

Tomcat for NetWare® Administration Guide

Novell® Open Enterprise Server

2 SP1

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About This Guide

This guide introduces you to the Tomcat Servlet Container 4.1 as it is used on Open Enterprise Server (OES) NetWare®. It introduces you to the two management tools used to manage Tomcat and to deploy servlets, JavaServer* Pages (JSPs), and Web applications.

Audience

This guide is intended for administrators whose role is to install, configure, and manage Tomcat for NetWare. Web application developers will also find the information useful.

This guide is divided into the following sections:

- ♦ Chapter 1, “Tomcat Servlet Container Overview,” on page 9
- ♦ Chapter 2, “Tomcat Installation and Configuration,” on page 15
- ♦ Chapter 3, “Deploying Servlets and JSPs,” on page 17
- ♦ Chapter 4, “Securing Tomcat on NetWare,” on page 21
- ♦ Appendix A, “Tomcat Coexistence and Migration Issues,” on page 23

IMPORTANT: OES NetWare and NetWare 6.5 share the same code base and are the same in every way. Installing the OES NetWare product or associated support pack is the same as installing the simultaneously released NetWare 6.5 product or associated support pack.

Feedback

We want to hear your comments and suggestions about this guide and the other documentation included with Novell OES. Please use the User Comment feature at the bottom of each page of the OES online documentation.

Documentation Updates

For the most recent documentation, visit [Novell Documentation Web site \(http://www.novell.com/documentation\)](http://www.novell.com/documentation).

Additional Documentation

For complete Tomcat documentation, visit the [Jakarta Project Web site \(http://jakarta.apache.org/tomcat/tomcat-4.1-doc/index.html\)](http://jakarta.apache.org/tomcat/tomcat-4.1-doc/index.html).

Documentation Conventions

In this documentation, a greater-than symbol (>) is used to separate actions within a step and items within a cross-reference path.

A trademark symbol (®, ™, etc.) denotes a Novell® trademark. An asterisk (*) denotes a third-party trademark.

When a single pathname can be written with a backslash for some platforms or a forward slash for other platforms, the pathname is presented with a backslash. Users of platforms that require a forward slash, such as Linux* or UNIX*, should use forward slashes as required by your software.

Tomcat Servlet Container Overview

1

Tomcat is a *servlet container*, which is a runtime shell that manages and invokes servlets when they are requested by a Web browser or by another servlet. Servlets are programs that run on a Web server and automatically generate Web pages as a result of user input. Two or more servlets working together to provide a common set of functions is referred to as a Web application.

Web servers, such the Apache Web server, also included with Open Enterprise Server (OES) NetWare®, depend on a servlet container like Tomcat to process JavaServer Pages (JSPs) and servlets.

Tomcat is developed under a larger project named Jakarta. Jakarta is a collaboration between Apache developers, major corporate sponsors, smaller companies, and individual private developers. Like the Apache project, Jakarta is an open source project. *Open source* means that the source code is freely available.

Tomcat is the reference implementation from Sun* Microsystems*. It implements the servlet specification 2.3 and the JSP specification 1.2.

For more information about the Jakarta Project, visit the [Jakarta Project Web site \(http://jakarta.apache.org/tomcat/index.html\)](http://jakarta.apache.org/tomcat/index.html)

is overview includes the following topics:

- ♦ Section 1.1, “Benefits of Running Tomcat on NetWare,” on page 9
- ♦ Section 1.2, “Administration Instance vs. Public Instance of Tomcat on NetWare,” on page 10
- ♦ Section 1.3, “Tomcat and the Novell exteNd Application Server,” on page 12
- ♦ Section 1.4, “Managing Tomcat,” on page 12
- ♦ Section 1.5, “Managing Web Applications and Servlets,” on page 13
- ♦ Section 1.6, “What's Next,” on page 14

1.1 Benefits of Running Tomcat on NetWare

Tomcat provides many business benefits to your existing network that can ultimately increase productivity, improve communication between departments and employees. When used in conjunction with the Apache Web server, Tomcat can host powerful Web applications.

Here are some of the key uses and benefits of using Tomcat on NetWare:

- ♦ Offers a highly flexible, robust JSP servlet container that is tightly integrated with NetWare.
- ♦ Provides a simple entry point for organizations planning to prototype and deploy Java* based utilities and solutions on a NetWare server.

- ♦ Works with major development tools available through commercial vendors and open source communities.
- ♦ Tomcat can be deployed with Novell® Cluster Services™ (included with NetWare) to provide high availability, load balancing, and fault tolerance for important business processes running in the Tomcat JSP servlet container.

1.2 Administration Instance vs. Public Instance of Tomcat on NetWare

As with the Apache Web server, two instances of Tomcat are configured on your server: an administration instance and a public instance. By default, Tomcat is installed to `sys:\tomcat`. Unlike Apache, which also includes administration and public versions, each installed into their own directories, both instances of Tomcat share the same Tomcat directory. Adding additional instances of Tomcat is a matter of modifying the `autoexec.ncf` file.

If during the NetWare installation you did not choose to install Tomcat, only the administration instance is installed.

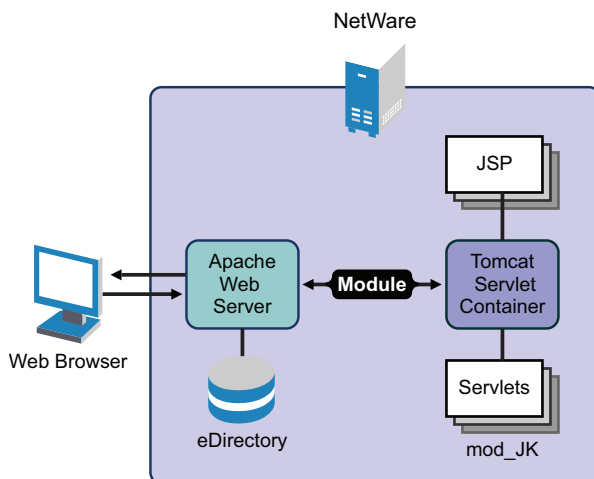
- ♦ “About the Administration Instance of Tomcat” on page 10
- ♦ “About the Public Instance of Tomcat” on page 11

TIP: If you are a developer and you need to add additional instances of Tomcat, see the [Novell Developer Kit \(http://developer.novell.com/ndk\)](http://developer.novell.com/ndk).

1.2.1 About the Administration Instance of Tomcat

The administration instance of Tomcat is used by NetWare to host and manage Novell services such as Apache Manager and the NetWare Welcome Web site. When requests come to the Apache Web server from any of the NetWare products, Apache identifies requests that require the use of Tomcat. These requests are passed through the `mod_jk` module on Apache to Tomcat, as shown in the following diagram.

Figure 1-1 Apache and Tomcat Communication



The `mod_jk` plug-in opens a socket to an instance of Tomcat and communicates with it using the AJP 13 protocol. Tomcat processes the HTTP request and then returns an HTTP response, which is sent back through the same socket connection to Apache. Apache then serves the response up to the client that requested it.

The following table lists key files used by the administration instance of Tomcat and how they are used.

Table 1-1 *Tomcat Administration Key Files*

Key Files	Purpose
<code>sys:/adminsrv/conf/admin_tomcat.xml</code>	Configuration file for the administration instance of Tomcat.
<code>sys:/system/tcadmup.ncf</code>	Use at the system console to start the administration instance of Tomcat.
<code>sys:/system/tcadmdn.ncf</code>	Use at the system console to stop the administration instance of Tomcat.
<code>sys:/adminsrv/conf/mod_jk/workers.properties</code>	Configuration file for the Apache/Tomcat interconnection.
NOTE: The ports specified in this file must match the ports specified in the <code>server.xml</code> and <code>admin_tomcat.xml</code> files. Also, worker names must correspond with those used in JkMount statements found in the <code>httpd.conf</code> and <code>adminserv.conf</code> files.	

1.2.2 About the Public Instance of Tomcat

The second, or public, instance of Tomcat functions as your own dedicated servlet container, which you can optimize and use to host your own Web applications.

The following table lists key files used by the public instance of Tomcat and how they are used.

Table 1-2 *Tomcat Public Key Files*

Key Files	Purpose
<code>sys:/tomcat/4/bin/tomcat4.ncf</code>	Use at the system console to start the public instance of Tomcat by entering <code>tomcat4</code> . You can also use <code>tomcat4 stop</code> to stop the server.
<code>sys:/tomcat/4/bin/tc4stop.ncf</code>	Use at the system console to stop the public instance of Tomcat by entering <code>tc4stop</code> .
<code>sys:/tomcat/4/bin/catalina.pl</code>	Primarily used as the start and stop script for Tomcat. It is also used for other purposes, such as starting JPDA mode.

Key Files	Purpose
<code>sys:/tomcat/4/bin/startup.ncf</code>	Used during startup to manage NetWare-specific command line parameters. It is used by <code>tomcat4.ncf</code> and <code>tcadmup</code> .
<code>sys:/tomcat/4/conf/server.xml</code>	Configuration file that contains port number specifications. Ports here must match those found in the <code>workers.properties</code> file.
<code>sys:/adminsrv/conf/mod_jk/workers.properties</code>	Same file that is used by the administrative instance of Tomcat. See sys:/adminsrv/conf/mod_jk/workers.properties above.

After reviewing this guide, see the [Tomcat documentation \(http://jakarta.apache.org/tomcat/tomcat-4.1-doc/index.html\)](http://jakarta.apache.org/tomcat/tomcat-4.1-doc/index.html) on the Jakarta Project Web site.

1.3 Tomcat and the Novell exteNd Application Server

When you need greater processing power beyond what basic HTML and scripting has to offer, NetWare offers two choices: Tomcat and Novell exteNd™ Application Server. The one you choose depends on what you need.

For example, if you need Java API support beyond servlets, JSPs, tag libraries, or basic JavaBeans* components, either immediately or in the future, you should select the Novell exteNd Application Server. Also, if you are going to use any of the high-end development tools included with NetWare, such as exteNd Director™ and exteNd Composer™, exteNd is the better choice because Tomcat is not supported by these tools. (For more information about Novell exteNd, see the [exteNd documentation \(http://www.novell.com/documentation-index/index.jsp?category=exteNd\)](http://www.novell.com/documentation-index/index.jsp?category=exteNd).)

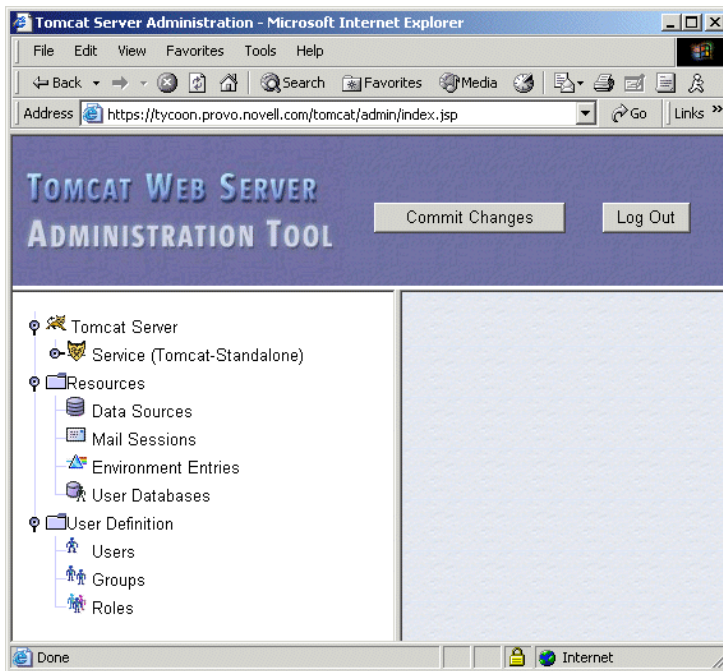
However, if you need only very basic Java servlets and JSPs and you do not plan to migrate to a more robust solution, you should select Tomcat. Tomcat is also the better choice if you are not experienced with Java programming.

1.4 Managing Tomcat

The Tomcat Administration Tool, referred to as Tomcat Admin, lets you configure Tomcat from a Web browser. Changes made to Tomcat using Tomcat Admin can be saved persistently so that the changes remain when Tomcat is restarted, or they can be applied to the current session only.

Tomcat Admin is a Web-based administration tool created by the Apache Foundation and is included and fully configured to run on NetWare. It can be accessed from any Web browser that has access to your server.

Figure 1-2 *Tomcat Administration Tool*

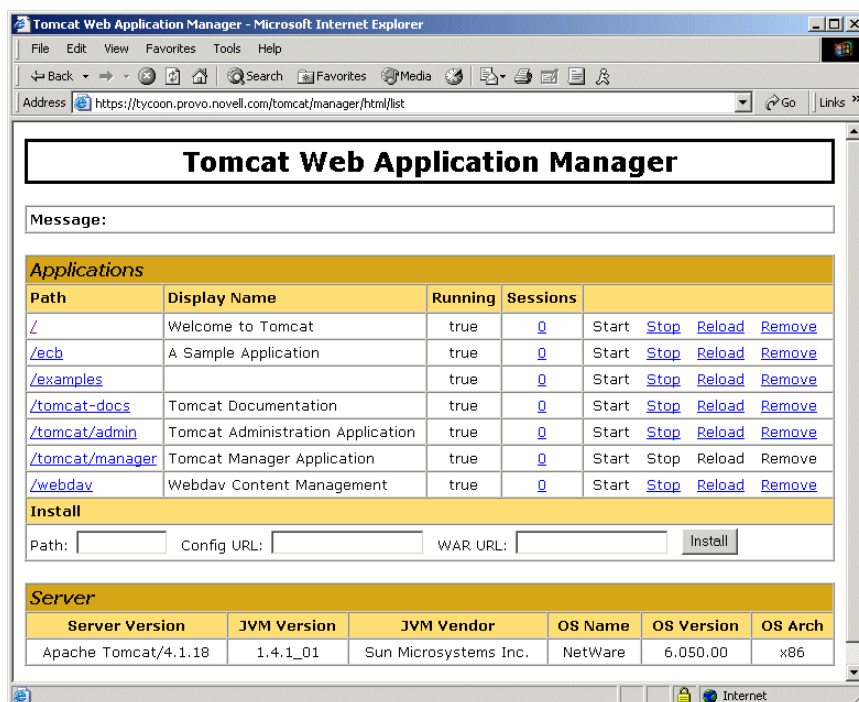


For more information, see [Section 2.3, “Managing Tomcat with Tomcat Admin,”](#) on page 16.

1.5 Managing Web Applications and Servlets

For deploying and managing Web servlets and applications, you can use Tomcat Manager, also a Web-based administration utility.

Figure 1-3 Tomcat Manager



When you install Tomcat with NetWare, Tomcat Manager is automatically installed and configured.

For more information about Tomcat Manager on NetWare, see [Section 3.3, “About Tomcat Manager,”](#) on page 18.

1.6 What's Next

For information about installing and using Tomcat, see [Chapter 2, “Tomcat Installation and Configuration,”](#) on page 15.

Tomcat Installation and Configuration

2

The administration instance of Tomcat is installed automatically during the Open Enterprise Server (OES) NetWare® installation process. It is a required component for several key NetWare products. However, if you want to host your own servlets and JavaServer* Pages (JSPs), you can install a public instance of Tomcat during the NetWare installation process, or after NetWare is already installed and running.

Once it is installed, you can use Tomcat Admin, a browser-based administration utility, to manage Tomcat.

IMPORTANT: If Tomcat is already running in your system, see [Appendix A, “Tomcat Coexistence and Migration Issues,”](#) on page 23 before starting to install Tomcat.

This section includes the following topics:

- ♦ [Section 2.1, “Deciding How to Install Tomcat on NetWare,”](#) on page 15
- ♦ [Section 2.2, “Starting and Stopping Tomcat from the NetWare System Console,”](#) on page 16
- ♦ [Section 2.3, “Managing Tomcat with Tomcat Admin,”](#) on page 16
- ♦ [Section 2.4, “What's Next,”](#) on page 16

2.1 Deciding How to Install Tomcat on NetWare

You can install the public instance of Tomcat during or after the NetWare installation. (The administration instance of Tomcat is installed by default.) During the installation process, you can include Tomcat in your NetWare installation in two different configurations parallel to the way Apache is installed: a preconfigured server (the Apache/Tomcat Server pattern) and an independent component (the Tomcat 4 Servlet Container component). For an overview of the installation process, see [Apache Web Server for NetWare Administration Guide for OES](#)

After the NetWare installation has been completed, you can run the NetWare post-install program from the NetWare GUI and select the Tomcat 4 Servlet Container component.

After you have decided which installation option to use, see the [OES 2 SPI: NetWare Installation Guide](#) for detailed installation instructions.

2.1.1 Installing the Administration Instance of Tomcat

As mentioned above, the administration instance of the Tomcat servlet container is installed by default during the NetWare installation. However, if for any reason you need to install it after you have installed NetWare, you can do so by running the NetWare post-installation program from the NetWare GUI or the NetWare Deployment Manager and then selecting Tomcat 4 Admin Instance.

For detailed information about installing products after installing NetWare, see Installing Products and Updates in the [OES 2 SPI: NetWare Installation Guide](#).

2.2 Starting and Stopping Tomcat from the NetWare System Console

To start the main instance of Tomcat, enter `tomcat4` or `tc4start` at the system console. To stop the main instance of Tomcat, enter `tcadmdn` or `tc4stop` at the system console.

To start the administrator instance of Tomcat, enter `tcadmnp` at the system console. To stop the administrator instance of Tomcat, enter `tcadmndn` at the system console.

2.3 Managing Tomcat with Tomcat Admin

After Tomcat is running, you can access the Tomcat Admin utility from a Web browser to make configuration changes to Tomcat.

- 1 Make sure Tomcat is running by entering `tomcat4` at the NetWare system console.
- 2 Start a Web browser.
- 3 In the Web browser, point to the following URL:

`https://domain_name/tomcat/admin/index.jsp`

Replace *domain_name* with the server's domain name or IP address.

IMPORTANT: You must include the trailing slash mark (/) at the end of the URL. If you do not include it, the server returns a 404 Not Found error.

- 4 Enter the administrator username and password created when you installed NetWare.

After Tomcat Admin starts, refer to the [Tomcat Administration Tool \(http://books.google.com/books?id=OtKfFZOQKuoC&pg=PA620&lpg=PA620&dq=%22admintool+html%22&source=web&ots=6Ux6D5_EbB&sig=Z7ug_FHHhj8ODw01odMk37M-seI#PPA606,M1\)](http://books.google.com/books?id=OtKfFZOQKuoC&pg=PA620&lpg=PA620&dq=%22admintool+html%22&source=web&ots=6Ux6D5_EbB&sig=Z7ug_FHHhj8ODw01odMk37M-seI#PPA606,M1) on Sun's Web site.

2.4 What's Next

After Tomcat is running and you can access both Tomcat Admin and Tomcat Manager, you're ready to deploy Web applications. See [Chapter 3, “Deploying Servlets and JSPs,” on page 17](#).

For information about making Tomcat secure, see [Chapter 4, “Securing Tomcat on NetWare,” on page 21](#).

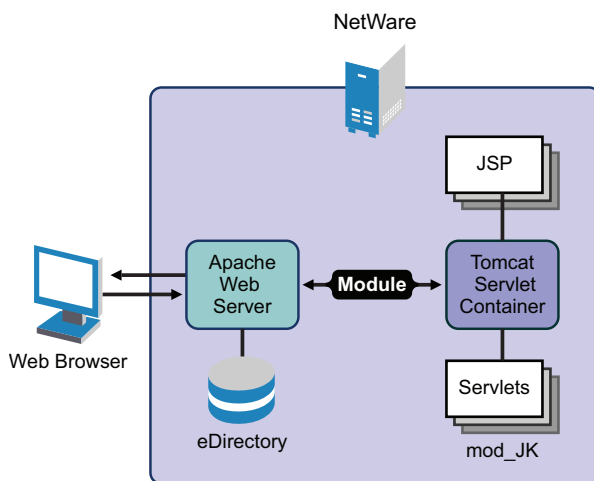
Deploying Servlets and JSPs

3

Servlets are programs that run on a Web server and automatically generate Web pages as a result of user input.

This section describes the methods and tools you can use to deploy servlets and JavaServer Pages (JSPs) on Tomcat Servlet Container 4.1 on Open Enterprise Server (OES) NetWare®. It also introduces you to Tomcat Manager, a browser-based tool you can use to deploy your servlets.

Figure 3-1 *Apache and Tomcat Hosting JSPs and Servlets.*



This section contains the following topics:

- ♦ [Section 3.1, “About JSPs,” on page 17](#)
- ♦ [Section 3.2, “Deploying Servlets,” on page 17](#)
- ♦ [Section 3.3, “About Tomcat Manager,” on page 18](#)
- ♦ [Section 3.4, “What's Next,” on page 20](#)

3.1 About JSPs

JSP technology offers a simple way to create dynamic Web pages that are both platform-independent and server-independent, giving you more freedom because it separates content generation from presentation and takes advantage of reusable tags and objects, simplifying the maintenance of your Web applications. JSP technology provides the scripting ability you need to create simple interactive Web pages, or it scales to support complex Web sites that are fully integrated with enterprise class applications.

3.2 Deploying Servlets

On Tomcat 4.1, Web applications are deployed in one of the following ways:

- ♦ By placing a WAR file in the `sys:/tomcat/4/webapps` directory (Recommended)
- ♦ By placing an exploded WAR in the `sys:/tomcat/4/webapps` directory

- ♦ By placing an exploded WAR anywhere on disk and then creating an XML file in `sys:/tomcat/4/webapps`
- ♦ By using the first and second methods above with an XML file that specifies the settings for your application

These are standard methods across all platforms for deploying applications using Tomcat 4.x.

To deploy servlets and JSPs, use Tomcat Manager and see the [Tomcat Web Application Manager How To](http://jakarta.apache.org/tomcat/tomcat-4.1-doc/html-manager-howto.html) (<http://jakarta.apache.org/tomcat/tomcat-4.1-doc/html-manager-howto.html>) documentation on the Apache Web site.

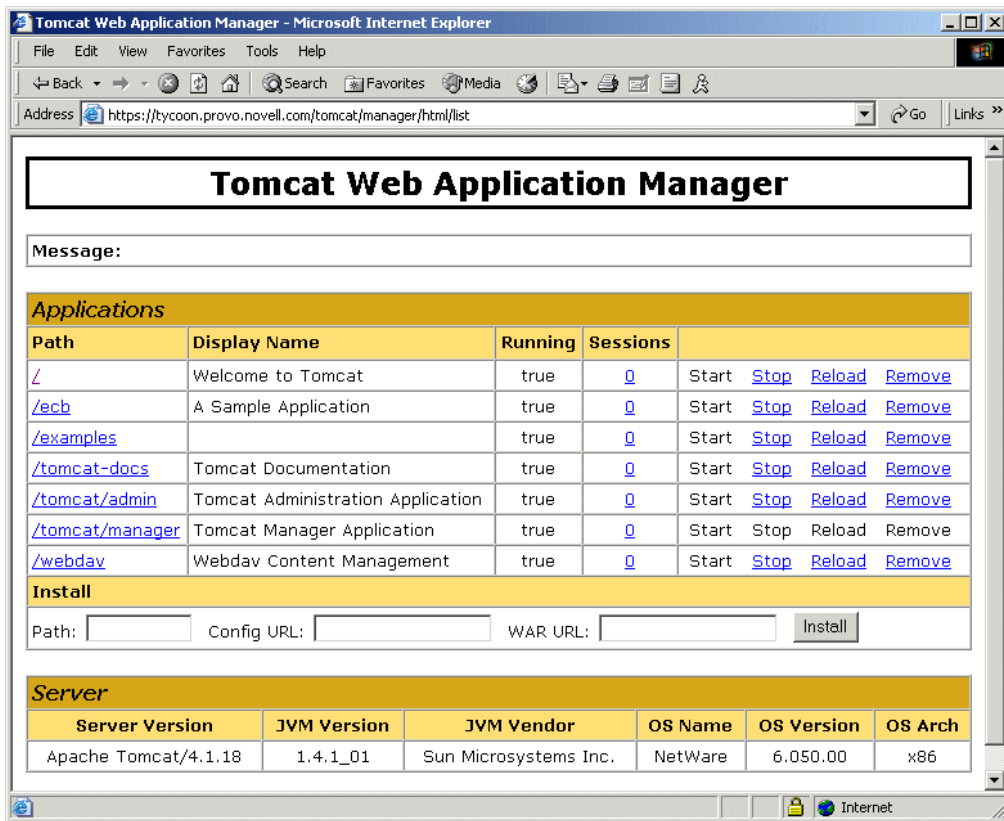
NOTE: If you are deploying administration applications on the Admin version of Tomcat (`sys:/adminsrv/webapps`), use the same methods outlined above, except that you should place XML in the `sys:/adminsrv/webapps` directory rather than in the `sys:/tomcat/4/webapps` directory.

3.3 About Tomcat Manager

Tomcat Manager is a browser-based administration tool you can use for installing and deploying Web applications.

TIP: *Web application* is a term used to describe two or more servlets and JSPs, or a combination of both, working together to provide a set of end-user functions or services. However, Web application is also often used synonymously with servlet.

Figure 3-2 *Tomcat Manager*



Tomcat Manager lets you do the following things:

- ◆ Install a new Web application, which can be anywhere on the server's disks
- ◆ Deploy a new Web application on a specified context path from the uploaded contents of a WAR file
- ◆ List the currently deployed Web applications, as well as the sessions that are currently active for them
- ◆ Reload an existing Web application to reflect changes in the contents of /WEB-INF/classes or /WEB-INF/lib
- ◆ List operating system and Java Virtual Machine (JVM*) property values
- ◆ List available global JNDI resources for use in deployment tools that are preparing <ResourceLink> elements nested in a <Context> deployment description
- ◆ List available security roles defined in the user database
- ◆ Remove an installed Web application
- ◆ Restart a Web application that has, for any reason, stopped running
- ◆ Stop an existing Web application, making it unavailable to users, without having to undeploy it
- ◆ Undeploy a deployed Web application and delete its document base directory

You can access Tomcat Manager, the browser-based servlet and application management tool, from any Web browser that has access to your NetWare server.

To access Tomcat Manager:

- 1 Open a Web browser and enter the URL to Tomcat Manager, using the following syntax:

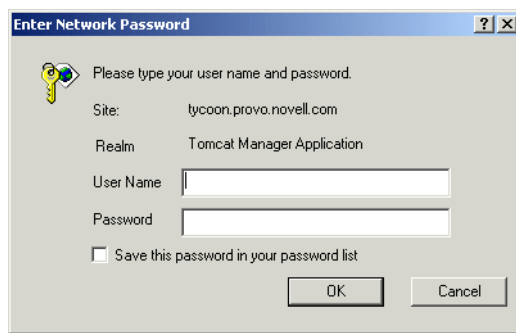
```
https://domain_name/tomcat/manager/html
```

For example:

```
https://www.digitalairlines.com/tomcat/manager/html
```

You can replace the domain name with your server's IP address. This is helpful if you do not have a DNS server.

- 2 When your browser's user authentication dialog box appears, enter your NetWare administrator username and password.



- 3 Click OK.

When you access Tomcat Manager for the first time, it might take a minute before it appears in your Web browser.

For complete Tomcat Manager documentation, see the [Tomcat Web Application Manager How To](http://jakarta.apache.org/tomcat/tomcat-4.1-doc/html-manager-howto.html) (<http://jakarta.apache.org/tomcat/tomcat-4.1-doc/html-manager-howto.html>) documentation on the Apache Web site.

3.4 What's Next

After Tomcat is installed and running on NetWare, refer to the [Tomcat 4 Servlet/JSP Container documentation](http://jakarta.apache.org/tomcat/tomcat-4.1-doc/index.html) (<http://jakarta.apache.org/tomcat/tomcat-4.1-doc/index.html>) on the Apache Web site.

Securing Tomcat on NetWare

4

The Tomcat Servlet Container has many built-in security mechanisms. On Open Enterprise Server (OES) NetWare®, LDAP is used as the default security realm.

This section contains the following topics:

- ♦ [Section 4.1, “Authentication and Authorization,” on page 21](#)
- ♦ [Section 4.2, “OU Container Rights,” on page 21](#)
- ♦ [Section 4.3, “Using Dynamic Groups,” on page 22](#)
- ♦ [Section 4.4, “What's Next,” on page 22](#)

4.1 Authentication and Authorization

There are two parts to Tomcat security: authentication and authorization. Authentication occurs when a valid username is entered during login. A valid username is one that matches a Novell® eDirectory™ user ID. Authorization occurs if the valid user has been assigned the correct roles that allow the user to have access to a secured Web application.

To facilitate authorization, a collection of role names is created in the Tomcat-Roles Organizational Unit (OU) in eDirectory. By default, this OU is created in the same container where the NetWare server's context is created during installation of NetWare.

Roles are represented as eDirectory groups contained in the Tomcat-Roles OU. A role can then be used for authentication purposes when a client requests access to a specific Web application. For example, if you had an inventory tracking application that you wanted to secure, you would add the name of the role to the application's XML file. When users request access to the application, they are prompted for a username and password. If the user object does not exist in the Tomcat-Roles OU, they do not have access to the application. Therefore, for users to be authorized in the admin role, they must be a member of the admin Group.

4.2 OU Container Rights

During installation, Public browse rights are granted on the Tomcat-Roles Organizational Unit. Tomcat first authenticates with the user-supplied username and password. If successful, it does an anonymous LDAP bind to discover if the user is authorized in the role. If there are no Public browse rights, the authorization fails.

- ♦ [“Required Settings” on page 21](#)
- ♦ [“Relocating the Tomcat-Roles Container” on page 22](#)

4.2.1 Required Settings

For secure access to work, the following settings are required:

- ♦ Public must be a trustee of Tomcat-Roles

- ♦ On the Public trustee, the [All Attributes Rights] property must have Compare and Read rights. This must be inheritable.
- ♦ On the Public trustee, the [Entry Rights] property must have Browse rights. This must also be inheritable.

4.2.2 Relocating the Tomcat-Roles Container

If needed, you can relocate the Tomcat-Roles container so that it is available across a directory tree, or you can move it to a lower-level container.

To move the Tomcat-Roles container, move it as you do any other container, or you can re-create it as long as you maintain the correct rights. Then modify the `server.xml` and `admin-tomcat.xml` files to reflect the new location.

In `sys:/tomcat/4/conf/server.xml`, find the `<Realm className="JNDIRealm">` tag. The tag includes an LDAP search string to match the users for authentication, and also for lookup of roles for authorization. `{0}` represents the user name supplied at login time. You can simply use `{0}` as the authentication string, requiring a fully-specified LDAP context to log in (for example, `cn=admin,ou=myorg,o=mycompany`), or you can specify the context of the users. This gives you a contextless login, though it requires all of the users to be in the same container. Because there is only one Tomcat-Roles container involved in the authorization process, this approach is more straightforward. Simply supply the path of the Tomcat-Roles container in the authorization search string, whether this container is tree-wide or in a container that is more specific to the individual server.

You can add additional roles to your NetWare server by simply adding additional groups with role names into the Tomcat-Roles OU. If you have existing Web applications that use role-based security, they will automatically work once you create the required role group and add members to it.

4.3 Using Dynamic Groups

Using groups to represent roles lets you set roles up as dynamic groups. Dynamic groups can be created using iManager. If you are using dynamic groups, the administrator does not need to constantly manage the Tomcat roles. In this case, eDirectory can manage the Tomcat roles for you. For example, if you have a payroll application that requires the Payroll role, you can set up a dynamic Payroll group in the Tomcat-Roles container. It could contain a rule to include all members of the `ou=payroll.o=yourcompany`, and when users are created in that container, they are automatically granted access to the payroll Web application.

The same rule applies when a user moves out of the Payroll container; they immediately cease to have rights to the payroll Web application without any action from the system administrator or Web application administrator.

4.4 What's Next

After Tomcat is installed and running on NetWare, see the [Tomcat 4 Servlet/JSP Container documentation \(http://jakarta.apache.org/tomcat/tomcat-4.1-doc/index.html\)](http://jakarta.apache.org/tomcat/tomcat-4.1-doc/index.html) on the Apache Web site.

Tomcat Coexistence and Migration Issues



One of the top priorities in designing Novell® Open Enterprise Server (OES) was to ensure that new OES components, running on either NetWare® or Linux*, can be introduced into an existing network environment without disrupting any of the products and services that are in place. It was also deemed important that there be a clear migration path for moving existing products or services and related data onto the OES platform.

This section discusses the issues involved in the coexistence and migration of Tomcat in OES. It is divided into the following topics:

- ♦ [Section A.1, “Tomcat Coexistence on Multiple Platforms,” on page 23](#)
- ♦ [Section A.2, “Migrating Tomcat from NetWare to Linux,” on page 23](#)

For a general discussion of coexistence and migration issues in OES, see [OES 2: Migration Tools Administratio Guide](#) (http://www.novell.com/documentation/migtools/mig_tools_lx/index.html?page=/documentation/migtools/mig_tools_lx/data/bookinfo.html).

A.1 Tomcat Coexistence on Multiple Platforms

You can run Tomcat on any platform for which it is available throughout your multi-platform network. All versions of Tomcat are compatible in a cross-platform environment.

A.2 Migrating Tomcat from NetWare to Linux

When migrating Tomcat from NetWare to Linux, there are three things to consider:

- ♦ [Section A.2.1, “Migrating Files,” on page 23](#)
- ♦ [Section A.2.2, “Administrative URLs,” on page 24](#)
- ♦ [Section A.2.3, “Starting and Stopping Tomcat,” on page 24](#)

For more information about using Tomcat on Linux, see the [Tomcat 4 documentation](#) (<http://jakarta.apache.org/tomcat/tomcat-4.1-doc>).

A.2.1 Migrating Files

For NetWare, the default location for Tomcat is `sys:\tomcat`. For Linux, the default location for Tomcat is `/usr/share/tomcat`.

When migrating Tomcat from NetWare to Linux, you need to copy your servlet and JSP files. The easiest way to copy these files is to map a drive on a Windows* workstation to both the Netware server and the Linux server. (If you chose the default installation of Linux, the Samba server that enables drive mapping is installed by default). For information on how to configure your WAR and JSP files, see [Chapter 2, “Tomcat Installation and Configuration,” on page 15](#).

A.2.2 Administrative URLs

Tomcat has two administrative tools: the Tomcat Web Server Administration Tool and the Tomcat Web Application Manager. The URL for each tool is different for NetWare and Linux.

The default URL for the Tomcat Web Server Administration Tool on NetWare is `https://domain/tomcat/admin/index.jsp`. For Linux, the default URL is `https://domain/admin/`.

The default URL for the Tomcat Web Application Manager on NetWare is `https://domain/tomcat/manager/html/`. For Linux, the default URL is `https://domain/manager/html/`.

For information on how to administer Tomcat using the Tomcat Web Server Administration Tool and the Tomcat Web Application Manager, see [Chapter 2, “Tomcat Installation and Configuration,” on page 15](#).

A.2.3 Starting and Stopping Tomcat

To restart Tomcat on Linux, enter `/usr/share/tomcat/bin/startup.sh` at the command line. To shut down Tomcat, enter `/usr/share/tomcat/bin/shutdown.sh` at the command line.

Documentation Updates

B

This section contains information about documentation content changes made since the initial release of Novell® Open Enterprise Server. If you are an existing user, review the change entries to readily identify modified content. If you are a new user, simply read the guide in its current state.

Refer to the publication date, which appears on the front cover and the Legal Notices page, to determine the release date of this guide. For the most recent version, visit the [Novell documentation Web site \(http://www.novell.com/documentation/\)](http://www.novell.com/documentation/).

In this section, content changes appear in reverse chronological order, according to the publication date. Within a dated entry, changes are grouped and sequenced, according to where they appear in the document itself. Each change entry provides a link to the related topic and a brief description of the change.

This document was updated on the following dates:

- ♦ [Section B.1, “December 1, 2005,” on page 25](#)

B.1 December 1, 2005

Page design reformatted to comply with revised Novell documentation standards.