Oracle® WebCenter Sites

Installing Satellite Server

11*g* Release 1 (11.1.1)

April 2012

ORACLE®

Oracle® WebCenter Sites Installing Satellite Server, 11g Release 1 (11.1.1)

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About This Guide

This guide provides information about Oracle WebCenter Sites: Satellite Server, including co-resident and remote (delivery) instances. This guide also describes the process of installing and configuring remote Satellite Server instances on any supported application server for delivery purposes and for optimizing the performance of your WebCenter Sites system.

Applications discussed in this guide are former FatWire products. Naming conventions are the following:

- *Oracle WebCenter Sites* is the current name of the application previously known as *FatWire Content Server*. In this guide, *Oracle WebCenter Sites* is also called *WebCenter Sites*.
- *Oracle WebCenter Sites: Satellite Server* is the current name of the application previously known as *FatWire Satellite Server.* In this guide, *Oracle WebCenter Sites: Satellite Server* is also called *Satellite Server.*

Audience

This guide is for installation engineers and anyone else who has experience installing and configuring enterprise-level software on Oracle-supported application servers.

Related Documents

For more information, see the following documents:

- *Oracle WebCenter Sites Property Files Reference*
- *Oracle WebCenter Sites Administrator's Guide*
- *Oracle WebCenter Sites Developer's Guide*

Graphics in This Guide

Many steps in this guide include screen captures of dialog boxes and similar features that you interact with in order to complete the steps. The 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.

Conventions

The following text conventions are used in this guide:

- **Boldface** type indicates graphical user interface elements that you select.
- *Italic* type indicates book titles, emphasis, or variables for which you supply particular values.
- `Monospace` type indicates file names, URLs, sample code, or text that appears on the screen.
- **`Monospace bold`** type indicates a command.

Third-Party Licenses

Oracle WebCenter Sites and its applications include third-party libraries. For additional information, see *Oracle WebCenter Sites 11gR1: Third-Party Licenses*.

Chapter 1

Oracle WebCenter Sites: Satellite Server

Satellite Server works with your WebCenter Sites system to provide the following benefits:

- An additional layer of caching, supplementing the layer of caching that is provided by the WebCenter Sites cache.
- Scalability. You can quickly and economically scale your WebCenter Sites system by adding remote installations of Satellite Server.
- Improved performance. Satellite Server improves your website's performance by reducing the load on WebCenter Sites and moving content closer to the website visitors who will view it.
- The ability to cache REST calls. For this reason you may wish to add a remote Satellite Server in front of a content management installation as well as a delivery installation.

This chapter introduces you to the configurations that you implement in order to receive these benefits.

You can configure Satellite Server in the following ways:

- Co-Resident, which provides a second layer of caching and allows to simulate live delivery of content on development and management systems.
- Remote, which improves performance and scalability on delivery systems.

The following sections describe these configurations and what they are used for in greater detail.

Co-Resident

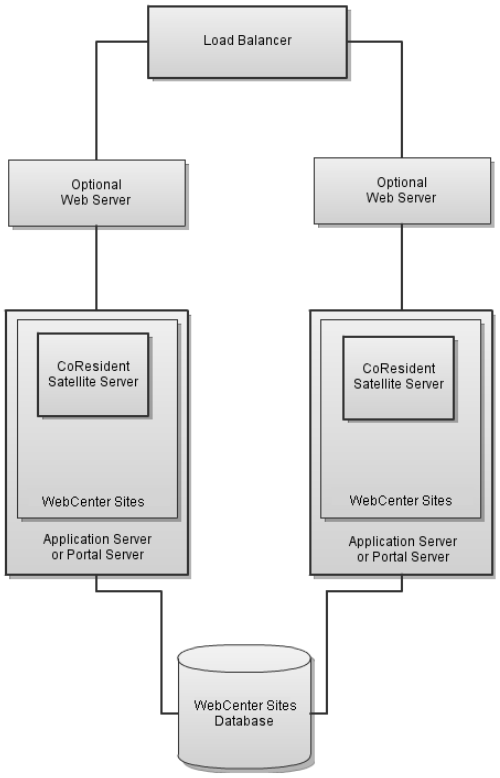
WebCenter Sites ships with a copy of Satellite Server that is automatically installed and enabled on the same machine as your WebCenter Sites software. This is your **co-resident** Satellite Server. The purpose of the co-resident Satellite Server is to provide development and management systems with the ability to simulate page delivery as it occurs on the live site (delivery system).

Note

Co-resident Satellite Server is not intended for delivery systems. For delivery purposes, set up one or more remote Satellite Server instances (see "Remote," on page 9). Using co-resident Satellite Server on a delivery system degrades the system's performance.

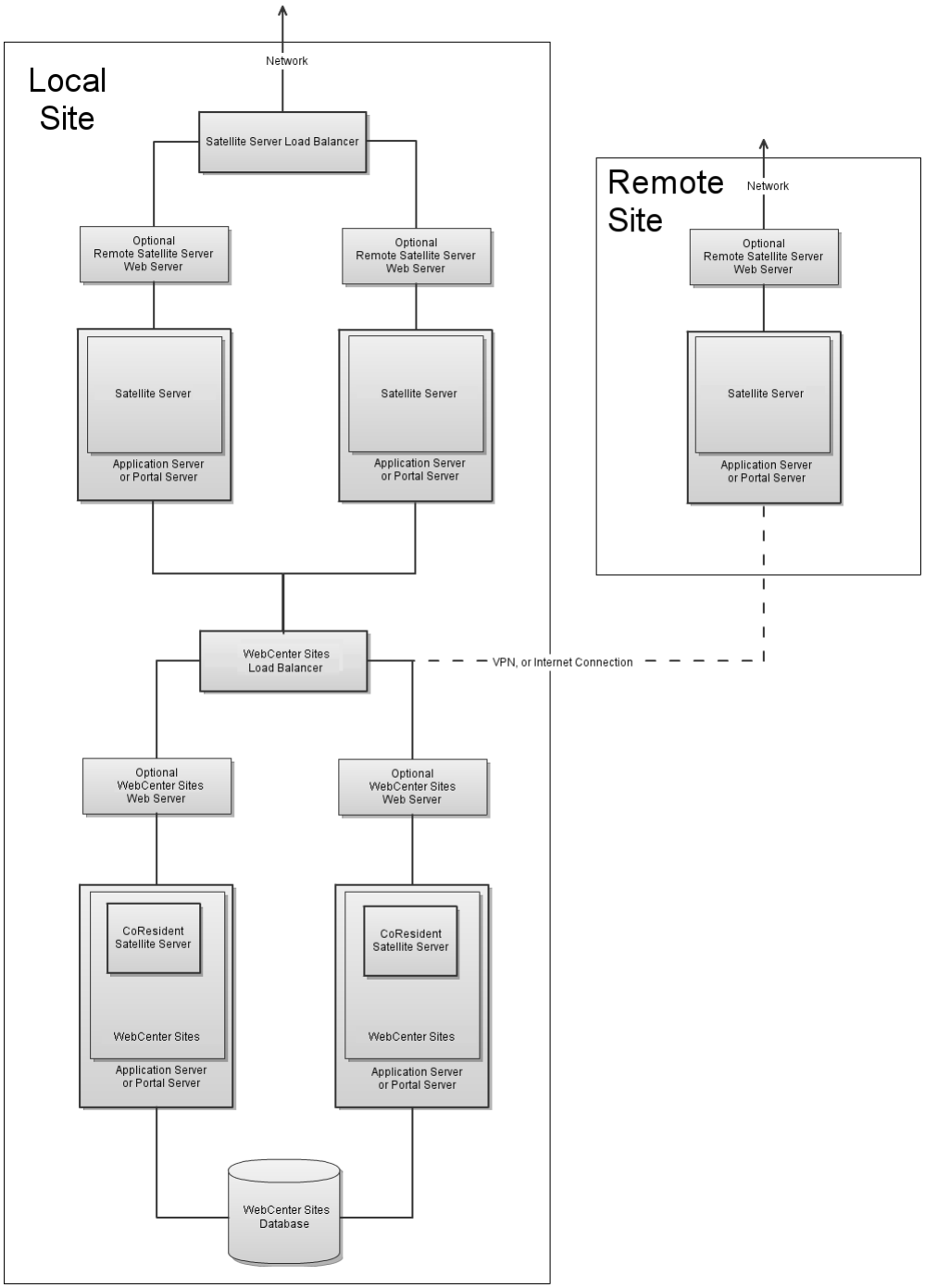
Co-resident Satellite Server provides a layer of caching in addition to that provided by the WebCenter Sites cache. Satellite Server and the WebCenter Sites caches work in tandem to provide **double-buffered caching**, where copies of cached pages are stored in both the Satellite Server and the WebCenter Sites caches. The disadvantage of this configuration is increased memory utilization, as there are now two copies of each object stored in memory. For more information about double-buffered caching, see the caching chapter of the *WebCenter Sites Developer's Guide*. The following diagram illustrates a co-resident installation of Satellite Server:

We recommend setting your co-resident Satellite Server host to optimize the performance of your WebCenter Sites system, as described in "Adjusting Caching Conditions," on page 24.



Remote

On delivery systems, you should set up one or more remote Satellite Server instances. At a minimum, a remote Satellite Server should be installed at the same geographic location as WebCenter Sites. For additional performance at remote geographic locations, additional remote Satellite Servers can be configured.



Remote Satellite Server systems should run on hardware that closely resembles the site visitors' hardware.

Note

Accessing content through co-resident Satellite Server on a delivery system with remote Satellite Server(s) can degrade the system's performance and is therefore not recommended. Unless requests are sent directly to the co-resident Satellite Server it will remain unused (in which case, performance is unaffected and no changes to configuration are required).

Remote installations of Satellite Server provide several benefits in addition to allowing double-buffered caching:

- They improve the performance of the website by moving the content closer to its audience. In the preceding diagram, for instance, the main data center is located in New York City, while the secondary data centers are located in Europe and Asia.
- They allow for improved scaling, as cached content does not require requests to be forwarded to WebCenter Sites and therefore free this resource to handle other tasks.

For information on installing and configuring remote instances of Satellite Server, see Chapter 2, "Installing Remote Satellite Servers."

Chapter 2

Installing Remote Satellite Servers

When you install remote instances of Satellite Server, you can install them on any Oracle-supported application server. Note that installing and configuring remote instances of Satellite Server is an iterative process. You must initially install, configure, and test one remote Satellite Server, then install, configure, and test your other remote Satellite Server installations. After you have completed the installation and initial configuration of your Satellite Server software, you can adjust the configuration(s) to make maximum use of the hardware and software stack.

To install and configure remote instances of Satellite Server, complete the following steps:

- Step 1. Install Required Hardware and Software
- Step 2. Expand the Installation File
- Step 3. Run the Installer
- Step 4. Register Satellite Server with WebCenter Sites
- Step 5. Start Satellite Server
- Step 6. Test the Configuration
- Step 7. Install Satellite Server on Additional Remote Servers
- Next Step

Step 1. Install Required Hardware and Software

Before you install Satellite Server, ensure you have the required hardware and software. For the latest information, refer to the *Oracle WebCenter Sites Certification Matrix*.

Network Considerations

The connection between the Satellite Server hosts and the WebCenter Sites host is a limiting factor for performance of serving uncached data. Remote connections will suffer a performance penalty related to the bandwidth and latency when accessing data not present in the Satellite Server cache.

Load Balancer Requirements

You must have a load balancer (hardware or software based) if using more than one remote Satellite Server. Oracle does not require a particular brand of load balancer, but we do ***strongly*** recommend using a load balancer that supports session affinity and the session affinity features are enabled.

Configuration Requirements

Your Satellite Server hosts must meet the following minimum requirements:

Operating System	See the *Oracle WebCenter Sites Certification Matrix*.
Application Server	See the *Oracle WebCenter Sites Certification Matrix*.
CPU	Dual Core System (recommended: Quad Core system or greater)
Physical Memory	4GB (12GB or more recommended)
Disk Space	2GB (4GB or more recommended)
JVM	32 bit (64 bit recommended)

Application Server Requirements

inCache, the default caching framework used in WebCenter Sites requires the following JVM parameters to be set in order to work efficiently:

```
-Dnet.sf.ehcache.enableShutdownHook=true
-DnumOfDiskStores=<will vary based on drive speed>
```

The following option may be used to disable the inCache framework and revert to the previously used traditional page caching:

```
-Dcs.useEhcache=false
```

The default value is not explicitly set and is equal to `true`.

Satellite Server Contents

Satellite Server needs a full-featured servlet container and a servlet engine. See the *Oracle WebCenter Sites Certification Matrix* for supported environments.

Step 2. Expand the Installation File

The installation file is named `SatelliteServer.zip`. Extract this file to a host machine.

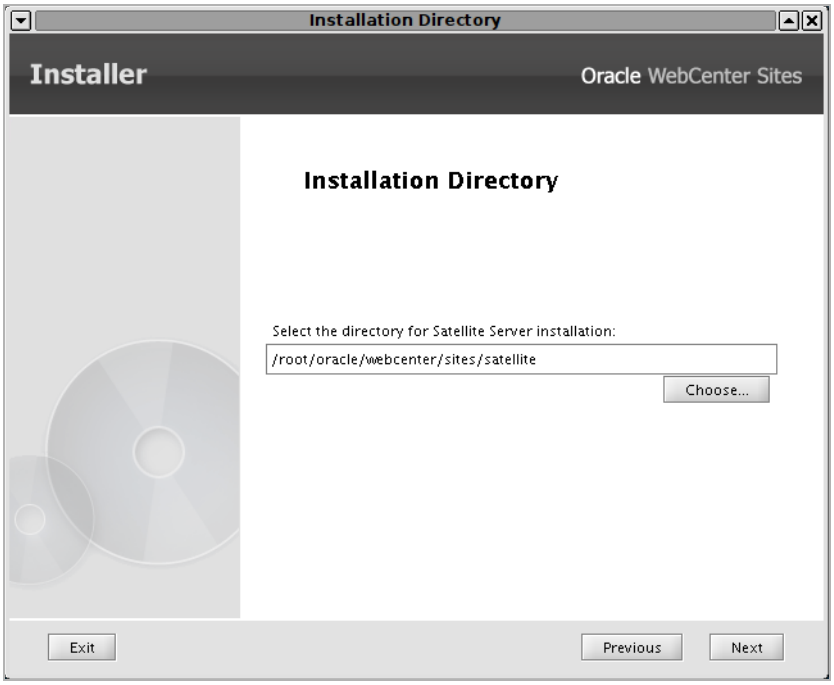
- UNIX: Unzip `SatelliteServer.zip`
- Windows: Double click on `SatelliteServer.zip` in Windows Explorer

Extracting the zip file creates a subdirectory named `SatelliteServer`. Do not change the name of any of its subdirectories, and retain the archived directory structure; otherwise the installer will fail.

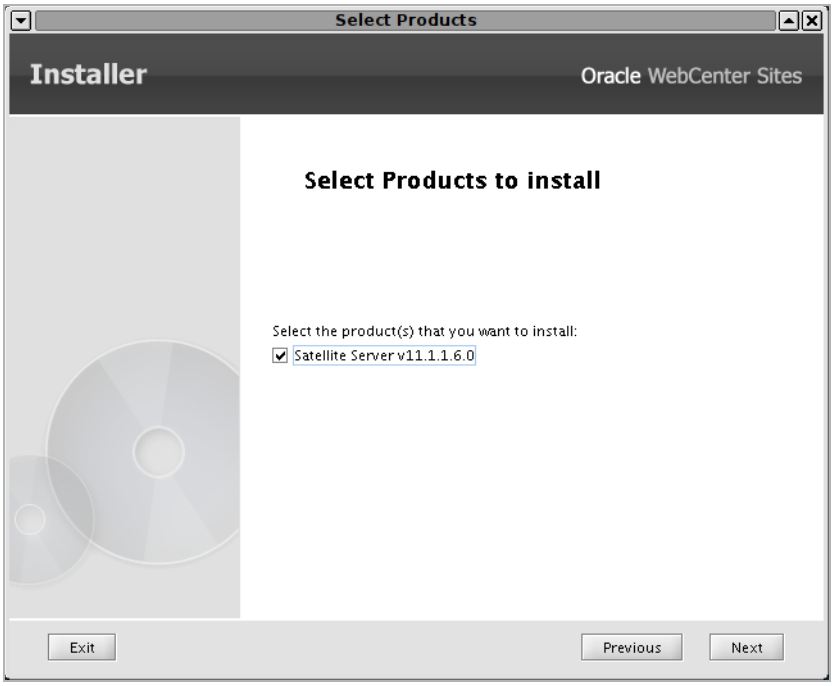
Step 3. Run the Installer

1. Run the installer script:
   - On Windows: `ssInstall.bat`
   - On UNIX based systems: `ssInstall.sh`
2. In the "Welcome" screen, click **Next**.

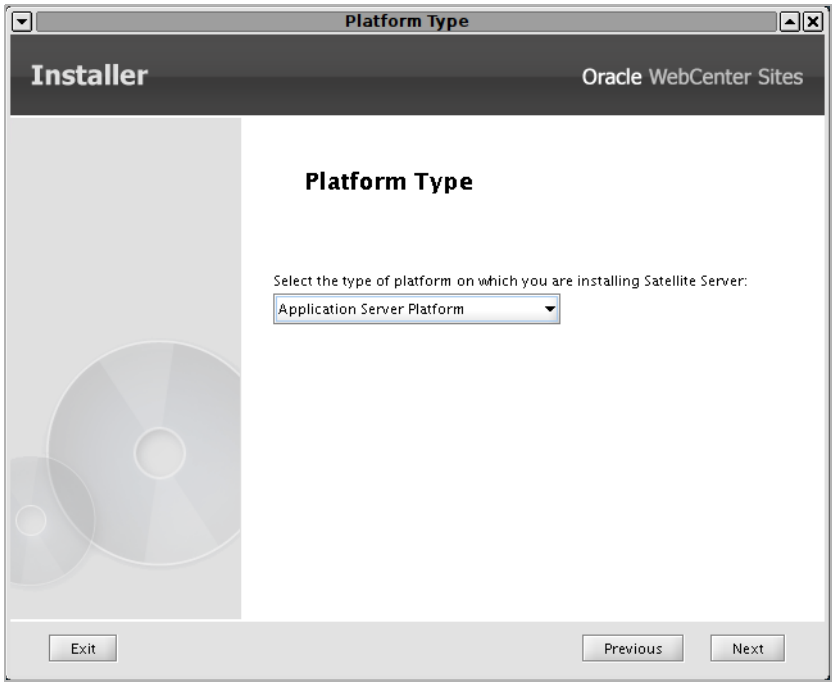
3. In the “Installation Directory” screen, enter the target installation path for Satellite Server. Ensure that you have the required permissions. If the directory you specify does not exist, the installer will prompt you for permission to create it.



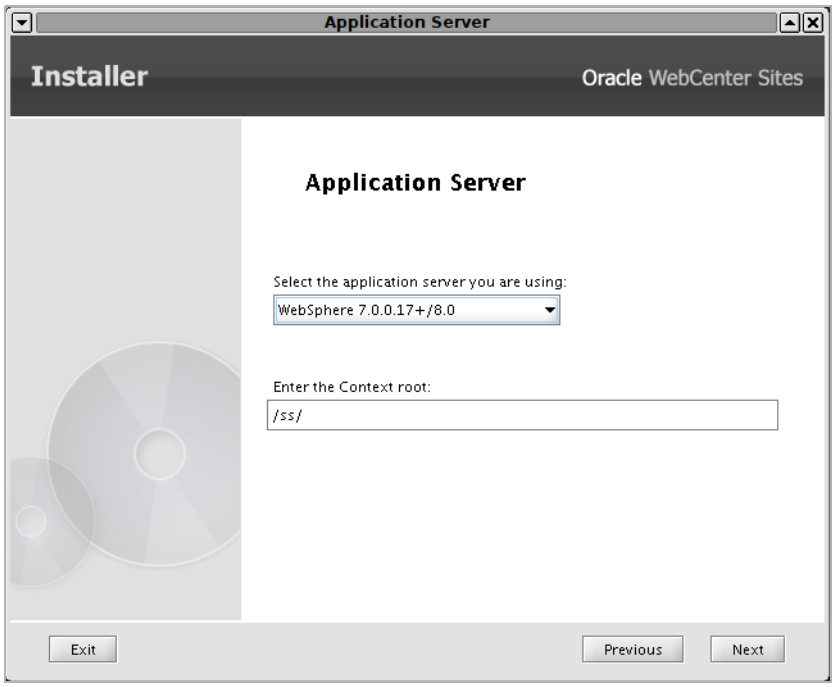
4. Select the product(s) you wish to install.



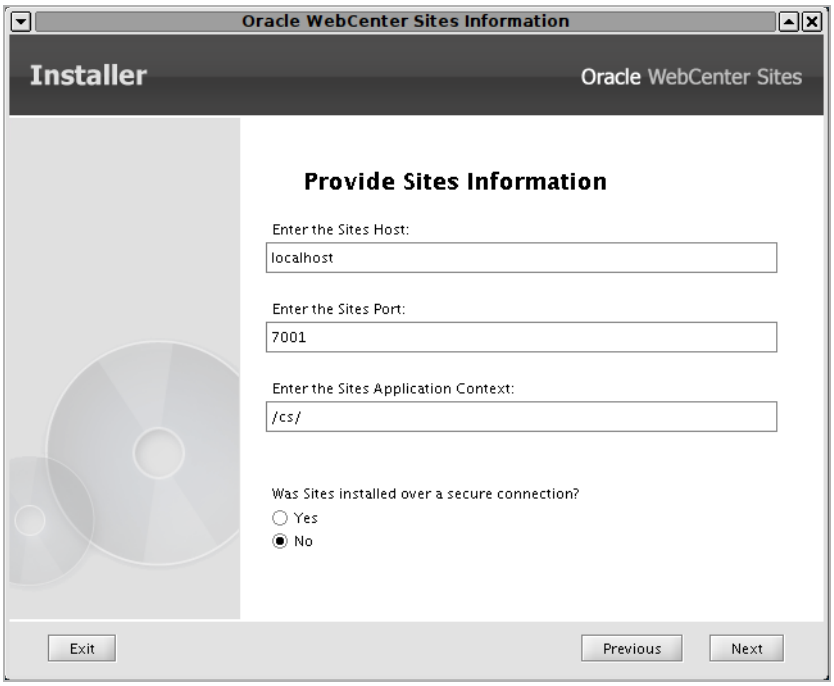
5. Select the desired platform type.



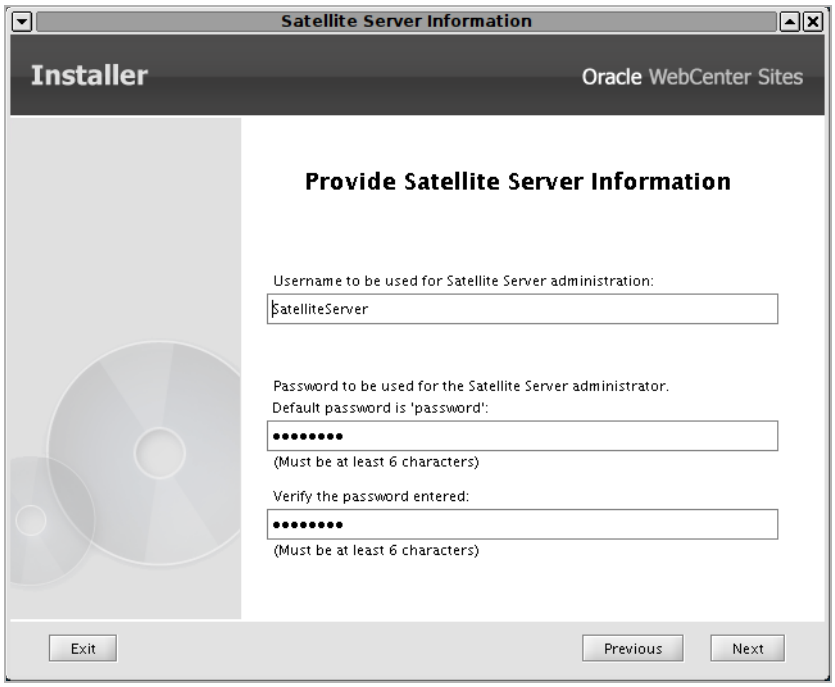
6. Select the desired application server and enter the Satellite Server context root.



7. Provide WebCenter Sites information:
   - Host name or IP address of the machine running WebCenter Sites
   - Port number on which WebCenter Sites is listening for connections
   - Application context root to which SatelliteServer will be connecting
   - Whether WebCenter Sites was installed over a secure connection



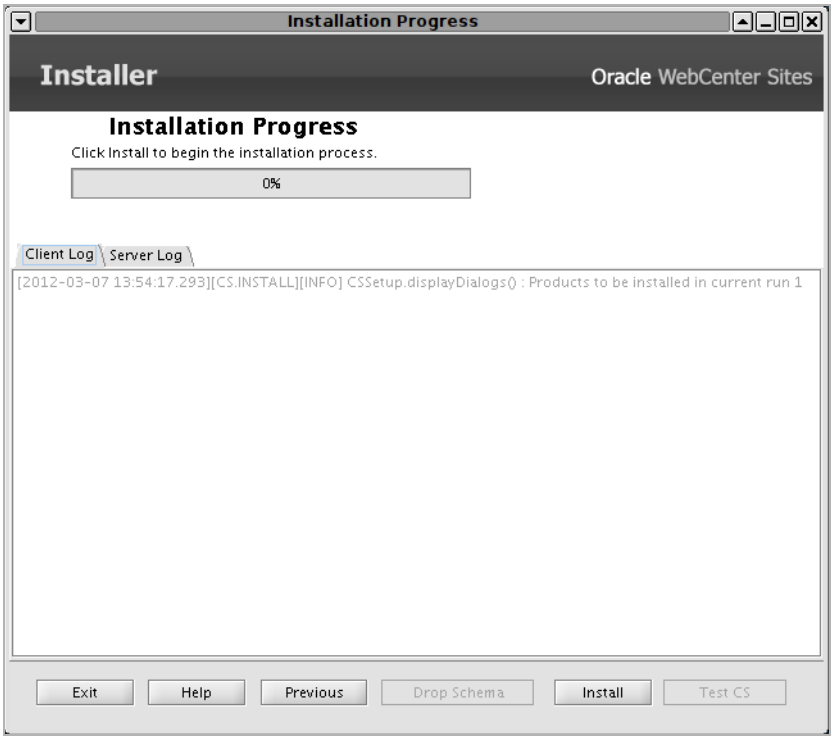
8. Provide Satellite Server administrative account information:
   - For "Username," enter `SatelliteServer`.
   - Enter the user's password.



9. Enter CAS Deployment information:

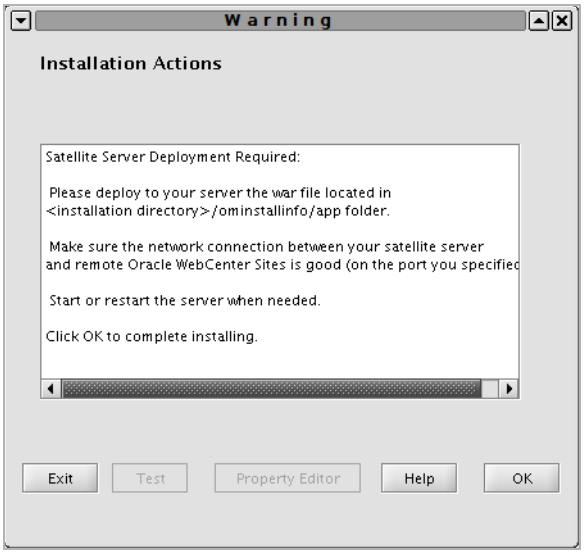
- In the first two fields (Server HostName and PortNumber), enter the host name and port number of the server where CAS is deployed.
- In the last two fields (Server HostName and PortNumber of internally accessible CAS), do the following: If the server named above is not accessible from behind the firewall, enter the host name and port number of the server that is accessible from behind the firewall. Otherwise, enter the same information as in the first two fields.

10. Click **Install** to start the installation process.

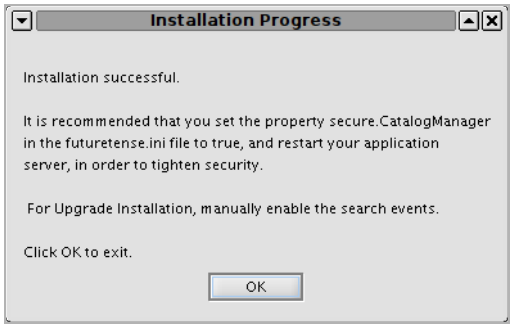


11. Deploy Satellite Server.

    Satellite Server's war file (by default named `cs.war`) can be found in `ominstallinfo/app/` under the Satellite Server installation directory. If necessary, rename the `cs.war` file and deploy the exploded `WAR` file to the server, then start (or restart) the server, and click **OK** to complete the installation.



12. If deployment was successful, you will be presented with a confirmation dialog box. Click **OK** to review the installation log.



13. Click **Exit** to quit the installer.

Step 4. Register Satellite Server with WebCenter Sites

In this step, you will register remote Satellite Server with WebCenter Sites so that WebCenter Sites can properly manage the remote Satellite Server cache. All Satellite Server installations must be registered with their respective WebCenter Sites installations.

Note

Each remote Satellite Server can be associated with only a single WebCenter Sites installation. This means that the same remote Satellite Server cannot be used for two independent WebCenter Sites installations (such as management and production).

1. From a Windows system, open Sites Explorer and log in to WebCenter Sites as a user that has `SiteGod` privileges (for example, the general administrator or the `ContentServer` user).
2. Click the **System Satellite** tab.
3. The table that opens must be populated with specific values, and each row represents a unique Satellite Server system. Consult the table below for suggested values:

Column	Value
`id`	A numerical (positive integer) value that identifies this Satellite Server. It must **not** be the same as any other value in the same column in any other row of the table.
`description`	A text description identifying this Satellite Server to users. It is used for reference purposes only.
`protocol`	The protocol on which Satellite Server is accepting requests. This is usually `http`.

Column	Value
`host`	The host name or IP address of the Satellite Server. This must be a host of the actual Satellite Server engine, not the load balancer.
`port`	The port on which Satellite Server is listening for requests.
`satelliteservletpath`	The part of the URL from the port number up to, and including, the name of the Satellite servlet. This is usually `/servlet/Satellite`.
`flushservletpath`	The part of the URL from the port number up to, and including, the name of the `FlushServer` servlet. This is usually `/servlet/FlushServer`.
`inventoryservletpath`	The part of the URL from the port number up to, and including, the name of the inventory servlet. This is usually `/servlet/Inventory`.
`pastramiservletpath`	The part of the URL from the port number up to, and including, the name of the inventory servlet. This is typically: `/servlet/Pastrami`
`username`	The username assigned to this Satellite Server.
`password`	The password assigned to this Satellite Server. The password will be automatically encrypted by Sites Explorer after you enter it.

4. From the **File** menu, select **Save** to save the changes.
5. Exit Sites Explorer.

Step 5. Start Satellite Server

Restart the application server, if necessary. See the application server's installation guide for information on how to restart (or deploy) your application server.

Step 6. Test the Configuration

Before you install Satellite Server on other machines, test the newly installed Satellite Server to ensure it is communicating properly with WebCenter Sites. To test Satellite Server, you will need to publish content from a WebCenter Sites system running in content management mode.

To test your configuration

1. Configure your load balancer to send all WebCenter Sites requests to a single Satellite Server instance.
2. Using a browser, go to a Satellite Server URL. For example:

   ```
   http://<server>:<port>/<URI>/Satellite?pagename=<MyPage>
   ```

where `<MyPage>` is any page on your WebCenter Sites system.

Note

It is easiest to discover the Satellite Server URL you will need to enter by previewing a page on the content management system, copying its URL, and then changing it to point to the remote Satellite Server.

3. If you configured everything properly, your browser displays the selected page.

   If your browser did not display the selected page, review the following:

   - *Did you set up the load balancer properly?* Remember, for this test, every request for WebCenter Sites has to go to the Satellite Server machine. (The other machines are not yet configured and therefore not enabled to handle these requests.)
   - *Did you set the Satellite Server properties properly?* In particular, ensure that you set the host name and port number to the proper values.
   - *Did you request an invalid page from WebCenter Sites?*

Step 7. Install Satellite Server on Additional Remote Servers

After you have installed and tested your first remote Satellite Server instance, install and configure the remaining Satellite Server instances by repeating the steps in this chapter.

Next Step

Continue to Chapter 3, "Post-Installation Steps" to adjust caching conditions and optimize the performance of your WebCenter Sites system.

Chapter 3

Post-Installation Steps

After you have installed and configured your remote Satellite Servers, you can adjust caching conditions and optimize the performance of your WebCenter Sites system.

This chapter contains the following topics:

- Adjusting Caching Conditions
- Log Configuration

Adjusting Caching Conditions

How to adjust caching conditions depends on which type of framework you are using: inCache or traditional page caching.

If You Are Using inCache

If you are using the inCache framework, you can tune it by setting properties that are listed in the *WebCenter Sites Administrator's Guide.*

If You Are Using inCache or Traditional page Caching

For either type of caching framework, inCache or traditional, you can set the `expiration` property, in the `satellite.properties` file. The `expiration` property defines the default expiration time for blobs when a cache expiration value is not specifically set for blobs with the `satellite.blob` or `RENDER.SATELLITEBLOB` tag that generated the items.

- Setting `expiration` to `never` notifies Satellite Server that blobs should never expire for time reasons. Such objects are not guaranteed to remain in the cache indefinitely. For example, if the cache is full, Satellite Server still removes objects from cache based on an LRU (least recently used) algorithm.
- Setting `expiration` to `immediate` instructs Satellite Server not to cache pages, pagelets, or blobs at all.

To define a specific set of expiration dates and times, assign a string that uses the following format for the `expiration` property:

hh:*mm*:*ss W*/*DD*/*MM*

The value of this property follows the syntax of a `TimePattern` object. The syntax definition is reproduced here for convenience.

Table 1: TimePattern Syntax

Parameter	Legal Values	Description
`hh`	0–23	The hour. For example, `0` means midnight, `12` means noon, `15` means three in the afternoon, and so on.
`mm`	0–59	The number of minutes past the hour.
`ss`	0–59	The number of seconds past the minute.
`W`	0–6	The day of the week. For example, `0` means Sunday, `1` means Monday, and so on.
`DD`	1–31	The day of the month.
`MM`	1–12	The month of the year. For example, `1` means January, `2` means February, and so on.

For example, the following expiration value means "3:30 in the afternoon every Monday and on the 15th of April":

```
15:30:00 1/15/4
```

If you specify a value for both *W* and *DD*, both values apply. Thus, pages expire on Monday (the *W* field) and on the 15th (the *DD* field). To indicate a day-of-week expiration only, place an asterisk in the *DD* field. For example, to indicate expiration at 3:30 in the afternoon every Monday in April, set the expiration value to:

```
15:30:00 1/*/4
```

To indicate a day-of-month expiration only, place an asterisk in the *W* field. For example, to indicate expiration at 3:30 in the afternoon on April 15, set the expiration value to:

```
15:30:00 */15/4
```

Setting the *hh*, *mm*, *ss*, or *MM* fields to an asterisk means all legal values. For example, to indicate expiration at 3:30 in the afternoon on Mondays and the 15th of **every** month, set the expiration value to:

```
15:30:00 1/15/*
```

You can also place multiple values for any of the six fields by separating the values with commas. To represent a range of values, use a minus sign. For example, the following expiration value represents 6:00 (morning), 1:00 (afternoon), and 5:00 (afternoon), Monday through Friday in June.

```
6,13,17:00:00 1-5/*/6
```

To indicate that pages must expire every 15 minutes, set the expiration value to the following:

```
*:15,30,45:0 */*/*
```

The default value is:

```
5:0:0 */*/*
```

This means that everything in the Satellite Server cache expires every day at 5:00 a.m.

If You Are Using Traditional Page Caching

If the inCache framework has been disabled (see "Application Server Requirements"), traditional page caching is restored, for which you can set the following properties in the `satellite.properties` file:

- `cache_folder`
- `file_size`

cache_folder

Use this property to specify the directory into which Satellite Server will cache pagelets to disk. By default, the property value is empty, and Satellite Server will use the servlet context's temporary directory. To use your own value, specify an absolute path to a directory of your choice. You can specify only one directory. The directory that you specify is not required to be on the same drive as `/SatelliteServer`. We recommend using the same drive to improve performance.

file_size

Use this property to separate memory-cached pagelets and blobs from disk-cached pagelets and blobs. Specify a size in kilobytes (KB). The default value is `250`.

Satellite Server caches any pagelet or blob to memory if its size is smaller than the value of `file_size;` it caches to disk if the pagelet or blob size equals or exceeds the value of

file_size. For example, you set file_size to 4. Satellite Server caches pagelets smaller than 4KB to memory. It caches pagelets of 4KB or larger to disk.

Setting file_size to 0 instructs Satellite Server to cache all pagelets and blobs to disk. Setting file_size to a large number (for example, 1,000,000) instructs Satellite Server to cache all pagelets and blobs to memory. If you have a large amount of memory or a relatively small website, we recommend caching everything to memory.

The file_size property can significantly influence performance. To optimize performance, maximize the amount of memory caching. Be careful not to exceed the host's memory capacity. To optimize Satellite Server performance, we recommend experimenting with the file_size property.

Log Configuration

Satellite Server uses Apache's Jakarta Commons Logging. By default, no specific JCL configuration information is specified. As a result, JCL will record INFO, WARN and ERROR messages to the console. Users can specify detailed configuration information by placing an empty file called commons-logging.properties in the following directory:

```
<$SatelliteServerRoot>/WEB-INF/classes
```

and then editing the file using the Property Editor. The Property Editor provides detailed log configuration information about each property.

To open the Property Editor, run the settings.bat batch file (Windows) or the settings.sh script (UNIX). Open the commons-logging.properties file; it will open with several tabs. Under the Loggers tab, among other entries, you will see:

```
com.fatwire.logging.cs.satellite
com.fatwire.logging.cs.satellite.cache
com.fatwire.logging.cs.satellite.host
com.fatwire.logging.cs.satellite.request
```

These are the loggers that Satellite Server uses. Consult the property descriptions in the Property Editor for information about each logger, as well as the possible values. Under the Factory tab, you can choose the type of logger you want Satellite Server to use. By default, the Property Editor sets this to:

```
COM.fatwire.cs.core.logging.TraditionalLog
```

This allows you to write log messages to a log file that is configured under the **TraditionalLog** tab. (Note that the logging.file property is required.)

To send messages to the console, set the org.apache.commons.logging.Log property to either blank or COM.FutureTense.Logging.StandardLog. When you are done, save the changes, exit the Property Editor, and restart Satellite Server by restarting the application server. Consult the JCL website at http://jakarta.apache.org/commons/logging/ for more information about JCL.