Oracle® WebCenter Sites

Upgrading from FatWire Content Server
Version 7.6 Patch 1 or Patch 2

11*g* Release 1 (11.1.1)

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Oracle® WebCenter Sites: Upgrading from FatWire Content Server Version 7.6 Patch 1 or Patch 2, 11*g* Release 1 (11.1.1)

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About This Guide

This guide describes the process of upgrading FatWire Content Server 7.6 Patch 1 or Patch 2 to Oracle WebCenter Sites 11*g*R1.

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 intended for installation engineers with experience installing and configuring enterprise-level software such as databases, application servers, and content management products.

Related Documents

For more information, see the following documents:

- *Oracle WebCenter Sites: Installing on Apache Tomcat Application Server*
- *Oracle WebCenter Sites: Installing on Oracle WebLogic Application Server*
- *Oracle WebCenter Sites: Installing on IBM WebSphere Application Server*
- *Oracle WebCenter Sites: Configuring Supporting Software*
- *Content Server 7.6 Patch 2 Backup and Recovery Guide*
- *Oracle WebCenter Sites Developer's Guide*
- *Oracle WebCenter Sites Administrator's Guide*
- *Oracle WebCenter Sites Property Files Reference*

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 Libraries

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

Chapter 1

Before You Upgrade

This guide contains information about upgrading FatWire Content Server environments from version 7.6 Patch 1 or 7.6 Patch 2 to Oracle WebCenter Sites 11*g*R1.

Before upgrading, read this chapter to gain an understanding of the strategy and prerequisites.

This chapter contains the following sections:

Planning the Upgrade Process

In a production environment, upgrades disrupt the operation of active systems and may result in extended downtime. To minimize such disruptions, Oracle highly recommends adopting the strategy outlined in this section when upgrading FatWire Content Server 7.6 Patch 1 or Patch 2 to Oracle WebCenter Sites 11*g*R1.

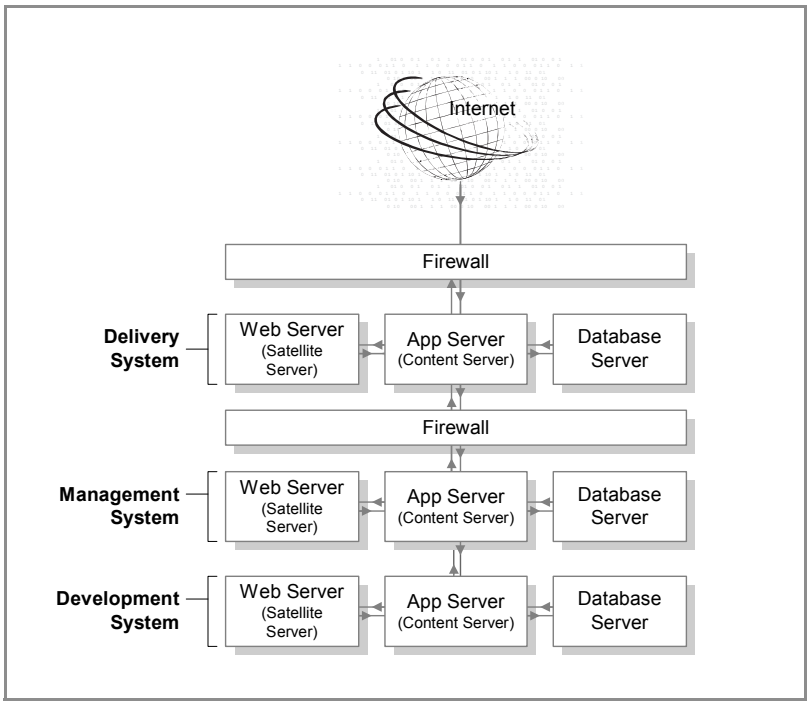
Note

This guide uses the term "active" to denote any development, management, or delivery system that is currently serving content and whose unexpected downtime will affect business and productivity of the organization.

Upgrading a Test Environment

An enterprise-level environment typically consists of at least three different WebCenter Sites-powered systems: development, management, and delivery, as shown in Figure 1. Each system runs on its own database and interacts with the other systems normally through publishing or CSDT.

Figure 1: Content Server Environment



Before upgrading an active Content Server environment, it is critical to perform a trial upgrade on a duplicate environment. The trial upgrade will help you detect and document system-specific issues and correct them in advance of the actual upgrade.

Note

A trial upgrade is critical, as existing customizations made to the 7.6 Patch 1 and Patch 2 Advanced interface and Dash will not work on WebCenter Sites 11*g*R1. Therefore, due diligence is required to replace such customizations with those designed for the new Contributor interface before attempting to upgrade an active system.

If a duplicate environment is not available, start by upgrading the development system in order to minimize interruptions to the management and delivery systems. However, this approach is highly risky, and it should not be attempted unless extended downtime is deemed acceptable.

Overview

WebCenter Sites 11*g*R1 provides a new interface, called "Contributor." The Dash interface has been removed in this release. Other changes in this release are improved caching, Single Sign-On (SSO) via Central Authentication Service (CAS), and the Web Experience Management (WEM) Framework.

Features that were optional in Content Server 7.6 Patch 1 and 2 and are now mandatory are the following:

- **Central Authentication Service (CAS)**. The CAS web application is deployed during the upgrade process. WebCenter Sites 11*g*R1 also supports CAS clustering to balance the load of user authentications. Secondary members of a CAS cluster are deployed manually during the post-upgrade process.
- **The inCache framework**. Our implementation of Terracotta's Ehcache open source product available under the Apache license. The inCache framework provides significant performance improvements over the traditional page caching method. It also provides asset caching and resultset caching capabilities. The inCache framework is installed and configured by default. Information about inCache page, asset, and resultset caching is available in the *WebCenter Sites Administrator's Guide*. Additional information about resultset caching is available in the *WebCenter Sites Developer's Guide.*
- **WEM Framework**. The WEM login page becomes the new WebCenter Sites login page, which affects the way WebCenter Sites interfaces are accessed. WEM Framework consists of the following components:
  - **REST API** – Enables developers to communicate with WebCenter Sites for the purpose of building and implementing applications on the WEM Framework.
  - **Universal UI Container** – Provides a single interface for accessing custom-built applications integrated with WebCenter Sites via the WEM Framework. It also enables rendering of the application interfaces.

  - **WEM Admin Interface** – Enables the coupling of users to applications running on the WEM Framework and provides for centralized user management. The WEM Admin interface is not installed on delivery systems.
  - **REST Security Model** – Enables administrators to control access to the resources of applications running on the WEM Framework.
  - **Single Sign-On** – Enables WebCenter Sites users to access all applications they are authorized to access during the session without having to sign in to each application.
- WEM requires Central Authentication Service (CAS), which can be clustered or non-clustered.
- The Clarkii Online Image Editor (OIE) from InDis Baltic is installed by default on development and content management systems. Clarkii can be enabled in the WebCenter Sites Contributor interface, in place of your current Online Image Editor. However, it is not supported in Web Mode of the Contributor interface. For information about Clarkii OIE, see the *WebCenter Sites Developer's Guide* and *WebCenter Sites User's Guide.*
- **Upgrade Options**
  - Apache Log4j logging system, which allows for dynamic updating of loggers from the Admin interface.
  - Integration with Oracle Access Manager (OAM), as described in *WebCenter Sites: Configuring Supporting Software*.

Pre-Upgrade Steps

This guide is written for experienced Content Server installation engineers. Before upgrading to WebCenter Sites 11*g*R1, complete the following steps:

- Read the WebCenter Sites release notes and the *Oracle WebCenter Sites Certification Matrix*.
- Read the rest of this guide to familiarize yourself with the upgrade procedures, changes that will be made by the installer, and the post-upgrade steps.
- Start with a Content Server 7.6 Patch 1 or Patch 2 installation. You will run the WebCenter Sites 11*g*R1 installer on all Content Server systems in your environment. There are three system types: development, content management, and delivery. Development systems and content management systems normally are of the same type, but are used for different purposes.

  The WebCenter Sites 11*g*R1 installer detects and reuses both the system type (development, content management, or delivery) and the deployment mode (automatic or manual) that were selected during the Content Server 7.6 Patch 1 or Patch 2 installation process. For example, if Content Server 7.6 Patch 1 was installed as a delivery system and deployed automatically, the WebCenter Sites 11*g*R1 installer continues to treat the system as a delivery system and deploys automatically.

- If your current platform is not supported by WebCenter Sites 11*g*R1, perform a new installation on a stack supported by WebCenter Sites 11*g*R1 and then publish all content and customizations to this environment before continuing the upgrade.

  Notes

  - Interface customizations made in Content Server 7.6 Patch 1 or 2 will not work without major changes in WebCenter Sites 11*g*R1. Therefore, it will save time if you do not make these changes in the new environment. However, customizations other than interface customizations should be made in the new environment prior to upgrading.
  - System type and deployment mode cannot be changed during upgrades.
  - A primary Content Server cluster member cannot be reconfigured as a secondary cluster member, and vice versa, during upgrades.

- If your current Content Server application was modified since it was first deployed (most likely it was), do the following:
  - Back up your current Content Server application by creating `cs.war` and then `ContentServer.ear` files. Also back up the installation directory, shared directory, and database. For detailed instructions, see the *FatWire Content Server 7.6 Patch 2 Backup and Recovery Guide*, available at `http://docs.oracle.com`.

    In the post-upgrade process, you will use the backed up installation directory, shared directory, and database to reapply the customizations they may contain.
  - If customizations were made to your current Content Server application after it was first deployed, and those customizations are not reflected in the `cs.war` and `ContentServer.ear` files located in `<cs_install_dir>/ominstallinfo/app`, do the following: Remove the files, and copy the `.war` and `.ear` files for your currently deployed Content Server application to the same directory.

    During the upgrade, the `cs.war` file is archived as `cs-`*`date-time`*`.war`. In the post-upgrade process, you will use the archived version to reapply customizations where necessary.
- For JDK 1.6, copy the `jaxb-impl-2.1.12.jar` file in the installer's `Sun/lib` directory to the following location: `<PATH_TO_JDK_FOLDER>/jre/lib/endorsed`.

  Note

  Do not use the `jaxb-impl` that ships with JDK 1.6 or JDK 1.7. WebCenter Sites 11*g*R1 relies on the latest version of `jaxb-impl`, which is provided in the location specified above. The latest JAR file must be used in order to resolve a runtime conflict with WebLogic Server (which ships with JDK 1.6)

- On all application servers, do the following:
  - Update the startup script:

    - Set the `max PermGen` parameter in the range of 128MB–196MB. For example: `-XX:MaxPermSize-196m`
    - Set `-Dcs.useJavaURLDecoder` to `false`. This ensures that the Apache URLCodec is used to decode URL characters.
  - Update the `CLASSPATH` environment variable:
    - Add `<cs_install_dir>/bin`.
    - Add the path to WebCenter Sites' modified version of the Microsoft XML Parser (`MSXML.jar` in the `WEB-INF/lib` directory). If the class path refers to another version of the Microsoft XML Parser, WebCenter Sites will fail when parsing XML.
- On all supported operating systems, update the library path environment variable by adding `<cs_install_dir>/bin`:
  - Linux and Solaris: `LD_LIBRARY_PATH`
  - AIX: `LDPATH`
  - Windows: `PATH`

Note

If the class path and library path are not set properly, System Tools on the **Admin** tab of the WebCenter Sites Admin interface will be available with limited functionality and CAS will fail to start, making access to the system impossible.

- If the password of the `ContentServer` user contains special characters, replace it with a password that does not. The upgrade installer does not accept special characters in password fields. The original password can be used once all upgrades are completed.
  - Optional on Tomcat application servers. If you receive errors related to the data source, place the following JAR files in the `<app_server_home>/lib` directory to ensure that the data source is correctly initialized when WebCenter Sites is first started:
    - `commons-dbcp-1.3.jar`
      You can download this file from: `http://commons.apache.org/dbcp/`
    - `commons-pool-1.5.5.jar`
      You can download this file from: `http://commons.apache.org/pool/`
- If WEM Framework is installed on your current Content Server 7.6 Patch 1 or Patch 2 system, do the following:
  - Undeploy and delete the previous CAS installation before starting the upgrade.

- Modify the `omii.ini` file for all Content Server cluster members by setting the values of `CASHostName` and `CASPortNumber` fields as shown in Table 1.

> **Note**
>
> Avoid performing this step when using the graphical installer, because you will have to stop the installer, change the `omii.ini` file, and rerun the installer.

Table 1: CAS-Related Fields

Field	CAS	Value
CASHostName	Clustered	Host name of the server running the load balancer.
	Non-clustered	Host name of the server on which CAS will be deployed.
CASPortNumber	Clustered	Port number of the server running the load balancer.
	Non-clustered	Port number of the server on which CAS will be deployed.
CASHostNameLocal	Clustered	Host name of the server running the internally accessible CAS load balancer.
	Non-clustered	Internal host name of the server on which CAS will be deployed.
CASPortNumberLocal	Clustered	Port number of the server running the internally accessible CAS load balancer.
	Non-clustered	Internal port number of the server on which CAS will be deployed.
CASHostNameActual	Clustered/Non-clustered	Hostname/IP address of the server on which CAS is deployed.

Pre-Upgrade Decisions

- **Whether to run the GUI installer or the silent installer**

  The GUI installer provides access to extensive online help to guide you through the upgrade process. The silent installer allows you to perform an automated upgrade based on the configuration information provided in the `omii.ini` file. For more information about these upgrade procedures, see "Interactive Upgrade" and "Silent Upgrade."
- For SSO, you must also provide Central Authentication Service (CAS) deployment information during the upgrade process. The deployment information required

depends on the deployment mode – automatic or manual – which is inherited from the Content Server 7.6 Patch 1 or 2 installation.

- The following points will help you determine your CAS deployment information:
  - **Which deployment mode was enabled for Content Server 7.6 Patch 1 or Patch 2, and how does the mode determine the deployment process?**

    If you are running the installer on the primary Content Server cluster member, the deplyoment scenarios for installing or upgrading the WEM Framework are as follows:

    - If automatic deployment is in effect, the installer will deploy WebCenter Sites and CAS on the same server.
    - If the installer detects the deployment mode to be manual, you will deploy WebCenter Sites manually. You will also deploy CAS. However, unlike the installer, you can deploy CAS either on the same server as the primary WebCenter Sites installation, cluster member, or on a separate server.

      Once the automatic deployment process is complete, if you want to move CAS to a different server, you must manually redeploy CAS as part of the post-upgrade process.
  - **How are secondary CAS cluster members deployed?**

    During the installation process, you will provide CAS deployment information for the secondary CAS cluster members. You will configure and deploy those members manually, as described in "Deploying Secondary CAS Cluster Members" in *Oracle WebCenter Sites: Configuring Supporting Software*.
  - **Do you want to migrate from Content Server's existing logging system to Apache log4j during the upgrade process? (Recommended)**

    If so, you must select the log4j migration option during the upgrade process. If you do not migrate to log4j during the upgrade process, you can switch to log4j at a later time. For instructions, see the *WebCenter Sites 11gR1 Administrator's Guide*.

Post-Upgrade Summary

Once WebCenter Sites 11gR1 is installed, you will reapply customizations and verify the installation. Lastly, you will reinstall remote Satellite Server.

Changes During the Upgrade Process

Upgrading from Content Server 7.6 Patch 1or Patch 2 to WebCenter Sites 11gR1 makes a number of changes to the existing installation. If you have any questions regarding this list, contact technical support before starting the upgrade.

This section describes the following changes:

- Interfaces and Applications
- Roles
- Page and Slot Asset Types

Interfaces and Applications

- The Content Server "Advanced" interface is renamed to WebCenter Sites "Admin" interface. By default, it is no longer used as an editorial interface. However, editorial features can be re-enabled in the post-upgrade process by setting the property `advancedUI.enableAssetForms` in the `futuretense_xcel.ini` file). For more information, see the *WebCenter Sites Property Files Reference*.
- Customizations to the Advanced interface will not work after the upgrade. Therefore, back up all customizations stored in the database, installation folder, shared folder, and web application. Reapply customizations from this backup after the upgrade to WebCenter Sites is complete.
- The WebCenter Sites Contributor interface is installed. For information about the interface, see the *Oracle WebCenter Sites User's Guide*.
- The Content Server Dash interface is completely removed. Customizations made to the Dash interface in Patch 1 or 2 will not apply on upgrade.
- If the WEM Admin application was assigned to any sites other than `AdminSite`, it is unassigned. After the upgrade process, it must be manually reassigned to sites other than `AdminSite`.
- If you are upgrading from an installation that does not contain WEM Framework, the `AdminSite` is installed and assigned to the general administrator.

Roles

- The `AdvancedUser` role is retained to provide general administrators with access to the WebCenter Sites Admin interface. Therefore, users assigned the `AdvancedUser` role will retain access to an interface which, by default, is no longer configured for contributors. It may be prudent to remove this role from users who are not administrative users.
- The `SitesUser` role is a new role to provide users with access to the WebCenter Sites Contributor interface.
- If you are upgrading from an installation that does not contain WEM Framework, the `SiteAdmin` role is assigned to the general administrator. The general administrator is also added to the `RestAdmin` group.
- The `DashUser` role is removed.

Page and Slot Asset Types

- The `Page` asset type is upgraded to be an extensible `Page` asset type, which now includes an attribute, filter, and definition (similar to that of a flex asset). Subtypes are changed to definitions. Additionally, external templates are changed to the new "Layout" type of template. For more information, see the *WebCenter Sites Developer's Guide*.

Note

After the upgrade, users must create the start menus for `PageAttribute`, `PageDefinition`, and `PageFilter` so these asset types can be used.

Attribute Editors

- `RememberME` is deprecated and not supported.
- All multi-valued attributes are now enabled for re-ordering.
- CKEditor is updated to version 3.6.2 and lazyloaded by default in all interfaces. Developers can still use the pre-existing FCKEditor attribute definitions for both flex and basic assets.

Note

It is recommended to change the attribute editor from FCKEditor to CKEditor after the upgrade.

- New attribute editors are installed:
  - TypeAhead
  - Uploader
- The `URL` attribute is replaced by `BLOB`. However, the existing `URL` attribute will continue to function after the upgrade.

Property Values

- Custom values for default properties are overridden by the upgrade installer and replaced with default values.
- Custom values for custom properties are unaffected by the upgrade process.

WEM Changes, If Upgrading From a Non-WEM Installation

- CAS Single Sign-On web application is deployed.
- CAS may be installed alongside WebCenter Sites or on a separate cluster.
- The `REST` servlet is installed. REST security is discussed in the *WebCenter Sites: WEM Framework Developer's Guide* and *WebCenter Sites: WEM Framework Administrator's Guide*.
- New Site: AdminSite

- New Security Model
- CAS-protected URLs
- New WebCenter Sites login page

Log4j

You have the pption to switch to Apache Log4j, which enables you to modify log levels from within the WebCenter Sites Admin interface by using its System Tools.

Caching Framework, If Not Previously Switched Over

- The existing database-based and hash-based caches previously used with Content Server will be replaced with inCache, a memory-based cache that is based on Ehcache by Terracotta. For more information, see the *WebCenter Sites Administrator's Guide*.
- As a result of switching caches, it will be necessary to retune caching.
- As inCache is memory-based, additional JVM heap will be required.

Custom Elements

- All elements in the `AssetStubElementCatalog` table are overwritten with native WebCenter Sites 11*g*R1 code.
- Customized Advanced interface elements are overwritten with native WebCenter Sites 11*g*R1 code.

Revision Tracking

Revision tracking is modified. For information, see the *WebCenter Sites User's Guide*.

Database Tables

The following changes may be made to database tables during the upgrade process. Only changes that apply to your database type are performed:

- `StringValue` is changed from `255` to `2000` for `DB2` and `MSSQL`.
- Ordinal column is added to the `_TGROUP` table of `assettypes`.
- `cs_target` column is added to the `ApprovalQueue` table.
- `changedby` column is added to the `ApprovedAssets` table.
- The `tag` column is added to the `AssetPublistList` table.
- Upgrade creates the `txRTInfo` table. Drop this table manually after the upgrade.
- In the `IndexSourceMetaDataConfig` table, the `fieldescriptor` column is changed to `urlfielddescriptor`, and its value is changed from `2048` to `255`.
- In the `Mimetype` table, the `mimetype` column's size is changed from `64` to `128`.
- In the `FW_PUBDATASTORE` table, encoding column's size is changed to `255`.
- In the `SAVESEARCH` table, the `spostpage` column is changed to be nullable.
- The `Editorid` column is added to all the attribute asset types.

- The `Flex Definition` asset type and Parent definition asset are changed to have the `cs_ordinal` column in `Mungo` tables.
- In the Page table, the column `flextemplateid` is added.
- In the Publication table, the `cs_wrapperasset` column is added.
- In the PubTarget table, the `FACTORS` column's size changed to `1000`.
- In the RTInfo table, the `newerformat` column is added.
- In the `Template_Subtypes` table, the subtype column's size is changed to `64`.
- For tables `Workflow_DlgA`, `WorkflowGroups_Dlock`, `WorkflowRoutes_Comp`, `WorkflowRoutes_Cond`, `WorkflowRoutes_Dead`, the `Ordinal` column is added.
- `AssetEditPane` is removed. However, if it still exists after the upgrade, it must be manually deleted.
- The following tables are added:

FW_AttributeEditor	Page_Attribute_Publish
FW_AttributeEditor_Config	Page_Attribute_Subtypes
FW_AttributeEditor_ConfigVals	Page_Definition
FW_AttributeEditor_Dim	Page_Definition_Dim
FW_AttributeEditor_DimP	Page_Definition_DimP
FW_AttributeEditor_Publish	Page_Definition_Publish
FW_Tag	Page_Definition_TAttr
FW_UIConfiguration	Page_Definition_TFilter
FW_UIConfiguration_Dim	Page_Filter
FW_UIConfiguration_DimP	Page_Filter_Args
Page_Mungo	Page_Filter_Dim
Page_Publish	Page_Filter_Dim_P
Page_Ratings	Page_Filter_Publish
Page_Attribute	PublishedTags
Page_AttributeArgs	Slots
Page_Attribute_Dim	Slots_Dim
Page_Attribute_DimP	Slots_DimP
Page_Attribute_Extension	Slots_Publish

- The `_Ratings` table is added to all flex or parent asset types. Definition or attribute asset types are ignored. This is also added for basic asset type except some special core asset types.
- The `_SubTypes` table is added to all the attribute asset type. For example, `MEDIA_A_SUBTYPES`.

Web Application Changes

The Dash interface is removed from the WebCenter Sites web application, resulting in the following changes:

- The `web.xml` file:
  - `csRedirect`, `trinidad`, `adfFaces` filters are removed.
  - `org.apache.myfaces.webapp.StartupServletContextListener` listener is removed.
  - `FacesServlet` and faces servlets are removed.
- In the `WEB-INF` folder, all files except `web.xml`, `weblogic.xml` (if applicable) and `applicationContext.xml` are removed.

Changes to Tags

- The following tags are new for WebCenter Sites 11gR1:
  - `insite:list`
  - `insite:slotlist`
  - `insite:ifedit`
- The following tags are deprecated in WebCenter Sites 11gR1:
  - `insite:addref` has been replaced by the `insite:list` tag
  - `insite:addvalue` has been replaced by the `insite:list` tag
  - `insite:beginlist` has been replaced by the `insite:list` or `insite:slotlist` tag, depending on usage
  - `insite:endlist` has been replaced by the `insite:list` or `insite:slotlist` tag, depending on usage
  - `insite:beginref` has been replaced by `insite:calltemplate` using the `field/assetid/assettype` variant
  - `insite:endref` has been replaced by the `insite:calltemplate` tag.

For more information about tags, see the *WebCenter Sites Tag Reference*.

Miscellaneous Changes

- By default, WebCenter Sites will use milliseconds in date and timestamps.
- After the upgrade, attribute forms will display additional fields which are not seen on a fresh installation. To make the attribute forms consistent with those of a fresh installation, edit the `gator.ini` file by setting the `mwb.externalattributes` property to `false` (the `gator.ini` file is located in the `<cs_install_folder>`).
- If you were using CSDT before the upgrade, ensure that CSDT plugins are updated to the latest versions provided with the WebCenter Sites 11gR1 installer.
- If the Asset Type search is configured for any of the asset types before the upgrade, then the dates will not be displayed properly in the search results after the upgrade. Users will need to re-index the asset type in order to display dates properly.
- In the `futuretense_xcel.ini` file, the value of the `xcelerate.ewebeditpro` property is removed, as eWebEditPro is not supported.

- Layout templates:

  Templates of usage type “Element defines a whole HTML page and can be called externally” are converted by the installer to usage type “Element is used as Layout.” However, templates of all other usage types are not converted. When assets using such templates are edited, they must be assigned a layout template.
- Publishing of approved assets will not function correctly until the upgrade utility is run. In WebCenter Sites 11*g*R1, dates are managed with millisecond accuracy. Since the previous version did not provide millisecond accuracy for approval related data, it is possible that data may be incorrectly interpreted after the upgrade. To avoid this condition, the upgrade utility adds millisecond accuracy to approval tables and ensures that the approval state is correctly preserved after the upgrade. Entries in the `ApprovedAssets`, `ApprovedAssetDeps`, and `PublishAssets` tables are affected by this utility.

Chapter 2

Upgrading a Content Server 7.6 Patch 1 or Patch 2 Environment to WebCenter Sites

This chapter contains the following sections:

Upgrading the Content Server Environment

This section contains instructions for upgrading a Content Server 7.6 Patch 1 or Patch 2 test environment to WebCenter Sites 11*g*R1, verifying the test environment, and then upgrading the active environment.

Note

- Due to the changes made to the interfaces in WebCenter Sites 11*g*R1, it is strongly recommended that you upgrade the test environment first. If you attempt to upgrade only the active environment, you can expect extended downtime.
- Before starting the steps in this section, ensure that you have read Chapter 1, "Before You Upgrade" and performed the necessary steps applicable for your environment.
- In a clustered environment, you will first upgrade the primary cluster member and then all the secondary cluster members. All members need to be upgraded before you verify the installation.
- Ensure that permissions to the Content Server database are reset to the defaults recommended in *WebCenter Sites: Configuring Supporting Software*. This is because the installer may require permissions that the running system does not. After the upgrade is completed, these permissions can be modified to include any customizations.

Step 1. Back Up Your Content Server 7.6 Patch 1 or Patch 2 Environment

In this section, you will back up your active environment as a precaution (and if you choose to create a test environment, you will do so by recovering the backup).

To back up your environment

1. Review the *Content Server 7.6 Patch 2 Backup and Recovery Guide* for guidelines and specific instructions.

2. Synchronize all systems in the active environment by publishing the content of one system to another, as necessary (for example, from development to management to the delivery system).
3. Disable all publishing schedules and ensure that no publishing sessions are running. You will re-enable the publishing schedules once the active environment has been upgraded and verified.
4. Take note of customized elements:
   a. For each basic asset type, take note of any custom code in the elements (in the `ElementCatalog` table).
   b. If you have customized any portion of the Content Server Advanced interface, take note of the custom code as existing customizations will not function post upgrade and will need to be modified.
5. Ensure that all events are disabled.
6. Disable revision tracking for the following asset types:
   - `ASSOCNAMED` table
   - CSElement
   - Template
   - Page
7. Disable any external data feeds.
8. Back up all systems in the active environment, as described in the guide. This includes all Content Server instances and all remote Satellite Servers.
9. Take note of all the information about your existing installation, such as web server configuration, application server configuration, database configuration, and LDAP configuration. While these will not be changed during the upgrade, you might need to reference existing settings if changes are needed elsewhere (for instance tuning the new cache).

Step 2. Create the Test Environment

Note

Complete a trial upgrade on a test environment before upgrading the active environment. If a test environment is not available, then start by upgrading the development system first and expect extended downtime. It is strongly recommended that a test environment is used, given the extent of changes made in WebCenter Sites.

1. When you are ready to create the test environment, recover the backup that you created in the previous step. Refer to the *Content Server 7.6 Patch 2 Backup and Recovery Guide* for recovery guidelines.
2. If your active environment is running remote Satellite Servers, be sure to duplicate at least one of them in the test environment.
3. Continue with the guidelines below to complete the test environment:

- Content Server

  1) Copy Content Server into the same location that it occupied on its previous host.

  2) Clear out the `SystemSatellite` table entries except for the local system and a single remote Satellite Server on which you are going to test this upgrade.

  3) Change the host name and IP address in the following files located in your `ContentServer.ear` and `cs.war` files:

Change Host Name and IP	File	Directory
Required	`satellite.properties` (host)	`<deploy_dir>/WEB-INF/classes`
Optional	`SampleSites.html`	`<deploy_dir>/Xcelerate`

Optional	`AssetSet.wsdl`
	`AssetType.wsdl`
	`Asset.wsdl`
	`Miscellaneous.wsdl`
	`SitePlan.wsdl`
		`<deploy_dir>/Xcelerate/wsdl`

  4) Change the host name and IP address in the following property files located in the `<cs_install_dir>` directory:

Change Host Name and IP	Property File	Property

Required	`futuretense.ini`
	`databaseloader.ini`
	`futuretense_xcel.ini`
		`cs.eventhost`
		`db1.loginurl`
		`xcelerate.batchhost`

  5) If you have previously installed WEM Framework, then also edit the following files:

Change Host Name and IP	File	Property

Required	`<cshome>/Bin/ jbossTicketCacheReplicationConfig.xml`
	`<cshome>/bin/ cas.properties`
	`<cshome>/Bin/ host.properties`
	`CS/WEB-INF/classes/ SSOConfig.xml`
	`CAS/WEB-INF/ deployerConfigContext.xml`
		These are not property files. Search and replace values as required.

- Application server
  1) Install the application server using the same paths that were used on the previous host.
  2) Create the data source using the same JNDI name that was used on the previous host. Use the database information for the restored database.
  3) Deploy the Content Server application as required by your application server.

Step 3. Prepare Content Server Patch 1 or Patch 2 for Upgrade

In this section you will use the *Oracle WebCenter Sites Certification Matrix* and current release notes to first upgrade Content Server's supporting software.

A. Preparing the Environment

Reminder

For clustered environments. Stop all cluster members. Prepare only the primary member for upgrade. When you finish upgrading the primary member, you will also upgrade WebCenter Sites on the secondary members.

1. Upgrade Content Server's supporting components to the versions that are listed in the *Oracle WebCenter Sites Certification Matrix*. Supporting software includes:
   - The operating system
   - Application server
   - Java SDK
   - Content Server's database
   - (Conditional). LDAP server and web server. If you are using LDAP and you decided to upgrade (or change) the LDAP server, manually migrate all of your LDAP data from the old server to the new one.

   Note

   For instructions on upgrading supporting components, see the respective vendor's documentation.

2. Verify that your installation is fully functional.

B. Preparing Content Server Instances

1. If Content Server is running with Oracle database, ensure that the following system privileges are assigned to the Oracle database user. These privileges are identical to the privileges that WebCenter Sites requires to operate:
   - `GRANT UNLIMITED TABLESPACE TO <USER>;`
   - `GRANT CREATE SESSION TO <USER>;`
   - `GRANT CREATE TABLE TO <USER>;`
   - `GRANT CREATE VIEW TO <USER>;`

2. Maintaining customizations throughout the upgrade.

> **Note**
>
> In this step you will back up deployment customizations (if any), as the `js/src` folder in your deployment directory will be removed during the upgrade.

If you have deployed custom JARS or made configuration changes that are not reflected in the current copies of the `cs.war` and `ContentServer.ear` files (located in `<cs_install_dir>/ominstallinfo/app`), create clean `cs.war` and `ContentServer.ear` files from your currently deployed Content Server application as follows:

a. Back up `cs.war` and `ContentServer.ear` from `ominstall/app`.
b. If WEM Framework is installed, back up `cas.war` and `cas.ear` from the `ominstall/` directory.
c. Locate the deployed and exploded `cs.war` file, compress this file (use the same version of JAR that will be used by the WebCenter Sites installer), and place it in the `ominstall/app` directory.
d. Explode the backed up `ContentServer.ear` file into its own directory.
e. Copy the new `cs.war` over the existing one in the exploded `ContentServer.ear` file and compress this file (use the same version of JAR as the one which will be used by the WebCenter Sites installer).
f. Place the newly compressed `ContentServer.ear` into the `ominstall/app` directory.

> **Note**
>
> The WebCenter Sites installer is configured to detect the Content Server application to be in the `<cs_install_dir>/ominstallinfo/app` directory. Neither `cs.war` nor `ContentServer.ear` files must be renamed or moved. If the installer cannot find the Content Server application, the upgrade process will fail.

3. Back up all `.ini` files located in the `<cs_install_dir>` directory.
4. Using the Property Editor, note the values of the following properties in the `futuretense.ini` file:
   - `secure.CatalogManager` (**Basic** tab)
   - `ft.sync` (**Cluster** tab)

   The installer will change their values during the upgrade process. You will need to restore them.

5. If your system is integrated with read-only LDAP, add the following roles (new in WebCenter Sites) for each user:
   - `AdvancedUser`: Allows users to log in to the WebCenter Sites Admin interface (formerly known as the Content Server Advanced administrative interface).

     Note

     The `AdvancedUser` role already exists if you have previously installed WEM Framework.

   - `DashUser`: Allows users to log in to the Content Server Dash interface. As this interface has been removed, this role should also be removed from LDAP.

     Note

     The `DashUser` role has been replaced with the `SitesUser` role for the following:
     - Start menu
     - Tree tab
     - Workflow steps, process, assignment and functional privileges.
     - Saved searches
     - Publishing destination
     - Access permissions

   - `SitesUser`: Allows users to log in to the WebCenter Sites Contributor interface. In LDAP, you will have to manually create the `SitesUser` role and assign it to all users who were assigned the `DashUser` role earlier.
6. If you are currently using inCache and disk persistence has removed the cache files from disk, then these files will be located in the `java temp` directory. Possible directory names to remove are: `cascache`, `cscache`, `linkedcache`, and `sscache`.
7. In this step, you will run the WebCenter Sites upgrade utility to log the pre-upgrade status of the database schema.You will run this utility again, after the upgrade to determine which changes were made to the database schema (and indexes) by the installer. For more information about the upgrade utility, refer to the `ReadMe` file located in `Misc\UpgradeUtility\upgrade-util.zip`.

   To run the upgrade utility:

   a. Go to the `Misc` directory of the extracted installer, extract the upgrade utility, and open one of the following scripts:

      Windows: `cssystem.bat`

      Unix/Linux: `./cssystem.sh`

   b. Edit the selected script by entering the following information about your system:
      - Specify Content Server database settings: driver, URL, user name/password.
      - Specify the `DATABASEJAR` file relevant to your database type.

- Specify the expected Content Server deployment path, using the `-i` parameter.

c. Run the selected script.

Running the script generates the `Systeminfo.log` file (in the `\Misc\UpgradeUtility` directory), which contains the expected WebCenter Sites database schema updates.

Note

For more information about the usage of the upgrade utility, refer to the `ReadMe.txt` file in the `\Misc\upgrade-util.zip` directory.

8. Undeploy the old Content Server application from the application server. For undeployment instructions, refer to the installation guide for your platform and Content Server version.

Step 4. Upgrade Content Server 7.6 Patch 1 or Patch 2 Instances to WebCenter Sites 11*g*R1

In this section, you will run the WebCenter Sites upgrade installer in the preferred manner (GUI or silent) on each instance of Content Server 7.6 Patch 1 or Patch 2.

Note

- If you made major changes in "Step 3. Prepare Content Server Patch 1 or Patch 2 for Upgrade," back up your environment. Otherwise, if the upgrade fails, you will need to restart the upgrade procedure from "Step 1. Back Up Your Content Server 7.6 Patch 1 or Patch 2 Environment."
- In Content Server 7.6 Patch 1 or Patch 2:
  - If `log4j` was enabled, then the upgrade will continue to use `log4j`. If `commons-logging.properties` was used instead, you will have the opportunity to change it to `log4j` during the upgrade process.
  - If the traditional page caching framework was enabled, its cache will be flushed and replaced with the inCache framework.

To upgrade a Content Server instance to WebCenter Sites, do one of the following:

- Interactive Upgrade
- Silent Upgrade

Interactive Upgrade

1. Extract the WebCenter Sites installer archive into a temporary directory and run the installer script:
   a. On Windows: `csinstall.bat`
   b. On Unix: `./csInstall.sh`

> **Note**
>
> Monitor the installer log (`install_log.log`), the WebCenter Sites application log (`futuretense.txt` by default), and application server logs during the upgrade process and during post-upgrade testing. If an error occurs, you can trace its source by reviewing the logs.

   As you proceed through the upgrade, bear in mind the following:

   - Most fields in the installer will be pre-populated with values that the installer detected from your original installation. Check the pre-populated values. If they are outdated, you will need to supply the current values. (Information such as passwords, you will have to enter manually.)
   - Fields whose values you are not permitted to change will be disabled (grayed out).
   - The installer provides online help at each screen, with detailed explanations of options available in the screen. If you experience problems during the upgrade process, consult the online help for possible causes and solutions.

2. Proceed to the installation guide for your platform and follow the instructions provided for installing WebCenter Sites. Once the installation is completed, return to this guide and continue.

> **Note**
>
> At this point, it is assumed that the upgrade of Content Server has completed and that you have a valid WebCenter Sites installation running. If the upgrade failed, review the previous steps and the logs and resolve any issues. Do not exit the installer, as that will require restoring the previous step and starting the process again.

3. Restart the WebCenter Sites and CAS applications.
4. Continue to "Step 5. Re-Run the Upgrade Utility."

Silent Upgrade

1. Copy the `omii.ini` file from `<cs_install_dir>/ominstallinfo` to a folder outside `<cs_install_dir>` and rename the copy as desired. The silent installer will use this copy during the upgrade.
2. If the default user name and/or password for the `ContentServer` user or `SatelliteServer` user was changed after Content Server 7.5, update the following properties in the renamed `omii.ini` file. The silent installer authenticates by referring to these credentials. If they are outdated, the installer fails.

Property	Description
`CSInstallAccountName`	Provide the current user name for the `ContentServer` user. The default value is `ContentServer`.
`CSInstallAccountPassword`	Provide the encrypted password for the `ContentServer` user.
`SSUserPassword`	Provide the encrypted password for the `SatelliteServer` user.

Note

Use Content Server's Property Editor to get the encrypted password:

1. Open the `futuretense.ini` in the Property Editor.
2. Search for the `cs.mirrorpassword` property. If it is populated, store its value temporarily in a text file.
3. Replace the `cs.mirrorpassword` property value with the password you wish to encrypt.
4. Save the property file to have your password encrypted.
5. Copy the encrypted password to the `omii.ini` file.
6. Restore the value of `cs.mirrorpassword` if it was populated.

3. If you want to migrate from Content Server's existing logging system to Apache Log4j (recommended), add the following property to the renamed `omii.ini` file. You must not add this property if log4j was already configured manually, or if you want to keep your existing logging system.

Property	Description
`ConvertToLog4J`	Set this property to `true` to migrate to log4j.

Note

If you do not migrate to log4j during the installation process, you can switch to log4j at a later time. For instructions, see the *WebCenter Sites Administrator's Guide*.

4. This step applies to WEM Framework and FatWire Content Server Developer Tools (CSDT). Add the properties in Table 2 to the renamed `omii.ini` file. The information you provide depends on whether you are installing or upgrading WEM Framework on a primary or secondary Content Server cluster member and whether you are clustering CAS.

Table 2: WEM Properties

Property	Description
WEM	Set this property to `true` to install or upgrade WEM Framework.
IsPrimaryClusterMember	If you are upgrading or installing WEM Framework on the primary Content Server cluster member, set this property to `true`. Otherwise, set it to `false`.
CASHostNameLocal	**Clustered CAS**: Host name of the server running the internally accessible CAS load balancer. **Non-clustered CAS**: Internal host name of the server on which CAS will be deployed.
CASPortNumberLocal	**Clustered CAS**: Port number of the server running the internally accessible CAS load balancer. **Non-clustered CAS**: Internal port number of the server on which CAS will be deployed.
CASHostName	**Clustered CAS**: Host name of the server running the CAS load balancer. **Non-clustered CAS**: Host name of the server on which CAS will be deployed.
CASPortNumber	**Clustered CAS**: Port number of the server running the CAS load balancer. **Non-clustered CAS**: Port number of the server on which CAS will be deployed.
CASHostNameActual	**Clustered/Non-Clustered CAS**: Host name of the server on which CAS is actually deployed.

Note

When upgrading the primary Content Server cluster member, note the following:

- If automatic deployment is in effect, the installer will deploy WebCenter Sites and CAS on the same server. Once the installation process is complete, you can manually redeploy CAS on a different server, as described in "Redeploying CAS on a New Server," in *WebCenter Sites: Configuring Supporting Software*
- If manual deployment is in effect, you will deploy WebCenter Sites. You will also deploy CAS either on the same server, or on a separate server. Once the installation process is complete, and you decide to redeploy CAS on a different server, you can do so manually as described in"Redeploying CAS on a New Server," in *WebCenter Sites: Configuring Supporting Software*.

Sample Configurations for Installing WEM Framework

a. If you are installing WEM Framework on the primary Content Server cluster member, use the sample configurations below as a reference. To continue the installation process, skip to step 5**.**

- If CAS is clustered:

```
WEM=true
IsPrimaryClusterMember=true
CASHostName=<host name of server with load balancer>
  CASPortNumber=<port number of server with load
balancer>
CASHostNameLocal=<host name of the internally accessible
  server with load balancer>
CASPortNumberLocal=<port number of the internally
  accessible server with load balancer>
CASHostNameActual=<hostname of the server on which CAS is
  actually deployed>
```

- If CAS is not clustered:

```
WEM=true
IsPrimaryClusterMember=true
CASHostName=<host name of server on which CAS will be
  deployed>
CASPortNumber=<port number of server on which CAS will be
  deployed>
CASHostNameLocal=<internal host name of the server on
  which CAS will be deployed>
CASPortNumberLocal=<internal port number of the server on
  which CAS will be deployed>
CASHostNameActual=<hostname of the server on which CAS is
  actually deployed>
```

b. If you are installing WEM Framework on a secondary Content Server cluster member, use the sample configurations below as a reference. To continue the installation process, skip to step 5.

- If CAS is clustered:

```
WEM=true
IsPrimaryClusterMember=false
CASHostName=<host name of server on which CAS has been
  deployed>
CASPortNumber=<port number of server on which CAS has
  been deployed>
CASHostNameLocal=<internal host name of the server on
  which CAS will be deployed>
CASPortNumberLocal=<internal port number of the server on
  which CAS will be deployed>
CASHostNameActual=<hostname of the server on which CAS is
  actually deployed>
```

- If CAS is not clustered:

```
WEM=true
IsPrimaryClusterMember=false
CASHostName=<host name of server on which CAS has been
  deployed>
CASPortNumber=<port number of server on which CAS has
  been deployed>
CASHostNameLocal=<internal host name of the server on
  which CAS will be deployed>
CASPortNumberLocal=<internal port number of the server on
  which CAS will be deployed>
CASHostNameActual=<hostname of the server on which CAS is
  actually deployed>
```

Sample Configurations for Upgrading WEM Framework

a. If you are upgrading WEM Framework on the primary Content Server cluster member, use the sample configurations below as a reference. To continue the installation process, skip to step 5.

- If CAS is clustered:

```
WEM=true
IsPrimaryClusterMember=true
CASHostName=<host name of server with load balancer>
  CASPortNumber=<port number of server with load
balancer>
CASHostNameLocal=<host name of the internally accessible
  server with load balancer>
CASPortNumberLocal=<port number of the internally
  accessible server with load balancer>
CASHostNameActual=<hostname of the server on which CAS is
  actually deployed>
```

- If CAS is not clustered:

```
WEM=true
IsPrimaryClusterMember=true
```

```
CASHostName=<host name of server on which CAS will be
  deployed>
CASPortNumber-<port number of server on which CAS with be
  deployed>
CASHostNameLocal=<internal host name of the server on
  which CAS will be deployed>
CASPortNumberLocal=<internal port number of the server on
  which CAS will be deployed>
CASHostNameActual=<hostname of the server on which CAS is
  actually deployed>
```

b. If you are upgrading WEM Framework on a secondary Content Server cluster member, use the sample configurations below as a reference.

- If CAS is clustered:

```
WEM=true
IsPrimaryClusterMember=false
CASHostName=<host name of server with load balancer>
  CASPortNumber=<port number of server with load
  balancer>
CASHostNameLocal=<host name of the internally accessible
  server with load balancer>
CASPortNumberLocal=<port number of the internally
  accessible server with load balancer>
CASHostNameActual=<hostname of the server on which CAS is
  actually deployed>
```

- If CAS is not clustered:

```
WEM=true
IsPrimaryClusterMember=false
CASHostName=<host name of server on which CAS has been
  deployed>
CASPortNumber=<port number of server on which CAS has
  been deployed>
CASHostNameLocal=<internal host name of the server on
  which CAS will be deployed>
CASPortNumberLocal=<internal port number of the server on
  which CAS will be deployed>
CASHostNameActual=<hostname of the server on which CAS is
  actually deployed>
```

5. Decompress the upgrade installer file. This file is same as the file for the WebCenter Sites 11*g*R1 installer. Upgrade is automatically detected when you run the installer.

6. Edit the `install.ini` file in the root of the extracted Rollup folder:

a. Set the `nodisplay` property to `true`.

b. Set the `loadfile` property to `<path and name of renamed omii.ini from step 1>`.

Note

Verify that you have correctly specified the file system path. For example, for Windows:

```
CSInstallDirectory=C\:/csinstall

- or -

c\:\\install
```

7. Run the silent installer script:
   - On Windows: `csInstall.bat -silent`
   - On Unix: `csInstall.sh -silent`
8. Proceed to the installation guide for your platform and follow the instructions provided for installing WebCenter Sites. Once the installation is completed, return to this guide and continue.

Note

At this point, it is assumed that the upgrade of Content Server has been completed and that you have a valid WebCenter Sites installation running. If the upgrade fails, review the previous steps and the logs and resolve any issues. Do not exit the installer, as that will require restoring the previous step and starting the process again.

9. Restart WebCenter Sites and CAS applications.
10. Continue to "Step 5. Re-Run the Upgrade Utility."

Step 5. Re-Run the Upgrade Utility

In this section, you will re-run the upgrade utility to ensure the database schema has been correctly deployed.

1. Re-run one of the following scripts, (which you configured and executed in step 7 on page 27, when you prepared Content Server 7.6 Patch 1 or Patch 2 instances for upgrade):
   - Windows: `cssystem.bat`
   - UNIX: `cssystem.sh`
2. Re-running the upgrade utility generates an updated `systeminfo.log` file. Compare this file to the `systeminfo.log` file that was generated in step 7 on page 27 to ensure that the expected database schema changes were made.

Step 6. Complete the Upgrade

1. Using the Property Editor, open the `futuretense.ini` (in `<cs_install_dir>`) file and reset the `secure.CatalogManager`, `secure.CatalogManager`, and `ft.sync` properties to their original values.
2. Restart the application server.
3. Ensure that you can log in to WebCenter Sites as the general administrator.
4. The search engine is restarted automatically after the upgrade. However, to use the search engine, you must re-create the search indices. (This step fully enables the newly added Site Preview feature, which requires start/end dates to be set in the "Metadata" tab of any assets that are time-sensitive.)
5. If you plan to use multilingual assets and locale filtering on any site, create a default locale and assign it to all the assets on the site. For instructions, see the *WebCenter Sites Developer's Guide*.
6. Optional. If upgrading to log4j, add any custom loggers previously found in the `commons_logging.properties` file to the `log4j.properties` file. Update the `log4j.properties` file as follows:
   a. Add any custom loggers previously found in the `commons_logging.properties` file.
   b. Add the following properties to your `log4j.properties` file:

```
log4j.logger.com.fatwire.logging.cs.file=INFO
log4j.logger.com.fatwire.logging.cs.framework=INFO
log4j.logger.com.fatwire.logging.cs.realtime=INFO
log4j.logger.com.fatwire.logging.cs.sseed=INFO
log4j.logger.com.fatwire.services=INFO
log4j.logger.com.fatwire.services.dao=INFO
log4j.logger.com.fatwire.services.time=INFO
```

7. For each basic asset type, re-register asset elements:
   a. Log in to the content management site for which basic assets are enabled.
   b. In the left-hand navigation tree, select the **Admin** tab.
   c. Expand the **Asset Types** node.
   d. Double-click **Basic asset type**.
   e. In the right-hand pane, click **Register Asset Elements**.
   f. On the confirmation screen, click **Register Asset Elements**.
   g. For each basic asset type, re-apply the customizations to each element in the `ElementCatalog` table.
8. Enable Revision tracking for the following asset types if it was previously disabled:
   - `ASSOCNAMED` table
   - `CSElement`
   - `Template`
   - `Page`

Note

The Page asset type is upgraded to behave partially like a Flex family. Therefore, after the upgrade, the Page asset type will also have `PageAttribute`, `PageDefinition`, and `PageFilter`.

9. Assign WEM Admin to `AdminSite`.
10. If customized property values in your Content Server installation were replaced with default values during the upgrade process, restore the custom values now.
11. If you have customized any portion of the Content Server Advanced interface, re-apply the custom code.
12. New properties are added during the upgrade. If you wish to change their values, see the *Oracle WebCenter Sites Property Files Reference*. The properties are listed below:

Property	Property File
`advancedUI.enableAssetForms`	`futuretense_xcel.ini`
`cc.BlobServerTimeout`	`futuretense.ini`
`cc.BlobServerCacheCSz`	`futuretense.ini`
`cs.HTTP_HOST`	`futuretense.ini`
`com.fatwire.logging.cs.realtime`	`commons-logging.properties`
`xcelerate.imageeditor.clarkii.basepath`	`futuretense_xcel.ini`

13. Assemble any notes that you might have taken while completing the previous steps. You can use the notes when upgrading the active environment.

Step 7. Upgrade Remote Satellite Servers in the Environment

Note

Repeat the following steps for each remote Satellite Server you have deployed.

1. Back up your remote Satellite Server, making sure to keep track of any customizations made, as they will all be lost.
2. Undeploy and delete the home directory of `SatelliteServer`.

3. Install remote Satellite Server (see *Oracle WebCenter Sites: Installing Satellite Server*).

> **Note**
>
> Since caching has changed in WebCenter Sites 11*g*R1, adjustments to JVM Heap will be required.

Step 8. Verify the Upgraded Environment

Complete the following steps on each WebCenter Sites instance in the upgraded environment:

> **Note**
>
> If you have a cluster, begin with the primary cluster member, then test each secondary cluster member. Finally, test the cluster via the load balancer.

1. Log in to WebCenter Sites as the general administrator.
2. Test the WebCenter Sites interfaces (Admin and Contributor) and all functions that are routinely used during normal operations. For example, searching, creating/editing custom asset types, creating/editing assets, site preview, workflow, and approval/publishing. For information about the interfaces, see any one of the WebCenter Sites installation guides.
3. When the environment is verified, do one of the following:
   - If you upgraded the test environment, continue to "Upgrading the Active Environment."
   - If you upgraded the active environment, do the following:
     1) Enable the publishing schedules.
     2) Enable any events.
     3) Back up the upgraded environment.
     4) Apply any tuning required by the new caching structure.
     5) Clear Client Browser caches (as existing cached content may cause issues).
     6) Resume work.

Upgrading the Active Environment

The following steps are applicable if you upgraded the test environment:

1. Having verified the test environment, you will now upgrade the active environment:
   a. Assuming the active environment continued to operate during the trial upgrade, synchronize its Content Server systems (as necessary):
      1) Publish from the development system to the content management system.

2) Publish from the content management system to the delivery system.

b. Upgrade the active environment by referring to the previous steps in this chapter and any notes that you may have created during the trial upgrade.

2. Back up the upgraded environment.
3. Resume work.