

CA Identity Manager

Installation Guide (WebLogic)

r12.5 SP12



This documentation, which includes embedded help systems and electronically distributed materials, (hereinafter referred to as the "Documentation") is for your informational purposes only and is subject to change or withdrawal by CA at any time.

This Documentation may not be copied, transferred, reproduced, disclosed, modified or duplicated, in whole or in part, without the prior written consent of CA. This Documentation is confidential and proprietary information of CA and may not be disclosed by you or used for any purpose other than as may be permitted in (i) a separate agreement between you and CA governing your use of the CA software to which the Documentation relates; or (ii) a separate confidentiality agreement between you and CA.

Notwithstanding the foregoing, if you are a licensed user of the software product(s) addressed in the Documentation, you may print or otherwise make available a reasonable number of copies of the Documentation for internal use by you and your employees in connection with that software, provided that all CA copyright notices and legends are affixed to each reproduced copy.

The right to print or otherwise make available copies of the Documentation is limited to the period during which the applicable license for such software remains in full force and effect. Should the license terminate for any reason, it is your responsibility to certify in writing to CA that all copies and partial copies of the Documentation have been returned to CA or destroyed.

TO THE EXTENT PERMITTED BY APPLICABLE LAW, CA PROVIDES THIS DOCUMENTATION "AS IS" WITHOUT WARRANTY OF ANY KIND, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NONINFRINGEMENT. IN NO EVENT WILL CA BE LIABLE TO YOU OR ANY THIRD PARTY FOR ANY LOSS OR DAMAGE, DIRECT OR INDIRECT, FROM THE USE OF THIS DOCUMENTATION, INCLUDING WITHOUT LIMITATION, LOST PROFITS, LOST INVESTMENT, BUSINESS INTERRUPTION, GOODWILL, OR LOST DATA, EVEN IF CA IS EXPRESSLY ADVISED IN ADVANCE OF THE POSSIBILITY OF SUCH LOSS OR DAMAGE.

The use of any software product referenced in the Documentation is governed by the applicable license agreement and such license agreement is not modified in any way by the terms of this notice.

The manufacturer of this Documentation is CA.

Provided with "Restricted Rights." Use, duplication or disclosure by the United States Government is subject to the restrictions set forth in FAR Sections 12.212, 52.227-14, and 52.227-19(c)(1) - (2) and DFARS Section 252.227-7014(b)(3), as applicable, or their successors.

Copyright © 2012 CA. All rights reserved. All trademarks, trade names, service marks, and logos referenced herein belong to their respective companies.

CA Technologies Product References

This document references the following CA products:

- CA Identity Manager
- CA SiteMinder®
- CA Directory
- CA User Activity Reporting Module (UARM)
- CA Role & Compliance Manager

Contact CA Technologies

Contact CA Support

For your convenience, CA Technologies provides one site where you can access the information you need for your Home Office, Small Business, and Enterprise CA Technologies products. At <http://ca.com/support>, you can access the following:

- Online and telephone contact information for technical assistance and customer services
- Information about user communities and forums
- Product and documentation downloads
- CA Support policies and guidelines
- Other helpful resources appropriate for your product

Providing Feedback About Product Documentation

If you have comments or questions about CA Technologies product documentation, you can send a message to techpubs@ca.com.

If you would like to provide feedback about CA Technologies product documentation, complete our short customer survey, which is available on the CA Support website at <http://ca.com/docs>.

Contents

Chapter 1: Installation Overview	9
Sample CA Identity Manager Installations	9
Example: Single Node Installation	10
Example: Installation with Multiple Endpoints	12
Example: SiteMinder and CA Identity Manager Installation	14
High Availability Installation	15
Example: High Availability Installation	16
CA Identity Manager Server Architecture	17
Provisioning Components Architecture	17
Overall Installation Process	18
Chapter 2: Installation Prerequisites	19
Installation Status	19
Prerequisite Knowledge	19
How to Install Prerequisite Components	20
Check Hardware Requirements	20
Install CA Directory	23
Create a FIPS 140-2 Encryption Key	23
(Optional) Integrate with SiteMinder	24
Create the Database	25
WebLogic Application Server	25
Solaris Requirements for the Provisioning Server	27
IPv6 Support	28
Complete the Installation Worksheets	29
Chapter 3: Single Node Installation	33
Installation Status	33
CA Identity Manager Components	34
How to Perform a Single Node Installation	34
Install CA Identity Manager Components	35
Verify the CA Identity Manager Server Starts on WebLogic	38
Configure a Remote Provisioning Manager	39
Install Optional Provisioning Components	39

Chapter 4: Installation on a WebLogic Cluster **41**

Installation Status.....	41
WebLogic Clusters.....	42
How to Install CA Identity Manager on a WebLogic Cluster	43
Create a WebLogic Cluster	43
Create a Distributed JMS Server for WebLogic	48
Create a Distributed JMS Server for Workflow	49
Configure the Proxy Plug-In	50
Start the WebLogic Cluster.....	51
Verify the Clustered Installation.....	52
Configure a Remote Provisioning Manager	52
Install Optional Provisioning Components	53

Chapter 5: Separate Database Configuration **55**

Installation Status.....	55
Create Separate Databases	56
How to Create Separate Databases	57
Create an MS SQL Server Database Instance	57
Create an Oracle Database Instance	57
Edit the Data Source	58
Run the SQL Scripts	59
Run the Script for Workflow	60

Chapter 6: Report Server Installation **63**

Installation Status.....	63
Reporting Architecture.....	64
Reporting Considerations.....	65
Hardware Requirements	65
How to Install the Report Server	66
Reports Pre-Installation Checklist	66
Reporting Information	68
Open Ports for the Report Server	68
Install the CA Report Server	69
Run the Registry Script.....	71
Copy the JDBC JAR Files	73
Deploy Default Reports.....	74
BusinessObjects XI 3.x Post-Installation Step.....	75
Verify the Reporting Installation	75
Silent Installation.....	75
How to Uninstall Reporting.....	76

Remove Leftover Items	76
Chapter 7: High Availability Provisioning Installation	79
Installation Status	79
How to Install High Availability Provisioning Components	80
Install Provisioning Directories	80
Perform Prerequisite Configuration for New Provisioning Directories	81
Install Alternate Provisioning Directories	82
Provisioning Servers	84
Router DSA for the Provisioning Server	84
Install Provisioning Servers	85
Configure Provisioning Server Failover	87
Connector Servers	87
Connector Server Framework	87
Load-Balancing and Failover	89
Reliability and Scalability	89
Multi-Platform Installations	90
Install Connector Servers	91
Configure Connector Servers	92
C++ Connector Server on Solaris	97
Failover for Provisioning Clients	97
Enable User Console Failover	98
Enable Provisioning Manager Failover	99
Test the Provisioning Manager Failover	99
Appendix A: Uninstallation and Reinstallation	101
How to Uninstall CA Identity Manager	101
Remove CA Identity Manager Objects with the Management Console	102
Remove the CA Identity Manager Schema from the Policy Store	102
Remove the CA Identity Manager schema from a SQL Policy Store	102
Remove the CA Identity Manager schema from an LDAP Policy Store	103
Uninstall CA Identity Manager Software Components	104
Remove CA Identity Manager from WebLogic	105
Reinstall CA Identity Manager	105
Appendix B: UNIX, Linux, and Non-Provisioning Installations	107
UNIX and Console Mode Installation	107
Red Hat Linux 64-bit Installation	108
Non-Provisioning Installation	108

Appendix C: Unattended Installation	109
How to Run an Unattended Installation.....	109
Modify the Configuration File	109
Initial Choices	110
Provisioning Components	111
CA Identity Manager Server	111
Extensions for SiteMinder.....	113
Configuration File Format	114
Appendix D: Installation Log Files	119
Log Files on Windows.....	119
Log files on UNIX	119
Appendix E: Windows Services Started by CA Identity Manager	121
Index	123

Chapter 1: Installation Overview

This guide provides instructions for installing CA Identity Manager and also includes information about optional components for installation such as Provisioning and CA SiteMinder.

This section contains the following topics:

[Sample CA Identity Manager Installations](#) (see page 9)

[Example: Single Node Installation](#) (see page 10)

[Example: Installation with Multiple Endpoints](#) (see page 12)

[Example: SiteMinder and CA Identity Manager Installation](#) (see page 14)

[High Availability Installation](#) (see page 15)

[Overall Installation Process](#) (see page 18)

Sample CA Identity Manager Installations

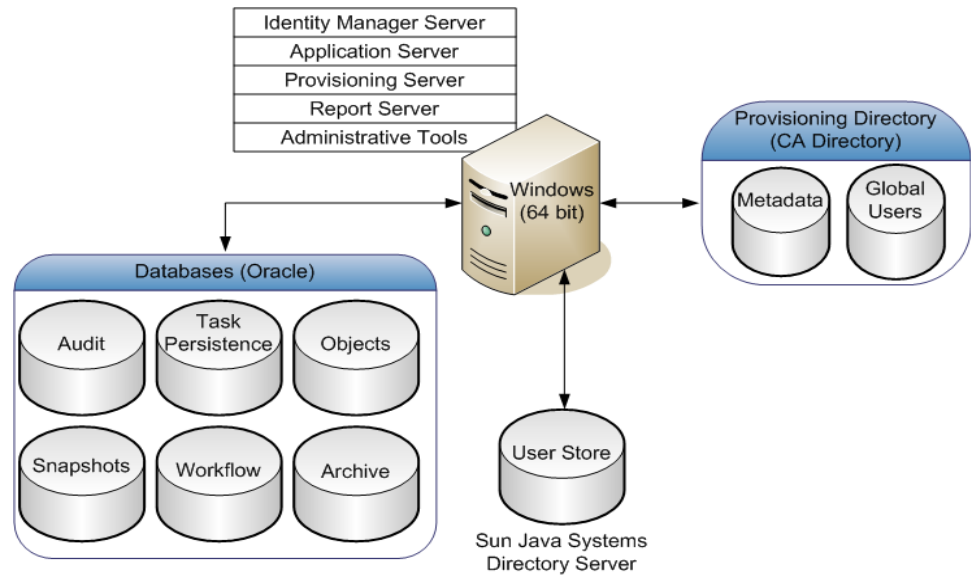
With CA Identity Manager, you can control user identities and their access to applications and accounts on endpoint systems. Based on the functionality you need, you select which CA Identity Manager components to install.

In all CA Identity Manager installations, the CA Identity Manager Server is installed on an application server. You use the CA Identity Manager Installer to install the other components you need.

The following sections illustrate some examples of CA Identity Manager implementations at a high level.

Example: Single Node Installation

In a single node installation, the CA Identity Manager Server is installed on one application server node. Also, one copy of each provisioning component is installed, but components can be on different systems. The following figure is an example of a single node CA Identity Manager installation with a Provisioning Server on the same system and a Provisioning Directory on another system:



This example also illustrates choices for platforms. In this case:

- The CA Identity Manager server is installed on Windows.
- The user store is on the Sun Java Systems Directory server.
- The databases are on Oracle

These platforms are only examples. You can select other platforms instead.

CA Identity Manager Server

Executes tasks within CA Identity Manager. The J2EE CA Identity Manager application includes the Management Console (for configuring environments), and the User Console (for managing an environment).

CA Identity Manager Administrative Tools

Provides tools and samples for configuring and using CA Identity Manager. The tools include Connector Xpress, the Java Connector Server SDK, configuration files, scripts, utilities, and JAR files that you use to compile custom objects with CA Identity Manager APIs and API samples. The Provisioning Manager and WorkPoint Designer are also included with the Administrative Tools.

The default installation location for most Administrative Tools follows:

- **Windows:** C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools
- **UNIX:** /opt/CA/IdentityManager/IAM_Suite/Identity_Manager/tools

However, the default location for Provisioning Manager, which is only installed on Windows, follows:

C:\Program Files\CA\Identity Manager\Provisioning Manager

Note: The Tools\db directory also includes a document that describes the database schema.

Report Server

Uses CA Business Intelligence 3.2. You use this server to include data from the Snapshot Database, which contains information from the CA Identity Manager Object Store and the CA Identity Manager user store. An example of a Snapshot Report is the User Profile report. You can also create non-snapshot reports, which include data from other data sources, such as the Audit Database.

CA Identity Manager Databases

Store data for CA Identity Manager. The databases store information for auditing, task persistence, snapshots (reporting), workflow, and CA Identity Manager objects. Each database must be a relational database.

Note: For a complete list of supported relational databases, see the CA Identity Manager support matrix on the [CA Support Site](#).

CA Identity Manager User Store

Contains users and their information. This store can be a pre-existing user store already in use by the company. This user store can be LDAP or a relational database.

Note: For more information about setting up a user store for CA Identity Manager, see the *Configuration Guide*.

CA Identity Manager Provisioning Server

Manages accounts on endpoint systems. On the same system or another system, you can also install Connector Servers, which manage Java or C++ based connectors to endpoints.

CA Identity Manager Provisioning Directory

Specifies the Provisioning Directory schema to CA Directory. This schema sets up the Directory System Agents (DSAs) within CA Directory. The CA Identity Manager user store can also be the Provisioning Directory.

CA Identity Manager Provisioning Manager

Manages the Provisioning Server through a graphical interface. This tool is used for administrative tasks such as synchronizing accounts with account templates. The Provisioning Manager is installed as part of the CA Identity Manager Administrative Tools or can be installed separately from those tools.

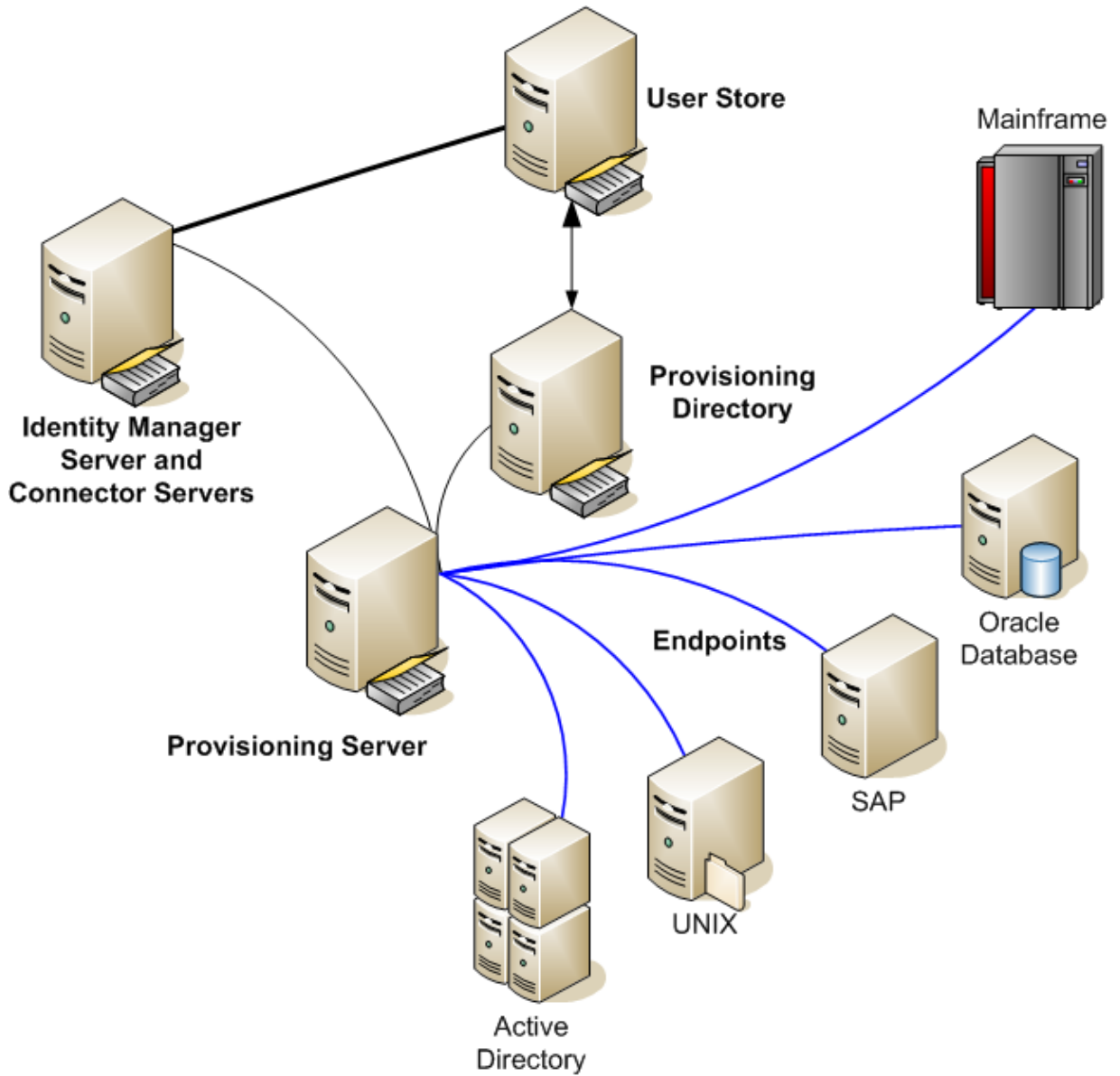
Note: This application runs on Windows only.

Example: Installation with Multiple Endpoints

Installing a Provisioning Server allows administrators to provision accounts on endpoints such as email servers, databases, and other applications to end users. To communicate with the endpoint systems, you install connector servers for endpoint-specific connectors, such as an SAP connector.

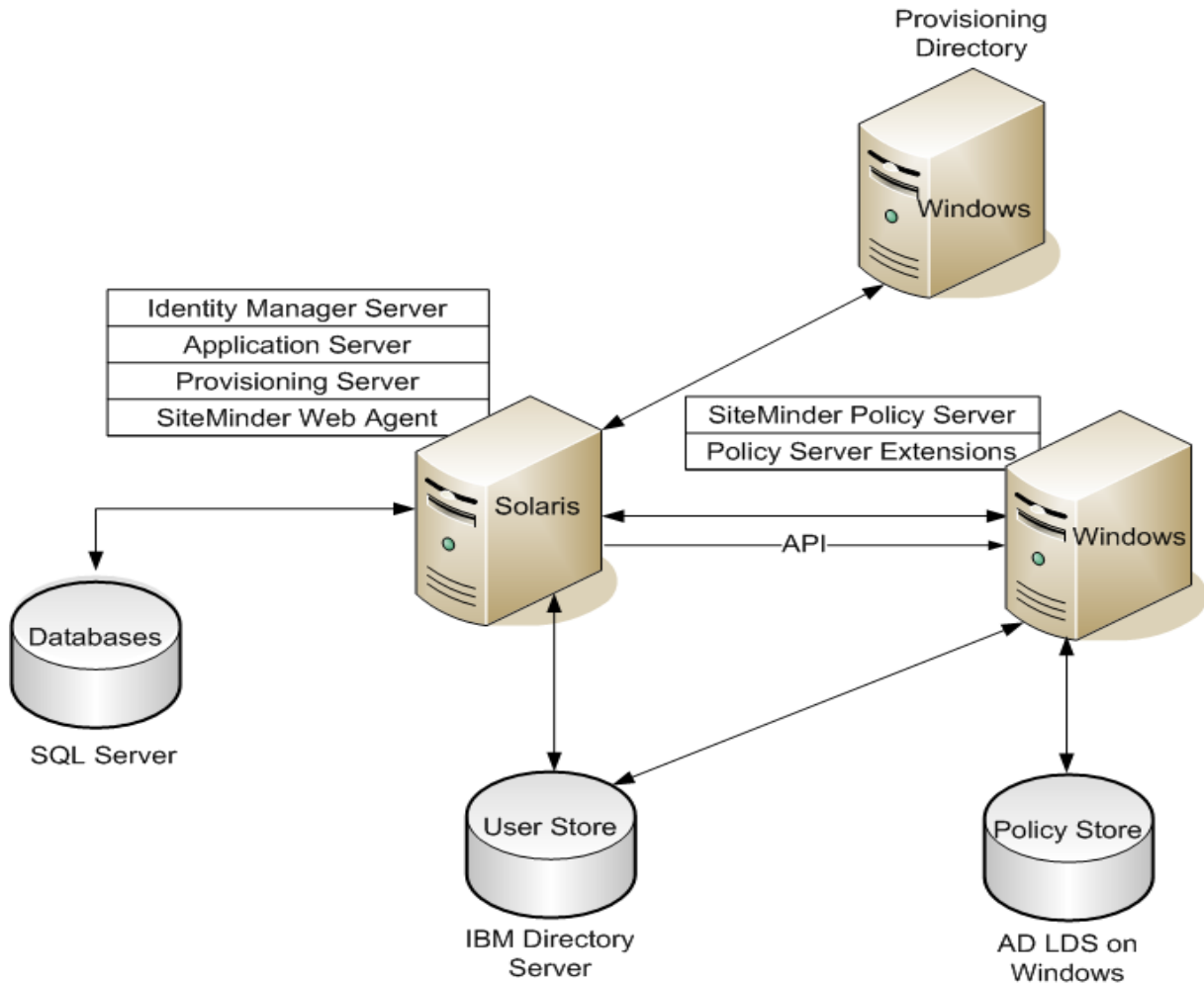
A typical installation scenario involves separate systems for the user store and the Provisioning Directory, which remained synchronized.

This example illustrates the use of CA Identity Manager to provide access to accounts on Active Directory, UNIX, SAP, Oracle, and mainframe systems.



Example: SiteMinder and CA Identity Manager Installation

CA Identity Manager can be integrated with a SiteMinder Policy Server, which provides advanced authentication and protection for your environments. The following figure is an example of a CA Identity Manager installation that uses a CA SiteMinder Policy Server for authentication and authorization:



The SiteMinder elements are defined as follows:

SiteMinder Web Agent

Works with the SiteMinder Policy Server to protect the User Console. Installed on the system with the CA Identity Manager Server.

SiteMinder Policy Server

Provides advanced authentication and authorization for CA Identity Manager and facilities such as Password Services, and Single Sign-On.

SiteMinder Policy Server Extensions

Enable a SiteMinder Policy Server to support CA Identity Manager. Install the extensions on each SiteMinder Policy Server system in your CA Identity Manager implementation.

The CA Identity Manager components are defined in the previous example on a single node installation; however, in this example, the components are installed on different platforms. The CA Identity Manager databases are on Microsoft SQL Server and the user store is on the IBM directory Server. The SiteMinder Policy Store is on AD LDS on Windows, which is one of several supported platforms for a policy store.

High Availability Installation

Before you install CA Identity Manager, consider the goals for your implementation. For example, one goal could be a resilient implementation that consistently provides good performance. Another goal could be scalability.

A high-availability implementation provides the following features:

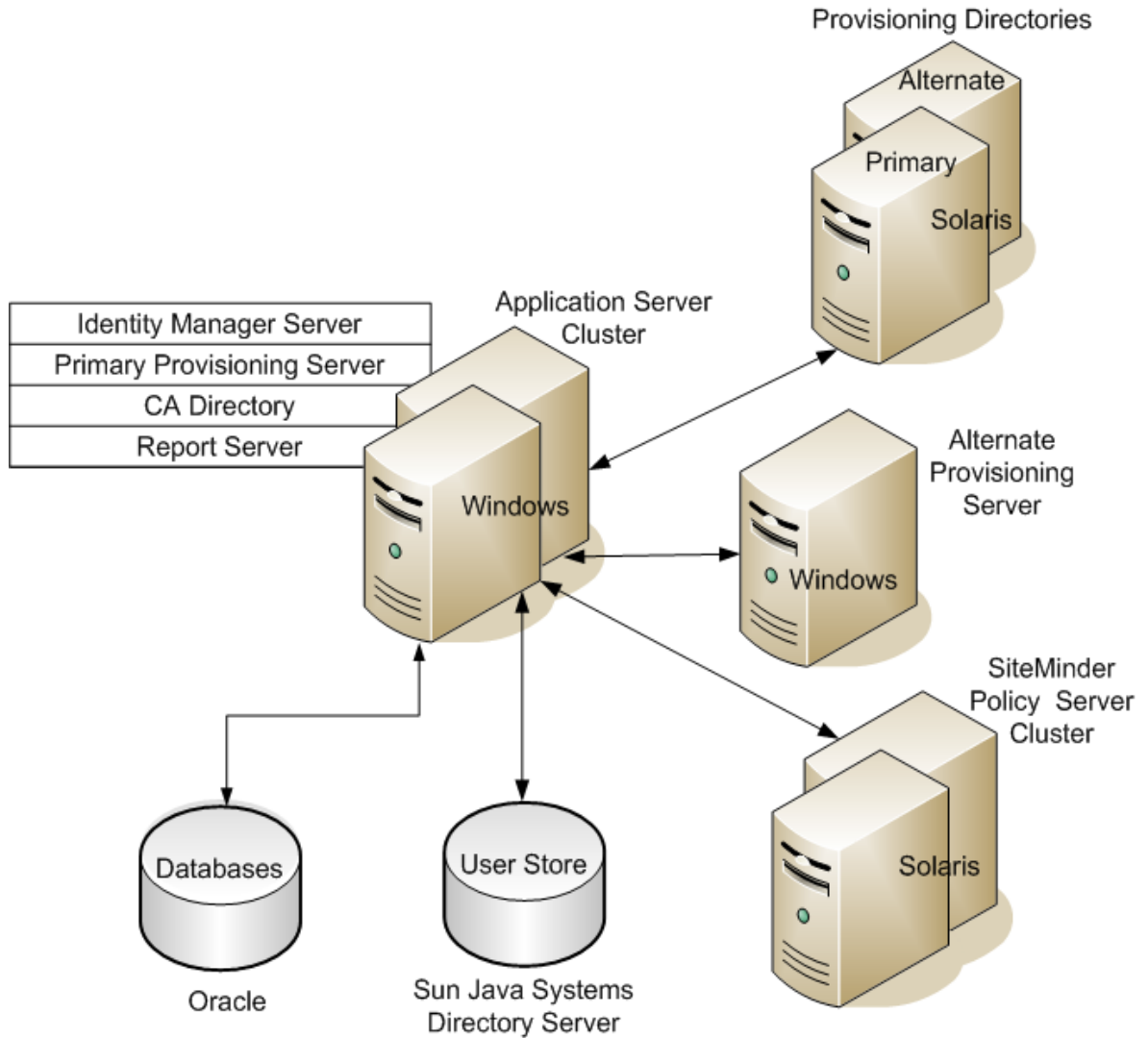
- Failover—Switches to another system automatically if the primary system fails or is temporarily offline for any reason.
- Load balancing—Distributes processing and communications activity evenly across a computer network so that performance remains good and no single device is overwhelmed.
- Various deployment tiers that provide the flexibility to serve dynamic business requirements.

To provide these high-availability features, the following implementation options exist:

- The CA Identity Manager Server can be installed on an application server cluster to allow the failover to any of the node in the cluster, providing uninterrupted access to users. The application server can be a 64-bit format, which provides better performance than a 32-bit application server.
- The Provisioning Server uses a CA Directory router to route traffic to a Provisioning Directory.
- CA Identity Manager includes connector servers that you configure per-directory or per-managed systems. Installing multiple connector servers increases resilience. Each connector server is also an LDAP server, similar to the Provisioning Server.

Example: High Availability Installation

The following diagram is an example that provides high availability for the CA Identity Manager Server, Provisioning Server, Provisioning Directory, and SiteMinder Policy Server. The use of alternate components and clusters provide the high availability features.



In addition to illustrating high availability, this figure shows the different platforms that are used for the components comparing to the [SiteMinder](#) (see page 14) illustration. For example, the database uses Oracle instead of Microsoft SQL Server, which appeared in the previous illustration.

CA Identity Manager Server Architecture

A CA Identity Manager implementation may span a multi-tiered environment that includes a combination of hardware and software, including three tiers:

- Web Server tier
- Application Server tier
- Policy Server tier (optional)

Each tier may contain a cluster of servers that perform the same function to share the workload for that tier. You configure each cluster separately, so that you can add servers only where they are needed. For example, in a clustered CA Identity Manager implementation, a group of several systems may all have a CA Identity Manager Server installed. These systems share the work that CA Identity Manager Server has performed.

Note: Nodes from different clusters may exist on the same system. For example, an application server node can be installed on the same system as a Policy Server node.

Provisioning Components Architecture

Provisioning provides high availability solutions in the following three tiers:

- Client tier
The clients are the CA Identity Manager User Console, CA Identity Manager Management Console and the Provisioning Manager. You can group clients that are together based on their geographic locations, organizational units, business functions, security requirements, provisioning workload, or other administration needs. Generally, we recommend keeping clients close to the endpoints they manage.
- Provisioning Server tier
Clients use primary and alternate Provisioning Servers, in order of their failover preference. Client requests continue to be submitted to the first server until that server fails. In other words, the connection stays active until the server fails. If a failure occurs, the client reviews the list of configured servers in order of preference to find the next available server.

The Provisioning Server can have multiple connector servers in operation. Each connector server handles operations on a distinct set of endpoints. Therefore, your organization could deploy connector servers on systems that are close in the network to the endpoints. For example, assume that you have many UNIX /etc endpoints. In such case, install one connector server on each server so that each connector server controls only the endpoints on the server where it is installed.

Installing Connector Servers close to the endpoints also reduces delays in managing accounts on endpoints.

- CA Directory tier (Provisioning Directory)

Provisioning Servers uses a CA Directory router to send requests to primary and alternate Provisioning Directories in order of preference.

Overall Installation Process

To install CA Identity Manager, perform the following steps:

1. Install the prerequisite hardware and software and configure your system as required.
2. Install the CA Identity Manager Server on a single node or an application server cluster.
3. (Optional) Configure separate databases.
4. (Optional) Install the report server.
5. (Optional) Install alternate Provisioning Directories, alternate Provisioning Servers, and connector servers for high availability provisioning capabilities.

Note: In this document, each chapter includes a checklist of the steps to install or configure a CA Identity Manager feature or component. That section begins with a How To title.

Chapter 2: Installation Prerequisites

This section contains the following topics:

[Installation Status](#) (see page 19)

[Prerequisite Knowledge](#) (see page 19)

[How to Install Prerequisite Components](#) (see page 20)

Installation Status

The following table shows you where you are in the installation process:

You Are Here	Step in Installation Process
X	1. Install prerequisite hardware and software and configure your system as required.
	2. Perform one of these installations: <ul style="list-style-type: none">■ Single node installation■ Installation on an application server cluster
	3. (Optional) Create separate databases.
	4. (Optional) Install the Report Server.
	5. (Optional) Install alternate Provisioning Directories, alternate Provisioning Servers, and connector servers to support the failover and load balancing.


Prerequisite Knowledge

This guide is intended for users who are familiar with Java, J2EE standards, and application server technology. It assumes that you have the following technical knowledge:

- An understanding of J2EE application servers and multi-tier architecture
- Experience with managing the application server, including tasks such as starting the application server
- Experience with managing a relational database
- (Optional) Familiarity with SiteMinder concepts, terms, and Policy Server configuration tasks

How to Install Prerequisite Components

To install the prerequisite hardware and software for CA Identity Manager required for either a standalone or cluster installation:

 Step
1. Verify that your system meets the hardware requirements.
2. Install CA Directory.
3. (Optional) Create a FIPS key.
4. (Optional) Integrate with SiteMinder.
5. Create a database.
6. Set up the application server.
7. Meet IPv6 requirements if installing on IPv6 systems.
8. Verify the Provisioning requirements if installing on Solaris.
9. Complete the Installation Worksheets with information you need for the CA Identity Manager installation program.

Check Hardware Requirements

CA Identity Manager Server

These requirements take into account the requirements of the application server installed on the system where you install the CA Identity Manager Server.

Component	Minimum	Recommended
CPU	Intel (or compatible) 2.0 GHz (Windows or Red Hat Linux), SPARC 1.5 GHz (Solaris) or POWER4 1.1 GHz (AIX)	Dual core Intel (or compatible) 3.0 GHz (Windows or Red Hat Linux), Dual core SPARC 2.5 GHz (Solaris) POWER5 1.5 GHz (AIX)
Memory	4 GB	8 GB
Available Disk Space	4 GB	8 GB
Temp Space	2 GB	4 GB

Component	Minimum	Recommended
Swap/Paging Space	2 GB	4 GB
Processor	32-bit processor and operating system for small deployments 64-bit processor and operating system for intermediate and large deployments, dual core	64-bit processor and operating system, quad core

Provisioning Server or a Standalone Connector Server

Component	Minimum	Recommended
CPU	Intel (or compatible) 2.0 GHz (Windows) SPARC 1.5 GHz (Solaris)	Dual core Intel (or compatible) 3.0 GHz (Windows) SPARC 2.0 GHz (Solaris)
Memory	4 GB	8 GB
Available Disk Space	4 GB	8 GB
Processor	32-bit processor and operating system for small deployments 64-bit processor and operating system for intermediate and large deployments, dual core	64-bit processor and operating system, quad core

Provisioning Directory

Component	Minimum	Recommended
CPU	Intel (or compatible) 1.5 GHz (Windows) SPARC 1.0 GHz (Solaris)	Dual core Intel (or compatible) 2.5 GHz (Windows) SPARC 1.5 GHz (Solaris)
Memory	4 GB	8 GB

Component	Minimum	Recommended
Available Disk Space	2 to 10 GB, depending on the number of endpoint accounts <ul style="list-style-type: none"> ■ Compact—Up to 10,000 accounts, 0.25 GB per data file (total 1 GB) ■ Basic—Up to 400,000 accounts, 0.5 GB per data file (total 2 GB) ■ Intermediate (64 bit only)—Up to 600,000 accounts, 1 GB per data file, total 4 GB ■ Large (64 bit only)—Over 600,000 accounts, 2 GB per data file, total 8 GB 	2 to 10 GB, depending on the number of endpoint accounts <ul style="list-style-type: none"> ■ Compact—Up to 10,000 accounts, 0.25 GB per data file (total 1 GB) ■ Basic—Up to 400,000 accounts, 0.5 GB per data file (total 2 GB) ■ Intermediate (64 bit only)—Up to 600,000 accounts, 1 GB per data file, total 4 GB ■ Large (64 bit only)—Over 600,000 accounts, 2 GB per data file, total 8 GB
Processor	32-bit processor and operating system for small deployments 64-bit processor, 64-bit operating system, and CA Directory (64-bit version) for intermediate and large deployments	64-bit processor and operating system

All Components on One System

Hosting the entire CA Identity Manager product on a single physical system is not recommended for production environments. However, to do so, the hardware requirements are as follows:

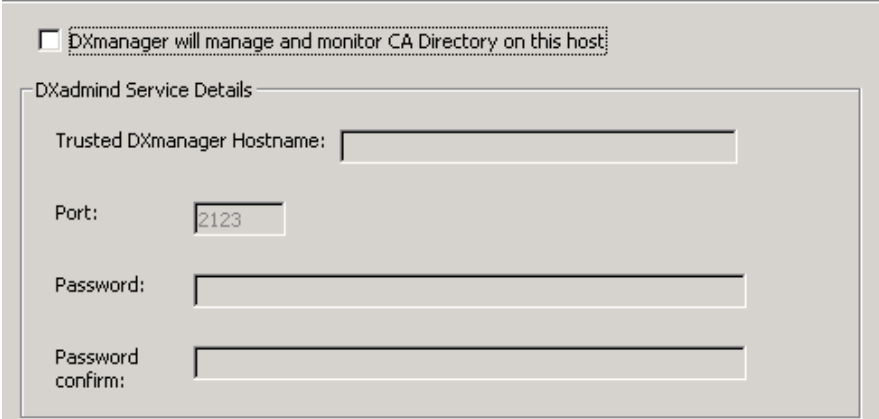
Component	Minimum
CPU	Intel (or compatible) 3.1 GHz (Windows) SPARC 2.5 GHz (Solaris)
Memory	8 GB
Available Disk Space	6 to 14 GB depending on the number of accounts
Processor	64-bit processor and operating system for intermediate and large deployments, quad core
Swap/Paging Space	6 GB

Install CA Directory

Before you install CA Identity Manager, install CA Directory using the following steps:

1. Install CA Directory on the system where you plan to install the Provisioning Directory. A supported version of CA Directory is included on your installation media. For details on installation, download the CA Directory documentation from the support site.

Note: When the installer asks about installing dxadmind for DXManager, you can safely clear this option. The Provisioning Directory does not use DXManager.



DXmanager will manage and monitor CA Directory on this host

DXadmind Service Details

Trusted DXmanager Hostname:

Port:

Password:

Password confirm:

2. Install a second copy of CA Directory on the system where you plan to install the Provisioning Server. This installation is for routing purposes, so that the Provisioning Server can communicate with the remote Provisioning Directory.

Important! We recommend that you disable all antivirus software before installation. During the installation, if antivirus software is enabled, problems can occur. Verify that you enable your antivirus protection again after you complete the installation.

Create a FIPS 140-2 Encryption Key

When you run the CA Identity Manager installer, you are given the option of enabling FIPS 140-2 compliance mode. For CA Identity Manager to support FIPS 140-2, all components in a CA Identity Manager environment must be FIPS 140-2 enabled. You need a FIPS encryption key to enable FIPS 140-2 during installation. A Password Tool for creating a FIPS key is located in the installation media at PasswordTool\bin.

Important! Use the same FIPS 140-2 encryption key in all installations. Verify that you safeguard the Password Tool generated key file immediately.

(Optional) Integrate with SiteMinder

A SiteMinder Policy Server is an optional component that you install as described in the *SiteMinder Installation Guide*. If you plan to make the Policy Server highly available, you configure it as a Policy Server cluster. You also install JCE libraries to enable communication with CA Identity Manager.

To install a Policy Server:

Follow these steps:

1. Install the SiteMinder Policy Server. For details, see the *CA SiteMinder Policy Server Installation Guide*.
2. To make the Policy Server highly available, install it on each node that should be in the Policy Server cluster.

Note: Each Policy Server in the cluster uses the same policy store.

3. Verify that you can ping the systems that host the Policy Server from the system where you plan to install the CA Identity Manager Server.

To install the CA Identity Manager Extensions for SiteMinder:

Follow these steps:

Before you install the CA Identity Manager server, you add the extensions to each Policy Server. If the Policy Server is on the system where you planned to install the CA Identity Manager server, you can install the extensions and the CA Identity Manager server simultaneously. If so, omit this procedure.

1. Stop the SiteMinder services.
2. Install the CA Identity Manager Extensions for SiteMinder. Do one of the following tasks:
 - **Windows:** From your installation media, run the following program in the top-level folder:
`ca-im-r12.5spN-win32.exe`
 - **UNIX:** From your installation media, run the following program in the top-level folder:
`ca-im-r12.5spN-sol.bin`

`spN` represents the current SP release of CA Identity Manager.

3. Select Extensions for SiteMinder.
4. Complete the instructions in the installation dialog boxes.

To install JCE Libraries:

Follow these steps:

As of r12.5 SP7, the CA Identity Manager server requires the Java Cryptography Extension (JCE) libraries if you are also using CA SiteMinder.

Before you install the CA Identity Manager Server, download and install the Java Cryptography Extension Unlimited Strength Jurisdiction Policy Files. Select the one that works with your application server and JDK. The download ZIP file includes a readme text file with installation instructions.

Create the Database

CA Identity Manager requires a relational database to store objects and data for auditing, snapshots (reporting), workflow, and task persistence. Install a supported version of Oracle or Microsoft SQL Server and create a database.

When installing CA Identity Manager, all of the database schemas are created automatically when the application server is started. However, after installing CA Identity Manager, you can configure separate databases for auditing, snapshots (reporting), workflow, and task persistence. To create these databases, see the chapter on Separate Database Configuration.

WebLogic Application Server

The following sections provide information to aid users with an Oracle WebLogic application server. If you are comfortable using WebLogic, you may alter the instructions in the following sections. However, note the following:

- The CA Identity Manager Server is a J2EE application that is deployed on a supported application server.
- If you are installing CA Identity Manager on Solaris, run the installation as root.
- Be sure to install WebLogic in a directory pathname that contains no spaces.
- CA Identity Manager takes advantage of the auto-deployment feature of WebLogic. When creating your WebLogic domain, be sure to select a domain type that supports auto-deployment.
- The Application Server connects to the Provisioning Server and other servers by SSL. See the Application Server documentation for information on configuring SSL, including information on certificates and keys.

Install a WebLogic Application Server

On the system where you plan to install the CA Identity Manager Server, perform the following steps:

1. Install the application server using the [Oracle WebLogic 11 Documentation](#).
2. Install a supported Java Development Kit (JDK) or Java Runtime Environment (JRE) for CA Identity Manager on the application server system.

If you are installing on a 64-bit operating system, be sure the JDK or JRE is the 64-bit version.

Create a WebLogic Application Server Instance

Before installing CA Identity Manager Server, create a WebLogic domain using the Configuration Wizard that is part of the WebLogic installation and do the following:

- Note the name of the domain. You will need the domain name when you install CA Identity Manager.
- Select the Basic WebLogic Server Domain template.
Note: If you select Production Mode when you create the domain, start the domain to verify that it is running correctly, and then stop it before installing CA Identity Manager.
- Verify that the JAVA_HOME variable is set in the setDomainEnv.cmd/.sh file, which is located in `weblogic_home\user_projects\domains\weblogic_domain\bin`.

Verify the WebLogic Domain

Confirm the following:

- The WebLogic application server is running.
- You can access the WebLogic Server Administration Console at the following URL:
`http://hostname:port/console`
For example:
`http://myserver.mycompany.com:7001/console`
- In the WebLogic Server Administration Console, under Domain Configurations, select the Domains link.

The newly created domain appears in the list of existing domains.

Note: Once you have completed the verification, shut down the application server to prepare for a CA Identity Manager installation. If you are running a CA Identity Manager installation on a WebLogic domain in Production mode, initialize the domain *first* by starting and shutting down the server.

Solaris Requirements for the Provisioning Server

Provisioning Server prerequisites on Solaris

Check `/etc/system` and verify the following minimum IPC kernel parameter values:

- `set msgsys:msginfo_msgmni=32`
- `set semsys:seminfo_semmni=256`
- `set semsys:seminfo_semmns=512`
- `set semsys:seminfo_semmnu=256`
- `set semsys:seminfo_semume=128`
- `set semsys:seminfo_smmsl=128`
- `set shmsys:shminfo_shmmni=128`
- `set shmsys:shminfo_shmmin=4`

Solaris 9 or 10 Requirements

Before installing provisioning software on Solaris 9 or 10, download and install the required patches.

To download the Sun Studio 10 patches for the Provisioning SDK:

Follow these steps:

1. Go to the following URL:
http://developers.sun.com/prodtech/cc/downloads/patches/ss10_patches.html
2. Download and install patch 117830.

Note: Sun Studio 11 does not require patching.

To download Solaris 9 patches for all Provisioning components:

Follow these steps:

1. Go to the following URL:
<http://search.sun.com/search/onesearch/index.jsp>
2. Download and install `9_recommended.zip`

IPv6 Support

CA Identity Manager supports IPv6 on the following operating systems:

- Solaris 9 or higher
- Windows XP SP2 or higher
- Windows 2003 SP2 or higher
- Windows 2008 or higher

Note: The Java Connector Server does not support IPv6 on Microsoft Windows platforms. No JDK is available to work with IPv6 as of release time for CA Identity Manager r12.5 SP12. If a JDK is released that works with IPv6, the CA Identity Manager support matrix will be updated on [CA Support](#).

IPv6 JDK Requirements on WebLogic

JDK 1.5 is required to support IPv6 on WebLogic.

IPv6 Configuration Notes

Note the following before configuring a CA Identity Manager Environment that supports IPv6:

- For CA Identity Manager to support IPv6 addresses, all components in the CA Identity Manager implementation, including the operating system, JDK, directory servers, and databases must also support IPv6 addresses.
- If CA Identity Manager integrates with SiteMinder, the Web Server plug-in for the application server must also support IPv6.
- When you connect to SiteMinder or any database from CA Identity Manager using a JDBC connection, specify the hostname not the IP address.
- The Report Server can be installed on a dual-stack host, which supports IPv4 and IPv6, but the communication to the server must be IPv4.
- When you configure a connection to the Report Server in the Management Console, the server name must be in IPv4 format.
- CA Identity Manager does not support IPv6 link local addresses.
- In an IPv4/6 environment, if you want to configure CA Directory DSAs to listen on multiple addresses, add the additional addresses to your DSA knowledge files. For more information, see the CA Directory documentation.

Provisioning Directory on Windows 2008 with Pure IPv6 Not Supported

Due to a Sun Java Systems limitation, installing the Provisioning Directory on a Windows 2008 server with the IPv6 networking service uninstalled is not supported.

To work around this issue, install the IPv6 service on the system and leave it disabled.

Complete the Installation Worksheets

The CA Identity Manager installation program asks you for information about previously installed software and the software that you are installing. Ensure that you provide hostnames (and not IP addresses) in the installer screens.

Note: Use the following **Installation Worksheets** to record this information. We recommend that you complete the worksheet before starting the installation.

Provisioning Directory

Record the following Provisioning Directory and Provisioning Server information you need during the CA Identity Manager installation.

Field Name	Description	Your Response
Provisioning Directory Hostname	The hostname of the Provisioning Directory system if it is remote. You need the hostnames for the primary and any alternate Provisioning Directories.	
Shared Secret	The special password for the Provisioning Directory. Use the same password for the primary and any alternate Provisioning Directories.	
Provisioning Server Hostname	The host names of the primary and any alternate Provisioning Servers.	

WebLogic Information

Record the following WebLogic information you need during the CA Identity Manager installation:

Field Name	Description	Your Response
WebLogic Binary Folder	The location of the application server home directory.	
Domain Folder	The name of the WebLogic domain you created for CA Identity Manager. Default: base_domain	
Server Name	The name of the WebLogic server on which the domain is configured. Default: AdminServer	
Cluster Name	The name of the WebLogic cluster if you plan to install CA Identity Manager in a clustered environment.	
Access URL and port	The application URL and port number of the system that will host the CA Identity Manager Server (system that will host the application server) or the web server port and URL for a clustered environment.	

Database Connection Information

An Oracle or Microsoft SQL Server database must already be configured and working. Record the following database information you need during the CA Identity Manager installation:

Field Name	Description	Your Response
Database Type	The type (vendor/version) of database created for task persistence, workflow, audit, reporting, object storage, and task persistence archive.	

Field Name	Description	Your Response
Host Name	The hostname of the system where the database is located. Note: Ensure you provide a hostname and <i>not</i> an IP address.	
Port Number	The port number of the database.	
Database Name	The database identifier.	
Username	The username for database access. Note: This user must have administrative rights to the database unless you plan to import the schema manually.	
Password	The password for the user account with administrative rights.	

Login Information

Record the following passwords you need during the Provisioning Components installation.

Field Name	Description	Your Response
Username	A username that you create to log into the provisioning components.	
Provisioning Server password	A password for this Server.	
C++ Connector Server password	A password needed for this server. Each C++ Connector Server can have a unique password.	
Provisioning Directory password	A password used by Provisioning Server to connect to Provisioning Directory. For an alternate Provisioning Server, enter the Provisioning Directory password created for the primary Provisioning Server.	

SiteMinder Information

If you plan to use a SiteMinder Policy Server to protect CA Identity Manager, record the following information:

Field Name	Description	Your Response
Policy Server Host Name	The hostname of the SiteMinder Policy Server.	
SiteMinder Administrator Name	The administrator username for the SiteMinder Policy Server.	
SiteMinder Administrator Password	The administrator user password for the SiteMinder Policy Server.	
SiteMinder Folder (Solaris Only)	The location of SiteMinder on the system with a SiteMinder Policy Server installed.	
SiteMinder Agent Name	The name of the SiteMinder Agent that CA Identity Manager will use to connect to SiteMinder.	
SiteMinder Shared Secret	The shared secret for the above Agent.	

Chapter 3: Single Node Installation

This section contains the following topics:

[Installation Status](#) (see page 33)

[CA Identity Manager Components](#) (see page 34)

[How to Perform a Single Node Installation](#) (see page 34)

Installation Status

This table shows you where you are in the installation process:

You Are Here	Step in Installation Process
	1. Install prerequisite hardware and software and configure your system as required.
X	2. Perform one of these installations: <ul style="list-style-type: none">■ Single node installation■ Installation on an application server cluster
	3. (Optional) Create separate databases.
	4. (Optional) Install the Report Server.
	5. (Optional) Install alternate Provisioning Directories, alternate Provisioning Servers, and connector servers to support failover and load balancing.

CA Identity Manager Components

In a single node installation, you install one copy of each component, but use two or more systems for where you install them.

Note: If you intend to install multiple copies of components for high availability, see the chapters on installation on a cluster and high-availability provisioning installation.

Install one of each of the following components on a system at your site:


- CA Identity Manager Server—Installs the server that provides the core functionality of the product.
- CA Identity Manager Administrative Tools—Installs tools such as the Provisioning Manager, which runs on a Windows system, the SDK for the Java Connector Server, and Connector Xpress.

Connector Xpress manages dynamic connectors, maps them to endpoints, and establishes routing rules. Dynamic connectors allow provisioning and management of SQL databases and LDAP directories

- CA Identity Manager Provisioning Server—Enables provisioning in CA Identity Manager. Installation of this server includes the C++ Connector Server, which manages endpoints that use C++ connectors.
- Java Connector Server—Manages endpoints that use java connectors. The Java Connector Server is registered with the Provisioning Server when you install it.
Note: You can instead install the Java Connector Servers separate from the Provisioning Server. See the *Java Connector Server Implementation Guide*.
- CA Identity Manager Provisioning Directory Initialization—Configures a CA directory instance to store provisioning data. Use the installation program on each system where CA Directory is installed.
- Extensions for SiteMinder—Extends the SiteMinder Policy Server if you are using it to protect CA Identity Manager. Install these extensions on the same system as the Policy Server before you install the CA Identity Manager Server.

How to Perform a Single Node Installation

Use the following checklist to perform a basic installation of CA Identity Manager:

 Step
1. Install CA Identity Manager components on the systems required.
2. Verify the CA Identity Manager Server starts.

✓ Step

3. Configure Provisioning Manager if installed on a remote system.

4. Install optional provisioning components.

Install CA Identity Manager Components

For a production environment, use separate systems for data servers. For example, we recommend that the Provisioning Directory and a database (SQL or Oracle) are on a separate system from the CA Identity Manager Server and the Provisioning Server. If you are installing SiteMinder, you may also prefer to have it on a separate system. The Administrative Tools can be installed on any system.

Use the CA Identity Manager installer to perform the installation on the systems required. In the procedures that follow, the step to run the installer refers to this program in your installation media's top-level folder:

- **Windows:**
`ca-im-r12.5spN-win32.exe`
- **UNIX:**
`ca-im-r12.5spN-sol.bin`

`spN` represents the current SP release of CA Identity Manager.

For each component that you install, make sure that you have the [required information for installer screens](#) (see page 29), such as host names and passwords. If any issues occur during installation, check the [installation logs](#) (see page 119).

To install the Extensions for SiteMinder:

Follow these steps:

1. Log into the system where SiteMinder is installed as a Local Administrator (for Windows) or root (for Solaris).
2. Stop the SiteMinder services.
3. Run the installer and select Extensions for SiteMinder.

To install the CA Identity Manager Server:

Follow these steps:

1. If you have installed SiteMinder on a separate system, ensure that you have installed the extensions for SiteMinder there also.
2. Log into the system where the application server is installed as a Local Administrator (for Windows) or root (for Solaris).
3. Stop the application server.
4. Run the installer and select the CA Identity Manager Server.
5. If you have SiteMinder on the local system, select Extensions for SiteMinder. If it is on a remote system, select Connect to Existing SiteMinder Policy Server.

To install the Provisioning Directory:

Follow these steps:

1. Log into the system as a Local Administrator (for Windows) or root (for Solaris).
2. Ensure that CA Directory is already installed on the system.
3. Run the installer and select the CA Identity Manager Provisioning Directory Initialization.

4. Answer the question about deployment size. Consider the following guidelines, while allowing room for future growth:
- Compact—up to 10,000 accounts
 - Basic—up to 400,000 accounts
 - Intermediate (64 bit only)—up to 600,000 accounts
 - Large (64 bit only)—more than 600,000 accounts

Select Deployment Size

Select the deployment size that best suits your needs.
The minimum required values indicate both the hard disk space required to create and the memory required to load the datastores.
Note: Intermediate and Large deployments require 64 bit hardware, operating system and CA Directory software.

- Compact
Configures deployment to support up to approximately 10,000 accounts.
Required Space: 1GB
- Basic
Configures deployment to support up to approximately 400,000 accounts.
Required Space: 2GB
- Intermediate [64 Bit Only]
Configures deployment to support up to approximately 600,000 accounts.
Required Space: 4GB
- Large [64 Bit Only]
Configures deployment to support more than 600,000 accounts.
Required Space: 8GB

To install the Provisioning Server:

Follow these steps:

1. Log into the system as a Local Administrator (for Windows) or root (for Solaris).
2. Ensure that CA Directory is already installed and you have the details of the remote Provisioning Directory.
3. Run the installer and select the CA Identity Manager Provisioning Server.

Verify the CA Identity Manager Server Starts on WebLogic

To start CA Identity Manager on WebLogic, you use the `startWebLogic.cmd` file for Windows, or the `startWebLogic.sh` file on UNIX. This file is located in the WebLogic domain directory that was created for your CA Identity Manager domain.

Note: If you are using WebLogic in production mode, the CA Identity Manager EAR may not auto-deploy the first time you start the application server after an install or upgrade. If this should occur, deploy the `iam_im.ear` manually from the `weblogic_domain\applications` folder.

Follow these steps:

1. Navigate to `weblogic_domain/bin` from a command line.
2. Enter the following:
 - **Windows:** `startWebLogic`
 - **UNIX:** `./startWebLogic.sh`

You may be prompted for the WebLogic administrator name and password for the application server to start up.

3. If prompted, enter the WebLogic administrator name and password that you provided when you created the domain.

Note: The first time you start the CA Identity Manager Server, CA Identity Manager's JSP files are precompiled. This can cause the initial start up to take some time.

When you see the following message, the server has completed its startup process:
<Server started in RUNNING mode>

4. Access the Management Console and confirm the following:
 - You can access the following URL from a browser:
`http://im_server:port/iam/immanage`
For example:
`http://MyServer.MyCompany.com:port-number/iam/immanage`
 - The Management Console opens.
 - No errors are displayed in the application server log.
 - You do not receive an error message when you click the Directories link.
5. Verify that you can access an upgraded environment using this URL format:
`http://im_server:port/iam/im/environment`

Configure a Remote Provisioning Manager

If you installed the Provisioning Manager on a different system from the Provisioning Server, you configure communication to the server.

Note: To install the Provisioning Manager, install the CA Identity Manager Administrative Tools on a Windows system.

Follow these steps:

1. Log into the Windows system where you installed Provisioning Manager.
2. Go to Start, Programs, CA, Identity Manager, Provisioning Manager Setup.
3. Enter the hostname of the Provisioning Server.
4. Click Configure.
5. For an alternate Provisioning Server, select the domain name from the pull-down list.
6. Click Ok.

You can now start the Provisioning Manager and see the domain name that you configured.

Install Optional Provisioning Components

Optional Provisioning Components for CA Identity Manager are in the `im-pc-release.zip`. `release` represents the current release of CA Identity Manager.

The ZIP file includes the following:

SPML Manager

Run the SPML installer from the Provisioning Component media (under `\Clients`) to install this component.

SPML Service

Run the SPML installer from the Provisioning Component media (under `\Clients`) to install this component.

Remote Agents

Run the specific agent installer from the Provisioning Component media (under `\RemoteAgent`) to install these components. If you want IPv6 support, you must install your agents.

Password Sync Agents

Run the Password Sync Agent installer from the Provisioning Component media (under `\Agent`) to install this component.

GINA

Run the GINA installer from the Provisioning Component media (under \Agent) to install this component.

Vista Credential Provider

Run the Vista Credential Provider installer from the Provisioning Component media (under \Agent) to install this component.

Bulk Loader Client/PeopleSoft Feed

Run the Bulk Loader Client installer from the Provisioning Component media (under \Clients) to install this component.

JCS SDK

Run the JCS SDK installer from the CA Identity Manager media (under \Provisioning) to install this component.

CCI Standalone

Run the CCI Standalone installer from the Provisioning Component media (under \Infrastructure) to install this component.

The CA Identity Manager installer installs all connectors by default. However, in some cases, install an agent on an endpoint system you are managing before you can use the related connector.

Connectors run on the Provisioning Server and communicate with the systems managed by an endpoint. For example, systems running Active Directory Services (ADS) can be managed only if the ADS Connector is installed on the Provisioning Server.

Note: For more information about each connector, see the *Connectors Guide*

More information exists for these components in the following guides:

- Credential Provider (*Administration Guide*)
- GINA Option for Password Reset/Unlock (*Administration Guide*)
- Password Synchronization Agent (*Administration Guide*)
- Connector Xpress (*Connector Xpress Guide*)
- SPML Service (*Provisioning Reference Guide*)
- Agents for use with connectors (*Connectors Guide*)

Chapter 4: Installation on a WebLogic Cluster

A WebLogic Server cluster consists of multiple WebLogic Server instances that work together to provide increased scalability and reliability.

This section contains the following topics:

[Installation Status](#) (see page 41)

[WebLogic Clusters](#) (see page 42)

[How to Install CA Identity Manager on a WebLogic Cluster](#) (see page 43)

[Start the WebLogic Cluster](#) (see page 51)

[Verify the Clustered Installation](#) (see page 52)

[Configure a Remote Provisioning Manager](#) (see page 52)

[Install Optional Provisioning Components](#) (see page 53)

Installation Status

This table shows you where you are in the installation process:

You Are Here	Step in Installation Process
	1. Install prerequisite hardware and software and configure your system as required.
X	2. Perform one of these installations: <ul style="list-style-type: none">■ Single node installation■ Installation on an application server cluster
	3. (Optional) Create separate databases.
	4. (Optional) Install the Report Server.
	5. (Optional) Install alternate Provisioning Directories, alternate Provisioning Servers, and connector servers to support failover and load balancing.

WebLogic Clusters

A WebLogic Server cluster consists of multiple WebLogic Server instances that work together to provide increased scalability and reliability.

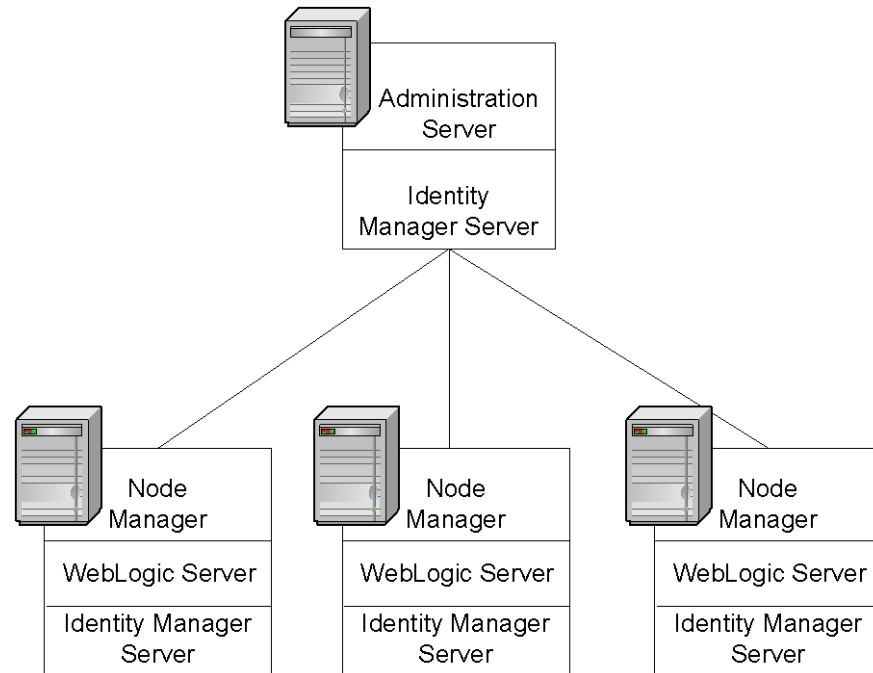
Note: Before you configure a WebLogic cluster, you should be familiar with WebLogic clusters and JMS objects. See [Oracle WebLogic 11 Documentation](#).

WebLogic clusters include the following components:

- One Administration Server, which configures and manages the WebLogic Server instances in its domain
- Managed Server nodes, each of which run the CA Identity Manager Server
- Node Manager, a WebLogic Server utility that enables you to start, shut down, and restart Administration Server and Managed Server nodes from a remote location.

You install the Node Manager on each WebLogic server in the cluster.

The following figure shows the relationship between the Administration Server and three Managed Server nodes in a WebLogic cluster.



How to Install CA Identity Manager on a WebLogic Cluster

The following procedures describe how to install CA Identity Manager on an Oracle WebLogic cluster.

✓	Step
	1. Create a WebLogic cluster.
	2. Create a distributed JMS server for WebLogic.
	3. Create a distributed JMS server for workflow.
	4. Configure the Proxy Plug-in.

Create a WebLogic Cluster

The instructions in this section describe how to configure a cluster based on the multi-tier architecture described in the [Oracle WebLogic 11 Documentation](#).

Follow these steps:

1. Decide which system in the cluster will be the Administration Server, and which systems will be the managed nodes.
2. Install WebLogic on the Administration Server and the managed nodes.
3. Use the WebLogic Configuration Wizard to create the WebLogic domain on the Administration Server.
4. Customize the WebLogic domain for the cluster.
5. On the node where you create the Administration Server, create a cluster domain.
This domain can serve as the source location from where the application will be deployed to the managed server nodes.

Register Node Manager

Node Manager is the WebLogic utility that starts the Administration Server and managed nodes from a remote location. Oracle recommends registering Node Manager on each managed node in a cluster. For instructions on registering Node Manager, see [Oracle WebLogic 11 Documentation](#).

Verify the WebLogic Cluster

Verify that you can start and stop each managed node.

Follow these steps:

From the WebLogic Admin Console:

1. Set up user and password for each managed node:
 - a. In an internet browser, go to `http://admin server machine:7001/console`
 - b. Choose Environment, servers, *Server Name*
 - c. Go to Server Start tab.
 - d. Provide the user and password that you used to set up the managed node
2. Perform these actions on each node manager system:
 - a. Start the Node Manager on each managed node.
 - For Windows: Navigate to Start, Programs, Oracle WebLogic Server 11gR1, Tools, Node Manager
 - For Solaris: Use the `startNodeManager.sh` script.
A sample `startNodeManager.sh` script is installed in `WL_HOME\server\bin`. Edit this script for your environment.
 - b. Start each of the managed servers/machines. In the WebLogic Admin Console, go to:
Environment->servers, *Server Name*, control, start
3. Stop the Admin server and all managed servers in preparation for installing CA Identity Manager.

Install CA Identity Manager on the WebLogic Cluster

Before deploying CA Identity Manager to the cluster, deploy it in a cluster domain in the Administration Server to verify that it installs correctly. The cluster domain serves as a staging area where you can test CA Identity Manager and then deploy it to other nodes in the cluster.

When you supply a cluster name during the installation, these primary resources will be configured:

- Distributed queues/topics with Round-Robin as the default load-balancing algorithm, all targeted to cluster name provided.
- Connection factories targeted to cluster name provided.
- Data sources also targeted to cluster name provided.
- Two JMS modules: `imjmsmodule` and `wpjmsmodule`.

During the installation, the EAR files (iam_im.ear and ca-style5.1.1.ear) are installed to the cluster domain at the following root:

`WL_HOME\user_projects\domains\weblogic_domain\applications`

Once the managed node server is started, the EAR files are pushed to this location on the managed nodes:

`WL_HOME\common\nodemanager\servers\server-name\stage`

Note: Make sure that you have the [required information for installer screens](#) (see page 29), such as host names and passwords. If any issues occur during installation, check the [installation logs](#) (see page 119).

Follow these steps:

1. Update the `/etc/hosts` file if you are installing on a UNIX system.
Include IP addresses and hostnames of any remote system that you plan to include during the installation.
2. On the system that hosts the WebLogic Admin Server, install the CA Identity Manager server using the installation program:
 - Windows: From your installation media, run the following program:
`ca-im-release-win32.exe`
 - UNIX: From your installation media, run the following program:
`ca-im-release-sol.bin`

release represents the current release of CA Identity Manager.
3. When you enter any password or shared secret in the installation, be sure to provide a password that you can recall when needed.

Provisioning Directory Information

The Provisioning Server stores its data in a repository called the Provisioning Directory. To configure Provisioning Directory, enter the following information.

Provisioning Directory Host:	<input type="text" value="us-west3"/>
Provisioning Directory Shared Secret:	<input type="password" value="*****"/>
Confirm Shared Secret:	<input type="password" value="*****"/>

4. Complete the WebLogic section as follows:

WebLogic Binary Folder

The location of the application server home directory.

Domain Folder

The name of the WebLogic domain you created for CA Identity Manager.

Server Name

The name of the WebLogic server on which the domain is configured.

Cluster Name

The name of the cluster.

Access URL and port

Supply the URL and the port number for the web server used for load balancing.

5. Complete the Database Connection Information section using the information you collected about your Oracle or Microsoft SQL Server database.

Database Connection Information

Enter database connection information for task persistence and archive, workflow, auditing, reporting, and object storage.

Host Name:	<input type="text" value="central3.kolapd.com"/>
Port Number:	<input type="text" value="1433"/>
Database Name:	<input type="text" value="main_objectstore"/>
Username:	<input type="text" value="db_inwest"/>
Password:	<input type="password" value="*****"/>

- Complete the Login Information section with a password that conforms to your organization's requirements.

Login Information

To create a user for connecting to the embedded CA components and administering Provisioning Server, provide a user name and password.
Note: The password you specify must be at least six characters.

Username:

Password:

Confirm Password:

- If you are connecting to SiteMinder, complete the Policy Server section that appears.
- Verify your choices are correct on the Installation Summary, then click Install.

Configure Managed Nodes

The CA Identity Manager installer installs JAR files on the Administration Server. The managed nodes need these files, but they are outside the EAR and are not pushed to the nodes. Using this procedure, you copy the JAR files to each managed node and configure the JDBC drivers on each node.

Note: This procedure also applies after you have installed CA Identity Manager and you want to add more nodes.

Follow these steps:

- Copy the database JDBC drivers to all other managed nodes. Copy the sqljdbc.jar or ojdbc14.jar from *WL_HOME/server/lib* on the admin server to *WL_HOME/server/lib/* on the node.
- Log on to a node where you installed Node Manager.
- If you have installed Node Manager as a Windows service, it must be disabled first as follows:
 - Double-click Administrative Tools on the Control Panel.
 - Double-click the Services icon.
 - Double-click Oracle WebLogic NodeManager.

- d. Click Stop.
- e. Click Startup type and select Disabled.
4. On the Admin Server, start WebLogic.
5. Open the WebLogic Admin Server Administration console:
 - a. Navigate to Environment, Servers, *Server*, Server Start tab.
 - b. Fill in Java Home with Sun JDK home location of the JDK shipped with the application server.
 - c. Fill in the Java Vendor with Sun.
 - d. Fill in Class Path with the fully resolved content of WEBLOGIC_CLASSPATH from `commEnv.{cmd,sh}` file shipped with the Application installation supplemented by `WL_HOME\server\lib\ojdbc14.jar;WL_HOME\server\lib\sqljdbc.jar` where `WL_HOME` is as set in `commEnv.{cmd,sh}` file shipped with the product.
 - e. Verify that the JAVA ARGUMENT is as follows:

```
-Xms256m -Xmx1024m -XX:ReservedCodeCacheSize=50m -XX:MaxPermSize=256m  
-Djavax.xml.stream.XMLInputFactory=weblogic.xml.stream.XMLStreamInputFactory
```

If necessary, make changes to this argument if you have non-standard needs.
 - f. Click Save.
6. Log on to the next node and repeat this procedure.

Create a Distributed JMS Server for WebLogic

To configure a WebLogic cluster for high availability, configure a distributed JMS server to manage queues and topics in JMS Modules for the cluster.

Follow these steps:

1. Create an `IM_JMS_filestore` directory on the managed node, for example:
`WL_HOME\user_projects\IM_JMS_filestore`
2. Under Admin Console, go to Services, Messaging, JMS Servers, New JMS Server.
3. Configure the following JMS objects in the Persistent Store section:
 - JMS File Store
 - Name:** `IM_JMS_filestore`
 - Directory:** `pathname/IM_JMS_filestore`

- JMS Server

Server Name: *jms_server_name* (any meaningful name)

Persistent Store: *jms_store_name* (the JMS File Store that you configured)

Target: Set the target for these objects to the server where the JMS service will run. Use the `imjmsmodule` created during the installation.

Note: The required distributed queues and topics were already created for use in the cluster during installation.

4. Repeat steps 1 through 3 for each managed node per server in the cluster.
5. Target `GeneralMonitorCFdeployment` subdeployment to each of the IM JMS servers you created. Associate `GeneralMonitorCFdeployment` with these resources:
 - `iam_im GeneralMonitorCF`
 - `iam_im IMS Events`
 - `iam_im Run time status`
 - `iam_im ServerCommandTopic`
 - `iam_im General Monitor Messages`

Note: The cluster was used as a target of `GeneralMonitorCFdeployment` by the installer, so you need to remove it as a target.
6. To continue the configuration, configure a distributed JMS Server for workflow.

Create a Distributed JMS Server for Workflow

If you are using workflow in your development environment, create additional JMS resources for the WebLogic cluster.

Follow these steps:

1. Create a `WP_JMS_filestore` directory on each managed node, for example:

```
WL_HOME\user_projects\WP_JMS_filestore
```

2. Create a JMS Server for each managed node in the WebLogic Administration Console.

Set the target for each JMS Server to the managed node name, and configure each JMS Server to use the file store you created in step 1.

3. Set `wpConnectionFactory` subdeployment to each of the Workflow JMS servers you created.

`wpConnectionFactory` associates with the resources `queue/wpServAutoActQueue`, `queue/wpUtilQueue`, `queue/wpEventQueue`, and `jms/wpConnectionFactory`.

Note: The cluster was used as a target of `wpConnectionFactory` by the installer, so you need to remove it as a target.

4. Create the Workflow Data Source for the workflow database.

When you create the data source for the cluster, set the target to the cluster, and enable Logging Last Resource.

5. Repeat this procedure for one managed node per server in the cluster.

Configure the Proxy Plug-In

Install the WebLogic proxy plug-in for your Web Server as described in the WebLogic documentation. Then, modify the proxy plug-in file using one of the following procedures:

- [Modify the Plug-in for an IIS Web Server](#) (see page 50)
- [Modify the Plug-in for an iPlanet Web Server](#) (see page 50)

Modify the Plug-in for an IIS Web Server

Follow these steps:

1. Configure proxying by file extension and by path. When you configure proxying by file extension, add an application mapping in the App Mapping tab with the following properties:

- Executable: IISProxy.dll
- Extension: .wlforward

2. Make these changes to the iisproxy.ini file, remove or comment out the WebLogicHost and WebLogicPort entries. For example, comment out these entries:

```
WebLogicHost=localhost  
WebLogicPort=7001
```

3. Add a WebLogicCluster entry in this format:

```
WebLogicCluster="wl_hostname:port,wl_host:port,..."
```

For example, this cluster has two nodes:

```
WebLogicCluster=north.com:7101,south.com:7201
```

Note: Be sure to use host names, not IP addresses. The host names work even if you use dynamic IP addresses.

Modify the Plug-in for an iPlanet Web Server

Follow these steps:

Make these changes to the obj.conf file:

1. Locate each line that includes WebLogicHost and WebLogicPort parameters. For example:

```
Service fn="wl-proxy"  
WebLogicHost="north.com" WebLogicPort="7001" PathTrim="/weblogic"
```

2. Replace these parameters with a WebLogicCluster parameter in this format:
WebLogicCluster="wl_host:port,wl_host:port,..."

For example, this cluster has two nodes:

```
Service fn="wl-proxy" WebLogicCluster="north.com:7001,south.com:7001"  
PathTrim="/weblogic"
```

Note: Be sure to use host names, not IP addresses. The host names work even if you use dynamic IP addresses.

Start the WebLogic Cluster

After you configure managed nodes, you start the WebLogic cluster.

Note: If WebLogic is in production mode, the CA Identity Manager EAR may not auto-deploy the first time you start the application server after an install or upgrade. In this situation, deploy the iam_im.ear manually from the user_projects\applications folder.

Follow these steps:

1. Start one of the SiteMinder Policy Servers that supports CA Identity Manager if you are using SiteMinder.

Note: If you have a Policy Server cluster, only one Policy Server should be running while you create CA Identity Manager directories, create or modify CA Identity Manager environments, or change WorkPoint settings.

2. Start the Node Manager on each managed node.

- For Windows: Navigate to Start, Programs, Oracle WebLogic Server 11gR1, Tools, Node Manager
- For Solaris: Use the startNodeManager.sh script.

A sample startNodeManager.sh script is installed in *WL_HOME*\server\bin. Edit this script for your environment.

3. Use the WebLogic Administration Console to start the managed nodes:
 - a. Navigate to Environment, servers, *managed node*, control, start/stop.
 - b. Repeat for each managed node in the cluster.
4. If you have already installed a SiteMinder Web Agent, start the Web Server where you installed the SiteMinder Web Agent and the application server proxy plug-in.

Verify the Clustered Installation

When you have completed all steps and started the cluster, check that the installation was successful.

Follow these steps:

1. Start the databases used by the CA Identity Manager server.
2. Start any extra Policy Servers and CA Identity Manager nodes that you stopped.
3. Access the Management Console and confirm the following:
 - You can access the following URL from a browser:
`http://im_server:port/iam/immanage`
For example:
`http://MyServer.MyCompany.com:port-number/iam/immanage`
 - The Management Console opens.
 - No errors are displayed in the application server log.
 - You do not receive an error message when you click the Directories link.
4. Verify that you can access an upgraded environment using this URL format:
`http://im_server:port/iam/im/environment`

Configure a Remote Provisioning Manager

If you installed the Provisioning Manager on a different system from the Provisioning Server, you configure communication to the server.

Note: To install the Provisioning Manager, install the CA Identity Manager Administrative Tools on a Windows system.

Follow these steps:

1. Log into the Windows system where you installed Provisioning Manager.
2. Go to Start, Programs, CA, Identity Manager, Provisioning Manager Setup.
3. Enter the hostname of the Provisioning Server.
4. Click Configure.
5. For an alternate Provisioning Server, select the domain name from the pull-down list.

6. Click Ok.

You can now start the Provisioning Manager and see the domain name that you configured.

Install Optional Provisioning Components

Optional Provisioning Components for CA Identity Manager are in the `im-pc-release.zip`. `release` represents the current release of CA Identity Manager.

The ZIP file includes the following:

SPML Manager

Run the SPML installer from the Provisioning Component media (under `\Clients`) to install this component.

SPML Service

Run the SPML installer from the Provisioning Component media (under `\Clients`) to install this component.

Remote Agents

Run the specific agent installer from the Provisioning Component media (under `\RemoteAgent`) to install these components. If you want IPv6 support, you must install your agents.

Password Sync Agents

Run the Password Sync Agent installer from the Provisioning Component media (under `\Agent`) to install this component.

GINA

Run the GINA installer from the Provisioning Component media (under `\Agent`) to install this component.

Vista Credential Provider

Run the Vista Credential Provider installer from the Provisioning Component media (under `\Agent`) to install this component.

Bulk Loader Client/PeopleSoft Feed

Run the Bulk Loader Client installer from the Provisioning Component media (under `\Clients`) to install this component.

JCS SDK

Run the JCS SDK installer from the CA Identity Manager media (under `\Provisioning`) to install this component.

CCI Standalone

Run the CCI Standalone installer from the Provisioning Component media (under \Infrastructure) to install this component.

The CA Identity Manager installer installs all connectors by default. However, in some cases, install an agent on an endpoint system you are managing before you can use the related connector.

Connectors run on the Provisioning Server and communicate with the systems managed by an endpoint. For example, systems running Active Directory Services (ADS) can be managed only if the ADS Connector is installed on the Provisioning Server.

Note: For more information about each connector, see the *Connectors Guide*

More information exists for these components in the following guides:

- Credential Provider (*Administration Guide*)
- GINA Option for Password Reset/Unlock (*Administration Guide*)
- Password Synchronization Agent (*Administration Guide*)
- Connector Xpress (*Connector Xpress Guide*)
- SPML Service (*Provisioning Reference Guide*)
- Agents for use with connectors (*Connectors Guide*)

Chapter 5: Separate Database Configuration

This section contains the following topics:

[Installation Status](#) (see page 55)

[Create Separate Databases](#) (see page 56)

[How to Create Separate Databases](#) (see page 57)

Installation Status

This table shows you where you are in the installation process:

You Are Here	Step in Installation Process
	1. Install prerequisite hardware and software and configure your system as required.
	2. Perform one of these installations: <ul style="list-style-type: none">■ Single node installation■ Installation on an application server cluster
X	3. (Optional) Create separate databases.
	4. (Optional) Install the Report Server.
	5. (Optional) Install alternate Provisioning Directories, alternate Provisioning Servers, and connector servers to support failover and load balancing.

Create Separate Databases

CA Identity Manager requires a relational database to store objects and data for auditing, snapshots (reporting), workflow, and task persistence. When installing CA Identity Manager, all of the database schemas are created automatically when the application server is started. However, for scalability purposes, you may want to create a separate database to replace any one of the existing database schemas initially created by CA Identity Manager during installation.

You can create a database instance for the following:

- Workflow
- Auditing
- Task Persistence
- Object Store
- Snapshots (reporting)
- Archive (task persistence archive)

Important! The Windows default locations for CA Identity Manager database schema files are the following:

- Workflow: See the section, Run the CreateDatabase script.
- Auditing: C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\db
- Task Persistence: C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\db
- Object Store: C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\db
- Snapshots (reporting): C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\imexport\tools\db
- Archive (task persistence archive): C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\db

How to Create Separate Databases

To create separate databases for CA Identity Manager:



Step

1. Create a Microsoft SQL Server or Oracle database instance for CA Identity Manager.
2. Edit the data source.
3. (Optional) Run the SQL scripts.

Create an MS SQL Server Database Instance

Follow these steps:

1. Create a database instance in SQL server.
2. Create a user and grant this user the necessary rights (such as public and db_owner rights) to the database by editing the properties of the user.

Note: The user must have at least select, insert, update, and delete permissions for all of the tables created by the .sql script for creating the database, and must be able to execute all of the stored procedures (if applicable) defined in these scripts. For example, the user must have these permissions on the tables defined in the following default location:

```
C:\Program Files\CA\Identity Manager\IAM Suite\Identity  
Manager\tools\db\taskpersistence\sqlserver\idm_db_sqlserver.sql
```

3. While editing the user's properties, set the database you just created as the default database for the user.
4. Ensure the Authentication setting has a value of SQL Server on the Security tab of the SQL Server Properties dialog for the server where the database is installed.

Note: For complete information about Microsoft SQL Server, see your Microsoft SQL Server documentation.

Create an Oracle Database Instance

Follow these steps:

1. Create a new tablespace.
2. Create a new user.

3. Grant the user rights to the new database.
 - Create/alter/drop tables
 - Create/alter/drop view
 - Create/alter/drop INDEX
 - Create/replace/drop stored procedures
 - Create/replace/drop functions
 - Create/drop sequence
 - Create/replace/drop triggers
 - Create/replace/drop types
 - Insert/select/delete records
 - CREATE SESSION / connect to database
4. Give DBA rights to the user.

Note: For complete information about Oracle, see your Oracle documentation.

Edit the Data Source

Follow these steps:

1. Within the WebLogic Server Administration Console, open the appropriate data source descriptor.

The JNDI names for the data source descriptors are as follows:

- Task Persistence: iam/im/jdbc/jdbc/idm
 - Workflow: iam/im/jdbc/jdbc/weblogic.jdbc.jts.WPDS
 - Auditing: iam/im/jdbc/auditDbDataSource
 - Snapshots: iam/im/jdbc/jdbc/reportsnapshot
 - Object Store: iam/im/jdbc/jdbc/objectstore
 - Archive: iam/im/jdbc/jdbc/archive
2. Change the DatabaseName, User, and Password in the data source descriptor to the appropriate values for the new database.

The database schema (SQL scripts) will be automatically applied when you restart CA Identity Manager.
 3. Disable Support Global Transactions on the data source.

The database schema (SQL scripts) are automatically applied when you restart CA Identity Manager or you can run the scripts to apply the changes now.

Run the SQL Scripts

SQL scripts are automatically run against the databases when CA Identity Manager starts, however if you want to run the SQL scripts yourself, perform the following steps before restarting the application server:

These scripts are installed with the CA Identity Manager Administrative Tools.

Follow these steps:

1. Do one of the following:
 - Microsoft SQL Server: Open the Query Analyzer tool and select the script you need.
 - Oracle: Open the SQL prompt for the script you need.
2. Select one of the following scripts (shown with the default Windows locations) depending on what the database was created for:
 - Task Persistence:
 - Microsoft SQL Server: C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\db\taskpersistence\sqlserver\idm_db_sqlserver.sql
 - Oracle on Windows: C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\db\taskpersistence\oracle9i\idm_db_oracle.sql
 - Oracle on UNIX:
/opt/CA/IdentityManager/IAM_Suite/Identity_Manager/tools/db/taskpersistence/oracle9i/idm_db_oracle.sql
 - Auditing:
 - Microsoft SQL Server: C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\db\auditing\sqlserver\ims_mssql_audit.sql
 - Oracle on Windows: C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\db\auditing\oracle\ims_oracle_audit.sql
 - Oracle on UNIX:
/opt/CA/IdentityManager/IAM_Suite/Identity_Manager/tools/db/auditing/oracle/ims_oracle_audit.sql

- Snapshots:
 - Microsoft SQL Server: C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\imrexporth\db\sqlserver\ims_mssql_report.sql
 - Oracle on Windows: C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\imrexporth\db\oracle\ims_oracle_report.sql
 - Oracle on UNIX:
/opt/CA/IdentityManager/IAM_Suite/Identity_Manager/imrexporth/db/oracle/ims_oracle_report.sql
 - Workflow: See the Section "Run the SQL Scripts for Workflow."
3. Run the script file.
 4. Verify that no errors appeared when you ran the script.

Run the Script for Workflow

CA Identity Manager includes SQL scripts for setting up a new workflow database instance.

To run the CreateDatabase script:

Follow these steps:

1. Add the path to the sqljdbc.jar to the DB_CLASSPATH attribute in the CreateDatabase.bat or .sh script before you run it.
2. From a command prompt, run CreateDatabase.bat or sh. The default location for this script is:

Windows: C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\Workpoint\install.

UNIX:

/opt/CA/IdentityManager/IAM_Suite/Identity_Manager/tools/Workpoint/install.

A command prompt window and the WorkPoint application open.

3. Select the database type from the drop-down.

4. Use the following guidelines to fill in fields in the configuration utility:
 - For the JDBC Class parameter, enter:
Oracle: oracle.jdbc.driver.OracleDriver
SQL Server: com.microsoft.sqlserver.jdbc.SQLServerDriver
 - For the JDBC URL, enter:
Oracle: jdbc:oracle:thin:@*wf_db_system*:1521:*wf_oracle_SID*
SQL Server: jdbc:sqlserver://*wf_db_system*:1433; databaseName=*wf_db_name*
 - For the Database User ID parameter, enter the workflow user you created when creating the workflow database.
 - For the Password parameter, enter the password you created for the workflow user.
 - For the Database ID, enter WPDS
5. Accept the default check box selections.
6. Click the Initialize button.

When the configuration is complete, a message that resembles the following appears in the Command Prompt window:
The create database process finished with 0 errors.
7. Restart the application server.

Chapter 6: Report Server Installation

This section contains the following topics:

- [Installation Status](#) (see page 63)
- [Reporting Architecture](#) (see page 64)
- [Reporting Considerations](#) (see page 65)
- [Hardware Requirements](#) (see page 65)
- [How to Install the Report Server](#) (see page 66)
- [Verify the Reporting Installation](#) (see page 75)
- [Silent Installation](#) (see page 75)
- [How to Uninstall Reporting](#) (see page 76)

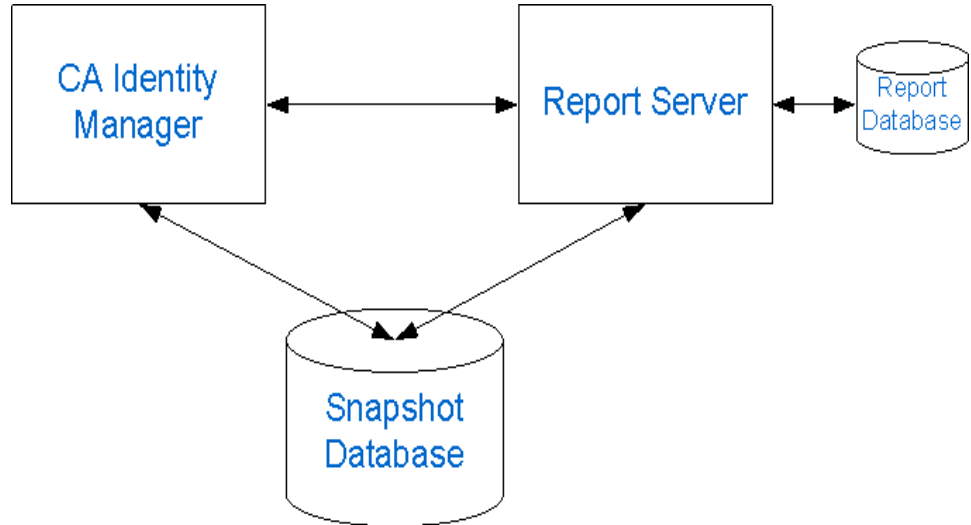
Installation Status

The following table shows you where you are in the installation process:

You Are Here	Step in Installation Process
	1. Install prerequisite hardware and software and configure your system as required.
	2. Perform one of these installations: <ul style="list-style-type: none">■ Single node installation■ Installation on an application server cluster
	3. (Optional) Create separate databases.
X	4. (Optional) Install the Report Server.
	5. (Optional) Install alternate Provisioning Directories, alternate Provisioning Servers, and connector servers to support failover and load balancing.

Reporting Architecture

In CA Identity Manager, the reporting setup requires the three major components in the following diagram:



Note: The Snapshot Database in this illustration graphic could also be the Audit Database or Workflow Database.

Report Server

Also known as CA Business Intelligence, this server generates reports, communicating directly with CA Identity Manager and the Snapshot Database.

Report Database

The database where the CA Report Server (Business Objects) stores its own data.

CA Identity Manager

CA Identity Manager allows you to export CA Identity Manager object data to the Report Database.

Snapshot Database

A separate database containing the snapshot data of objects in CA Identity Manager

Important! The Report Server uses Business Objects Enterprise. If you already have a Report Server in your environment and want to use it with CA Identity Manager, the minimum version required by CA Identity Manager is CA Business Intelligence 3.2.

Reporting Considerations

Consider the following before installing the Report Server:

- Installing the Report Server can take up to two hours.
- If JBoss is installed on the computer where you are installing the Report Server, port conflicts may occur. If Apache Tomcat is the web server, you can locate JBoss port information in the following files:

- jboss-service.xml

Default location: *jboss_home\server\server_configuration\conf*

- server.xml

Default location:

jboss_home\server\server_configuration\deploy\jboss-web.deployer

jboss_home

Specifies the JBoss installation path.

server_configuration

Specifies the name of your server configuration.

Default value: default

Note: Restart JBoss if you make changes to either of these files.

Hardware Requirements

The hardware requirements for the Report Server are based on the operating system:

- For UNIX, see the "Minimum Hardware Requirements" section in *installer-media-root-directory/Docs/supported-platforms-SP3-Solaris.pdf*.
- For Windows, see the "Minimum Hardware Requirements" section in *installer-media-root-directory/Docs/supported-platforms-SP3-Windows.pdf*.

Note: For more information about supported OS versions and databases, see the [Business Objects website](#).

How to Install the Report Server

The following checklist describes the steps to install the reporting feature of CA Identity Manager:

✓	Step
	1. Review the report pre-installation checklist.
	2. Gather reporting information.
	3. Open ports required by the Report Server.
	4. Install the Report Server (CA Business Intelligence)
	5. Run the Registry Script.
	6. Copy the JDBC JAR files.
	7. Deploy the default reports.

Note: For more information about configuring reporting after the installation, see the *Administration Guide*.

Reports Pre-Installation Checklist

Print the following checklist to be sure that you meet the minimum system and database requirements before installing the Report Server:

- Be sure that the Windows or UNIX system on which you are installing the Report Server meets the minimum system requirements.
- Be sure that you use MySQL for the Report Database.
- If you create a database instance for the Snapshot Database, run the following scripts on the new database:
 - Microsoft SQL: C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\imrlexport\db\sqlserver\ims_mssql_report.sql
 - Oracle: C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\imrlexport\db\oracle\ims_oracle_report.sql

To execute these scripts, the database user needs DBA, connect, and resource roles and system privileges to create tables, indexes, sessions and views with global query rewrite permission.

- On UNIX, set the following parameters as global in the local .profile files:
 - ORACLE_BASE: the top-level directory where Oracle is installed.
 - ORACLE_HOME: the path to the Oracle root directory under ORACLE_BASE
 - LD_LIBRARY_PATH: \$ORACLE_HOME/lib32:\$ORACLE_HOME/lib
If Oracle is a 64-bit installation, use lib32. Use SQL Plus to connect to the oracle database instance to determine if it is a 64-bit installation.
 - ORACLE_SID: the SID name used in the tnsnames.ora file.
 - JAVA_HOME: the path to the Java root directory. Business Objects installs a JDK in the following location:
report_server_home/jre
Note: JDK 1.5 is the minimum version supported for reports.
 - PATH:
\$LD_LIBRARY_PATH:\$JAVA_HOME:\$JAVA_HOME/bin:\$ORACLE_HOME/bin:\$PATH
 - LC_ALL: en_US.UTF-8
Note: Be sure that the CASHCOMP environment variable is empty.
- On UNIX systems:
 - 3 GB of free space is required under /tmp.
 - You need access to a non-root user account to install the Report Server.
This user should have a home directory in the local file system. For example, the following command creates a user with a local home directory:
useradd -u 505 -g 0 -d /export/home/cabi -m cabi
Also, add the non-root user to the oinstall group and any group for which the root user is a member.
 - Enter the database server name in the /etc/hosts file if the database server is not on the same system as the Report Server. (If you have DNS, this step is unnecessary.)
 - If you encounter problems, inspect the SDK.log under these locations:
/opt/CA/SharedComponents/CommonReporting3/ca-install.log
/opt/CA/SharedComponents/CommonReporting3/CA_Business_Intelligence_InstallLog.log

Reporting Information

Record the following information you need during the Report Server installation:

Field Name	Description	Your Response
Administrator Password	Defines the password to log in to the Business Objects Infoview console.	
User Name	Identify the username for the Report Database.	
Password	Identify the administrative password credentials for the Report Database.	
Pre-Installed Tomcat Information	Identify the path and port numbers for any previous installation of Tomcat. If you do not want to use a previous installation of Tomcat, Report Server installer can install Tomcat.	
Tomcat Port Numbers	The Tomcat connection, redirect, and shutdown ports. Note: If you install the Report Server on the same system as the CA Identity Manager, be sure that the Tomcat connection port does not conflict with the port number you specified for the application server URL when installing the CA Identity Manager.	

Open Ports for the Report Server

For CA Identity Manager and the Report Server to communicate successfully, the following ports must be opened.

- The Central Management Server (CMS) port: 6400
- The Report Server web application port:
 - JBoss/Tomcat: 8080
 - WebLogic: 7001
 - WebSphere: 9080

Note the following:

- This port is not the application server port for the CA Identity Manager Server.
- The web server ports are provided during the Report Server installation. If you use different ports during the installation, those ports must be opened through the firewall when the Report Server is deployed in production.
- The Report Server does not connect to the application server used by CA Identity Manager.
- All database ports that CA Identity Manager has configured for the reporting and auditing databases. The CA Identity Manager Server must send database information to the Report Server, so these ports must be opened. For example, if the Snapshot Database is an Oracle database, the Report Server needs the Oracle port open outbound.

Install the CA Report Server

You can install the Report Server on a supported Windows or UNIX system. The following sections detail how to install the Report Server using a Windows and UNIX installation wizard.

Important! For a production environment, install the Report Server on a separate system from the system with the CA Identity Manager Server. If you want to install the Report Server on the same system as the CA Identity Manager Server for demonstration purposes, do not choose the default tomcat ports 8080 and 1099 if JBoss is using those ports.

Note: CA Identity Manager supports CA Business Intelligence 3.2 (which is Business Objects XI 3.0 SP3).

Run the Windows Installer

Install the Report Server using the Windows installation wizard (Disk1\InstData\VM\Install.exe) found on the Report Server media.

Note: The Report Server is available for download on the [CA Support site](#), under CA Identity Manager product downloads.

Following are the steps to install report server:

Follow these steps:

1. Exit all applications.
2. Download the Report Server and unzip it.
3. Navigate to Disk1\InstData\VM and double-click the installation executable.

The installation wizard starts.

4. Use the gathered reporting information to install the Report Server.

Note the following:

- Select a New install during installation. This choice helps ensure that you use MySQL as the Report Database. If you must set non-default ports to avoid port conflicts, select a Custom install, but be sure to select MySQL for the Report Database.
- Select Tomcat as the web server, deselecting IIS.
- If you are installing the Report Server on the same system as CA Identity Manager, select the Tomcat connection port carefully. Verify that it does not conflict with the port number you specified for the application server URL when installing CA Identity Manager. However, we recommend installing the Report Server on a different system than the CA Identity Manager Server in a production environment.

5. Review the installation settings and click Install.

The Report Server is installed.

Run the UNIX Installer

Add execute permissions to the install file by running the following command:

```
chmod+x /ca-iamreportserver-12.5-solaris/cabiinstall.sh
```

Important! The installer may crash if executed across different subnets. To avoid this problem, install the Report Server directly on the host system.

To install the report server:

Follow these steps:

1. Log in as the non-root user you created to install the Report Server.
2. Exit all applications.
3. Download the Report Server and untar it.

Note: The Report Server is available for download on the CA Support site, under CA Identity Manager product downloads.

4. Open a command window and navigate to where the install program is located.
5. Enter the following command:

```
/ca-iamreportserver-12.5-solaris/cabiinstall.sh console
```

6. Use the gathered reporting information to install the Report Server.

Note the following:

- Select a New install during installation. This choice helps ensure that you use MySQL as the Report Database. If you set non-default ports to avoid port conflicts, select a Custom install, but be sure to select MySQL for the Report Database.
- Select Tomcat as the web server.
- The installer installs the Report Server to /opt/CA/SharedComponents/CommonReporting3. Specifying another location does not change the installation location. So the /opt/CA directory must have non-root user permissions or the installation fails.

7. Review the installation settings and click Install.

The Report Server is installed.

Run the Registry Script

For CA Identity Manager to change data sources for reports in the Report Server, run the mergeConnection script.

Note: On a 64-bit system, omit this procedure. The Report Server is a 32-bit application, so you use the 32-bit side of the registry. Open REGEDT32 directly from SysWOW64, and create the MergeConnectionProperties key with the Type REG_SZ and value Yes. Create the key in this location:

```
@HKEY_LOCAL_MACHINE\SOFTWARE Wow6432Node\Business Objects\Suite 12.0\Crystal Reports\DatabaseOptions
```

On Windows, perform the following steps:

Follow these steps:

1. Copy the mergeConnection script from the system with the CA Identity Manager Admin toolkit to the Report Server. On the system with the toolkit, the default location for this script is as follows:

```
C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\ReportServerTools
```
2. Run the mergeconnections_3.0.reg script and respond to the prompts that appear.
3. Click Start, Program Files, CA, Report Server, Central Configuration Manager.
4. Start all services, including Tomcat and the BO Server service.

On UNIX, perform the following steps:

Follow these steps:

1. Check for Windows control characters in the mergeconnections script.

If you downloaded the software using FTP in binary mode, these characters do not appear in this script. If you used another download method, use the dos2unix command to remove these characters.

2. Copy the mergeconnections_3.0.cf script from the system with the CA Identity Manager Admin toolkit to the Report Server. On the system with the toolkit, the default location for this script is as follows:

```
/opt/CA/IdentityManager/IAM_Suite/Identity_Manager/tools/ReportServerTools
```

On the Report Server system, place the script in this location:

```
installation-directory/bobje/enterprise120/generic
```

3. Source in the environment variables for BusinessObjects Enterprise, as follows:

```
source installation-directory//bobje/setup/env.sh
```

4. Run the following script, as follows:

```
./configpatch.sh mergeconnections_3.0.cf
```

Select 1 as the option when prompted.

5. Restart crystal processing servers as follows:

- a. Log in as the non root user you used to install the Report Server.

- b. Issue these commands:

```
cd /opt/CA/SharedComponents/CommonReporting3/bobje
./stopservers
./startservers
```

Copy the JDBC JAR Files

Follow these steps:

1. Navigate to the jdbcdrivers folder where the CA Identity Manager Admin toolkit is installed. The default location is as follows:
 - Windows: C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\lib\jdbcdrivers
 - UNIX:
/opt/CA/IdentityManager/IAM_Suite/Identity_Manager/tools/lib/jdbcdrivers
2. Copy ojdbc14.jar (for Oracle) or sqljdbc.jar (for SQL Server) to the following location:
 - Windows: CA\SC\CommonReporting3\common\4.0\java\lib
 - UNIX: /opt/CA/SharedComponents/CommonReporting3/bobje/java/lib
3. Open the CRConfig.xml file, found in the following location:
 - Windows: CA\SC\CommonReporting3\common\4.0\java
 - UNIX: /opt/CA/SharedComponents/CommonReporting3/bobje/java
4. Add the location of the JDBC JAR files to the Classpath. For example:
 - Windows: <Classpath>report_server_home\common\4.0\java\lib\sqljdbc.jar; report_server_home\common\4.0\java\lib\ojdbc14.jar ...</Classpath>
 - UNIX:
<Classpath>\${BOBJEDIR}/java/lib/sqljdbc.jar:\${BOBJEDIR}/java/lib/ojdbc14.jar: ...</Classpath>
5. Save the file.
6. Restart the Report Server as follows:
 - For Windows, do the following:
 - a. Go to Start, Program Files, BusinessObjects XI 3.1, BusinessObjects Enterprise, Central Configuration Manager.
The Central Configuration Manager opens.
 - b. Select all services and click Restart.
 - For UNIX, do the following:

```
cd /opt/CA/SharedComponents/CommonReporting3/bobje
./stopservers
./startservers
```

Deploy Default Reports

CA Identity Manager comes with default reports you can use for reporting. BIconfig is a utility that uses a specific XML format to install these default reports for CA Identity Manager.

If you are upgrading from a previous version of the Report Server, first remove the CA Identity Manager Reports folder using the Central Management Console. The existing reports do not work. You can then deploy default reports for the new Report Server.

Important! This process updates all default reports. If you customized any default reports, be sure to back them up before performing the update.

Follow these steps:

1. Gather the following information about the Report Server:
 - Hostname
 - Administrator name
 - Administrator password
 - Snapshot database type
2. Copy all content from the Reports installer-root-directory/disk1/cabi/biconfig folder to the *im_admin_tools_dir/ReportServerTools* folder.
3. Set the JAVA_HOME variable to the 32-bit version of the JDK1.5 you installed.
4. Run one of the following commands:
 - For a Microsoft SQL Snapshot Database:

```
biconfig -h "hostname" -u "administrator_name" -p "administrator_password" -f "ms-sql-biar.xml"
```
 - For an Oracle Snapshot Database:

```
biconfig -h "hostname" -u "administrator_name" -p "administrator_password" -f "oracle-biar.xml"
```
5. View the biconfig.log file found in the location where you ran the command in Step 4.
6. Verify that the default reports installed successfully. Inspect the end of the log file for status; a successful install appears as follows:

```
ReportingDeployUtility - Reporting utility program terminated and return code = 0
```

BusinessObjects XI 3.x Post-Installation Step

If you run report tasks and receive a "Server Input% not found or server may be down" error message, perform this procedure.

Follow these steps:

1. Log in to the Central Management Console using the username and password you entered during the Report Server installation.
2. Under the main dashboard, select Servers.
3. Under the Server Name column, search for Input File Repository server and double-click the name.
4. In the Server Name text box, enter the following:
`Input.report_server_hostname.InputFileRepository`
5. Click Save.
6. Under the Server Name column, search for Output File Repository server and double-click the name.
7. In the Server Name text box, enter the following:
`Output.report_server_hostname.OutputFileRepository`
8. Click Save.
9. Restart *all* the servers by selecting the servers in the Server List.

Verify the Reporting Installation

To verify that reporting has been installed correctly, do the following:

- In the Central Management Console, be sure that all services are running.
- Be sure that your Report Database is running.

Note: For more information on configuring reporting after the installation, see the *Administration Guide*.

Silent Installation

For more information about silent installation of the Report Server, see the *CA Business Intelligence Installation Guide*. The Report Server documentation is available in one of the following locations when you extract the Report Server installer files:

- **Windows:** `install_root_directory\Docs\CABI_Impl_ENU.pdf`
- **UNIX:** `install_root_directory/Docs/ENU/CABI_Impl_ENU.pdf`

How to Uninstall Reporting

You uninstall the Report Server when it is no longer required on the system. For more information, see the CA Business Intelligence documentation.

After uninstalling the Report Server, [Remove Leftover Items](#) (see page 76).

Remove Leftover Items

The following sections detail the items you must manually remove after uninstalling the Report Server to keep the system as clean as possible and to prevent a reinstallation of the Report Server to the same system from failing.

Remove Windows Items

Follow these steps:

1. Navigate to *report_server_home*.
report_server_home specifies the Report Server installation path.
2. Open the BusinessObjects Enterprise 12 folder, and delete the following folders:
 - Data
 - java
 - Logging
 - Samples
 - Web Content
 - Web Services
 - win32x86
3. Return to the Report Server folder.
4. Open the common folder.
5. Open the 4.0 folder, and delete the following folders:
 - crystalreportviewers115
 - java

You have completed removing leftover items.

Remove UNIX Items

Following are the steps to remove leftover Report Server items on UNIX:

Follow these steps:

1. Navigate to the following location from a command prompt:
 /opt/CA/SharedComponents
2. Delete the CommonReporting3 folder.

You have completed removing leftover items.

Chapter 7: High Availability Provisioning Installation

Based on the guidelines in this chapter, you implement high availability for provisioning components by installing alternate Provisioning Servers and Provisioning Directories, and connector servers for C++ and Java connectors.

This section contains the following topics:

[Installation Status](#) (see page 79)

[How to Install High Availability Provisioning Components](#) (see page 80)

[Install Provisioning Directories](#) (see page 80)

[Provisioning Servers](#) (see page 84)

[Connector Servers](#) (see page 87)

[Failover for Provisioning Clients](#) (see page 97)

Installation Status

The following table shows you where you are in the installation process:

You Are Here	Step in Installation Process
	1. Install prerequisite hardware and software and configure your system as required.
	2. Perform one of these installations: <ul style="list-style-type: none">■ Single node installation■ Installation on an application server cluster
	3. (Optional) Create separate databases.
	4. (Optional) Install the Report Server.
X	5. (Optional) Install alternate Provisioning Directories, alternate Provisioning Servers, and connector servers to support failover and load balancing.

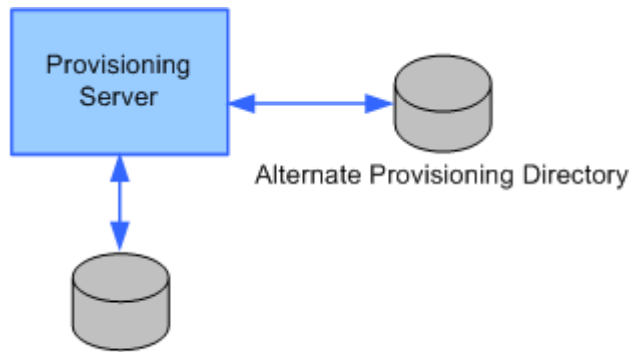
How to Install High Availability Provisioning Components

The following table describes the steps involved in installing provisioning components for high availability:

✓	Step
	1. Install primary and alternate Provisioning Servers and provisioning directories for load balancing and failover.
	2. Install several connector servers for load balancing and failover.
	3. Enable clients of the provisioning server to fail over.

Install Provisioning Directories

To support failover, you can install primary and alternate Provisioning Directories. For example, you may have two systems, one with the Provisioning Server on it and a second system with the primary Provisioning Directory. A third system has the alternate Provisioning Directory. If the primary Provisioning Directory fails, the alternate Provisioning Directory is assigned automatically.



Primary Provisioning Directory

You install alternate Provisioning Directories if they were not configured during the installation.

Follow these steps:

1. Install the primary Provisioning Directory using the Provisioning Directory installer from where you unpacked the install package.

- **Windows:**

Unpacked-Install-Package\Provisioning\Provisioning Directory\setup.exe

- **UNIX:**

Unpacked-Install-Package/Provisioning/ProvisioningDirectory/setup

If you have already installed a primary Provisioning Directory during the installation, you can omit step 1.

2. Perform the prerequisite configuration for the new Provisioning Directories.
3. Install one or more alternate Provisioning Directories.

Perform Prerequisite Configuration for New Provisioning Directories

You use the High Availability Configuration command before you use the Provisioning Directory installation program.

Follow these steps:

1. Log into the system where the primary Provisioning Directory is installed.
2. On a command line prompt, navigate to the highavailability sub-directory where you unpacked the install package. For example:

Installed-Provisioning-Directory-location\Provisioning\Provisioning Directory\highavailability

3. Enter this command:
`highavailability.bat`

The command displays a summary of the current configuration: the domain name, the hostname of each Provisioning Server and Provisioning Directory, and which one is the Primary Provisioning Directory.

4. Respond to the prompts to provide the hostnames required for each alternate Provisioning Directory that you want to add.

If you plan to install alternate Provisioning Servers, you can add their hostnames now by responding to the prompts.

5. Log in to all other Provisioning Directory and Provisioning Servers and repeat steps 2 through 4.

Install Alternate Provisioning Directories

Once you have performed the prerequisite configuration required, you can install alternate Provisioning Directories.

Follow these steps:

1. Log in as a Local Administrator (for Windows) or root (for Solaris) into the system where you plan to install the alternate Provisioning Directory.
2. Be sure that CA Directory is installed on this system.
3. Copy custom schema files to the %DXHOME%/config/schema directory if any of the following is true for the primary Provisioning Directory:
 - COSX (etrust_cosx.dxc) has been modified
 - LDA connector (etrust_lda.dxc) is installed
 - A custom C++ connector schema has been created

The Provisioning Directory installation checks the %DXHOME%/config/schema directory for extra schema files named etrust_*.dxc, and adds them to the group schema file, impd.dxc. If the custom schema files are not copied locally, data replication between the Provisioning Directories fails.

4. Run the Provisioning Directory installer from where you unpacked the install package.
 - **Windows:**
Unpacked-Install-Package\Provisioning\Provisioning Directory\setup.exe
 - **UNIX:**
Unpacked-Install-Package/Provisioning/ProvisioningDirectory/setup
5. Select High Availability, and respond to the questions about the hostnames for systems where other Provisioning Directories are installed and which system is the primary Provisioning Directory.

6. Respond to other questions using the same answers given during the primary Provisioning Directory installation for:
 - Deployment Size
 - Shared Secret
 - FIPS key
7. Respond to this question based on how and when you want to replicate data from the Primary Provisioning Directory:
Do you want to start replication to the Provisioning Directory.

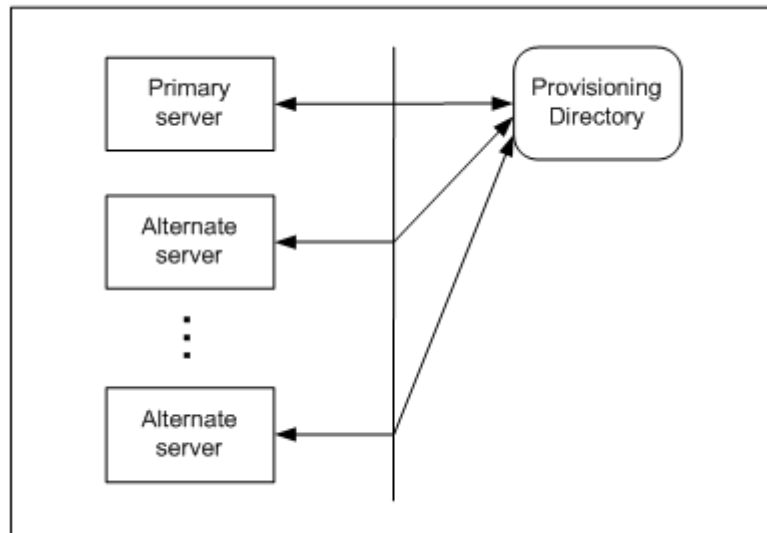
If you are upgrading from a previous release, you may have a significant amount of data to replicate. You should deselect the checkbox if you do not want replication to start at this time. After the installation, you would then need to copy an LDIF data dump or online backup files from an existing Provisioning Directory and load the data or start the DSAs manually, which will start automatic replication.

Important! If alternate Provisioning Directory installation failed, data replication may have occurred before the failure. If so, the master and alternate Provisioning Directories have a record that replication occurred. If you now reinstall the alternate Provisioning Directory, that data is not replicated again. Instead, use the High Availability Configuration command on the primary and alternate Provisioning Directories to remove and add back the alternate Provisioning Directory before you reinstall it.

Provisioning Servers

Multiple Provisioning Servers share the workload of a provisioning domain, providing performance, scalability, and high availability. The first Provisioning Server installed is called the primary Provisioning Server. Additional servers are called alternate Provisioning Servers.

As shown in this illustration, you can configure multiple alternate Provisioning Servers for one primary Provisioning Server.



In this illustration, three Provisioning Servers are configured to serve the provisioning domain. All servers are configured to use the Provisioning Directory of the primary Provisioning Server installation.

Router DSA for the Provisioning Server

The Provisioning Server communicates through a CA Directory router DSA, and not directly to the Provisioning Directory. The router DSA, `imps-router`, is installed with the Provisioning Server installer. This DSA accepts requests from the Provisioning Server and routes them to the appropriate Provisioning Directory DSA (`impd-co`, `impd-main`, `impd-inc`, or `impd-notify`) depending on the prefix.

In a high-availability installation, the `imps-router` DSA has connection information for Provisioning Directory DSA on at least one alternate Provisioning Directory system. If a primary Provisioning Directory DSA becomes unavailable, the router DSA attempts to use an alternate DSA.

The `imps-router` DSA has been assigned ports 20391, 20391, 20393 (for address, SNMP, and console respectively).

Note: In previous releases of this software, the etrustadmin DSA used port 20391. Any connections to 20391 on the Provisioning Directory system fail unless the Provisioning Directory and Provisioning Server are on the same system. Therefore, reroute these connections to port 20391 on the Provisioning Server system.

For CA Directory DSAs running on one system to communicate with DSAs on another system, they must have connection information for each other. So during Provisioning Directory installation, you identify each Provisioning Server that can connect to it.

Install Provisioning Servers

To support failover, you can install primary and alternate Provisioning Servers. If you have already installed a Provisioning Server, you can omit step 1.

Follow these steps:

1. Install the primary Provisioning Server using the Provisioning Server installer from where you unpacked the install package.
 - **Windows:**
`Unpacked-Install-Package\Provisioning\Provisioning Server\setup.exe`
 - **UNIX:**
`Unpacked-Install-Package/Provisioning/ProvisioningServer/setup`
2. Perform prerequisite configuration for the new Provisioning Servers.
3. Install one or more alternate Provisioning Servers.
4. Enter the alternate Provisioning Server host and port number when you enable provisioning in the CA Identity Manager Management Console. For details, see the *Configuration Guide*.

Perform Prerequisite Configuration for New Provisioning Servers

To configure knowledge files, you use the High Availability Configuration command on each system with a Provisioning Directory.

Follow these steps:

1. Log into the system where the primary Provisioning Directory is installed.
2. On a command line prompt, navigate to the highavailability sub-directory where you unpacked the install package. It is a sub-directory of where you install the Provisioning Directory or Provisioning Server. For example:

```
cd C:\\Program Files\\Provisioning Directory\\highavailability
```

3. Enter this command:

```
highavailability.bat
```

The command displays a summary of the current configuration: the domain name, and the hostname of each Provisioning Server and Provisioning Directory.

4. Respond to the prompts to provide the hostnames required for each Provisioning Server that you want to add.

If you plan to also install alternate Provisioning Directories, you can add their hostnames now by responding to the command prompts.

5. Log in to each system that will host a Provisioning Directory and repeat Steps 2 through 4.

Install Alternate Provisioning Servers

Once you have performed the prerequisite configuration involving the `highavailability` command, you can install one or more Provisioning Servers.

Follow these steps:

1. Log in as a Local Administrator (for Windows) or root (for Solaris) on each system that will host an alternate Provisioning Server.
2. Make sure that CA Directory is installed on this system.
3. Copy custom schema files to the `%DXHOME%/config/schema` directory if any of the following is true for the primary Provisioning Directory:
 - COSX (`etrust_cosx.dxc`) has been modified
 - LDA connector (`etrust_lda.dxc`) is installed
 - A custom C++ connector schema has been created

The Provisioning Directory installation checks the `%DXHOME%/config/schema` directory for extra schema files named `etrust_*.dxc`, and adds them to the group schema file, `impd.dxc`. If the custom schema files are not copied locally, the Provisioning Server will not route any custom schema.

4. Run the Provisioning Server installer from where you unpacked the install package.
 - **Windows:**
`Unpacked-Install-Package\Provisioning\Provisioning Server\setup.exe`
 - **UNIX:**
`Unpacked-Install-Package/Provisioning/ProvisioningServer/setup`
5. Complete the instructions in the installer dialog boxes.

You can select a check box during installation to configure Provisioning Directory high availability. If you choose this option, you must supply the hostnames of any alternate Provisioning Directories and specify the primary Provisioning Directory.

Configure Provisioning Server Failover

For CA Identity Manager to distinguish the primary from the alternate Provisioning Server, you create server definitions in JIAM in the Management Console. You create these definitions in the directory object associated with the CA Identity Manager directory for your environment. During initialization, CA Identity Manager reads any failover server definitions defined in that object, adding them to the JIAM failover server definitions.

Note: For details on setting up server definitions, see the *Configuration Guide*.

Connector Servers

With the Connector Server Framework (CSF), you can run multiple Connector Servers and configure the Provisioning Servers to communicate with Connector Servers in specific contexts.

As a result, the Provisioning Server can:

- Support Connector Servers on different platforms to manage endpoint types that are unavailable on the platform where the Provisioning Server is installed.
- Communicate with multiple Connector Servers, which each manage a different set of endpoint types or endpoints. Therefore, endpoint types or endpoints can be managed on a parallel basis to achieve load balancing.

Connector Server Framework

The use of several Connector Servers is called the Connector Server Framework. The Connector Server Framework has two important characteristics:

- Scalability - multiple connector servers may share the load of working on a set of endpoints.

For example, a lengthy exploration of an endpoint on one connector server does not influence the ability to operate on an endpoint that is being controlled by another Connector Server

- Communication channel security - communication between Provisioning Server and connector server is encrypted using TLS.

If an endpoint type uses a proprietary protocol to communicate between the connector server and endpoints of that protocol, the extent of use of the proprietary protocol may be limited to a local network, or even to just local communication inside one server.

When deciding on an implementation strategy, consider these factors so that you protect the Connector Servers in your organization against unauthorized access:

- The Connector Server may be configured to disclose passwords in clear text.

Any person with access to the system running the Connector Server and with sufficient privileges to modify the configuration of the Connector Server and to restart the Connector Server can make the Connector Server log passwords appear in clear text.

The Connector Server is based on the open source slapd process. The instructions to make a slapd process log incoming passwords in clear text are in the public domain, for example, by looking at the manual pages at <http://www.openldap.org>

- The Connector Server is only protected by a bind password.

The Connector Server trusts any client who connects to it and is able to provide the proper credentials, such as Bind DN and Bind Password. The Connector Server does not know if the connection comes from a Provisioning Server or not. Any user with internal access may disclose the bind password, then connect to the Connector Server from another server, and so have administrator privileges over the endpoints controlled by the Connector Server.

- The Connector Server is not protected against brute force attacks on the bind password

Unlike the Provisioning Server, the Connector Server is not protected against repeated attempts at binding with different passwords. An attacker may therefore try to guess the password by brute force attack. Should an attacker succeed in guessing the bind password, then the road is open for the attacker to control the endpoints under control of the Connector Server.

For these reasons you are advised to design your implementation such that

- The same organizational unit is responsible for administrative access to all Provisioning Servers and connector servers.
- Your connector servers are suitably protected by firewalls or similar such that the ports may not be reached by unauthorized means.
- The ability to connect to Provisioning Servers and connector servers on non-TLS ports should be disabled in your production environments.

Load-Balancing and Failover

Failover and load-balancing of connector requests is achieved by each provisioning server based on the CSF configuration defined using `csconfig` or Connector Xpress.

Each provisioning server consults the CSF configuration that applies to it and determines which Connector Servers it should use to access each endpoint or endpoint type. Failover and load-balancing occur when there are multiple connectors servers configured to serve the same endpoint or endpoint type.

Failover and load-balancing are unified and cannot be controlled separately. One cannot indicate that a particular connector server is to remain idle except when needed for failover. Instead, a provisioning server that is configured to use two or more connector servers interchangeably will distribute work between these connector servers (load balancing) during normal operation. Should one or more of the Connector Server become unavailable, the remaining connector servers will provide failover support for the unavailable connector servers.

Reliability and Scalability

With the Connector Server Framework (CSF), the Connector Server high availability features increase reliability and scalability.

Reliability is enhanced by having multiple Connector Servers serve a Provisioning Server, so it can continue to function if one or more Connector Servers become unavailable.

For example, if one Connector Server manages the UNIX endpoint type and another manages the Active Directory endpoint type; and the Active Directory Connector Server becomes unavailable, the Provisioning Server can still manage the UNIX endpoint types.

Scalability is achieved by having a mechanism to add more Connector Servers to manage an increasing amount of endpoint types or endpoints. For example, if the number of endpoint types increases to 100, the Provisioning Server can be configured to have 20 Connector Servers, with each Connector Server managing five endpoint types. Or configure 20 Connector Servers with each Connector Server managing overlapping sets of 10 endpoint types to allow for failover and load balancing behaviors as well.

Multi-Platform Installations

The Connector Server Framework is the configuration of Connector Servers that exist on multiple systems, which could be Windows or Solaris systems.

The following use cases are supported:

- Use Case 1
 - Provisioning Server and connector server installed on a Solaris system.
 - A second Connector Server installed on a Windows system, serving the non-multi-platform connectors.
- Use Case 2
 - Provisioning Server and connector server installed on a Windows system.
 - A second Connector Server installed on Solaris system, serving the multi-platform connectors.
 - A third Connector Server installed on a remote Windows system, serving the other connectors.
- Use Case 3
 - Provisioning Server installed on a Windows or Solaris system and a Connector Server installed on the same system.
 - Multiple additional Connector Servers installed on Windows or Solaris systems, serving as endpoint agents. This scenario is important for cases where the connector is using a proprietary or un-secured communication channel. Using this topology, the important segment of network traffic is secured by the standard Provisioning Server to Connector Server communication protocol and not by the proprietary protocol.

Install Connector Servers

Based on the guidelines in this chapter, you make connector servers highly available by installing several instances of Java Connector Servers or C++ Connector Servers, or both.

Follow these steps:

If you plan to install more than one Java Connector Server, see the *Java Connector Server Implementation Guide* for additional guidelines. For a single Java Connector Server, follow these steps:

1. Run the following program where you unpacked the install package.
 - **Windows:**
Unpacked-Install-Package\Provisioning\Connector Server\setup.exe
 - **UNIX:**
Unpacked-Install-Package/Provisioning/ConnectorServer/setup
2. Complete the instructions in the installer dialog boxes.

Following steps is the procedure to install C++ connect server:

Follow these steps:

1. Run the following program where you unpacked the install package.
 - **Windows:**
Unpacked-Install-Package\Provisioning\Provisioning Server\setup.exe
 - **UNIX:**
Unpacked-Install-Package/Provisioning/ProvisioningServer\setup.bin
2. Complete the instructions in the installer dialog boxes.

This installation program also gives you the option to install alternate Provisioning Servers. However, for that component, a [different procedure](#) (see page 85) applies.

Configure Connector Servers

You configure the Connector Server Framework by using the `csconfig` command or by using Connector Xpress. The `csconfig` command uses the data in the Windows Registry (or UNIX counterpart created for Provisioning Server) to connect to a Provisioning Server. The `csconfig` command must run on the system where one of the Provisioning Server runs.

Using the command, you can:

- Add or modify a Connector Server connection object with information such as the connector server, host, and port.
- Define for which endpoints or endpoint types the connector server is used; possibly varying this definition for alternate provisioning servers.
- Delete the Connector Server connection information object.
- List all connector server connection objects in a domain.
- Show one or all connector server connection objects for one or all connector servers

The `csconfig` command uses the authorizations provided by a global user credential, so that global user must have the necessary administrative privileges to manipulate the appropriate `ConfigParam` and `ConfigParamContainer` objects.

csconfig Command

To use the `csconfig` command, the command line syntax is:

```
csconfig [--help[=op]] [operation] [argument]
```

You can use these arguments in any order. The operation argument is required unless you are using the `--help` argument.

The `--help[=op]` option provides minimal on-line help. The “=op” argument may be used to list the arguments that are required or optional for the operation. For example, “`--help=add`” will provide a description of the add operation, while “`--help`” will provide general information.

If help is requested, other arguments are ignored and no request is sent to the server.

Note: The domain parameter can be omitted as it is always the domain used in the whole installation.

The following operations are available.

add

Add a new CS connection object. A name will be generated by this operation if one is not specified by the user. Required arguments: auth, host, pass. Optional arguments: authpwd, br-add, desc, domain, name, port, usetls, debug.

addspec

Adds a branches specialization for one provisioning server.

When you have installed alternative provisioning servers, sometimes a connector server is not to be used by all of these Provisioning Servers. Or sometimes different provisioning servers will want to use the same connector servers for different branches (endpoint types or endpoints). A branches specialization is a list of branches that is specific to one provisioning server. Only provisioning servers without a specialization will use the branches specified in the main CS connection object. Required arguments: auth, name, server. Optional arguments: authpwd, br-add, domain, debug.

list

List all CS connection objects. Required arguments: auth. Optional arguments: authpwd, domain, debug.

modify

Modify a CS connection object. Required arguments: auth, name. Optional arguments: authpwd, br-add, br-rem, desc, domain, host, pass, port, usetls, debug.

modspec

Edits a specialization created by addspec. Required arguments: auth, name, server. Optional arguments: authpwd, br-add, br-rem, domain, debug.

remove

Remove an existing CS connection object. Required arguments: auth, name. Optional argument: authpwd, debug.

remspec

Removes a specialization created by addspec. Required arguments: auth, name, server. Optional arguments: authpwd, domain, debug.

modify

Modify a CS connection object. Required arguments: auth, name. Optional arguments: authpwd, br-add, br-rem, desc, domain, host, pass, port, server, tls, usetls.

show

Show a specific CS connection object or show all CS connection objects. The output shows the host and port of the connector server if it is available. Required arguments: auth. Optional arguments: authpwd, name, domain, debug.

Each operation takes several arguments in the form "name=value". Spaces are not allowed before or after the "=" symbol, and if the value contains any spaces, the argument must be quoted appropriately for the platform (Windows or UNIX). Except as noted, the value must be provided, and must be non-empty.

The following arguments are used for the operations as noted above:

auth=<value>

Identify the global user for authentication.

Value format: "name" where name is the global user's name.

authpwd=<value>

Identify a file containing just the global user's password on the first line. If this argument is not specified, the user will be prompted for a password.

Value format: any appropriate operating system file path.

br-add=<value>

Add a new branch. This argument may be specified multiple times to add multiple branches.

Value format: "[[endpoint,]endpoint type][@[domain]]". Use a branch of "@" by itself to represent all branches. Add "endpoint type" or "endpoint,endpoint type" to identify a specific endpoint type or endpoint.

br-rem=<value>

Remove an existing branch. This argument may be specified multiple times to remove multiple branches.

Value format: same format as specified for br-add.

debug=<value>

Turns on trace logging for the command. Tracing messages are written to the file PSHOME\logs\etaclientYYYYMMDD.log file.

Value format: The value "yes" enables logging.

desc=<value>

Provide an arbitrary description for the object. If not specified in an add operation, it will default to the value of the host argument.

Value format: an arbitrary string.

domain=<value>

Define the default domain. If not specified, the domain specified in the auth argument is used as the default.

As the value can only be the default, this parameter can always be omitted

host=<value>

Define the name of the host on which the Connector Server runs.

Value format: any legal host name or IP address.

name=<value>

The name of the Connector Server object. If not specified during Add, csfconfig will assign a name and display what name was created.

Value format: A case-insensitive string of one or more characters consisting of upper-case English letters (A-Z), lower-case English letters (a-z), digits (0-9), hyphen(-) or underscore(_).

pass[=<value>]

Define the file containing the password for the Connector Server connection object. If the value is not specified, the user will be prompted.

Value format: any appropriate OS file path.

Important! The password you must specify is the password you entered when you installed that Connector Server or you changed subsequent to install by running the pwdmgr utility on that Connector Server system.

port=<value>

Define the port number for the object. This must be a valid number for a port where the Connector Server listens for connections.

Value format: an integer.

server[=<value>]

In addspec, modspec and remspec commands, define the name of the Provisioning Server that is served by the Connector Server . The branches defined in a specialization override, for a particular provisioning server, the branches defined in the CS configuration object by add and modify commands.

Value format: the name of the host where the Provisioning Server is running as returned by the system's hostname command.

Note: The Connector Server configuration objects are stored with the other domain configuration parameters in the provisioning directory. While the Connector Server configuration parameters cannot be viewed or changed with the provisioning manager directly, one can use the provisioning manager (System task, Domain Configuration button) to get a list of known provisioning servers. To do this, open the "Servers" parameter folder and the known provisioning servers will be listed.

usetls[=<value>]

Indicate if TLS should be used to communicate with the Connector Server. The value is optional for the add operation only, in which case it defaults to "yes." .

Value format: a string "yes" or "no".

Upon successful completion of the add operation, the name of the newly created Connector Server connection object will be listed. If the name parameter is missing, a name is generated. For example:

```
Created CS object with name = SA000
```

For most operations, successful or not, the status and a message (if any) will be shown. For example:

```
The host name, port number, or TLS flag was successfully changed. The branch settings were successfully changed.
```

For some errors, such as invalid command line parameters, no status code or server error message is displayed. In these cases, a simple statement of the error will be shown. For example:

```
$ csfconfig add
No authentication information supplied.
For on-line help, use "--help [=<op>]"
```

csfconfig Command Examples

To specify that the UNIX and CA Access Control endpoint types should be served by the Connector Server running on host "sunserver01" and the remaining endpoint types served by a Connector Server running on host "windows02", issue the following commands.

Each command execution prompts you for the etaadmin password.

```
csfconfig add \  
auth="etaadmin" \  
br-add="UNIX - etc" \  
br-add="UNIX - NIS-NIS plus Domains" \  
br-add="Access Control" \  
host="sunserver01" \  
usetls="yes"
```

```
csfconfig add \  
auth="etaadmin" \  
br-add="@ " \  
host="windows02" \  
usetls="yes"
```

C++ Connector Server on Solaris

The C++ Connector Server installed on Solaris can manage only Solaris UNIX ETC and ACC endpoints. For all other Connectors, install the C++ Connector Server on a Windows system and register it with the Provisioning Server installed on Solaris. During installation, specify that this Connector Server is your default C++ Connector Server.

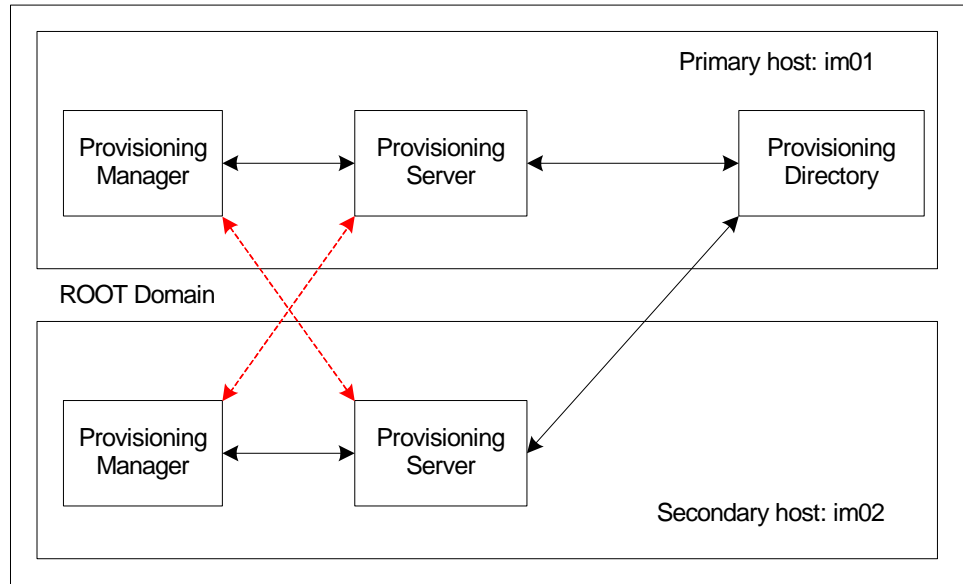
Failover for Provisioning Clients

Client-tier configuration includes the following tasks:

- Configure the Windows client-tier failover
- Configure the Provisioning Manager to communicate with their local Provisioning Servers, and fail over to the remote Provisioning Server

You use the same Provisioning Manager dialog to accomplish both of these tasks, on each server in turn.

The configuration shown in the following illustration lets Provisioning Manager submit identity provisioning requests to one Provisioning Server and fail over to another server:



The Provisioning Manager sends requests to the default Provisioning Server and fails over to another server.

Enable User Console Failover

If the application server for the CA Identity Manager Server fails, it does not receive Provisioning Server updates. As a result, the CA Identity Manager User Console does not show provisioning changes. Therefore, you should configure an alternate URL for the CA Identity Manager Server.

Follow these steps:

1. Launch the Provisioning Manager.
2. Click System, CA Identity Manager Setup.
3. Fill in the host name and port for another system in the cluster.
4. Fill in the environment.

It must be the same one that is on the primary URL.

5. Click Add.

Enable Provisioning Manager Failover

You can enable Provisioning Manager failover on both the primary and secondary host servers. When this procedure is complete, you will have configured each server for failover to the other.

Follow these steps:

1. Launch the Provisioning Manager.
2. Select File, Preferences, and select the Failover tab.
3. Mark the Enable Failover check box. By default, the local Provisioning Server is already defined.
4. Click Add.
5. Enter the host name of the remote Provisioning Server.
For example, on im01, enter the server host for im02. On im02, enter the server host for im01.
6. Enter 20389 for the LDAP port value and 20390 for the LDAP/TLS port value, respectively.
7. Adjust the preference order by moving the entries up and down in the list.
8. Click OK.
9. Restart the Provisioning Manager to enable your changes.

Test the Provisioning Manager Failover

You can test your client failover configuration by performing the following procedure:

Follow these steps:

1. Stop the CA Identity Manager - Provisioning Server service on one domain server.
2. Issue one or more operations using Provisioning Manager for this server installation.

Since you stopped the CA Identity Manager - Provisioning Server service locally, the traffic flows to the failover domain server. If it does not, check your configuration and try the test again.

Appendix A: Uninstallation and Reinstallation

This section contains the following topics:

[How to Uninstall CA Identity Manager](#) (see page 101)

[Remove CA Identity Manager Objects with the Management Console](#) (see page 102)

[Remove the CA Identity Manager Schema from the Policy Store](#) (see page 102)

[Uninstall CA Identity Manager Software Components](#) (see page 104)

[Remove CA Identity Manager from WebLogic](#) (see page 105)

[Reinstall CA Identity Manager](#) (see page 105)

How to Uninstall CA Identity Manager

To fully uninstall CA Identity Manager, remove CA Identity Manager software components and clean up the CA Identity Manager-specific configuration in your application server. The following checklist describes the steps to uninstall CA Identity Manager:



Step

1. Delete CA Identity Manager objects with the Management Console.
 2. (Optional) If you used SiteMinder, remove the CA Identity Manager schema from the policy store or remove the Policy Server. For more information, see the *CA SiteMinder Web Access Manager Policy Server Installation Guide*.
 3. Use the highavailability command to uninstall Provisioning Directories and Provisioning Servers from this location:
`Unpacked-Install-Package\Provisioning\Provisioning Directory\highavailability`
 4. Uninstall the CA Identity Manager components.
 5. Remove CA Identity Manager configuration information from the application server.
-

Remove CA Identity Manager Objects with the Management Console

In order to remove objects created automatically by CA Identity Manager when you configure environments and directories, use the Management Console.

1. Open the Management Console:
`http://im_server:port/iam/immanage`
2. Click Environments.
3. Select all of the check boxes for the existing Environments.
4. Click Delete.
5. Click Directories.
6. Select all of the check boxes for the existing Directories.
7. Click Delete.

Remove the CA Identity Manager Schema from the Policy Store

If you were using a SiteMinder Policy Server, remove the CA Identity Manager schema from the policy store.

Remove the CA Identity Manager schema from a SQL Policy Store

On systems where you installed the CA Identity Manager Extensions for SiteMinder, remove the CA Identity Manager schema. The default location for the command to remove the schema follows:

- SQL Server:
C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\policystore-schemas\MicrosoftSQLServer
- Oracle:
UNIX:
/opt/CA/IdentityManager/IAM_Suite/Identity_Manager/tools/policystore-schemas/OracleRDBMS

Windows: C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\policystore-schemas\OracleRDBMS

Remove the CA Identity Manager schema from an LDAP Policy Store

Note: If you are using Microsoft Active Directory or Microsoft ADAM as a policy store, you do not need to complete this procedure. You cannot remove schema objects from these policy stores. However, you can disable them. For more information, see the documentation for your directory.

Follow these steps:

1. Complete one of the following:
 - If you are using IBM Directory Server as a policy store, in the IBM Directory Server Web Administration user interface, remove the schema file V3.imsschema60 from the Files section of the schema configuration. Then, restart the directory server.

Note: There are no other steps required to remove the schema from an IBM Directory Server. Continue with Uninstall CA Identity Manager Software Components.
 - If you are using CA Directory as a policy store, remove the `etrust_ims.dxc` file from `dxserver_home\config\schema`.

where `dxserver_home` is the install location of CA Directory.

Note: There are no other steps required to remove the schema from a CA Directory Server. Continue with Uninstall CA Identity Manager Software Components.
 - If you are using another LDAP directory as a policy store, skip to Step 2.
2. Navigate to the `policystore-schemas` folder. These are the default locations:
 - **Windows:** `C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\tools\policystore-schemas`
 - **UNIX:** `/opt/CA/IdentityManager/IAM_Suite/Identity_Manager/tools/policystore-schemas`
3. Use the appropriate LDIF schema file from the following table to remove the schema from the directory.

Note: For more information on removing schema files, see the documentation for your directory.

Directory Type	LDIF File
Novell eDirectory	<code>novell\novell-delete-ims8.ldif</code>
Oracle Internet Directory (OID)	<code>oracle-internet-directory\oracle-internet-directory-delete-ims8.ldif</code>

Directory Type	LDIF File
Sun Java Systems (Sun One, iPlanet)	sunone\sunone-delete-ims8.ldif

Uninstall CA Identity Manager Software Components

Use the instructions in this section to uninstall CA Identity Manager components from each system on which you installed a component. For example, if you installed the CA Identity Manager Server and the CA Identity Manager Administrative Tools on separate systems, uninstall components from both systems.

To uninstall CA Identity Manager software components on Windows:

Follow these steps:

1. Go to Start, Control Panel, Add/Remove Programs and select CA Identity Manager.
2. Select CA Identity Manager.
3. Click Change/Remove.

All non-provisioning components are uninstalled.

4. For any provisioning components, use the individual component installer to uninstall the component.

Note: Although you install Provisioning Manager with Administrative Tools, you use the Provisioning Manager installer to uninstall this component.

To uninstall CA Identity Manager software components on UNIX:

Follow these steps:

1. Navigate to the following location:
`IM_HOME/install_config_info/im-uninstall`

2. Run the following script:

```
sh uninstall.sh
```

Follow the on-screen instructions.

3. For any provisioning components, use the individual component installer to uninstall the component.

Remove CA Identity Manager from WebLogic

After uninstalling the CA Identity Manager software, you can remove the CA Identity Manager configuration from your WebLogic application server.

Follow these steps:

1. Be sure the WebLogic application server is running.
2. Start the Weblogic Admin Console.
3. Delete the following JMS resources in the messaging area:
 - imJMSModule and wpJMSmodule.
 - wpJMSserver and Hawaii or all JMS servers created manually if you installed a WebLogic cluster
4. In the Deployments area, delete the following applications:
 - castyles5.1.1.ear
 - iam_im.ear
5. In the Services area, delete the following resources:
 - IAM Suite Mail session
 - The following JDBC data sources installed by CA Identity Manager:
 - DataSource-archive
 - DataSource-audit
 - DataSource-rs
 - DataSource-os
 - DataSource-tp
 - DataSource-wf

Reinstall CA Identity Manager

You can reinstall any of the CA Identity Manager software components by rerunning the installer. When you run the installer, it detects any CA Identity Manager components installed on the system. You may reinstall the same components that you originally installed on the system or other components that were not originally on the system.

Note: Reinstalling the CA Identity Manager Administrative Tools replaces all of the files in the Administrative Tools directory. To prevent overwriting custom files, back up the directory where the Administrative Tools are installed.

Appendix B: UNIX, Linux, and Non-Provisioning Installations

For UNIX and LINUX systems and scenarios where no provisioning software is needed, some additional instructions apply.

This section contains the following topics:

[UNIX and Console Mode Installation](#) (see page 107)

[Red Hat Linux 64-bit Installation](#) (see page 108)

[Non-Provisioning Installation](#) (see page 108)

UNIX and Console Mode Installation

The examples in this guide provide the Solaris executable name for the installation program. However, you may be installing on AIX or Linux.

- For AIX, use: `ca-im-release-aix.bin`
- For LINUX, use: `ca-release-linux.bin`

release represents the current release of CA Identity Manager

If you are performing an installation in console mode, such as on a UNIX workstation, you add another option to the command line.

- For the main installation, add `-i console`. For example:
`./ca-im-12.5-spW-sol.bin -i console`
- For installation of provisioning components, add `-console` to the setup command.

Red Hat Linux 64-bit Installation

If you plan to install CA Identity Manager on a Red Hat Linux 64-bit system, you need to prepare the system for the installation.

Follow these steps:

Install four 32-bit packages using the following commands:

```
yum install glibc.i686
yum install libXext.i686
yum install libXtst.i686
yum install ncurses-devel.i686
```

Note: The i686 suffix specifies that the library is 32-bit, for the x86 processor.

Alternatively, the dependencies may be resolved using Add/Remove Software, and unchecking the Only Native Packages filter option. Using this approach, you select and install the required i686 architecture dependencies.

The native ksh shell package also needs to be installed. Use the following command:

```
yum install ksh
```

Another alternative is to resolve the package dependency by using Add/Remove Software. Using this approach, you select and install the required i686 architecture dependencies ksh package.

Non-Provisioning Installation

This guide refers to the Windows and Solaris program names for the installers that provide options to install provisioning software. If you prefer to see no provisioning options, you can use these installers:

- For Windows, use `IMWithoutProvisioning\ca-im-web-release-win32.bat`
- For Solaris, use `IMWithoutProvisioning/ca-im-web-release-sol.sh`

release represents the current release of CA Identity Manager.

Appendix C: Unattended Installation

This section contains the following topics:

[How to Run an Unattended Installation](#) (see page 109)

[Modify the Configuration File](#) (see page 109)

[Configuration File Format](#) (see page 114)

How to Run an Unattended Installation

Follow these steps:

1. Modify the im-installer.properties file.
2. Run the following command:
 - **Windows:**
`ca-im-12.5-sp01-win32.exe -f im-installer.properties -i silent`
 - **UNIX:**
`./ca-im-12.5-sp01-sol.bin -f im-installer.properties -i silent`

Modify the Configuration File

To enable an unattended CA Identity Manager installation, modify the settings in the im-installer.properties configuration file using a text editor. The default parameters in the file reflect the information entered during the initial CA Identity Manager installation. Change the default values as needed.

Note the following when modifying the configuration file:

- Make a back-up copy of the installer properties file before modifying the original, since the file holds all of the values you entered during the initial installation or configuration.
- Do not add extra spaces between the parameter name, the equals sign (=), and the attribute value.
- All directory names on Windows must contain either double back slashes or forward slashes, not single back slashes.

Initial Choices

For basic installation choices, enter values for the following parameters:

Parameter	Instructions
DEFAULT_NEW_INSTANCE_DISPLAY_NAME	Enter 'New Installation' if this is a fresh install. For upgrades, this will be blank.
DEFAULT_COMPONENTS	Enter one or more components: <ul style="list-style-type: none">■ Server - CA Identity Manager Server■ Exten - Extensions to the Policy Server■ Admin - CA Identity Manager Administrative Tools■ Provision - Provisioning Server■ Directory - Provisioning Directory To install more than one component, separate components by a comma.
DEFAULT_INSTALL_FOLDER	Enter the directory in which to install the CA Identity Manager Server.
DEFAULT_GENERIC_USERNAME	Generic login information for CA Identity Manager components that are installed.
DEFAULT_GENERIC_PASSWORD	Generic password information for CA Identity Manager components that are installed.
DEFAULT_FIPS_MODE	Select if you want to enable FIPS 140-2 compliance.
DEFAULT_FIPS_KEY_LOC	Enter the path to the FIPS key location.

The installation program ignores any parameters that do not apply to the component you are installing. For example, if you set DEFAULT_COMPONENTS to Exten, only the DEFAULT_PS_ROOT and DEFAULT_USE_SITEMINDER parameters are used.

Provisioning Components

If you install Provisioning, enter the following:

Parameter	Instruction
DEFAULT_CONFIG_REMOTE PROVISIONING	Enter true if you are connecting to a remote Provisioning Directory.
DEFAULT_DEPLOYMENT_SIZE	Enter the size of your Provisioning Directory deployment.
DEFAULT_DIRECTORY_IMPS_HOSTN AMES	Enter the hostnames of all Provisioning Servers that will connect to the Directory.
DEFAULT_DOMAIN_NAME	Enter 'im' unless you have an existing Provisioning domain.
DEFAULT_DIRECTORY_HOST	Enter the hostname of the system with Provisioning Directory installed.
DEFAULT_DIRECTORY_PORT	Enter the port number of the system with the Provisioning Directory installed.
DEFAULT_DIRECTORY_PASSWORD	Enter the password for the Provisioning Directory.

CA Identity Manager Server

If you plan to install the CA Identity Manager Server, enter values for the following:

Parameter	Instructions
DEFAULT_APP_SERVER	Enter Weblogic
DEFAULT_APP_SERVER_URL	Enter full URL of the application server hosting CA Identity Manager, including the port.
DEFAULT_JAVA_HOME	Path to JRE or JDK for CA Identity Manager.
Additional Database Parameters	
DEFAULT_DB_HOST	Enter the hostname of the system hosting the CA Identity Manager database.
DEFAULT_DB_PORT	Enter the port of the system hosting the CA Identity Manager database.

Parameter	Instructions
DEFAULT_DB_NAME	Enter the name of the CA Identity Manager database.
DEFAULT_DB_USER	Enter the administrative username for the CA Identity Manager database.
DEFAULT_DB_PASSWORD	Enter the password for the administrative user of the CA Identity Manager database.
DEFAULT_DB_TYPE	Enter the type of database used for the CA Identity Manager database.

Additional WebLogic Parameters

DEFAULT_BINARY_FOLDER	Enter the full directory path of the directory where you installed WebLogic.
DEFAULT_DOMAIN_FOLDER	Enter the full path and directory name for the WebLogic domain you created for CA Identity Manager.
DEFAULT_SERVER_NAME	Enter the name of the WebLogic server instance you created for use with CA Identity Manager.
DEFAULT_BEA_CLUSTER	Enter the cluster name for the WebLogic cluster.

If you are using a SiteMinder Policy Server, enter the following:

Parameter	Instruction
DEFAULT_PS_HOST	Enter the fully-qualified domain name of the Policy Server.
DEFAULT_PS_USER	Enter the user name of the Policy Server administrator.
DEFAULT_PS_PW	Enter the password of the Policy Server administrator.

Extensions for SiteMinder

To install the extensions for a SiteMinder Policy Server, enter the following:

Parameter	Instruction
DEFAULT_PS_ROOT	(Solaris Only) Enter the directory where the Policy Server is installed.
DEFAULT_USE_SITEMINDER	Enter true if you are using a SiteMinder Policy Server in your implementation.

Configuration File Format

The im-installer.properties file is located in the CA Identity Manager installation directory. For example:

- **Windows:** C:\Program Files\CA\CA Identity Manager\install_config_info
- **UNIX:** /opt/CA/IdentityManager/install_config_info/im-installer.properties

The following is an example of the im-installer.properties file created during a CA Identity Manager installation:

```
#####  
### Silent input properties file for the IM R12.5SP7 installer ###  
#####  
  
# Component list  
# Valid values (comma-separated, one or  
more): Server,Exten,Admin,Provision,Directory  
DEFAULT_COMPONENTS=Server,Admin,Provision,Directory  
  
# Install folder  
# All products are installed in subfolders under this folder  
# This is parent product root selected by the user  
# For e.g. C:\\\\Program Files\\\\CA\\Identity Manager  
DEFAULT_INSTALL_FOLDER=C:\\Program Files (x86)\\CA\\Identity Manager  
  
#Generic login information  
DEFAULT_GENERIC_USERNAME=imadmin  
#DEFAULT_GENERIC_PASSWORD=<For silent install, insert generic user password here and  
uncomment line.>  
  
# Provisioning Server and Provisioning Directory Information.  
# Configure the Provisioning Server to a remotely installed Provisioning  
Directory(true/false)  
DEFAULT_CONFIG_REMOTE_PROVISIONING=false  
  
#Select the deployment type that suits your needs (1,2,3 or 4): 1. Compact 2. Basic  
3. Intermediate (64 Bit only) 4. Large (64 Bit only)  
DEFAULT_DEPLOYMENT_SIZE=1  
DEFAULT_DIRECTORY_IMPS_HOSTNAMES=im-weblogic11  
DEFAULT_DOMAIN_NAME=im  
DEFAULT_DIRECTORY_HOST=im-weblogic11  
DEFAULT_DIRECTORY_PORT=20394  
#DEFAULT_DIRECTORY_PASSWORD=<For silent install, insert password to be used with  
Provisioning Components here and uncomment line.>  
  
#FIPS 140-2 Compliance mode (true/false) for Identity Manager, Admin Tools,  
Provisioning Manager and Provisioning Server  
DEFAULT_FIPS_MODE=false
```

```
#Complete path of the FIPS key file. For e.g. C:\\\\Program Files\\\\FIPSkey.dat
DEFAULT_FIPS_KEY_LOC=
```

```
#Identity Manager Application Server information
# App Server
# Valid values: JBoss, Weblogic, WebSphere
DEFAULT_APP_SERVER=WebLogic
DEFAULT_APP_SERVER_URL=http://im-weblogic11.ca.com:7001
```

```
#Path to JDK for the JBOSS Application Server. No input required for other Application
Servers
DEFAULT_JAVA_HOME=C:\\PROGRA~1\\Java\\JDK16-1.0_2
```

```
#JBoss info
DEFAULT_JBOSS_FOLDER=C:\\Oracle\\Middleware
DEFAULT_JBOSS_PROFILE=
DEFAULT_JBOSS_SERVER_ID=
```

```
#Weblogic info
DEFAULT_BINARY_FOLDER=C:\\Oracle\\Middleware\\wlserver_10.3
DEFAULT_DOMAIN_FOLDER=C:\\Oracle\\Middleware\\user_projects\\domains\\base_domain
DEFAULT_SERVER_NAME=AdminServer
```

```
#For Weblogic 9 & 10 only:
DEFAULT_BEA_CLUSTER=
```

```
#WebSphere info
DEFAULT_WEBSPHERE_FOLDER=C:\\Oracle\\Middleware
```

```
#WAS_NODE Value: \\installedApps\\ or \\config\\cells\\\\nodes\\. These should be
same.
DEFAULT_WAS_NODE=
```

```
#WAS_SERVER Value: \\config\\cells\\\\nodes\\servers\\
DEFAULT_WAS_SERVER=
```

```
#WAS_CELL Value: \\config\\cells\\
DEFAULT_WAS_CELL=
```

```
#WAS_PROFILE Value: \\profiles\\
WAS_PROFILE=
```

```
#WAS_CLUSTER Value: \\config\\cells\\clusters\\
DEFAULT_WAS_CLUSTER=
```

```
#Policy Server info
DEFAULT_PS_HOST=localhost
DEFAULT_PS_USER=SiteMinder
```

```
#DEFAULT_PS_PW=<For silent install, insert PS Admin user password here and uncomment
line.>

#8.1 Migration
# SiteMinder Agent Name
DEFAULT_AGENT_NAME=imadmin
# SiteMinder Shared Secret
#DEFAULT_AGENT_PW=<For silent install, insert PS Shared Secret here and uncomment
line.>
# Automatically migrate. Valid values (true/false)
DEFAULT_MIGRATE_DIR_ENV=
# Directory to export to
DEFAULT_DIR_ENV_EXPORT=

#Policy Server Extensions info
# Location of CsSmPs-<Instance name> folder
DEFAULT_PS_ROOT=
#You can use the SiteMinder Policy Server and a SiteMinder Web Agent to provide advanced
security
# for CA Identity Manager environments. Valid values (true/false)
DEFAULT_USE_SITEMINDER=false

#Database Info
DEFAULT_DB_HOST=im-weblogic11
DEFAULT_DB_PORT=1433
DEFAULT_DB_NAME=im
DEFAULT_DB_USER=sa
#DEFAULT_DB_PASSWORD=<For silent install, insert database password here and uncomment
line.>

#Following are permissible values: mssql2005 or oracle10
DEFAULT_DB_TYPE=mssql2005

#WAS Message Engine Database Info
DEFAULT_ME_HOST=
DEFAULT_ME_PORT=
DEFAULT_ME_NAME=
DEFAULT_ME_USER=
#DEFAULT_ME_PASSWORD=<For silent install, insert database password here and uncomment
line.>
DEFAULT_ME_SCHEMA=IBMWSSIB

#Upgrading from IM8.1sp2
# If you have data stores located on separate servers or you wish to install them
on separate
# servers, you can specify them below. Otherwise if you wish to have all the data stores
on
# the same server, change the DEFAULT_DB_* properties from above.
```

```
#Object Store Datastore Info
#DEFAULT_OS_DB_HOST=
#DEFAULT_OS_DB_PORT=
#DEFAULT_OS_DB_NAME=
#DEFAULT_OS_DB_USER=
#DEFAULT_OS_DB_PASSWORD=<For silent install, insert database password here and
uncomment line.>

#Task Persistence Datastore Info
#DEFAULT_TP_DB_HOST=
#DEFAULT_TP_DB_PORT=
#DEFAULT_TP_DB_NAME=
#DEFAULT_TP_DB_USER=
#DEFAULT_TP_DB_PASSWORD=<For silent install, insert database password here and
uncomment line.>

#Audit Datastore Info
#DEFAULT_AUDIT_DB_HOST=
#DEFAULT_AUDIT_DB_PORT=
#DEFAULT_AUDIT_DB_NAME=
#DEFAULT_AUDIT_DB_USER=
#DEFAULT_AUDIT_DB_PASSWORD=<For silent install, insert database password here and
uncomment line.>

#Reporting Snapshot Datastore Info
#DEFAULT_RS_DB_HOST=
#DEFAULT_RS_DB_PORT=
#DEFAULT_RS_DB_NAME=
#DEFAULT_RS_DB_USER=
#DEFAULT_RS_DB_PASSWORD=<For silent install, insert database password here and
uncomment line.>

#Workflow Datastore Info
#DEFAULT_WF_DB_HOST=
#DEFAULT_WF_DB_PORT=
#DEFAULT_WF_DB_NAME=
#DEFAULT_WF_DB_USER=
#DEFAULT_WF_DB_PASSWORD=<For silent install, insert database password here and
uncomment line.>

# Automatically Upgrade Workflow DB
DEFAULT_UPGRADE_WF_DB=

# Automatically Migrate Task Persistence
DEFAULT_MIGRATE_TP=
```


Appendix D: Installation Log Files

The log files are stored based on where you unpack the installation package. The following examples may have different top-level directories than these default locations.

This section contains the following topics:

[Log Files on Windows](#) (see page 119)

[Log files on UNIX](#) (see page 119)

Log Files on Windows

If you encounter issues during CA Identity Manager installation, see this log file:

C:\Program Files\CA\Identity Manager\IAM Suite\Identity Manager\caiamsuite.log

The CA Identity Manager Server installer logs are written to the following default locations:

- C:\Program Files\CA\Identity Manager\install_config_info (32-bit system)
- C:\Program Files (x86)\CA\Identity Manager\install_config_info (64-bit system)

The Provisioning installer logs are written to the user's Temp directory and copied to the *Install-Directory_uninst* directory.

Example:

C:\Documents and Settings\user\Local Settings\Temp\imps_server_install.log

Log files on UNIX

If you encounter any issues while performing a CA Identity Manager installation, see the caiamsuite.log file in this location:

/opt/CA/IdentityManager/

The CA Identity Manager Server installer logs are written to the following default location:

/opt/CA/IdentityManager/install_config_info

The Provisioning installer logs are written to the user's Temp directory.

Appendix E: Windows Services Started by CA Identity Manager

The following are the services started on Windows when you install and start all components of CA Identity Manager:

- CA Directory *hostname-impd-co*
- CA Directory *impd-inc*
- CA Directory *impd-main*
- CA Directory *impd-notify*
- CA Directory *impd-router*
- CA Identity Manager Connector Server (C++)
- CA Identity Manager Connector Server (Java)
- CA Identity Manager Provisioning Server
- Enterprise Common Services (Transport)
- Enterprise Common Services GUI Framework
- Enterprise Common Services Store-And-Forward Manager

This list of services may useful to you for troubleshooting purposes.

Index

(

(Optional) Integrate with SiteMinder • 24

B

BusinessObjects XI 3.x Post-Installation Step • 75

C

C++ Connector Server on Solaris • 97
CA Identity Manager Components • 34
CA Identity Manager Server • 111
CA Identity Manager Server Architecture • 17
CA Technologies Product References • 3
Check Hardware Requirements • 20
Complete the Installation Worksheets • 29
Configuration File Format • 114
Configure a Remote Provisioning Manager • 39, 52
Configure Connector Servers • 92
Configure Managed Nodes • 47
Configure Provisioning Server Failover • 87
Configure the Proxy Plug-In • 50
Connector Server Framework • 87
Connector Servers • 87
Contact CA Technologies • 3
Copy the JDBC JAR Files • 73
Create a Distributed JMS Server for WebLogic • 48
Create a Distributed JMS Server for Workflow • 49
Create a FIPS 140-2 Encryption Key • 23
Create a WebLogic Application Server Instance • 26
Create a WebLogic Cluster • 43
Create an MS SQL Server Database Instance • 57
Create an Oracle Database Instance • 57
Create Separate Databases • 56
Create the Database • 25
csfconfig Command • 92
csfconfig Command Examples • 97

D

Database Connection Information • 30
Deploy Default Reports • 74

E

Edit the Data Source • 58
Enable Provisioning Manager Failover • 99

Enable User Console Failover • 98

Example

High Availability Installation • 16
Installation with Multiple Endpoints • 12
Single Node Installation • 10
SiteMinder and CA Identity Manager Installation
• 14

Extensions for SiteMinder • 113

F

Failover for Provisioning Clients • 97

H

Hardware Requirements • 65
High Availability Installation • 15
High Availability Provisioning Installation • 79
How to Create Separate Databases • 57
How to Install CA Identity Manager on a WebLogic
Cluster • 43
How to Install High Availability Provisioning
Components • 80
How to Install Prerequisite Components • 20
How to Install the Report Server • 66
How to Perform a Single Node Installation • 34
How to Run an Unattended Installation • 109
How to Uninstall CA Identity Manager • 101
How to Uninstall Reporting • 76

I

Initial Choices • 110
Install a WebLogic Application Server • 26
Install Alternate Provisioning Directories • 82
Install Alternate Provisioning Servers • 86
Install CA Directory • 23
Install CA Identity Manager Components • 35
Install CA Identity Manager on the WebLogic Cluster
• 44
Install Connector Servers • 91
Install Optional Provisioning Components • 39, 53
Install Provisioning Directories • 80
Install Provisioning Servers • 85
Install the CA Report Server • 69
Installation Log Files • 119
Installation on a WebLogic Cluster • 41

Installation Overview • 9
Installation Prerequisites • 19
Installation Status • 19, 33, 41, 55, 63, 79
IPv6 Configuration Notes • 28
IPv6 JDK Requirements on WebLogic • 28
IPv6 Support • 28

L

Load-Balancing and Failover • 89
Log files on UNIX • 119
Log Files on Windows • 119
Login Information • 31

M

Modify the Configuration File • 109
Modify the Plug-in for an IIS Web Server • 50
Modify the Plug-in for an iPlanet Web Server • 50
Multi-Platform Installations • 90

N

Non-Provisioning Installation • 108

O

Open Ports for the Report Server • 68
Overall Installation Process • 18

P

Perform Prerequisite Configuration for New Provisioning Directories • 81
Perform Prerequisite Configuration for New Provisioning Servers • 85
Prerequisite Knowledge • 19
Provisioning Components • 111
Provisioning Components Architecture • 17
Provisioning Directory • 29
Provisioning Directory on Windows 2008 with Pure IPv6 Not Supported • 29
Provisioning Servers • 84

R

Red Hat Linux 64-bit Installation • 108
Register Node Manager • 43
Reinstall CA Identity Manager • 105
Reliability and Scalability • 89
Remove CA Identity Manager from WebLogic • 105
Remove CA Identity Manager Objects with the Management Console • 102

Remove Leftover Items • 76
Remove the CA Identity Manager schema from a SQL Policy Store • 102
Remove the CA Identity Manager schema from an LDAP Policy Store • 103
Remove the CA Identity Manager Schema from the Policy Store • 102
Remove UNIX Items • 77
Remove Windows Items • 76
Report Server Installation • 63
Reporting Architecture • 64
Reporting Considerations • 65
Reporting Information • 68
Reports Pre-Installation Checklist • 66
Router DSA for the Provisioning Server • 84
Run the Registry Script • 71
Run the Script for Workflow • 60
Run the SQL Scripts • 59
Run the UNIX Installer • 70
Run the Windows Installer • 69

S

Sample CA Identity Manager Installations • 9
Separate Database Configuration • 55
Silent Installation • 75
Single Node Installation • 33
SiteMinder Information • 32
Solaris Requirements for the Provisioning Server • 27
Start the WebLogic Cluster • 51

T

Test the Provisioning Manager Failover • 99

U

Unattended Installation • 109
Uninstall CA Identity Manager Software Components • 104
Uninstallation and Reinstallation • 101
UNIX and Console Mode Installation • 107
UNIX, Linux, and Non-Provisioning Installations • 107

V

Verify the CA Identity Manager Server Starts on WebLogic • 38
Verify the Clustered Installation • 52
Verify the Reporting Installation • 75
Verify the WebLogic Cluster • 44
Verify the WebLogic Domain • 26

W

WebLogic Application Server • 25

WebLogic Clusters • 42

WebLogic Information • 30

Windows Services Started by CA Identity Manager •
121