FatWire | Content Server 7

Version 7.5

Installing Content Server with Tomcat Application Server

Document Revision Date: Jun. 15, 2011

FatWire SOFTWARE

Installing Content Server with Tomcat Application Server
Document Revision Date: Jun. 15, 2011
Product Version: 7.5

FatWire Technical Support
www.fatwire.com/Support

FatWire Headquarters
FatWire Corporation
330 Old Country Road
Suite 303
Mineola, NY 11501
www.fatwire.com

Table of

Contents

Part 3. Web Server

Part 4. Content Server

Chapter 1

Introduction

This document provides guidelines for installing FatWire Content Server on Tomcat Application Server 6, connecting to a supported database of your choice.

This chapter provides information that will help you prepare for the Content Server installation. It contains the following sections:

About This Guide

This guide covers the installation, configuration, and maintenance of Tomcat Application Server 6/7, as required to support Content Server. This includes configuration of one or more Tomcat instances, creation of backend databases, and integration of Tomcat with Apache Web Server. This guide also provides instructions for installing Content Server in single-member and vertically clustered environments.

This guide does not cover the following topics, as they fall outside the scope of this guide:

- Tomcat SSL configuration for simultaneously run instances
- LDAP integration. For information about this topic, see the *LDAP Integration Guide*.

Audience

This guide is for installation engineers and anyone else who has experience installing and configuring databases, web servers, and application servers.

How This Guide Is Organized

The content of this guide is organized by function rather than the order in which installation steps are completed. For example, a function such as application deployment is associated with the application server. It is presented in Part II (which covers the application server), even though it is performed, later, when Content Server is installed (Part IV). Each major component of the Content Server installation is covered in its own part. A summary of the installation steps in the required order is given at the end of this chapter (see “Installation Quick Reference,” on page 7).

Paths and Directories Used in This Guide

Name	Description
`<tomcat_home>`	Path to the Tomcat installation directory (`$CATALINA_HOME`).
`<cs_install_dir>`	Path to the Content Server installation directory.

Graphics in This Guide

Many steps in this guide include screen captures of dialog boxes and similar windows that you interact with in order to complete the steps. These screen captures are presented to help you follow the installation process. They are not intended to be sources of specific information, such as parameter values, options to select, or product version number.

Before You Install Content Server

- Refer to the *Supported Platform Document* (SPD) for this version of Content Server to ensure that you are installing currently supported third-party products. The SPD is accessible from the e-docs site at:

  `http://support.fatwire.com`

  The site is password protected. Accounts can be requested at the address above.
- Only selected information regarding the configuration of third-party products is given in this guide. For detailed information and to obtain the latest e-fixes, patches, and service packs, refer to third-party product vendors' documentation and release notes.
- You can install and deploy Content Server by running the supplied installer either in GUI or silent install mode. When you run the GUI installer, a graphical interface guides you through the installation process, prompting you to enter information and select options as required. It also provides access to online help. When you install silently, you enter your installation settings into one of the sample `omii.ini` files provided, using comments in the file for guidance. The installer then uses the file to install Content Server.
- You will run the Content Server installer on all systems in your environment. There are two system types: content management or development (whose installation processes are identical) and delivery. Content management systems and development systems run in the same mode but are used for different purposes.

  Note

  - The system type cannot be changed once you select the type and click **Next** (GUI installation) or start running the silent installer.
  - **The installation process does not install user interfaces on delivery systems,** except for a limited version of the Content Server Advanced interface to enable the management of select features.
  - The names of the systems in your Content Server environment might differ from the names used in this document. Typically, the content management system is also called "staging," and the delivery system is also called "production."
- Remove older versions of the Java Runtime Environment from the `CLASSPATH` and `PATH` environment variables.

Installation Quick Reference

After you install and configure the third-party components that support Content Server, you will run the Content Server installer on each development, content management, and delivery system on which you plan to use Content Server. During the installation, you will have the option to install sample sites and sample content.

The steps below summarize the installation and configuration of Content Server and its supporting software. Keep the steps handy as a quick reference to the installation procedure and to the chapters that provide more detailed instructions.

Complete the steps below for each development, content management, and delivery environment.

I. Set Up the Database

Set up your choice of supported databases by installing the database management system, creating a database for Content Server, and configuring the database. For instructions, see *Configuring Third-Party Software*.

II. Set Up the Application Server

To set up Tomcat Application Server, complete the steps in Chapter 3, "Installing and Configuring Tomcat":

1. "Installing Tomcat," on page 18.
2. "Setting Up a Tomcat Instance," on page 19.

> **Note**
>
> If you plan to install a vertical cluster, you will repeat this step to create a new instance of Tomcat for each cluster member. Before creating several Tomcat instances, however, it is best to create one instance (as done in this guide), install Content Server, and verify that it is functional.
>
> You also have the option to integrate your installation with an LDAP server. You can do so in the current step, or after the first instance of Content Server is installed (as done in this guide). Instructions for installing and configuring LDAP servers are given in *Configuring Third-Party Software*.

3. If you are already running one or more instances of Tomcat on your system (regardless of the application they are serving), or if you are planning to set up a Content Server cluster, ensure that each Tomcat instance runs on a unique port number. For instructions, see "Setting Up Multiple Instances of Tomcat to Run Simultaneously," on page 21.
4. If you plan on running a single instance over SSL, complete the steps in "Configuring Tomcat for SSL," on page 23.

III. Integrate Tomcat with Apache Web Server

This step is required if:

- You wish to use Apache web server. You can install either Apache 2.0.x or Apache 2.2.x.
- You are creating a vertical cluster that will be load balanced through Apache Web Server.
- You are planning to configure Tomcat to run over SSL through Apache Web Server.

To set up the web server, complete the following steps (in Chapter 4):

1. Determine whether you will be using Apache 2.0.x or Apache 2.2.x. The do one of the following:
   - If you wish to use Apache 2.0.x:
     1) "Installing Apache Web Server 2.0.x," on page 28

2) "Integrating Tomcat with Apache Web Server 2.0.x (mod_jk)," on page 28

- If you wish to use Apache 2.2.x:

1) "Installing Apache Web Server 2.2.x," on page 29

2) "Integrating Tomcat with Apache Web Server 2.2.x (mod_proxy_ajp)," on page 30

IV. Install and Configure Content Server

In this step, you will first make sure that the listed pre-requisites for installing Content Server are satisfied. You will install Content Server, verify the installation, and complete any additional post-installation steps that apply to your system (for example, set up a vertical cluster).

1. Before installing Content Server, do the following:
   a. Start a Tomcat instance.
   b. Create a valid directory into which you will install Content Server; the directory name and path cannot contain spaces, and the directory must have write permissions.
   c. For clustered installations, create a shared file system directory that all cluster members can read from and write to; the directory name and path cannot contain spaces. Note the following:
      - For delivery systems, the default location of the shared file system directory is the directory containing the directory in which Content Server is installed.
      - For content management and development systems, the default location of the shared file system directory is inside the directory in which Content Server is installed.
2. Install and deploy Content Server by running the GUI installer or installing silently. For instructions, see "Running the GUI Installer," on page 34 or "Installing Silently," on page 35.
3. Complete the Content Server installation by performing the following steps:
   a. If you installed Content Server on Unix, set the permissions for Content Server binaries by following the steps in "Setting File Permissions (Unix Only)," on page 37.
   b. Content Server contains a modified version of the Microsoft XML Parser (`MSXML.jar` in the `WEB-INF/lib` directory). If a different version of the Parser is referenced in the `CLASSPATH` environment variable, you must change the path to refer to the version used by Content Server; otherwise, Content Server will fail when parsing XML. For information, see "Loading the XML Parser," on page 37.
   c. Add the Content Server binaries directory to your library path variable as explained in "Adding the Content Server Binaries Directory to the Library Path Variable," on page 37.
   d. Verify the Content Server installation by logging in as the administrator. For instructions, see "Verifying the Installation," on page 38.
   e. If you want to perform LDAP integration, follow the steps in "Integrating with LDAP (Optional)," on page 43.
   f. If you are creating a vertically clustered system, follow instructions in "Setting Up a Content Server Cluster (Optional)," on page 43.

g. Once the entire installation is completed and verified, set up Content Server for its business purpose. For instructions, see the *Content Server Administrator's Guide* and the *Content Server Developer's Guide*.

Part 1

Database

This part contains a short chapter summarizing the databases that Content Server uses. Instructions on creating and configuring the databases are given in *Configuring Third-Party Software*.

This part contains the following chapter:

- Chapter 2, "Setting Up a Database"

Chapter 2

Setting Up a Database

Content Server requires access to a database that is specifically configured for Content Server. Refer to the *Supported Platform Document* (SPD) for this version of Content Server for the list of supported databases (as well as other third-party components). The SPD is accessible from the e-docs site at:

`http://support.fatwire.com`

The site is password protected. Accounts can be requested at the address above.

Before installing any other of Content Server's supporting software, you must complete the following steps:

1. Install the database management system.
   For instructions, refer to the product vendor's documentation.
2. Create and configure a database for Content Server.
   For instructions, consult our guide *Configuring Third-Party Software.* Note that database configuration is identical across different application servers. Refer to the correct chapter to create and configure the database of your choice.

Part 2

Application Server

This part contains information about installing and configuring the Tomcat Application Server as well as integrating Tomcat with Apache Web Server.

This part contains the following chapter:

- Chapter 3, “Installing and Configuring Tomcat”

Chapter 3

Installing and Configuring Tomcat

The chapter shows you how to install and configure Tomcat Application Server for Content Server, for running over SSL, and for simultaneously running multiple instances of Tomcat.

This is not an exhaustive chapter, as its covers the installation of Tomcat Application Server only so far as needed to install and run Content Server. For more extensive documentation on the installation process, see the documentation on the Apache Tomcat website.

This chapter contains the following sections:

Start/Stop Commands

This section lists commands for starting and stopping Tomcat instances.

Note

All commands require that CATALINA_HOME, CATALINA_BASE, and JAVA_HOME are set to the proper directories. To specify which instance to start or shut down, the CATALINA_BASE must be set to the corresponding Tomcat instance directory.

Action	Command
Start the Tomcat instance:	**$CATALINA_HOME/bin/startup.sh**
Shut down the Tomcat instance:	**$CATALINA_HOME/bin/shutdown.sh -force**

Step I. Installing Tomcat

Note

We assume that you are using a UNIX system.

To install the Tomcat Application Server

1. Create an installation directory for Tomcat.
2. Download and install a supported JDK.
3. Decompress the Tomcat archive file into the Tomcat installation directory:

   tar xvfz apache-tomcat-6.0.18.tar.gz
4. Edit $CATALINA_HOME/bin/catalina.sh by adding the following lines after the first comment block:

   ```
   CATALINA_HOME=<path_to_tomcat_home>
   CATALINA_PID="$CATALINA_HOME"/tomcat.pid
   ```

   Adding tomcat.pid ensures that the Tomcat process is killed when the shutdown.sh command is executed with the -force argument.
5. Set the JAVA_HOME variable to the JDK folder of the version of Java that will be used. For example:

   export JAVA_HOME=/opt/jdk1.6.0_24
6. Start the application server by running the startup command.

   -**$CATALINA_HOME/bin/startup.sh**
7. Access the following URL in a web browser: **http://<hostname>:8080/**

   This brings you to Tomcat's default homepage.
8. Shut down the application server by running the **shutdown** command.

   $CATALINA_HOME/bin/shutdown.sh -force

9. Edit the `$CATALINA_HOME/conf/tomcat-users.xml` file by adding the following lines:

```
<user username="admin" password="<password>"
   roles="admin,manager,tomcat"/>
```

   This creates a new user with the permissions to access both the Admin and Manager tools.

10. After you have successfully installed Tomcat, continue with the next section, "Configuring Tomcat."

Step II. Configuring Tomcat

Complete the steps in this section as required for your installation:

- Setting Up a Tomcat Instance
- Setting Up Multiple Instances of Tomcat to Run Simultaneously
- Configuring Tomcat for SSL

Setting Up a Tomcat Instance

1. Create a directory named `test` in `$CATALINA_HOME/webapps`.
2. Copy `tomcat.gif` from `$CATALINA_HOME/webapps/ROOT` to `$CATALINA_HOME/webapps/test`.
3. Choose the data source information that corresponds to the database you will be using and place the required `jar` files in `$CATALINA_HOME/lib`. The driver class and url data will be inserted into the `server.xml` file in the next step.

Table 1: Data Source Information

Database Driver	Parameters	Values
JTDS (third-party driver)	DriverClass	`net.sourceforge.jtds.jdbcx.JtdsDataSource`
	Required `.jar` files	`jtds-1.2.x jar`

	URL	`jdbc:jtds:sqlserver://<server>:<dbport>/<dbname>`
		
		Ex:
		`jdbc:jtds:sqlserver://10.120.14.22:1433/contentDB`

Table 1: Data Source Information *(continued)*

Database Driver	Parameters	Values
DB2	DriverClass	`com.ibm.db2.jcc.DB2Driver`
	Required `.jar` files	`db2jcc.jar, db2cc_license_cu.jar`

	URL	`jdbc:db2://<hostname>:<dbport>/ <dbname>`
		
		Ex.
		`jdbc:db2://10.120.16.30:50001/ contentDB`

Oracle Thin driver	DriverClass	`oracle.jdbc.driver.OracleDriver`
	Required `.jar` files	`ojdbc14.jar`

	URL	`jdbc:oracle:thin:@// <hostname>:1521/<dbname>`
		
		Ex.
		`jdbc:oracle:thin:@// godzilla.fatwire.com:1521/ contentDB`

Note

If you are using an Oracle database and require text attributes greater than 2000 characters, you will have to set `cc.bigtext` to `CLOB`. To support `CLOB`, use Oracle database 9.2.0.6 (or a higher supported version). Also use Oracle 10g drivers. (`CLOB` is not supported for lower database versions and for Oracle drivers 9x [thin, type 4].)

You will set `cc.bigtext` to `CLOB` when you run the Content Server installer (as explained in "Installation Procedures," on page 34.)

4. Edit the `server.xml` file as follows:
   a. Add the following code before the `</Host>` tag:

```
<Context path="/cs" docBase="cs" reloadable="true"
crossContext="true">
   <Resource name="csDataSource" auth="Container"
   type="javax.sql.DataSource" maxActive="100" maxIdle="30"
   username="<db_user_name>" password="<db_user_password>"
   driverClassName="<DriverClass_Value>"
   url="<db_driver_url_value>"/>
</Context>
```

   b. Set the `driverClassName` and `url` to the values you selected from Table 1 in step 3.

c. Set the `username` and `password`.

Note

Sample configuration for an Oracle Database:

```
Context path="/cs" docBase="cs"
reloadable="true" crossContext="true">
   <Resource name="csDataSource"
   auth="Container" type="javax.sql.DataSource"
   maxActive="100" maxIdle="30"
   username="csuser" password="password"
   driverClassName="oracle.jdbc.driver.OracleDri
   ver" url="jdbc:oracle:thin:@//10.0.0.1:1521/
   contentDB"/>
</Context>
```

5. Create a file called `setenv.sh` in `$CATALINA_HOME/bin` and add the following line to it:

```
CLASSPATH=$CLASSPATH:"$JAVA_HOME"/lib/
   tools.jar:<path_to_cs_install_dir>/bin
```

6. Set the value of the `Max PermGen` space to be at least in the range of 128MB – 196MB. To do so, edit the `catalina.sh` file in `$CATALINA_HOME/bin` by adding the following line below the comment block:

```
CATALINA_OPTS="-XX:MaxPermSize=<desired_permgen_size>
```

7. Test the new instance as follows:
   a. Make sure the Tomcat instance is shut down before attempting to start it.
   b. Start the Tomcat instance by running the startup command:

   `$CATALINA_HOME/bin/startup.sh`

   c. In your browser, open `http://<hostname>:8080/test/tomcat.gif`

   If the `tomcat.gif` image is displayed, the setup was done properly.
8. For the next step, see the "Installation Quick Reference," on page 7.

Setting Up Multiple Instances of Tomcat to Run Simultaneously

This section explains the extra steps that need to be taken if multiple Tomcat instances have been set up and must run simultaneously—**regardless of the applications they are serving**. To set up multiple Tomcat instances, follow the steps used for setting up the first instance (see "Setting Up a Tomcat Instance," on page 19). The steps in this section ensure that no two instances use the same ports:

1. Shut down all running instances of Tomcat.
2. Check that the `server.xml` file for each Tomcat instance uses unique port values. The port values to check are:
   - The `port` value in the first connector tag (set to `8080` in the main instance and previous example). This is the main port where the application will be deployed.
   - The `shutdown port` value, located in the `Server` tag (with a value of 8005 in the example above as well as the main instance). If this value is identical for two

instances attempting to run simultaneously, the second instance will be unable to start.

- The `redirectPort` value in both `Connector` tags.
- The `connector port` value, located in the second `Connector` tag.

3. Test whether two instances can run simultaneously:
   a. Open a shell and `cd` to the `$CATALINA_HOME` of the first Tomcat instance, and run the **`startup`** command:

      `bin/startup.sh`

   b. Open a shell and `cd` to the `$CATALINA_HOME` of the second Tomcat instance, and run the **`startup`** command:

      `bin/startup.sh`

   c. To verify that the two instances can run simultaneously, display the image `tomcat.gif`:

      ```
      http://<hostname_for_1st_instance>:<port_for_1st_instance>/
         test/tomcat.gif
      http://<hostname_for_2nd_instance>:<port_for_2nd_instance>/
         test/tomcat.gif
      ```

      If there is an error, check both `server.xml` files to make sure the instances are not sharing any ports.

4. For the next step, see the “Installation Quick Reference,” on page 7.

Configuring Tomcat for SSL

> **Note**
>
> This section applies only to single-server Content Server installations.

1. Generate a certificate:

   ```
   keytool -genkey -alias tomcat -keyalg RSA –keystore
   <path_to_$CATALINA_HOME>/keys/.keystore
   ```

   a. Set the `-keystore` parameter to the location where you want the generated keys to be stored.

   b. When prompted for the keystore password, you may use your own password, or the default "`changeit`." If a custom password is entered, a value in the `server.xml` file will need to be changed (as explained in step 2).

   c. Enter your first and last name, name of organization, city, state, and country code when prompted, then click **Yes** to confirm.

   d. At the next prompt, "`Enter key password for <tomcat> (RETURN if same as keystore password)`," press Enter, as the key password **must** be the same as the keystore password.

2. Edit `$CATALINA_HOME/conf/server.xml`, uncomment the `SSL` section, and add the following attributes to the SSL connector:

   - `keystoreType="JKS"`

     This attribute is set to JKS for "`Java Keystore`" (the format produced by Java's keytool).

   - `keystoreFile="<path_to_$CATALINA_HOME>/keys/.keystore"`

     This attribute is set to the path where the `.keystore` file was created and the same path used in step 1.

   - `keystorePass="<new_password>"`

     This attribute is needed only if the keystore password used in step 1 is not "`changeit`", and should be set to the custom password used.

   a. If the `redirectPort` values in the `<Connector>` tags are not already set to `8443`, change them now.

3. Point your browser to `https://<hostname>:8443/test/tomcat.gif`.

   If your system works correctly, you will be prompted to accept the certificate. When you accept the certificate, the Tomcat image is displayed.

4. For the next step, see the "Installation Quick Reference," on page 7.

Part 3

Web Server

This part shows you how to install and configure Apache Web Server.

This part contains the following chapter:

- Chapter 4, “Integrating with Apache Web Server”

Chapter 4

Integrating with Apache Web Server

The chapter shows you how to install either Apache Web Server 2.0.x or 2.2.x and then integrate the version you installed with the Tomcat Application Server. The steps in this chapter are required if you wish to integrate Tomcat with Apache Web Server or to create a vertical cluster that will be load balanced through Apache Web Server.

This chapter contains the following sections:

Installing and Integrating Apache Web Server 2.0.x

This section contains instructions for installing Apache Web Server 2.0.x and then integrating this version of Apache with the Tomcat application server. This section contains the following topics:

Installing Apache Web Server 2.0.*x*

1. Install Apache 2.0.*x*.
2. Set the variable `$APACHE2_HOME` to the directory in which Apache 2.0.*x* was installed.
3. Download and compile the newest release of `mod_jk`:
   a. After downloading `mod_jk`, untar it using the following commands:

      ```
      gunzip jakarta-tomcat-connectors-1.2.15-src.tar.gz
      tar -xvf jakarta-tomcat-connectors-1.2.15-src.tar
      ```

   b. Go to the `jakarta-tomcat-connectors-<version>-src/jk/native` directory:

      ```
      cd jakarata-tomcat-connectors-1.2.15-src/jk/native
      ```

   c. Configure and compile the `mod_jk.so` file:

      1) `./configure --with-apxs=$APACHE2_HOME/bin/apxs`
      2) `make`
      3) `cd apache-2.0`
      4) `$APACHE2_HOME/bin/apxs -n jk -i mod_jk.so`

      The last command automatically places the `mod_jk.so` file into your `$APACHE2_HOME/modules` directory.

Integrating Tomcat with Apache Web Server 2.0.*x* (mod_jk)

In this step you will use `mod_jk` to integrate Tomcat application server with Apache Web Server 2.0.*x*.

1. Create `workers.properties` in `$APACHE2_HOME/conf` with the following contents:

   ```
   ps=/
   worker.list=tomcat
   worker.tomcat.port=<ajp port>
   worker.tomcat.host=<hostname>
   worker.tomcat.type=ajp13
   worker.tomcat.lbfactor=1
   ```

   The `<ajp port>` value can be found in the `server.xml` file in the `<Connector>` tag referencing the AJP protocol. The default value is `8009`.
2. Edit `$APACHE2_HOME/conf/httpd.conf`:
   a. Add the following to the `LoadModules` section:

```
LoadModule jk_module modules/mod_jk2.so
```

b. Add the following before `Section 3: Virtual Hosts`:

```
#
# mod_jk settings
#
JkWorkersFile "conf/workers.properties"
JkLogFile "logs/mod_jk.log"
JkLogLevel info
JkMount /cs/* tomcat
# End of mod_jk settings
```

3. Test `httpd.conf` by typing the following:

```
cd $APACHE2_HOME/bin
apachectl configtest
```

If successful, you will receive a warning message and then `"Syntax OK"`. Ignore the warning.

4. Start Tomcat:

```
$CATALINA_HOME/bin/startup.sh
```

5. Start Apache:

```
$APACHE2_HOME/bin/apachectl start
```

6. Point your browser to `http://<hostname>/test/tomcat.gif` and verify that the Tomcat image is displayed.

Installing and Integrating Apache Web Server 2.2.x

This section contains instructions for installing Apache Web Server 2.2.x and then integrating this version of Apache with the Tomcat application server. This section contains the following topics:

- Installing Apache Web Server 2.2.x
- Integrating Tomcat with Apache Web Server 2.2.x (mod_proxy_ajp)

Installing Apache Web Server 2.2.*x*

1. Extract, compile, and install Apache 2.2.*x* as follows:

a. `tar xvfjp httpd-2.2.11.tar.bz2`

b. `./configure --enable-so --enable-mods-shared="proxy cache ssl all" --prefix=/u01/software/Apps/httpd/httpd_01/httpd-2.2.11 --with-include-apr`

c. `make`

d. `make install`

2. Set the variable `$APACHE2_HOME` to the directory in which Apache 2.2.*x* was installed.

Integrating Tomcat with Apache Web Server 2.2.*x* (mod_proxy_ajp)

In this step you will use `mod_proxy_ajp` to integrate Tomcat Application Server with Apache Web Server 2.2.*x*.

1. Open `$APACHE2_HOME/conf/httpd.conf` and add the following to the "Main" server configuration section:

```
<Location /balancer-manager>
   SetHandler balancer-manager
   Order Deny,Allow
   Deny from all
</Location>

<Proxy balancer://cluster>
   BalancerMember ajp://<host>:<ajp_port> loadfactor=1
</Proxy>

ProxyPass /cs balancer://cluster/cs
ProxyPassReverse /cs balancer://cluster/cs
```

2. Test `httpd.conf` by typing the following:

```
cd $APACHE2_HOME/bin
apachectl configtest
```

   If successful, you will receive the message "`Syntax OK`". Ignore any warning messages.

3. Start Tomcat:

```
$CATALINA_HOME/bin/startup.sh
```

4. Start Apache:

```
$APACHE2_HOME/bin/apachectl start
```

5. Point your browser to `http://<hostname>/test/tomcat.gif` and verify that the Tomcat image is displayed.

Part 4

Content Server

This part shows you how to install Content Server. It contains the following chapter:

- Chapter 5, “Installing and Configuring Content Server”

Chapter 5

Installing and Configuring Content Server

This chapter guides you through the installation of Content Server on the Tomcat Application Server.

This chapter contains the following sections:

Installing Content Server

After completing Steps I – IV.1 in the "Installation Quick Reference," on page 7, you install Content Server using the provided installer. The installation process consists of two stages:

- In the first stage, the installer gathers necessary configuration information, installs the file structure, and automatically deploys the Content Server application. At the end of the first stage, the GUI installer displays the "Installation Actions" window which lists the steps you must perform before proceeding to the second stage of the installation. In a silent installation, these steps are displayed on the command-line.

  If the first stage fails, the installer allows you to go back and modify your configuration options (except the database type), and retry the installation.

  Note

  If you need to change the type of database you have specified during the installation, you must delete the installed Content Server file structure and restart the installation.

- In the second stage, the installer populates the database with the tables and data required for Content Server to function. If the second stage fails, you must drop the database tables, undeploy the Content Server application, delete the Content Server file structure, and re-install Content Server.

Installation Procedures

This section explains the two ways to install Content Server:

- Running the GUI Installer

  When you run the GUI installer, a graphical interface guides you through the installation process, prompting you to enter information and select options as required. It also provides access to online help.

- Installing Silently

  When you install silently, you enter your installation settings into one of the sample `omii.ini` files provided, using comments in the file for guidance. The installer uses the settings in the file to install and deploy Content Server.

Running the GUI Installer

To install Content Server using the GUI installer

1. Make sure you have completed Steps I – IV.1 in the "Installation Quick Reference," on page 7.
2. Extract the Content Server installer archive into a temporary directory.
3. Change to the temporary directory containing the installer files.

4. Execute the installer script:
   - On Windows: **`csInstall.bat`**
   - On Unix: **`csInstall.sh`**

   The installer provides online help at each screen. Read the online help for detailed explanations of the options in each screen. If you encounter problems during the installation process, consult the online help for possible causes and solutions.
5. Halfway through the installation, after the Content Server application is deployed, the GUI installer displays the "Installation Actions" window, which lists the steps you must perform to complete the installation. Before performing the listed steps, if you are using an Oracle database and require text attributes greater than 2000 characters, set the `cc.bigtext` property to `CLOB`:
   a. Open the Property Editor by clicking the **Property Editor** button.
   b. In the Property Editor, open the `futuretense.ini` file.
   c. Click the **Database** tab.
   d. Locate the `cc.bigtext` property and set its value to `CLOB`.
   e. Save your changes and close the Property Editor.
6. When the installation completes successfully, continue with "Post-Installation Steps," on page 37.

Installing Silently

To install Content Server silently

1. Make sure you have completed Steps I – IV.1 in the "Installation Quick Reference," on page 7.
2. Extract the Content Server installer archive into a temporary directory.
3. The `Misc/silentinstaller` folder of the temporary directory contains sample `omii.ini` files that you can use for your silent installation.
   - If you are installing a content management or development system, use the `generic_omii.ini` file.
   - If you are installing a delivery system, use the `delivery_omii.ini` file.
   a. Edit the file for your type of installation by verifying the default values and entering additional values as required. Refer to the comments in the file for guidance.
   b. Save the file and copy it to a folder outside `<cs_install_dir>`.

4. If you are installing a delivery system, you must set unique passwords for the `fwadmin` and `ContentServer/SatelliteServer` users:
   a. Open the `cscore.xml` file in the `ContentServer` folder of the temporary directory.
   b. Set passwords in the following section:

```
<IF COND="Variables.bShowInstallTypeDialog=false">
   <THEN>
      <DIALOGACTION>
         <SETVARIABLE NAME="passwordVar" VALUE=" "/>
         <SETVARIABLE NAME="passwordAdminVar" VALUE=" "/>
      </DIALOGACTION>
   </THEN>
</IF>
```

      1) Set the password for the `fwadmin` user in the `VALUE` field following `NAME="passwordVar"`.
      2) Set the password for the `ContentServer/SatteliteServer` user in the `VALUE` field following `NAME="passwordAdminVar"`.

   c. Save and close the file.
5. Edit the `install.ini` file in the root folder of the temporary directory:
   a. Set the `nodisplay` property to `true`.
   b. Uncomment the `loadfile` property and set it to the path and name of the `omii.ini` file from step 3b.

> **Note**
>
> Verify that you have correctly specified the file system path. For example, for Windows:
>
> `CSInstallDirectory=C\:/csinstall`
>
> - or -
>
> `c\:\\install`

   c. Save and close the file.
6. Change to the temporary directory containing the installer files.
7. Execute the installer script:
   - On Windows: **`csInstall.bat -silent`**
   - On Unix: **`csInstall.sh -silent`**
8. To complete the installation, refer to steps 5 – 6 on page 35.
9. When the installation completes successfully, continue with "Post-Installation Steps," on page 37.

Post-Installation Steps

When the installation process completes successfully, perform the steps in this section, as required for your configuration:

A. Setting File Permissions (Unix Only)

If you installed Content Server on Unix, you must grant the "executable" permission to all files in the `<cs_install_dir>/bin` directory. To do so, perform the following steps:

1. Change to the `<cs_install_dir>/bin` directory.
2. Run the following command: **`chmod +x *`**
3. Restart Tomcat.

B. Loading the XML Parser

Content Server contains a modified version of the Microsoft XML Parser (`MSXML.jar` in the `WEB-INF/lib` directory). If a different version of the Parser is referenced in the `CLASSPATH` environment variable, you must change the path to refer to the version used by Content Server; otherwise, Content Server will fail when parsing XML.

C. Adding the Content Server Binaries Directory to the Library Path Variable

In order for the ContentServer component to function in Content Server, you must add the CS binaries directory, `<cs_install_dir>/bin`, to your library path variable as follows:

- For HP-UX:

  Add `<cs_install_dir>/bin` to `SHLIB_PATH`.
- For Linux and Solaris:

  Add `<cs_install_dir>/bin` to `LD_LIBRARY_PATH`.
- For AIX:

  Add `<cs_install_dir>/bin` to `LIBPATH`.
- For Windows:

  Add `<cs_install_dir>\bin` to your system's `PATH` variable.

D. Verifying the Installation

Verify the installation by logging in to Content Server as the administrator.

Logging in to the Advanced Interface

1. Point your browser to the following URL:

   `http://<hostname>:<port>/<context>/Xcelerate/LoginPage.html`

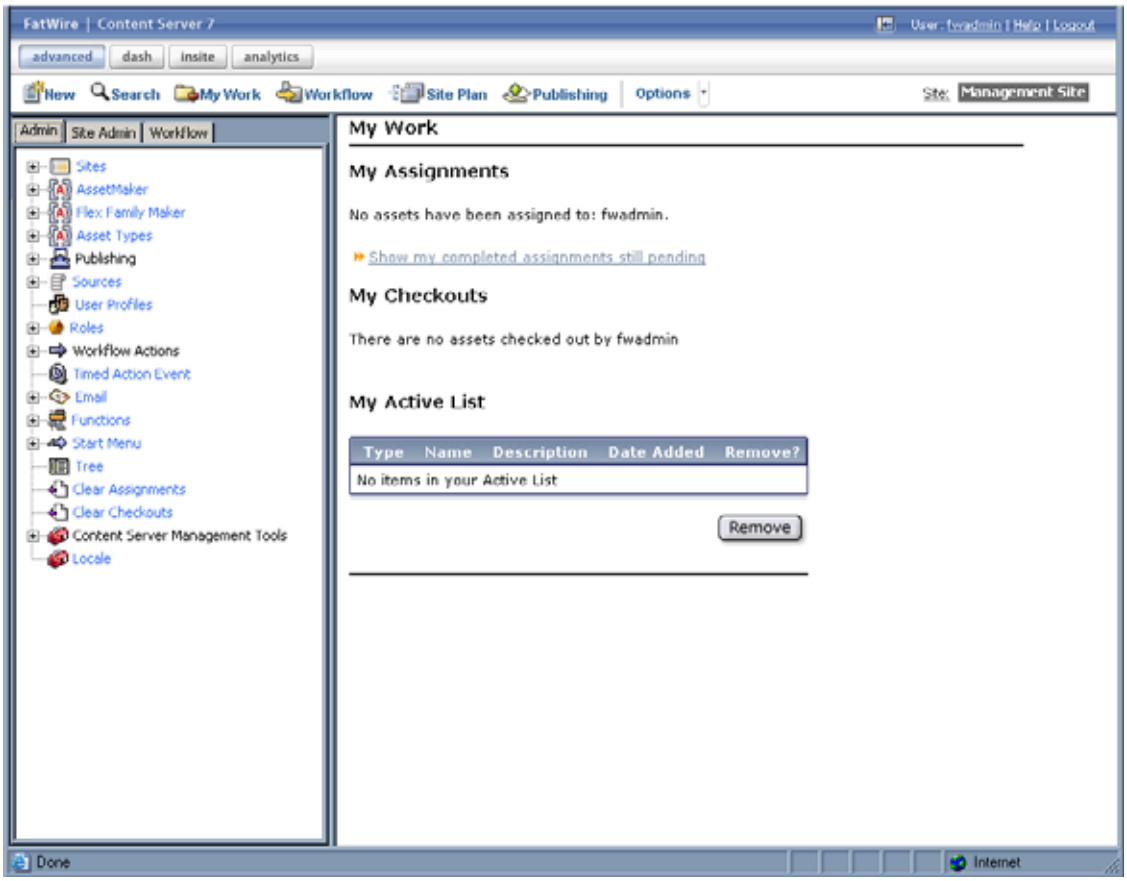
   Content Server displays the Advanced interface login form.

2. Enter the following credentials:
   - User name: **fwadmin**
   - Password: **xceladmin**

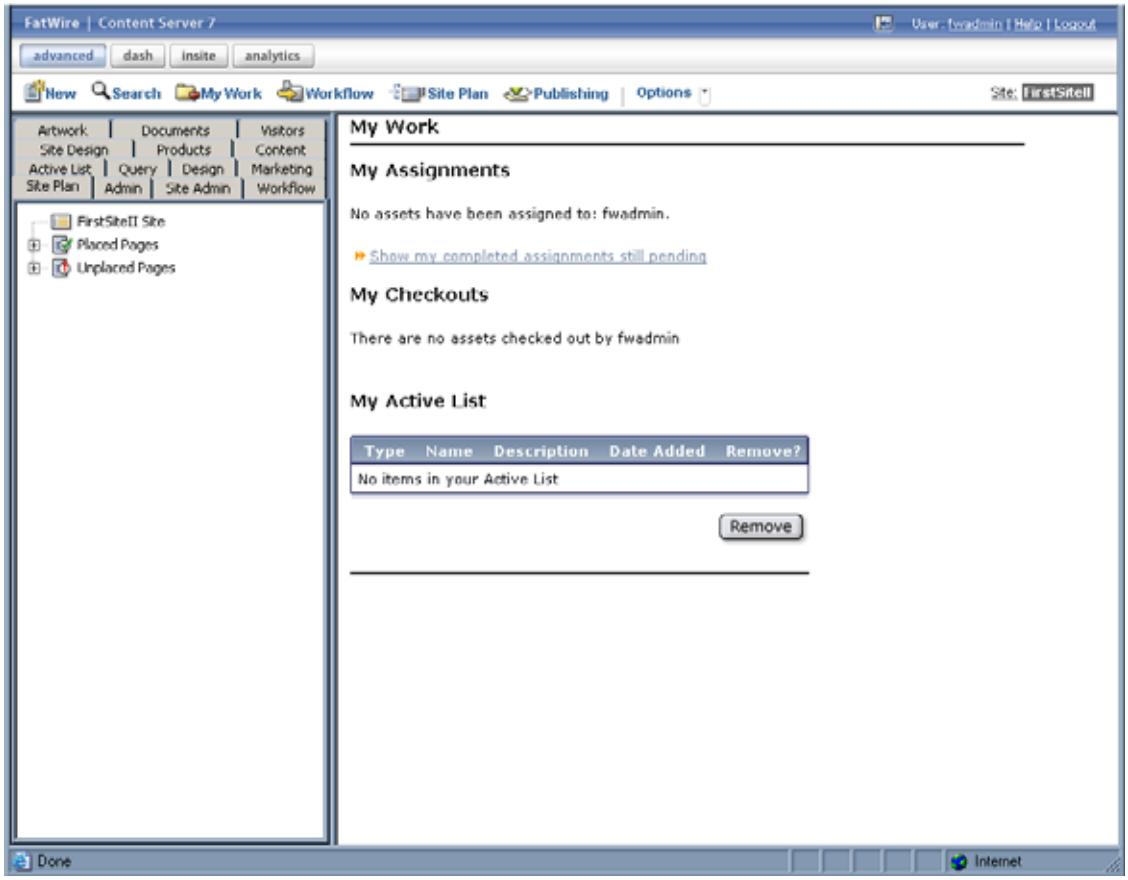
3. Click **Login**.

   Depending on whether you installed sample sites, one of the following happens:

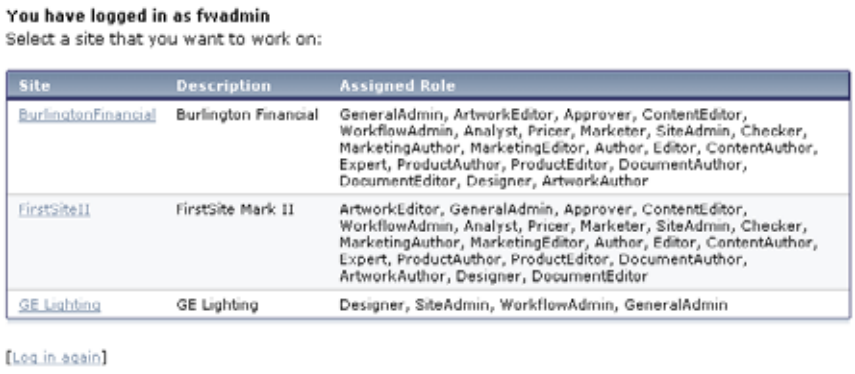
   - If you did not install any sample sites, you are logged in to the built in Content Server management site. Only system administration functionality is available.



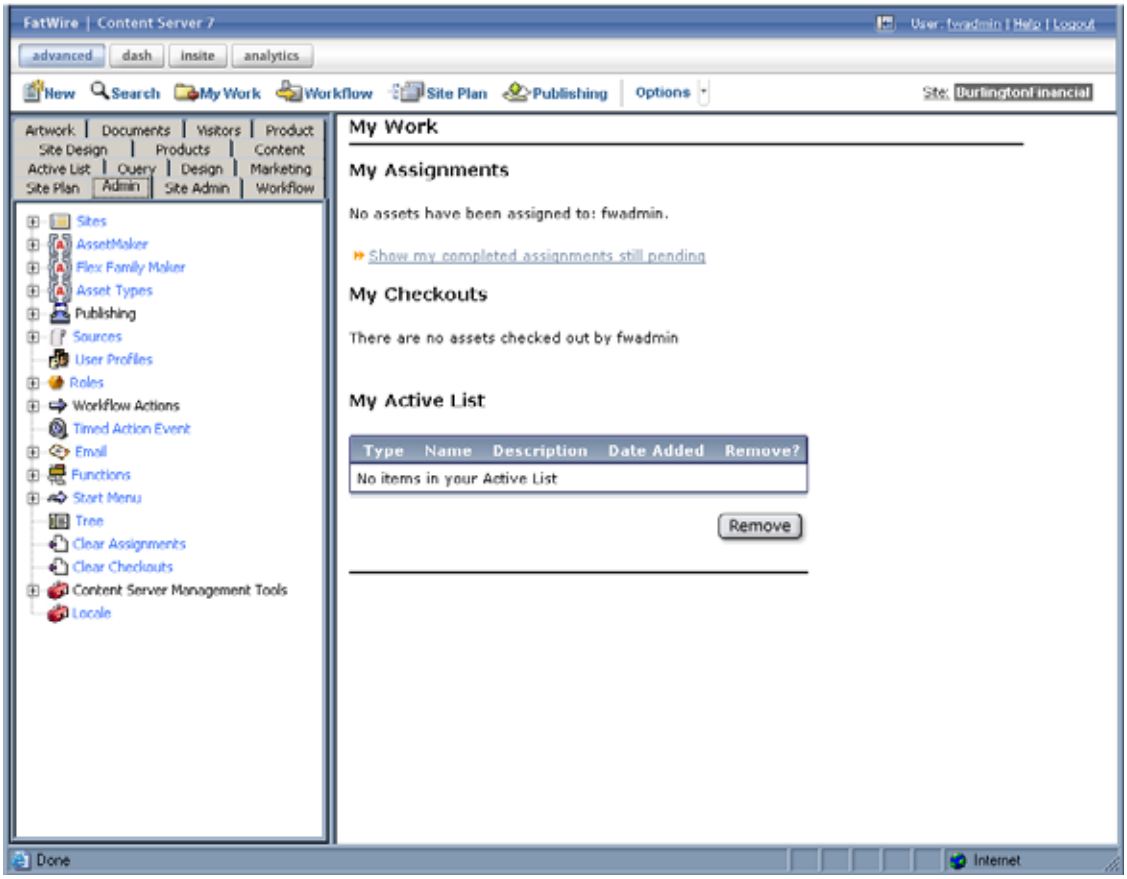
- If you installed one sample site, you are logged in to that site.



- If you installed more than one sample site, Content Server displays the "Select Site" screen. In such case, select the sample site you wish to log in to.



When you select a site, you are logged in to that site.



Logging in to the Dash Interface

1. Point your browser to the following URL:

   `http://<hostname>:<port>/<context>`

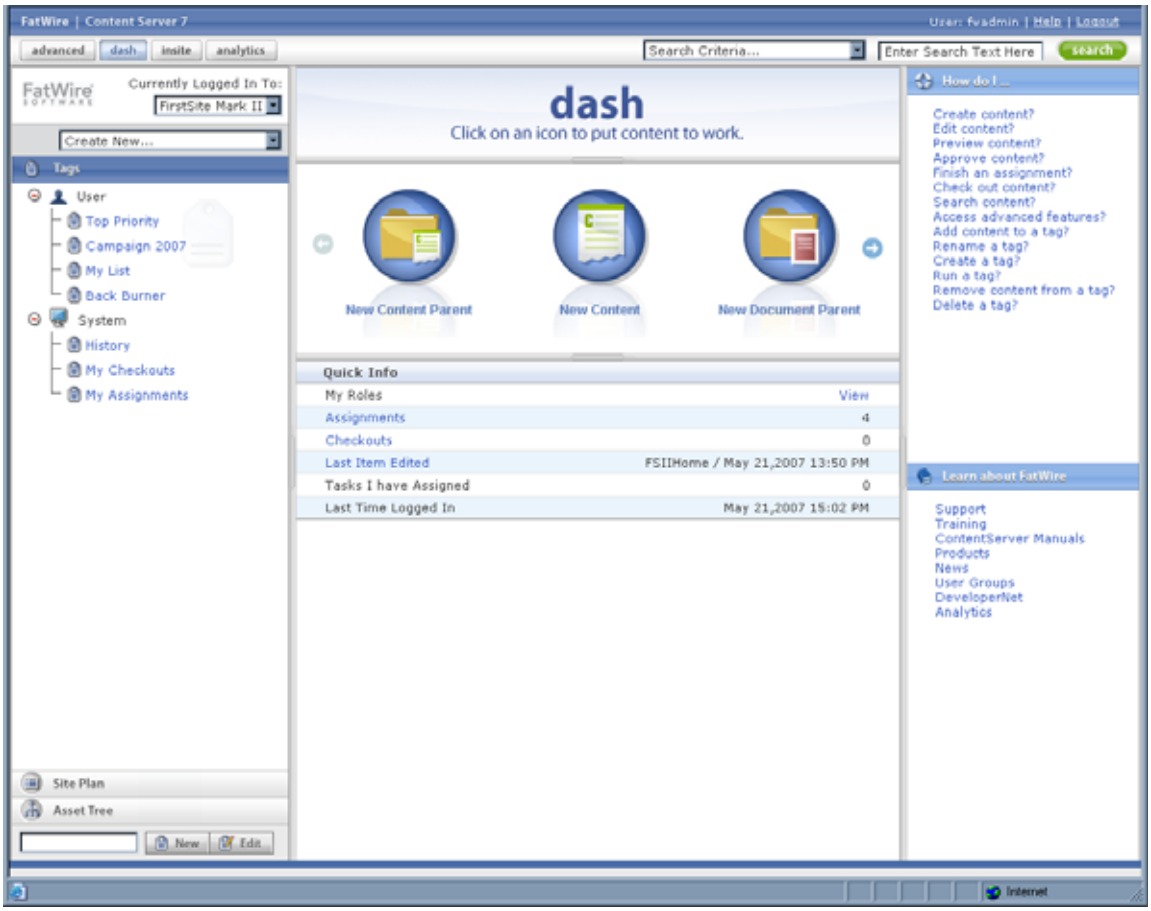
   Content Server displays the Dash interface login page.

2. Enter the following credentials:
   - User name: **fwadmin**
   - Password: **xceladmin**

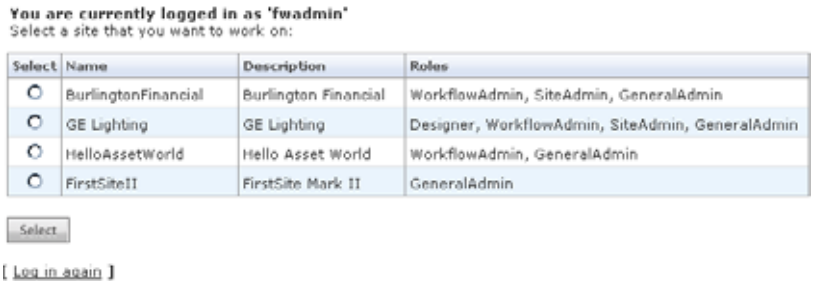
3. Click **Login**.

   Depending on whether you installed sample sites, one of the following happens:

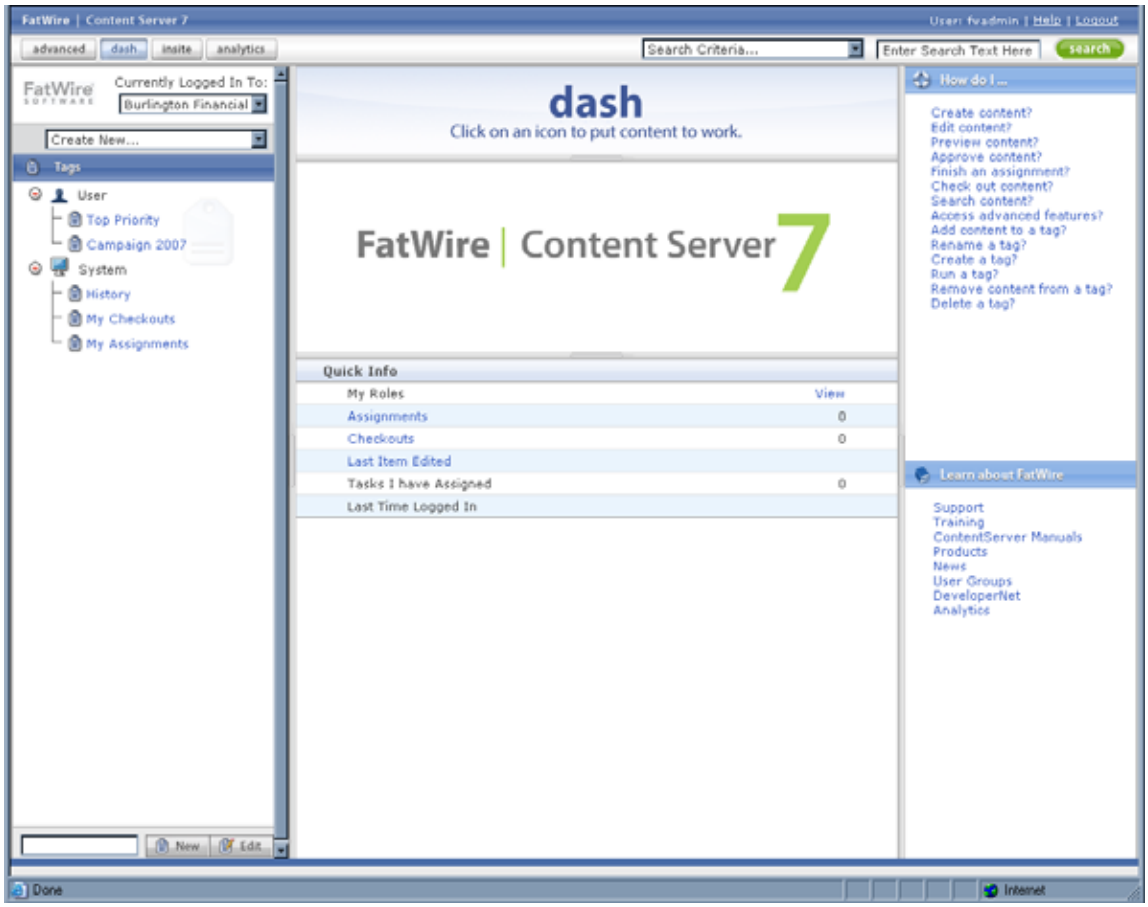
   - If you did not install any sample sites, Content Server displays a message notifying you of that fact. You will not be able to log in to the Dash interface until at least one site exists on your system.
   - If you installed one sample site, you are logged in to that site.



   - If you installed more than one sample site, Content Server displays the “Select Site” screen. In such case, select the sample site you wish to log in to.



When you select a site, you are logged in to that site.



Content Server is now ready for configuration. Follow the steps in the rest of this chapter.

E. Integrating with LDAP (Optional)

If you wish to perform LDAP integration, do the following:

1. Set up a supported LDAP server of your choice. For instructions, see *Configuring Third-Party Software*.
2. Run the LDAP integration program included on the Content Server CD.

For more information, see the *Integrating Content Server with LDAP.*

F. Setting Up a Content Server Cluster (Optional)

This section is written on the assumption that you have already installed and configured Tomcat Application Server as specified in the previous sections of this guide. This means:

- You are installing a vertical cluster (Tomcat Application Server instances are installed on the same machine).
- You have installed and configured a single instance of Content Server to run through Tomcat. You have also logged in to the instance and confirmed that it is operational.

Step I. Creating Cluster Members

1. Create a new Tomcat instance by following the steps in Chapter 3, "Installing and Configuring Tomcat."
2. Change the port settings of the new instance by following the steps in "Setting Up Multiple Instances of Tomcat to Run Simultaneously," on page 21.
3. Install the Content Server cluster member on the newly created Tomcat instance. Follow the steps in "Running the GUI Installer," on page 34 or "Installing Silently," on page 35, but observe the following exceptions:
   - When running the GUI installer:
     - In the "Installation Directory" screen, select the installation directory that you created in step 1 of this section.
     - In the "Clustering" screen, select **Cluster Member**.
     - In the "Content Server Shared File System" screen, enter the path to the shared file system of the primary cluster member. This defaults to the following:

       `<path_to_cs_install_dir_of_primaryClusterMember>/Shared`.
     - In the "Content Server URL Parameters" screen, enter the IP address and port that you set in step 2 of this section.
     - In the "Content Server Application Deployment" screen, enter the path to `CATALINA_HOME` of the second Tomcat instance.
   - When configuring the `omii.ini` file for silent installation:
     - Set `CSInstallDirectory` to the installation directory that you created in step 1 of this section.
     - Set `CSInstallType` to `cluster`.
     - Set `CSInstallSharedDirectory` to the shared file system of the primary cluster member.
     - Set `CSInstallWebServerAddress` and `CSInstallWebServerPort` to the IP address and port that you set in step 2 of this section.
     - Set `CSInstallAppServerPath` to `CATALINA_BASE`.
4. For every member of the cluster, edit the `web.xml` file (located in `<path to cs_tomcat directory>/webapps/cs/WEB-INF/`) by adding the line **`<distributable/>`** between the `<web-app>` and `<servlet>` lines:

   ```
   <web-app>
   <distributable/>
   <servlet>
   ```
5. To enable Tomcat to cluster, do the following:
   a. For every member of the cluster, open the `server.xml` file and add the code shown below (replacing the sample values with the values for your system). If you need more information, refer to the Tomcat documentation.

```
<Cluster className="org.apache.catalina.ha.tcp.SimpleTcpCluster"
      channelSendOptions="8">
   <Manager
         className="org.apache.catalina.ha.session.DeltaManager"
```

```
            expireSessionsOnShutdown="false"
            notifyListenersOnReplication="true"/>
      <Channel
            className="org.apache.catalina.tribes.group.GroupChannel"
            >
         <Membership
               className="org.apache.catalina.tribes.membership.Mcast
               Service"
               address="228.0.0.4"
               port="45564"
               frequency="500"
               dropTime="3000"/>
         <Receiver
               className="org.apache.catalina.tribes.transport.nio.Ni
               oReceiver"
               address="auto"
               port="4180"
               autoBind="100"
               selectorTimeout="5000"
               maxThreads="6"/>
         <Sender
               className="org.apache.catalina.tribes.transport.Replic
               ationTransmitter">
            <Transport
                  className="org.apache.catalina.tribes.transport.nio
                  .PooledParallelSender"/>
         </Sender>
         <Interceptor
               className="org.apache.catalina.tribes.group.intercepto
               rs.TcpFailureDetector"/>
         <Interceptor
               className="org.apache.catalina.tribes.group.intercepto
               rs.MessageDispatch15Interceptor"/>
      </Channel>
      <Valve className="org.apache.catalina.ha.tcp.ReplicationValve"
            filter=""/>
      <Valve
            className="org.apache.catalina.ha.session.JvmRouteBinderV
            alve"/>
      <Deployer
            className="org.apache.catalina.ha.deploy.FarmWarDeployer"
            tempDir="/tmp/war-temp/"
            deployDir="/tmp/war-deploy/"
            watchDir="/tmp/war-listen/"
            watchEnabled="false"/>
      <ClusterListener
            className="org.apache.catalina.ha.session.JvmRouteSession
            IDBinderListener"/>
      <ClusterListener
            className="org.apache.catalina.ha.session.ClusterSessionL
            istener"/>
   </Cluster>
```

b. Check the following:

- All Tomcat instances belonging to the same cluster have the same values for the `mcastAddr` and `mcastPort` in the `Membership` tag.

- All Tomcat instances have a different value for the `tcpListeningPort` in the `Receiver` tag.

6. Make sure there is a `usedisksync` directory in the `Shared` directory of your primary Content Server installation, or the first one that was created. If the `usedisksync` directory is not already there, then create it with the following command:

   ```
   mkdir <path_to_primary_cs_install_dir>/Shared/usedisksync
   ```

7. To finish configuring Content Server for clustering, edit the following properties by using Content Server's Property Editor. **Complete the steps below for all cluster members**:

   a. Launch the Content Server Property Editor (make sure your `DISPLAY` variable is set):

      ```
      <cs_install_dir>/propeditor.sh
      ```

   b. From the **File** menu, select **Open**, navigate to your Content Server installation directory and open the `futuretense.ini` file.

   c. Click **Cluster**.

   d. Make sure the following variables are set as shown below:

      - `cc.cacheNoSync` is set to `false`
      - `ft.sync` is set to a value (assigned by you) that is identical for all members of this cluster, e.g., `cluster1`.
      - `ft.usedisksync` is set to the path of the `usedisksync` directory created in step 6.

8. Verify the newly created cluster member. For instructions, see "D. Verifying the Installation," on page 38.

9. To create additional cluster members, repeat the steps in this section. Once the cluster is created, continue with the next step, "Step II. Balancing Load."

Step II. Balancing Load

Depending on which version of Apache Web Server you are using (2.0.x or 2.2.x), do one of the following:

- (For Apache 2.0.x) Balancing Load with mod_jk
- (For Apache 2.2.x) Balancing Load with mod_proxy_ajp

(For Apache 2.0.x) Balancing Load with mod_jk

For every member of the cluster, complete the following steps:

1. Open the `server.xml` file and add the following attribute to the `Engine` tag:

   ```
   <Engine name="Catalina" defaultHost="localhost"
      jvmRoute="jvm1">
   ```

> **Note**
>
> Each member can be given any node name as long as the names are unique across members.

2. Make sure the `workers.properties` file in `$APACHE2_HOME/conf` has the following content:

```
ps=\
worker.list=node1, node2, loadbalancer
worker.node1.port=<ajp port1>
worker.node1.host=<hostname>
worker.node1.type=ajp13
worker.node1.lbfactor=1
worker.node1.cachesize=1
worker.node2.port=<ajp port2>
worker.node2.host=<hostname>
worker.node2.type=ajp13
worker.node2.lbfactor=1
worker.node2.cachesize=1
worker.loadbalancer.type=lb
worker.loadbalancer.balanced_workers=node1,node2
/cs/*=loadbalancer
```

3. Use the names stored in the `server.xml` file mentioned in step 1 of this section.

Note

Step 2 supports two cluster members and one load balancer. For each additional cluster member, add the member name as well as the lines below to the `worker.list` and `worker.loadbalancer.balanced_workers` files:

```
worker.<member name>.port=<ajp port>
worker.<member name>.host=<hostname>
worker.<member name>.type=ajp13
worker.<member name>.lbfactor=1
worker.node1.cachesize=1
```

4. For each cluster member, edit the `$CATALINA_HOME/conf/web.xml` file by adding the line **`<distributable/>`** between the `<web-app>` and `<filter>` lines (as shown below):

```
<web-app>
<distributable/>
<filter>
```

5. Load balancer configuration is now complete. Restart Apache for the changes to take effect.

(For Apache 2.2.x) Balancing Load with mod_proxy_ajp

For every cluster member, complete the following steps:

1. Open the `server.xml` file and add the following attribute to the `Engine` tag:

```
<Engine name="Catalina" defaultHost="localhost"
   jvmRoute="jvm1">
```

Note

Each member can be given any node name as long as the names are unique across members.

2. Open the `httpd.conf` file and add the following to the "Main" server configuration section:

```
<Location /balancer-manager>
   SetHandler balancer-manager
   Order Deny,Allow
   Deny from all
</Location>

<Proxy balancer://cluster>
   BalancerMember ajp://<tomcat_1>:<ajp_port_tomcat1>
      loadfactor=1 route=<jvmroute_of_tomcat_1>
   BalancerMember ajp://<tomcat_2>:<ajp_port_tomcat2>
      loadfactor=1 route=<jvmroute_of_tomcat_2>
   ProxySet stickysession=JSESSIONID
</Proxy>

ProxyPass /cas balancer://cluster/cas
ProxyPassReverse /cas balancer://cluster/cas
ProxyPass /cs balancer://cluster/cs
ProxyPassReverse /cs balancer://cluster/cs
```

3. For each cluster member, edit the `$CATALINA_HOME/conf/web.xml` file by adding the line **`<distributable/>`** between the `<web-app>` and `<filter>` lines:

```
<web-app>
<distributable/>
<filter>
```

4. Load balancer configuration is now complete. Restart Apache for the changes to take effect.

G. Setting Up Content Server for Its Business Purpose

You are now ready to configure Content Server for business use. For instructions, see the *Content Server Administrator's Guide* and the *Content Server Developer's Guide*. The guides explain how to create and enable a content management environment including the data model, content management sites, site users, publishing functions, workflow operations, and client interfaces.