting an Unauthenticated Request" on page 233</a>

## Specifying a Default Authentication Scheme

When My webMethods Server is initialized, the forms authentication scheme is the default. The forms authentication scheme redirects unauthenticated requests to a default login page. You can change the default authentication scheme for My webMethods Server to one of the registered authentication schemes.

**Note:** Do not use this procedure if you intend to use the httpHeader authentication scheme to accept credentials from third-party security providers. Instead, use the HTTP Header Authentication Administration page, described in ["Configuring External Configuration Credentials" on page 275](#).

---

### To change the default authorization scheme for My webMethods Server

1. As system administrator, click **Administration Dashboard > Configuration > Alias Management**.
2. On the **Keyword** tab, type `auth.scheme.default` and click **Search**.
3. Click the Edit icon  for `auth.scheme.default`.
4. On the Update Alias panel, click **Browse** and browse to **Folders > System > Authentication Schemes**.
5. Move the appropriate authentication scheme to **Selected Items** and click **Select**.
6. Click **Update**.

## Assigning an Authentication Scheme to a Server Resource

Every server resource can have an authentication scheme that overrides the default authentication scheme for My webMethods Server. The specific procedure depends on whether or not the resource is a member of a Security Realm. The valid authentication schemes are described in "[Managing Authentication](#)" on page 230.

---

### To assign an authentication scheme for an individual server resource

1. As system administrator: **Home > Folders** and then navigate to the individual server resource.
2. Click the Tools icon  and then click **Permissions**.
3. Click the Security Realm tab.
4. If the **Security Realm Name** field displays **No Security Realm Assigned**, do the following:
  - a. Click the Authentication tab.
  - b. From the **Authentication Scheme** list, choose the authentication scheme to apply to the server resource and click **Apply**.
5. If the **Security Realm Name** field displays a Security Realm name, do the following:
  - a. Copy the Security Realm name, paste it into the input field of the page banner, and click **Search**.

As an alternative, you can navigate to **Folders > Administrative Folders > Administration Dashboard > Configuration > Security Realms Administration** to locate the Security Realm.
  - b. Click the Tools icon  and then click **Permissions**.
  - c. Click the Authentication tab.
  - d. From the **Authentication Scheme** list, choose the authentication scheme to apply to the Security Realm and click **Apply**.

## Redirecting a User After Login

By default, when a user logs into a server, redirects the user to the same page. You can alter the Login Target property of the login portlet so a successful login redirects the user to a page of your choosing.

### To redirect a user to another page after login

1. At the right edge of the title bar for the login portlet, click the Tools icon  and then click **Properties**.
2. For the **Login Target** property, do one of the following:

Click this...	And do this...
<b>Browse</b>	Move the target page to the <b>Selected Items</b> box and click <b>Select</b> .
<b>Use Alias</b>	In the <b>Alias Name</b> field, type the alias of the page to which the user should be redirected. Click <b>Test</b> to determine if the alias is valid and the alias target is the correct one. If the alias is correct, click <b>Select</b> .

**Note:** If you type `/user.current.start.page`, the user is redirected to the start page defined by start-page rules.

3. Click **Apply**.

## Redirecting an Unauthenticated Request

Using the forms authentication scheme, an unauthenticated request to a protected server resource results in the user being redirected to a default login page. Alternatively, you can redirect the user to a target of your choosing, whether it is a custom login page or a page that provides unprotected content.

### To redirect an unauthenticated request to a different page

1. As system administrator, click **Administration > Folders > System > Authentication Schemes**.
2. Click the Tools icon  for the default authentication scheme, and then click **Properties**.

By default, the forms authentication scheme redirects unauthorized requests to the default login page. You can verify that an authorization scheme is the default by looking at the Properties page; the **Aliases** list contains the `auth.scheme.default` alias.

3. In the **Performs Redirect** list of the Properties page for the authentication scheme, make sure **Yes, this performs a redirect** is selected.

4. Under **Redirect URI**, do one of the following:

<b>Click this...</b>	<b>And do this...</b>
<b>Browse</b>	Move the target page to the <b>Selected Items</b> box and click <b>Select</b> .
<b>Use Alias</b>	In the <b>Alias Name</b> field, type the name of the alias to which the user should be redirected. Click <b>Test</b> to determine if the alias is valid and the alias target is the correct one. If the alias is correct, click <b>Select</b> .

5. Click **Apply**.

## Configuring NTLM Authentication

Using NTLM authentication, a user who has logged into a Windows domain does not have to re-authenticate to log in to a server. A Primary Domain Controller is a Microsoft Windows server responsible for handling all accounts in a domain. To use NTLM authentication, you must explicitly specify the Primary Domain Controller in the NTLM Authentication Scheme.

### To specify a Primary Domain Controller for NTLM authentication

1. If you have NTLMv2 authentication configured, you need to disable it, as described in ["Disabling NTLMv2 Authentication" on page 236](#).
2. As system administrator, click **Administration Dashboard > Configuration > NTLM Authentication Administration**.
3. In the **Domain Controller Name** field of the Properties page, type the hostname of the Primary Domain Controller and click **Submit**.

## Disabling NTLM Authentication

If you have NTLM enabled, you need to disable it before configuring NTLMv2.

### To disable NTLM Authentication

1. As system administrator, click **Administration Dashboard > Configuration > NTLM Authentication Administration**.
2. In the **Domain Controller Name** field, delete all characters including spaces and click **Submit**.

---

## Configuring NTLMv2 Authentication

---

To use NTLM version 2 (NTLMv2), you need to purchase and install latest version of the Jespa Java software library from IOPLEX Software.

---

### To configure NTLMv2 authentication

1. If you have NTLM authentication configured, you need to disable it, as described in ["Disabling NTLM Authentication" on page 234](#).

2. Install and configure the Jespa Java software library, as described in the documentation provided when you download Jespa.

The Jespa library should be located here:

*Software AG\_directory/MWS/lib/*

3. Stop My webMethods Server.
4. Extract jcifs-1.3.17.jar from `wm_ntlmv2authadmin.pdp`, which you can find at this location:

*Software AG\_directory  
/MWS/components/admin/configuration/  
wm\_ntlmv2authadmin.pdp*

5. Copy `jespa-1.1.11.jar` from the Jespa Java software library and `jcifs-1.3.17.jar` to this location:

*Software AG\_directory/MWS/lib*

6. From the command line, run `mws update`. See ["Command Syntax for My webMethods Server" on page 52](#).

7. Restart My webMethods Server.

8. As system administrator, click **Administration Dashboard > Configuration > NTLMv2 Authentication Administration**.

9. In the **NTLMv2 Enabled** field, make sure **Yes, NTLMv2 is enabled** is set.

10. Configure the properties in the remaining fields according to the information provided in the Jespa documentation.

11. If you want to test the configuration, select **Yes, test configuration before save**.

12. Click **Submit**.

13. To make sure the new library is configured:

- a. At a command line prompt, type the following command to move to the server's bin directory:

```
cd Software AG_directory\MWS\bin
```

- b. Type `mws stop`.

- c. Type `mws update`.
- d. Type `mws start`.

## Disabling NTLMv2 Authentication

If you have NTLMv2 enabled, you need to disable it before configuring NTLM.

---

### To disable NTLMv2 Authentication

1. As system administrator, click **Administration Dashboard > Configuration > NTLMv2 Authentication Administration**.
2. In the **NTLMv2 Enabled** field, make sure **No, NTLMv2 is disabled** is set and click **Submit**.
3. Delete the Jespa and Java CIFS libraries from this location:  
*Software AG\_directory/MWS/lib/ext*
4. To de-reference the libraries and reconfigure the server:
  - a. At a command line prompt, type the following command to move to the server's bin directory:  
*cd /Software AG\_directory\MWS\bin*
  - b. Type `mws stop`.
  - c. Type `mws update`.
  - d. Type `mws start`.

## Clearing Session Passwords from Memory

By default, when a user logs in, the password is stored until the user logs out or until the session times out. You can, however, cause My webMethods Server to clear passwords from memory immediately after the login is completed. This setting clears all passwords presented to My webMethods Server; you cannot clear passwords on a case-by-case basis.

---

### To clear session passwords from memory

1. As system administrator, click **Administration > Folders > System > Managers > sessionManager > default > validate**.
2. At **Configuration XML**, click **Edit**.
3. In the Edit Text Area, change this text:  
`clearPassword= false`  
to this:  
`clearPassword= true`

4. To save the file and close the editor, click **Update**.
5. Click **Apply**.

This setting remains until you change it, even if you stop and restart My webMethods Server.

## Retaining Session Passwords in Memory

---

### To retain session passwords in memory

1. As system administrator, click **Administration > Folders > System > Managers > sessionManager > default > validate**.
2. At **Configuration XML**, click **Edit**.
3. In the Edit Text Area, change this text:  
`clearPassword= true`  
to this:  
`clearPassword= false`
4. To save the file and close the editor, click **Update**.
5. Click **Apply**.

## Turning On or Off Auto Complete for Usernames and Passwords

---

When a user logs on to My webMethods Server, the browser allows the user to remember the username and password. You can configure the My webMethods Server login portlet to turn on or off the auto complete functionality. By default, auto complete is turned on.

### To turn on or off auto complete for usernames and passwords

1. As system administrator, go to **Folders > My webMethods Applications > webMethods Application Data > My webMethods Login Page**.
2. Append `?layout=details` to the end of the My webMethods Server URL in the browser address bar to display the login portlet.
3. Click the **Tools** icon  for the login portlet and select **Properties**.
4. Do one of the following:
  - To turn off auto complete for usernames and passwords, clear the **Allow Auto Complete** check box.

- To turn on auto complete for usernames and passwords, select the **Allow Auto Complete** check box. The check box is selected by default.

5. Click **Apply**.

## Controlling the Number of Failed Login Attempts

---

My webMethods Server controls the number of failed login attempts it will allow before it temporarily locks the user account. You can control these values:

<b>Window Duration</b>	How far back in time to look for failed attempts, in milliseconds. The default is 30000.
<b>Max Attempts in Window</b>	The maximum number of login attempts during the window duration. The default is 10.
<b>Lockout Duration</b>	The duration of the time the user will be locked out of the server, in milliseconds. The default is 30000.

Changes on this page affect all logins to the server.

---

### To control the number of failed login attempts

1. As system administrator, click **Administration Dashboard > Configuration > Failed Logins Administration**.
2. Change values on the Failed Logins Administration page as needed.
3. Click **Apply**.

## Controlling Login IP Ranges

---

You can use the Lockdown portlet to control the IP ranges from which users are allowed to log in to My webMethods Server. Up to four different IP ranges are allowed. The portlet does not take into account the credentials of the person logging in or any authentication mechanism. Upon being unable to log in, the user is redirected to an error page of your choosing. This portlet is useful for a site that allows guest access only, or one that is to be access only from a secure location.

**Important:** If you make an error in configuring IP ranges, you may not be able to log in to correct the problem. To correct the problem, you need to have physical access to the machine on which My webMethods Server is running.

## Deploying the Lockdown Portlet

The Lockdown portlet is not deployed automatically when you initialize My webMethods Server. The portlet is included in a My webMethods Server installation, but you must deploy it before use.

### To deploy the Lockdown portlet

1. Locate the Lockdown portlet within the webMethods installation directory at this location:

`\Software AG_directory\MWS\components\extras\security\wm_lockdown.pdp`

2. Copy the `wm_lockdown.pdp` file to the deploy directory for the server instance:

`\Software AG_directory\MWS\server\server_instance\deploy`

My webMethods Server detects the presence of the portlet and automatically deploys it.

## Configuring the Lockdown Portlet

After the Lockdown Portlet is deployed, you can configure it for use.

### To configure the Lockdown portlet on My webMethods Server

1. As system administrator, click **Administration > Folders > System > Portlets > Administration > Portal Lockdown Administration**.
2. For the **Error page** property, find a page to which users are redirected if they fail to log in by doing one of the following:

#### Click this...

#### And do this...

#### **Browse**

Move the target page to the **Selected Items** box and click **Select**.

#### **Use Alias**

In the **Alias Name** field, type the alias of the page to which the user should be redirected. Click **Test** to determine if the alias is valid and the alias target is the correct one. If the alias is correct, click **Select**.

3. (Optional) In the **E-mail Address for Login Notification** field, type an email address to which My webMethods Server should send a notification if a login is attempted from a disallowed IP address.
4. Specify up to four IP ranges from which users are allowed to log into My webMethods Server.

For each range, provide a value in the **Start IP Range** and **End IP Range** fields.

5. On the **Is Active** field, choose the **True** option.
6. Click **Submit**.

The lockdown is in effect immediately.

## Disabling the Lockdown Portlet in My webMethods Server

If you can log in to My webMethods Server as system administrator, you can disable the Lockdown portlet by doing the following.

### To disable the Lockdown portlet in My webMethods Server

1. As system administrator, click **Administration > Folders > System > Portlets > Administration > Portal Lockdown Administration**.
2. On the **Is Active** field, choose the **False** option.
3. Click **Submit**.

## Disabling the Lockdown Portlet Manually

If you cannot log in to My webMethods Server as system administrator, you need to have physical access to the machine on which My webMethods Server is installed, and modify the `portal.properties` file. Everything in this file is set as a system property, read after the My webMethods Server starts but prior to initialization of portlets.

### To disable the Lockdown portlet manually

1. On the machine where My webMethods Server is installed, locate this file:  
`\Software AG_directory\MWS\server\server_instance\config\portal.properties`
2. Open the `portal.properties` file in an editor and add the following line at the end of the file:

```
lockdown.disable=false
```

For example, with a descriptive comment included:

```
#=====
# Lockdown Portlet
lockdown.disable=false
```

3. Restart My webMethods Server.

**Note:** After you have corrected the IP address range problem, you cannot reactivate the Lockdown portlet until you remove this line from the `portal.properties` file.

---

## Encrypting Passwords for Global Environment Variables

---

You can encrypt password fields for custom entries in Global Defaults environment variables.

---

### To encrypt password fields for Global Defaults environment variables

1. As system administrator, click **Administration Dashboard > Configuration > CAF Application Runtime Configuration**.
2. In the result titlebar, click the **Edit** icon .
3. In the **Password Env-Entry Names** field, type the name of a custom environment entry after the existing entries, separated by a comma, and click **Save**:

For example, `wsclient-password,jcr/systemPassword,My_Password`

4. Click **Configure Global Defaults**.
5. In the tree view, click **Environment Entries**, and then click **Add New Entry**.
6. In the Name field, type the name of the custom environment entry (for example, `My_Password`) and click **Add It**.
7. Type a password value in the newly created environment entry and click **Apply**.

If you have correctly configured the environment entry, the password is masked as you type it into the field. In addition, the password value is encrypted before it is stored in the database.

If the consumer of the password value needs to get the original value back (for example, to log in to some external server) it is possible to use the `CipherUtil.decrypt(value)` java API to get the original value back. For information about the `CipherUtil` class, see the *webMethods CAF and My webMethods Server Java API Reference*, which you can download at the [Software AG Documentation website](#)

---

## Allowing Context Impersonation

---

There may be cases in which you want to allow a user to impersonate another user. For example, impersonation is used by the default Java Content Repository (JCR) Client. The JCR session is created as a system user (SysAdmin by default) with a known password and then the JCR session uses impersonation to switch to the real current user. This impersonation makes it possible for the current user to log into the JCR repository.

We do not recommend that you use the SysAdmin user to implement context impersonation, but another way to do so is to create a user with the Impersonate Users Functional Privilege set.

To set the Impersonate Users Functional Privilege for a user, follow the procedure in "[Access Privileges and Functional Privileges](#)" on page 144.

On the Permissions panel, Impersonate Users is located at **Functional Privileges > MWS > Impersonate Users**.

## Password Complexity Policies

A password complexity policy enforces requirements that make user passwords more resistant to brute-force attacks. You can create a Password Complexity Class and add it to My webMethods Server for use with the system directory service. You cannot use this feature for external directory services.

### To install a password complexity class for the system directory service

1. Stop My webMethods Server.
2. Save the Password Complexity class in a JAR file at this location:
 

*Software AG\_directory\MWS\lib*
3. Create a *jar\_file\_name*.bnd file in the *Software AG\_directory \MWS\lib* directory whose file content looks like the following:
 

```
# attach as fragment to the caf.server bundle
Fragment-Host: com.webmethods.caf.server
#expand (inline) the contents of the jar containing the classes
#into the bundle.
# TODO: make sure this filename matches the name of your jar file
Include-Resource: @jar_file_name.jar
#import any external java packages that are required
Import-Package: *;resolution:=optional
#export the java packages that should be visible to external consumers
Export-Package: *
-nouses: true
```
4. To re-apply the custom JAR file to the My webMethods Server profile with the new information, run this command from the command line:
 

```
./mws.[bat|sh] -s default update-osgi-profile
```
5. Restart My webMethods Server.
6. To navigate to the correct page, do one of the following:
  - In My webMethods: **Navigate > Applications > Administration > My webMethods > Directory Services > List Directory Services**.
  - As system administrator: **Administration > User Management > Directory Services Administration > List Directory Services**.
7. Click the **system** directory service.
8. In the Password Complexity Class field, type the name of the Password Complexity Class created in the Composite Application Framework and click **Apply**.

If you need to update your custom JAR file, do the following:

1. Stop My webMethods Server.

2. Update or copy the new custom JAR file to the *Software AG\_directory\MWS\lib* directory.
3. Run this command from the command line:  

```
./mws.[bat|sh] -s default update-osgi-profile
```
4. Restart My webMethods Server.

## Working with Response Header Rules

---

My webMethods Server enables you to create and manage rules that govern the HTTP response messages that are sent after receiving and interpreting a request message. The following topics describe how to work with response header rules.

### Viewing Response Header Rules

---

To view response header rules

1. As system administrator: **Administrative Folders > Administration Dashboard > User Interface > Manage Response Header Rules**
2. Click the **View Rules** tab if it is not already selected.

Available rules are displayed in the **Rule Name** list. The list is empty if no rules are defined. The following information appears for each rule:

- The rule name. This is a clickable link that opens the **Modify Rule** where you can view the rule conditions and make changes to the rule.
- A description of the rule as entered by the rule creator.
- Whether or not the rule is currently enabled.

### Creating a Response Header Rule

---

To create a response header rule

1. As system administrator: **Administrative Folders > Administration Dashboard > User Interface > Manage Response Header Rules**
2. Click the **Create Rule** tab.
3. Do the following:
  - Type a name for the rule in the **Rule Name** field.
  - Type a description of the rule in the **Description** field.
  - If you want the rule to be enabled upon creation, select the **Enabled** check box.

- If you do not want the rule to be enabled upon creation, clear the **Enabled** check box.
4. In the **Condition** field, use the available condition element buttons to define a condition expression for the rule. The following condition elements are available:
    - **Current User(s)**
    - **Group/Role Membership**
    - **User Attributes**
    - **Request**
    - **Parent Resource**
    - **Current Resource Type**
    - **Resource Properties**
    - **Add Operator**

Click the button you want to work with and then use the resulting dialog box to select the value you want to add to the condition expression. For example:

```
portalResource isDescendant ("webm.apps.data.page.login") ||
portalResource isDescendant ("portlet.login")
```

You can also type in an expression directly, or type to modify the expression after you create it.
  5. Click **Add** next to the **Result** field and specify the response header key field name and value. You can add additional key/value pairs if needed. To remove a key/value pair, select it in the list and click **Remove**.
  6. Click **Create Rule**.

## Modifying a Response Header Rule

### To modify a response header rule

1. As system administrator: **Administrative Folders > Administration Dashboard > User Interface > Manage Response Header Rules**
2. Do either of the following:
  - Click the rule name in the **Rule Name** field.
  - Click the **Tools** icon  for the rule you want to work with and then click **Modify Rule**.
3. On the **Modify Rule** tab, make changes to the rule as required:
  - In the **Condition** field, use the available condition element buttons to add a condition expression to the rule, or type to modify the expression directly.

4. In the **Result** field, select a response header key field name and value and do one of the following:
  - Click **Add** to specify an additional key/value pair.
  - Click **Modify** to make changes to an existing key/value pair.
  - Click **Remove** to remove a key/value pair.
5. Click **Modify Rule**.

## Copying a Response Header Rule

You can copy a rule to create a new rule in the Manage Response Header Rules page. When you copy a rule, you provide a name and description for the new rule, and the rule condition and result information is copied from the original rule into the new rule.

**Note:** When you copy a rule, the setting of the **Enabled** check box in the original rule is also copied into the new rule. If the **Enabled** check box is selected in the original rule, the new copied rule will be enabled as soon as you create it.

### To copy a response header rule

1. As system administrator: **Administrative Folders > Administration Dashboard > User Interface > Manage Response Header Rules**
2. Click the **Tools** icon  for the rule you want to work with and then click **Copy Rule**.
3. On the **Copy Rule** tab, type a name and description for the new rule.
4. Click **Copy the Rule**.

## Removing a Response Header Rule

### To remove a response header rule

1. As system administrator: **Administrative Folders > Administration Dashboard > User Interface > Manage Response Header Rules**
2. Click the **Tools** icon  for the rule you want to work with and then click **Remove Rule**.
3. Click **OK** in the confirmation dialog box to remove the rule.

## Changing the Response Header Rule Evaluation Order

### To change the response header rule evaluation order

1. As system administrator: **Administrative Folders > Administration Dashboard > User Interface > Manage Response Header Rules**

2. Click the **Change Rule Evaluation Order** tab.
3. In the **Evaluation Order** list, select a rule name and use the arrow buttons to the right to move the selected rule up or down in the evaluation order.
4. Click **Update Rule..**

## Changing the Default Internet Explorer Compatibility Setting

By default, My webMethods Server sets the compatibility mode for Internet Explorer to IE8. See [About the Default Response Header Rules](#).

**To change the Internet Explorer document compatibility setting.**

1. As system administrator: **Administrative Folders > Administration Dashboard > User Interface > Manage Response Header Rules**
2. Locate the **IE - parameter for compatibility mode** rule and do either of the following:
  - Click the rule name in the **Rule Name** field.
  - Click the **Tools** icon  for the rule you want to work with and then click **Modify Rule**.
3. Click **Update** next to the **Result** field, edit the **Value** field, and click **Apply**.  
The default value is `IE-8`.
4. Click **Update Rule**.

## About the Default Response Header Rules

The following response header rules are available in My webMethods Server by default:

Rule Name	Enabled?	Description
<b>Login Page Deny Non Same-Origin Framing</b>	Yes	<p>This rule guards against cross-site scripting and clickjacking attacks on the Login page by implementing the X-Frame-Options HTTP response header. This header indicates whether or not a browser should be allowed to render a page in a &lt;frame&gt; or &lt;iframe&gt;, thus ensuring that content is not embedded into other sites. The key/value pair is:</p> <pre>X-Frame-Options SAMEORIGIN</pre> <p>The page can only be displayed in a frame of the same origin as the page itself.</p>

---

Rule Name	Enabled?	Description
<b>Login Page Deny All Framing</b>	No	This is a more stringent Login page anti-cross-site scripting and clickjacking rule. The key/value pair is:  <code>X-Frame-Options DENY</code>  In this case, the page cannot be displayed in a frame, regardless of the site attempting to do so.
<b>IE - parameter for compatibility mode</b>	Yes	This setting sets the standard document type for Internet Explorer in rendering HTML pages. The default value is IE8.

---

Basic support for the X-Frame-Options header response is available in these (and later) browser versions:

- Chrome 4.1.249.1042
- Firefox 3.6.9
- Gecko 1.9.2.9
- Internet Explorer 8.0
- Opera 10.5
- Safari 4.0



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# 15 Analysis, Reporting, and Troubleshooting

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## Overview

---

My webMethods Server provides administrators with a number of tools for analyzing, reporting, managing, and maintaining server deployment. This chapter provides detailed instructions on how to use these tools.

## Controlling Server Logging

---

As My webMethods Server runs, it collects logging information for a variety of categories, for web applications, and for portlet applications. Logging information is collected in two stages, **Logger** and **Output**.

- **Logger** stage allows you to define the level of messages you want to collect for each category, web application, and portlet application.
- **Output** stage determines the level of messages that you want My webMethods Server to write to the console and the log files.

You can control each stage independently. The logger threshold takes precedence over an output threshold. If My webMethods Server discards a logging message because it does not meet a logger threshold, and is therefore not collected for a category or application, that message cannot be written to the output, that is, it cannot be written to the console or a log file.

Use the Logging Configuration page to control logging for the server. For more information, see ["About Logging Thresholds" on page 250](#) and ["Setting Logger and Output Thresholds" on page 252](#).

As My webMethods Server writes log messages to the output log files, the files will grow in size. Periodically, the My webMethods Server rolls over to a new set of files, making it easier to locate a specific date and to discard old log files as needed. For more information about the output log files, how often My webMethods Server rolls over files, and how you can control the rollover, see ["About the Log-File Rollover Period" on page 254](#) and ["Modifying the Log-File Rollover Period" on page 257](#).

## About Logging Thresholds

Define logging thresholds to control the log messages that My webMethods Server collects. Each log message is assigned a log level. A threshold indicates the log level of messages you want My webMethods Server to collect. My webMethods Server logs messages that have the level you specify and all higher levels. As a result, by setting thresholds, you can limit the growth of log files. Set lower log levels when you want to collect more information and higher log levels when you want to collect less information.

The following table describes the levels, from the lowest level to the highest:

Log level	Description
TRACE	Set a threshold to this level if you want the logs to contain messages of all levels. This level provides the most detail; however, log files grow quickly.
DEBUG	The server issues DEBUG messages at multiple points within a server event. Set a threshold to this level to collect DEBUG messages and all higher-level messages (e.g., INFO, WARN, etc.). This level is useful for debugging a problem; however, log files grow quickly.
INFO	The server issues INFO messages to indicate that a server event has occurred. Set a threshold to this level to collect INFO messages and all higher-level messages.
WARN	The server issues WARN messages to warn you of an error that is not serious. Set a threshold to this level to collect WARN, ERROR, and FATAL messages.
ERROR	The server issues ERROR messages when a non-fatal error occurs. Set a threshold to this level to collect ERROR and FATAL messages.
FATAL	The server issues ERROR messages when a fatal error occurs. Set a threshold to this level to collect only FATAL messages.

To define a threshold, assign one of the levels described in the table above.

- **Assign a log level to a logger threshold for a category, web application, or portlet application** to control the messages that My webMethods Server collects for that category or application. You can view the categories and applications for which My webMethods Server can collect messages on the Logging Configuration page.
- **Assign a log level to an output threshold** to control the messages that My webMethods Server writes to the console or one of the following log files:
  - **\_full\_.log**, which can contain all level of messages from all categories, web applications, and portlet applications.
  - **\_problems\_.log**, which contains messages from all categories, web applications, and portlet applications; however, it restricts the level to WARN messages or higher, that is WARN, ERROR, or FATAL messages.
  - **\_errors\_.xm\_**, which is an XML fragment that contains messages from all categories, web applications, and portlet applications. By default it contains only FATAL messages.

**Note:** You can wrap the XML fragment that is contained in the errors log with a root XML element to produce well-formed XML.

The logger threshold takes precedence over an output threshold. When the server collects a log message, it first sends the message to a specified logger. If the message does not meet the threshold, it is discarded. However, if the log level of the message meets or exceeds the logger threshold, the server forwards the message on to the logging outputs. If the log level of the message does not meet the output threshold, it is discarded. Finally, if the message meets or exceeds the output threshold, the server writes the message to the output. In other words, if a message does not meet the threshold you set for a category or application (logger threshold), it is discarded and therefore cannot be written to the output.

## Setting Logger and Output Thresholds

You can set both logger thresholds and output thresholds on the Logging Configuration page.

**Note:** When you update the thresholds on the Logging Configuration page, the settings are permanent until you update them again. If you want My webMethods Server to temporarily use debug settings that last only until the server is shut down, you can start the server using the `-d` startup option. For more information, see ["Temporarily Setting Debug Thresholds" on page 252](#).

### To set a logger or output threshold

1. As system administrator, click **Administration Dashboard > Analysis > Logging Configuration**.
2. For each category, web application, and/or portlet application you want to modify, in the **Logger Threshold** column, select the log level to the lowest level of message you want to accept.
3. For each output threshold you want to modify, in the **Output Threshold** list, select the log level to the lowest level of message you want to accept.

**Tip:** To set all logger thresholds or output thresholds to the same logging level, click the Tools icon  to the right of the **Logger Threshold** or **Output Threshold** label and then select the log level to use.

4. Click **Apply**.

### Temporarily Setting Debug Thresholds

By default, the server configuration uses a java system property (`logj4.default.log.level`) to set the logging threshold for several categories to the WARN threshold. When you start the server with the `-d` startup option, the `logj4.default.log.level` variable is set to DEBUG. As a result, the server collects messages for the categories at the DEBUG

threshold until the server is shut down. Use this the `-d` startup option to run the server in debug mode. This is an easy way to temporarily increase the log level for many categories to perform troubleshooting.

The following section of the logging configuration shows the categories that are affected by the `-d` startup option:

```
# default level controled by -d=DEBUG otherwise =WARN
log4j.category.Framework=${log4j.default.log.level}
log4j.category.frameworkInit=${log4j.default.log.level}
log4j.category.dataAccess=${log4j.default.log.level}
log4j.category.jsp=${log4j.default.log.level}
log4j.category.jsf=${log4j.default.log.level}
log4j.category.directory=${log4j.default.log.level}
log4j.category.portlet=${log4j.default.log.level}
log4j.category.classManager=${log4j.default.log.level}
log4j.category.taglibs=${log4j.default.log.level}
log4j.category.mail=${log4j.default.log.level}
log4j.category.search=${log4j.default.log.level}
log4j.category.messaging=${log4j.default.log.level}
log4j.category.notifications=${log4j.default.log.level}
log4j.category.schedule=${log4j.default.log.level}
log4j.category.version=${log4j.default.log.level}
log4j.category.task=${log4j.default.log.level}
log4j.category.webservice=${log4j.default.log.level}
log4j.category.wsclient=${log4j.default.log.level}
```

For instructions for how to start the server using the `-d` startup option, see "[Command Syntax for My webMethods Server](#)" on page 52.

## Exporting Threshold Settings to a File

You can export your logger and output threshold settings to a file named `log4.override.properties`. Then later, you can import them from the `log4.override.properties` file into a My webMethods Server database.

You might want to export your threshold settings if you want to save a backup copy or if you want to use the same settings in another My webMethods Server instance that is not in the same cluster.

---

### To export threshold settings

1. As system administrator, click **Administration Dashboard > Analysis > Logging Configuration**.
2. Click **Export**.
3. If you want to open the file in a text editor to view it before saving:
  - a. Select the **Open with** option.
  - b. Select the text editor you want to use to view the file.
  - c. Click **OK**.

My webMethods Server downloads the file from the database and opens it in the selected editor.

- d. Use the text editor save function to save the file.
4. If you want to save the file without opening it:
    - a. Select **Save File**.
    - b. Click **OK**.

My webMethods Server downloads the threshold settings to the `log4.override.properties` file and places the file on your desktop.

## Importing Threshold Settings from a File

If you previously exported the logger and output threshold settings to the `log4.override.properties` file, you can use the following procedure to import them into a My webMethods Server instance.

---

### To import threshold settings

1. As system administrator, click **Administration Dashboard > Analysis > Logging Configuration**.
2. Click **Import**.
3. Click **Browse**, navigate to the location of the `log4.override.properties` file containing the settings you want to import, and click **Open**.
4. In the **Import Mode** field, select whether you to merge the settings or completely replace the settings.
  - Select **Merge with Existing Configuration** to merge the settings in the `log4.override.properties` file with the current threshold settings in the My webMethods Server database.
  - Select **Replace Existing Configuration** if you want to completely replace the threshold settings in the My webMethods Server database with the settings in the `log4.override.properties` file.
5. Click **Import Configuration**.

## About the Log-File Rollover Period

Periodically, the logging process rolls over to a new set of files based on either date or file size. When My webMethods Server rolls over a file based on date, it renames the old log file so that it includes the date so that if you need to refer to old log data, it is easier to find the data for a specific date. When My webMethods Server rolls over based on size, it maintains a specified number of backup files and discards older data.

My webMethods Server log files reside in the following directory:

*Software AG\_directory*\MWS\server\server\_instance \logs

The following table describes the log files that My webMethods Server creates and the default for when My webMethods Server rolls over the log file. For information about how to customize the rollover periods, see "[Modifying the Log-File Rollover Period](#)" on [page 257](#).

Log file	By default, this log contains...	By default, the log is rolled over...
_full_.log	Log messages from all categories and all enabled thresholds (for example, TRACE, DEBUG, INFO, WARN, ERROR, and FATAL).	Daily at midnight  When the log is rolled over, the past days log messages are rolled over into a file that is named to reflect the date of the log information it contains:  _full_.yyyy-MM-dd.log  You can customize how often My webMethods Server rolls over this log.
_problems_.log	WARN, ERROR, and FATAL log messages from all categories.	Daily at midnight  When the log is rolled over, the past days log messages are rolled over into a file that is named to reflect the date of the log information it contains:  _problems_.yyyy-MM-dd.log  You can customize how often My webMethods Server rolls over this log.
install.log	DEBUG level log messages from the install	When the log size reaches 100 MB  When the log is rolled over, the old log messages are rolled over into a backup file that uses the following naming convention, where <i>N</i> is a number.  install. <i>N</i> .log  For example, the first time the log is rolled over, the backup log is named install.1.log. By default, My webMethods Server maintains up to three backups.

Log file	By default, this log contains...	By default, the log is rolled over...
		<p>You can customize the maximum size limit for this file before My webMethods Server rolls it over and how many backup files the server maintains.</p>
caf.log	CAF application log messages	<p>Daily at midnight</p> <p>When the log is rolled over, the past days log messages are rolled over into a file that is named to reflect the date of the log information it contains:</p> <p>caf.yyyy-MM-dd.log</p> <p>You <i>cannot</i> customize how often My webMethods Server rolls over this log.</p>
schema.log	Log messages from DDL statements execution for creating, modifying, or deleting x-type objects	<p>When the log size reaches 5 MB</p> <p>When the log is rolled over, the old log messages are rolled over into a backup file that uses the following naming convention, where <i>N</i> is a number.</p> <p>schema.<i>N</i>.log</p> <p>For example, the first time the log is rolled over, the backup log is named schema.1.log. By default, My webMethods Server maintains up to ten backups.</p> <p>You can customize the maximum size limit for this file before My webMethods Server rolls it over and how many backup files the server maintains.</p>
_errors_.xm_	<p>An XML fragment of FATAL log messages from all categories</p> <p>You can wrap the XML fragment that is contained in the errors log with</p>	This log is <i>not</i> rolled over

Log file	By default, this log contains...	By default, the log is rolled over...
	a root XML element to produce well-formed XML.	

## Modifying the Log-File Rollover Period

My webMethods Server maintains the settings for how to roll over the log files in the My webMethods Server database. As a result, if you are running the server in the cluster, all server instances use the same rollover settings. To update the rollover settings, you can have My webMethods Server download the settings to a local file named `log4j.init.properties` file, modify the rollover periods in the downloaded file, and then upload the changes back to the database.

If My webMethods Server rolls over the log file based on:

- **Date and time, (used for the `_full_.log` and `_problems_.log` files)**

The rollover configuration is controlled by the appender type `org.apache.log4j.DailyRollingFileAppender`. To update the rollover period, you identify a new `DatePattern` for the appender. The following table describes the `DatePatterns` you can use.

Date Pattern	My webMethods Server rolls over the log file...
' . 'yyyy-MM	At the beginning of each month  For example, for the <code>_full_.log</code> if you set the <code>DatePattern</code> to ' . 'yyyy-MM, at midnight on January 31, 2010, My webMethods Server copies the log data to the file <code>_full_.2010-01.log</code> . My webMethods Server logs messages for the month of February to the <code>_full_.log</code> file until it is rolled over the next month.
' . 'yyyy-ww	At the first day of each week. The first day of the week depends on the locale.  For example, assume the first day of the week is Sunday and that for the <code>_problems_.log</code> you set the <code>DatePattern</code> to ' . 'yyyy-ww. On Saturday midnight, May 15, 2010, My webMethods Server copies the log data for the 19th week of the year to the file <code>_problems_2010-19</code> . My webMethods Server logs messages for the 20th week of 2010 to the <code>_problems_.log</code> file until it is also rolled over the next week.

Date Pattern	My webMethods Server rolls over the log file...
' . 'yyyy-MM-dd	<p>At midnight each day.</p> <p>For example, for the <code>_full_.log</code> if you set the <code>DatePattern</code> to <code>' . 'yyyy-MM-dd</code>, at midnight on February 22, 2010, My webMethods Server copies the log data to the file <code>_full_2010-02-22</code>. My webMethods Server logs messages for February 23, 2010 to the <code>_full_.log</code> file until it is also rolled over the next day.</p>
' . 'yyyy-MM-dd-a	<p>Twice each day, at noon and midnight.</p> <p>For example, for the <code>_problems_.log</code> if you set the <code>DatePattern</code> to <code>' . 'yyyy-MM-dd-a</code>, at noon on February 22, 2010, My webMethods Server copies the log data to the file <code>_problems_2010-02-22-A.M.</code> My webMethods Server logs messages for the afternoon of February 22, 2010 to the <code>_problems_.log</code> file until it is rolled over at midnight into the file <code>_problems_2010-02-22-P.M.</code> Then, My webMethods Server logs messages for February 23, 2010 to the <code>_problems_.log</code> file.</p>
' . 'yyyy-MM-dd-HH	<p>Every hour of each day.</p> <p>For example, for the <code>_full_.log</code> if you set the <code>DatePattern</code> to <code>' . 'yyyy-MM-dd-HH</code>, at approximately 11:00 A.M. on February 22, 2010, My webMethods Server copies the log data for the 10 o'clock hour to the file <code>_full_2010-02-22-10</code>. My webMethods Server logs messages for the 11 o'clock hour to the <code>_full_.log</code> file until it is rolled over at the beginning of the next hour.</p>
' . 'yyyy-MM-dd-HH-mm	<p>Every minute of each day.</p> <p>For example, for the <code>_full_.log</code> if you set the <code>DatePattern</code> to <code>' . 'yyyy-MM-dd-HH-mm</code>, at approximately 11:46 A.M. on February 22, 2010, My webMethods Server copies the log data to the file <code>_full_2010-02-22-11-45</code>. My webMethods Server logs messages for the next minute to the <code>_full_.log</code> file until it is rolled over a minute later.</p>

#### ■ File size, (used for the `install.log` file)

The rollover configuration is controlled by the `org.apache.log4j.RollingFileAppender`. You can update the log level of the messages collected in the `install.log` file, the maximum size of the log file before it is rolled over, and the number of backup log files that My webMethods Server maintains.

**Note:** The following procedure describes how to modify the roll over periods by updating parameters for the default appenders (`org.apache.log4j.DailyRollingFileAppender` and `org.apache.log4j.RollingFileAppender`) that are defined out-of-the-box. However, if you want, you can update the settings to use an alternative appender to meet your needs. For example, you can change the `_problems_.log` to use the `RollingFileAppender` if you want it to roll over based on size or `FileAppender` if you do not want the log to roll over. You can use any appender that log4j library supports. For more information, see <http://logging.apache.org/log4j/1.2/index.html>.

### To modify the log-file rollover period

1. Download the `log4j.init.properties` file from the My webMethods Server database:

- a. At a command line prompt, change directories to move to the server's bin directory:

```
Software AG_directory\MWS\bin
```

- b. To retrieve the `log4j.init.properties` file from the database, type this command:

```
mws -s server_instance getconfig log4j.init.properties
```

2. Edit the `log4j.init.properties` file.

- a. Navigate to the following directory, where the `getconfig` command placed the `log4j.init.properties` file:

```
Software AG_directory\MWS\server\server_instance \config
```

- b. Open the `log4j.init.properties` file in a text editor.

3. To modify the rollover settings for the `_full_.log` file:

- a. Locate the following portion of the file:

```
log4j.appender.rootFile=org.apache.log4j.DailyRollingFileAppender
log4j.appender.rootFile.DatePattern='.'yyyy-MM-dd
log4j.appender.rootFile.File=${log4j.logging.dir}/_full_.log
```

- b. Update the date pattern to define when you want the `_full_.log` file to rollover.

4. To modify the rollover settings for the `_problems_.log` file:

- a. Locate the following portion of the file:

```
log4j.appender.rootErrorsFile=org.apache.log4j.
    DailyRollingFileAppender
log4j.appender.rootErrorsFile.DatePattern='.'yyyy-MM-dd
log4j.appender.rootErrorsFile.File=${log4j.logging.dir}/
    _problems_.log
```

- b. Update the date pattern to define when you want the `_problems_.log` file to rollover.

5. To modify the rollover settings for the `install.log` file:

- a. Locate the following portion of the file:

```
log4j.appender.installFile=org.apache.log4j.RollingFileAppender
log4j.appender.installFile.threshold=DEBUG
log4j.appender.installFile.MaxFileSize=100MB
log4j.appender.installFile.MaxBackupIndex=3
log4j.appender.installFile.File=${log4j.logging.dir}/install.log
```

- b. To change the size limit of the file, update the value on the `log4j.appender.installFile.MaxFileSize` line to specify an alternative maximum file size.
- c. To change the number of backups that you want My webMethods Server to maintain, update the value on the `log4j.appender.installFile.MaxBackupIndex` line.

It is recommended that you do not update the `log4j.appender.installFile.threshold` line to change the threshold level for the `install.log`. Because the installation process issues INFO messages, if you raise the threshold, no messages will be logged.

6. To modify the rollover settings for the `schema.log` file:

- a. Locate the following portion of the file:

```
log4j.appender.DDLSchemaFileAppender=org.apache.log4j.
    RollingFileAppender
log4j.appender.DDLSchemaFileAppender.threshold=INFO
log4j.appender.DDLSchemaFileAppender.MaxFileSize=5MB
log4j.appender.DDLSchemaFileAppender.MaxBackupIndex=10
log4j.appender.DDLSchemaFileAppender.File=${log4j.logging.dir}
    /schema.log
log4j.appender.DDLSchemaFileAppender.layout=org.apache.log4j.
    PatternLayout
log4j.appender.DDLSchemaFileAppender.layout.ConversionPattern=
    ${log4j.messages.pattern}
```

- b. To change the size limit of the file, update the value on the `log4j.appender.DDLSchemaFileAppender.MaxFileSize` line to specify an alternative maximum file size.
- c. To change the number of backups that you want My webMethods Server to maintain, update the value on the `log4j.appender.DDLSchemaFileAppender.MaxBackupIndex` line.

7. Save the `log4j.init.properties` file.

8. Deploy the revised file to the My webMethods Server database:

- a. At a command line prompt, change directories to move to the server's bin directory:

```
Software AG_directory\MWS\bin
```

- b. To write the `log4j.init.properties` file back to the database, type this command:

```
mws -s server_instance putconfig log4j.init.properties
```

- c. Delete the local copy of the `log4j.init.properties` file.

If you do not delete the file, the server instance will continue to use the local version of the file.

9. Restart the cluster.

Changes do not take effect until the cluster is restarted.

## Changing the Default Logging Directory

By default, logs for a server instance reside in this location:

```
Software AG_directory\MWS\server\server_instance\logs
```

You can change the location of this directory by modifying the `systemPaths.properties` file.

---

### Changing the default logging directory

1. Download the `systemPaths.properties` file from the My webMethods Server database:

- a. At a command line prompt, change directories to move to the server's bin directory:

```
Software AG_directory\MWS\bin
```

- b. To retrieve the `systemPaths.properties` file from the database, type this command:

```
mws -s server_instance getconfig systemPaths.properties
```

2. Open, in a text editor, the `systemPaths.properties` file, which you will find in this location:

```
Software AG_directory\MWS\server\server_instance\config
```

3. Modify this line to point to the new location of the logs directory, and save the file:

```
system.path.logs=root:/logs
```

4. Deploy the revised file to the My webMethods Server database:

- a. At a command line prompt, change directories to move to the server's bin directory:

```
Software AG_directory\MWS\bin
```

- b. To write the `systemPaths.properties` file back to the database, type this command:

```
mws -s server_instance putconfig systemPaths.properties
```

- c. Delete the local copy of the `systemPaths.properties` file.

If you do not delete the file, the server instance will continue to use the local version of the file.

5. Restart the server instance.

Changes do not take effect until the server is restarted.

## Viewing Logging Messages

---

The Log Viewer page allows you to view the latest messages in the `_full_.log`, `_problems_log`, and `_errors_.xm` files.

For the Log Viewer page to be useful, you need to make sure you are collecting the right messages for your needs. Use the Logging Configuration page to set message collection criteria. For more information, see ["About Logging Thresholds" on page 250](#) and ["Setting Logger and Output Thresholds" on page 252](#).

---

### To view logging messages

1. As system administrator, click **Administration Dashboard > Analysis > Log Viewer**.
2. Select the number of lines that you want to view.
3. Select from which log you want to view messages.
4. Click **Refresh Now**.

## Managing Security Audit Logging

---

By default, My webMethods Server performs audit logging on all auditable events. Using the Audit Administration page, you can enable or disable audit logging, or choose which events are to be logged. By default, audit logging is enabled and all available auditable events are logged.

My webMethods Server writes the audit log to the `audit.log` file, which resides in the following directory:

```
Software AG_directory\MWS\server\server_instance \logs
```

---

### To manage security audit logging

1. As system administrator, click **Administration Dashboard > Configuration > Audit Administration**.
2. To enable or disable audit logging:
  - a. To enable audit logging, select **Enable Auditing**.  
This is the default setting.
  - b. To disable audit logging, clear **Enable Auditing**.
3. In the Auditable column, select events to be logged and clear events that are not to be logged.

Selected events are not logged if audit logging is disabled.

4. Click **Apply**.

The changes take effect immediately.

---

## Monitoring Real-Time User Activity

---

The Session Monitor page can be used to monitor real-time user activity for a server deployment and send status messages to active users by means of E-mail. For active users, a system administrator can accomplish two important functions:

- view a user's profile information
- send the user E-mail directly from within this page

---

### To view all active server sessions

1. As system administrator, click **Administration Dashboard > Analysis > Session Monitor**.
2. (Optional) On the list of active sessions, click a user's name to view that user's profile.
3. (Optional) On the list of active sessions, click the E-mail icon .

If you have an E-mail client installed on the machine you are working on, an E-mail message window is displayed allowing you to compose and send an E-mail to the selected user. If the user does not have a valid E-mail address in User Information, the **To** field is empty.

---

## Collecting Data about Server Events

---

The Events Collector page collects data about events on the server so they can be used by other pages.

When deployed on a server, the Events Collector page captures information about certain types of server events and places them in the server database.

- Login and logout.
- Get events, such as when a user browses a page.
- Operation events, such as when an object is created, updated, moved, or deleted.

For each event captured, the page collects information on the user associated with the event, the date and time of the event, the host name of the machine, and where possible, information about the operation being performed.

To take advantage of data collected by this page, another page performs a query against the server database and then displays the results on a page. You can find examples of pages that perform these queries on the Software AG Developer Community for

webMethods at <http://communities.softwareag.com/>. To try one or more of these pages, you need to take the following actions:

This function...	Described here...
Deploy the Events Collector page and the sample pages on the server.	<a href="#">"Deploying the Events Collector Page" on page 264.</a>
Configure the Events Collector page	<a href="#">"Configuring the Events Collector Configuration Page" on page 264</a>
Populate a page with the sample portlets that display server events	<a href="#">"Managing Pages in My webMethods Server " on page 319.</a>

Sample pages include portlet source code so you can import the portlets into Software AG Designer and see how they function. An example of the database schema used by the Events Collector page for placing data into the server database appears in ["Events Collector Database Schema" on page 265.](#)

## Deploying the Events Collector Page

The Events Collector page is part of a standard My webMethods Server installation but is not deployed by default. Before you can use the page, you must first deploy it on the server.

### To deploy the Events Collector Configuration page on a server

1. Locate the Events Collector Configuration page at this location in the My webMethods Server directory structure:

```
\Software AG_directory\MWS\components\extras\analysis
\wm_eventscollector.pdp
```

2. Copy the `wm_eventscollector.pdp` file and paste it into the Deploy directory:

```
\Software AG_directory\MWS\server\server_name \deploy
```

where `server_name` is the name of the server. After a few seconds, the page is automatically deployed on the server.

## Configuring the Events Collector Configuration Page

By default, the Events Collector Configuration page is ready to begin collecting data on events as soon as you deploy it, but you may want to change how long data is kept, or to disable the page.

---

### To configure the Events Collector Configuration page

1. As system administrator, click **Administration Dashboard > Analysis > Events Collector Configuration**.

**Note:** If you cannot find the Events Collector Configuration page in the Analysis folder, it may not be deployed. See "[Deploying the Events Collector Page](#)" on page 264.

2. Use the **Collection Enabled** check box to control data collection by doing one of the following:

<u>Do this...</u>	<u>To have this effect...</u>
Select the check box	Enable the collection of server event data. Data collection is enabled by default.
Clear the check box	Disable the collection of server event data.

3. In the **Keep Data for** list, select how long to keep server event data. Choices range from **One Day** to **One Year**. The default is **One Month**.
4. Click **Apply**.

## Events Collector Database Schema

The Events Collector page uses the following database schema.

```
tblwEvents (main table where events data is being collected)
  idEvent      - Primary key
  idType       - Foreign key to tblwEventTypes. Stores the type
                 of an event.
  idHost       - Foreign key to tblwEventHosts. Stores the host
                 where the event occurs.
  timestamp    - Time stamp of an event, defined as the number of
                 milliseconds since epoch(java.lang.System.
                 currentDateMillis()).
  userID       - Database ID of the user who performed an operation.
  thingID_1    - object_1. For example, for Get type events this is
                 the database ID of the object being viewed.
  thingID_2    - object_2. Used in rare cases where two objects are
                 involved, for example when an object is created.
                 Then object_1 is the database ID of the container,
                 and object_2 is the database ID of an object that
                 was created.
  action       - Used for Login events: 1 - user logged in, 2 - user
                 logged out.
tblwEventHosts (stores mapping between hostID and hostname)
  idHost       - Host id.
  hostname     - Actual host name where the event occurs.
tblwEventTypes (stores mapping between eventID and eventName)
  idType       - Event type ID.
```

```
eventType    - Event type name.
Possible eventType name values:
com.webmethods.portal.event.add.impl.CreateEvent
  - New object is created.
com.webmethods.portal.event.impl.GetEvent
  - Object is being browsed.
com.webmethods.portal.event.system.impl.LoginEvent
  - User logs in/out.
com.webmethods.portal.event.modify.impl.UpdateEvent
  - Object is updated.
com.webmethods.portal.event.remove.impl.DeleteEvent
  - Object is deleted.
```

## Collecting Data about Database Changes

---

You can collect logging information about DDL statements execution to the My webMethods Server database. All data about database changes is collected and written to the schema.log file. You can find the setting for logging database changes information in the **Administration Dashboard > Analysis > Logging Configuration** page.

For more information on setting up the logging thresholds, see "[Controlling Server Logging](#)" on page 250.

For more information on how to view the collected data, see "[Viewing Logging Messages](#)" on page 262.

## My webMethods Server Diagnostic Tools

---

You can use the My webMethods Server diagnostic tools to capture and analyze data about server operation. The My webMethods Server diagnostic tools have two types of tools, diagnostic command line tools and diagnostic portlets. This topic contains a brief overview of the diagnostic tools. For complete information, see *Diagnosing My webMethods Server*.

With the diagnostic command line tools, you can do the following:

- Use the threaddump tool to capture data on thread execution for servers on a local or remote system
- Use the envcapture tool to capture environment-specific server information to be provided to Software AG Global Support for troubleshooting assistance
- Use the envdiff tool to compare XML files that result from the capture of environment-specific server information
- Use the memorydump tool to capture server memory allocation information
- Use the loganalyzer tool to identify and analyze issues reported in the errors.log file

With the diagnostic portlets you can do the following:

- Use the thread Dump tool to monitor thread execution deadlocks in server threads

- Use the Performance Analysis tool to measure and analyze the performance of services and custom portlets or applications using an embedded performance-monitoring service
- Use the Performance Statistics tools to display statistic and analysis information about the performance of various server actions, which are grouped by categories
- Use the Log Analysis tools to read and analyze log files created within the server in accordance with the log4j mechanism
- Use the Memory Monitor tool to monitor the memory usage of the Java Virtual Machine (JVM) and send notifications to administrators when the configured threshold limits are reached



# 16 My webMethods Server Configuration

---

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## Overview

My webMethods Server provides administrators with a number of tools that can be used to help configure your server. You perform these functions after installing and configuring a default server instance. This chapter provides detailed instructions on how to use the My webMethods Server Configuration tools to configure your My webMethods Server deployment.

## Managing Aliases

The Alias Management page lets you manage URL aliases as server objects. With this page, you can create, view, modify, or delete custom URL aliases and create more friendly URLs for various parts of your server.

For example, if you want to create an area of the server for the Sales Department, and you have already created a folder for the Sales team in your server's Public Folders, it might be referenced by a non-intuitive URL such as:

`http://server/meta/default/folder/0000002216`

To make it easier for the Sales team to remember the location of the Sales server, you can use the Alias Management page to create a more user friendly URL such as:

`http://server/Sales`

You can perform the following functions within the Alias Management page:

This function...	Is described here...
Create a new alias	<a href="#">"Creating an Alias to a Server Resource on the Properties Page"</a> on page 271 and <a href="#">"Creating an Alias to a Server Resource on the Alias Management Page"</a> on page 271
Search for aliases	<a href="#">"Performing a Simple Alias Search"</a> on page 272
Save alias searches	<a href="#">"Using Saved Alias Searches"</a> on page 274
Modify the target server resource for an alias	<a href="#">"Modifying an Alias to Point to a Different Server Resource"</a> on page 274
Delete an alias	<a href="#">"Deleting an Alias"</a> on page 275

## Creating an Alias to a Server Resource on the Properties Page

You can create an alias for a server resource on the Properties page of the server resource:

### To create an alias to a server resource on the Properties page

1. As system administrator, navigate to the page where the server resource is located.
2. On the server resource, click the Tools icon  and then click **Properties**.
3. On the **Alias** field of the Properties page, click **Add**.
4. Type an alias name for the server resource and click **OK**.  
Do not include spaces in your alias name, or the alias will not function properly.
5. Click **Apply**.

## Creating an Alias to a Server Resource on the Alias Management Page

You can create an alias for a server resource on the Alias Management page:

### To create an alias to a server resource on the Alias Management page

1. As system administrator, click **Administration Dashboard > Configuration > Alias Management**.
2. Click **Create**.
3. In the **Alias Name** field, type the name for the new alias you want to create (such as Sales).  
Do not include spaces in your alias name, or the alias will not function properly.
4. In the **Target** panel, select a target for the new alias by doing one of the following:

#### If you want to...

#### Do this...

Target a server resource

Select the **Resource** option and then click **Browse**. Move the resource (folder, item, or portlet) to the **Selected Items** box and click **Select**.

**Note:** To pass parameters or invoke a server command on the resource the alias references, click the **Append this string** option, and then append the string portion of the alias.

If you want to...	Do this...
Target an external resource	Select the <b>Path</b> option. In the Path box, type the path to the resource. For example, <code>http://www.softwareag.com</code>
5. Click <b>Add Alias</b> .	
6. Confirm that your alias behaves as expected by browsing to the user-friendly URL for your new alias.	
By default, when you create an alias, it is appended to the root URL for your server. For example, if you create an alias called Sales, you can access the new alias by typing the URL	
	<code>http://server:port/Sales.</code>

## Searching for Aliases

You can use the Alias Management page to search for existing aliases. The page places search results in a list from which you can modify or delete aliases, or view target resources.

**Tip:** In the alias search field, you can use a single wildcard character (\*) to substitute for text anywhere within the name.

### *Performing a Simple Alias Search*

To search for aliases, use the following procedure.

#### To perform a simple search for aliases

1. As system administrator, click **Administration Dashboard > Configuration > Alias Management > Search**.
2. Type the name of the alias you want to find.

To specifically include or exclude system aliases from search criteria, 1bf [Specifically Including or Excluding System Aliases](#), below.

3. Click **Go**.

All aliases that match the search appear in a table.

### *Specifically Including or Excluding System Aliases*

To include or exclude system aliases during a search, use the following procedure.

#### To include or exclude system aliases during a search

1. As system administrator, click **Administration Dashboard > Configuration > Alias Management > Search**.

2. Type the name of the alias you want to find.
3. Click **Refine**.
4. In the **Include System Aliases** list, choose one of the following:

<u>Choose this...</u>	<u>To do this...</u>
<b>Yes</b>	Include system aliases in the search
<b>No</b>	Exclude system aliases from the search

5. Click **Go**.
6. To close the refined search panel, click **Close**.

### ***Performing an Advanced Alias Search***

To perform an advanced search for aliases, use the following procedure.

#### **To perform an advanced search for aliases**

1. As system administrator, click **Administration Dashboard > Configuration > Alias Management > Advanced**.
2. Type the name of the alias you want to find.
3. Modify any or all of the following search criteria:

<u>Search criteria</u>	<u>Actions</u>						
<b>System aliases</b>	In the <b>Include System Aliases</b> list, choose one of the following: <table border="1"> <thead> <tr> <th>Choice</th> <th>Action</th> </tr> </thead> <tbody> <tr> <td><b>Yes</b></td> <td>Includes system aliases in the search</td> </tr> <tr> <td><b>No</b></td> <td>Excludes system aliases from the search</td> </tr> </tbody> </table>	Choice	Action	<b>Yes</b>	Includes system aliases in the search	<b>No</b>	Excludes system aliases from the search
Choice	Action						
<b>Yes</b>	Includes system aliases in the search						
<b>No</b>	Excludes system aliases from the search						
<b>Search for a target resource</b>	For the <b>Alias Target</b> panel, do one of the following: <table border="1"> <tbody> <tr> <td><b>Browse</b></td> <td>Move the target resource to the <b>Selected Items</b> box and click <b>Select</b>.</td> </tr> <tr> <td><b>Use Alias</b></td> <td>In the <b>Alias Name</b> field, type the alias of the target resource. Click <b>Test</b> to determine if the</td> </tr> </tbody> </table>	<b>Browse</b>	Move the target resource to the <b>Selected Items</b> box and click <b>Select</b> .	<b>Use Alias</b>	In the <b>Alias Name</b> field, type the alias of the target resource. Click <b>Test</b> to determine if the		
<b>Browse</b>	Move the target resource to the <b>Selected Items</b> box and click <b>Select</b> .						
<b>Use Alias</b>	In the <b>Alias Name</b> field, type the alias of the target resource. Click <b>Test</b> to determine if the						

Search criteria	Actions
	alias is valid and the alias target is the correct one. If the alias is correct, click <b>Select</b> .

- Click **Go**.

## Using Saved Alias Searches

You can save an alias search for regular use. The techniques for using saved alias searches is similar to those described in "Using a Saved Search" on page 115 except they are performed from this location:

- As system administrator, click **Administration Dashboard > Configuration > Alias Management**.

## Modifying an Alias to Point to a Different Server Resource

To modify an alias to point to a different server resource, follow these steps:

### To modify an existing alias to point to a different server resource

- As system administrator, click **Administration Dashboard > Configuration > Alias Management**.
- Use the **Alias Search** panel to find the alias you want to modify.
- In the search results, click the Edit icon  for the alias to be modified.
- In the **New Target** panel, select a new target for the alias by doing one of the following:

If you want to...	Do this...
Target a server resource	Select the <b>Resource</b> option and then click <b>Browse</b> . Move the resource (folder, item, or portlet) to the Selected Items box and click <b>Select</b> .  <b>Note:</b> To pass parameters or invoke a server command on the resource the alias references, click the <b>Append this string</b> option, and then append the string portion of the alias.
Target an external resource	Select the <b>Path</b> option. In the Path box, type the path to the resource. For example, <code>http://www.softwareag.com</code>

- Click **Update**.

## Deleting an Alias

To delete an alias, use the following procedure.

### To delete an existing alias

1. As system administrator, click **Administration Dashboard > Configuration > Alias Management**.
2. Use the **Alias Search** panel to find the alias you want to modify.
3. In the search results, click the Edit icon  for the alias to be deleted.
4. In the search results, select the check boxes beside the alias you want to delete, and click **Delete**.

## Configuring External Configuration Credentials

The HTTP Header Authentication Administration page allows system administrators to configure My webMethods Server to accept external HTTP authentication credentials from third party security and access control products such as SiteMinder (Computer Associates) or Oblix. These credentials are case-sensitive and, depending on the platform and web server, will most likely be `sm_user` or `SM_USER`.

## Enabling Authentication

**Important:** The HTTP Header Authentication Administration page should only be enabled if you are using a third-party security provider. After the page is enabled, the server acts as though all users have been authenticated.

### To accept authentication from a third party security and access control product

1. As system administrator, click **Administration Dashboard > Configuration > HTTP Header Authentication Administration**.
2. For **User Header Name**, type `sm_user` or `SM_user`.
3. Select the **Enable HTTP Header Authentication** check box.
4. If appropriate, in the **Logout URL** field, type the URL to which the user is redirected after logging out of the server.
5. Click **Submit**.
6. Configure the third party security and access control software as directed in your vendor's product documentation.

**Note:** To properly configure an external security and access control product, both My webMethods Server and the third party product *must* point to the same directory server instance.

## Checking Logs for HTTP Header Authentication Problems

If you are having a problem in getting HTTP Header authentication on to work properly, you can check log files to assist in diagnosing the problem. Log messages for HTTP Header authentication are assigned to the portalLogin category. Before you can display HTTP Header authentication logging messages, you need to change the logging threshold values. The default thresholds for writing to the console, the \_full.log file, and the portalLogin.log file are set to the INFO log level but HTTP Header authentication logging messages use the DEBUG log level, which is lower.

Server log files reside in the `\Software AG_directory\MWS\server\server_instance\logs` directory. For information on controlling the collection of logs, see ["Viewing Logging Messages" on page 262](#). For information on searching for log messages, see ["Viewing Logging Messages" on page 262](#).

### Setting Login Logging Thresholds

You need to set both the category and output settings to DEBUG if you want the logging messages to be written to the output. For information on setting logging thresholds, see ["Controlling Server Logging" on page 250](#).

---

#### To set category and output thresholds for HTTP Header authentication

1. As system administrator, click **Administration Dashboard > Analysis > Logging Configuration > Logging Thresholds**.
2. In the **Category Threshold** list, select the DEBUG log level for any or all of the following logging categories:

<u>Logging category</u>	<u>Controls output for...</u>
root	The console and the _full.log file
portalLogin	The portalLogin.log file

3. In the **Output Threshold** list, select the DEBUG log level for any or all of the following logging output types:

<u>Logging output</u>	<u>Controls output for...</u>
Console	Logging messages sent to the console
_full.log	Logging messages sent to the _full.log file

<u>Logging output</u>	<u>Controls output for...</u>
portalLogin	Logging messages sent to the portalLogin.log file

4. Click **Apply**.

## Checking HTTP Header Authentication Logs for Problems

With HTTP Header authentication enabled, the server acts as though all users have been authenticated. With this in mind, the log messages will reveal one of three likely outcomes, as described in the following sections.

### The Login is Successful

Messages for a successful login using HTTP Header authentication look similar to the following example:

```
Date_and Time (portalLogin : DEBUG) - HttpHeadersHandler Auth Handler
  looking for: user_name
Date_and Time (portalLogin : DEBUG) - Found userID: user_name
```

where *user\_name* is the name of the user who logged in under HTTP Header authentication.

### HTTP Header Authentication is Disabled

If you have not enabled HTTP Header authentication, the log message looks similar to the following example:

```
Date_and Time (portalLogin : DEBUG) - HttpHeadersHandler Auth Handler is
  not enabled
```

To enable HTTP Header authentication, see ["Enabling Authentication" on page 275](#).

### The Problem Rests with the Third-Party Site

If the third-party site is not configured correctly, HTTP Header authentication will fail. The resulting log message looks similar to the following example:

```
Date_and Time (portalLogin : DEBUG) - HttpHeadersHandler Auth Handler
  looking for:
Date_and Time (portalLogin : DEBUG) - No value found!
```

## Deploying My webMethods Server Components

System administrators have the following options available to them when installing server components, such as portlets or DBOs, on a server.

- Through the Install Administration page on the Administration Dashboard.
- Through the Deploy folder on the server's File System. This folder allows system administrators and developers to copy or paste a newly developed portlet package (such as a portlet, CAF application, Task application, or deployable package) into a specific directory that is periodically polled by the server. If the server detects new

deployable components in this folder, these components are automatically retrieved and installed on the server. You have the option to configure the polling interval that specifies how often the server will poll the Deploy directory to detect any new components.

You can perform the following functions within the Datasource Administration page:

This function...	Is described here...
Modify the polling interval used in deploying portlets to a server	<a href="#">"Modifying the Polling Interval" on page 278</a>
Install a portlet using the Deploy folder for a server	<a href="#">"Installing a Portlet Using the Deploy Folder" on page 279</a>
Install a portlet or other deployable component using the Install Administration page	<a href="#">"Installing Portlets or Other Deployable Server Components" on page 279</a>
Uninstall a server component	<a href="#">"Uninstalling Portlets or Other Deployable Server Components" on page 280</a>

## Modifying the Polling Interval

If your organization is developing multiple portlets, this installation method may be more convenient than manually installing portlets one at a time. The default file system location for the Deploy folder is:

```
\Software AG_directory\MWS\server\server_instance \deploy
```

**Note:** Polling can be turned on or off by modifying the PhaseProvider.xml configuration file on the server's file system. Use the following instructions to modify the polling interval.

### To modify the polling interval

1. At a command line prompt, type the following command to move to the server's bin directory:
 

```
cd Software AG_directory\MWS\bin
```
2. To retrieve the phaseProvider.xml file from the My webMethods Server database, type this command:
3. Navigate to the following location:
 

```
\Software AG_directory\MWS\server\server_instance \config
```

4. Open the `phaseProvider.xml` configuration file in a text editor or equivalent XML editing facility. Locate the following XML fragment:

```
<Phase name="deploySync" enabled="true"
      class="com.webmethods.portal.system.init.impl.MasterServerPhase">
  <PhaseInfo name="startTimedSyncDeploy" enabled="true"
    class="com.webmethods.portal.bizPolicy.biz.install.impl.
    SyncDeployService" interval="5" />
</Phase>
```

5. To turn polling off, change the `enabled` attribute from `true` to `false`.
6. To change the polling interval, modify the `interval` attribute to the desired value. The default setting is 5 seconds.

**Note:** This setting will *not* have an impact on overall performance

7. Save the file.
8. To deploy the revised file to the My webMethods Server database, type this command:

```
mws putconfig file name
```

9. Delete the file from the `\server_name\config` directory.

If you do not delete the file, this server instance will continue to use the local version of the configuration file.

10. Restart your server instance.

## Installing a Portlet Using the Deploy Folder

To use the Deploy folder to install a portlet on a server, do the following.

### To install a portlet using the Deploy folder

- Copy and paste the server component(s) that you want to deploy into the deploy directory.

**Note:** If any server component fails to deploy, the server will automatically create a Failed directory on the server's file system in the Deploy folder. All components that do not install properly will be copied into the Failed directory.

## Installing Portlets or Other Deployable Server Components

To use the Install Administration page to install portlets or other deployable server components, do the following

---

### To install a portlet or other deployable server component

1. As system administrator, click **Administration Dashboard > Configuration > Install Administration**.
2. Click **Install New Component**.
3. Choose **Local or Network Location** or **Remote Location**.
4. Do either of the following:
  - If the deployable component resides on your local file system, click **Browse** and navigate to the location.
  - If the deployable component is in a remote location, type the complete path to the component.
5. Click **Next**.
6. Review the Component Info Summary and then click **Install**.

If the component is installed successfully, you will get a confirmation message verifying that the install succeeded.

**Note:** If a component install fails, that component is automatically uninstalled. Be sure to check your log files to troubleshoot the installation failure.

## Uninstalling Portlets or Other Deployable Server Components

Before you uninstall a component, determine how its removal will affect all of its instances on a user's page. Uninstalling will break any page that contains specific portlet instances of the portlet that was uninstalled, and disrupt any portlets that may be wired to that portlet using the portlet wiring feature.

For example, you are not warned about wiring relationships when removing a portlet that is wired to another portlet.

You may want to change the portlet's status property to Hidden or Disabled to phase out the portlet before you uninstall it. After users are informed of the impending uninstall and have removed it from their page, it will then be safe to uninstall it.

**Important:** When an uninstalled portlet's instances are broken, it causes errors on each page on which that portlet is being used. It also may remove the data for a portlet and its instances, the configuration files, the portlet database tables, and the portlet packaging files. Reinstalling will *not* restore the broken references caused by uninstalling a portlet.

---

### To uninstall a component using the Install Administration page

1. As system administrator, click **Administration Dashboard > Configuration > Install Administration**.

2. On the tree list, select one or more components to be uninstalled, click **Uninstall Selected**, and click **Next**.
3. To confirm the uninstall action, click **Uninstall**.

## Setting up Single Sign-On

---

Single sign-on is the ability for a user to log into one application and then use other applications without having to log into each one separately. My webMethods Server supports single sign-on through the Security Assertion Markup Language (SAML), an XML-based framework for the exchange of security information. Using SAML, an entity on a target computer grants access based on an assertion from the source computer that the user is logged into the source computer. You need to add the certificate used in signing the assertion to the truststore on the target instance of My webMethods Server. See ["Importing CA Certificates" on page 36](#).

My webMethods Server can provide a single sign-on capability in the following ways:

- Between a source server and one or more target servers
- Between a server and other webMethods applications that have single sign-on capability
- Between a server and a third-party application that supports SAML
- (Deprecated) Between a server, an Artifact Receiver that authenticates the user sign-on, and a target web application

Using this model, one server is the source, providing a central login for users. Links on pages on the source server point to any number of SAML-capable entities. Also, a target server can accept assertions from any number of servers as long as the truststore of the target server has the certificate of the source server.

To take advantage of single sign-on, a user must be known on both the source server and the target entity. In most cases, common knowledge of a user is provided by use of the same directory service.

## Configuring a Server as a Target for Single Sign-On

A server can be a target for only one single sign-on source at a time.

---

### To configure a server to be a target for single sign-on

1. As system administrator, click **Administration Dashboard > Configuration > SAML Authentication Administration**.
2. Modify **Properties** as follows:

For this property...	Do this...
<b>Artifact Parameter Name</b>	(Deprecated) If this is a SAML connection with another webMethods server, do not change the default value SAMLart. If this is a SAML connection to a third-party source, type the artifact parameter name used by the third-party application.
<b>Assertion Parameter Name</b>	The HTTP request parameter name where the server will look for the SAML assertion value. The default value is SAMLResponse.
<b>Security Provider URI</b>	(Deprecated—used with the Artifact Parameter Name) Type the URI of the SAML security provider (source). If this is a connection with another webMethods server, use this syntax:  <code>server_name:port/services/SAML</code>  where <i>server_name</i> is the host where the source server is running and <i>port</i> is the server port number. The default port number is 8585.

3. Click **Submit**.

## Setting SAML Links on a Source Server

On any page, you can add a link to a SAML target entity, such as a server. If the target accepts SAML assertions from the source server, when a known user clicks the link, no login credentials are required. If the target entity does not accept SAML assertions from the source server, or if the user is not known on the target entity, login credentials may be required.

(Deprecated—valid only with a SAML Artifact Receiver) Under the SAML specification, an intermediary called an artifact receiver can perform authentication on behalf of the target web application. In such a case, the SAML source requires two URLs: one for the Artifact Receiver and one for the target web application. You can place one or more SAML links on any page you have permission to edit.

You can place one or more SAML links on any page you have permission to edit.

### To create a SAML link on a source page

1. In the upper right-hand corner of the page, click the Tools icon  and click **Edit Page**.
2. In the **Root** list of the **Available Portlets** panel, click **Links**.

- In the **Links** list of the **Available Portlets** panel, drag the **wm\_xt\_ssolink** portlet and drop it onto the page at the location where you want to add the link.

A red box appears beneath the cursor location whenever the cursor is over a valid page location, indicating where the portlet would be positioned if you released the mouse button.

- On the left side of the page control area, click **Save**.
- At the right edge of the title bar for the single sign-on portlet, click the Tools icon  and click **Properties**.
- In the Properties page make modifications as appropriate:

<u>Make changes here...</u>	<u>If you want to...</u>
<b>Name</b>	Replace <code>wm_xt_ssolink</code> with the text that is to go with the link.
<b>SAML Type</b>	Select the version of the SAML specification to be used: <ul style="list-style-type: none"> <li>■ SAML2 POST</li> <li>■ SAML1 POST</li> <li>■ SAML Artifact — (Deprecated)</li> </ul>
<b>SAML Authentication URL</b>	Type the URL for a resource on the target computer. The target can be any page on a server.  (Deprecated) If you are connecting to a web application through a SAML Artifact Receiver, use this field for the Artifact Receiver URL.
<b>Use POST or GET</b>	(Deprecated— Valid only if the SAML Type field is set to SAML Artifact) Determines the method used to pass data to the target computer. <ul style="list-style-type: none"> <li>POST Passes data to a gateway program's STDIN. POST, the default, is the preferred method for single sign-on data.</li> <li>GET Passes data as a string appended to the URL after a question mark.</li> </ul>

<u>Make changes here...</u>	<u>If you want to...</u>
<b>Assertion Parameter Name</b>	The HTTP request parameter name where the server will look for the SAML assertion value. The default value is SAMLResponse.
<b>Artifact Parameter Name</b>	(Deprecated— Valid only if the SAML Type field is set to SAML Artifact) If this is a SAML connection with another server or other webMethods product, do not change the default value SAMLart. If this is a SAML connection to a third-party source, type the artifact parameter name used by the third-party application.
<b>Application Target URL</b>	(Deprecated) If you have typed the URL for a SAML Artifact Receiver in the <b>SAML Authentication URL</b> field, type the URL for a web application. Otherwise, leave this field empty.

7. Click **Apply**.

## Configuring Profiles for SAML

Under the Security Infrastructure (SIN), you can configure the security properties that are set during server startup. The configuration file `com.softwareag.sso.pid.properties` is located here:

```
Software AG_directory
/profiles/profile /configuration/com.softwareag.platform.
config.propsloader
```

The default configuration is:

```
com.softwareag.security.idp.keystore.keyalias=ssos
com.softwareag.security.idp.SSOassertion.lifepreiod=5
com.softwareag.security.idp.keystore.type=JKS
com.softwareag.security.idp.assertion.skew=30
com.softwareag.security.idp.truststore.location=/common/conf/
platform_truststore.jks
com.softwareag.security.idp.truststore.password=manage
com.softwareag.security.idp.keystore.location=/common/conf/keystore.jks
enabled=false
com.softwareag.security.idp.keystore.password=manage
com.softwareag.security.idp.truststore.keyalias=ssos
com.softwareag.security.idp.assertion.lifepreiod=300
com.softwareag.security.idp.truststore.type=JKS
```

### Configuring truststores and keystores

The configuration allows you to specify the location of truststore and keystore files relative to the installation directory:

```
com.softwareag.security.idp.keystore.location=/common/conf/keystore.jks
```

```
com.softwareag.security.idp.truststore.location=/common/conf/  
platform_truststore.jks
```

To use absolute paths for configuring truststore and keystore files, add these two properties to the configuration file:

```
com.softwareag.security.idp.keystore.location.isabsolute=true  
com.softwareag.security.idp.truststore.location.isabsolute=true
```

### Time Skew

If a SAML assertion is issued on one physical machine and validated on another, but the two machines are not synchronized with a time server, the validation phase may fail. By default, SIN allows a time skew of 30 seconds.

To modify the time skew value, use the following property:

```
com.softwareag.security.idp.assertion.skew=n
```

where *n* is the time in seconds.

### Ehcache Configuration

SIN uses Ehcache to ensure that a single sign-on (SSO) assertion cannot be used more than one time. The default time to live of an SSO assertion in Ehcache is 120 seconds. The location of the Ehcache configuration file relative to the installation directory is defined in the SIN configuration file using this property:

```
com.softwareag.security.idp.ehcache.location=/ehcachesin.xml
```

To use an absolute path for location of the ehcachesin.xml file, add this property to the configuration file:

```
com.softwareag.security.idp.ehcache.location.isabsolute=true
```

To modify the time Ehcache time-to-live value, use the following property:

```
com.softwareag.security.idp.ehcache.ttl=n
```

where *n* is the time in seconds.

## Displaying System Information

---

The System Information page provides a wealth of information about the current state of the server. The page gathers the information dynamically at the time you open each panel.

### To display system information about the current state of the server

- As system administrator, click **Administration Dashboard > Analysis > System Information**.

## Panels of the System Information Page

The System Information page contains five panels. When you click a panel to bring it to the front, the page dynamically collects the data for display:

---

<b>Panel and Heading</b>	<b>Description</b>
<b>Request/Response</b>	Information that is gleaned from the user's web request.
<b>Request Information</b>	Typical cgi-bin parameters describing the requested path.
<b>Request Headers</b>	Incoming HTTP headers.
<b>Request Parameters</b>	Incoming HTTP parameters on the URL.
<b>Request Attributes</b>	Attributes (objects) stored on the current request.
<b>Response Information</b>	Miscellaneous information, such as encoding and locale, gleaned from the request.
<b>Session Misc</b>	User session information.
<b>Session Attributes</b>	Attributes (objects) stored on the user's session.
<b>Locale Information</b>	The current locale of the user.
<b>Presentation Data</b>	Various information used to render requests for this user.
<b>Session Attributes</b>	Portlet Controller Session objects associated with this user.
<b>Request Attributes</b>	Portlet Controller Request objects associated with this user's request.
<b>Application Attributes</b>	Information shared throughout the server (across all users).
<b>System Information</b>	Environment variables, such as Classpath, path, and so forth).
<b>Server Information</b>	Information about the current front-end server.
<b>Context Information</b>	Servlet object information.

---

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# 17 Managing My webMethods Server Content

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## Overview

---

My webMethods Server provides administrators with a number of tools that can be used to help manage server content. This chapter provides detailed instructions on how to use My webMethods Server tools to manage server content.

## Migrating My webMethods Server Content

---

The Content Migration Wizard page enables system administrators to migrate server content from one server instance to another, such as from development to staging to production.

This page can be used to migrate the following types of server content: documents, folders, external links, internal links (using aliases), pages (including layouts), portlets, Dynamic Business Objects (DBOs), permissions, subscriptions, and portlet wiring properties.

## Content Migration Considerations

Content migration involves two distinct activities: exporting the content from the source server instance, followed by importing the content on the target server instance. Before performing these actions, consider the following:

- **Migrating portlets and DBOs:** If you are developing or installing any portlets on a development server and want to migrate pages that contain instances of these portlets, you must deploy them on the target server before migrating any pages or published instances of the portlets that were developed or installed on the development server instance.
- **Migrating published content:** Content published to the Content Management system can be migrated from one server instance to another. If you are using your development environment to configure permissions on items published to the content management system, you have the option to migrate the permissions as well.
- **Migrating links:** To properly migrate internal links with references to other objects, such as a link from one page to another, create aliases for these links instead of using the base URL.

For example, if you want to publish a link to an existing page, such as a Sales page that has the following as its initial URL:

```
http://server/meta/default/folder/0000002132
```

Create an alias that points to this URL, but has a more friendly URL such as the following:

```
http://server/Sales
```

- **Migrating permissions and subscriptions:** To properly migrate permissions and subscriptions from a source to target server instance, be sure that both servers are pointing to the same directory services.

## Managing Content Storage

---

The Content Service page allows system administrators to manage the storage locations available for content published to the server, which is physically stored in the locations configured in the content service. It typically resides on a separate file server for backup and redundancy purposes.

## Configuring a New Content Service

---

To configure a new Content Service for the server repository

1. As system administrator: **Administration Dashboard > Content > Content Service > Create New Content Service.**
2. In the **Service Name** field, type a name for your new content service and click **Next**.
3. Type a physical storage location for your content service.

Valid locations include the following types of network paths:

- `file:\\y:\` (where `y:\` is a mapped network drive to an external file server)
- `f:\repository` (where `f:\` repository is a separate hard drive on the server machine)

**Note:** There are many ways to configure an external content repository for My webMethods Server. The two examples here assume that your network administrator has provided the proper security settings to allow the server to access a network shared on a separate file server.

4. To make the new content service the default content service, click the Tools icon  and then click **Set As Default**.

The new Content Service becomes the default location for storing new content that is published to the server.

## Importing Content from a Content Service

---

To import content from an existing content service

1. As system administrator: **Administration Dashboard > Content > Content Service > View Content Services.**
2. Locate the content service into which you want to migrate the contents of an existing content service, click the Tools icon  and then click **Import Content**.

- For the **Target Folder** property, do one of the following:

<b>Click this...</b>	<b>And do this...</b>
<b>Browse</b>	Move the target page to the <b>Selected Items</b> box and click <b>Select</b> .
<b>Use Alias</b>	In the <b>Alias Name</b> , type the alias of the page to which the user should be redirected. Click <b>Test</b> to determine if the alias is valid and the alias target is the correct one. If the alias is correct, click <b>Select</b> .

- Click **Import**.

## Setting the Maximum Size for Content

To set the maximum file size for content published to the server repository

- As system administrator: **Administration Dashboard > Content > Content Service > Set Publish Constraints**.
- In the **Max Publish Size (MB)** field, type a maximum publish size (in Megabytes).
- Click **Apply**.

## Specifying Allowed File Extensions for Content

By default, there are no restrictions on the type of file that can be stored in the server repository. However, it is possible to limit the file types that can be stored.

To specify the allowed file extensions for content

- As system administrator: **Administration Dashboard > Content > Content Service > Set Publish Constraints**.
- In the **Allowed File Extensions** field, enter a comma-delimited list of file extensions that are allowed.

The default value of \* allows the use of any file type. As an example of allowed file extensions, you might see the following list:

```
zip, doc, xls, ppt, pdf, gif, jpg, png
```

- Click **Apply**.

## Publishing Portlets as an Administrator

The Publish page provides system administrators with expanded publishing capabilities that are generally not exposed to most users. The Publish page allows administrators to

publish many different types of content such as files, folders, forms, links, and specific portlet instances. You can also publish custom content types such as Dynamic Business Objects or Custom Forms from this page.

---

### To publish content using the Publish page

1. As system administrator: **Administration > Content > Publish**.
2. Select the corresponding option for the content type you wish to publish. The default options are: File, Folder, Form (for DBOs only), Link, and Portlet.
3. For a given content type, select one of the options from the drop down menu.

**Note:** If you previously created any custom objects that are based on any given content type, they will now show up as options in the drop down menu for the respective content type. As an example, the RSS Feed option under the Folder content type is a Dynamic Business Object. It was created to extend the Folder object type with custom attributes and business logic for publishing RSS syndicated news feeds to a folder object type.

4. Click **Next**.
5. From the Location heading, click **Browse** to select a parent folder location for the content item you are publishing.

**Note:** You can optionally click **Use Alias** if you want to publish the content item to a location that is referenced by an existing alias.

6. Click **Next**.
7. Enter a name for the content item you are publishing.
8. (Optional) Enter a description for the content item you are publishing.
9. Depending on the type of content you are publishing, fill in any Extended Properties for the given content type (such as. RSS Feed URL for an RSS Feed content item).
10. Click **Next**.
11. Click **Finish**.

---

## Rebuilding the Search Index

The Search Administration page allows system administrators to rebuild the search index for the Lucene search engine that is offered with My webMethods Server.

Rebuilding the search index will re-index all content that was previously published to the server and update the default search indexes again. A system administrator might need to do this if the search index somehow becomes corrupted and search stops working.

**Tip:** If your server has a lot of content published to the content management system, this operation can take a long time to run. You should run this operation at off-peak hours.

---

### To rebuild the search index

1. As system administrator: **Administration > Configuration > Search Administration**.
2. Click **Start Rebuild**.

---

## Adding Custom JAR Files

My webMethods Server runs in an Open Services Gateway initiative (OSGi) framework. You can add custom JAR files to the server instance, which converts those JAR files into OSGi bundles. If a JAR file is to be a fragment of another bundle, you can provide instructions in a bind file.

The following procedure describes how to add custom JAR files and how to attach a JAR file as a fragment bundle. For more complete information on bundles, see the OSGi Core Specification, available on the OSGi Alliance website.

---

### To add custom JAR files

1. Copy the JAR file to this location:  
*Software AG\_directory/MWS/lib*
2. If the JAR file is to be a fragment of another bundle, do the following:
  - a. Create a file with the name *jar\_file\_name*.bnd where *jar\_file\_name* is the name of the custom JAR file, without the .jar extension.
  - b. In the bind file, add the instructions on how to bind the JAR file. For example:

```
# attach as fragment to the caf.server bundle
Fragment-Host: com.webmethods.caf.server
```
  - c. Place the bind file in the same directory where you placed the JAR file:

*Software AG\_directory/MWS/lib*

3. Run the update command for the server instance.

*Software AG\_directory/MWS/bin/mws.[bat | sh] update*

---

# 18 Managing the User Interface

---

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## Locale Administration

---

My webMethods Server uses several decision points to determine the locale for a user, in this order:

1. The locale preference of the user, if specified in the User Profile. See "[User Information](#)" on page 125.
2. The Locale Rules. See "[Creating Locale Rules](#)" on page 296
3. The browser locale preference.
4. The system locale of the computer where the server is running, which is the default.

The Locale Administration page allows you to set the default locale rules for My webMethods Server when they are not determined by other rules, as described in "[Creating Locale Rules](#)" on page 296.

---

### To set the default My webMethods Server locale rule

1. As system administrator: **Administration > User Interface > Locale Administration**.
2. From the **Locale** list, choose the locale to be used as the default rule for My webMethods Server.
3. Click **Apply**.

## What are Server Rules?

---

My webMethods Server uses rules to control a variety of user activities, from which page they use to log into the server, to the appearance of the pages they see. Using rules, you can define default behaviors for the entire application or you can dynamically control the experience of a given user, group, or role. You can create rules of the following types:

Rule type	Description
Locale rules	Rules that allow you to dictate what locale should be used for a user session if it is not defined in the user profile. See " <a href="#">Creating Locale Rules</a> " on page 296.
Login page rules	Rules that determine what login page should be used. You can, for example, redirect users to different login pages, depending on whether they are inside or outside the firewall. See " <a href="#">Creating Login Page Rules</a> " on page 297.

---

Rule type	Description
Start page rules	Rules that determine what start page should be used. The start page is the page to which the server redirects users after log in. See <a href="#">"Creating Start Page Rules" on page 299</a> .
Rendering rules	Rules that determine what renderer should be used. <i>Renderers</i> are user interface formatting capabilities that can be assigned to specific server objects by defining rendering rules. You can define rendering rules for virtually any server object type. Rendering rules are useful in providing a consistent look and feel for common object types that can be invoked through explicit rule definitions. See <a href="#">"Creating Rendering Rules" on page 301</a> .
Skin rules	Rules that determine what skin should be used. A <i>skin</i> is an installable My webMethods Server component that defines the look and feel of the user interface. Skin rules define what skin should be displayed for a given user, group, or server resource. For example, if a server serves both employees and customers, and there are requirements for a different set of graphics, colors, and fonts for each distinct user population, you can use skin rules to assign the corresponding skin to a given user group. See <a href="#">"Creating Skin Rules" on page 306</a> .
Shell rules	Rules that determine what shell should be used. A <i>shell</i> is an installable component that generates the My webMethods Server header, footer, and portlet title bars. Shell rules define what shell elements should be displayed for a given user, group, or role. For example, if a server serves both employees and customers, you can use shell rules to assign the corresponding shell to a given user group. See <a href="#">"Creating Shell Rules" on page 308</a> .

In addition to the rule types described here, you can use rules for the creation of roles, which are collections of users, groups, and other roles. You can create a rule-based role that defines members based on the same types of criteria as are used for the rule types. For information, see ["Adding a Rule-Based Role" on page 161](#).

These aspects of rule management are described as follows:

This aspect...	Is described here...
Modifying rules	<a href="#">"Modifying a Rule" on page 302</a>
Copying rules	<a href="#">"Copying a Rule" on page 304</a>

This aspect...	Is described here...
Changing the evaluation order of rules	<a href="#">"Changing the Order or Rule Evaluation" on page 304</a>
Removing rules	<a href="#">"Removing a Rule" on page 305</a>

## Creating Locale Rules

The Manage Locale Page Rules page allows you to define rules that dictate what locale should be used for a user session if it is not defined in the user profile.

### To create a new locale rule

1. As system administrator: **Administration > User Interface > Manage Locale Rules > Create New Rule.**
2. In the **Name** field, type a name for the rule.
3. (Optional) On the **Description** field, type a description for the new rule.
4. Unless you want to disable the rule during creation, leave **Is Enabled** selected.
5. To add a condition for individual users, click **Current User(s)** and do the following:
  - a. In the **Keywords** field, type a keyword representing the users you want to search for, and click **Search**.
  - b. Move one or more users to the **Selected** box and click **Apply**.
6. To add a condition based on group or role membership, click **Group / Role Membership** and do the following:
  - a. Under **Search For**, choose the **Groups** or **Roles** option.
  - b. In the **Keywords** field, type a keyword representing the groups or roles you want to search for, and click **Search**.
  - c. Move one or more groups or roles to the **Selected** box and click **Apply**.
7. To add a condition based on user attributes, click **User Attributes**, on the **Pick User Attribute** list, choose a user attribute, and click **Apply**.  
 For more information about the user attributes in the list, see ["User Information" on page 125](#).
8. To add a condition based on the request header, click **Request** and do the following:
  - a. Choose the expression, and click **Submit**.
  - b. In the **Condition** field, complete the expression.

For example, assume that you want to match any HTTP GET request. The wizard moves `#{request.method}` into the **Condition** field and you type the remainder:

```
#{request.method} == "GET"
```

9. To add a condition that matches the current resource or a parent of the current resource, click **Parent Resource** and then do the following:
  - a. To find children of a resource, click the name of the resource.
  - b. To select a resource, click the option button to the left of the resource.
  - c. Click **Apply**.
10. To add a condition that matches the current resource type, click **Current Resource Type**, choose the resource type and do the following:
  - a. To find children of a resource, click the name of the resource.
  - b. To select a resource, click the option button to the left of the resource.
  - c. Click **Apply**.
11. To add a condition for a resource property and a value associated with it, click **Resource Properties**, and do the following:
  - a. In the **Property Name** field, type the property name.
  - b. In the **Property Value** field, type the property value.
  - c. Click **Apply**.

For example, if you want to match files that are PDFs, the property name is `mimeType` and the property value is `pdf`.
12. From the **Result** list, choose the locale to be used for the rule.
13. Click **Create Rule**.

## Creating Login Page Rules

---

The Manage Login Page Rules page allows you to define rules that dictate what login page should be used. Login page rules can be defined to dynamically set the default login page for a given user, group, or role.

### To create a new login page rule

1. As system administrator: **Administration > User Interface > Manage Login Page Rules > Create New Rule**.
2. In the **Name** field, type a name for the rule.
3. (Optional) On the **Description** field, type a description for the new rule.
4. Unless you want to disable the rule during creation, leave **Is Enabled** selected.

5. To add a condition for individual users, click **Current User(s)** and do the following:
  - a. In the **Keywords** field, type a keyword representing the users you want to search for, and click **Search**.
  - b. Move one or more users to the **Selected** box and click **Apply**.
6. To add a condition based on group or role membership, click **Group / Role Membership** and do the following:
  - a. Under **Search For**, choose the **Groups** or **Roles** option.
  - b. In the **Keywords** field, type a keyword representing the groups or roles you want to search for, and click **Search**.
  - c. Move one or more groups or roles to the **Selected** box and click **Apply**.
7. To add a condition based on user attributes, click **User Attributes**, on the **Pick User Attribute** list, choose a user attribute, and click **Apply**.

For more information about the user attributes in the list, see ["User Information" on page 125](#).
8. To add a condition based on the request header, click **Request** and do the following:
  - a. Choose the expression, and click **Submit**.
  - b. In the **Condition** field, complete the expression.

For example, assume that you want to match any HTTP GET request. The wizard moves `{request.method}` into the **Condition** field and you type the remainder:

```
{request.method} == "GET"
```
9. To add a condition that matches the current resource or a parent of the current resource, click **Parent Resource** and then do the following:
  - a. To find children of a resource, click the name of the resource.
  - b. To select a resource, click the option button to the left of the resource.
  - c. Click **Apply**.
10. To add a condition that matches the current resource type, click **Current Resource Type**, choose the resource type and do the following:
  - a. To find children of a resource, click the name of the resource.
  - b. To select a resource, click the option button to the left of the resource.
  - c. Click **Apply**.
11. To add a condition for a resource property and a value associated with it, click **Resource Properties**, and do the following:
  - a. In the **Property Name** field, type the property name.
  - b. In the **Property Value** field, type the property value.

- c. Click **Apply**.

For example, if you want to match files that are PDFs, the property name is `mimeType` and the property value is `pdf`.

12. On the **Result** field, type an alias for the login page, or to browse to the page, click **Pick** and do the following:
  - a. To find children of a resource, click the name of the resource.
  - b. To select a resource, click the option button to the left of the resource.
  - c. Click **Apply**.
13. Click **Create Rule**.

## Creating Start Page Rules

---

The Manage Start Page Rules page allows system administrators to define rules that dictate what start page should be used. The start page is the page to which the server redirects users after log in. Start page rules can be defined to dynamically set the default start page for a given user, group, or role.

### To create a new start page rule

1. As system administrator: **Administration > User Interface > Manage Start Page Rules > Create New Rule**.
2. On the **Name** field, type a name for the rule.
3. (Optional) On the **Description** field, type a description for the new rule.
4. Unless you want to disable the rule during creation, leave **Is Enabled** selected.
5. To add a condition for individual users, click **Current User(s)** and do the following:
  - a. In the **Keywords** field, type a keyword representing the users you want to search for, and click **Search**.
  - b. Move one or more users to the **Selected** box and click **Apply**.
6. To add a condition based on group or role membership, click **Group / Role Membership** and do the following:
  - a. Under **Search For**, choose the **Groups** or **Roles** option.
  - b. In the **Keywords** field, type a keyword representing the groups or roles you want to search for, and click **Search**.
  - c. Move one or more groups or roles to the **Selected** box and click **Apply**.
7. To add a condition based on user attributes, click **User Attributes**, on the **Pick User Attribute** list, choose a user attribute, and click **Apply**.

For more information about the user attributes in the list, see ["User Information" on page 125](#).

8. To add a condition based on the request header, click **Request** and do the following:
  - a. Choose the expression, and click **Submit**.
  - b. In the **Condition** field, complete the expression.

For example, assume that you want to match any HTTP GET request. The wizard moves `{request.method}` into the **Condition** field and you type the remainder:

```
{request.method} == "GET"
```

9. To add a condition that matches the current resource or a parent of the current resource, click **Parent Resource** and then do the following:
  - a. To find children of a resource, click the name of the resource.
  - b. To select a resource, click the option button to the left of the resource.
  - c. Click **Apply**.
10. To add a condition that matches the current resource type, click **Current Resource Type**, choose the resource type and do the following:
  - a. To find children of a resource, click the name of the resource.
  - b. To select a resource, click the option button to the left of the resource.
  - c. Click **Apply**.
11. To add a condition for a resource property and a value associated with it, click **Resource Properties**, and do the following:
  - a. In the **Property Name** field, type the property name.
  - b. In the **Property Value** field, type the property value.
  - c. Click **Apply**.

For example, if you want to match files that are PDFs, the property name is `mimeType` and the property value is `pdf`.

12. On the **Result** field, type an alias for the start page, or to browse to the page, click **Pick** and do the following:
  - a. To find children of a resource, click the name of the resource.
  - b. To select a resource, click the option button to the left of the resource.
  - c. Click **Apply**.
13. Click **Create Rule**.

---

## Creating Rendering Rules

---

The Manage Rendering Rules page allows system administrators to configure rendering rules for specific server objects, such as a folder, page, portlet, and so forth. For example, an administrator who wants all folders to display a detailed view of content can create a rendering rule that applies a “details renderer to all folder objects. For each of the types of conditions you can apply in the following procedure, you can add multiple instances, one at a time.

---

### To create a new Rendering rule

1. As system administrator: **Administration > User Interface > Manage Rendering Rules > Create New Rule.**
2. On the **Name** field, type a name for the rule.  
Example: `folder-thumbnails view` (for image files).
3. (Optional) On the **Description** field, type a description for the new rule.
4. Unless you want to disable the rule during creation, leave **Is Enabled** selected.
5. To add a condition for individual users, click **Current User(s)** and do the following:
  - a. In the **Keywords** field, type a keyword representing the users you want to search for, and click **Search**.
  - b. Move one or more users to the **Selected** box and click **Apply**.
6. To add a condition based on group or role membership, click **Group / Role Membership** and do the following:
  - a. Under **Search For**, choose the **Groups** or **Roles** option.
  - b. In the **Keywords** field, type a keyword representing the groups or roles you want to search for, and click **Search**.
  - c. Move one or more groups or roles to the **Selected** box and click **Apply**.
7. To add a condition based on user attributes, click **User Attributes**, on the **Pick User Attribute** list, choose a user attribute, and click **Apply**.  
For more information about the user attributes in the list, see ["User Information" on page 125](#).
8. To add a condition based on the request header, click **Request** and do the following:
  - a. Choose the expression, and click **Submit**.
  - b. In the **Condition** field, complete the expression.

For example, assume that you want to match any HTTP GET request. The wizard moves `{request.method}` into the **Condition** field and you type the remainder:

```
{request.method} == "GET"
```

9. To add a condition that matches the current resource or a parent of the current resource, click **Parent Resource** and then do the following:
  - a. To find children of a resource, click the name of the resource.
  - b. To select a resource, click the option button to the left of the resource.
  - c. Click **Apply**.
10. To add a condition that matches the current resource type, click **Current Resource Type**, choose the resource type and then do the following:
  - a. To find children of a resource, click the name of the resource.
  - b. To select a resource, click the option button to the left of the resource.
  - c. Click **Apply**.
11. To add a condition for a resource property and a value associated with it, click **Resource Properties**, and do the following:
  - a. In the **Property Name** field, type the property name.
  - b. In the **Property Value** field, type the property value.
  - c. Click **Apply**.

For example, if you want to match files that are PDFs, the property name is `mimeType` and the property value is `pdf`.

12. On the **Result** list, choose the target renderer.

The renderer you select will be applied to all server objects that meet the evaluation criteria you define in the following steps. For example, the thumbnails renderer is useful for displaying thumbnail views for images that are published to the server.

13. Click **Create Rule**.

## Modifying a Rule

---

After a rule exists, you can modify any portion of it that is editable.

### To modify a rule

1. As system administrator: **Administration > User Interface > Manage *rule-type* Rules > View Rules**.  
where *rule-type* contains the rule you want to modify.
2. For the rule you want to modify, click the Tools icon  and then click **Modify Rule**.
3. Do any of the following:
  - In the **Name** field, type a new name for the rule.
  - (Optional) On the **Description** field, type a new description for the rule.

- To disable the rule, clear **Is Enabled**.
- To modify a condition for individual users, click **Current User(s)** and do the following:
  - i. In the **Keywords** field, type a keyword representing the users you want to search for, and click **Search**.
  - ii. Move one or more users to the **Selected** box and click **Apply**.
- To modify a condition based on group or role membership, click **Group / Role Membership** and do the following:
  - i. Under **Search For**, choose the **Groups** or **Roles** option.
  - ii. In the **Keywords** field, type a keyword representing the groups or roles you want to search for, and click **Search**.
  - iii. Move one or more groups or roles to the **Selected** box and click **Apply**.
- To modify a condition based on user attributes, click **User Attributes**, on the **Pick User Attribute** list, choose a user attribute, and click **Apply**.

For more information about the user attributes in the list, see ["User Information" on page 125](#).

- To modify a condition based on the request header, click **Request** and do the following:
  - i. Choose the expression, and click **Submit**.
  - ii. In the **Condition** field, complete the expression.

For example, assume that you want to match any HTTP GET request. The wizard moves `{request.method}` into the **Condition** field and you type the remainder:  
`{request.method} == "GET"`

- To modify a condition that matches the current resource or a parent of the current resource, click **Parent Resource** and then do the following:
  - i. To find children of a resource, click the name of the resource.
  - ii. To select a resource, click the option button to the left of the resource.
  - iii. Click **Apply**.
- To modify a condition that matches the current resource type, click **Current Resource Type**, choose the resource type and do the following:
  - i. To find children of a resource, click the name of the resource.
  - ii. To select a resource, click the option button to the left of the resource.
  - iii. Click **Apply**.
- To modify a condition for a resource property and a value associated with it, click **Resource Properties**, and do the following:

- i. In the **Property Name** field, type the property name.
    - ii. In the **Property Value** field, type the property value.
    - iii. Click **Apply**.
  - Modify the **Result** as needed field as needed.
4. Click **Update Rule**.

---

## Copying a Rule

---

If you want to create a rule that is similar to an existing one, you can do so by copying the existing rule.

---

### To copy a rule

1. As system administrator: **Administration > User Interface > Manage *rule-type* Rules > View Rules**.  
where *rule-type* contains the rule you want to copy.
2. For the rule you want to copy, click the Tools icon  and then click **Copy Rule**.
3. Type a name for the new rule.
4. (Optional) Type a description for the new rule.
5. Click **Copy The Rule**.

You can then modify the new rule, as described in "[Modifying a Rule](#)" on page 302.

---

## Managing the Evaluation Order for Rules

---

When a user requests a server resource, the server uses rules to determine how to fill the request. For example, perhaps the look and feel of the page is dependent on whether the user is a company employee or a customer. The server evaluates the skin rules to determine which skin to apply, in this order:

1. If there are multiple skin rules, the skin associated with the first rule that matches the user applies.
2. If none of the rules match the user, or if there are no skin rules, the default skin assigned in the **User Preferences** tab of the user's Profile page applies.
3. If no skin is assigned on the Profile page, the default skin for the server applies.

## Changing the Order or Rule Evaluation

If there are multiple skin rules, you can determine the order in which they are evaluated.

---

### To change the order in rules are evaluated

1. As system administrator: **Administration > User Interface**.
2. Click the name of the set of rules you want to manage.
3. Click **Change Rule Evaluation Order**.
4. To reorder rules, move them up or down as needed.  
The first rule in the list is searched first, followed by the second, and so on.
5. Click **Update**.

---

## Removing a Rule

To remove a rule, use the following procedure.

---

### To remove a rule

1. As system administrator: **Administration > User Interface > Manage *rule-type* Rules > View Rules**.  
where *rule-type* contains the rule you want to remove.
2. For the rule you want to remove, click the Tools icon  and then click **Remove Rule**.

---

## Managing Skin Rules

A *skin* is an installable My webMethods Server component that defines the look and feel of the My webMethods Server user interface. A skin modifies the images, fonts, colors, and other subtle stylable aspects of HTML content, but it does not modify the HTML content in any functional way.

A developer creates new custom skins to accomplish many different functions. Some of these include:

- Branding the server with corporate, partner, or departmental logos.
- Aligning the color scheme with corporate, partner, or departmental colors.

Developers create skins with the Skin Administration page and customize them as needed. See "[Customizing Skins](#)" on page 375.

My webMethods Server offers a variety of ways to configure personalization rules that dictate what skin is displayed for a given user, group, or resource. You can explicitly assign a particular skin to a specific user or set up rules that dynamically assign a skin based on a variety of criteria.

The Manage Skin Rules page allows you to define rules that dictate what skins can be used by users, groups, or roles. This page allows a system administrator to create, modify, or remove rules, and change the evaluation order of a list of rules that

are evaluated for each user every time the user logs in. The following list provides information about managing rules:

This information about managing rules...	Is described here...
Changing the evaluation order of rules	<a href="#">"Changing the Order or Rule Evaluation" on page 304</a>
Creating rules	<a href="#">"Creating Skin Rules" on page 306</a>
Modifying rules	<a href="#">"Modifying a Rule" on page 302</a>
Copying rules	<a href="#">"Copying a Rule" on page 304</a>
Removing rules	<a href="#">"Removing a Rule" on page 305</a>

## Creating Skin Rules

To create a new skin rule, use the following procedure.

### To create a new skin rule

1. As system administrator: **Administration > User Interface > Manage Skin Rules > Create New Rule**.
2. On the **Name** field, type a name for the rule.
3. (Optional) On the **Description** field, type a description for the new rule.
4. Unless you want to disable the rule during creation, leave **Is Enabled** selected.
5. To add a condition for individual users, click **Current User(s)** and do the following:
  - a. In the **Keywords** field, type a keyword representing the users you want to search for, and click **Search**.
  - b. Move one or more users to the **Selected** box and click **Apply**.
6. To add a condition based on group or role membership, click **Group / Role Membership** and do the following:
  - a. Under **Search For**, choose the **Groups** or **Roles** option.
  - b. In the **Keywords** field, type a keyword representing the groups or roles you want to search for, and click **Search**.
  - c. Move one or more groups or roles to the **Selected** box and click **Apply**.
7. To add a condition based on user attributes, click **User Attributes**, on the **Pick User Attribute** list, choose a user attribute, and click **Apply**.

For more information about the user attributes in the list, see ["User Information" on page 125](#).

8. To add a condition based on the request header, click **Request** and do the following:
  - a. Choose the expression, and click **Submit**.
  - b. In the **Condition** field, complete the expression.

For example, assume that you want to match any HTTP GET request. The wizard moves `#{request.method}` into the **Condition** field and you type the remainder:

```
#{request.method} == "GET"
```

9. To add a condition that matches the current resource or a parent of the current resource, click **Parent Resource** and then do the following:
  - a. To find children of a resource, click the name of the resource.
  - b. To select a resource, click the option button to the left of the resource.
  - c. Click **Apply**.
10. To add a condition that matches the current resource type, click **Current Resource Type**, choose the resource type and then do the following:
  - a. To find children of a resource, click the name of the resource.
  - b. To select a resource, click the option button to the left of the resource.
  - c. Click **Apply**.
11. To add a condition for a resource property and a value associated with it, click **Resource Properties**, and do the following:
  - a. In the **Property Name** field, type the property name.
  - b. In the **Property Value** field, type the property value.
  - c. Click **Apply**.

For example, if you want to match files that are PDFs, the property name is `mimeType` and the property value is `pdf`.

12. On the **Result** list, choose the target skin.
13. Click **Create Rule**.

## Managing Shell Rules

---

A *shell* is an installable component of My webMethods Server. A shell is segment is a special kind of page that generates the My webMethods Server header, footer, and portlet title bars.

Where regular portlets produce the primary content of a page, a shell provides the structure that frames that primary content. Common web page idioms such as banners, standard links, and search boxes appear in a shell.

A developer creates new custom shells to accomplish many different functions, such as:

- Adding a row of links to other corporate websites below the page banner
- Changing the default search box to one that searches the corporate catalogue
- Adding a left-hand navigation bar to every page.

You can set up many different criteria to determine which shell is used for a particular user request. My webMethods Server offers a variety of ways to configure personalization rules that dictate what shell is displayed for a given user, group, or resource.

**Note:** Unlike skins, you cannot explicitly assign a particular shell to a specific user. You need to use rules that dynamically assign a shell based on a variety of criteria.

The Manage Shell Rules page allows you to define rules that dictate what shells can be used by users, groups, or roles. This page allows a system administrator to create, modify, or remove rules, and change the evaluation order of a list of rules that are evaluated for each user every time the user logs in. The following list provides information about managing rules:

This information about managing rules...	Is described here...
Changing the evaluation order of rules	<a href="#">"Changing the Order or Rule Evaluation" on page 304</a>
Creating rules	<a href="#">"Creating Skin Rules" on page 306</a>
Modifying rules	<a href="#">"Modifying a Rule" on page 302</a>
Copying rules	<a href="#">"Copying a Rule" on page 304</a>
Removing rules	<a href="#">"Removing a Rule" on page 305</a>

## Creating Shell Rules

To create a new shell rule, use the following procedure.

### To create a new shell rule

1. As system administrator: **Administration > User Interface > Manage Shell Rules > Create New Rule.**

2. On the **Name** field, type a name for the rule.  
Example: `folder-thumbnails view` (for image files).
3. (Optional) On the **Description** field, type a description for the new rule.
4. Unless you want to disable the rule during creation, leave **Is Enabled** selected.
5. To add a condition for individual users, click **Current User(s)** and do the following:
  - a. In the **Keywords** field, type a keyword representing the users you want to search for, and click **Search**.
  - b. Move one or more users to the **Selected** box and click **Apply**.
6. To add a condition based on group or role membership, click **Group / Role Membership** and do the following:
  - a. Under **Search For**, choose the **Groups** or **Roles** option.
  - b. In the **Keywords** field, type a keyword representing the groups or roles you want to search for, and click **Search**.
  - c. Move one or more groups or roles to the **Selected** box and click **Apply**.
7. To add a condition based on user attributes, click **User Attributes**, on the **Pick User Attribute** list, choose a user attribute, and click **Apply**.  
For more information about the user attributes in the list, see ["User Information" on page 125](#).
8. To add a condition based on the request header, click **Request** and do the following:
  - a. Choose the expression, and click **Submit**.
  - b. In the **Condition** field, complete the expression.  
For example, assume that you want to match any HTTP GET request. The wizard moves `{request.method}` into the **Condition** field and you type the remainder:  
`{request.method} == "GET"`
9. To add a condition that matches the current resource or a parent of the current resource, click **Parent Resource** and then do the following:
  - a. To find children of a resource, click the name of the resource.
  - b. To select a resource, click the option button to the left of the resource.
  - c. Click **Apply**.
10. To add a condition that matches the current resource type, click **Current Resource Type**, choose the resource type and then do the following:
  - a. To find children of a resource, click the name of the resource.
  - b. To select a resource, click the option button to the left of the resource.
  - c. Click **Apply**.

11. To add a condition for a resource property and a value associated with it, click **Resource Properties**, and do the following:
  - a. In the **Property Name** field, type the property name.
  - b. In the **Property Value** field, type the property value.
  - c. Click **Apply**.

For example, if you want to match files that are PDFs, the property name is `mimeType` and the property value is `pdf`.

12. On the **Result** list, choose the target shell.

The renderer you select will be applied to all server objects that meet the evaluation criteria you define in the following steps. For example, the thumbnails renderer is useful for displaying thumbnail views for images that are published to the server.

13. Click **Create Rule**.

## Setting Shells for Requests

To set a specific shell for a request, a developer creates a link to a server resource and adds a shell parameter to the link. The shell parameter value should be an alias to the target shell.

For example, the URL for a link to the public folder with the extranet shell is `/folder.public?shell=shell.extranet`. When users follow the link, they view the public folder framed with the specified extranet shell. When users click another link from the public folder page, they return to whatever shell they were using before, provided the link does not also have a shell parameter.

## Setting Shells for Sessions

To set a specific shell for a session, sometimes referred to as a *sticky* shell because the setting is retained for the duration of the session, a developer creates a link to the `forceShell` command. This command takes a `returnUrl` parameter, which redirects a user to the specified URL once the shell has been set.

For example, the URL for a link to the public folder with a sticky extranet shell is `/?command=forceShell&shellURI=shell.extranet&returnUrl=folder.public`. When users follow the link, they view the public folder now framed with the extranet shell. When users click another link from the public folder page, provided the link does not have a shell parameter, they see that page still framed with the extranet shell.

# 19 Working with the Common Directory Services API

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## Managing User Information with the Common Directory Service API

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My webMethods Server provides several directory service options for managing users and groups:

- My webMethods system directory. This is an internal My webMethods Server user directory, available by default in all installations of My webMethods Server. You can access information in this directory server using the My webMethods user interface and the Common Directory Services (CDS) API. Both read and write access are available.
- LDAP (Lightweight Directory Access Protocol). My webMethods enables you to define one or more external LDAP user directories. For a list of supported directory server products, see the PDF publication *webMethods and Intelligent Business Operations System Requirements*. You can access information in this directory server using the My webMethods user interface and the CDS API. Only read access is available.
- Database. My webMethods Server also enables you to authenticate users against a database directory, which is a set of RDBMS tables and an SQL configuration to access these tables. You can implement a custom authentication module to extend authentication against a database directory. You can access information in this directory server using the My webMethods user interface and the CDS API. Only read access is available.

My webMethods Server and applications and services running within it can access the user information contained in these directories, and you can configure external applications and services that have access to My webMethods Server to use this data.

In addition to working with users and groups in a directory service, you can access and maintain role information, which is maintained separately in the My webMethods Server database.

For example, you can:

- Configure other suite applications, such as webMethods Integration Server, to authenticate users from any of the above user directory options instead of from a user directory unique to Integration Server.
- Configure a process step in a business process to call a Java service to obtain user attributes from the directory service or role membership from the My webMethods Server database, and pass that data into the process pipeline.
- Configure a Java service to assign a user to a role programmatically.

The CDS API offers support for the following:

- Search and discovery of users, groups, and roles.
- Support for LDAP search controls for large directories.

- Create and update users and groups in the system directory. All other external directories are read-only.
- Delete users and groups from the system directory.
- Create, update, and delete roles in My webMethods Server.
- Read custom attributes from LDAP and database directories.
- Read and write custom profile attributes for users, groups, and roles (that is, attributes which are not managed by external directories).

To view the Javadoc for the Common Directory Services API, refer to these packages:

- `com.webmethods.sc.directory`
- `com.webmethods.sc.mws`

Javadocs can be installed with other My webMethods Server documentation using the Software AG Installer, and they are also available from the website <http://documentation.softwareag.com/>.

## About the Common Directory Services API

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When connected to a My webMethods Server database schema, CDS behaves very much like a My webMethods Server cluster instance, and it participates in all the distributed caching across a My webMethods Server cluster. When a system directory user is updated, this change will be seen by all CDS instances connected to the same database within a few minutes.

Directory services are defined and managed in My webMethods Server, by logging in to My webMethods as either SysAdmin or as Administrator. For more information about working with directory services, see "[Managing Directory Services](#)" on page 84 and "[Managing External Directory Services](#)" on page 87.

In addition to working with the CDS API, you can use the My webMethods interface to perform all directory management activities:

- User, group, and role management. For more information, see "[My webMethods Administrator Functions](#)" on page 81.
- Authentication management. For more information, see "[System Administrator Functions](#)" on page 205.
- Implementation of attribute providers. For more information, see "[System Administrator Functions](#)" on page 205.

## Prerequisites

---

Before you can work with the CDS API, you must take the following actions:

- The My webMethods Server database tables must be created by the webMethods Database Component Configurator. This is normally carried out immediately after installation.
- The My webMethods Server instance must be created and started.
- CDS must be initialized with a JDBC connection to the My webMethods Server database schema. For more information, see ["Initializing Common Directory Services" on page 314](#).

## Class Path Considerations

If you want to use CDS in a stand-alone application, in addition to providing the correct JDBC connection information, all CDS .jar files must be present in the class path of the external application running CDS. To ensure that these .jar files are available, include all .jar files from *Software AG\_directory/common/lib* and */common/lib/ext* (assuming you have a standard installation of My webMethods Server and Integration Server).

## Initializing Common Directory Services

When the CDS API is accessed from inside My webMethods Server (from a CAF application for example), CDS is already initialized and no further action is needed. If you want to use the CDS API from an external application or service that has access to My webMethods Server, the CDS API must be explicitly initialized from the external application or service.

You initialize Common Directory Services by invoking the `com.webmethods.sc.mws.MWSLibrary.init()` static method. The input parameters are expected as Java system properties and must describe a JDBC connection URL to a My webMethods Server database schema. Instead of using remote call backs to My webMethods Server, the CDS API connects to this schema and reads all configuration and principal information.

Here is sample code showing how to initialize CDS using the `MWSLibrary` class:

```
System.setProperty(MWSLibrary.SYSTEM_PROP_DB_DRIVER,
"com.wm.dd.jdbc.sqlserver.SQLServerDriver"); // JDBC Driver Class
System.setProperty(MWSLibrary.SYSTEM_PROP_DB_URL,
"jdbc:wm:sqlserver://localhost:1433;DatabaseName=webm82_dev");
    // JDBC Connection URL
System.setProperty(MWSLibrary.SYSTEM_PROP_DB_USER, "webm82_dev");
    // DB username
System.setProperty(MWSLibrary.SYSTEM_PROP_DB_PASSWORD, "password");
    // DB
password
MWSLibrary.init();
```

## CDS Code Examples

The following are a few examples of common CDS code:

## List All Roles

```
IDirectorySession session =
DirectorySystemFactory.getDirectorySystem().createSession();
List roles = session.listRoles();
for (IDirectoryRole role: roles) {
    String roleID = role.getID();
    String roleName = role.getName();
    String roleDN = role.getDN();
}
```

## Lookup a User by Name and Fetch all Attribute

```
IDirectorySession session =
DirectorySystemFactory.getDirectorySystem().createSession();
IDirectoryUser user = (IDirectoryUser) session.lookupPrincipalByName
    ("user1", IDirectoryPrincipal.TYPE_USER);
Map attributes = user.getAllAttributes();
```

## Authenticate User

```
IDirectorySession session =
DirectorySystemFactory.getDirectorySystem().createSession();
IDirectoryUser user = session.authenticateUser("username", "password");
```

## Create Static Role and Add User as a Member

```
IDirectorySession session =
DirectorySystemFactory.getDirectorySystem().createSession();
IDirectoryUser user = (IDirectoryUser) session.lookupPrincipalByName
    ("user1", IDirectoryPrincipal.TYPE_USER);
IDirectoryRole role = session.createRole(IDirectoryRole.STATIC_ROLE_TYPE,
    "roleName", Collections.EMPTY_MAP);
session.addPrincipalToRole(user.getID(), role.getID());
```



# IV Server Page Development

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# 20 Managing Pages in My webMethods Server

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## Page Development Overview

My webMethods Server provides features that allow you to easily create custom pages and have My webMethods Server serve the custom pages as webpages. For more information, see ["About Custom Folders and Pages" on page 320](#).

My webMethods Server also provides a flexible architecture that allows you to customize the My webMethods user interface, as described in the table below.

You can...	For more information, see...
Update the My webMethods navigation panel by: <ul style="list-style-type: none"> <li>■ Adding selections to the navigation panel</li> <li>■ Removing selections from the navigation panel</li> <li>■ Hiding standard tabs and sections in the navigation panel</li> <li>■ Completely replacing the navigation panel</li> </ul>	<a href="#">"About Customizing the My webMethods Navigation" on page 338</a>
Update the My webMethods look-and-feel by: <ul style="list-style-type: none"> <li>■ Replacing the logo image</li> <li>■ Changing the color scheme</li> <li>■ Using the 7.x color scheme</li> <li>■ Applying a custom look-and-feel</li> </ul>	<a href="#">"About Customizing the My webMethods Look-And-Feel" on page 342</a>
Build an alternate way to access My webMethods application pages; that is, building a simple front-end page that provides links to only a few My webMethods pages that users require	<a href="#">"Building a Simple Front-End Page to My webMethods " on page 348</a>

Additionally, you can use the techniques listed above (e.g., building custom pages, techniques for updating skins and shells) to build complete, custom applications that run in My webMethods Server.

## About Custom Folders and Pages

You can create custom folders and pages that My webMethods Server serves as webpages. To My webMethods Server both are functionally equivalent; that is, My webMethods Server displays the contents of both as portlets on a webpage. You decide

whether to use a folder or page based on how you intend to use it. Use a folder if you want a container that holds other folders and pages. Use a page if you want to display information.

Create custom pages when you need a page that you would consider permanent, that is to be used for a long period of time. If you need a page that is not intended to be permanent and that you can use as a work area, it is more appropriate to use a workspace. For information, see "[Managing Workspaces in My webMethods Server](#)" on [page 353](#).

To add content to a page, you drag and drop portlets on to the page. You can position the portlets where you want, size them, and set their properties. You can make the page dynamic by using wiring:

- You can wire the property of one portlet to the property of another. By doing so, when the property in the source portlet is set, the change is automatically reflected in the destination portlet.
- You can wire information about the user accessing the custom page to portlet properties. For example, if you have a portlet that displays the weather, you can wire the postal code attribute from a user profile to the postal code property of the weather portlet. As a result, when the user displays the page, My webMethods Server automatically uses the postal code from the user's profile to set the postal code property of the weather portlet and the user's local weather displays.

## Creating Custom Pages

Create portal pages by logging into My webMethods using the SysAdmin user account or another user account that is a member of the Admin role. To build a page, you must switch to page editing mode. In page editing mode, the system administrator user interface changes to display a **Tools** tab on the left and the custom page on the right. The **Tools** tab lists portlets that you can add to the custom page.

---

### To create a custom page

1. As system administrator, navigate to the folder where the new page is to reside. If the folder you want to use does not exist, create it.
  - If you want to add the page to the My webMethods Applications navigation, navigate to a location within:
    - Folders > My webMethods Applications > Fabric Tasks**
  - If you want to add the page to a different taxonomy, it is recommended that you use a location within either of the following:
    - Folders (root folder)
    - **Folders > Public Folders**
2. In the folder title bar, click  **Tools > New > Page**.
3. In the New Page window, do the following:

- a. In the **Name** field, type the name of the new page.
  - b. In the **Description** field, optionally type a description of the new page.
  - c. Click **Create**.
4. Open the new page you just created by clicking the link for the page.
  5. In the page title bar, click  **Tools > Edit Page** to switch to page editing mode.
  6. Set the page properties. For instructions, see ["Page Properties" on page 324](#) and ["Setting Page Properties" on page 324](#).
  7. Define the page layout. For instructions, see ["Controlling the Page Layout" on page 326](#).
  8. Build the page by performing the tasks listed in the table below.

<b>Task</b>	<b>For more information, see...</b>
Add portlets by dragging portlets from the <b>Tools</b> tab on to the page canvas.	<a href="#">"Adding Portlets to a Page" on page 329</a>
Position the portlets on the page.	<a href="#">"Positioning Portlets on a Page" on page 330</a>
Set the portlet properties.	<a href="#">"Modifying Portlet Properties" on page 334</a>
Optionally, set up portlet aliases.	<a href="#">"Managing Portlet Aliases" on page 335</a>
Optionally, wire the portlets.	<a href="#">"Wiring the Property of One Portlet to the Property of Another" on page 336</a> and <a href="#">"Wiring a Principal Attribute to a Portlet Property" on page 337</a>

9. In the page title bar, click **Save**.

To make your new page available, you can:

- Provide the page URL so that users can access it directly. Make the URL simpler by assigning the page an alias. For example, if you assign the page the alias "MyCustomPage", users can enter the following URL where *MWSHost* is the My webMethods Server host name and *MWSPort* is its port number.

`http://www.MWSHost:MWSPort/MyCustomPage`

For more information about how to assign aliases, see ["Setting Page Properties" on page 324](#).

- Add the page to the My webMethods navigation so that users can select it from there. For more information, see ["Adding Selections to the My webMethods Navigation" on page 338](#).

## Editing an Existing Page

After you initially create a page, you can open the page in page editing mode at any time to make additional changes to it.

### To edit an existing page

1. As system administrator, navigate to and open the page you want to edit.
2. In the page title bar, click  **Tools > Edit Page** to switch to page editing mode.
3. Make your edits. You can:

Task	For more information, see...
Update the page properties, for example, to change the name of the page.	<a href="#">"Page Properties" on page 324</a> and <a href="#">"Setting Page Properties" on page 324</a>
Change the page layout.	<a href="#">"Controlling the Page Layout" on page 326</a>
Add more portlets to the page.	<a href="#">"Adding Portlets to a Page" on page 329</a>
Remove portlets from the page	<a href="#">"Removing Portlets from a Page" on page 330</a>
Reposition the portlets on the page	<a href="#">"Positioning Portlets on a Page" on page 330</a>
Update portlet properties.	<a href="#">"Modifying Portlet Properties" on page 334</a>
Set up portlet aliases.	<a href="#">"Managing Portlet Aliases" on page 335</a>
Wire the portlets.	<a href="#">"Wiring the Property of One Portlet to the Property of Another" on page 336</a> and <a href="#">"Wiring a Principal</a>

**Task****For more information, see...**

[Attribute to a Portlet Property" on page 337](#)

- In the page title bar, click **Save**.

## Page Properties

The following lists the general properties for a page; that is, the properties listed on the **General** tab for a page. For instructions for how to set the properties, see "[Setting Page Properties" on page 324](#). For information about the **Layout** tab, see "[Controlling the Page Layout" on page 326](#)."

Property	Description
<b>Name</b>	The name of the page.
<b>Description</b>	An optional description of the page.
<b>Keywords</b>	Optional keywords that you assign to a page for your own use. Out-of-the-box, My webMethods Server does not provide functionality that uses the keywords. However, you can write custom code that takes advantage of the keywords. For example, you might create custom search code that allows you to search based on the keywords.
<b>Owner</b>	The owner of the page. Click the link to view the owner's profile.
<b>Created On</b>	The date and time when the page was created.
<b>Modified On</b>	The date and time the page was last updated.
<b>Aliases</b>	Aliases assigned to the page.

### Setting Page Properties

Use the following procedure to set properties for a page. For a description of the properties, see "[Page Properties" on page 324](#)."

#### To set page properties

- As system administrator, navigate to and open the page for which you want to set properties.
- In the page title bar, click  **Tools > Edit Page** to switch to page editing mode.

3. Click **Properties**.
4. Ensure the **General** tab is selected.
5. Edit the properties:

<u>To...</u>	<u>Use this property</u>	<u>Action</u>
<b>Change the name of the page</b>	<b>Name</b>	Type a new name in the <b>Name</b> field.
<b>Change or add a description of the page</b>	<b>Description</b>	Type a description in the <b>Description</b> .
<b>Assign keywords to the page</b>	<b>Keywords</b>	In the <b>Keywords</b> field, type one or more keywords separated by commas.
<b>Assign aliases to the page</b>	<b>Aliases</b>	<p><b>To add an alias:</b></p> <ol style="list-style-type: none"> <li>a. Click <b>Add</b>.</li> <li>b. In the text box, type the alias name you want to add.</li> <li>c. Click <b>OK</b>.</li> </ol> <p><b>To update an alias:</b></p> <ol style="list-style-type: none"> <li>a. Select the alias you want to change.</li> <li>b. Click <b>Edit</b>.</li> <li>c. In the text box, type the updated alias name.</li> <li>d. Click <b>OK</b>.</li> </ol> <p><b>To remove an alias:</b></p> <ol style="list-style-type: none"> <li>a. Select the alias you want to remove.</li> <li>b. Click <b>Remove</b>.</li> </ol>

6. Click **OK**.
7. In the page title bar, click **Save**.

## Controlling the Page Layout

To define how the portlets within a page can be positioned, define the page layout. There are two types of layouts:

- **Column layout.** In this layout, all the portlets in a page are aligned in columns. Portlets cannot overlap within a column. You can define a page to have one, two, three, or four columns. The default for a new page is a two column layout.

Each column has a single row. You can add additional rows to a column by dragging the **Row** tool into the column. For more information about using rows, see ["Adding Rows When Using a Column Layout" on page 328](#) and ["Removing Rows When Using a Column Layout" on page 329](#).

- **Free Form layout.** In this layout, you can place portlets on the page in any location. Portlets can overlap and even completely cover one another.

For instructions for adding portlets to a page, see ["Adding Portlets to a Page" on page 329](#). For instructions for how to position portlets within a page, see ["Positioning Portlets on a Page" on page 330](#).

---

### To define the layout of a page

1. As system administrator, navigate to and open the page for which you want to define the layout.
2. In the page title bar, click  **Tools > Edit Page** to switch to page editing mode.
3. Click **Properties**.
4. Select the **Layout** tab.
5. Use the **View As** list to indicate whether you want to view column, row, and portlet borders and hidden portlet title bars.
  - Select **End User** if you do *not* want to view borders or hidden title bars.
  - Select **Expert User** if you want to view borders and hidden title bars.

Borders are helpful when you are positioning portlets. Also, if you set a portlet's properties so that the title bar is hidden, you must view the page as an expert user to re-display the title bar so that you can take action on that portlet, for example, to move it or access its properties.

**Note:** The setting to view as an expert is temporary. If you leave the edited page, when you return, the view will be as an end user again.

**Note:** The **View As Expert** check box at the top of the page serves the same purpose as the **View As** property. If you select **Expert User** in the **View As** property, My webMethods Server automatically selects the **View As Expert** check box when you save the properties. Similarly, if you select **End User** in the

**View As** property, My webMethods Server automatically clears the **View As Expert** check box when you save the properties.

6. Set the **Editable Canvas** property based on whether you want users to be able to reposition and/or resize portlets on the page.
  - Select the **Editable Canvas** check box if you want users to be able to reposition and resize portlets on the page.
  - Clear the **Editable Canvas** check box if you do not want users to be able to reposition and resize portlets on the page.

Clearing the **Editable Canvas** check box prevents end users from inadvertently changing the layout while using the page. If you select a free form layout for the page, a user can inadvertently change the page simply by clicking a portlet.

**Note:** When the **Editable Canvas** check box is selected, users can change the layout. This is true even when users are denied edit permissions, although they are prevented from saving those edits. However, when the **Editable Canvas** check box is cleared, all users are prevented from changing the layout.

7. From the **Columns** list, select layout that you want to use for the page.
8. If you select **One Column**, **Two Columns**, **Three Columns**, or **Four Columns**, you can set additional properties for each column in the layout.
  - a. In the **Attributes** field, optionally specify attributes for the column for your own use. Out-of-the-box, My webMethods Server does not provide functionality that uses the attributes. However, you can write custom code that takes advantage of the attributes.
  - b. In the **Width** field type the percentage of the page to use for the column. By default the percentages are set for evenly spaced columns.
  - c. Select the **Word Wrap** check box if you want the server to attempt to wrap long text lines within portlets to fit the column size. Clear the check box if you do not want long lines to wrap.

Allowing long lines to wrap helps to better fit portlets within columns.

- d. From the **Horizontal Alignment** list select how the portlets should be aligned horizontally in the column. By default, the server left aligns the portlets in each column.
- e. From the **Vertical Alignment** list select how the portlets should be aligned vertically in the column. By default, the server aligns the portlets at the top of each column.
- f. To apply a CSS class to the column, in the **CSS Class** field, type the name of the class, omitting the leading period. For example, type `nav` for the “.nav” class.

Specify a CSS class defined by a CSS style sheet included in the page, either the CSS style sheet that is:

- Used by the current skin
  - Included with a custom portlet in the page content or the current shell
- g. To apply a style to the column, in the **CSS Style** field, type any style that is valid for use in a CSS file. For example, if you type `border: 1pt dashed red`, a dashed red line appears as a column border.
  - h. To apply a background image to the column, in the **Skin Background Image** field, type the name of the image file from the current skin.

You specify the name of the skin property. For example, to use the main logo image from the skin, type `images/logo.gif`. Determine the skin property name for an image by accessing the skin editor (via the **Administration Dashboard > User Interface > Skin Administration** portlet) and locating the image in the Images page. The skin property is "images/" followed by the property name, such as "images/logo.gif".

**Note:** To apply an image that is not in the current skin, specify the standard CSS background-image property in the **CSS Style** field. You can also specify properties in the **CSS Style** field to control how the background is displayed, such as whether it repeats, is centered, scrolls with the page, etc.

9. Click **OK**.
10. In the page title bar, click **Save**.

## Adding Rows When Using a Column Layout

By default, when you set the layout of a page to use a column layout, the page has a single row in each column. The portlets you add to a column are aligned vertically based on the vertical alignment you specify for the column. However, you might want to add additional rows to one or more columns.

### To add a row to a column on a page

1. As system administrator, navigate to and open the page to which you want to add a row.
2. In the page title bar, click  **Tools > Edit Page** to switch to page editing mode.
3. Select the **View As Expert** check box so that you can see the borders and title bars of the rows that you add to the page.
4. In the **Tools** tab, expand the **Layout** item to reveal the **Row** tool.
5. Drag the **Row** tool into the column where you want it.

The system displays a red box beneath the cursor position to indicate where the row would be positioned if you released the mouse button.

6. Click **Save**.

## Removing Rows When Using a Column Layout

If you added rows to a column in the layout and no longer want the row, you can remove it.

---

### To remove rows from a column

1. As system administrator, navigate to and open the page from which you want remove a row.
2. In the page title bar, click  **Tools > Edit Page** to switch to page editing mode.
3. Select the **View As Expert** check box so that you can see the borders and title bars of the rows on the page.
4. If the row contains any portlets that you want to preserve, drag them out of the row into a to a different location on the page.
5. In the title bar of the row, click  **Delete**.
6. Click **Save**.

## Adding Portlets to a Page

You can add as many portlets as you want to a page. You can also add the same portlet multiple times. Where you can position a portlet on a page depends on the page layout. For more information, see "[Controlling the Page Layout](#)" on page 326 and "[Positioning Portlets on a Page](#)" on page 330.

---

### To add portlets to a page

1. As system administrator, navigate to and open the page to which you want to add portlets.
2. In the page title bar, click  **Tools > Edit Page** to switch to page editing mode.  
  
In page editing mode, the **Tools** tab on the left lists the portlets you can add to a page. Many of the portlets listed in the **Tools** tab are described in the *My webMethods Server Portlet Reference*.
3. If you want to view the column, row, and portlet borders to help with the placement of your portlets, select the **View As Expert** check box. Clear the check box when you no longer want to view the borders.
4. In the **Tools** tab select the portlet you want to add and drag it on to the page.  
  
The system displays a red box beneath the cursor position to indicate where the portlet would be positioned if you released the mouse button.
5. Click **Save**.

---

## Removing Portlets from a Page

To remove a portlet from a page, use the following procedure.

---

### To remove a portlet from a page

1. As system administrator, navigate to and open the page from which you want to remove portlets.
2. In the page title bar, click  **Tools > Edit Page** to switch to page editing mode.
3. If the title bar of the portlet you want to remove is hidden, select the **View As Expert** check box so that you can see the title bar.
4. In the title page of the portlet that you want to delete, click  **Menu > Delete**.
5. Click **Save**.

## Positioning Portlets on a Page

Where you can position portlets on a page depends on the page layout.

- When using a column layout (e.g., Three Columns), the layout forces the portlets to be aligned within the columns. You can move portals up and down within a column or from one column to another.
- When using a free form layout, you can move portlets anywhere within the page. Portlets do not have to be aligned and can overlap one another.

For instructions for how to define the page layout, see "[Controlling the Page Layout](#)" on [page 326](#).

---

### To position a portlet on a page

1. As system administrator, navigate to and open the page you want to update.
2. In the page title bar, click  **Tools > Edit Page** to switch to page editing mode.
3. If the title bar of the portlet you want to reposition is hidden, select the **View As Expert** check box so that you can see the title bar.
4. Move your cursor over the title bar of the portlet you want to reposition until the system displays the move cursor.
5. Click and drag the portlet to the new location.

The system displays a red box beneath the cursor position to indicate where the portlet would be positioned if you released the mouse button.

6. Click **Save**.

## Portlet Properties

### General Tab

The following table describes the portlet properties displayed on the **General** tab. My webMethods Server displays these properties when you select to view the properties in regular mode and in page editing mode.

Section	Property	Description
General	Name	Name of the portlet that appears in the portlet title bar.
	Description	Optional description of the portlet.
	Keywords	Optional keywords that you assign to a portlet for your own use. Out-of-the-box, My webMethods Server does not provide functionality that uses the keywords. However, you can write custom code that takes advantage of the keywords.
Display	Full Page View	Display to use for the portlet when you navigate to the portlet itself where My webMethods Server displays a page that contains only the portlet.
	Portlet View	Display to use for the portlet when you navigate to the page that contains the portlet.
Maintenance	Owner	The user name of the user that added the portlet to the page.
	Created On	The date and time the portlet was added to the page.
	Modified On	The date and time the portlet was last updated.
	Aliases	Optional aliases assigned to the portlet. For more information, see " <a href="#">Managing Portlet Aliases</a> " on page 335.

### Preferences Tab

The **Preferences** tab contains properties that are specific to the portlet and that usually define the information that My webMethods Server displays in the portlet. For example, for the **HTML Text** tool, you can specify the text to display in the portlet on the **Preferences** tab.

To view the **Preferences** tab, you must view the properties from page editing mode. Not all portlets use a **Preferences** tab.

### Layout Tab

The **Layout** tab contains properties that dictate how My webMethods Server is to display the portlet. To view the **Layout** tab, you must view the properties from page editing mode.

The following table lists the typical properties that are included on the **Layout** tab.

Section	Property	Description
Size and Positioning	Width	How wide to make the portlet. Specify the number of pixels to use for the portlet width.
	Height	How tall to make the portlet. Specify the number of pixels to use for the portlet height.
	Auto Positioned	How My webMethods Server positions the portlet when rendering the page. If <b>Auto Position</b> is toggled: <ul style="list-style-type: none"> <li>■ <b>On:</b> My webMethods Server automatically positions the portlet, ignoring any positioning information stored with the portlet.</li> <li>■ <b>Off:</b> My webMethods Server uses positioning information stored with the portlet to determine where to place the portlet on the page. As a result, My webMethods Server uses the location from when the page was last saved.</li> </ul>
Display	Titlebar	Whether you want My webMethods Server to display the portlet title bar. Select the check box to display the title bar; clear the check box to hide the title bar. <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;"> <p><b>Note:</b> If you hide the title bar, when editing the page, select <b>View As Expert</b> to temporarily view the title bar so that you can manipulate the portlet on the page.</p> </div>
	Border	Whether you want My webMethods Server to display the portlet border. Select the check box to display the border; clear the check box to hide the border.

Section	Property	Description
		<p><b>Note:</b>If you hide the border, when editing the page, select <b>View As Expert</b> to temporarily view the border to help you as you position and/or resize the portlet.</p>
	<b>Minimized</b>	<p>Whether you want My webMethods Server to initially display the portlet as minimized when it displays the page that contains the portlet. Users can restore the portlet to view its contents.</p>
	<b>CSS Class</b>	<p>A CSS class to apply to the portlet. Type the name of the class, omitting the leading period. For example, type <code>nav</code> for the <code>".nav"</code> class.</p> <p>Specify a CSS class defined by a CSS style sheet included in the page, either the CSS style sheet that is:</p> <ul style="list-style-type: none"> <li>■ Used by the current skin</li> <li>■ Included with a custom portlet in the page content or the current shell</li> </ul>
	<b>CSS Style</b>	<p>A style to apply to the portlet. Type any style that is valid for use in a CSS file. For example, if you type <code>border: 1pt dashed red</code>, a dashed red line appears as a portlet border.</p>
	<b>Skin Background Image</b>	<p>A background image to use for the portlet. Type the name of the image file from the current skin.</p> <p>You specify the name of the skin property. For example, to use the main logo image from the skin, type <code>images/logo.gif</code>. Determine the skin property name for an image by accessing the skin editor (via the <b>Administration Dashboard &gt; User Interface &gt; Skin Administration</b> portlet) and locating the image in the Images page. The skin property is "images/" followed by the property name, such as "images/logo.gif".</p> <p><b>Note:</b>To apply an image that is not in the current skin, specify the standard CSS background-image property in the <b>CSS Style</b> field. You can also specify properties in the <b>CSS Style</b> field to control how the background is</p>

Section	Property	Description
		displayed, such as whether it repeats, is centered, scrolls with the page, etc.

### Metadata Tab

The **Metadata** tab contains properties that are specific to the portlet and that usually define the information that My webMethods Server displays in the portlet.

To view the **Metadata** tab, you must view the properties from page editing mode. Not all portlets use a **Preferences** tab.

### Wiring Tab

Use the **Wiring** tab to wire the values of the properties. To view the **Wiring** tab, you must view the properties from page editing mode. For more information about wiring properties, see ["Wiring the Property of One Portlet to the Property of Another" on page 336](#) and ["Wiring a Principal Attribute to a Portlet Property" on page 337](#).

## Modifying Portlet Properties

Configure portlet properties to specify display settings for the portlet and define how the portlet functions. You configure the properties for a portlet independently from the properties of the page on which the portlet resides.

### To modify portlet properties

1. As system administrator, navigate to and open the page containing the portlets you want to update.
2. In the page title bar, click  **Tools > Edit Page** to switch to page editing mode.
3. If the title bar of the portlet you want to update is hidden, select the **View As Expert** check box so that you can see the title bar.
4. In the portlet title bar, click  **Tools > Properties**.
5. Make the changes you want to the properties. For information about the properties, see ["Portlet Properties" on page 331](#).
6. At the bottom of the portlet, click **Apply**.
7. Click **Save**.

**Tip:** If the title bar of the portlet you want to update is visible, you can update the portlet's property without switching to page editing mode. To view a portlet's properties while in regular view mode, in the portlet title bar click  **Tools > Properties**.

## Managing Portlet Aliases

You can assign aliases to individual portlets. An alias is a new or simpler name for a portlet. By assigning an alias to a portlet, My webMethods Server recognizes the alias when it appears in a URL and automatically redirects a user to the portlet.

Use the aliases to access the portlets directly. Aliases are also useful to page developers when building multi-portlet applications; developers can use the aliases to allow one portlet to communicate with another.

---

### To add, edit or remove portlet aliases

1. As system administrator, navigate to and open the page containing the portlets you want to update.
2. In the page title bar, click  **Tools > Edit Page** to switch to page editing mode.
3. If the title bar of the portlet you want to update is hidden, select the **View As Expert** check box so that you can see the title bar.
4. In the portlet title bar, click  **Tools > Properties**
5. To add an alias:
  - a. In the **Aliases** section of the Properties page, click **Add**.
  - b. Type the portlet alias that you want to add in the text box.
  - c. Click **OK**.
6. To change an existing alias:
  - a. In the **Aliases** section of the Properties page, select the alias you want to update and click **Edit**.
  - b. Type the new portlet alias in the text box.
  - c. Click **OK**.
7. To remove an alias, in the **Aliases** section of the Properties page, select the alias you want to remove and click **Remove**.
8. At the bottom of the page, click **Apply**.
9. Click **Save**.

**Tip:** If the title bar of the portlet you want to update is visible, you can work with portlet aliases without switching to page editing mode. To view a portlet's properties while in regular view mode, in the portlet title bar click  **Tools > Properties**.

## Wiring the Property of One Portlet to the Property of Another

You can connect, or *wire*, any property of any portlet on a page to any property of any other portlet. When you wire one property to another, whenever the page is rendered, the server automatically sets the value of the destination property to the value of the source property. This feature allows you to quickly create a composite application out of several different portlets.

For example, if you create a page with two portlets, one a search form and one a search results display, you can wire the search form value (the source value) to the results display input value (the destination value). When a user enters some information into the search form and submits it, the server updates the results display to the results of that search.

---

### To wire one portlet to another

1. As system administrator, navigate to and open the page containing the portlet you want to wire.
2. In the page title bar, click  **Tools > Edit Page** to switch to page editing mode.
3. Decide which portlet is the wiring source and which is the wiring destination.  
The destination portlet property receives its property value from the source portlet property.
4. If the title bar of the *destination portlet* is hidden, select the **View As Expert** check box so that you can see the title bar.
5. In the portlet title bar of the *destination portlet*, click  **Tool > Properties**.
6. Click the **Wiring** tab.  
The wiring tab displays a list of properties on the destination portlet that are available for wiring.
7. For a target property that you want to wire, in the **SOURCE PORTLET** column, select the portlet that you want to use as the source.
8. In the **SOURCE PROPERTY** column, specify the specific property of the source portlet that you want to use.
  - a. Click **Browse**.
  - b. Select the property you want to use from the list.
  - c. Click **Select**.
9. Click **Apply**.
10. Click **Save**.

The run-time view of the page should display the destination portlet with whatever values are configured in the source portlets.

**Tip:** If the title bar of the *destination portlet* is visible, you can wire the portlet without switching to page editing mode. To view the wiring page for a portlet, in the portlet title bar click  **Tools > Wiring**.

## Wiring a Principal Attribute to a Portlet Property

Users and groups have a set of Principal Attributes that you can wire to a portlet. For example, suppose a portlet uses a postal code to display certain information when a user views a page. If the postal code is provided by wiring from a Principal Attribute Provider, when the postal code attribute is modified within a directory service, the portlet uses the modified attribute value.

### To wire a Principal Attribute to a portlet

1. As system administrator, navigate to and open the page containing the portlet you want to wire.
2. In the page title bar, click  **Tools > Edit Page** to switch to page editing mode.
3. If the title bar of the portlet is hidden, select the **View As Expert** check box so that you can see the title bar.
4. In the portlet title bar of the portlet, click  **Tool > Properties**.
5. Click the **Wiring** tab.
6. For a target property that you want to wire, in the **SOURCE PORTLET** column, select **Other**.

The Select Portlet Resource window opens.

7. Click **Global Wiring Data**.
8. Move **Use Profile Wiring** to the **Selected Items** box and click **Select**.

The Select Portlet Resource window closes.

9. In the **SOURCE PROPERTY** column, specify the specific property to use for the source.
  - a. Click **Browse**.

The Select Wired Property window opens.
  - b. Select the property you want to use from the list.
  - c. Click **Select**.

10. Click **Apply**.
11. Click **Save**.

The portlet is now wired to use the attribute value belonging to the user who viewing the page on which the portlet resides.

**Tip:** If the title bar of the portlet is visible, you can wire the portlet without switching to page editing mode. To view the wiring page for a portlet, in the portlet title bar click  **Tools > Wiring**.

## About Customizing the My webMethods Navigation

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To customize the My webMethods navigation panel, you can:

- Add selections to the **Applications** section of the navigation panel. You can add:
  - Additional pages to the **Monitoring** or **Administration** subsections
  - New folders of pages to the **Applications** section

The folder becomes a new subsection within the **Applications** section. The items contained in the folder become selections within the new subsection.

For more information, see ["Adding Selections to the My webMethods Navigation" on page 338](#).

- Remove selections from the **Monitoring** or **Administration** subsections of the **Applications** section of the navigation panel. For more information, see ["Removing Selections from the My webMethods Navigation" on page 339](#).
- Hide standard tabs and sections of the navigation panel.

You can hide the **Navigate** tab completely. If you show the **Navigate** tab, you can hide either the **Applications** and/or **Workspaces** sections that are on the **Navigate** tab. You can also hide the **Tools** tab completely. For more information, see ["Hiding Standard Tabs and Sections of the My webMethods Navigation" on page 340](#).

- Completely replace the **Applications** section of the My webMethods navigation with a custom taxonomy. For more information, see ["Replacing the My webMethods Application Navigation with Your Own Taxonomy" on page 341](#).

## Adding Selections to the My webMethods Navigation

System administrators can add custom pages or folders of pages to the **Applications** section of the My webMethods navigation.

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### To add selections to the Applications section of the My webMethods navigation

1. Create the custom folder or custom page that you want to add to the navigation panel. For more information, see ["About Custom Folders and Pages" on page 320](#) and ["Creating Custom Pages" on page 321](#).

When creating the folder or page, save it in one of the following locations:

- To add a page to the **Monitoring** subsection of the **Applications** section, add it to:  
**Folders > My webMethods Applications > Fabric Tasks > Monitoring**

- To add a page to the **Administration** subsection of the **Applications** section, add it to:  
**Folders > My webMethods Applications > Fabric Tasks > Administration**
  - To add a folder to create a new, custom subsection within the **Applications** section, add it to:  
**Folders > My webMethods Applications > Fabric Tasks**
  - To add a page to a custom subsection, add the page to the folder you are using for the subsection. For example, if you add a folder named “Custom Pages”, then you can add a page to the following location:  
**Folders > My webMethods Applications > Fabric Tasks > Custom Pages**
2. As system administrator, navigate to and open the folder or page you want to add to the navigation panel.
  3. In the page title bar, click  **Tools > Properties**.
  4. Select the **Is Task Folder** check box to indicate that you want My webMethods Server to display the page in the My webMethods navigation panel.
  5. Select the **Is Openable** check box if you want My webMethods Server to automatically open a page in a new tab when a user navigates to it from the navigation panel.
  6. Click **Apply** to close the Properties page.

You can set Access Privileges for the page in the same manner you set Access Privileges for any other My webMethods page.

## Removing Selections from the My webMethods Navigation

System administrators can remove both custom pages and folders, as well as, out-of-the-box pages from the **Applications** section of the My webMethods navigation.

- To remove custom pages and/or folders, you can:
  - Permanently remove them by deleting them from their location within **Folders > My webMethods Applications > Fabric Tasks**
  - Temporarily hide them so that My webMethods does not display them in the navigation, by clearing the **Is Task Folder** check box in the page or folder’s properties.
- To remove out-of-the-box pages, it is recommended that you clear the **Is Task Folder** check box in the page’s properties rather than deleting the pages.
- To remove either one or both of the out-of-the-box **Monitoring** or **Administration** subsections, update the properties of **Folders > System > Shell Sections > Noodle Shell LeftNav > Leftnav**. For more information, see ["Hiding Standard Tabs and Sections of the My webMethods Navigation" on page 340](#).

---

### To remove selections from the Applications section of the My webMethods navigation

1. As system administrator, navigate to and open **Folders > My webMethods Applications > Fabric Tasks**.
2. To permanently remove a custom folder or page, delete it by selecting  **Delete** in the title bar of the folder or page.
3. To hide a custom folder, custom page, or out-of-the-box page:
  - a. Open the properties for the folder or page by selecting  **Tools > Properties** in the title bar of the folder or page.
  - b. Clear the **Is Task Folder** check box.
  - c. Click **Apply**.

## Hiding Standard Tabs and Sections of the My webMethods Navigation

System administrators can configure the properties of the left navigation page that is used for My webMethods navigation to:

- Completely hide the **Navigate** tab or **Tools** tab
- Hide either or both of the **Applications** section or **Workspaces** section that are displayed on the **Navigate** tab.

---

### To hide standard tabs and/or sections of the My webMethods navigation

1. As system administrator, navigate to the following location:  
**Folders > System > Shell Sections > Noodle Shell Leftnav > Leftnav**
2. In the row for the Leftnav page, select  **Tools > Properties**.
3. In the **PORTLET PREFERENCES** section of the page, clear following check boxes to hide tabs or sections. Select the check boxes to display the tabs or sections.

Check box	Description
<b>Show Workspaces</b>	Hides or shows the <b>Workspaces</b> section of the <b>Navigate</b> tab.
<b>Show Applications</b>	Hides or shows the <b>Applications</b> section of the <b>Navigate</b> tab.
<b>Show Tools</b>	Hides or shows the <b>Tools</b> tab.
<b>Show Navigate</b>	Hides or shows the <b>Navigate</b> tab.

4. Click **Apply**.

## Replacing the My webMethods Application Navigation with Your Own Taxonomy

System administrators can completely replace the **Applications** section of the My webMethods navigation panel with a custom taxonomy.

To create a custom taxonomy, you create an alternative applications root page that contains the taxonomy you want to use. Then you configure the properties for the Leftnav page that My webMethods uses for its navigation panel to point to your new application root.

---

### To replace the My webMethods Applications taxonomy with a custom taxonomy

1. As system administrator, create a new page to use as the application root. It is recommended that you create the page within either of the following locations.

- Folders
- **Folders > Public Folders**

When creating the page, assign it a name that you want to appear in the navigation panel. The name you assign will be the new name of the **Applications** section.

2. Assign an alias to the new application root page.
  - a. In the row for the new application root page, select **Tools > Properties**.
  - b. In the **Aliases** field, click **Add**.
  - c. In the text box, assign the alias you want to give the new application root and click **OK**.
  - d. Click **Apply**.
3. Build the taxonomy within the new applications root page.
  - To add a subsection to the taxonomy, add a page or folder to use as a container. Assign it a name that you want to use for the name of the subsection within the taxonomy.
  - To add a page that displays information, add a page. Assign it a name that you want to appear in the taxonomy.

For more information about creating custom folders and pages, see "[About Custom Folders and Pages](#)" on page 320 and "[Creating Custom Pages](#)" on page 321.

4. Configure the properties of the Leftnav page that My webMethods Server uses for the My webMethods navigation to point it to the new, custom application root.
  - a. Navigate to the following location:

**Folders > System > Shell Sections > Noodle Shell Leftnav > Leftnav**

- b. In the row for the Leftnav page, select  **Tools > Properties**.
- c. In the **Applications Root** field, type the name of the alias you assigned to the applications root page you created.
- d. Click **Apply**.

## Modifying the Bean Expiration Policy

By default, when a My webMethods user returns to a previous folder, such as a Task Inbox, the folder refreshes itself and unsaved changes to the folder are lost. System administrators can modify the bean expiration policy for a Fabric folder or a workspace template so it displays existing data when users return to the tab that contains it. Once set, the policy applies any time a user displays that folder or workspace in My webMethods.

---

### To modify bean expiration policy

1. As system administrator do one of the following:
  - For Fabric folders navigate to **Folders > My webMethods Applications > Fabric Tasks**.  
Folders that allow the you to modify the bean expiration policy are identified by the  icon.
  - For workspace templates navigate to **Folders > System > Templates > Workspace Templates > Default Workspace Template**.
2. In the Fabric folder title bar or in the Default Workspace Template, click  **Tools > Properties**.
3. In the **beanExpirePolicy** field, type `do_not_expire`.
4. Click **Apply**.

Make this change individually for each folder you want to modify.

---

## About Customizing the My webMethods Look-And-Feel

System administrators can change the My webMethods look-and-feel by updating the skin that My webMethods uses. To customize the My webMethods look-and-feel, you can:

- Change the Software AG logo, for example, to display your own corporate logo. For more information, see ["Replacing the Logo in the My webMethods User Interface" on page 343](#).
- Change the colors that are used in the My webMethods user interface. For more information, see ["Changing the Color Scheme of the My webMethods User Interface" on page 344](#).

- Apply the look-and-feel used in My webMethods 7.x to the current version of My webMethods. For more information, see ["Using the 7.x Skin and Shell with My webMethods "](#) on page 345.
- Completely customize the My webMethods look-and-feel by using a custom shell and skin. For more information, see ["Applying a Custom Skin and Shell to My webMethods "](#) on page 348.

## Replacing the Logo in the My webMethods User Interface

System administrators can change the images used in the My webMethods user interface by updating the images in the skin that My webMethods uses. To change the Software AG logo that appears at the top of the interface, update the logo.gif image. For more information about skins, see ["Customizing Skins"](#) on page 375.

My webMethods uses the “Noodle - Twilight” skin. It is recommended that you do not update the “Noodle - Twilight” skin, but rather make a copy of it, update the copy, then configure the My webMethods to use the modified copy of the skin.

---

### To replace the logo in the My webMethods user interface

1. Make a copy of the “Noodle - Twilight” skin.
  - a. As system administrator navigate to the following location.  
**Folders > Administrative Folders > Administration Dashboard > User Interface > Skin Administration**
  - b. Click the **Create New Skin** link, which is at the top of the page.
  - c. Complete the fields for the new skin.

<u>In this field...</u>	<u>Specify...</u>
<b>System Name</b>	A short name that contains only letters, numbers, and the underscore character. My webMethods Server uses this name internally.
<b>Display Name</b>	A descriptive name that My webMethods Server uses when it displays the skin name in the user interface.
<b>Parent Skin</b>	Noodle - Twilight

- d. Click **Save**.
2. Edit the properties for the new skin by selecting  **Tools > Edit**.
3. Click the **Images** tab.
4. Update the image for the logo.gif image. For instructions, see ["Replacing Images in a Skin"](#) on page 382.

5. Configure My webMethods so that it uses the updated skin.
  - a. Navigate to the following:  
**Folders > Administrative Folders > Administration Dashboard > User Interface > Manage Skin Rules**
  - b. Click the **My webMethods** link to open the skin rule that My webMethods uses.
  - c. On the **Modify Rules** tab, in the **Results** list select the new skin.
  - d. Click **Update Rule**.

## Changing the Color Scheme of the My webMethods User Interface

System administrators can change the colors used in the My webMethods user interface by updating the colors in the skin that My webMethods uses. For more information about skins, see "[Customizing Skins](#)" on page 375.

My webMethods uses the "Noodle - Twilight" skin. It is recommended that you do not update the "Noodle - Twilight" skin, but rather make a copy of it, update the copy, then configure the My webMethods to use the modified copy of the skin.

---

### To change the colors in the My webMethods user interface

1. Make a copy of the "Noodle - Twilight" skin.
  - a. As system administrator navigate to the following location.  
**Folders > Administrative Folders > Administration Dashboard > User Interface > Skin Administration**
  - b. Click the **Create New Skin** link, which is at the top of the page.
  - c. Complete the fields for the new skin.

In this field...	Specify...
<b>System Name</b>	A short name that contains only letters, numbers, and the underscore character. My webMethods Server uses this name internally.
<b>Display Name</b>	A descriptive name that My webMethods Server uses when it displays the skin name in the user interface.
<b>Parent Skin</b>	Noodle - Twilight

- d. Click **Save**.
2. Edit the properties for the new skin by selecting  **Tools > Edit**.
3. Click the **Colors** tab.

4. Update the colors. For instructions, see ["Replacing Colors Using a Color Picker" on page 383](#).
5. Configure My webMethods so that it uses the updated skin.
  - a. Navigate to the following:  
**Folders > Administrative Folders > Administration Dashboard > User Interface > Manage Skin Rules**
  - b. Click the **My webMethods** link to open the skin rule that My webMethods uses.
  - c. On the **Modify Rules** tab, in the **Results** list select the new skin.
  - d. Click **Update Rule**.

## Using the 7.x Skin and Shell with My webMethods

My webMethods Server still provides the skin and shell that were used for My webMethods version 7.x. As a result, system administrators can configure My webMethods so that it uses the 7.x skin and shell, and as a result, revert My webMethods so that it has the look-and-feel of the My webMethods version 7.x.

If you later decide you want to use the 8.0 look-and-feel, follow the procedure in ["Restoring the 8.0 Look-and-Feel" on page 346](#).

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### To update My webMethods so it uses the My webMethods 7.x look-and-feel

1. Configure My webMethods so that it uses the "My webMethods Shell" shell, which is the shell that My webMethods version 7.x used:
  - a. Navigate to the following:  
**Folders > Administrative Folders > Administration Dashboard > User Interface > Manage Shell Rules**
  - b. Click the **My webMethods** link to open the shell rule that My webMethods uses.
  - c. On the **Modify Rules** tab, in the **Results** list select **My webMethods Shell**.
  - d. Click **Update Rule**.
2. Configure My webMethods so that it uses the "Pearls - Electric Blue" skin, which is the skin that My webMethods version 7.x used:
  - a. Navigate to the following:  
**Folders > Administrative Folders > Administration Dashboard > User Interface > Manage Skin Rules**
  - b. Click the **My webMethods** link to open the skin rule that My webMethods uses.
  - c. On the **Modify Rules** tab, in the **Results** list select **Pearl - Electric Blue**.
  - d. Click **Update Rule**.

3. Create the start page you want to use for the 7.x look-and-feel. This is the page that will be displayed when users log into My webMethods.
  - a. Navigate to the following:  
**Folders > My webMethods Applications > Fabric Tasks**
  - b. Rename the existing **Home** shortcut to `80_Home` by updating the **Name** property. For instructions, see ["Setting Page Properties" on page 324](#).
  - c. Create a new page in the "Fabric Tasks" folder and assign it the name `Home`.
  - d. Assign the new Home page the alias `7x_home`. For more information about how to assign aliases, see ["Setting Page Properties" on page 324](#).
  - e. Optionally, edit the page and add any content you want. For more information, see ["Creating Custom Pages" on page 321](#).
4. Configure My webMethods so that it displays the 7.x Start Page when a user logs into My webMethods.
  - a. Navigate to the following:  
**Folders > Administrative Folders > Administration Dashboard > User Interface > Manage Start Page Rules**
  - b. Select the **Create New Rule** tab.
  - c. Fill in the following fields:

<u>In this field...</u>	<u>Specify...</u>
<b>Name</b>	<code>7x_Start_Page</code>
<b>Condition</b>	<code>"My webMethods Users" matches user.roleMembershipDNs()</code>
<b>Results</b>	The alias you assigned to the 7.x start page you created, that is <code>7x_home</code>

- d. Click **Create Rule**.
- e. Select the **Change Rule Evaluation Order** tab.
- f. Move the "7x\_Start Page" rule that you just created to the top.
- g. Click **Update**.

## Restoring the 8.0 Look-and-Feel

If a system administrator configured My webMethods so that it uses the 7.x look-and-feel using the procedure in ["Using the 7.x Skin and Shell with My webMethods" on page](#)

345, a system administrator can use the following procedure to restore the 8.0 look-and-feel.

**Note:** The procedure assumes that the names and aliases specified in the procedure in "Using the 7.x Skin and Shell with My webMethods " on page 345 were used.

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#### To restore the My webMethods 8.0 look-and-feel

1. Configure My webMethods so that it uses the "Noodle Shell" shell, which is the shell that My webMethods version 8.0 uses:
  - a. Navigate to the following:  
**Folders > Administrative Folders > Administration Dashboard > User Interface > Manage Shell Rules**
  - b. Click the **My webMethods** link to open the shell rule that My webMethods uses.
  - c. On the **Modify Rules** tab, in the **Results** list select **Noodle Shell**.
  - d. Click **Update Rule**.
2. Configure My webMethods so that it uses the "Noodle Twilight" skin, which is the skin that My webMethods version 8.0 uses:
  - a. Navigate to the following:  
**Folders > Administrative Folders > Administration Dashboard > User Interface > Manage Skin Rules**
  - b. Click the **My webMethods** link to open the skin rule that My webMethods uses.
  - c. On the **Modify Rules** tab, in the **Results** list select **Noodle Twilight**.
  - d. Click **Update Rule**.
3. Configure the start page that My webMethods is to display.
  - a. Navigate to the following:  
**Folders > Administrative Folders > Administration Dashboard > User Interface > Manage Start Page Rules**
  - b. Select the **Change Rule Evaluation Order** tab.
  - c. Move the "7x\_Start Page" rule to the bottom of the list and "My webMethods Last Active Tab" is at the top.
  - d. Click **Update**.
4. Set the Home page for the 8.0 look-and-feel.
  - a. Navigate to the following:  
**Folders > My webMethods Applications > Fabric Tasks**

- b. Rename the **Home** to `72_Home` by updating the **Name** property. For instructions, see ["Setting Page Properties" on page 324](#).
- c. Rename the **80\_Home** shortcut to `Home` by updating the **Name** property.

## Applying a Custom Skin and Shell to My webMethods

System administrators can completely change the look-and-feel of My webMethods by configuring it to use a custom skin and shell.

---

### To apply a custom skin and shell to My webMethods

1. Create the custom shell you want to use. For instructions, see ["Working with Shells in My webMethods Server " on page 403](#).
2. Create the custom skin you want to use. For instructions, see ["Customizing Skins" on page 375](#).
3. Configure My webMethods so that it uses your custom shell:
  - a. Navigate to the following:  
**Folders > Administrative Folders > Administration Dashboard > User Interface > Manage Shell Rules**
  - b. Click the **My webMethods** link to open the shell rule that My webMethods uses.
  - c. On the **Modify Rules** tab, in the **Results** list select the name of your custom shell.
  - d. Click **Update Rule**.
4. Configure My webMethods so that it uses your custom skin:
  - a. Navigate to the following:  
**Folders > Administrative Folders > Administration Dashboard > User Interface > Manage Skin Rules**
  - b. Click the **My webMethods** link to open the skin rule that My webMethods uses.
  - c. On the **Modify Rules** tab, in the **Results** list select the name of your custom skin.
  - d. Click **Update Rule**.

---

## Building a Simple Front-End Page to My webMethods

If you have users that need access to only a few My webMethods pages and you want to simplify their access to those pages, you can build a simple page that provides links to only the pages the users require.

The links you include in the front-end page can use URLs that use a page alias. Some My webMethods application pages are assigned aliases out-of-the-box. If an application page that you want to use does not have an alias, you can assign one to the page. After an alias is assigned, as an alternative to selecting the page from the My webMethods

navigation panel, you can navigate directly to it by entering a URL that uses the page alias.

---

### To build a simple front-end page to My webMethods

1. Determine the application pages that you want to include in the front-end page.
2. For each application page, determine its page an alias or assign one if the page does not have an alias.
  - a. As system administrator, navigate to the following:  
**Folders > My webMethods Applications > Fabric Task**
  - b. Further navigate to and open the Application page you want.
  - c. In the page title bar, click  **Tools > Properties**
  - d. In the **Aliases** section of the screen, note the page alias. If there is no page alias, assign one.
  - e. Click **Apply** to close the Properties page.
3. Build a webpage that includes links to the Application pages. Use the following for the URL where:
  - *MWSHost* and *MWSPort* are the host name and port number of the My webMethods Server
  - *alias* is the alias name of the application page

`http://MWSHost:MWSPort/alias`

For example if the host name and port of My webMethods Server is “mws.company.com:8585” and you want to access the Tasks Inbox page, which has the alias “webm.apps.workflow.inbox”, use the following URL:

`http://mws.company.com:8585/webm.apps.workflow.inbox`

---

## Creating Links for Single Sign-On

Single sign-on is the ability for a user to log into one application and then use other applications without having to log into each one separately. My webMethods Server supports single sign-on through the Security Assertion Markup Language (SAML), an XML-based framework for the exchange of security information.

To take advantage of single sign-on, a user must be known on both the source server and the target entity. In most cases, common knowledge of a user is provided by use of the same directory service. For more information on configuring a server to be used as a target for single sign-on, see ["Setting up Single Sign-On" on page 281](#).

On any page, you can add a link to a SAML target entity, such as a server. If the target accepts SAML assertions from the source server, when a known user clicks the link, no login credentials are required. If the target entity does not accept SAML assertions from

the source server, or if the user is not known on the target entity, login credentials may be required.

Under the SAML specification, an intermediary called an artifact receiver can perform authentication on behalf of the target web application. In such a case, the SAML source requires two URLs: one for the Artifact Receiver and one for the target web application.

You can place one or more SAML links on any page you have permission to edit.

---

#### To create a SAML link on a source page

1. In the upper right-hand corner of the page, click the Tools icon  and click **Edit Page**.
2. In the **Root** list of the **Available Portlets** panel, click **Links**.
3. In the **Links** list of the **Available Portlets** panel, drag the **Single Sign-on Link** portlet and drop it onto the page at the location where you want to add the link.

A red box appears beneath the cursor location whenever the cursor is over a valid page location, indicating where the portlet would be positioned if you released the mouse button.

4. On the left side of the page control area, click **Save**.
5. At the right edge of the title bar for the single sign-on portlet, click  **Tools > Properties**.
6. In the Properties page make modifications as appropriate:

<u>Make changes here...</u>	<u>If you want to...</u>				
<b>Name</b>	Replace <code>Single Sign-on Link</code> with the text that is to go with the link.				
<b>SAML Authentication URL</b>	Type the URL for a resource on the target computer. The target can be any page on a server. If you are connecting to a web application through a SAML Artifact Receiver, use this field for the Artifact Receiver URL.				
<b>Use POST or GET</b>	Determines the method used to pass data to the target computer.				
	<table border="0"> <tr> <td>POST</td> <td>Passes data to a gateway program's STDIN. POST, the default, is the preferred method for single sign-on data.</td> </tr> <tr> <td>GET</td> <td>Passes data as a string appended to the URL after a question mark.</td> </tr> </table>	POST	Passes data to a gateway program's STDIN. POST, the default, is the preferred method for single sign-on data.	GET	Passes data as a string appended to the URL after a question mark.
POST	Passes data to a gateway program's STDIN. POST, the default, is the preferred method for single sign-on data.				
GET	Passes data as a string appended to the URL after a question mark.				

**Make changes here...****If you want to...****Artifact Parameter Name**

If this is a SAML connection with another server or other webMethods product, do not change the default value SAMLart. If this is a SAML connection to a third-party source, type the artifact parameter name used by the third-party application.

**Application Target URL**

If you have typed the URL for a SAML Artifact Receiver in the **SAML Authentication URL** field, type the URL for a web application. Otherwise, leave this field empty.

7. Click **Apply**.



# 21 Managing Workspaces in My webMethods Server

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## About Workspaces

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*Workspaces* are pages that users create and use as work areas for some specific purpose. Users build the content of the workspace by dragging portlets on to the workspace. For example, users might create a workspace to gather information about an issue they need to solve. They might attach files to the workspace related to the issue by adding the Attachments tool to the workspace. If they have a screen shot that illustrates the issue, they might add the Image tool to the workspace.

Users can also share workspaces with other users so that multiple users can work together. For example, a user might add the Attachments tool to the workspace so that the users sharing the workspace can upload and share files. The owner of the workspace sets the permissions that dictate that actions that other users sharing the workspace can perform.

Users can create as many workspaces as they need. When the workspace is no longer needed, for example because the issue for which it was established is resolved, users can simply delete the workspace.

For more information about the basic use of workspaces, such as, creating workspaces, sharing workspaces, and adding portlets to workspaces, see *Working with My webMethods*.

System administrators and My webMethods administrators can restrict or enhance the a user's workspace functionality. For more information, see "[Administration Tasks for Workspaces](#)" on page 355.

- To restrict functionality, an administrator can set users' permissions to deny functionality that they are granted out-of-the-box. For example, you can deny the functional privilege that allows a user to create new workspaces.
- To enhance functionality, an administrator can set users' permissions to grant functionality that they are *not* granted out-of-the-box. For example, you can grant:
  - The functional privilege that makes a user an expert user. Expert users have access to additional properties and menu actions that aid in developing workspaces. For more information, see "[Expert User Features for Workspace Development](#)" on page 358.
  - Access to the Navigate > Applications > Administration > System-Wide > Workspace Management page from which a user can perform actions against workspaces. For more information, see "[Workspace Actions You Can Perform from the Workspace Management Page](#)" on page 365.

Additionally, system administrators can customize the **Tools** tab of the My webMethods navigation. For more information, see "[About the My webMethods Tools Navigation](#)" on page 372.

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## Administration Tasks for Workspaces

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System administrators and My webMethods administrators can enhance or restrict the a user's workspace functionality by performing the following tasks:

- Grant users access to the [Navigate > Applications > Administration > System-Wide > Workspace Management](#) page, which allows users to search for and take action on workspaces. For more information, see ["Allowing Users to Access the Workspace Management Page"](#) on page 355.
- Prohibit users from performing basic workspace actions, such as viewing workspaces and creating workspaces. For more information, see ["Workspace Functional Privileges"](#) on page 356 and ["Controlling the Workspace Functions a User Can Perform"](#) on page 358.
- Grant users Expert Workspace Development privileges, giving them additional functionality that they can use when building workspaces. For more information, see ["Workspace Functional Privileges"](#) on page 356, ["Controlling the Workspace Functions a User Can Perform"](#) on page 358, and ["Expert User Features for Workspace Development"](#) on page 358.
- Remove the **Workspaces** section of the My webMethods navigation for all users. For more information, see ["Hiding Standard Tabs and Sections of the My webMethods Navigation"](#) on page 340.
- Customize the taxonomy displayed on the **Tools** tab of the My webMethods navigation. For more information, see ["Customizing the My webMethods Workspace Tools"](#) on page 373.

If a system administrator needs to take action to fix or delete a user's workspace and cannot do so via the [Navigate > Applications > Administration > System-Wide > Workspace Management](#) page, they can attempt to correct the problem by accessing it in the user's personal folder. My webMethods Server stores each workspace in the personal folder of the user who created the workspace. For example, if the user "jsmith" creates a workspace, you can use the system administrator user interface to navigate to the workspace in [Folders > Users > jsmith's Root Folder > Workspaces](#).

### Allowing Users to Access the Workspace Management Page

My webMethods includes the [Navigate > Applications > Administration > System-Wide > Workspace Management](#) page that allows users to take actions against workspaces. For a description, see ["Workspace Actions You Can Perform from the Workspace Management Page"](#) on page 365.

By default, only My webMethods administrators have access to the Workspace Management page; end users do not. However, end users can perform many of the same actions from the right-click menu in the **Workspaces** section of the My webMethods

navigation and from the menu on the tab of an open workspace. The workspace actions that are only available via the Workspace Management page are:

- Searching for workspaces.
- Exporting workspaces to a file.
- Importing workspaces that were previously exported to a file.

System administrators and My webMethods administrators can assign permissions to allow users, groups, and/or roles to access the Workspace Management page.

---

### To allow users access the Workspace Management page

1. Navigate to the Permissions Management page.
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > Permissions Management.**
  - As system administrator: **Folders > Administrative Folders > Administration Dashboard > Configuration > Permissions Management.**
2. Use the Permissions Management page to select the users, groups, and/or roles to which you want to grant access and to set the access privilege to the Workspace Management Page.

When setting privileges, in the **Permissions** tree select the following:

**Access Privileges > Administration > System-Wide > Workspace Management**

For instructions for how to use the Permissions Management page to set access privileges, see "[Access Privileges and Functional Privileges](#)" on page 144.

## Workspace Functional Privileges

The following table describes the functional privileges that govern actions that users can take against workspaces. The table also lists whether users are granted or denied a functional privilege by default. System administrators and My webMethods administrators can change the default permissions for users, groups, and/or roles. For more information, see "[Controlling the Workspace Functions a User Can Perform](#)" on page 358.

Functional Privilege	By default, the privilege is...	Description
<b>View Workspaces</b>	Granted	Controls whether users can view workspaces.  My webMethods Server does not display the <b>Workspaces</b> section on the <b>Navigate</b> tab of the My webMethods navigation when a user is denied the View Workspaces functional privilege.

Functional Privilege	By default, the privilege is...	Description
		<p><b>Note:</b> Even when the View Workspaces functional privilege is denied, if users have access to the Workspace Management page, they can search for and open workspaces. For more information, see <a href="#">"Allowing Users to Access the Workspace Management Page"</a> on page 355 and <a href="#">"Opening a Workspace"</a> on page 368.</p>
<b>Edit Workspaces</b>	Granted	<p>Controls whether users can add portlets to a workspace.</p> <p>My webMethods Server does not display the <b>Tools</b> tab of the My webMethods navigation when a user is denied the Edit Workspaces functional privilege.</p> <p><b>Note:</b> Even when the Edit Workspaces functional privilege is denied, users can still set workspace properties, reposition portlets in a workspace, set portlet properties, and delete portlets from workspaces.</p>
<b>Create Workspaces</b>	Granted	<p>Controls whether users can create new workspaces.</p> <p>My webMethods Server does not display the <b>New</b> tab in My webMethods when a user is denied the Create Workspaces functional privilege.</p>
<b>Import Workspaces</b>	Granted	<p>Controls whether users can import workspaces that were previously exported to a file.</p> <p>My webMethods Server does not display the <b>Import</b> button on the Workspace Management page when a user is denied the Import Workspaces functional privilege.</p>
<b>Expert Workspace Development</b>	Denied	<p>Provides users with extra functionality that they can use when building workspaces and pages. Users with Expert Workspace Development functional privilege have access to additional properties and menu actions. For</p>

Functional Privilege	By default, the privilege is...	Description
		more information, see <a href="#">"Expert User Features for Workspace Development"</a> on page 358.

## Controlling the Workspace Functions a User Can Perform

System administrators and My webMethods administrators can use the following procedure to grant or deny users, groups, and/or roles the functional privileges described in ["Workspace Functional Privileges"](#) on page 356.

### To grant or deny users workspace functional privileges

- Navigate to the Permissions Management page.
  - In My webMethods: **Navigate > Applications > Administration > System-Wide > Permissions Management.**
  - As system administrator: **Folders > Administrative Folders > Administration Dashboard > Configuration > Permissions Management.**
- Use the Permissions Management page to select the users, groups, and/or roles with which you want to work and to grant or deny the functional privileges.

To grant or deny workspace functional privileges, navigate to the following part of the **Permissions** tree and grant or deny the privileges described in ["Workspace Functional Privileges"](#) on page 356.

#### Functional Privileges > General

For instructions for how to use the Permissions Management page to set functional privileges, see ["Access Privileges and Functional Privileges"](#) on page 144.

## Expert User Features for Workspace Development

*Expert users* are users who have been assigned the Expert Workspace Development functional privilege. For instructions for how administrators can assign this functional privilege, see ["Controlling the Workspace Functions a User Can Perform"](#) on page 358.

Expert users have access to additional:

- Workspace properties** to better manage the layout of a workspace. For more information, see ["Workspace Properties for Expert Users"](#) on page 359.
- Properties for portlets in a workspace** to better manage the content of portlets and how they appear on the workspace. For example, expert users can set up a portlet so that

its title bar does not display. For more information, see ["Portlet Properties for Expert Users" on page 362](#).

■ **Portlet menu actions** to:

- Indicate that you want My webMethods Server to position a portlet when rendering the workspace
- Set permissions for portlets

For more information, see ["Portlet Menu Options for Expert Users" on page 364](#).

**Note:** Expert users also see these additional properties and portlet menu options when working with regular pages, not just workspaces.

## Workspace Properties for Expert Users

### General Tab

The workspace properties on the **General** tab are identical for users with and without the Expert Workspace Development privilege. For information about these workspace properties, see *Working with My webMethods*.

### Layout Tab

The following table describes the workspace properties on the **Layout** tab. While the **Layout** tab is available for both users with and without the Expert Workspace Development privilege, some of the properties are only available for expert users.

Property	Available for	Description
<b>View As</b>	expert users	<p>This property indicates whether you want to view column, row, and portlet borders and hidden portlet title bars.</p> <ul style="list-style-type: none"> <li>■ Select <b>End User</b> if you do <i>not</i> want to view borders or hidden title bars.</li> <li>■ Select <b>Expert User</b> if you want to view borders and hidden title bars.</li> </ul> <p>Borders are helpful when you are positioning portlets. Also, if you set a portlet's properties so that the title bar is hidden, you must view the page as an expert user to re-display the title bar so that you can take action on that portlet, for example, to move it or access its properties.</p>

Property	Available for	Description
<b>Editable Canvas</b>	expert users	<p>This property indicates whether you want users viewing the workspace to be able to reposition and/or resize portlets.</p> <p>Clear the <b>Editable Canvas</b> check box to prevent users from inadvertently changing the layout while using the workspace. If you select a free form layout for the workspace, a user can inadvertently change the page simply by clicking a portlet.</p> <div style="background-color: #f0f0f0; padding: 10px;"> <p><b>Note:</b>When the <b>Editable Canvas</b> check box is selected, users can change the layout. This is true even when users are denied permissions to edit a workspace, although they are prevented from saving those edits. However, when the <b>Editable Canvas</b> check box is cleared, all users are prevented from changing the layout.</p> </div>
<b>Columns</b>	all users	<p>This property specifies the layout to use for the workspace. The layout defines how the portlets within a workspace can be positioned. You can define either a:</p> <ul style="list-style-type: none"> <li>■ <b>Column layout.</b> In this layout, all the portlets in a workspace are aligned in columns. Portlets cannot overlap within a column. You can define a workspace to have one, two, three, or four columns.</li> <li>■ <b>Free Form layout.</b> In this layout, you can place portlets on the workspace in any location. Portlets can overlap and even completely cover one another. This is the default for a new workspace.</li> </ul>
<b>Attributes</b>	expert users	<p>When using a column layout, this property specifies attributes for the column that you can use for your own use. Out-of-the-box, My webMethods Server does not provide functionality that uses the attributes. However, you can write custom code that takes advantage of the attributes.</p>

Property	Available for	Description
<b>Width</b>	all users	When using a column layout, this property specifies the percentage of the workspace to use for the width of the column.
<b>Word Wrap</b>	all users	When using a column layout, this property specifies whether you want to wrap long text lines within portlets to fit the column size.
<b>Horizontal Alignment</b>	all users	When using a column layout, this property specifies how the portlets should be aligned horizontally in the column.
<b>Vertical Alignment</b>	all users	When using a column layout, this property specifies how the portlets should be aligned vertically in the column.
<b>CSS Class</b>	expert users	<p>When using a column layout, this property specifies a CSS class to apply to the column. Type the name of the class, omitting the leading period. For example, type <code>nav</code> for the “.nav” class.</p> <p>Specify a CSS class defined by a CSS style sheet included in the workspace, either the CSS style sheet that is:</p> <ul style="list-style-type: none"> <li>■ Used by the current skin</li> <li>■ Included with a custom portlet in the workspace content or the current shell</li> </ul>
<b>CSS Style</b>	expert users	<p>When using a column layout, this property specifies a style to apply to the column. Type any style that is valid for use in a CSS file. For example, if you type <code>border: 1pt dashed red</code>, a dashed red line appears as a portlet border.</p>
<b>Skin Background Image</b>	expert users	<p>When using a column layout, this property specifies an image from the current skin to use as the background image for the column.</p> <p>Type the name of the skin property. For example, to use the main logo image from the skin, type <code>images/logo.gif</code>. System administrators can determine</p>

Property	Available for	Description
		<p>the skin property name for an image by accessing the skin editor (via the Administration Dashboard &gt; User Interface &gt; Skin Administration portlet) and locating the image in the Images page. The skin property is "images/" followed by the property name, such as "images/logo.gif".</p> <div style="border: 1px solid gray; padding: 5px; background-color: #f0f0f0;"> <p><b>Note:</b>To apply an image that is not in the current skin, specify the standard CSS background-image property in the <b>CSS Style</b> field. You can also specify properties in the <b>CSS Style</b> field to control how the background is displayed, such as whether it repeats, is centered, scrolls with the page, etc.</p> </div>

## Portlet Properties for Expert Users

### General Tab

The portlet properties on the **General** tab are identical for users with and without the Expert Workspace Development privilege. For information about these workspace properties, see *Working with My webMethods*.

### Preferences Tab

The **Preferences** tab is available for both users with and without the Expert Workspace Development privilege. Not all portlets have a **Preferences** tab.

The properties on the **Preferences** tab are specific to each portlet and usually define the information that My webMethods Server displays in the portlet. For example, for the HTML Text tool you can specify the text to display in the portlet on the **Preferences** tab.

### Layout Tab

The following table describes the portlet properties on the **Layout** tab. The **Layout** tab is available for only users with Expert Workspace Development privilege.

Property	Description
<b>Attributes</b>	Attributes for your own use. Out-of-the-box, My webMethods Server does not provide functionality that uses the attributes. However, you can write custom code that takes advantage of the attributes.

Property	Description
<b>Width</b>	How wide to make the portlet. Specify the number of pixels to use for the portlet width.
<b>Height</b>	How tall to make the portlet. Specify the number of pixels to use for the portlet height.
<b>Titlebar</b>	<p>Whether you want My webMethods Server to display the portlet title bar. Select the check box to display the title bar; clear the check box to hide the title bar.</p> <p><b>Note:</b> If you hide the title bar, use the <b>View As</b> property, which is on the <b>Layout</b> tab of the workspace properties, to temporarily view the title bar so that you can manipulate the portlet on the workspace.</p>
<b>Border</b>	<p>Whether you want My webMethods Server to display the portlet border. Select the check box to display the border; clear the check box to hide the border.</p> <p><b>Note:</b> If you hide the title bar, use the <b>View As</b> property, which is on the <b>Layout</b> tab of the workspace properties, to temporarily view the title bar so that you can manipulate the portlet on the workspace.</p>
<b>Minimized</b>	Whether you want My webMethods Server to initially display the portlet as minimized when it displays the workspace that contains the portlet. Users can restore the portlet to view its contents.
<b>CSS Class</b>	<p>A CSS class to apply to the portlet. Type the name of the class, omitting the leading period. For example, type <code>nav</code> for the “.nav” class.</p> <p>Specify a CSS class defined by a CSS style sheet included in the workspace, either a CSS style sheet that is:</p> <ul style="list-style-type: none"> <li>■ Used by the current skin</li> <li>■ Included with a custom portlet in the workspace content or the current shell</li> </ul>
<b>CSS Style</b>	A style to apply to the portlet. Type any style that is valid for use in a CSS file. For example, if you type <code>border: 1pt dashed red</code> , a dashed red line appears as a portlet border

Property	Description
<b>Skin Background Image</b>	<p>An image from the current skin to use as the background image for the portlet.</p> <p>Type the name of the skin property. For example, to use the main logo image from the skin, type <code>images/logo.gif</code>. Expert users can ask system administrators for information about the properties available. System administrators can determine the skin property name for an image by accessing the skin editor (via the Administration Dashboard &gt; User Interface &gt; Skin Administration portlet) and locating the image in the Images page. The skin property is "images/" followed by the property name, such as "images/logo.gif".</p> <p><b>Note:</b> To apply an image that is not in the current skin, specify the standard CSS background-image property in the <b>CSS Style</b> field. You can also specify properties in the <b>CSS Style</b> field to control how the background is displayed, such as whether it repeats, is centered, scrolls with the page, etc.</p>

### Metadata Tab

The **Metadata** tab is available only users with Expert Workspace Development privilege. The properties on the **Metadata** tab are specific to each portlet and usually define the information that My webMethods Server displays in the portlet.

## Portlet Menu Options for Expert Users

The following table describes the additional portlet menu actions that are available only for users with Expert Workspace Development privilege. Expert users can access these actions by clicking **Menu** in the title bar of a portlet.

Action	Description
<b>Auto Position</b>	<p>Defines how My webMethods Server positions the portlet when rendering the workspace. If <b>Auto Position</b> is toggled:</p> <ul style="list-style-type: none"> <li>■ <b>On:</b> My webMethods Server automatically positions the portlet, ignoring any positioning information stored with the portlet.</li> <li>■ <b>Off:</b> My webMethods Server uses positioning information stored with the portlet to determine where to place the portlet on the workspace. As a result, My webMethods Server uses the location from when the workspace was last saved.</li> </ul>
<b>Permissions</b>	<p>Sets permissions for how users can interact with the portlet on the page. For more information about the permissions and</p>

Action	Description
	how to set them, see <a href="#">"Managing Permissions for an Individual Resource"</a> on page 146 and <a href="#">"Using Security Realms"</a> on page 148.

## Workspace Actions You Can Perform from the Workspace Management Page

Use the [Navigate > Applications > Administration > System-Wide > Workspace Management](#) page to perform actions against workspaces. By default, only My webMethods administrators have access to the Workspace Management page. My webMethods administrators can grant other users access to the Workspace Management page; see ["Allowing Users to Access the Workspace Management Page"](#) on page 355.

The following table lists the actions you can take from the [Navigate > Applications > Administration > System-Wide > Workspace Management](#) page.

Action	For more information, see...
Search for workspaces	<a href="#">"Performing a Keyword Search for Workspaces"</a> on page 366 and <a href="#">"Performing an Advanced Search for Workspaces"</a> on page 366
Open a workspace in a new My webMethods tab	<a href="#">"Opening a Workspace"</a> on page 368
Add workspaces to your My webMethods navigation	<a href="#">"Adding a Workspace to Your Navigation"</a> on page 368
Delete workspaces	<a href="#">"Deleting a Workspace"</a> on page 369
Rename workspaces	<a href="#">"Renaming a Workspace"</a> on page 369
Share workspaces with other users, groups, and/or roles	<a href="#">"Sharing a Workspace"</a> on page 370
Stop sharing workspaces with other users, groups, and/or roles	<a href="#">"Unsharing Workspaces"</a> on page 370
Set the general properties for a workspace	<a href="#">"Setting the Properties of a Workspace"</a> on page 371

Action	For more information, see...
Export workspaces to a file	<a href="#">"Exporting Workspaces" on page 371</a>
Import workspaces from a file	<a href="#">"Importing Workspaces" on page 372</a>

## Performing a Keyword Search for Workspaces

Use this search to find workspaces by specifying text found in the names, description, or keywords of the workspaces. If you want to specify detailed search criteria, see ["Performing an Advanced Search for Workspaces" on page 366](#).

You can find workspaces for which you are the owner or shared workspaces for which you have at least View Only permissions. My webMethods administrators can search for workspaces owned by any users.

**Note:** For more information about sharing workspaces, see ["Sharing a Workspace" on page 370](#). For more information about workspace permissions, see *Working with My webMethods*.

### To perform a keyword search for workspaces

1. In My webMethods: **Navigate > Applications > Administration > System-Wide > Workspace Management**.
2. Click the **Keyword** search tab if it is not already displayed.

**Tip:** For instructions for how to use the **Advanced** tab, see ["Performing an Advanced Search for Workspaces" on page 366](#). For instructions for how to use the **Saved** and **Options** tabs, see *Working with My webMethods*.

3. In the text box, type one or more strings that are contained in the names of the workspaces you want to find.  
For more information about how to specify keywords and using special characters, see *Working with My webMethods*.

4. Click **Search**.

My webMethods Server displays the search results in the Results panel (below the Search panel).

## Performing an Advanced Search for Workspaces

Use an advanced search to specify detailed criteria to search for workspaces.

You can find workspaces for which you are the owner or shared workspaces for which you have at least View Only permissions. My webMethods administrators can search for workspaces owned by any users.

**Note:** For more information about sharing workspaces, see ["Sharing a Workspace" on page 370](#). For more information about workspace permissions, see *Working with My webMethods*.

### To perform an advanced search for workspaces

1. In My webMethods: **Navigate > Applications > Administration > System-Wide > Workspace Management**.
2. Click the **Advanced** search tab if it is not already displayed.

**Tip:** For instructions for how to use the **Keyword** tab, see ["Performing a Keyword Search for Workspaces" on page 366](#). For instructions for how to use the **Saved** and **Options** tabs, see *Working with My webMethods*.

3. In the **Keywords** field, optionally type text found in the names, description, or keywords of the workspaces you want to find.
4. To specify detailed criteria, specify each criterion you want to use:
  - a. From the list, select a criterion you want to use:

<u>If you select...</u>	<u>Do this...</u>
<b>Name</b>	In the text box, type a string contained in the names of the workspaces you want to find.
<b>Description</b>	In the text box, type a string contained in the descriptions of the workspaces you want to find.
<b>Keyword</b>	In the text box, type a string contained in the keywords of the workspaces you want to find.
<b>Alias</b>	In the text box, type a string contained in the aliases assigned to the workspaces that you want to use to find.
<b>Type</b>	Select the type of workspaces you want to find from the list.
<b>Owner</b>	<ol style="list-style-type: none"> <li>a. Click <b>Browse</b>.</li> <li>b. Use the Select Users window to search for and select the users whose workspaces you want to find. For</li> </ol>

- | If you select...     | Do this...   |
|----------------------|--|
|                      | <p>instructions for how to search for users, see <i>Working with My webMethods</i>.</p> <p>c. Click <b>Apply</b>.</p>                                      |
| <b>Created Date</b>  | <p>In the <b>Date Range</b> list, select the date range you want to use to search for workspaces that were created within the date range you specify.</p>  |
| <b>Modified Date</b> | <p>In the <b>Date Range</b> list, select the date range you want to use to search for workspaces that were modified within the date range you specify.</p> |
- b. To add another criterion, select **+ Add** and repeat this step.
5. In the **Search Condition** list, select:
- **AND** if you want My webMethods Server to search for workspaces that meet *all* the criteria you specify.
  - **OR** if you want My webMethods Server to search for workspaces that meet *any* the criteria you specify.
6. Click **Search**.

## Opening a Workspace

To view a workspace, you can open it in a new tab.

### To open a workspace

1. Search for the workspaces that you want to open. For instructions, see "[Performing a Keyword Search for Workspaces](#)" on page 366.
2. In the search results in the row for a workspace you want to open, click  and select **Open In New Tab**.

## Adding a Workspace to Your Navigation

You can add workspaces to the **Workspaces** section of your My webMethods navigation. After adding a workspace, you can open it by simply clicking on its name in the navigation.

When you add a workspace, you select the folder where you want the workspace to appear. By default, the **Workspaces** section of the navigation has two folders, **Recently Added** and **My Workspaces**. You can add additional folders. For instructions for how to add additional workspace folders and also how to remove workspaces from the navigation, see *Working with My webMethods*.

### To add workspaces to your navigation

1. Search for the workspaces with which you want to work. For instructions, see ["Performing a Keyword Search for Workspaces" on page 366](#) or ["Performing an Advanced Search for Workspaces" on page 366](#).
2. You can add workspaces to your navigation by performing either of the following:
  - In the search results, select the check box beside each workspace that you want to add to your navigation, and click **Add to Navigation**.
  - In the row for a workspace you want to add to your navigation, click  and select **Add to Navigation**.
3. In the Add to Navigation window, select the folder to which you want to add the workspace.
4. Click **Apply**.

## Deleting a Workspace

If you no longer need a workspace, you can delete it. If you want to save a backup of the workspace before deleting it, you can export it to a file first. For instructions, see ["Exporting Workspaces" on page 371](#).

---

### To delete workspaces

1. Search for the workspaces that you want to delete. For instructions, see ["Performing a Keyword Search for Workspaces" on page 366](#) or ["Performing an Advanced Search for Workspaces" on page 366](#).
2. If you want to notify users that share the workspace about the deletion, select the **Notify collaborators when a workspace is deleted** check box.
3. You can delete workspaces by performing either of the following:
  - In the search results, select the check box beside each workspace that you want to delete, and click **Delete**.
  - In the row for a workspace you want to delete, click  and select **Delete Workspace**.

## Renaming a Workspace

Use the following procedure to rename a workspace.

---

### To rename a workspace

1. Search for the workspaces that you want to rename. For instructions, see ["Performing a Keyword Search for Workspaces" on page 366](#) or ["Performing an Advanced Search for Workspaces" on page 366](#).

2. In the search results in the row for a workspace you want to rename, click  and select **Rename Workspace**.
3. In the Rename Workspace window, type a new name in the **New Name** field.
4. Click **Apply**.

## Sharing a Workspace

You can share workspaces with other users, groups, or roles. For details about sharing workspaces, including permissions you can assign when sharing a workspace, see *Working with My webMethods*.

---

### To share a workspace

1. Search for the workspaces that you want to share. For instructions, see ["Performing a Keyword Search for Workspaces" on page 366](#) or ["Performing an Advanced Search for Workspaces" on page 366](#).
2. In the search results in the row for a workspace you want to share, click  and select **Share Workspace**.
3. In the Workspace Sharing window click **Add**.
4. Use the Select Principal(s) window to search for and select the users, groups, and roles with whom you want to share the workspace. When you are done, click **Apply** to close the Select Principal(s) window. For more information about using the Select Principal(s) window to search for users, groups, and/or roles, see *Working with My webMethods*.

For each selected user, group, and/or role, My webMethods adds a row to the Workspace Sharing window.

5. For each user, group, and/or role that you selected, select the permissions you want to assign that user, group, or role from the list in the **Permissions** column. For more information about the permissions you can assign, see *Working with My webMethods*.
6. If you want to notify the users affected by this change, select the **Notify collaborators when the workspace is shared or unshared** check box.
7. Click **Apply**.

## Unsharing Workspaces

Use the following procedure when you no longer want to share a workspace with a user, group, or role.

---

### To unshare a workspace

1. Search for the workspaces that you no longer want to share. For instructions, see ["Performing a Keyword Search for Workspaces" on page 366](#) or ["Performing an Advanced Search for Workspaces" on page 366](#).

2. In the search results in the row for a workspace you want to unshare, click  and select **Share Workspace**.
3. In the Workspace Sharing window, select the check box for the users, groups, and/or roles with which you no longer want to share access to the workspace.
4. If you want to notify the users affected by this change, select the **Notify collaborators when the workspace is shared or unshared** check box.
5. Click **Delete**.
6. Click **Apply**.

## Setting the Properties of a Workspace

Use the following procedure to view and/or set the general properties for a workspace.

---

### To set workspace properties

1. Search for the workspaces with which you want to work. For instructions, see ["Performing a Keyword Search for Workspaces" on page 366](#) or ["Performing an Advanced Search for Workspaces" on page 366](#).
2. In the search results in the row for the workspace for which you want to set properties, click  and select **Properties**.
3. In the Workspace Properties window, update the general properties.  
For a description of the general properties, see *Working with My webMethods*.
4. Click **Apply**.

## Exporting Workspaces

You can export workspaces to save a copy of a workspace in a file. You can then import the workspace into the same or another My webMethods Server.

You can use the export/import functionality if you want to migrate a workspace from one My webMethods Server to another. You might also want to export a workspace to save a copy before deleting a workspace; if you decide you need it again in the future, you can then import it from the file.

---

### To export workspaces

1. Search for the workspaces you want to export. For instructions, see ["Performing a Keyword Search for Workspaces" on page 366](#) or ["Performing an Advanced Search for Workspaces" on page 366](#).
2. In the search results, select the check box beside each workspace that you want to export, and click **Export**.
3. In the Export Workspaces window, specify a file name for the file that will contain the exported workspaces.

4. If you also want to include information about how the workspaces are shared so that information is set when you later import the workspaces, select the **Include Shared Settings** check box.
5. Click **Apply**.
6. In the File Download window, click **Save**.
7. In the Save As window, select the location where you want to save the exported workspaces file and click **Save**.

## Importing Workspaces

If you have previously exported workspaces to a file, you can import them into My webMethods Server.

My webMethods Server imports the workspace into the personal folder of the user that performed the import. It is possible for multiple users to import the same workspace. Each time a workspace is imported, My webMethods Server creates a copy of the workspace, with all its content, into each user's personal folder. A user's personal folder is located within Folders > Users; you can view it using the system administrator user interface.

---

### To import workspaces

1. In My webMethods: **Navigate > Applications > Administration > System-Wide > Workspace Management**.
2. In the Result panel, click **Import**.
3. In the Import Workspaces window, click **Browse**.
4. In the Choose File to Upload window, navigate to and select the .cdp file that contains the workspaces you want to import and click **Open**.
5. In the Import Workspaces window, click **Apply**.

---

## About the My webMethods Tools Navigation

To add content to a workspace, you add tools to the workspace. The **Tools** tab in the My webMethods navigation lists the tools that you can add. You add a tool by dragging it onto the workspace canvas. For more information about adding content to a workspace, see *Working with My webMethods*.

When you add a tool to a workspace, My webMethods adds a new portlet to the workspace that is specific to the added tool. Out-of-the-box, several tools are provided for end users. For information, see "[Workspace Tools Available by Default](#)" on page 373.

System administrators can replace the existing tools taxonomy with a custom taxonomy, which can include additional tools or have some of the standard tools removed. For

more information, see ["Customizing the My webMethods Workspace Tools" on page 373](#).

## Workspace Tools Available by Default

My webMethods provides tools for the end user to incorporate into a workspace. The tools are available in the **Workspace Tools** section of the **Tools** tab in the My webMethods navigation pane.

The following tools are available by default. For a description of each of these tools and their behavior, see the PDF publication *Working with My webMethods*:

Tool	Use to...
<b>Attachments</b>	Enables the user to attach files to a workspace.
<b>Bookmarks</b>	Enables the user to add links to other workspaces and to web sites.
<b>Directory Browser</b>	Enables the user to find identification information about other My webMethods users.
<b>HTML Text</b>	Enables the user to add formatted text to a workspace.
<b>Image</b>	Enables the user to add an image to a workspace.
<b>Note</b>	Enables the user to add simple, unformatted text to a workspace.
<b>User Calendar</b>	Enables the user to add a user's calendar to a workspace.
<b>Note:</b>	It is possible to log in as sysadmin and customize the Workspace Tools list. Also, if you are working with an upgraded installation of My webMethods Server, some tools may be present that have been deprecated or removed with newer versions.

## Customizing the My webMethods Workspace Tools

System administrators can update the My webMethods tools navigation to modify or completely replace the standard My webMethods tools with a custom taxonomy.

In your customization, you can use existing tools, including the default tools that are listed on the **Tools** tab of the system administrator user interface when in editing a page. Many of the available system administrator page editing tools are described in the *My*

*webMethods Server Portlet Reference*. You can also add custom tools that you create and deploy to My webMethods Server.

**Note:** Tools are portlets. You can create portlets using Software AG Designer.

### To customize the My webMethods Workspace Tools navigation

1. As system administrator, create a new folder that will be the tools root folder and will hold your custom taxonomy. Add the new folder to this location: Folders > System > Palette Registry.
2. If you want sections in your tools taxonomy, create folders in your custom tools root folder. The name you assign each folder will become a section name on the **Tools** tab of the My webMethods navigation.
3. To add existing tools to your taxonomy, use the Administration Dashboard > Content > Publish portlet to publish instances of folders, forms, links, or portlets into the custom tools taxonomy.

For example, you can publish existing tools that are available to My webMethods Server system administrators when in page editing mode.

4. If you want to include custom tools, create them and save them in a folder within your custom tools root folder.

A tool can be any portlet. You can create custom tools using Software AG Designer and then deploy them to My webMethods Server.

5. Configure the properties of the Leftnav page that My webMethods Server uses for the My webMethods navigation to point it to your new, custom tools root folder.
  - a. Navigate to this location: Folders > System > Shell Sections > Noodle Shell Leftnav > Leftnav.
  - b. In the row for the Leftnav page, select **Tools > Properties**.
  - c. In the **Tools Root** field, type the name you assigned your custom tools root folder.

**Note:** The name you specify in the **Tools Root** field must be a folder or page that resides in Folder > System > Palette Registry.

- d. Click **Apply**.

# 22 Customizing Skins

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## What are Skins?

---

The look and feel of a page is encapsulated in a skin. You can associate a skin with a particular user or group, in which case they view the contents of a page using that skin. You can associate a skin with a particular folder hierarchy. All users who view pages within that hierarchy view them using the skin.

When you customize a skin, you can modify its look, such as to:

- Brand the page with your own corporate logo
- Change the color scheme to match your corporate colors
- Adopt a look and feel similar to the one used within your company

As a system administrator, you can perform simple customization of skin properties (images, colors, and fonts) using the Skin Administration page of My webMethods Server. To perform more sophisticated customization, you need to directly edit the components that define the skin.

My webMethods Server offers a variety of ways to configure personalization rules that dictate what skin is displayed for a given user, group, or resource. See ["Managing Skin Rules" on page 305](#).

## How Skins Use Inheritance

A skin can inherit properties from a parent skin. When you create a customized skin, first make a copy of an existing skin. Through inheritance, you need only identify the ways the custom skin is different from its parent.

Inheritance for skins follows these rules:

- A skin can have only one parent, but the parent skin can also have a parent. In this way, a skin could have a list of ancestors from which it inherits properties.
- A parent skin can have any number of children that inherit properties from it.
- Each skin has a `skin.properties.xml` file that lists the properties the skin does not inherit from its parent. In turn, if this skin has a child skin, the child inherits these modified properties.
- The `skin.properties.xml` file also can contain a "parent" property that identifies the parent of the skin.
- In addition to the properties in the `skin.properties.xml` file, a child also inherits the stylesheets and HTML fragments of the parent skin.
- If a skin does not have a parent identified in the `skin.properties.xml` file, it inherits the properties of the My webMethods Server default skin, which is identified by the `skin.default` alias.

## Choosing How Much Customization to Use

When you customize skins, the preferred method is to create a new skin inherited from an existing skin and then modify the new skin. Do not modify the skins that are installed with My webMethods Server. When you create a new skin and then export it for editing outside the server, you can then deploy it to every server where it is to be used.

You can use one or more of the following techniques to do customization from the simple to the complex:

- **Modify fonts, colors, and images**

The Skin Administration page enables you to create and delete custom skins, and modify the use of images, colors, and fonts. This is the only method of customization you can use without exporting a skin and editing files that make up the skin package. See ["Using the Skin Administration Page" on page 381](#).

Even if you plan to make more extensive modifications, you can create a custom skin, make changes to fonts, colors, or images in the Skin Administration page, and then export the skin for further editing.

- **Use an extended.css file (["Cascading Style Sheet Definitions" on page 397](#)) to modify skin properties you cannot manage with the Skin Administration page.**

This customization is suitable if you want to make small modifications to existing properties in a skin package. To use an extended.css file, you need to define it in the skin.properties file of the skin.

- **Use a skin.properties.xml file (["The Skin Properties File" on page 391](#)) if you want to modify values of existing properties but are not adding new properties to the custom skin.**

For example, you can change the value for a font or color already defined in a parent skin. In this case, the skin.properties.xml file overrides properties in the parent skin, but continues to use the CSS of the parent.

- **Use an extended.csi file (dynamic CSS file) (["Cascading Style Sheet Definitions" on page 397](#)) to add new CSS classes to the custom skin. To use an extended.csi file, you need to define it in the skin.properties file of the skin.**

Using an extended.csi file to create new classes is the simplest way to add new styles to a custom skin.

For definitions of CSS and dynamic CSS files, see ["Cascading Style Sheets" on page 396](#)

To create a new skin from an existing skin, see ["Creating and Modifying a New Skin" on page 378](#).

To export a skin from to your computer for editing, see ["Exporting a Skin to Your Computer" on page 379](#).

## How Do I Know What to Modify?

If modifications to a custom skin package are to be more extensive than you can achieve using the Skin Administration page (fonts, colors, and images), you need to know what properties or CSS classes you want to modify from among the hundreds of properties that exist in a skin package. One way to do this is to use a browser developer tool such as the Firebug Add-on for Mozilla Firefox.

Open My webMethods Server in the browser and navigate to a page that uses the skin package you want to examine. Using the developer tool, you can explore the user interface and determine the CSS classes used to display it. With this knowledge, you override values in the parent skin through the use of `extended.css` or `extended.csi` files in the custom skin.

---

## Creating and Modifying a New Skin

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As a system administrator, you can create a skin with the Skin Administration page. After you have created the new skin, you can customize it using the Skin Administration page or by manually editing the skin package.

---

### To create a new skin

1. As system administrator: **Administration Dashboard > User Interface > Skin Administration > Create New Skin.**

2. In the **System Name** field, type a short name that contains only letters, numbers, and the underscore character.

This name is used internally by the server.

3. In the **Display Name** field, type the skin title that you want users to see.

This name has no character restrictions.

4. From the **Parent Skin** list, choose the skin from which the new skin will inherit any unspecified properties.

The system default skin is selected by default.

5. Click **Create**.

A new skin initially inherits all of its properties (colors, fonts, and images) from its parent. You can modify the new skin, changing just a single property, such as adding a new header logo, or you can modify the skin to create a radical new look and feel with completely different colors, fonts, and images.

Having created a new skin, you can begin to customize it by doing one or more of the following:

- Modify the use of images, colors, and fonts, described in "[Using the Skin Administration Page](#)" on page 381.

**Note:** You should make any planned changes in the Skin Administration page *before* using either of the manual editing techniques.

- Export the skin for manual editing, described in ["Exporting a Skin to Your Computer" on page 379](#).
- Import the skin into Designer for manual editing, described in ["Using Designer to Modify Skin Packages" on page 380](#).

### Example:

Assume you want to create a new skin from the parent skin Pearls.

1. As system administrator: **Administration Dashboard > User Interface > Skin Administration > Create New Skin**.
2. In the **System Name** field, type a name such as `wm_skin_carbon`.
3. In the **Display Name** field, type the skin title, `Carbon Sailing Skin`.
4. From the **Parent Skin** list, choose the Pearls skin.  
This is the skin from which the new skin will inherit any unspecified properties.
5. Click **Create**.

## Exporting a Skin to Your Computer

If you intend to modify a skin package using the Skin Administration page (["Using the Skin Administration Page" on page 381](#)), you should do so before performing manual editing.

As a system administrator, you can use the Skin Administration page to export a skin package to your computer for manual editing. The skin package is a zip file with a `.skin` file extension.

**Tip:** Another way to perform manual editing on a skin package is to import the skin into Designer. See ["Using Designer to Modify Skin Packages" on page 380](#).

---

### To export a skin

1. As system administrator: **Administration Dashboard > User Interface > Skin Administration > Create New Skin**.
2. Click the Tools icon  for the skin to be exported and then click **Export**.
3. Choose the **Save File** option and click **OK**.  
My webMethods Server downloads the file to the default download destination for your browser.
4. Unzip the skin package so you can perform manual editing.

## Using Designer to Modify Skin Packages

If you intend to modify a skin package using the Skin Administration page ("[Using the Skin Administration Page](#)" on page 381), you should do so before exporting the file and performing manual editing.

One way to modify files in a custom skin package is to import the skin into Software AG Designer and make changes in the UI Development perspective. You can export the skin package directly from My webMethods Server, edit CSS, dynamic CSS, or XML files, and then deploy the skin back to the server without unzipping the skin package.

**Note:** This topic is not intended to provide details of working in Software AG Designer. For specific information on working in the MWS Admin and Servers views of Designer, see the Composite Application Framework online help.

---

### To modify custom skin packages in Designer

1. In the MWS Admin view of the UI Development perspective, connect to the instance of My webMethods Server (create a data provider) that contains the custom skin package.

The MWS Admin view contains a tree view of folders and other My webMethods Server assets.

2. Expand the Skins folder, right-click the custom skin package and click **Import/Export > Extract Asset into Project**.
3. In the Extract Asset into Project wizard, click **New**.
4. In the **Project Name** field, type the name of the skin package exactly as it appears in the MWS Admin view and click **Finish** twice.

Designer creates an MWS Skin Project and extracts the assets of the skin package into it.

5. Use either the Navigator view or Project Explorer view to locate CSS, dynamic CSS, or XML files in the skin project, and open the files in a text editor.
6. To deploy the skin package to an instance of My webMethods Server, use the Servers view to connect to the server and then publish the skin package.

To test the skin package, you need to create a skin rule that will trigger the use of the custom skin. See "[Managing Skin Rules](#)" on page 305.

**Note:** Do not test the skin package using the Preview Server in Designer. That server instance does not have the skin rules needed to properly display the skin.

Using this technique, you can make incremental changes and publish the results to the server periodically for confirmation. Associate the custom skin with a test page so you can perform design work without affecting other users.

## Using the Skin Administration Page

The Skin Administration page of My webMethods Server enables you to create and delete custom skins, and modify the use of images, colors, and fonts. To use the Skin Administration page, you must either have the system administrator grant you permission to access the page, or you must log in as the system administrator.

If you want to do more extensive customization than is available through the Skin Administration page, you may still find it convenient to create the custom skin on this page before making modifications.

You can perform the following functions on the Skin Administration page:

These functions...	Are described here...
Create a new skin.	<a href="#">"Creating and Modifying a New Skin" on page 378</a>
Delete an existing skin.	<a href="#">"Deleting a Skin" on page 382</a>
Replace images in a skin with images from your local drive, from an existing skin, or from a website.	<a href="#">"Replacing Images in a Skin" on page 382</a>
Replace colors in a skin using a color picker.	<a href="#">"Replacing Colors Using a Color Picker" on page 383</a>
Replace colors in a skin from an existing skin or from a website.	<a href="#">"Replacing Colors from a Skin or Website" on page 385</a>
Replace font values in a skin using a picker.	<a href="#">"Replacing Fonts Using a Picker" on page 386</a>
Replace font values in a skin from a website.	<a href="#">"Replacing Fonts from a Web Site" on page 388</a>
Preview changes made to a skin using pages not in the My Folders, Home Page, or Public Folders folders.	<a href="#">"Previewing a Page Elsewhere on the Server" on page 390</a>

My webMethods Server applies any changes you make to images, colors, or fonts to the `skin.properties.xml` file that is part of the skin package.

## Deleting a Skin

As a system administrator, you can delete a skin with the Skin Administration page.

### To delete a skin

1. As system administrator: **Administration Dashboard > User Interface > Skin Administration.**
2. To delete a skin, click the Tools icon  and then click **Delete**.

## Replacing Images in a Skin

The skin of a page contains images, such as logos, that help shape the appearance and structure of the page. Using the Skin Administration page, you can replace images in a skin with images from your local drive, images from an existing skin, or images from a website.

### To replace an image in a skin

1. As system administrator: **Administration Dashboard > User Interface > Skin Administration.**
2. To modify a skin, click the Tools icon  and then click **Edit**.
3. Click **Images**.
4. Click the skin property for the image you want to replace.  
The property is highlighted with a red box.
5. Depending on the source of the image, do one of the following:

<b>If the image source is...</b>	<b>Do this...</b>
On the local drive	In the <b>Picker</b> panel, click <b>Choose File</b> . Browse to the new image, click <b>Open</b> , and then click <b>Upload</b> . To replace the image, click  .
Part of an existing skin	In the <b>Select palette</b> list, select the skin from which you want to copy the image. Select the new image and click  .
On a website	In the <b>Select palette</b> list, select <b>URL</b> , type the website URL and click <b>OK</b> . Select the new image and click  .

6. Click **Preview**.

The preview demonstrates how your changes have affected the skin.

**Tip:** To preview a page other than My Folders, My Home Page, or Public Folders, see ["Previewing a Page Elsewhere on the Server"](#) on page 390.

7. Close the Preview window and click **Save**.

**Example:**

Assume you have the Carbon Sailing skin installed and want to change from the webMethods logo to the Carbon Sailing logo, carbon-logo.png, which exists on your local file system.

1. As system administrator: **Administration Dashboard > User Interface > Skin Administration**.
2. Click the Tools icon  for the Carbon Sailing Skin and click **Edit**.
3. Click **Images**.
4. Click the **logo.gif** skin property.

The property is highlighted with a red box.

5. In the **Picker** panel, click **Choose File**, browse to the carbon-logo.png image, click **Open**, and then click **Upload**.

The new image appears in the **Picker** panel.

6. To replace the image, click .
7. In a similar way, select the **banner-bg.gif** property and replace the image with the carbon-bg.jpg file.

The resulting combination results in a complete banner.

8. In the **Preview** panel, choose **My Home Page** from the list and click **Preview**.
9. Close the Preview window and click **Save**.

## Replacing Colors Using a Color Picker

There are a number of different color settings in a skin that affect different parts of a page. To change settings, you select colors in the skin editor, apply the colors to skin properties, and preview your changes.

---

### To replace the color of a skin property using a color picker

1. As system administrator: **Administration Dashboard > User Interface > Skin Administration**.
2. To modify a skin, click the Tools icon  and then click **Edit**.
3. Click **Colors**.
4. Click the skin property for which you want to replace the color.

The skin property is highlighted with a red box.

5. In the **Picker** panel, click the color to be used as a replacement.

The selected color appears in the horizontal bar at the bottom of the **Picker** panel, and the hexadecimal value appears in the **#** field at the top.

**Tip:** If you know the hexadecimal value of the replacement color, you can type it directly in the **#** field.

- To save a color to the **Scratchpad** panel, click the down arrow directly beneath the **Picker** panel.

**Tip:** If you want lighter and darker shades of a particular color for use in foregrounds and backgrounds, save the color in the **Scratchpad** panel and, in the vertical bar on the right edge of the **Picker** panel, click above or below the original color. Save multiple colors to the **Scratchpad**.

- To set the color for a skin property, click  from either the **Picker** panel or the **Scratchpad** panel.
- At the bottom of the page, click **Preview**.

The preview demonstrates how your changes have affected the skin.

**Tip:** If the page is not in one of the folders labeled My Folders, My Home Page, or Public Folders, see ["Previewing a Page Elsewhere on the Server" on page 390](#).

- Close the Preview window.
- Click **Save**.

#### Example:

Assume you have created the Carbon Sailing skin as described in ["Creating and Modifying a New Skin" on page 378](#) and want to change the colors used for buttons.

- As system administrator: **Administration Dashboard > User Interface > Skin Administration**.
- To modify a skin, click the Tools icon  and then click **Edit**.
- Click **Colors**.
- Click the **button - button text** skin property.
- In the **Color** field of the **Picker** panel, replace the default color (BUTTON if the parent skin is Pearls) by typing FFFFFFFF.
- Click  from the **Picker** panel.

The check box in the **Inherited** column is cleared, indicating this skin property is no longer inherited from the parent skin.

- Click the **button-bg - button background** skin property.
- In the **Picker** panel, replace the default color by typing 9EB6C7.
- Click  from the **Picker** panel.

10. In a similar way, replace the remaining button color properties with these values:

<u>Property</u>	<u>Value</u>
button-border - button border	668899
button-border-light - button border	BBDDEE
button-hover - button text	FFFFFF
button-hover-bg - button background	4C7499
button-hover-border - button border	395874
button-hover-border-light - button border	ABC9D8
button-disabled - disabled button text	C5C7C7
button-disabled-bg - disabled button background	FFFFFF
button-disabled-border - disabled button border	C5C7C7

11. At the bottom of the page, click **Preview**.

Default button: 

New color: 

New hover color: 

Final button: 

The final button includes font changes made in ["Replacing Fonts Using a Picker" on page 386](#).

12. Click **Save**.

## Replacing Colors from a Skin or Website

You can replace the color of a skin property using color values from an existing skin or from a website.

---

### To replace the color of a skin property using a color from a skin or a website

1. As system administrator: **Administration Dashboard > User Interface > Skin Administration.**
2. To modify a skin, click the Tools icon  and then click **Edit**.
3. Click **Colors**.
4. Click the skin property for which you want to replace the color.  
The skin property is highlighted with a red box.
5. Depending on the source of the color, do one of the following:

If the color source is...	Do this...
Part of an existing skin	In the <b>Select palette</b> list, select the skin from which you want to copy the color. Select the new image and click  .
On a website	In the <b>Select palette</b> list, select <b>URL</b> , type the website URL and click <b>OK</b> . Select the new color and click  .

6. At the bottom of the page, under the **Preview** heading, click **Preview**.  
The preview demonstrates how your changes have affected the skin.

**Tip:** If the page is not in one of the folders labeled My Folders, My Home Page, or Public Folders, see "[Previewing a Page Elsewhere on the Server](#)" on page 390.

7. Close the Preview window.
8. Click **Save**.

## Replacing Fonts Using a Picker

There are a number of different font settings in a skin that affect different parts of a page. To change settings, you select font settings in the skin editor, apply the settings to skin properties, and preview your changes.

**Note:** Font properties used by individual skins can vary. The properties described in the following sample procedure may not be available in all skins.

---

### To replace the font settings using a picker

1. As system administrator: **Administration Dashboard > User Interface > Skin Administration.**
2. To modify a skin, click the Tools icon  and then click **Edit**.
3. Click **Fonts**.

- Click the skin property for which you want to replace the font settings.

The skin property is highlighted with a red box.

- In the **Picker** panel, click the color to be used as a replacement.

You can make changes to a variety of font values:

<b>Font settings</b>	<b>Selections</b>
Font-family	Font family. You can select first through tenth choice, enabling the browser to use fonts available on the computer.
Font-size	Select from a list of relative size values or specify a numeric value.
Font-style	Select bold, italic, or underline.
Capitalization	Select from a list of capitalization styles.
Text-spacing	Specify values to be used for letter spacing, word spacing, and line height.

- To set the font values for a skin property, click  from either the **Picker** panel or the **Scratchpad** panel.
- At the bottom of the page, click **Preview**.

The preview demonstrates how your changes have affected the skin.

**Tip:** If the page is not in one of the folders labeled My Folders, My Home Page, or Public Folders, see ["Previewing a Page Elsewhere on the Server" on page 390](#).

- Close the Preview window.
- Click **Save**.

### Example:

Assume you have created the Carbon Sailing skin as described in ["Creating and Modifying a New Skin" on page 378](#) and want to change the font values used for buttons.

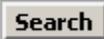
- As system administrator: **Administration Dashboard > User Interface > Skin Administration**.
- To modify a skin, click the Tools icon  and then click **Edit**.
- Click **Fonts**.
- Click the **button - button text** skin property.

5. Under **Font-family**, in the **Primary** list, select the **Tahoma** font.
6. In the **Primary** list, select the **sans-serif**.
7. Under **Font-style**, select **Bold**.
8. Click  from the **Picker** panel.

The check box in the **Inherited** column is cleared, indicating this skin property is no longer inherited from the parent skin.

9. At the bottom of the page, click **Preview**.

Default button: 

New font value: 

Final button: 

The final button includes color changes made in "[Replacing Colors Using a Color Picker](#)" on page 383.

10. Click **Save**.

## Replacing Fonts from a Web Site

In controlling the font families used by a skin, you have the choice of designing the style yourself or selecting a set of font families used by another Web site. The following procedure presents a scenario describing how you might go about capturing and using families from another site.

**Note:** Font properties used by individual skins can vary. The properties described in the following sample procedure may not be available in all skins.

### To replace the font families used by a skin with the font families used by another Web site

1. As system administrator: **Administration Dashboard > User Interface > Skin Administration**.
2. To modify a skin, click the Tools icon  and then click **Edit**.
3. Click **Fonts**.
4. On the **Select palette** list, select **URL**, type the Web site URL and click **OK**.

The Palette displays a list of font families derived from the Web site.

5. In the Palette on the lower-right side of the page, find a line that seems to represent the normal body text of the Web site, and select it.

This action should result in several font families being listed in the **Picker** panel. If not, try some other lines in the palette that look like normal body text.

6. Click  directly above the Palette.  
This action saves the font information to the **Scratchpad** panel for later use.
7. In the line you just created in **Scratchpad** panel, select the text in the edit field and rename it to something meaningful, such as **my regular text**.
8. In the **Skin Properties** list on the left side of the page, select the **regular** skin property.  
The **regular** skin property is highlighted with a red box, meaning it is selected for editing.
9. To set the **regular** skin property, click  from the **Scratchpad** panel.  
This action sets the **regular** skin property with the value selected in the **Scratchpad** panel.
10. In the **Skin Properties** list on the left side of the page, select the **bold** skin property.  
The **bold** skin property is highlighted with a red box.
11. In the **Scratchpad** panel, select **my regular text**.  
Because the **my regular text** scratchpad item was already the active item in the **Scratchpad** panel (with a dark red border around it), selecting it again makes it the active item for the page (with a bright red border around it), and loads the **my regular text** font information back into the **Picker** panel.
12. In the **Font-style** area of the **Picker** panel, select the **Bold** check box.
13. Click  from the **Picker** panel.  
This action sets the **bold** skin property with the value in the **Picker** panel.
14. In the **Skin Properties** list, click the **small** skin property.
15. In the **Scratchpad** panel, select **my regular text**.
16. In the **Font-size** area of the **Picker** panel, do one of the following:

<b>If this option is selected...</b>	<b>Do this...</b>
<b>Relative size</b>	Change the value in the list to be a size smaller than the existing size
<b>Numeric size</b>	Edit the number in the field to be a value two or three smaller than the existing size

17. Click the arrow directly to the left of the **Picker** panel.
18. In the **Skin Properties** list, select the **medium** skin property.
19. In the **Scratchpad** panel, select **my regular text**.

20. In the **Preview** list at the bottom of the page, choose **Public folders** and then click **Preview**.

The preview demonstrates how your changes have affected the skin.

**Tip:** If the page is not in one of the folders labeled My Folders, My Home Page, or Public Folders, see ["Previewing a Page Elsewhere on the Server" on page 390](#).

21. Close the preview window.
22. Click **Save**.

## Previewing a Page Elsewhere on the Server

You can preview a page other than My Folders, My Home Page, or Public Folders in the skin editor.

---

### To preview a page elsewhere on the server

1. Make changes to skin properties within Skin Administration.
2. In the **Preview** list at the bottom of the page, choose **URL**.
3. Open a new browser window, navigate to the server, navigate to the page you want to preview.
4. In the **Addressbar** of the browser, select the URL and type CTRL+C to copy it.
5. Return to the Script Prompt dialog from the first browser and paste in the URL by typing CTRL+V.
6. Click **OK**.
7. Click **Preview**.

## Make-up of a Skin Package

---

There are two ways to make a skin package available for editing.

- ["Exporting a Skin to Your Computer" on page 379](#)
- ["Using Designer to Modify Skin Packages" on page 380](#)

With a skin package exposed for editing, you can see the files and directories that make up the package:

- The skin.properties.xml file describes the components implemented by the skin. You can modify fonts, colors, and images using the Skin Administration page, but for other skin components, you need to edit the skin properties file directly. For more information, see ["The Skin Properties File" on page 391](#).

If you have created a new skin in My webMethods Server but not yet made any changes, the only property in the file may be the parent skin from which all properties are inherited.

- The `skinDeploy.xml` file contains deployment information for the skin package. For more information, see ["The Skin Deployment File" on page 395](#).
- The `css` directory. Cascading Style Sheets (CSS) describe the properties that make up a skin. A generated CSS for a skin is derived from the `skin.properties.xml` file as modified by other style sheet files. For more information, see ["Cascading Style Sheets" on page 396](#).

If you have created a new skin in My webMethods Server but not yet made any changes, there may be no Cascading Style Sheets in the directory because all properties are inherited from the parent skin. If you add or modify stylesheets, you should place them in this directory.

- The `components` directory. This directory contains proprietary files you are not likely to modify as part of a skin package.
- The `images` directory. If you add or modify images used in the skin, you should place them in this directory.

## The Skin Properties File

The `skin.properties.xml` file describes the components implemented by the skin. Any changes you make to a skin using the Skin Administration page (["Using the Skin Administration Page" on page 381](#)) are reflected in the `skin.properties.xml` file for the skin. The `base.csi` file for a skin references the properties in the `skin.properties.xml` file for use when My webMethods Server generates the `base.css` file.

### *The Importance of the Skin Properties File*

The `base.csi` file for a skin references properties defined in the `skin.properties.xml` file. My webMethods Server uses the `base.csi` file to generate the `base.css` file that governs how the skin is displayed. This is a powerful mechanism that enables you to create new skins based on a common ancestor by specifying images, fonts, and colors in a new `skin.properties.xml` file without having to re-create a new stylesheet for each skin.

In the following examples, the Pearls skin is the a parent. No CSS (`.css` or `.csi`) change is required in the custom skin.

### Replacing images

You can change the banner background image in a custom skin by modifying the value of the `images/banner-bg.gif` property in the `skin.properties.xml` file for the custom skin.

File	Contents
<b>parent skin.properties.xml</b>	<pre>&lt;property&gt;   &lt;name&gt;images/banner-bg.gif&lt;/name&gt;   &lt;value&gt;images/dot.gif&lt;/value&gt;   &lt;description&gt;banner background&lt;/description&gt; &lt;/property&gt;</pre>
<b>parent base.csi</b>	<pre>background-image: url(@skin images/banner-bg.gif);</pre>
<b>child skin.properties.xml</b>	<pre>&lt;property&gt;   &lt;name&gt;images/banner-bg.gif&lt;/name&gt;   &lt;value&gt;images/carbon-bg.jpg&lt;/value&gt; &lt;/property&gt;</pre>

Also, see ["How do I replace one image with another?" on page 394](#).

### Globally replacing fonts

You can globally change the fonts used in a custom skin by modifying the value of the `fonts/regular` property in the `skin.properties.xml` file

for the custom skin.

File	Contents
<b>parent skin.properties.xml</b>	<pre>&lt;property&gt;   &lt;name&gt;fonts/regular&lt;/name&gt;   &lt;value&gt;font-family: tahoma, sans-serif;     font-size: 0.7em;&lt;/value&gt;   &lt;description&gt;standard text&lt;/description&gt; &lt;/property&gt;</pre>
<b>parent base.csi</b>	<pre>@skin fonts/regular;</pre>
<b>child skin.properties.xml</b>	<pre>&lt;property&gt;   &lt;name&gt;fonts/regular&lt;/name&gt;   &lt;value&gt;font-family: Georgia, 'Times New Roman',     Times, serif; font-size: 1em; font-size: 0.7em; &lt;/value&gt;   &lt;description&gt;standard text&lt;/description&gt; &lt;/property&gt;</pre>

### Globally replacing colors

You can globally change the colors used in a custom skin. In this example, the `colors/section-body-border` property controls the color of row borders. One change in the `skin.properties.xml` file for the custom skin, affects seven properties in the `base.csi` file.

File	Contents
<b>parent skin.properties.xml</b>	<pre>&lt;property&gt;   &lt;name&gt;colors/section-body-border&lt;/name&gt;   &lt;value&gt;#ccc&lt;/value&gt;   &lt;description&gt;row border&lt;/description&gt;</pre>

File	Contents
	<code>&lt;/property&gt;</code>
<b>parent base.csi</b>	<pre>.tbl {     border: @skin sizes/section-body-border;         solid @skin colors/section-body-border;;     .     . }</pre>
<b>child skin.properties.xml</b>	<pre>&lt;property&gt;   &lt;name&gt;colors/section-body-border&lt;/name&gt;   &lt;value&gt;#dfe6ec&lt;/value&gt;   &lt;description&gt;row border&lt;/description&gt; &lt;/property&gt;</pre>

Also, see ["How do I modify colors?" on page 394](#).

### ***Making Entries in a Skin Properties File***

If you edit the `skins.properties.xml` file manually, you do not need to include components inherited from one of the skin's ancestors. Rather, you need only include modifications to inherited components. A good way to see the properties that describe a skin is to export the parent skin package using the method described in ["Exporting a Skin to Your Computer" on page 379](#), unzip the skin package, and examine the `skin.properties.xml` file.

**Note:** Modifying the skin properties in the `skins.properties.xml` file requires CSS expertise.

The `skin.properties.xml` file is made up of property elements, each describing a component of the skin. The property elements have this format:

```
<property>
  <name>property_name</name>
  <value>property_value</value>
  <description>optional_description</description>
</property>
```

The following guidelines apply to the property element:

- If the value is the same as the name, you can omit the value.
- The description is optional.
- You can add comments using standard XML comment syntax:

```
<!-- This is a comment -->
```

A skin component can have multiple properties associated with it. For example, the banner that appears at the top of a My webMethods Server page has over twenty properties that determine its appearance, such as:

- Color, position, and padding of the background
- Color, font, and weight of link text, selected links, including hover characteristics
- Images and their positioning

To see the properties that describe a skin, export the pearls skin package using the method described in ["Exporting a Skin to Your Computer" on page 379](#), unzip the skin package, and examine the skin.properties.xml file. The following examples describe a few ways to modify properties.

### How do I specify a parent skin?

To make the development of a custom skin easier, you need to specify a parent skin from which the custom skin inherits its properties. A skin can have only one parent skin. In the following example, the skin.properties.xml file specifies the pearls skin package as the parent of the custom skin:

```
<!-- parent skin; all unspecified properties are inherited -->
<property>
  <name>parent</name>
  <value>skin.wm_skin_pearls</value>
  <description>parent skin</description>
</property>
```

### How do I replace one image with another?

To replace one image with another, you first need to move a copy of the new image into the images directory for the skin package. Then you need to locate the property for the image in the skins.properties.xml file.

For example, perhaps you want to rebrand the page by changing the logo image that appears in the left side of the banner. The new image has the name my\_logo.png.

```
<!-- images -->
<property>
  <name>images/logo.gif</name>
  <value>images/my_logo.png</value>
  <description>header logo</description>
</property>
```

### How do I modify colors?

The topic ["Replacing Colors Using a Color Picker" on page 383](#) shows several colors modified in the Skin Administration page. The same changes look like this in the skin.properties.xml file.

```
<property>
  <name>colors/button</name>
  <value>#FFFFFF</value>
  <description>button text</description>
</property>
<property>
  <name>colors/button-bg</name>
  <value>#9EB6C7</value>
  <description>button background</description>
</property>
<property>
  <name>colors/button-border</name>
  <value>#668899</value>
  <description>button border</description>
</property>
<property>
  <name>colors/button-border-light</name>
  <value>#BBDDEE</value>
```

```

    <description>button border</description>
</property>
<property>
  <name>colors/button-hover</name>
  <value>#FFFFFF</value>
  <description>button text</description>
</property>
<property>
  <name>colors/button-hover-bg</name>
  <value>#4C7499</value>
  <description>button background</description>
</property>
<property>
  <name>colors/button-hover-border</name>
  <value>#395874</value>
  <description>button border</description>
</property>
<property>
  <name>colors/button-hover-border-light</name>
  <value>#ABC9D8</value>
  <description>button border</description>
</property>
<property>
  <name>colors/button-disabled</name>
  <value>#C5C7C7</value>
  <description>disabled button text</description>
</property>
<property>
  <name>colors/button-disabled-bg</name>
  <value>#FFFFFF</value>
  <description>disabled button background</description>
</property>
<property>
  <name>colors/button-disabled-border</name>
  <value>#C5C7C7</value>
  <description>disabled button border</description>
</property>

```

### How do I add Cascading Style Sheets?

You can add multiple style sheets to a `skin.properties.xml` file. For more information, see ["Adding Stylesheets to a Skin Package" on page 399](#).

## The Skin Deployment File

The `skinDeploy.xml` file contains deployment information for the skin package. This deployment information is contained entirely as attributes of the root `wm_xt_skin` element.

**Note:** It is unnecessary to make any modifications to this file for a newly created custom skin package.

These are the attributes of the `wm_xt_skin` element in the `skinDeploy.xml` file

Attribute	Description
name	The name of the skin package.
alias	A comma-separated list of aliases to the skin as used by My webMethods Server.
description	The display name for the skin as it appears in the user interface.
version	The version number of the skin. When you modify and release the skin package, you should increment the minor version number.
cssPreview	A semicolon-separated list of CSS style declarations that demonstrates the style on an html element in the user interface.
serversideResourcePath	A legacy attribute. The value of this attribute should always take the form <code>/ui/skins/skin-name/</code> where <i>skin-name</i> is the skin's system name.
clientsideResourcePath	A legacy attribute. The value of this attribute should always take the form <code>/ui/skins/skin-name/</code> where <i>skin-name</i> is the skin's system name.

### Example

The Carbon Sailing skin package used as an example elsewhere in this guide has a `skinDeploy.xml` file that looks like this:

```
<wm_xt_skin name="wm_skin_carbon"
  alias="skin.wm_skin_carbon,skin.carbon"
  description="Carbon Sailing Skin"
  version="1.0"
  cssPreview="color:#fff; background-color:#6f6f60;"
  serversideResourcePath="/ui/skins/wm_skin_carbon/"
  clientsideResourcePath="/ui/skins/wm_skin_carbon/">
</wm_xt_skin>
```

## Cascading Style Sheets

**Note:** Modifying the files described in this topic requires CSS expertise.

When My webMethods Server displays a page, the skin for that page uses a Cascading Style Sheet (CSS) that describes all of the properties making up the skin. My

webMethods Server generates this base CSS at the time you deploy the skin package to the server and every time the server starts. The generated CSS file is based on properties that can be provided from a number of sources:

- Properties inherited from a hierarchy of parent skins
- A skins.properties.xml file that is part of the skin package
- One or more CSS or dynamic CSS files in the skin package

My webMethods Server uses dynamic CSS files to reference property values in the skin.properties.xml file and place them in the generated base.css file for a skin package. See ["How Dynamic CSS Files Work" on page 398](#).

### **Cascading Style Sheet Definitions**

#### **base.css**

The primary CSS for a skin package. A base.css file most often exists only as a generated CSS file, having been defined by other sources in the skin package or its parent. The base.css can be modified by one or more extended CSS or dynamic CSS files. It is not recommended that you create a base.css file for a custom skin package, but if you do so, define it in the skin.properties.xml file. You cannot define both a base.css file and a base.csi file in the same custom skin package.

#### **extended.css**

A secondary CSS for a skin package. Entries in the extended CSS file override the base.css file. You can have multiple extended CSS files, such as to provide browser-specific CSS values. Extended CSS files, each with a different name, are defined in the skin.properties.xml file.

#### **base.csi**

A dynamic CSS file that references properties in the skin.properties.xml file (["How Dynamic CSS Files Work" on page 398](#)). As a result of the base.csi file, the generated base.css file contains properties from the skin.properties.xml file. The skin.properties.xml file for a top-level skin package (one that has no parent) describes all properties that make up a skin. If there is no base.csi file in a skin package, it is inherited from a parent skin. The base.csi file is defined in the skin.properties.xml file. You cannot define both a base.css file and a base.csi file in the same custom skin package.

#### **extended.csi**

A secondary dynamic CSS file for a skin package (["How Dynamic CSS Files Work" on page 398](#)). Entries in the extended.csi file override the base.csi file. You can have multiple extended.csi files, such as to provide browser-specific CSS values. The extended.csi files, each with a different name, are defined in the skin.properties.xml file.

### **How Do I Choose Which Type of Stylesheet to Modify?**

Use these guidelines in determining which stylesheet to use:

- Use an extended.css file to make selected modifications to a custom skin that is not significantly different from the parent skin on which it is based. An extended.css file overrides:

- The `base.css` or `base.csi` file in the parent skin package

If you define an `extended.csi` file for a custom skin, the classes in it override only the corresponding classes in the `base.css` or `base.csi` file of the parent skin.

- Use an `extended.csi` file to change selected references to a `skin.properties.xml` file, either in the custom skin package or in its parent. An `extended.csi` file overrides:
  - The `base.csi` file in the parent skin package
  - The `base.csi` file in the custom skin package, if you have created one.

Using an `extended.csi` file to create new classes is the simplest way to add new styles to a custom skin.

As an alternative to defining `extended.css` files in the `skin.properties.xml` file, you can use `import` statements to include them in an `extended.csi` file. For example, the following statements cause two CSS files to be included during generation of the `base.css` for a skin:

```
@import url(@skin css/general.css;);#"
@import url(@skin css/dialog_styles.css;);#
```

- Use a `base.csi` file if you have made extensive modifications to the `skin.properties` file in the custom skin package that require a revised set of references. A `base.csi` file is required in any skin package that does not have a parent skin package.

If you define a `base.csi` file for a custom skin, it completely overrides any `base.css` or `base.csi` file in the parent skin. If the custom `base.csi` file contains a subset of the classes defined for the parent skin, the generated `base.css` file will contain only that same subset of classes.

## How Dynamic CSS Files Work

My webMethods Server replaces skin property references in a dynamic CSS file with property values in the `skin.properties.xml` file and places them in the generated `base.css` file for a skin package. A top-level skin package (one that has no parent) typically has no `base.css` file, instead using the `base.csi` file to create the generated `base.css` file.

Used in custom skin packages, this feature makes it possible to create new skins based on a common ancestor by simply specifying skin properties in a new `skin.properties.xml` file. If you make simple modifications to the `skin.properties.xml` file that do not require changes to the dynamic CSS file, you can use the `base.csi` file inherited from the parent skin. If you make more extensive modifications, you may have to create an `extended.csi` file to properly reference the changed or added properties.

**Note:** Modifying the files described in this topic requires CSS expertise.

Dynamic CSS files make use of at-rules (or `@rules`) to reference properties in the local `skin.properties.xml` file or properties inherited from the parent skin. For example, if your `base.csi` file contains this rule:

```
body {
    @skin fonts/regular;
    color: @skin colors/text;;
```

```
background-color: @skin colors/text-bg;;
direction: @skin dir/text;;}
```

and the skin.properties.xml files contains these property definitions:

```
<property>
  <name>fonts/regular</name>
  <value>font-family: trebuchet; font-size: 20px;</value>
</property>
<property>
  <name>colors/text</name>
  <value>#000</value>
</property>
<property>
  <name>colors/text-bg</name>
  <value>#fff</value>
</property>
<property>
  <name>dir/text</name>
  <value>ltr</value>
</property>
```

the generated base.css file will contain this rule:

```
body {
  font-family: trebuchet; font-size: 20px;
  color: #000;
  background-color: #fff;
  direction: ltr;
}
```

If you create a base.csi or extended.csi file for use with a skin package, you need to declare it in the skin.properties.xml file, as described in ["Adding Stylesheets to a Skin Package" on page 399](#).

## Adding Stylesheets to a Skin Package

You can use CSS and dynamic CSS files to modify the generated base.css file for a skin package. To add a CSS or dynamic CSS file to a skin package, you define it in the skin.properties.xml file for the custom skin package. Each stylesheet is defined in a property element having this form:

```
<property>
  <name>css/name.css</name>
  <value>css/name.extension</value>
  <description>optional
description</description>
</property>
```

If the file name in the <value> element is the same as the <name> element, you can omit the <value> element.

If the skin.properties.xml file does not have property element for a stylesheet, it inherits the stylesheet in the parent skin.

**Note:** When you add or modify a stylesheet, you should place it in the css directory of the skin package.

**Example: base.css**

**Note:** We do not recommend that you create a base.css file for use in a custom skin package. However, you can use the syntax here to compare with the examples that follow.

You can have only one base.css element in the skin.properties.xml file. In the following example, you could omit the <value> element because it is identical to the <name> element.

```
<property>
  <name>css/base.css</name>
  <value>css/base.css</value>
</property>
```

**Example: base.csi**

If you want to make extensive changes that override the base.csi file of a parent skin, you might create a new base.csi file and define it in the custom skin package. In this case, the <name> element is base.css and the <value> element is base.csi, as shown here:

```
<property>
  <name>css/base.css</name>
  <value>css/base.csi</value>
</property>
```

**Example: extended.css or extended.csi**

The rules for extended.css and extended.csi files are the same as those for base.css:

```
<property>
  <name>css/extended.css</name>
  <value>css/extended.css</value>
</property>
```

or:

```
<property>
  <name>css/extended.css</name>
  <value>css/extended.csi</value>
</property>
```

**Example: Multiple extended.css or extended.csi Files**

A skin.properties.file can have properties for multiple extended.css or extended.csi files at the same time. One use for this capability is to provide browser-specific properties.

```
<property>
  <name>css/extended.css</name>
  <value>css/extended.csi</value>
</property>
<property>
  <name>css/ie6.css</name>
  <value>css/ie6.csi</value>
  <description>special ie6 stylesheet rules</description>
</property>
<property>
  <name>css/ie7.css</name>
  <value>css/ie7.csi</value>
```

```
<description>special ie7 stylesheet rules</description>  
</property>
```



---

# 23 Working with Shells in My webMethods Server

---

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## What are Shells?

---

My webMethods Server derives the content and layout of the header and footer of a page from the content and layout of the current shell's Header and Footer folders. When the server renders one page, it is actually displaying the contents of up to five folders at once: the shell's Header, the shell's Leftnav, the requested page, the shell's Rightnav, and the shell's Footer. The server displays the content of the requested page as individual portlets, but it renders the content of shell sections without title bars, borders, or additional spacing. You can apply Cascading Style Sheet (CSS) classes and styles to the rows and columns that compose the shell sections, as well as specify the exact dimensions of those rows and columns, to further customize the layout of the shell.

The Titlebar shell section applies a title bar to each portlet on the page, which includes the display name and buttons for controlling the portlet. You can hide the Titlebar shell section individually for each portlet.

You can create and modify a shell with the Shell Administration page. To use the Shell Administration page, you must either have the system administrator grant you permission to access the portlet, or you must log in as the system administrator.

## Creating a New Shell

---

The first step in constructing a new shell is to create it using an existing shell as a parent. A new shell initially inherits all of its properties from its parent. These properties (or shell sections) are: Header, Footer, Leftnav, Rightnav, and Titlebar. You can replace any of these sections with a new, custom shell section.

---

### To create a new shell

1. As system administrator: **Administration Dashboard > User Interface > Shell Administration > Create New Shell.**
2. In the **Name** field, type a name for the shell.  
This name has no character restrictions.
3. (Optional) In the **Description** field, type a description of the shell.  
The description appears in the list of shells on the Shell Administration page.
4. From the **Parent Shell** list, choose the shell from which the new shell will inherit any unspecified properties.  
The system default shell is selected by default.
5. Click **Create**.

## Modifying a Shell

After you have created a new shell from a parent shell, you can modify individual sections of that shell independently to construct a new shell.

### To modify a shell

1. As system administrator: **Administration Dashboard > User Interface > Shell Administration.**
2. To modify a shell, click the Tools icon  and then click **Properties.**
3. If you want to change the display name for the shell, in the **Display Name** field, type a new name for the shell.
4. If you want to change the parent shell from which to take the various shell sections, in the **Parent** list, choose the parent shell. The list contains shells that currently exist on the server.
5. For each shell section, choose the parent or source for the section from among these choices:

Choose this option...	To do this...
<b>Inherited</b>	To use the shell section from the shell chosen in the <b>Parent Shell</b> field.
<b>Portal Page</b>	(Not available for the Titlebar shell section.) To use the content of an existing folder for the shell section, move the folder to the <b>Selected Items</b> box and then click <b>Select.</b>
<b>Portlet</b>	(Titlebar shell section only.) To use an existing portlet, move the portlet to the <b>Selected Items</b> box and then click <b>Select.</b>

6. For shell sections that you want to edit, take one of the following actions:

To accomplish this...	Do this...
Edit a shell section inherited from another shell	With the <b>Inherited</b> option selected, click <b>Clone from Parent.</b>  The server creates a folder based on the inherited shell section.
Edit an existing folder used as a shell section	With the <b>Portal Page</b> option selected, make sure the name of the target folder is displayed.

**Note:** Within the server, you cannot edit portlets. You need to use Software AG Designer.

7. Click **Edit**.  
The folder that represents the shell section opens in edit mode.
8. Modify the shell section just as you would any other folder.
9. Click **Save**.

## Inserting Extra Tags into the HTML <head> Element

You can insert JavaScript libraries and stylesheets into the <head> element of a shell. The valid HTML tags are <link>, <meta>, <script>, and <style>.

### To insert into the HTML <head> element

1. As system administrator: **Administration Dashboard > User Interface > Shell Administration**.
2. To modify a shell, click the Tools icon  and then click **Properties**.
3. In the **Extra Tags for HTML <head>** field, type the HTML tags that add custom code to the shell. For example:  

```
<link href="default.css" rel="stylesheet" type="text/css"
```
4. Click **Save**.

## Using an Alias with a Shell Section

If a folder has an alias, you can use the alias to select it for use as a shell section. For information about using aliases with folders, see "[Managing Aliases](#)" on page 270.

### To select a shell section using an alias

1. As system administrator: **Administration Dashboard > User Interface > Shell Administration**.
2. To modify a shell, click the Tools icon  and then click **Edit**.
3. In the shell section you want to associate with an alias, click **Use Alias**.
4. In the **Alias Name** field of the server resource selector, type the alias of the folder you want to use for this shell section.
5. To determine if the server can find the alias, click **Test**.
6. If the server correctly resolves the alias, click **Select**.
7. If needed, you can clone this folder or edit it directly, as described in "[Modifying a Shell](#)" on page 405.
8. Click **Save**.

## Deleting a Shell

---

After it is no longer needed, you can delete a shell.

### To delete a shell

1. As system administrator: **Administration Dashboard > User Interface > Shell Administration**.
2. To delete a shell, click the Tools icon  and then click **Delete**.

## Making an Empty Shell Section

---

A shell always has the four folders that make up the shell sections. You may, however, want a shell design in which one or more of the shell sections is empty and takes up no space in the display. A shell section is empty if it contains no portlets and has no formatting information associated with it. In the default shells provided with My webMethods Server, the Leftnav and Rightnav shell sections display as being empty.

You cannot edit the Titlebar shell section as you do the others. To hide the title bar, you need to set the **Titlebar** attribute for individual portlets to **No**.

### To make a shell section (other than a Titlebar) empty

1. As system administrator: **Administration Dashboard > User Interface > Shell Administration**.
2. To modify a shell, click the Tools icon  and then click **Edit**.
3. In the **Alias Name** field of the resource selector, type the alias `shell.section.blank`.
4. To determine if the server can find the alias, click **Test**.
5. If the server correctly resolves the alias, click **Select**.
6. Click **Save**.



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