

**Oracle® Communications Billing Care**

Installation Guide

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# Contents

<b>Preface</b> .....	vii
Audience.....	vii
Documentation Accessibility .....	vii
Related Documents .....	vii
Accessing Oracle Communications Documentation.....	viii
<b>1 Billing Care Installation Overview</b>	
About Installing Billing Care .....	1-1
Overview of the Billing Care Installation Steps .....	1-1
Ensuring a Successful Billing Care Installation.....	1-2
<b>2 Planning Your Billing Care Installation</b>	
About Planning Your Billing Care Installation.....	2-1
About Test Installations and Production Installations.....	2-1
About Test Installations .....	2-1
About Production Installations .....	2-1
Database Planning .....	2-2
Authentication and Authorization Planning.....	2-2
About Installing a Secure System .....	2-2
<b>3 Billing Care System Requirements</b>	
Software Requirements.....	3-1
Supported Operating Systems .....	3-1
Additional Software Requirements.....	3-2
Hardware Requirements .....	3-3
About IPv4 and IPv6 Support for Fusion Middleware Products.....	3-3
<b>4 Billing Care Pre-Installation Tasks</b>	
Overview of Production Pre-Installation Tasks.....	4-1
Installing and Configuring Oracle Enterprise Database.....	4-1
Creating Database Schemas Using RCU .....	4-2
Installing and Configuring Oracle WebLogic Server .....	4-2
Creating Oracle Identity and Access Management Deployment Repository .....	4-2
Installing the IAM Life Cycle Management Tools.....	4-3

<b>Creating the Deployment Response File</b> .....	4-3
<b>Running the Deployment Response File</b> .....	4-3
<b>Configuring Oracle Unified Directory as Authentication Provider</b> .....	4-4
<b>Configuring the Oracle Access Manager Billing Care Application Domain</b> .....	4-4
Creating the Billing Care Application Domain .....	4-4
Defining Billing Care Resources .....	4-5
Configuring Billing Care Authentication Modules.....	4-5
Creating a Billing Care Authentication Scheme .....	4-6
Creating the Billing Care Authentication Policy and Adding Resources .....	4-6
Creating the Billing Care Authorization Policy and Adding Resources .....	4-7
Configuring and Restarting the Oracle HTTP Server .....	4-8
<b>Installing and Configuring Oracle Entitlements Server Client</b> .....	4-9
Configuring the Billing Care Domain with OES Client Security Modules .....	4-9
<b>Information Requirements</b> .....	4-9
IAM Database Connection Information.....	4-9
OES Administration Server Domain Information.....	4-10
OES Client Domain Information.....	4-10
Oracle Unified Directory Information.....	4-11
Oracle Identity and Access Management Console URLs.....	4-11
Billing Care Connection Information .....	4-11

## 5 Installing Billing Care

<b>Downloading the Billing Care Installer</b> .....	5-1
<b>Installing Billing Care for Testing</b> .....	5-2
Configuring WebLogic Server for a Test Installation .....	5-2
Running the Billing Care Installer for Testing .....	5-2
<b>Installing Billing Care for Production</b> .....	5-4
<b>About Installation Logs</b> .....	5-8

## 6 Billing Care Post-Installation Tasks

<b>Post-Installation Tasks</b> .....	6-1
About Encryption.....	6-1
Copying the Infranet.properties File to the Domain Administrative User's Home Directory.....	6-2
Encrypting and Adding BRM Connection Information in Infranet.properties File.....	6-2
Encrypting and Adding BI Publisher Connection Information in Infranet.properties .....	6-3
Configuring Additional Settings in Infranet.properties.....	6-3
Importing the Billing Care Security Policies into OES .....	6-3
Configuring Internet Explorer for Billing Care .....	6-4
Enabling Logging .....	6-5
Configuring SAML for SSO .....	6-5
Creating SAML Assertion Provider .....	6-5
Creating SAML Authenticator .....	6-6
Specifying General Information.....	6-7
Configuring the SAML Service Provider .....	6-7
Publishing the Service Provider Metadata.....	6-7
Updating the Deployment Plan of Billing Care .....	6-8

Verifying SAML Configuration ..... 6-9

## **7 Verifying the Billing Care Installation**



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# Preface

This guide provides instructions for installing Oracle Communications Billing Care.

## Audience

This guide is intended for system administrators, database administrators, and developers who install and configure Billing Care. Billing Care requires Oracle Database, Oracle WebLogic Server, and Oracle Identity and Access Management Suite products. See the documentation for those products for additional installation and configuration instructions.

## Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

### Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

## Related Documents

The following documents contains related information and are referenced in this guide:

- *Administering Security for Oracle WebLogic Server*
- *Oracle Communications Billing and Revenue Management Developer's Guide*
- *Oracle Communications Billing and Revenue Management System Administrator's Guide*
- *Oracle Database Online Documentation 11g Release 2*
- *Oracle Fusion Middleware Administrator's Guide for Oracle Access Management*
- *Oracle Fusion Middleware Administrator's Guide for Oracle Access Manager with Oracle Security Token Service*
- *Oracle Fusion Middleware Administrator's Guide for Oracle Entitlements Server*
- *Oracle Fusion Middleware Deployment Guide for Oracle Identity and Access Management 11g Release 2*

- *Oracle Fusion Middleware Deploying Applications to Oracle WebLogic Server*
- *Oracle Fusion Middleware Domain Template Reference*
- *Oracle Fusion Middleware Installation Guide for Oracle Identity and Access Management*
- *Oracle Fusion Middleware Integration Guide for Oracle Identity Management Suite*
- *Oracle Fusion Middleware Securing Oracle WebLogic Server*

## **Accessing Oracle Communications Documentation**

Billing Care documentation and additional Oracle documentation, such as Oracle Database, WebLogic, and Identity and Access Management documentation, is available from Oracle Help Center:

- <http://docs.oracle.com>

Additional Oracle Communications documentation is available from the Oracle software delivery web site:

- <https://edelivery.oracle.com>



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# Billing Care Installation Overview

This chapter provides an overview of Oracle Communications Billing Care components and installation process.

## About Installing Billing Care

Billing Care installation should be performed only by experienced system administrators. You must be familiar with the following before you begin the installation:

- UNIX/Linux operating system
- Oracle WebLogic Server
- Oracle Enterprise Database
- Oracle Identity and Access Management (IAM) components, including:
  - Oracle Access Management (OAM)
  - Oracle Entitlements Server (OES)
  - Oracle Identity Manager (OIM)
  - Oracle Unified Directory (OUD)

Additionally, you should have experience installing Java-related packages.

The Billing Care installer deploys Billing Care to a WebLogic server domain, installs the Billing Care SDK, or performs both actions.

## Overview of the Billing Care Installation Steps

The following is an overview of the Billing Care installation steps:

1. Plan your installation. Planning your installation involves:
  - Determining the scale of your implementation (for example, whether you are installing a small test system or a large production system).

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**Note:** You can install a test or development installation of Billing Care without IAM. Do not use these installations in production environments. See "[About Test Installations and Production Installations](#)" for more information.

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- Assessing how many physical computers you need and which software components to install on which computers.

- Planning the system topology (for example, determining whether you want a standalone deployment or a clustered deployment).
2. Review system requirements. System requirements include:
    - Hardware requirements, such as disk space and physical RAM
    - Software requirements, such as operating system (OS) versions and OS patch requirements, OS kernel tuning requirements, required Oracle software, including:
      - Enterprise Database
      - WebLogic Server
      - IAM
      - Java Development Kit (JDK)See "[Billing Care System Requirements](#)" for required versions.
    - Information requirements, such as IP addresses, administrative user credentials, host names, and port numbers
  3. Prepare your IAM foundation by completing the pre-installation tasks:  
See "[Billing Care Pre-Installation Tasks](#)" for more information.
  4. Install Billing Care and the Billing Care SDK (if required) using the Oracle Universal Installer (OUI) Billing Care installer.  
See "[Installing Billing Care](#)" for more information.
  5. Perform the required post-installation configuration tasks.  
See "[Billing Care Post-Installation Tasks](#)" for more information.
  6. Verify the installation.  
See "[Verifying the Billing Care Installation](#)" for more information.

## Ensuring a Successful Billing Care Installation

Billing Care uses additional Oracle software products including Enterprise Database, WebLogic Server, and IAM. Familiarize yourself with these products and their installation procedures before installing Billing Care.

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**Note:** IAM has important pre-installation requirements including kernel tuning, operating system configuration files editing (for example, editing **limits.conf**), and tuning database parameters. Ensure that these requirements have been met when completing the pre-installation tasks before running the Billing Care installer so that your installation is successful.

See *Oracle Fusion Middleware System Requirements and Specifications for Oracle Identity and Access Management* for detailed information.

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Consult additional product documentation on the Oracle Help Center for required information at:

<https://docs.oracle.com>

To ensure that the Billing Care installation is successful, follow these guidelines:

- As you install each component (for example, the Enterprise Database and WebLogic Server), verify that the component installed successfully before continuing the installation process.
- Pay close attention to the system requirements. Before you begin installing the application, ensure that your system has the required base software and meets the minimum technical requirements. In addition, ensure that you know all the required configuration values, such as host names and port numbers.
- Make a note of any new configuration values as you create them. You will be required to enter configuration values later in the procedure.



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## Planning Your Billing Care Installation

This chapter provides information on planning your Oracle Communications Billing Care installation.

### About Planning Your Billing Care Installation

When planning a Billing Care installation, consider how many physical servers are required to support the Oracle Enterprise Database, Oracle WebLogic Server domains, and Oracle Identity and Access Management (IAM) components needed in your environment. High-availability requirements may increase the number of hosts.

Consider the security and networking requirements necessary for securing Billing Care communications with your Oracle Communications Billing and Revenue Management (BRM) system in addition to software and hardware requirements.

See "[Billing Care System Requirements](#)" for information about required hardware and software.

### About Test Installations and Production Installations

Install Billing Care either as a test or production installation depending on your required environment.

#### About Test Installations

Use test installations when setting up internal development or testing Billing Care instances. Test installations allow users to use Billing Care without IAM security. The deployed Billing Care application in your test WebLogic server domain connects directly to your BRM system using native WebLogic server user management.

Test installations include the following components:

- WebLogic Server
- WebLogic Server domain to host Billing Care with Billing Care security disabled
- Deployed Billing Care application WAR

This guide includes information on installing test installations. You do not need to perform the IAM pre-installation steps for test installations.

#### About Production Installations

Use production installations when setting up secure Billing Care instances using IAM security. Production installations require user authentication and authorization for securing access to Billing Care. This guide provides general guidelines in installing

and configuring IAM components. It does not contain detailed information on configuring IAM components. Consult the respective product documentation using the links provided in this guide for more information on configuring IAM components.

Production installations include the following components:

- Enterprise Database
- Database creation with Oracle Repository Creation Utility (RCU)
- WebLogic Server
- Oracle Identity and Access Management (IAM) components, including:
  - Oracle Access Manager (OAM)
  - Oracle Entitlements Server (OES) Administration Server and Client Domains
  - Oracle Identity Manager (OIM)
  - Oracle Unified Domain (OUD)
- Deployed Billing Care application WAR on each OES Client domain

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**Note:** Oracle provides Life Cycle Management (LCM) tools that facilitate installation of IAM components. LCM supports production environments.

See *Oracle Fusion Middleware Deployment Guide for Oracle Identity and Access Management* for more information on using LCM tools to install these components. This guide uses the LCM tools method. Alternatively, consult each product's individual documentation for individual installation instructions.

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## Database Planning

Billing Care production installations require an Enterprise Database used by IAM. This database is in addition to your BRM server database. Database sizing requirements depend on the number of Billing Care users in your environment.

See "[Installing and Configuring Oracle Enterprise Database](#)" for information on setting up the required database for Billing Care.

## Authentication and Authorization Planning

When planning a Billing Care installation, consider IAM requirements carefully. Each OES Client domain hosts a deployed instance of Billing Care and connects to IAM for authentication and authorization. Determine how many OES Client domains are needed to support the Billing Care deployments required by your transaction volume.

See "Reviewing System Requirements and Certification" in *Oracle Fusion Middleware Installation Guide for Oracle Identity and Access Management* for more information on sizing your IAM host requirements.

## About Installing a Secure System

In production environments, you must ensure that communication between components and access to the system servers are secure. The Billing Care installer

prompts you to select security options. After you install Billing Care, enable SSL communication between Billing Care and BRM. For information about securing Billing Care, see *Billing Care Security Guide*.





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## Billing Care System Requirements

This chapter describes Oracle Communications Billing Care software and hardware requirements.

### Software Requirements

Billing Care is deployed on an Oracle WebLogic Server domain configured as an Oracle Entitlements Server (OES) client domain. The OES Client domain connects to the following Oracle Identity and Access Management (IAM) components:

- OES Administration Server for resource authorization
- Oracle Access Management (OAM) for domain authorization
- Oracle Identity and Access Management (OIM) is used for user authentication
- Oracle Unified Directory (OUD) for user directory management

IAM requires an Oracle Enterprise Database for storing authentication and authorization policies and user information. Use the Fusion Middleware Repository Creation Utility (RCU) to create the necessary database schemas in your database. See *Fusion Middleware Repository Creation Utility User's Guide* for more information on the RCU.

Oracle provides Life Cycle Management tools (LCM) for installing IAM. See *Deployment Guide for Oracle Identity and Access Management* for more information on using LCM to install and configure the required products. Alternatively, consult the individual product documentation if you choose to use individual product installers.

Billing Care is supported only on the software and hardware listed in the following sections. You must install and connect all required software components for a secure installation.

### Supported Operating Systems

Table 3–1 lists operating systems supported for Billing Care.

**Table 3–1 Billing Care Operating Systems Requirements**

Product	Version
Oracle Linux, x86-64 (64bit)	6+
Red Hat Enterprise Linux, x86-64 (64bit)	5 UL3+
Oracle Solaris for SPARC (64bit)	10 Update 4+

## Additional Software Requirements

Table 3–2 lists software required for running Billing Care.

Download required Oracle software from the Oracle Software Delivery Cloud:

<http://edelivery.oracle.com>

or Oracle Technology Network:

<http://www.oracle.com/technetwork/indexes/downloads/index.html>

or Oracle support web site:

<https://support.oracle.com>

**Table 3–2 Billing Care Software Requirements**

Product	Version
Oracle WebLogic Server 11g Enterprise Edition	10.3.6
Oracle Database Server	The same version used by the BRM 7.5 installation that Billing Care connects to.  See the installation guide for your database host operating system for additional information on database hardware and software requirements at:  <a href="http://docs.oracle.com/cd/B28359_01/nav/portal_11.htm">http://docs.oracle.com/cd/B28359_01/nav/portal_11.htm</a>
Oracle Fusion Middleware Repository Creation Utility 11g	11.1.1.9.0
Oracle Identity and Access Management Repository Creation Utility and Life Cycle Management Tools (includes Oracle Identity Management (OIM), Oracle Unified Directory (OUD), Oracle Entitlements Server (OES), and Oracle Access Manager (OAM))	11gR2PS2 (11.1.2.2.0) or later
Oracle Communications Billing and Revenue Management (BRM) on Linux x86 or x86-64 or Solaris SPARC (64 bit)	7.5 Patch Set 15 and later patch sets
Internet Browser	(Windows only) Microsoft Internet Explorer 11 Mozilla Firefox 32 Google Chrome 38
64bit Java Development Kit (JDK)	1.7.0_79

The Billing Care installer validates the JDK version and checks for a running OES Client domain before deploying Billing Care. Detected errors, any missing or unavailable components, or any connectivity-related issues are displayed in the Billing Care installer.

For production installations, you must install the required software listed in Table 3–2 and perform the required pre-installation procedures listed in "Billing Care Pre-Installation Tasks" before running the Billing Care installer. Test installations can be done on a basic WebLogic domain.

## Hardware Requirements

The number and configuration of the hosts used for your Billing Care installation depend on your requirements. For example, large transaction volumes, multiple geographical locations, or fail-over requirements affect the amount of required hardware.

Table 3–3 lists the recommended hardware requirement for a single server production Billing Care installation containing all components. See "Preparing to Install" in *Oracle Fusion Middleware Installation Guide for Oracle Identity and Access Management* for more information on IAM component hardware and sizing.

**Table 3–3 Billing Care Single Server Minimum Hardware Requirements**

Component	Requirement
Hard disk	200 GB of free disk space <b>Note:</b> A minimum of 1.5 GB should be free in the domain home.
Processor	Oracle recommends using 6 or more cores, each running at 1.5 GHz or greater.
Memory	A minimum of 35 GB physical memory and 16 GB swap. If you plan to install the required database on the same server, see "Checking the Hardware Requirements" for more information about required memory. For more information on calculating required memory in your environment, see <i>Oracle Fusion Middleware System Requirements and Specifications for Oracle Identity and Access Management</i> at: <a href="http://docs.oracle.com/html/E38978_01/r2_im_requirements.htm">http://docs.oracle.com/html/E38978_01/r2_im_requirements.htm</a>

Table 3–4 lists the minimum hardware requirement for each OES Client domain host on which Billing Care is deployed.

**Table 3–4 Billing Care OES Client Domain Server Minimum Hardware Requirements**

Component	Requirement
Hard disk	30 GB of free disk space <b>Note:</b> A minimum of 1.5 GB should be free in the domain home.
Processor	Oracle recommends using twin cores, each running at 1.5 GHz or greater.
Memory	A minimum of 8 GB physical memory and 8 GB swap for the OES Client domain server. For more information on calculating required memory in your environment, see <i>Oracle Fusion Middleware System Requirements and Specifications for Oracle Identity and Access Management</i> at: <a href="http://docs.oracle.com/html/E38978_01/r2_im_requirements.htm">http://docs.oracle.com/html/E38978_01/r2_im_requirements.htm</a>

## About IPv4 and IPv6 Support for Fusion Middleware Products

For information on network considerations, including support for IPv6 addresses, see "Configuring IPv4 and IPv6 for Fusion Middleware Products" in *Oracle Fusion Middleware System Requirements and Specifications* at:

[http://docs.oracle.com/html/E18558\\_01/fusion\\_requirements.htm#BABICJGA](http://docs.oracle.com/html/E18558_01/fusion_requirements.htm#BABICJGA)



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## Billing Care Pre-Installation Tasks

This chapter describes the tasks that you must perform before running the Oracle Communications Billing Care installer. The procedures include links to relevant documentation in related product documentation.

### Overview of Production Pre-Installation Tasks

In production installations, the Billing Care installer deploys Billing Care on a running Oracle Entitlements Server (OES) Client domain. The installer assumes that the following required software pre-installation tasks, including applying patches and workarounds, have already been completed successfully.

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**Note:** A test installation without Oracle Identity and Access Management (IAM) can be performed on a basic WebLogic domain. Test installations do not require the following IAM pre-installation tasks. See "[Installing Billing Care for Testing](#)" for more information. Do not use a test installation in production.

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Pre-installation tasks for Billing Care consist of the following steps:

1. [Installing and Configuring Oracle Enterprise Database](#)
2. [Creating Database Schemas Using RCU](#)
3. [Installing and Configuring Oracle WebLogic Server](#)
4. [Creating Oracle Identity and Access Management Deployment Repository](#)
5. [Installing the IAM Life Cycle Management Tools](#)
6. [Creating the Deployment Response File](#)
7. [Running the Deployment Response File](#)
8. [Configuring Oracle Unified Directory as Authentication Provider](#)
9. [Configuring the Oracle Access Manager Billing Care Application Domain](#)
10. [Installing and Configuring Oracle Entitlements Server Client](#)

### Installing and Configuring Oracle Enterprise Database

Billing Care uses Oracle Identity and Access Management (IAM) for user authentication and authorization. IAM requires an Oracle Enterprise Database for storing information. You must install a database before using the Life Cycle Management (LCM) tools to install and deploy IAM components.

Oracle recommends that an experienced database administrator install and configure your database. To install and configure Oracle Database, see the Oracle Database installation documentation at:

<https://docs.oracle.com/en/database/>

Record your database details in [Table 4-7, "IAM Database Connection Information"](#).

## Creating Database Schemas Using RCU

Use the Oracle Fusion Middleware Repository Creation Utility (RCU) to create the required IAM database schema.

See "Creating Database Schema Using the Oracle Fusion Middleware Repository Creation Utility (RCU)" in *Oracle Fusion Middleware Installation Guide for Oracle Identity and Access Management* for more information.

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**Note:** If you are using version 11gR2PS3 or later of the Oracle Identity and Access Management Deployment Repository Life Cycle Management tools, the required schema configuration can be created when generating your response file. You do not need to run RCU before running the response file. The Deployment Wizard creates the required schemas during deployment.

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## Installing and Configuring Oracle WebLogic Server

Installing and configuring IAM requires a pre-existing Oracle WebLogic Server middleware home directory. Download and install WebLogic Server before installing IAM.

See "Obtaining the Oracle Fusion Middleware Software" in *Oracle Fusion Middleware Installation Guide for Oracle Identity and Access Management* for more information on downloading WebLogic Server.

See *Oracle Fusion Middleware Installation Guide for Oracle WebLogic Server* for information on installing WebLogic Server.

## Creating Oracle Identity and Access Management Deployment Repository

To install required IAM components, use the IAM Life Cycle Management (LCM) tools. LCM tools are included in the Oracle Identity and Access Management Deployment Repository.

Download the Oracle Identity and Access Management Deployment Repository for your operating system from Oracle Software Delivery Cloud at:

<http://edelivery.oracle.com>

After you have downloaded all required files, uncompress the archives to create your repository in a location on your IAM host.

See "About the Lifecycle Management and Deployment Repository" in *Oracle Fusion Middleware Deployment Guide for Oracle Identity and Access Management 11g Release 2* for more information about the repository.

## Installing the IAM Life Cycle Management Tools

After creating your IAM Deployment Repository, install the LCM tools.

To install the LCM tools, follow the procedure "Installing and Preparing to Use the Life Cycle Management Tools" in *Deployment Guide for Oracle Identity and Access Management*.

## Creating the Deployment Response File

Use the LCM tools Deployment Wizard to create a response file specifying the IAM components, including the OES Administration Server, required by Billing Care.

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**Note:** If you are using a JDK version 1.7.0\_40 or later, you must disable the certificates key length limitation to install OES. See "x.509 Certificates Key Length Limitation for JDL1.7.0\_40 and Later" in *Oracle Fusion Middleware Identity Management Release Notes* for information on disabling the limitation.

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See "Overview of Deployment Response File" in *Oracle Fusion Middleware Deployment Guide for Oracle Identity and Access Management 11g Release 2* for information on creating a response file.

Select the options listed in [Table 4–1](#) when creating your response file.

**Table 4–1** Deployment Tool Response File Options for Billing Care

Screen	Selection
Suite Selection	OIM-OAM-OMSS Integrated with Directory
Directory Configuration	Configure New Directory, Oracle Unified Directory
OIM Database Configuration	Select <b>Create Schema Using RCU</b> and enter the information for the database you previously created (for Oracle Identity and Access Management Deployment Repository version 11gR2PS3).

## Running the Deployment Response File

Deploy your response file using the Deployment Wizard. See "Performing Deployment Using the Oracle Identity and Access Management Deployment Wizard" in *Oracle Fusion Middleware Deployment Guide for Oracle Identity and Access Management 11g Release 2* for more information on deploying response files.

Record your OES Administration Server details in [Table 4–8](#), "OES Administration Server Domain Information".

Record your IAM details in [Table 4–11](#), "Oracle Identity and Access Management Console URLs".

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**Note:** Deploying the response file may take a long time depending on your hardware. Monitor the console log for information on deployment progress.

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## Configuring Oracle Unified Directory as Authentication Provider

After deployment is complete, configure the OES Administration Server to use Oracle Unified Directory (OUD) as the authentication provider.

See "Configuring an Authentication Provider for Oracle Unified Directory" in *Oracle Fusion Middleware Securing Oracle WebLogic Server* for information on setting up OUD as your authentication provider.

See "Introduction to Oracle Unified Directory" in *Oracle Fusion Middleware Administering Oracle Unified Directory* for information on setting up OUD, including how to synchronize OUD with existing directories that you may already have.

Record your OUD details in [Table 4–10, "OES Unified Directory Information"](#).

## Configuring the Oracle Access Manager Billing Care Application Domain

Create a Billing Care application domain in Oracle Access Manager (OAM) and configure an application domain policy that controls access to the Billing Care application.

To create your Billing Care application domain in OAM, complete the following steps:

1. [Creating the Billing Care Application Domain](#)
2. [Defining Billing Care Resources](#)
3. [Configuring Billing Care Authentication Modules](#)
4. [Creating a Billing Care Authentication Scheme](#)
5. [Creating the Billing Care Authentication Policy and Adding Resources](#)
6. [Creating the Billing Care Authorization Policy and Adding Resources](#)
7. [Configuring and Restarting the Oracle HTTP Server](#)

See "Introduction to Application Domain and Policy Creation" in *Oracle Fusion Middleware Administrator's Guide for Oracle Access Management* for more information on application domains and policies.

### Creating the Billing Care Application Domain

To create the Billing Care application domain:

1. Log into your OAM web console at `http://Host:port/oamconsole` where *Host* and *port* are the server name or IP address and port for your OAM instance.
2. Click **Application Domains** in the **Access Manager** frame.
3. Click **Create Application Domain**.
4. In the **Name** field, enter a name for your application domain.
5. (Optional) Provide **Description**, **Session Idle Timeout (minutes)**, **Allow OAuth Token**, and **Allow Session Impersonation** values.
6. Click **Apply**.

The Billing Care application domain is created.

See "Creating a Fresh Application Domain Using the Console" in *Oracle Fusion Middleware Administrator's Guide for Oracle Access Management* for more information on creating an application domain in OAM console.



## Defining Billing Care Resources

Define the `/bc**`, `/bc*`, and `/**` resources for your Billing Care application domain. Repeat steps 1 through 4 for each of these resources.

To define Billing Care resources in your Billing Care application domain:

1. Click **Application Domains** in the **Access Manager** frame.
2. Click the link for your Billing Care application domain.  
The **Summary** tab for your Billing Care application domain is shown.
3. Click the **Resources** tab.
4. Enter or select the following values listed in [Table 4-2](#).

**Table 4-2 Billing Care Protected Resource Creation Values**

Field	Value
Type	HTTP
Description	(Optional) Enter text description
Host Identifier	IAMSuiteAgent
Protection Level	Protected
Authentication Policy	Protected Policy
Resource URL (String)	<code>/bc**</code> , <code>/bc*</code> , or <code>/**</code>

Define an excluded resource for `/fav.ico`.

To define the excluded resource, repeat steps 1 through 4 using the values listed in [Table 4-3](#).

**Table 4-3 Billing Care Excluded Resource Creation Values**

Field	Value
Type	HTTP
Description	(Optional) Enter text description
Host Identifier	IAMSuiteAgent
Protection Level	Excluded
Resource URL (String)	<code>/favicon.ico</code>

See "About Defining Resources in an Application Domain" in *Oracle Fusion Middleware Administrator's Guide for Oracle Access Management* for more information on creating resources in OAM console.

## Configuring Billing Care Authentication Modules

Create an **OIMIDStore** authentication model in OAM for authenticating Billing Care users.

To create the required authentication model in OAM:

1. Click **Authentication Modules** in the **Access Manager** frame.  
The **Authentication Modules** node is shown.

2. Click the **Create Authentication Module** menu and select **Create LDAP Authentication Module**.
3. In the **Name** field, provide a name for your authentication module.
4. In **User Identity Store**, select **OIMIDStore**.
5. Click **Apply**.

See "Creating a New Authentication Module of an Existing Type" in *Oracle Fusion Middleware Administrator's Guide for Oracle Access Manager with Oracle Security Token Service* for more information on creating an authentication module in OAM console.

## Creating a Billing Care Authentication Scheme

The authentication module you previously created must be added to a authentication scheme in your Billing Care application domain.

To create an authentication scheme and add the authentication module to it:

1. Click **Authentication Schemes** in the **Access Manager** frame.  
The **Authentication Schemes** node is shown.
2. Click **Create Authentication Scheme**.
3. Enter or select the following values listed in [Table 4-4](#).

**Table 4-4 Billing Care Authentication Scheme Creation Values**

Field	Value
Name	Billing Care LDAP Scheme name
Description	(Optional) Enter text description
Authentication Level	2
Challenge Method	FORM
Challenge Redirect URL	/oam/server
Authentication Module	Select the authentication module created in the previous step
Challenge URL	/pages/login.jsp
Context Type	default
Context Value	/oam

4. Click **Apply**.

See "Creating an Authentication Scheme" in *Oracle Fusion Middleware Administrator's Guide for Oracle Access Manager with Oracle Security Token Service* for more information on creating an authentication scheme in OAM console.

## Creating the Billing Care Authentication Policy and Adding Resources

Create an authentication policy that the Billing Care application domain uses to manage the resources, authentication module, and authentication scheme previously created.

To create an authentication policy:

1. Click **Application Domains** in the **Access Manager** frame.

The **Application Domain** tab is shown.

2. In the **Search** field, enter the name of your Billing Care application domain and press enter.
3. In **Search Results**, click the name of your Billing Care application domain.
4. Click the **Authentication Policies** tab.

The **Authentication Policy** node is shown.

5. Click **Create Authentication Policy**.
6. Enter or select the following values listed in [Table 4-5](#).

**Table 4-5 Billing Care Authentication Policy Creation Values**

Field	Value
Name	Billing Care authentication policy name
Description	(Optional) Enter text description
Authentication Scheme	Select the authentication scheme created in the previous step

7. Click **Apply**.

To add your Billing Care resources to your authentication policy:

1. In the **Authentication Policy** node for your previously created policy, click the **Resources** tab.
2. Click **Add**.
3. Select all of the Billing Care resources created in "[Defining Billing Care Resources](#)".
4. Click **Apply**.

See "Adding an Authentication Policy and Resources" in *Oracle Fusion Middleware Administrator's Guide for Oracle Access Manager with Oracle Security Token Service* for more information on creating an authentication policy and adding resources in OAM console.

## Creating the Billing Care Authorization Policy and Adding Resources

Create an authorization policy and add resources to this policy for the Billing Care application domain.

To create the Billing Care application domain authorization policy:

1. Click **Application Domains** in the **Access Manager** frame.

The **Application Domain** tab is shown.

2. In the **Search** field, enter the name of your Billing Care application domain and press enter.
3. In **Search Results**, click the name of your Billing Care application domain.
4. Click the **Authorization Policies** tab.
5. Enter or select the following values listed in [Table 4-6](#).

**Table 4–6 Billing Care Authorization Policy Creation Values**

Field	Value
Name	Billing Care authorization policy name
Description	(Optional) Enter text description
Success URL	The redirect URL to be used upon successful authorization
Failure URL	The redirect URL to be used upon failed authorization

6. Click **Apply**.
7. Click the **Resources** tab.
8. Click **Add**.
9. Select all of the Billing Care resources created in "[Defining Billing Care Resources](#)".
10. Click **Apply**.

See "Creating an Authorization Policy and Specific Resources" in *Oracle Fusion Middleware Administrator's Guide for Oracle Access Manager* for more information on creating an authorization policy and adding resources in OAM console.

## Configuring and Restarting the Oracle HTTP Server

After configuring the required Billing Care OAM components, edit the Oracle HTTP Server (OHS) **idm.conf** file in your OAM instance to specify the handler, host, and port for the **/bc** resource. Restart your OHS instance after editing this file.

To configure the **/bc** resource in the OHS **idm.conf** file:

1. Open a secure shell or terminal window to your OAM host as a user with administrative permissions.
2. Change to the *Middleware\_home/config/OHS/OHS\_Instance/moduleconf* directory where *Middleware\_home* is the middleware home directory of the OAM WebLogic Server instance and *OHS\_Instance* is the OHS instance where OAM is hosted.
3. Append the following entry into the **idm.conf** file before the **</VirtualHost>** closing tag:

```
<Location /bc>
    SetHandler weblogic-handler
    WebLogicHost host name or IP address of your OES Administration Server
    WeblogicPort port number the WebLogic host is listening on
</Location>
```

4. Save the file.
5. Change to the *OHS\_home/bin* directory where *OHS\_home* is the Oracle home directory of your OHS installation.
6. Restart OHS with the following commands:

```
./opmnctl status
./opmnctl stopall
./opmnctl startall
```

See "The `idm.conf` File" in *Oracle Fusion Middleware Integration Guide for Oracle Identity Management Suite* for more information on the OHS `idm.conf` file.

## Installing and Configuring Oracle Entitlements Server Client

Install OES Client on each managed server on which you plan to deploy Billing Care on. A WebLogic Server installation is required before installing the OES Client.

See "Installing Oracle Entitlements Server Client" in *Oracle Fusion Middleware Installation Guide for Oracle Identity and Access Management* for information on downloading and installing OES Client.

Record your OES Client domain details in [Table 4-9, "OES Client Domain Information"](#).

## Configuring the Billing Care Domain with OES Client Security Modules

OES Client includes the WebLogic Security Module (SM) used by Billing Care to connect to the OES Administration Server. Configure the OES Client WebLogic Server SM to connect to the OES Administration Server by specifying the OES Administration Server host name and port number in the `smconfig.wls.controlled.prp` file found in `Oracle_home/oessm/SMConfigTool` where `Oracle_home` is the directory where you installed the OES Client package.

Run the `config.sh` script located in `Oracle_home/oessm/bin` to set up the WebLogic Server Security Module and create the OES Client domain on which you will deploy Billing Care. The OES client domain is created by the Fusion Middleware Configuration Wizard when you run the `config.sh` script.

See "Configuring Oracle WebLogic Server Security Module in a Controlled Push Mode" in *Oracle Fusion Middleware Installation Guide for Oracle Identity and Access Management* for information on configuring the WebLogic Server SM for use with Billing Care.

## Information Requirements

This section describes the information that you will be required to provide during and after the Billing Care installation procedure. You define some of these configuration values when you complete the previous steps. After you have completed all of the pre-installation steps, see "[Installing Billing Care](#)" for information on running the Billing Care installer to install Billing Care.

---

**Note:** Oracle recommends that you print the tables and record the values for when you run the Billing Care installer.

---

## IAM Database Connection Information

[Table 4-7](#) lists the database details that are required during response file configuration. Use the **Value** column to record your environment's details.

**Table 4-7** IAM Database Connection Information

Field	Description	Value
Host Name	The IP address or the host name of the computer on which the database is configured.	-

**Table 4–7 (Cont.) IAM Database Connection Information**

Field	Description	Value
Port Number	The port number assigned to the database service.	-
User Name	The database user name. This user should have the following capabilities on the database: create user, grant any role, grant any privileges, and select any table for Enterprise edition.	-
Password	The database user password.	-
Service Name	The name of the database service.	-

## OES Administration Server Domain Information

Table 4–8 lists the details for the OES Administration Server domain that are required during Billing Care installation. Use the **Value** column to record your environment’s details.

**Table 4–8 OES Administration Server Domain Information**

Field	Description	Value
Host Name	The IP address or the host name of the computer on which the OES Administration Server domain is configured.	-
Port Number	The port number assigned to the OES Administration Server domain server.	-
User Name	The OES Administration Server domain administrator user name.	-
Password	The password for the OES Administration Server administrator user.	-
WebLogic Home	The path of the directory in which the WebLogic Server software is installed on the OES Administration Server host.	-

## OES Client Domain Information

Table 4–9 lists the details for the OES Client domain that are required during Billing Care installation. Use the **Value** column to record your environment’s details.

**Table 4–9 OES Client Domain Information**

Field	Description	Value
Host Name	The IP address or the host name of the computer on which the OES Client domain is configured.	-
Port Number	The port number assigned to the OES Client domain administration server.	-
User Name	The OES Client domain administrator user name.	-
Password	The password for the OES Client domain administrator user.	-
WebLogic Home	The path of the directory in which the WebLogic Server software is installed on the OES Client domain server.	-

## Oracle Unified Directory Information

Table 4–10 lists the details for the Oracle Unified Directory (OUD) authentication provider that are required during Billing Care installation. Use the **Value** column to record your environment's details.

**Table 4–10 OES Unified Directory Information**

Field	Description	Value
Provider Name	Name of OUD Authentication provider.	-
Host Name	The host name or IP address of the LDAP server.	-
Port Number	The port number on which the LDAP server is listening.	-
Admin User Name	The Distinguished Name (DN) of the LDAP user that WebLogic Server should use to connect to the LDAP server.	-
Admin Password	The credential (usually a password) used to connect to the LDAP server.	-
User Base DN	The base distinguished name (DN) of the tree in the LDAP directory that contains use.	-
Group Base DN	The base distinguished name (DN) of the tree in the LDAP directory that contains group.	-
Asserter Name	The name of the OAM Identity Asserter.	-

## Oracle Identity and Access Management Console URLs

Table 4–11 lists the Oracle Identity and Access Management Console URLs which are required to complete Billing Care pre-installation and configuration. The *Host* is the server name or IP address of your OES Administration Server. Default values are provided for the ports. Use the **Value** column to record your environment's details.

**Table 4–11 Oracle Identity and Access Management Console URLs**

Web Application URL	Description	Value
http://Host:7778/identity	Oracle Identity Management console	-
http://Host:7777/oamconsole	Oracle Access Management console	-
http://Host:7001/console	Oracle WebLogic Administration Console	-

## Billing Care Connection Information

Table 4–12 lists the BRM connection manager (CM) and, if used, Oracle Business Intelligence Publisher (BIP) details that are required after Billing Care installation. Use this information to configure your **Infranet.properties** file, to specify the BRM connection manager and BIP instance to which Billing Care connects to.

See "[Encrypting and Adding BI Publisher Connection Information in Infranet.properties](#)" for more information on how to configure the Billing Care to BRM and BIP connections in the each OES Client domain on which Billing Care is deployed. Use the **Value** column to record your environment's details.

**Table 4–12 Billing Care Connection Information for *Infranet.properties***

<b>Field</b>	<b>Description</b>	<b>Value</b>
__USER__	BRM system user with connection manager access	-
__PASSWORD__	Encrypted BRM system user's password	-
__HOST__	BRM host where connection manager is running	-
__PORT__	Port number for connection manager	-
__SSL_ENABLED__	Boolean indicating if SSL connection to BRM CM is enabled	-
__WALLET_DIR__	Directory where the BRM Oracle wallet file is stored	-
__WALLET_FILE__	Name of the Oracle wallet file	-
__BIP_USERID__	BIP user with web access	-
__BIP_PASSWORD__	Encrypted BIP user's password	-
__BIP_URL__	URL address to access BIP instance	-



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## Installing Billing Care

This chapter describes how to install Oracle Communications Billing Care. Before installing Billing Care, read the following chapters:

- [Billing Care Installation Overview](#)
- [Planning Your Billing Care Installation](#)
- [Billing Care System Requirements](#)
- [Billing Care Pre-Installation Tasks](#)

Billing Care supports test and productions installations. For more information on test and production installations, see "[Installing Billing Care for Testing](#)" and "[Installing Billing Care for Production](#)" respectively.

### Downloading the Billing Care Installer

To download the Billing Care installer:

1. Create a temporary directory (*temp\_dir*).
2. Go to the Oracle support web site:  
<https://support.oracle.com>
3. Sign in with your user name and password.
4. Click the **Patches & Updates** tab.
5. From the list, select **Patch Name or Number**.
6. In the text field, enter *PatchNumber* and click **Search**, where *PatchNumber* is patch number of the latest Oracle Communications Billing and Revenue Management (BRM) 7.5 patch set that includes Billing Care software. See *BRM 7.5 Patch Set Installation Guide* for more information about the patch number.

The Patch Search Results page appears.

7. Click the patch name.

The patch details appear.

---

---

**Important:** Ensure that the BRM 7.5 patch set README has Billing Care listed as one of the components included in the patch set.

---

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8. From the **Platform** list, select the platform and click **Download**.

The File Download dialog box appears.

9. Download the appropriate `pPatchNumber_750_platform.zip` software pack to `temp_dir`, where `platform` is **Linux** or **solaris\_64**.
10. Unzip the `pPatchNumber_750_platform.zip` file.  
The zip archive includes the `BillingCare_generic.jar` installer.

## Installing Billing Care for Testing

Billing Care test installations do not use Oracle Identity and Access Management (IAM) security. The installer deploys the application to a basic Oracle WebLogic domain with Billing Care authorization disabled. Use test installations for internal development and testing only.

To install Billing Care for testing:

1. Disable Billing Care authorization in the WebLogic domain. See ["Configuring WebLogic Server for a Test Installation"](#) for more information.
2. Run the Billing Care installer without specifying IAM host details and confirming that authorization is not being used. See ["Running the Billing Care Installer for Testing"](#) for more information.

## Configuring WebLogic Server for a Test Installation

Use a WebLogic domain that is not configured as an OES Client Domain when installing test installations of Billing Care. Test installations are not supported in production environments. For a secure Billing Care installation, use an OES Client Domain.

See *Oracle Communications Billing Care Security Guide* for more information about securing your installation.

To configure a WebLogic domain for a test Billing Care installation:

1. On the WebLogic Server, add the following property to the `JAVA_OPTIONS` parameter in the `setDomainEnv.sh` configuration script located in `Middleware_home/user_projects/domains/billingcaredomain/bin` directory, where `Middleware_home` is the directory where WebLogic Server is installed and `billingcaredomain` is the directory containing the test installation domain you want to install Billing Care:

```
-DdisableBillingCareAuthorization=true
```

For example:

```
JAVA_OPTIONS="{JAVA_OPTIONS} {JAVA_PROPERTIES}"
-Ddlw.iterativeDev={iterativeDevFlag}
-Ddlw.testConsole={testConsoleFlag}
-Ddlw.logErrorsToConsole={logErrorsToConsoleFlag}
-DdisableBillingCareAuthorization=true"
```

2. Restart the WebLogic Server domain.
3. Run the Billing Care installer.

## Running the Billing Care Installer for Testing

To install a Billing Care test installation in a basic domain:

1. Verify your Java Development Kit is installed correctly, including setting your `JAVA_HOME` environment variable and that the `JAVA_HOME/bin` directory is in your path.
2. Start the Oracle WebLogic Server basic domain administration server or the managed server on which you want to deploy Billing Care.
3. Download the Billing Care installer. See "[Downloading the Billing Care Installer](#)" for more information on how to download the installer.
4. Run the following command, which launches the Billing Care installer:

```
java -jar BillingCare_generic.jar
```

---

---

**Note:** Specify the `-invPtrLoc` flag and an Oracle Inventory path location in the java command for launching the Billing Care installer if you are using an existing or custom Oracle inventory location for maintaining your installed Oracle products and installation logs.

---

---

The Welcome screen appears.

5. Click **Next**.

The Installation Location screen appears. Enter your Oracle Home directory path in **Oracle Home** or click **Browse** to select a directory.

6. Click **Next**.

The Features Sets Selection screen appears.

This screen displays the installable Billing Care components. Select either the **Billing Care Application** or the **Billing Care SDK** components. To install both on the same host, select **Billing Care Components**.

7. Click **Next**.

The WebLogic Server Details screen appears.

8. Enter the following details for the WebLogic Server OES Client domain in which you want to deploy Billing Care, see [Table 4–9, "OES Client Domain Information"](#) for more information:
  - a. In the **Host Name** field, enter the IP address or the host name of the computer on which the WebLogic Server domain is configured.
  - b. In the **Port Number** field, enter the port number assigned to the WebLogic Server domain administration server.
  - c. In the **User Name** field, enter the WebLogic Server domain administrator user name.
  - d. In the **Password** field, enter the password for the WebLogic Server domain administrator user.
  - e. In the **WebLogic Home** field, enter the path of the directory in which the WebLogic Server software is installed.

---

---

**Note:** The Billing Care installer will not proceed until it verifies that the information you entered is valid. The domain must be in a **RUNNING** state.

---

---

- f. Deselect the **Use SSL?** check box.
- g. Click **Next**.  
The Target Server screen appears.
9. Select the server on which to deploy Billing Care. The target server list includes the AdminServer and any managed servers managed by the AdminServer.

---

---

**Note:** Oracle recommends that you deploy Billing Care on a WebLogic Server managed server. If you select a WebLogic Server managed server, ensure that the WebLogic Server managed server and the node manager are running.

---

---

10. Click **Next**.  
The Authenticator and Asserter screen appears.
11. Select **Skip Authenticator and Asserter**.
12. Click **Next**.  
The Batch Payment Details screen appears.
13. Enter the following file locations used for processing batch payments:
  - a. In the **Batch Payment Files Location** field, enter the directory where batch payment files are placed for uploading and processing by Billing Care. The installer creates unprocessed, processed, and failure folders in this directory for managing batch payment files.
  - b. In the **Batch Payment Templates Location** field, enter the directory where payment file templates are installed.
14. Click **Next**.  
The Auto Updates screen appears.
15. Select your Auto Updates preferences.
16. Click **Next**.  
The Installation Summary screen appears.
17. Review your Billing Care installation summary and correct any errors.
18. Click **Install**.  
The Installation Progress screen appears.
19. When the Installation completes, Click **Next**.  
The Installation Complete screen appears. Make note of the Billing Care Links.
20. Click **Finish**.  
The Billing Care installer exits.

## Installing Billing Care for Production

The Billing Care installer must be run from the computer hosting the Oracle Entitlements Server (OES) Client domain on which you deploy Billing Care. Billing Care installation must be performed by a user who has permissions to write to the **oraInventory** directory and the *Middleware\_home/user\_projects/domains* directory,

where *Middleware\_home* is the directory in which you installed the Oracle Middleware components.

To install Billing Care on your OES Client domain:

1. Verify your Java Development Kit is installed correctly, including setting your `JAVA_HOME` environment variable and that the `JAVA_HOME/bin` directory is in your path.
2. Copy the `oamAuthnProvider.jar` file from `Middleware_home/oracle_common/modules/oracle.oamprovider_11.1.1`, where *Middleware\_home* is the WebLogic Server directory containing your OES Client domain (for example, `/u01/app/Oracle/Middleware`), to `Middleware_home/wlserver_10.3/server/lib/mbeantypes`.
3. Start the Oracle WebLogic Server domain administration server or the managed server on which you want to deploy Billing Care. The domain must be configured with the Oracle Entitlements Server (OES) WebLogic Server Security Module. See ["Installing and Configuring Oracle Entitlements Server Client"](#) for information on creating an OES Client domain.
4. Download the Billing Care installer. See ["Downloading the Billing Care Installer"](#) for more information on how to download the installer.
5. Run the following command, which launches the Billing Care installer:

```
java -jar BillingCare_generic.jar
```

---

**Note:** Specify the `-invPtrLoc` flag and an Oracle Inventory path location in the `java` command for launching the Billing Care installer if you are using an existing or custom Oracle inventory location for maintaining your installed Oracle products and installation logs.

---

The Welcome screen appears.

6. Click **Next**.

The Installation Location screen appears. Enter your Oracle Home directory path in **Oracle Home** or click **Browse** to select a directory.

7. Click **Next**.

The Features Sets Selection screen appears.

This screen displays the installable Billing Care components. Select either the **Billing Care Application** or the **Billing Care SDK** components. To install both on the same host, select **Billing Care Components**.

8. Click **Next**.

The WebLogic Server Details screen appears.

9. Enter the following details for the WebLogic Server OES Client domain in which you want to deploy Billing Care, see [Table 4–9, "OES Client Domain Information"](#) for more information:
  - a. In the **Host Name** field, enter the IP address or the host name of the computer on which the WebLogic Server domain is configured.
  - b. In the **Port Number** field, enter the port number assigned to the WebLogic Server domain administration server.

- c. In the **User Name** field, enter the WebLogic Server domain administrator user name.
- d. In the **Password** field, enter the password for the WebLogic Server domain administrator user.
- e. In the **WebLogic Home** field, enter the path of the directory in which the WebLogic Server software is installed.

---

---

**Note:** The Billing Care installer will not proceed until it verifies that the information you entered is valid. The domain must be in a **RUNNING** state.

---

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- f. Do one of the following:

If the server does not support SSL, deselect the **Use SSL?** check box.

Billing Care requires JSSE-Based SSL enabled in your OES Client domain. See "Using the JSSE-Based SSL Implementation" in *Oracle Fusion Middleware Securing Oracle WebLogic Server* for more information on using JSSE-Based SSL.

If you have configured SSL in your OES Client domain, leave the **Use SSL?** check box selected, and, in the **KeyStore Location** field, enter the path of the client-side keystore file generated from the exported public certificate using the **keytool** utility.

For information on generating a keypair and root certificate for your encrypted password, and storing the certificate, using the Java **keytool** utility, see:

<https://docs.oracle.com/javase/8/docs/technotes/tools/unix/keytool.html>

See "Configuring SSL" in *Oracle Fusion Middleware Securing Oracle WebLogic Server* for more information on using SSL in your domain.

- g. Click **Next**.

The Target Server screen appears.

- 10. Select the server on which to deploy Billing Care. The target server list includes the AdminServer and any managed servers managed by the AdminServer.

---

---

**Note:** Oracle recommends that you deploy Billing Care on a WebLogic Server managed server. If you select a WebLogic Server managed server, ensure that the WebLogic Server managed server and the node manager are running.

---

---

- 11. Click **Next**.

The Authenticator and Asserter screen appears.

- 12. Enter the following information required to connect to the OES OUD authenticator, see [Table 4-10, "OES Unified Directory Information"](#) for more information:

---

---

**Note:** Select **Skip Authenticator and Asserter** if performing a test installation. Production installations should not use this option.

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- a. In the **Provider Name** field, enter the OUD Authentication provider you configured in your OES Administration Server.
  - b. In the **Host Name** field, enter the host name or IP address of the LDAP server.
  - c. In the **Port Number** field, enter the port number on which the LDAP server is listening.
  - d. In the **Admin User Name** field, enter the Distinguished Name (DN) of the LDAP user that WebLogic Server should use to connect to the LDAP server.
  - e. In the **Admin Password** field, enter the credential (usually a password) used to connect to the LDAP server.
  - f. In the **User Base DN** field, enter the base distinguished name (DN) of the tree in the LDAP directory that contains users. For example:  
`cn=Users,dc=example,dc=com`
  - g. In the **Group Base DN** field, enter the base distinguished name (DN) of the tree in the LDAP directory that contains groups. For example:  
`cn=Groups,dc=example,dc=com`
  - h. In the **Asserter Name** field, enter a name to use during Billing Care deployment. A new asserter is created if a **OAMIdentityAsserter** type does not exist in your OES Client domain already.
13. Click **Next**.  
The Batch Payment Details screen appears.
14. Enter the following file locations used for processing batch payments:
- a. In the **Batch Payment Files Location** field, enter the directory where batch payment files are placed for uploading and processing by Billing Care. The installer creates unprocessed, processed, and failure folders in this directory for managing batch payment files.
  - b. In the **Batch Payment Templates Location** field, enter the directory where payment file templates are installed.
15. Click **Next**.  
The Auto Updates screen appears.
16. Select your Auto Updates preferences.
17. Click **Next**.  
The Installation Summary screen appears.
18. Review your Billing Care installation summary and correct any errors.
19. Click **Install**.  
The Installation Progress screen appears.
20. When the Installation completes, Click **Next**.  
The Installation Complete screen appears. Make note of the Billing Care Links.
21. Click **Finish**.

The Billing Care installer exits.

See "[Billing Care Post-Installation Tasks](#)" for required tasks to complete after the Billing Care installer exits.

See "[Verifying the Billing Care Installation](#)" for information on verifying the successful installation of Billing Care.

See "[About Installation Logs](#)" for information on the Billing Care installer logs.

## About Installation Logs

The installation logs are used for debugging purposes. You can check the log files in the **oraInventory/logs** directory. The default location of the **oraInventory** directory is in the **/etc/oraInst.loc** file.

You use the following log files to monitor installation and post-installations:

- **installActionTimeStamp.log**
- **oraInstallTimeStamp.err**
- **oraInstallTimeStamp.out**
- **dbScriptsgTimeStamp.log** (for the scripts executed using SQL\*Plus and JDBC)
- **silentInstallTimeStamp.log** (for silent mode installation)

where *TimeStamp* is the date and time the log file was created.



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## Billing Care Post-Installation Tasks

This chapter provides instructions for Oracle Communications Billing Care post-installation tasks.

### Post-Installation Tasks

After installing Billing Care test or production systems, do the following on each domain host where Billing Care is deployed:

- Copy the Billing Care **Infranet.properties** file created during installation to the domain administrative user's home directory on each domain server where Billing Care is deployed. See ["Copying the Infranet.properties File to the Domain Administrative User's Home Directory"](#).
- Add the Oracle Communications Billing and Revenue Management (BRM) connection manager credentials to the **Infranet.properties** file. See ["Encrypting and Adding BRM Connection Information in Infranet.properties File"](#).
- If your BRM system uses Oracle Business Intelligence (BI) Publisher to view invoices, encrypt and add the credentials for accessing BI Publisher to the **Infranet.properties** file on each domain host where Billing Care is deployed. See ["Encrypting and Adding BI Publisher Connection Information in Infranet.properties"](#).
- Adjust your BRM connection pool settings and enable logging in the **Infranet.properties** file for your Billing Care system. See ["Configuring Additional Settings in Infranet.properties"](#).
- If you use Internet Explorer, configure the browser cache refresh setting to retrieve new data on each page visit. See ["Configuring Internet Explorer for Billing Care"](#).

For production installations:

- Import the Billing Care OES Administration Server policy configuration. The Billing Care SDK includes a default policy configuration file that must be imported into your OES Administration Server. See ["Importing the Billing Care Security Policies into OES"](#).
- If you are using Security Assertion Markup Language (SAML) for single sign-on (SSO), configure SAML. See ["Configuring SAML for SSO"](#).

### About Encryption

Encrypting your BRM and BI Publisher passwords and using SSL increases the security of your Billing Care deployment. For more information about securing Billing Care, see *Billing Care Security Guide*.

## Copying the Infranet.properties File to the Domain Administrative User's Home Directory

You must copy the Billing Care **Infranet.properties** file provided in the Billing Care installation to the domain administrative user's home directory. The **Infranet.properties** file contains BRM and BI Publisher connection information and logging settings described in the following sections.

To copy the Billing Care **Infranet.properties** file to the domain administrative user's home directory:

1. Log in to your domain server using a secure shell or console terminal session as the administrative user for the domain host.
2. Copy `Middleware_home/setup/Infranet.properties`, where `Middleware_home` is your WebLogic home directory, to the home directory of the domain administrative user.

## Encrypting and Adding BRM Connection Information in Infranet.properties File

You must configure the **Infranet.properties** file in each domain server hosting a Billing Care deployment with the connection details for your BRM server.

To encrypt your BRM connection manager password and add connection credentials to the **Infranet.properties** file on each Billing Care domain server:

1. Log in to your BRM server host using a secure shell or console terminal session.
2. Use the BRM `pin_crypt_app` utility to encrypt your BRM user's password.

For information on encrypting BRM passwords, see "About Encrypting Passwords" in *BRM Developer's Guide*.

3. Edit the `User_home/Infranet.properties` file, where `User_home` is the domain administrative user's home directory, by adding the information in [Table 6-1](#). Remove the preceding and trailing underscore characters for your values.

For more information on establishing an SSL connection to BRM, see "Enabling SSL in Connection Managers" in *BRM System Administrator's Guide*.

**Table 6-1 Billing Care Connection Information for Infranet.properties**

Field	Description
USER	BRM system user with connection manager access
PASSWORD	Encrypted BRM system user's password
HOST	BRM host where connection manager is running
PORT	Port number for connection manager

For example:

```
infranet.connection=pcp://brm123:0D5E11BFDD97D2769D9B0DBFBD1BBF7EE03F16
42861DFA57502C7FB85A654267@example.com:8888/service/admin_client 1
```

4. Save the **Infranet.properties** file.
5. For production installations, if not already done, enable SSL for the OES Client domain where Billing Care is deployed.
6. Restart the domain on which Billing Care is deployed.

## Encrypting and Adding BI Publisher Connection Information in Infranet.properties

You must configure the **Infranet.properties** file in each domain server hosting a Billing Care deployment with the connection details for your BI Publisher server if used in your environment.

To encrypt your BI Publisher password and add connection credentials to the **Infranet.properties** file on each Billing Care domain server:

1. Log in to your domain server using a secure shell or console terminal session.
2. Use the WebLogic Server **encrypt** Java utility to encrypt your BI Publisher user's password.

For information on encrypting passwords, see "encrypt" in *Oracle Fusion Middleware Command Reference for Oracle WebLogic Server*.

3. Edit the *User\_home*/**Infranet.properties** file, where *User\_home* is the home directory of the domain administrative user, by adding the information in [Table 6-2](#). Remove the preceding and trailing underscore characters for your values.

**Table 6-2 Billing Care Connection Information for Infranet.properties**

Field	Description
BIP_USERID	BI Publisher user with web access
BIP_PASSWORD	Encrypted BI Publisher user's password
BIP_URL	URL address to access BI Publisher instance

4. Save the **Infranet.properties** file.
5. For production installations, if not already done, enable SSL for the OES Client domain where Billing Care is deployed.
6. Restart the domain where Billing Care is deployed.

## Configuring Additional Settings in Infranet.properties

Billing Care uses the default connection pool settings for your BRM instance. You can customize the Billing Care connection pool settings by adding additional entries to the **Infranet.properties** file. You can also enable logging by adding optional entries to the **Infranet.properties** file.

For more information on customizing the default connection pool, see "Configuring the Connection Pool" in *BRM System Administrator's Guide*.

For more information on enabling logging for Billing Care connections to BRM, see "Optional Entries in the Infranet.properties File" in *BRM Developer's Guide*.

## Importing the Billing Care Security Policies into OES

The Billing Care SDK includes the **system-jazn-data.xml** file containing default OES policies, resource types, resources, and actions. You must import this file into your OES Administration Server to set up the initial Billing Care OES configuration. This procedure must be completed only once for each OES Administration Server.

The **system-jazn-data.xml** file is in the following directory created during the Billing Care SDK installation:

*Middleware\_home*/BillingCare\_SDK/reference/OESDataModel

where *Middleware\_home* is the WebLogic Middleware home directory containing the OES client domain on which Billing Care is deployed.

To import the Billing Care security policies into your OES Administration Server:

1. Open a secure shell or terminal session on the server where you installed the Billing Care SDK.
2. Change to the *Middleware\_home/BillingCare\_SDK/reference/OESDataModel* directory.
3. Open the **jps-config.xml** file and modify the following parameters:
  - **sourceContext.** Specify the location of the **system-jazn-data.xml** file, which contains the policies to be migrated to the database. The **system-jazn-data.xml** file is in the same location as the **jps-config.xml** file.

```
<serviceInstance name="src.xml" provider="policystore.xml.provider"
location="location of the system-jazn-data.xml file">
  <description>File Based Policy Store Service Instance</description>
</serviceInstance>
```

- **destinationContext.** Enter the credentials for the OES schema.

```
<serviceInstance name="policystore.db.destination"
provider="policystore.provider">
  <description>DB Based Policy Store Service Instance</description>
  <property name="policystore.type" value="DB_ORACLE"/>
  <property name="jdbc.url" value="jdbc:oracle:thin:@dbhost:dbport:SID"/>
  <property name="jdbc.driver" value="oracle.jdbc.driver.OracleDriver"/>
  <property name="security.principal" value="OPSS Schema Name (Ex:CC_
OPSS)"/>
  <property name="security.credential" value="OPSS Schema Password"/>
  <property name="oracle.security.jps.ldap.root.name" value="cn=jpsroot"/>
  <property name="oracle.security.jps.farm.name" value="cn=oesAdmin"/>
</serviceInstance>
```

- **jpsContext.** Specify the source context and the destination context.

```
<jpsContext name="sourceContext">
  <serviceInstanceRef ref="src.xml"/>
</jpsContext>
<jpsContext name="destinationContext">
  <serviceInstanceRef ref="policystore.db.destination"/>
</jpsContext>
```

4. Save the file.
5. Run the **migrateSecurityStore** utility to import the Billing Care policy into your OES Administration Server.
6. Restart the OES client domain.

For more details on how to import the Billing Care **system-jazn-data.xml** file into your OES Administration Server, see "Migrating From XML to Database" in *Oracle Fusion Middleware Administrator's Guide for Oracle Entitlements Server*.

## Configuring Internet Explorer for Billing Care

Internet Explorer browser users must change the default cache configuration for Billing Care to properly refresh Billing Care data.

To configure Internet Explorer to refresh Billing Care data on each page visit, do the following on each client where Internet Explorer is installed:

1. Open Internet Explorer.
2. Click the gear options menu.
3. Click **Internet Options**.  
The **Internet Options** window opens.
4. In the **General** tab under **Browsing History**, click **Settings**.  
The **Website Data Settings** window opens.
5. In the **Temporary Internet Files** tab, select **Every time I visit the webpage** for the **Check for newer versions of stored pages** option.
6. Click **OK**.  
The **Website Data Settings** window closes.
7. Click **OK** to close the **Internet Options** window.

## Enabling Logging

Billing Care writes log messages using the Java Logging API.

For more information on enabling Billing Care logging, see "Java Logging" in *Oracle Fusion Middleware Configuring Log Files and Filtering Log Messages for Oracle WebLogic Server*.

## Configuring SAML for SSO

You can use SAML 2.0 for enabling SSO in Billing Care. SSO allows you to log in to applications using a single user name and password combination.

To configure SAML for SSO, do the following:

1. [Creating SAML Assertion Provider](#)
2. [Creating SAML Authenticator](#)
3. [Specifying General Information](#)
4. [Configuring the SAML Service Provider](#)
5. [Publishing the Service Provider Metadata](#)
6. [Updating the Deployment Plan of Billing Care](#)

### Creating SAML Assertion Provider

To create a SAML assertion provider:

1. Log in to WebLogic Server Administration Console.
2. In the **Domain Structure** section, click the **Security Realms** link.  
The Summary of Security Realms page appears.
3. Click the **myrealm** link.  
The Settings for myrealm page appears.
4. Click the **Providers** tab.
5. Click the **Authentication** subtab.

6. Click **New**.  
The Create a New Authentication Provider page appears.
7. In the **Name** field, enter **samlBC**.
8. From the **Type** list, select **SAML2IdentityAsserter**.
9. Click **OK**.
10. Restart WebLogic Server.
11. In the **Authentication** subtab, click **samlBC** link to view the settings for samlBC.
12. Click the **Management** tab.
13. Click **New** and select **Web Single Sign-On Identity Provider Partner**.  
The Create a Web Single Sign-On Identity Provider Partner page appears.
14. In the **Name** field, enter **WebSSO-IdP-Partner-1**.
15. In the **Path** field, enter the path to the XML file that contains the identity provider's metadata.
16. Click **OK**.
17. Click **WebSSO-IdP-Partner-1** link.
18. Ensure that the identity provider details are displayed in the **Site Info** and **Single Sign-On Signing Certificate** tabs.
19. In the **General** tab, select the **Enabled**, **Virtual User**, and **Process Attributes** check box.
20. In the **Redirect URIs** field, enter **/bc/\***.
21. Click **Save**.

### Creating SAML Authenticator

To create a SAML authenticator:

1. Log in to WebLogic Server Administration Console.
2. In the **Domain Structure** section, click the **Security Realms** link.  
The Summary of Security Realms page appears.
3. Click the **myrealm** link.  
The Settings for myrealm page appears.
4. Click the **Providers** tab.
5. Click the **Authentication** subtab.
6. Click **New**.  
The Create a New Authentication Provider page appears.
7. In the **Name** field, enter **samlBCAuth**.
8. From the **Type** list, select **SAMLAuthenticator**.
9. Click **OK**.
10. Click the **samlBCAuth** link and modify the **Control Flag** to **SUFFICIENT**.
11. Click **Save**.

12. Click the **DefaultAuthenticator** link and modify the **Control Flag** to **SUFFICIENT**.
13. Click **Save**.
14. Reorder the providers in the following order:
  - samlBCAuth
  - samlBC
  - DefaultAuthenticator
  - DefaultIdentityAsserter
15. Click **OK**.

### Specifying General Information

To specify the SAML general information:

1. Log in to WebLogic Server Administration Console.
2. In the **Domain Structure** section, click **Environment > Servers > AdminServer**.
3. In the **Settings for AdminServer** page, select **Configuration > Federation Services > SAML 2.0 General**.
4. In the **Published Site URL** field, enter **http://*billingcare\_hostname*:*port*/saml2**.  
where:
  - *billingcare\_hostname* is the Billing Care application host.
  - *port* is the port on which Billing Care is listening on.
5. In the **Entity ID** field, enter **samlBC**.
6. Click **Save**.

### Configuring the SAML Service Provider

To configure the SAML service provider:

1. Log in to WebLogic Server Administration Console.
2. In the **Domain Structure** section, click **Environment > Servers > AdminServer**.
3. In the **Settings for AdminServer** page, select **Configuration > Federation Services > SAML 2.0 Service Provider**.
4. Select the **Enabled** checkbox.
5. Select **POST** from the **Preferred Binding** list.
6. In the **Default URL** field, enter **http://*billingcare\_hostname*:*port*/bc/login.html**.  
where:
  - *billingcare\_hostname* is the Billing Care application host.
  - *port* is the port on which Billing Care is listening on.
7. Restart WebLogic Server.

### Publishing the Service Provider Metadata

To publish the service provider metadata:

1. Log in to WebLogic Server Administration Console.

2. In the **Domain Structure** section, click **Environment > Servers > AdminServer**.
3. In the **Settings for AdminServer** page, select **Configuration > Federation Services > SAML 2.0 General**.
4. Click **Publish Meta Data**.  
The Publish SAML 2.0 Meta Data page appears.
5. In the **Path** field, enter the full path and filename of the metadata file. For example, C:\mydomain\myserver\sppmeta.xml.
6. Click **OK**.

### Updating the Deployment Plan of Billing Care

To update the deployment plan of Billing Care:

1. Create an XML file with the deployment plan:

```
<?xml version='1.0' encoding='UTF-8'?>
<deployment-plan xmlns="http://xmlns.oracle.com/weblogic/deployment-plan"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.oracle.com/weblogic/deployment-plan
http://xmlns.oracle.com/weblogic/deployment-plan/1.0/deployment-plan.xsd"
global-variables="false">
  <application-name>BillingCare.war</application-name>
  <variable-definition>
    <variable>
      <name>cookie-name</name>
      <value>JSESSIONID</value>
    </variable>
  </variable-definition>
<module-override>
  <module-name>BillingCare.war</module-name>
  <module-type>war</module-type>
  <module-descriptor external="true">
    <root-element>weblogic-web-app</root-element>
    <uri>WEB-INF/weblogic.xml</uri>
    <variable-assignment>
      <name>cookie-name</name>
      <xpath>/weblogic-web-app/session-descriptor/cookie-name</xpath>
    <operation>replace</operation>
  </variable-assignment>
  </module-descriptor>
</module-override>
</deployment-plan>
```

2. Log in to the Oracle WebLogic Server Administration Console.
3. In the **Domain Structure** section, click **Deployments**.
4. In the **Control** tab, select **BillingCare** in the **Deployments** table.
5. Click **Update**.
6. In the **Update Application Assistant** screen, select **Redeploy this application using the following deployment files**.
7. Click **Change Path** next to the **Deployment plan path**.
8. Enter or browse to the directory in which the xml file created in step 1 is located and click **Next**.



9. Click **Finish**.

### **Verifying SAML Configuration**

To verify the SAML configuration:

1. Go to the URL **http://*billingcare\_hostname*:*port*/bc**.

where:

- *billingcare\_hostname* is the Billing Care application host.
- *port* is the port on which Billing Care is listening on.

The login page of the identity provider is displayed.

2. Enter the login credentials.

The Billing Care home page appears.



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## Verifying the Billing Care Installation

You can verify that Oracle Communications Billing Care is installed by checking the state of all installed components or by logging in to Billing Care.

To check the state of all installed components:

1. Log in to the Administration Server managing your Billing Care OES Client domain servers.
2. In the **Domain Structure** section, click **Deployments**.  
The Summary of Deployments screen appears.
3. Ensure that all of the managed servers are running.
4. If Billing Care is installed successfully, the following deployments appear in **Active** state:
  - Billing Care

To log in to Billing Care:

1. Open a browser window.
2. Enter the URL provided by the Billing Care installer at the end of the installation.
3. Click **Go**.  
The Billing Care login page appears.
4. Do the following:
  - a. In the **User Name** field, enter the user name of a valid user that exists in your Oracle Unified Directory server.
  - b. In the **Password** field, enter the password.

The Billing Care home page appears, verify that Billing Care is installed successfully.

