## CA Access Control Premium Edition

# Implementation Guide



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## Sample Scripts and Sample SDK Code

The Sample Scripts and Sample SDK code included with the CA Access Control product are provided "as is", for informational purposes only. They may need to be adjusted in specific environments and should not be used in production without testing and validating them before deploying them on a production system.

CA Technologies does not provide support for these samples and cannot be responsible for any errors that these scripts may cause.

## **CA Technologies Product References**

This document references the following CA Technologies products:

- CA Access Control Premium Edition
- CA Access Control
- CA Single Sign-On (eTrust SSO)
- CA Top Secret<sup>®</sup>
- CA ACF2<sup>™</sup>
- CA Audit
- CA Network and Systems Management (CA NSM, formerly Unicenter NSM and Unicenter TNG)
- CA Software Delivery (formerly Unicenter Software Delivery)
- Unicenter Service Desk (formerly Unicenter Service Desk)
- CA User Activity Reporting Module (formerly CA Enterprise Log Manager)
- CA Identity Manager

### **Documentation Conventions**

The CA Access Control documentation uses the following conventions:

Format	Meaning
Mono-spaced font	Code or program output
Italic	Emphasis or a new term
Bold	Text that you must type exactly as shown
A forward slash (/)	Platform independent directory separator used to describe UNIX and Windows paths

The documentation also uses the following special conventions when explaining command syntax and user input (in a mono-spaced font):

Format	Meaning
Italic	Information that you must supply
Between square brackets ([])	Optional operands

Format	Meaning
Between braces ({})	Set of mandatory operands
Choices separated by pipe ( ).	Separates alternative operands (choose one). For example, the following means <i>either</i> a user name <i>or</i> a group name:
	{username groupname}
	Indicates that the preceding item or group of items can be repeated
<u>Underline</u>	Default values
A backslash at end of line preceded by a space ( \)	Sometimes a command does not fit on a single line in this guide. In these cases, a space followed by a backslash ( \) at the end of a line indicates that the command continues on the following line.
	<b>Note:</b> Avoid copying the backslash character and omit the line break. These are not part of the actual command syntax.

### **Example: Command Notation Conventions**

The following code illustrates how command conventions are used in this guide:

ruler className [props({all|{propertyName1[,propertyName2]...})]

In this example:

- The command name (ruler) is shown in regular mono-spaced font as it must be typed as shown.
- The *className* option is in italic as it is a placeholder for a class name (for example, USER).
- You can run the command without the second part enclosed in square brackets, which signifies optional operands.
- When using the optional parameter (props), you can choose the keyword *all* or, specify one or more property names separated by a comma.

## **File Location Conventions**

The CA Access Control documentation uses the following file location conventions:

- ACInstallDir—The default CA Access Control installation directory.
  - Windows—C:\Program Files\CA\AccessControl\
  - UNIX—/opt/CA/AccessControl/

- ACSharedDir—A default directory used by CA Access Control for UNIX.
  - UNIX—/opt/CA/AccessControlShared
- *ACServerInstallDir*—The default CA Access Control Enterprise Management installation directory.
  - /opt/CA/AccessControlServer
- DistServerInstallDir—The default Distribution Server installation directory.
  - /opt/CA/DistributionServer
- *JBoss\_HOME*—The default JBoss installation directory.
  - /opt/jboss-4.2.3.GA

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## **Documentation Changes**

The following documentation updates have been made since the last release of this documentation:

- Integrating with CA SiteMinder (see page 421)—New chapter describes the steps to perform to integrate with CA SiteMinder
- Working with Multiple LDAP Servers (see page 413)—New chapter describes how to use CA Directory DXlink utility to work more multiple LDAP servers

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## **Chapter 1: About this Guide**

This guide provides information about how to plan, install, customize the various components of CA Access Control Premium Edition. These include CA Access Control servers and end points for Windows and Linux and the CA Access Control Endpoint Management component. Enterprise management and reporting installation chapters only apply to CA Access Control Premium Edition.

To simplify terminology, we refer to the product as CA Access Control throughout the guide.

## Chapter 2: Planning Your Enterprise Implementation

This section contains the following topics:

Planning for a Security System (see page 21) Preparing an Implementation Plan (see page 22) Getting Management Commitment (see page 22) Deciding How to Protect (see page 23) Educating and Training Staff (see page 24) Sizing the Implementation (see page 25) How to Implement CA Access Control Enterprise Management (see page 27) CA Access Control Enterprise Management Deployment Architectures (see page 29) Components of CA Access Control Enterprise Management (see page 32)

## **Planning for a Security System**

The primary goal of any security system is to protect an organization's information assets. To effectively implement security, you must be aware of the threats that exist at your site. You must then determine how to best protects your site from these threats.

There are two basic ways to protect against unauthorized use of computer resources:

- Block unauthorized users from accessing the system
- Block authorized users from accessing items to which they should not have access

CA Access Control provides tools to protect your system in both ways. CA Access Control also provides auditing tools that let you trace user activity to track attempted misuse of the computer system.

Once you have determined the goals of the security project you can write a security policy statement and put together an implementation team. The implementation team should set priorities that can help determine what data, applications, and users must be secured.

### **Preparing an Implementation Plan**

While defining the implementation plan, check repeatedly that the plan's goals come from the security policy. The new security controls should be phased-in gradually to provide users a period of adjustment.

Define specific goals based on the security plan

Define the goals to help you implement the security plan.

Define a pilot group of users as a prototype for implementing CA Access Control.

Test all CA Access Control features on the pilot group before protecting entities outside of the group. Testing with the pilot group can help you learn how to protect the rest of the organization.

Decide what to protect

CA Access Control protects business data, jobs, and users in the pilot group

Define a method for rolling out the security control

Consider how to phase-in the new security controls with minimum disruption of current work patterns. Consider a period of only auditing access, and not restricting access, for various resources and classes. The resulting audit records show which users tend to require access to the resources.

**Note:** For more information about Warning mode (audit-only mode), see the *Endpoint Administration Guide for UNIX* and the *Endpoint Administration Guide for Windows*.

### **Getting Management Commitment**

A management decision to install CA Access Control is not enough to guarantee adequate security at your site. For the security project to succeed, management must be actively involved. Management must decide on security policy, procedures, and resources to be allocated to the security function, and accountability of users of the computer system. Without such management support, security procedures fall into misuse and become more of an administrative chore than a viable protection scheme. In fact, such a situation could breed a false sense of security that could lead to serious security exposures.

The security administrator should work with management to prepare a clear, inclusive security policy statement. This statement should include the following:

- Corporate policy regarding full-time employees, part-time employees, contract employees, and consultants
- Corporate policy concerning outside users of the system
- Behavior expected from all users of the system
- Physical protection considerations

- Security requirements of user departments
- Auditing requirements

The resulting security policy helps to ensure a CA Access Control implementation plan that is both realistic and consistent with the installation's security policy.

### **Deciding How to Protect**

Before you install CA Access Control, decide what features of the software you want to use.

CA Access Control provides the following protection methods

- Native security using CA Access Control Endpoint Management to implement the security features that are already familiar to you.
- Advanced native security to guard against more sophisticated attacks. CA Access Control lets you:
  - Limit the rights of privileged accounts
  - Assign special privileges to ordinary users, such as the ability to change user passwords for special users
  - Support multiple file systems including NTFS, FAT, and CDFS
  - Centralize security policies and auditing across heterogeneous environment containing Windows and UNIX systems
- Advanced policy management to deploy multiple-rule policies (script files) you create for your enterprise. Using this policy-based method, you can create version-controlled policies, assign and unassign policies to host groups in your enterprise, directly deploy and remove deployed policies (undeploy), and view deployment status and deployment deviation.
- A Policy Model database (PMDB), which enables you to propagate a security database with users, groups, and access rules to a set of subscribers. The PMDB regularly propagates all the updates it receives to its subscribers. This mechanism eases the administrative burden on system administrators.
- Privileged User Password Management (PUPM), which provided you with role-based access management for privileged accounts on target endpoints from a central location. PUPM also provides secure storage of privileged accounts and application ID passwords, and controls access to privileged accounts and passwords based on policies.
- UNIX Authentication Broker (UNAB), which lets you validate the credentials of local UNIX users and groups against Active Directory. You use a single repository for all your users, letting them log in to all platforms with the same user name and password.

## **Educating and Training Staff**

Part of the role of the security administrator is to tell the system users what they need to know to work without disruption when CA Access Control is installed.

The amount of detailed information each user needs to know about CA Access Control depends on the functions you authorize the person to use. Examples of information required by various types of system users include the following:

PUPM users

How to check out and check in privileged account passwords and understand when to request access to privileged accounts and when to break glass.

- All users defined in the CA Access Control endpoint databases
  - How to identify themselves to the system by a user name and a password and how to change a password. They should also be aware of the significance of their password to system security.
  - Be familiar with the Password Manager, If you implement password policy validation.
  - How to use the secons -d- and secons -d+ commands that disable and enable concurrent logins. Concurrent logins are multiple sessions initiated by the same user onto a system from more than one terminal at the same time.
  - Be familiar with the sesudo command, which enables user substitution based on predefined access rules with or without password checking.
- Technical support personnel

Be familiar with migration considerations and with the steps required to install or reinstall CA Access Control. Users who maintain the database must be familiar with the database utilities.

Auditors

Users with the AUDITOR attribute should be familiar with the auditing tools (CA Access Control Endpoint Management and the seaudit utility).

**Note:** For more information about the seaudit utility, see the *Reference Guide*.

Programmers writing unauthorized applications

Programmers can use the CA Access Control\* function library in their applications to request security-related services, including controlling access to protected resources (by using the SEOSROUTE\_RequestAuth function). Your installation can create installation-defined resource classes. If your installation creates records in those classes, an application can issue a SEOSROUTE\_RequestAuth command to check whether a user has sufficient authority to complete an action. The level of authority required for a particular user action is determined by the way the application invokes the SEOSROUTE\_RequestAuth function.

**Note:** For more information about the CA Access Control API, see the *SDK Guide*.

Programmers writing authorized applications

Programmers writing authorized applications (programs that run with the SERVER attribute) can use the CA Access Control\* function library to request security-related services, including:

- User identification and verification
- User logout service
- User authorization request

## Sizing the Implementation

Before you can begin to implement CA Access Control, you should scope the size of your implementation and allocate resources accordingly. Use the following information to help you assess the scope of your implementation.

We recommend that you install one Distribution Server for every 3000 CA Access Control endpoints.

The following table describes the amount of database size that you should allocate for the various components on the Enterprise Management Server and the Report Portal computer:

Component	Criteria	Gauge	Allocation
Enterprise Management Server	Active Directory as the user store	For each 1000 Active Directory accounts	20 MB
CA Access Control	Reports snapshot	For each 1000 CA Access Control endpoints	5 GB for each snapshot
PUPM	Endpoint type definitions	For each 1000 PUPM endpoints	2 MB
PUPM	Privileged accounts	For each 1000 privileged accounts	75 MB

Component	Criteria	Gauge	Allocation
PUPM	Privileged Account password operations	For each 1000 PUPM privileged account passwords operation	250 MB
CA Business Intelligence	CMS and auditing databases	For a basic installation	300 MB

Note: For more information about system requirements, see the Release Notes.

### **CA Access Control Database Size Limitation**

The CA Access Control database is limited to one million (1,000,000) objects. This size limitation is only likely to affect your deployment if you use advanced policy management in a large environment.

If the CA Access Control database in your enterprise is expected to hold 1,000,000 objects, you need to remove old DEPLOYMENT objects that are no longer in use.

### Example: Calculating the Number of Objects in the CA Access Control Database

The following example shows you how to calculate the number of objects that you can expect to have in the DMS-the central CA Access Control management database.

In this example, we have an enterprise deployment of CA Access Control on 5000 endpoints, each holding 50 assigned policies. As a result, the DMS contains at least 250,000 objects, as follows:

5,000 endpoints X 50 policies = 250,000 DEPLOYMENT objects

If over time you create four versions of each policy, and assign these policies to each of your 5000 endpoints, the number of objects in the DMS will reach the 1,000,000 objects limit, as follows:

5,000 endpoints X 50 policies X 4 version = 1,000,000 DEPLOYMENT objects

### How to Implement CA Access Control Enterprise Management

Before you implement CA Access Control Enterprise Management in your enterprise, you should understand which components to install, in what order, and where to install them. Observe the following guidelines when you implement an enterprise deployment of CA Access Control Enterprise Management:

- Use a 'top-to-bottom' approach in the implementation process. Begin by installing the Enterprise Management Server, install additional Distribution Servers, implement Enterprise Reporting and then install the CA Access Control endpoints.
- Before you begin the implementation, verify that the computers that you use meet the required specifications and that all prerequisite software is installed.

**Note:** For more information about the required hardware and software specifications, see the CA Access Control Compatibility Matrix that is available from the CA Access Control product page on <u>CA Support</u>.

Use the following process to implement CA Access Control Enterprise Management:

- 1. Decide which deployment architecture to use
- 2. Install a supported RDBMS as the central database
- 3. (Optional) Install a supported user store
- 4. Install the Enterprise Management Server
- 5. Implement Enterprise Reporting
- 6. (Optional) Integrate with CA User Activity Reporting Module
- 7. Install the endpoints

The following diagram illustrates the implementation process for CA Access Control Enterprise Management:

### **Implementing the Enterprise Management Server**



Use this diagram to help you implement the Enterprise Management Server:

Note: The dashed lines represent optional steps.

### Implementing CA Access Control for Disaster Recovery

Use the following diagram to help you implement CA Access Control for disaster recovery:



## CA Access Control Enterprise Management Deployment Architectures

Before you begin to implement CA Access Control Enterprise Management, you should decide with of the following implementation architectures to use:

- Default—In a default deployment, you install all the components of CA Access Control Enterprise Management on a single server. Implementing the default architecture is the fastest way to implement CA Access Control Enterprise Management. The default implementation architecture does not support high availability and disaster recovery capabilities.
- Load Balancing—the load balancing deployment architecture enables you to use a common user and data stores to distribute workload among the Enterprise Management Servers. In a load balancing deployment you deploy a primary and multiple load balancing Enterprise Management Servers.
- High Availability—the high availability deployment architecture enables you to implement CA Access Control Enterprise Management for failover and redundancy. In a high availability implementation you deploy CA Access Control Enterprise Management on multiple servers to help ensure continued access to data from endpoints in case of a server failure.
- Disaster Recovery—the disaster recovery deployment architecture enables you to implement CA Access Control Enterprise Management for disaster recovery. In a disaster recovery deployment you deploy CA Access Control Enterprise Management on multiple servers to help ensure disaster recovery capabilities.

### **Default Enterprise Deployment Architecture**



The following diagram shows how you can deploy CA Access Control in your enterprise:

Note: Dashed lines indicate optional components.

### **High Availability Deployment Architecture**

The following diagram shows CA Access Control Enterprise Management in a high availability environment:



As illustrated in the preceding diagram, a high availability deployment has the following components:

- A primary Enterprise Management Server and at least one secondary Enterprise Management Server
- A clustered installation of a policy and reporting store and a user store
- Shared storage that is accessible by both the primary and secondary CA Access Control Enterprise Management servers
- A shared host name
- CA Access Control endpoints able to work with both the primary and secondary Enterprise Management Servers

### **Disaster Recovery Architecture**



The following diagram shows how you deploy CA Access Control in a disaster recovery configuration.

## **Components of CA Access Control Enterprise Management**

CA Access Control Enterprise Management consists of or makes use of the following components:

### **Enterprise Management Server**

The Enterprise Management Server is the central management server and contains components and tools that let you deploy policies to endpoints, manage privileged accounts, and define resources, accessors, and access levels. The Enterprise Management Server also contains components that manage communication between the Enterprise Management Server, the endpoints, and other components.

CA Access Control is silently installed when you install the Enterprise Management Server. CA Access Control protects the Enterprise Management Server and provides core functionality that supports the applications in the Enterprise Management Server.

### **Distribution Server**

The Distribution Server handles communication between the Application Server and the endpoints. The Distribution Server contains the following components:

- Distribution Host (DH)
- Message Queue (MQ)
- Java Connector Server (JCS)

**Note**: For failover purposes, you can install more than one Distribution Server in your enterprise, or install the Distribution Server components on separate computers. The Distribution Server is installed by default on the Enterprise Management Server.

### **Distribution Host (DH)**

The DH is responsible for distributing policy deployments, made on the DMS, to endpoints, and for receiving deployment status from endpoints to send to the DMS. To accomplish this task, the DH uses two Policy Model databases:

DH Writer—responsible for writing data it receives from endpoints to the DMS.

The name of this PMDB is *DHName*WRITER where *DHName* is the name of the DH, **DH**\_\_ by default.

 DH Reader—responsible for reading data from the DMS so that endpoints can retrieve it.

The name of this PMDB is *DHName* where *DHName* is the name of the DH, **DH**\_\_ by default.

By default, the DH is installed on the same computer as the Distribution Server. However, you can also install multiple DH nodes so that each manages a section of your enterprise for load balancing.

### Message Queue

The Message Queue manages inbound and outbound messages between the Enterprise Management Server and other components. The Message Queue has a dedicated queue for each client component that communicates with the Enterprise Management Server, as follows:

Report queue—Receives scheduled snapshots of the endpoint databases.

The reporting service uses the snapshots to generate CA Access Control reports.

Audit queue—Receives audit events that occur on the endpoints.

You can configure CA Enterprise Log Manager to collect and report on the audit events.

 Server to endpoint queue—Receives data from the DMS that is collected by endpoints.

For example, when you deploy a UNAB config policy the DMS sends the config policy to this queue. The UNAB agent then collects the policy from the queue and deploys the policy on the UNAB endpoint.

 Endpoint to server queue—Receives information from endpoints that is collected by the DMS.

For example, a UNAB endpoint sends a heartbeat notification to this queue. The DMS then collects the heartbeat notification from the queue and updates the endpoint status in its database.

### Java Connector Server (JCS)

The Java Connector Server (JCS) communicates with Java supported managed devices, such as Windows operating systems and SQL servers, and manages privileged accounts on PUPM endpoints.

### Web-based Applications

You use web-based applications to manage an enterprise installation of CA Access Control. The web-based applications are installed on the Application Server. The Application Server is installed by default on the Enterprise Management Server.

The Application Server contains the following web-based applications:

- CA Access Control Enterprise Management—Lets you manage policies across your enterprise and configure endpoints.CA Access Control Enterprise Management also contains Privileged User Password Management (PUPM), which lets you manage privileged accounts across the enterprise and acts as a password vault for the privileged accounts.
- CA Access Control Endpoint Management—Lets you administer and configure individual CA Access Control endpoints through a central administration server.
- CA Access Control Password Manager—Lets you manage CA Access Control user passwords. You can modify the password of a CA Access Control user or force the user to change their own password when they next log in.

### **CA Access Control Enterprise Management**

CA Access Control Enterprise Management is the user-interface through which you manage your enterprise. We recommend that you familiarize yourself with the user-interface after you have completed the initial installation of CA Access Control Enterprise Management and the CA Access Control endpoints.

To help you navigate CA Access Control Enterprise Management, subject specific tasks are grouped under tabs. Using these tasks you can:

- View your implementation of CA Access Control throughout the enterprise
- Configure hosts and host groups and assign policies to CA Access Control and UNAB endpoints
- Check out and check in privileged account passwords
- Configure privileged accounts, endpoints, password policies and password consumers
- Display reports, manage snapshot definitions and capture snapshot data
- Manage users, groups, roles and tasks
- Manage system wide connection settings
- View audit records

**Note**: For more information about completing tasks in CA Access Control Enterprise Management, see the *Online Help* 

### **Deployment Map Server (DMS)**

The DMS sits at the core of advanced policy management. The purpose of the DMS is to keep up-to-date information on policies (policy versions, scripts) and policy deployment status on each computer. The DMS stores versions of your policies that you can later assign, unassign, deploy, and undeploy as required.

A DMS is a Policy Model node and it uses a PMDB as its data repository. It collects the data it receives from notifications from each endpoint it is configured for and stores deployment information for each of these endpoints.

### **Report Portal**

The report portal lets you view CA Access Control reports.

CA Access Control reports provide information about the data in the CA Access Control database on each endpoint, that is, the rules and policies that you deploy on the endpoint and deviations from the rules and policies. You view CA Access Control reports in CA Business Intelligence or in CA Access Control Enterprise Management.

The central RDBMS stores the endpoint data that is used in CA Access Control reports.

### **Central RDBMS**

The central RDBMS stores the following:

- Endpoint data that is used in CA Access Control reports
- Privileged accounts passwords
- Session data for the web-based applications
- User data for the web-based applications (if you do not use Active Directory or Sun ONE as a user store)

**Note:** The web-based applications are CA Access Control Enterprise Management, CA Access Control Endpoint Management, and CA Access Control Password Manager.
## Endpoints

An enterprise deployment of CA Access Control has three types of endpoints:

 CA Access Control endpoint—An endpoint on which you have installed CA Access Control.

CA Access Control endpoints can also optionally serve as PUPM endpoints.

- UNAB endpoint—A UNIX endpoint on which you have installed the UNIX Authentication Broker (UNAB).
- PUPM endpoint—An endpoint that you manage with Privileged User Password Management (PUPM).

# CA User Activity Reporting Module Components

You can send CA Access Control audit events from each of the endpoints and from the Enterprise Management Server to CA User Activity Reporting Module for collection and reporting. The following components support CA User Activity Reporting Module integration with CA Access Control:

- CA User Activity Reporting Module Agent—Collects audit events from the audit queue on the Distribution Server and sends the audit events to the CA User Activity Reporting Module Server for processing.
- CA User Activity Reporting Module Server—Receives the audit events and may apply suppression and summarization rules before the events are stored.

**Note:** For more information about CA User Activity Reporting Module components, see the CA User Activity Reporting Module documentation.

## **User Store**

You can configure CA Access Control and the CA Access Control web-based applications to use the groups and users that are defined in Active Directory or Sun One. This means you can use a single data store for all your users.

**Note:** The web-based applications are CA Access Control Enterprise Management, CA Access Control Endpoint Management, and CA Access Control Password Manager.

# Chapter 3: Installing the Enterprise Management Server

This section contains the following topics:

Environment Architecture (see page 39) How to Prepare the Enterprise Management Server (see page 41) How to Install the Enterprise Management Server Components (see page 48)

# **Environment Architecture**

An enterprise installation of CA Access Control lets you centrally manage policies, privileged accounts, and CA Access Control endpoints; view information about the policies on each endpoint; and report on the security status of endpoints. You can manage these features through web-based interfaces or through utilities.

To manage your enterprise installation of CA Access Control, install the Enterprise Management Server on a central computer and configure it for your enterprise.

CA Access Control is installed silently when you install the Enterprise Management Server. CA Access Control protects the Enterprise Management Server and provides core functionality that supports the applications in the Enterprise Management Server.

Once you installed the Enterprise Management Server, you install and configure the CA Access Control and UNAB endpoints. If you have existing CA Access Control endpoints, configure each endpoint for advanced policy management and reporting.



The following diagram shows the Enterprise Management Server architecture:

The previous diagram illustrates the following:

- The Enterprise Management Server uses the following ports:
  - Port 8891 for symmetric encryption and port 5249 for SSL communication with the CA Access Control endpoints.
  - Ports 1433 (MS SQL) or 1521 (Oracle) to communicate with the RDBMS.
  - Ports 389 or 686 for encrypted communication with Active Directory.
  - Port 20411 for encrypted communication with the Java Connector Server (JCS)
  - Port 7243 for encrypted communication with the Message Queue
- PUPM communicates with the endpoints according to the endpoint type (Windows Agentless, SSH Device and more).
- Enterprise Management Server communciates with CA Business Intelligence using port 8080.
- Enterprise Management Server communicates with CA User Activity Reporting Module using port 5250 for encrypted communication.
- UNAB communicates with Active Directory using the following ports: 53, 88, 123, 289, 445, 464, 3268.

# How to Prepare the Enterprise Management Server

Before you install the Enterprise Management Server, you prepare the server. If you are upgrading an r12.5 or later CA Access Control Enterprise Management installation, you have already prepared the Enterprise Management Server and you do not need to complete these steps again.

**Note:** When you install the Enterprise Management Server, the installation program also installs CA Access Control Endpoint Management, if it is not already installed. If you have installed CA Access Control Endpoint Management, do not repeat those steps.

To prepare the Enterprise Management Server, complete the following steps:

1. <u>Prepare the central database for Enterprise Management</u> (see page 43).

You can also choose to prepare the database by manually creating and configuring the central database using the RDBMS native management tools.

- 2. Install the prerequisite software using *one* of the following methods:
  - (Windows) <u>Run the prerequisite installation utility</u> (see page 47).

CA Access Control provides a utility that installs the Java Development Kit (JDK) and the JBoss application server. If you already have installed the software, you can skip this step.

Use existing software or install the prerequisite software manually, as follows:

**Note:** You can find prerequisite third-party software on the CA Access Control Premium Edition Third Party Components DVDs. For information about supported versions, see the *Release Notes*.

- a. Install a supported version of Java Development Kit (JDK).
- b. (Linux) Define the JDK/bin directory in the system PATH and set its value to the installation path.

For example, to set the path on Linux using the bash shell, enter the following command:

export PATH=/usr/jdk/j2sdk.1.6.0\_19/bin:\$PATH

**Note:** To set the path permanently, set the path in your shell startup file.

c. Install a supported JBoss version.

We recommend that you run JBoss as a service. (daemon on UNIX).

**Note:** If you already have JBoss installed, we recommend that you run JBoss once before installing CA Access Control Enterprise Management to resolve any open ports issues. The CA Access Control Enterprise Management installation program does not use the default JBoss ports. For example, the installation program uses port number 18080 rather than port number 8080 for HTTP connections. Verify that you specify the ports that JBoss uses during the Enterprise Management Server installation.

d. (Linux) verify that the rpmbuild package from your Linux distribution is installed.

The Enterprise Management Server requires the rpmbuild package to install the Advanced Policy Management option on the server.

You can now install CA Access Control Enterprise Management on the Enterprise Management Server.

# Prepare the Central Database for Enterprise Management

CA Access Control Enterprise Management requires a relational database management system (RDBMS). You must set this up before you install CA Access Control Enterprise Management.

You have two options for setting up your database to work with CA Access Control Enterprise Management:

 Pre-populate the central database using deployment scripts CA Access Control provides.

Using this option, you separate between database preparation and CA Access Control Enterprise Management installation. The database administrator can review and control the changes CA Access Control needs to make to the database.

 Let CA Access Control Enterprise Management prepare the central database during installation.

Using this option, the CA Access Control Enterprise Management installation populates the database as part of the installation process.

#### To prepare the database for CA Access Control Enterprise Management

1. If you do not already have one, install a supported RDBMS as the central database.

Note: For a list of supported RDBMS software, see the Release Notes.

2. Configure the RDBMS for CA Access Control Enterprise Management:

Verify that the database can be accessed locally and from a remote client.

For Oracle, create a new user for the central database.

This user must have the following permissions and settings:

- CONNECT (granting the following system privileges: ALTER SESSION, CREATE CLUSTER, CREATE DATABASE LINK, CREATE SEQUENCE, CREATE SESSION, CREATE SYNONYM, CREATE TABLE, CREATE VIEW)
- RESOURCE (granting the following system privileges: CREATE CLUSTER, CREATE INDEXTYPE, CREATE OPERATOR, CREATE PROCEDURE, CREATE SEQUENCE, CREATE TABLE, CREATE TRIGGER, CREATE TYPE)
- Unlimited quota on the tablespace that hosts the CA Access Control Enterprise Management Server.
- For SQL Server:
  - Create a new case-*insensitive* database.

The database must have the sort order SQL\_Latin1\_General\_CP1\_CI\_AS.

 Create a new user, make the new database the default database of the user, and assign the user the following privileges: DBCREATOR, SYSADMIN

- 3. (Optional) Pre-populate the central database using the deployment scripts CA Access Control provides.
  - a. <u>Customize the deployment scripts before you deploy them</u> (see page 44).

The deployment scripts define four default user accounts that CA Access Control Enterprise Management uses (superadmin, selfreguser, neteautoadmin, [default user]). You can change the names of these default accounts and their passwords.

**Important!** Customize the scripts only if you plan to use the embedded user store. If you use Active Directory, CA Access Control Enterprise Management does not store account information in the central database.

- b. Deploy the deployment scripts (see page 46).
- c. Configure the database user that you will use for CA Access Control Enterprise Management installation.
  - For Oracle, keep the CONNECT and RESOURCE roles for the user you created.
  - For SQL Server, create a new user, selecting the database you created earlier as default, map the user to the database, and set the following permissions: CONNECT.SELECT, INSERT, DELETE, UPDATE, EXECUTE.

### **Customize the Central Database Deployment Scripts**

The deployment scripts define four default user accounts that CA Access Control Enterprise Management uses (superadmin, selfreguser, neteautoadmin, [default user]). You can change the names of these default accounts and their passwords.

**Important!** Customize the scripts only if you plan to use the embedded user store. If you use Active Directory, CA Access Control Enterprise Management does not store account information in the central database.

#### To customize the central database deployment scripts

- 1. Insert the appropriate CA Access Control Premium Edition Server Components DVD for your operating system into your optical disc drive.
- 2. Copy the deployment script for your RDBMS to a temporary local folder.

By default, the database deployment scripts are located on the optical media at the following location:

- Oracle: /Scheme/ORACLE/AC125\_oracle\_script.sql
- SQL Server: /Scheme/MSSQL/AC125\_mssql\_script.txt

- 3. Edit the script as follows:
  - a. Locate the *Table : TBLUSERS* section.
  - b. Edit each line that defines a user to (INSERT INTO tblusers ...) to change the account name and password as required.
- 4. Save and close the script.

The customized script can now be deployed.

#### **Example: Customize the CA Access Control RDBMS Deployment Scripts**

This example uses code snippets that are common to the Microsoft SQL Server and Oracle Database deployment scripts. In this example, you customize the script to change the default user account superadmin and password to one of your choosing.

The following snippet sets the default CA Access Control Enterprise Management super user if you use the RDBMS as your user store:

INSERT INTO tblUsers (ID,loginid, lastname, firstname, password) VALUES
(1,'superadmin', 'Admin','Super', 'test')

The SQL command creates a user account called *superadmin* (first name *Super*, last name *Admin*) with the password *test*.

In the snippet you edit, you modify the user account to be called sysadmin and assign it with the password *COmplex*.

INSERT INTO tblUsers (ID,loginid, lastname, firstname, password) VALUES
(1,'sysadmin', 'Admin','System', 'COmp!ex')

#### **Central Database Script Deployment Examples**

Once you complete customizing the deployment script, you can deploy it to your database. Deploying the script populates the central database and prepares it for CA Access Control Enterprise Management installation. You deploy the script using the native database tools.

# Example: Deploy the CA Access Control Oracle Deployment Script on Oracle Database 10g

This example shows you how to deploy the CA Access Control Oracle deployment on an Oracle Database 10g.

 Click Start, All Programs, Oracle - ORACLE\_HOME, Application Development, SQL Plus.

The Oracle SQL\*PLUS window opens.

- 2. Connect to the Oracle database using the user you created earlier.
- 3. Enter the full pathname to the script file preceded by the @ sign. For example:

@C:\\temp\_directory\AC126\_oracle\_script.sql

Oracle deploys the script to the database.

# Example: Deploy the CA Access Control Microsoft SQL Server Deployment Script on SQL Server 2005

This example shows you how to deploy the CA Access Control Microsoft SQL Server deployment on a SQL Server 2005.

1. Click Start, All Programs, Microsoft SQL Server 2005, SQL Server Management Studio.

A login window appears.

2. Log in as a system administrator.

The Microsoft SQL Server Management Studio opens.

3. Click File, Open, File.

The Open File dialog appears.

- 4. Browse for and select the CA Access Control Microsoft SQL Server deployment script, and click Open.
- 5. From the Available Databases drop-down list, select the database you created earlier to deploy the script on.
- 6. Click Execute to deploy the script.

Microsoft SQL Server deploys the script to the database.

# **Run the Prerequisite Software Installation Utility**

#### Valid on Windows

CA Access Control Enterprise Management requires the Java Development Kit (JDK) and the JBoss application server to run. The correct versions of this prerequisite third-party software are supplied on the CA Access Control Premium Edition Third-Party Components DVDs. Also on these DVDs is a utility that installs the prerequisite software as follows:

- Sets JDK and JBoss to install with settings appropriate for CA Access Control Enterprise Management.
- Installs JBoss as a service.
- Lets you launch the CA Access Control Enterprise Management installation with prerequisite software settings preconfigured.

If you already have the software installed, you can skip this procedure. If not, we recommend that you use the supplied utility to install it as described in this procedure.

If you already have JBoss installed, we recommend that you run JBoss once before installing CA Access Control Enterprise Management to resolve any open ports issues.

#### Follow these steps:

- 1. Insert the CA Access Control Premium Edition Third-Party Components DVD for Windows into your optical disc drive.
- 2. Navigate to the PrereqInstaller directory on the optical disc drive and run install\_PRK.exe.

The InstallAnywhere wizard opens.

3. Complete the wizard as required.

**Note:** To configure additional JBoss port numbers, select Advanced Configuration on the JBoss Ports Settings page. If you specify a JBoss port that is busy, the installer prompts you to specify a different port number.

4. Review the details in the summary report and click Install.

The prerequisite software installs. This can take some time.

- 5. Do one of the following:
  - If you want to start the CA Access Control Enterprise Management installation process after the prerequisite software installs, when prompted, insert the CA Access Control Premium Edition Server Components DVD for your operating system into your optical disc drive and select Done. Close the Product Explorer window if it appears.
  - If you want to install additional Enterprise Management Servers, for high availability or disaster recovery, specify a custom FIPS key to install CA Access Control Enterprise Management with. When prompted, click Done and click Finish to close the dialog that appears.
  - If you do not want to start the CA Access Control Enterprise Management installation process after the prerequisite software installs, when prompted, click Done and click Finish to close the dialog that appears.

The prerequisite software installation process is complete.

# How to Install the Enterprise Management Server Components

The Enterprise Management Server components let you centrally manage your enterprise deployment of CA Access Control. After you install the Enterprise Management Server components, you install the reporting service and the CA Access Control and UNAB endpoints.

Before you begin the implementation, verify that the computers you are using meet the required hardware and software specifications.

**Note:** For more information about the required hardware and software specifications, see the CA Access Control Compatibility Matrix that is available from the CA Access Control product page on <u>CA Support</u>.

To install the Enterprise Management Server components, do the following:

1. Prepare the Enterprise Management Server.

Before you install the Enterprise Management Server, prepare the computer by installing and configuring the prerequisites.

**Note**: We recommend that you install the latest software updates and patches for your system before you install the Enterprise Management Server.

2. Install the master CA Access Control Enterprise Management.

All the web-based applications, the Distribution Server, the DMS, and CA Access Control are installed.

- 3. (Optional) Install the Load Balancing Enterprise Management Servers.
- 4. (Optional) Configure the Enterprise Management Server to use Sun ONE directory or CA Directory user stores.

You can define CA Access Control Enterprise Management to use the Sun ONE or CA Directory user stores in place of Active Directory or the relational database user store.

- 5. (Optional) Configure the Enterprise Management Server for SSL communication, as follows:
  - a. Configure JBoss for SSL communications.
  - b. (Active Directory) Configure the Enterprise Management Server for SSL communication.
- 6. (Optional) Set up advanced configuration.

Use the CA Identity Manager Management Console to perform advanced configuration tasks, such as to modify the properties of the central database to generate custom reports and configure CA Access Control Enterprise Management to send email notifications when a specific event occurs.

7. (Optional) Implement enterprise reporting.

The Enterprise Management Server provides reporting capabilities through a CA Business Intelligence Common Reporting server (CA Access Control Report Portal).

8. (Optional) Integrate with CA User Activity Reporting Module.

You have installed the Enterprise Management Server. You can now install and configure your endpoints.

#### More information:

How to Set Up Reporting Service Server Components (see page 105)

# **Install CA Access Control Enterprise Management on Windows**

Installing CA Access Control Enterprise Management installs all the Enterprise Management Server components. You must prepare the Enterprise Management Server before you install CA Access Control Enterprise Management.

We recommend that you use the Prerequisite Kit installer to initiate the CA Access Control Enterprise Management installation. This installer installs the prerequisite third-party software and then starts the CA Access Control Enterprise Management installation.

**Note:** You cannot install CA Access Control Enterprise Management by network install. Copy the entire contents of the Disk 1 directory of the CA Access Control Premium Edition Server Components DVD to your installation directory or map a drive to the DVD instead.

#### To install CA Access Control Enterprise Management on Windows

- 1. Stop JBoss Application Server if it is running.
- 2. Stop CA Access Control services if you are installing CA Access Control Enterprise Management on a computer that already has CA Access Control installed.
- 3. Insert the CA Access Control Premium Edition Server Components DVD for Windows into your optical disc drive.
- 4. Expand the Components folder in the Product Explorer, select CA Access Control Enterprise Management, then click Install.

The InstallAnywhere installation program starts.

- a. (Optional) Specify the full pathname of a custom FIPS key to use during installation.
- b. Open a command prompt window and navigate to the CA Access Control Enterprise Management installation executable on the CA Access Control Premium Edition Server Components DVD for Windows. This file is located under:

\EnterpriseMgmt\Disk1\InstData\NoVM

c. Run the CA Access Control Enterprise Management install executable with the following argument:

-DFIPS\_KEY=full\_pathname\_to\_FIPS\_key

For example, to install with a custom FIPS key located at C:\tmp\FIPS.key: E:\EnterpriseMgmt\Disk1\InstData\NoVM\install\_EntM\_r125.exe -DFIPS\_KEY=C:\tmp\FIPSkey.dat

**Important!** If you install CA Access Control Enterprise Management for High Availability, specify the same FIPS key on the primary and secondary Enterprise Management Servers. Specify a custom FIPS key if you install CA Access Control Enterprise Management for High Availability with FIPS support.

The InstallAnywhere installation program starts.

5. Complete the wizard as required. The following installation inputs are not self-explanatory:

#### **Choose Install Folder**

Defines the full path of the installation folder.

**Default**: \ProgramFiles\CA\AccessControlServer\

Note: On 64 bit operating systems the default installation folder is:

\Program Files(x86)\CA\AccessControlServer\

#### Java Development Kit (JDK)

Defines the location of an existing JDK.

**Note:** If you launch the CA Access Control Enterprise Management installation immediately after you use the CA Access Control Premium Edition Third Party Component DVDs to install the prerequisite software, this wizard page does not appear. The installation utility configures the installation settings on this page based on the values you provided in the prerequisite software installation process.

#### **JBoss Application Server Information**

Defines the JBoss instance that you want to install the application on.

To do this, define the:

- JBoss folder, which is the top directory where you have JBoss installed.
  - For example, C:\jboss-4.2.3.GA on Windows or /opt/jboss-4.2.3.GA on Solaris.
- URL, which is the IP address or host name of the computer you are installing on.
- Port JBoss uses.
- Port JBoss uses for secure communications (HTTPS).
- Naming port number.

**Note:** If you launch the CA Access Control Enterprise Management installation immediately after you use the CA Access Control Premium Edition Third Party Component DVDs to install the prerequisite software, this wizard page does not appear. The installation utility configures the installation settings on this page based on the values you provided in the prerequisite software installation process.

#### **Communication Password**

(Primary Enterprise Management Server Only) Defines the password used for CA Access Control Enterprise Management Server inter-component communication.

**Note**: CA Access Control Enterprise Management uses the communication password to manage the Message Queue keystore and administrator account, handle communication between CA Access Control Enterprise Management and the endpoints and manage the Java Connection Server.

#### **Database Information**

Defines the connection details to the RDBMS:

- Database Type—Specifies a supported RDBMS.
- Host Name—Defines the name of the host where you have the RDBMS installed.
- Port Number—Defines the port used by the RDBMS you specified. The installation program provides the default port for your RDBMS.
- Service Name—(Oracle) Defines the name that identifies your RDBMS on the system. For example, for Oracle Database 10g this is *orcl* by default.
- Database Name—(MS SQL) Defines the name of the database you created.

Username—Defines the name of the user that you created when you prepared the database.

**Note:** You granted this user the appropriate database permissions when you prepared the database.

 Password—Defines the RDBMS password of the user that you created when you prepared the database.

The installation program checks the connection to the database before it continues.

#### **User Store Type**

Defines the user store type CA Access Control Enterprise Management uses. Select *one* of the following:

- Embedded User Store—CA Access Control Enterprise Management stores user information in the RDBMS.
- Active Directory—you specify the connection information details in the next screen.
- Other User Store—you specify the user store configuration information after the CA Access Control Enterprise Management installation completes.

**Note:** To deploy login authorization policies to UNAB, you must select either Active Directory or Other User Store as the user store. If you select Active Directory or Other User Store as the user store, you cannot create or delete users and groups in CA Access Control Enterprise Management. For more information about UNAB and Active Directory restrictions, see the *Enterprise Administration Guide*.

#### **Active Directory Settings**

Defines the Active Directory user store settings:

- Host—Defines the Domain Controller host name of Active Directory.
- Port—Defines the port used by default for LDAP queries against Active Directory, for example, 389.
- Search Root—Defines the search root, for example, ou=DomainName, DC=com.

**Note:** Set the Search Root at least one node higher in the directory tree than the Distinguished Names (DNs) for the users specified for User DN and System User. Otherwise, Enterprise Management might launch without displaying any tabs.

 User DN—Defines the Active Directory user account name that is used to manage CA Access Control Enterprise Management. For example: CN=Administrator, cn=Users, DC=DomainName, DC=Com.

**Note:** This user issues LDAP queries against Active Directory. You can choose to define a user with read-only privileges for this parameter. However, if you define a user with read-only privileges, you cannot assign admin roles or privileged access roles to users in CA Access Control Enterprise Management. Instead, you modify the member policy for each role to point to an Active Directory group.

 Password—Defines the password of the Active Directory user account that is used to manage CA Access Control Enterprise Management.

The installation program checks the connection to Active Directory before continuing.

**Note**: You can use the DSQUERY directory querying utility to discover the user Distinguished Name (User DN). You must run this query on the Active Directory server. For example:

dsquery user -name administrator
"CN=Administrator,CN=Users,DC=lab.DC=demo"

#### System User

(Active Directory only) Defines the DN of the Active Directory user who is assigned the System Manager admin role in CA Access Control Enterprise Management.

Example: CN=SystemUser, ou=OrganizationalUnit, DC=DomainName, DC=Com

**Note:** By default, a user with the System Manager admin role can perform, create, and manage all tasks in CA Access Control Enterprise Management. For more information about the System Manager admin role, see the *Enterprise Administration Guide*.

#### **Administrator Password**

(Embedded user store only) Defines the password of *superadmin*, the CA Access Control Enterprise Management administrator. Make a note of the password so you can log in to CA Access Control Enterprise Management when the installation is complete.

**Note:** In this step you create the superadmin user in the embedded user store. The superadmin user is assigned the System Manager admin role in CA Access Control Enterprise Management. You log in as superadmin the first time you log in to CA Access Control Enterprise Management. For more information about the System Manager admin role, see the *Enterprise Administration Guide*. CA Access Control Enterprise Management is installed after you complete the wizard. Reboot the computer to complete the CA Access Control Enterprise Management installation.

6. Select Yes, restart my system and click Done.

The computer reboots. You can now configure CA Access Control Enterprise Management for your enterprise.

# Install CA Access Control Enterprise Management on Linux

Installing CA Access Control Enterprise Management installs all the Enterprise Management Server components. You must prepare the Enterprise Management Server before you install CA Access Control Enterprise Management.

You must use console installation to install CA Access Control Enterprise Management on a Linux computer.

#### Follow these steps:

- 1. Shut down the JBoss Application Server if it is running.
- 2. Stop CA Access Control services if you are installing CA Access Control Enterprise Management on a computer that already has CA Access Control installed.
- 3. Complete the following ste[s:
  - a. Insert the appropriate CA Access Control Premium Edition Server Components DVD for your operating system into your optical disc drive.
  - b. Mount the optical disc drive. Do *not* specify the noexec option. If you specify the noexec option, the installation fails.

**Note:** In some releases of Linux, the operating system automounts the optical disc drive with the noexec option.

c. Open a terminal window and set a writeable temporary directory as the working directory.

**Note:** The installer unpacks the installation files to the working directory. If you specify a working directory on the optical media, the installation fails because the installer cannot unpack the files.

d. Execute the installer, specifying the full path to the installer in the command. For example, if you mount the optical disc drive in the /media directory, enter the following command:

/media/EnterpriseMgmt/Disk1/InstData/NoVM/install\_EntM\_r125.bin -i console

To use a custom FIPS key during installation, you must also specify the full pathname of the FIPS key in the command, using the format -DFIPS\_KEY=*path*. For example, to install with a custom FIPS key located at /tmp/FIPSkey.dat:

/media/EnterpriseMgmt/Disk1/InstData/NoVM/install\_EntM\_r125.bin -i console
-DFIPS\_KEY=/tmp/FIPSkey.dat

**Important!** If you install CA Access Control Enterprise Management for High Availability, specify the same FIPS key on the primary and secondary Enterprise Management Servers. Specify a custom FIPS key if you install CA Access Control Enterprise Management for High Availability with FIPS support.

The InstallAnywhere console appears after a few moments.

4. Complete the prompts as required. The following installation inputs are not self-explanatory:

#### Java Development Kit (JDK)

Defines the location of an existing JDK.

#### **JBoss Application Server Information**

Defines the JBoss instance that you want to install the application on.

You need to:

 Define the JBoss folder, which is the top directory where you have JBoss installed.

For example, /opt/jboss-4.2.3.GA

- Define the port JBoss uses.
- Define the port JBoss uses for secure communications (HTTPS).
- Define the naming port number.

**Note:** The CA Access Control Enterprise Management installation program does not use the default JBoss ports but instead adds 10000 to the default JBoss port numbers. For example, the installation program uses port number 18080 rather than port number 8080 for HTTP connections. Ensure that you specify the ports that JBoss uses.

#### **Communication Password**

(Primary Enterprise Management Server Only) Defines the password used for CA Access Control Enterprise Management Server inter-component communication.

**Note**: CA Access Control Enterprise Management uses the communication password to manage the Message Queue keystore and administrator account, handle communication between CA Access Control Enterprise Management and the endpoints and manage the Java Connection Server.

#### **Database Information**

Defines the connection details to the RDBMS:

- Database Type—Specifies a supported RDBMS.
- Host Name—Defines the name of the host where you have the RDBMS installed.
- Port Number—Defines the port used by the RDBMS you specified. The installation program provides the default port for your RDBMS.
- Service Name—(Oracle) Defines the name that identifies your RDBMS on the system. For example, for Oracle Database 10g this is *orcl* by default.
- Database Name—(MS SQL) Defines the name of the database you created.
- Username—Defines the name of the user that you created when you prepared the database.

**Note:** You granted this user the appropriate database permissions when you prepared the database.

 Password—Defines the RDBMS password of the user that you created when you prepared the database.

The installation program checks the connection to the database before it continues.

#### **User Store Type**

Defines the user store type CA Access Control Enterprise Management uses. Select *one* of the following:

- Embedded User Store—CA Access Control Enterprise Management stores user information in the RDBMS.
- Active Directory—you specify the connection information details in the next screen.
- Other User Store—you specify the user store configuration information after the CA Access Control Enterprise Management installation completes.

**Note:** To deploy login authorization policies to UNAB, you must select either Active Directory or Other User Store as the user store. If you select Active Directory or Other User Store as the user store, you cannot create or delete users and groups in CA Access Control Enterprise Management. For more information about UNAB and Active Directory restrictions, see the *Enterprise Administration Guide*.

#### **Active Directory Settings**

Defines the Active Directory user store settings:

- **Host**—Defines the Domain Controller host name of Active Directory.
- Port—Defines the port used by default for LDAP queries against Active Directory, for example, 389.
- Search Root—Defines the search root, for example, ou=DomainName, DC=com.

**Note:** Set the Search Root at least one node higher in the directory tree than the Distinguished Names (DNs) for the users specified for User DN and System User. Otherwise, Enterprise Management might launch without displaying any tabs.

 User DN—Defines the Active Directory user account name that is used to manage CA Access Control Enterprise Management. For example: CN=Administrator, cn=Users, DC=DomainName, DC=Com.

**Note:** This user issues LDAP queries against Active Directory. You can choose to define a user with read-only privileges for this parameter. However, if you define a user with read-only privileges, you cannot assign admin roles or privileged access roles to users in CA Access Control Enterprise Management. Instead, you modify the member policy for each role to point to an Active Directory group.

 Password—Defines the password of the Active Directory user account that is used to manage CA Access Control Enterprise Management.

The installation program checks the connection to Active Directory before continuing.

**Note**: You can use the DSQUERY directory querying utility to discover the user Distinguished Name (User DN). You must run this query on the Active Directory server. For example:

dsquery user -name administrator "CN=Administrator,CN=Users,DC=lab.DC=demo"

#### System User

(Active Directory only) Defines the DN of the Active Directory user who is assigned the System Manager admin role in CA Access Control Enterprise Management.

Example: CN=SystemUser, ou=OrganizationalUnit, DC=DomainName, DC=Com

**Note:** By default, a user with the System Manager admin role can perform, create, and manage all tasks in CA Access Control Enterprise Management. For more information about the System Manager admin role, see the *Enterprise Administration Guide*.

#### **Administrator Password**

(Embedded user store only) Defines the password of *superadmin*, the CA Access Control Enterprise Management administrator. Make a note of the password so you can log in to CA Access Control Enterprise Management when the installation is complete.

**Note:** In this step you create the superadmin user in the embedded user store. The superadmin user is assigned the System Manager admin role in CA Access Control Enterprise Management. You log in as superadmin the first time you log in to CA Access Control Enterprise Management. For more information about the System Manager admin role, see the *Enterprise Administration Guide*.

5. Review the pre-installation summary information. If the information is correct, press Enter.

CA Access Control Enterprise Management is installed.

6. Press Enter.

The installer closes.

7. Reboot the computer, if required.

You now need to configure CA Access Control Enterprise Management for your enterprise.

# How to Configure CA Access Control Enterprise Management to Use SUN ONE or CA Directory

If you are using SUN ONE or CA Directory as the user store, you configure the user store settings after you install CA Access Control Enterprise Management. You use the CA Identity Manager Management Console to configure the directory and environment settings.

**Important!** To use SUN ONE directory or CA Directory as the user store, select the Other User Store option in the Select User Store screen at the CA Access Control Enterprise Management installation wizard.

Do the following to configure CA Access Control Enterprise Management to use SUN ONE or CA Directory:

1. Install the directory.

**Note**: For SUN ONE, verify that you installed the SUN ONE Directory Suite and Administration Services.

2. Create a public user and a system manager account.

You specify the user credentials when you create the environment.

3. Install CA Access Control Enterprise Management

When you install CA Access Control Enterprise Management you do not specify the user store.

- 4. Create a directory using the CA Identity Manager Management Console.
- 5. Define the directory connection settings.
- 6. Create an environment using CA Identity Manager Management Console.
- 7. Define the environment settings to associate to the directory you created.

#### More information:

<u>Create a Directory for the SUN ONE User Store</u> (see page 61) <u>Create an Environment for the SUN ONE User Store</u> (see page 62) <u>Create a Directory for CA Directory</u> (see page 65) <u>Create an Environment for CA Directory</u> (see page 66)

#### Create a Directory for the SUN ONE User Store

A directory provides information about a user directory that CA Access Control Enterprise Management manages. You configure the SUN ONE directory settings after you install CA Access Control Enterprise Management.

#### To create a directory for the SUN ONE user store

1. Navigate to the following directory, where *JBOSS\_HOME* indicates the directory where you installed JBoss:

JBOSS\_HOME/server/default/deploy/IdentityMinder.ear/user\_console.war/META-INF
/

- 2. Locate the SAM\_iPlanet\_directory.xml file and copy the file to a temporary directory.
- 3. Open the CA Identity Manager Management Console as follows:

http://enterprise\_host:port/idmmanage

The CA Identity Manager Management Console opens.

4. Select Directories, New.

The new directory window opens.

- 5. Select Browse and locate the SAM\_iPlanet\_directory.xml file. Click Next.
- 6. Enter the following information:
  - Name—defines the directory logical name
  - Description—(optional) specifies a description for the directory
  - Object Connection Name—specifies the name of the user store
  - Host—defines the directory host name or IP address
  - Port—defines the directory port number

Example:389

- Search root—defines the organization search root. Directory search will start from the root level
- **User DN**—defines a user account with privileges to log in to the directory

**Example**: cn=Usename, ou=Administration, ou=Corporate, o=Democorp, c=AU

- **Password**—defines the user account password
- Confirm password—enter the user account password to confirm the password
- Secure connection—indicates that the connection to the directory is secured
- 7. Click Next and Finish.

The new directory is created. You now need to create an environment.

#### Create an Environment for the SUN ONE User Store

#### Valid for Windows

After you create and configure the directory settings for the SUN ONE directory, you create an environment. An environment is a view of the user store. In an environment you manage users, groups, organizations, tasks and roles.

**Note**: The JBoss application server service automatically starts during Windows startup and if an environment does not exist, one is created. We recommend that you disable the automatic service startup. If the environment exists, delete it before you create the environment for the SUN ONE user store.

Before you create the environment, you must define the system manager account in the Sun ONE user directory.

**Important!** Verify that you do not define the system manager account directly under the search root Organization Unit (OU) rather, under an Organization Unit that is located under the search root. For example, if the search root you defined is dc=company, dc-com, create the system manager account under the Users OU as follows: uid=Sysmanager,ou=Users,dc=company,dc=com

#### To create an environment for the SUN ONE user store

1. Navigate to the following directory, where *JBOSS\_HOME* indicates the directory where you installed JBoss:

JBOSS\_HOME/server/default/deploy/IdentityMinder.ear/user\_console.war/META-INF
/

a. Locate the following files and copy them to a temporary directory:

ac-RoleDefinitions\_Iplanet\_EN.xml

ac-environmentSettings.xml

- b. Delete the ac-environment.properties files, if exists.
- 2. Open the CA Identity Manager Management Console, select Environments, then select New.

The new environment screen appears.

3. Enter **ac-env** as the name of the environment, provide a description and enter **ac** as the public URL alias, then click Next.

A screen appears displaying a list of available directories.

- 4. Select the SUN ONE directory you have defined to associate with this environment, then click Next.
  - a. (Optional) Select the directory to use as the provisioning directory for this environment, then click Next.

b. (Optional) Specify the user account to authenticate anonymous connections with, then select Validate.

CA Identity Manager Management Console validates the user account.

- 5. Click Next to continue.
- 6. Select Import Roles from File and use Browse to locate the file ac-RoleDefinitions\_iPlanet\_EN.xml, click Next.
- 7. Specify the user manager account, select Add and then select Next.

A summary screen opens.

**Important!** Verify that the user manager account exists in the directory.

8. Review the summary and click FInish.

CA Identity Manager Management Console creates the environment.

9. Select Environments, ac-env, Advanced Settings, then click Import.

The Import Settings window opens.

a. Browse to the directory where you saved the ac-environmentSettings.xml file, select it, then click Finish.

CA Identity Manager Management Console creates the environment.

10. Select Continue then select Start.

The environment starts up.

11. Select Environments, ac-env, Advanced Settings, Workflow.

The workflow properties windows opens

a. Check the box next to the Enabled property to enable workflow and then click save.

CA Identity Manager Management Console applies the changes to the environment.

12. Select Environments, ac-env, System Manager.

The System Manager windows opens.

a. Specify the system manager user account, then select Validate.

CA Identity Manager Management Console displays the system manager account properties.

b. Select Next, Finish.

CA Identity Manager Management Console displays the system manager configuration output and specifies errors, if identified.

c. Select Continue.

13. In the Status field, select Restart.

CA Identity Manager Management Console restarts the environment.

14. Restart the JBoss application server.

You have defined the SUN ONE directory as the user store for CA Access Control Enterprise Management. You can now log in to CA Access Control Enterprise Management.

#### **Create a Directory for CA Directory**

A directory provides information about a user directory that CA Access Control Enterprise Management manages. You configure the CA Directory settings after you install CA Access Control Enterprise Management.

# **Important!** If the UID attribute in the directory does not contain a value, you must edit the SAM CA Directory.xml file before you create the directory. For example:

<ImsManagedObjectAttr physicalname="uid" displayname="User ID" description="User ID" valuetype="String" required="true" multivalued="false" wellknown="%USER\_ID%" maxlength="0" permission="WRITEONCE"/>

**Note:** The UID attribute must have a unique user defined data. Each of the CA Directory attributes is mapped once to the CA Access Control Enterprise Management attributes in the CA Directory XML file.

#### To create a directory for CA Directory

1. Navigate to the following directory, where JBoss\_HOME indicates the directory where you installed JBoss:

JBoss\_HOME/server/default.deploy/IdentityMinder.ear/user\_console.war/META-INF
/

- 2. Copy the following files file to a temporary directory.
  - a. SAM\_CA\_Directory.xml
  - b. ac-RoleDefinitions\_CADir\_EN.xml
  - c. ac-environmentSettings.xml
- 3. Delete the ac-environment.properties file, if exists.
- 4. Start the JBoss application server.
- 5. Open the CA Identity Manager Management Console as follows:

http://enterprise\_host:port/idmmanage

The CA Identity Manager Management Console opens.

6. Select Directories, New.

The new directory window opens.

- 7. Select Browse and locate the SAM\_CA\_Directory.xml file. Click Next.
- 8. Enter the following details:
  - Name—defines the directory logical name
  - Description—(optional) specifies a description for the directory
  - Object Connection Name—specifies the name of the user store
  - Host—defines the directory host name or IP address
  - Port—defines the directory port number

Example:389

 Search root—defines the organization search root. Directory search will start from the root level

Note: Leave this field blank if you work with multiple domains

- User DN—defines a user account with privileges to log in to the directory

Example: cn=Usename, ou=Administration, ou=Corporate, o=Democorp, c=AU

- Password—defines the user account password
- Confirm password—enter the user account password to confirm the password
- Secure connection—indicates that the connection to the directory is secured
- 9. Click Next and Finish.

The new directory is created. You now need to create an environment.

### **Create an Environment for CA Directory**

#### Valid on Windows

After you create and configure the directory settings for CA Directory, you create an environment. An environment is a view of the user store. In an environment you manage users, groups, organizations, tasks and roles.

**Note**: The JBoss application server service automatically starts during Windows startup and if an environment does not exist, one is created. We recommend that you disable the automatic service startup. If the environment exists, delete it before you create the environment for CA Directory.

Before you create the environment, you must define the system manager account in CA Directory.

**Important!** Verify that you do not define the system manager account directly under the search root Organization Unit (OU) rather, under an Organization Unit that is located under the search root. For example, if the search root you defined is dc=company, dc-com, create the system manager account under the Users OU as follows: uid=Sysmanager,ou=Users,dc=company,dc=com

Note: For multiple domains support, define the user full DN

#### To create an environment for CA Directory

1. Open the CA Identity Manager Management Console, select Environments, then select New.

The new environment screen appears.

2. Enter **ac-env** as the name of the environment, provide a description and enter **ac** as the public URL alias, then click Next.

A screen appears displaying a list of available directories.

- 3. Select CA Directory to associate with this environment, then click Next.
  - a. (Optional) Select the directory to use as the provisioning directory for this environment, then click Next.
  - b. (Optional) Specify the user account to authenticate anonymous connections with, then select Validate.

CA Identity Manager Management Console validates the user account.

- 4. Click Next to continue.
- 5. Select Import Roles from File and use Browse to locate the file ac-RoleDefinitions\_CADir\_EN.xml, click Next.
- 6. Specify the user manager account, select Add and then select Next.

Note: For multiple domains support, specify the user full DN

A summary screen opens.

**Important!** Verify that the user manager account exists in the directory.

7. Review the summary and click Flnish.

CA Identity Manager Management Console creates the environment

8. Select Environments, ac-env, Advanced Settings, then click Import.

The Import Settings window opens.

a. Browse to the directory where you saved the ac-environmentSettings.xml file, select it, then click Finish.

CA Identity Manager Management Console creates the environment.

9. Select Continue then select Start.

The environment starts up.

10. Select Environments, ac-env, Advanced Settings, Workflow.

The workflow properties windows opens

a. Check the box next to the Enabled property to enable workflow and then click save.

CA Identity Manager Management Console applies the changes to the environment.

11. Select Environments, ac-env, System Manager.

The System Manager windows opens.

a. Specify the system manager user account, then select Validate.

CA Identity Manager Management Console displays the system manager account properties.

b. Select Next, Finish.

CA Identity Manager Management Console displays the system manager configuration output and specifies errors, if identified.

- c. Select Continue.
- 12. In the Status field, select Restart.

CA Identity Manager Management Console restarts the environment.

- 13. Restart the JBoss application server.
- 14. Open a Command Prompt window and navigate to the bin directory.
- 15. Run the following command to execute the CredentialSender:

CredentialsSender cn=root,dc=etasa dc=im,dc=etasa <communication\_password> CA Portal <yes|no>

For example:CredentialSecder cn=root,dc=etasa,dc=im,dc=esata *password* 20411 yes

You have defined CA Access Control Enterprise Management to use CA Directory. You can now log in to CA Access Control Enterprise Management.

# Start CA Access Control Enterprise Management

After you install CA Access Control Enterprise Management you need to start CA Access Control and the web application server.

#### Follow these steps:

1. Verify that CA Access Control services are started.

CA Access Control Enterprise Management requires that CA Access Control is running.

- 2. Verify that JBoss Application Server service is started. If JBoss Application Server services are not started, do one of the following:
  - (Windows) Click Start, Programs, CA, Access Control, Start Task Engine.

Note: The Task Engine may take some time to load the first time you start it.

- (Windows) Start the JBoss Application Server service from the Services panel.
- (Linux) Enter ./JBOSS\_DIR/bin/run.sh -b 0.0.0.0

When the JBoss Application Server completes loading, you can log in to the CA Access Control Enterprise Management web-based interface.

## **Open CA Access Control Enterprise Management**

Once you install and start CA Access Control Enterprise Management you can start the web-based interface from a remote computer using the URL for CA Access Control Enterprise Management.

#### **To open CA Access Control Enterprise Management**

- 1. Open a web browser and enter one of the following URLs, for your host:
  - To use a non-SSL connection, enter the following URL:

http://enterprise\_host:port/iam/ac

To use an SSL connection, enter the following URL:

https://enterprise\_host:HTTPSport/iam/ac

2. Use your credentials to log in.

The CA Access Control Enterprise Management home page appears.

**Note:** You can also open CA Access Control Enterprise Management from a Windows computer where you installed it by clicking Start, Programs, CA, Access Control, Enterprise Management.

#### **Example: Open CA Access Control Enterprise Management**

Enter the following URL into your web browser to open CA Access Control Enterprise Management from any computer on the network:

http://appserver123:18080/iam/ac

The URL suggests that CA Access Control Enterprise Management is installed on a host named appserver123 and uses the default CA Access Control Enterprise Management port 18080.

**Example: Open CA Access Control Enterprise Management Using SSL** 

Enter the following URL into your web browser to open CA Access Control Enterprise Management using SSL from any computer on the network:

https://appserver123:18443/iam/ac

The URL suggests that CA Access Control Enterprise Management is installed on a host named appserver123 and uses the default CA Access Control Enterprise Management SSL port 18443.

## **Enterprise Management Server SSL Communication**

By default, the Enterprise Management Server components do not use SSL for communication. You can set the following components to communicate using SSL:

JBoss Application Server

By default, JBoss is not installed with SSL support.

Message Queue

You can modify the Message Queue default SSL ports to prevent unauthorized access to well-known ports.

- CA Access Control Enterprise Management
- (Optional) Java Connector Server

Import a new SSL certificate after you upgrade to CA Access Control r12.5 SP3 only if you used the default certificate.

### **SSL Communication for JBoss**

By default, JBoss is not installed with SSL support. This means that all communication between CA Access Control Enterprise Management and JBoss is not encrypted. You can configure JBoss to use SSL for secure communication.

**Note**: For more information about how to configure SSL for JBoss, refer to the JBoss product documentation.

#### **Example: Configure JBoss for SSL Communication on Windows**

This example shows you how to configure the JBoss application server to use SSL for secure communication.

**Important!** This procedure describes how to configure JBoss to use SSL for secure communication using JBoss version 4.2.3 and JDK version 1.5.0.

#### Follow these steps:

- 1. Stop JBoss if it is running.
- 2. Open a command-prompt window and navigate to the following directory:

JBoss\_HOME\server\default\deploy\IdentityMinder.ear\custom\ppm\truststore

3. Enter the following command to change the default ssl,keystore password:

keytool -storepasswd -new password -keystore ssl.keystore -storepass secret

#### -storepasswd

Specifies to change the keystore password. The password must be at least six (6) characters long.

#### -keystore

Specifies the keystore name to add the certificate.

#### -keystore

Specifies the keystore name.

#### -storepass

Defines the password used to protect the keystore.

4. Enter the following command to create a key for the Enterprise Management Servee:

keytool -genkey -alias entm -keystore ssl.keystore -keyalg RSA

#### -genkey

Specifies that the command should generate a key pair (public and private keys).

#### -alias

Defines the alias to use for adding an entry to the keystore.

#### -keyalg

Specifies the algorithm to use to generate the key pair.

The keytool utility starts.

- 5. Enter the password *secret*.
- 6. Complete the prompts as required and press enter to verify the parameters you entered.

The certificate is added to the keystore.

Note: The keystore and ket alias must use identical passwords.

7. Enter the following command to encrypt the keystore password to a file:

java -cp JBoss\_HOME/server/default/lib/jbossx.jar org.jboss.security.plugins.FilePassword welcometojboss 13 passowrd <kestore\_password> keystore.password

**Note**: The Salt and IterationCount are the variables that define the strength of the encrypted password. In the this example, "welcometojboss" is the salt and 13 is the iteration count.

8. Locate the file named server.xml in the following directory and open it for editing:

JBossInstallDir\server\default\deploy\jboss-web.deployer

9. Locate the <Connector Port> tag in the following section:

<!-- Define a SSL HTTP/1.1 Connector on port 8443
This connector uses the JSSE configuration, when using APR, the
connector should be using the OpenSSL style configuration
described in the APR documentation -->

<!--

<Connector port="18443" protocol="HTTP/1.1" SSLEnabled="true"
 maxThreads="150" scheme="https" secure="true"
 clientAuth="false" sslProtocol="TLS" />

**Note:** The connector port number corresponds to the JBoss HTTPS Port number that you specified during the prerequisite or CA Access Control Enterprise Management installation process.

10. Uncomment the "<!--" above the <Connector port> tag.

You can now edit this tag.

11. Add the following properties to the <Connector port> tag:

securityDomain="java:/jaas/encrypt-keystore-password"
SSLImplementation="org.jboss.net.ssl.JBossImplementation"
- 12. Save and close the server.xml file.
- 13. Navigate to the following directory to locate the jboss-service.xml file:

JBOss HOME/server/default/deploy/jboss-web.deployer/META-INF

14. Add the following mbean between the <server> and </server> tags:

<mbean code="org.jboss.security.plugins.JaasSecurityDomain"
name="jboss.security:service=PBESecurityDomain">

<constructor>

<arg type="java.lang.String" value="encrypt-keystore-password"></arg>
</constructor>

```
<attribute
```

<attribute

name="KeyStoreURL">\${jboss.server.home.dir}/deploy/IdentityMinder.ear/custom/
ppm/truststore/ssl.keystore</attribute>

name="KeyStorePass">{CLASS}org.jboss.security.plugins.FilePassword:\${jboss.se
rver.home.dir}/deploy/IdentityMinder.ear/custom/ppm/truststore/keystore.passw
ord</attribute>

<attribute name="Salt">welcometojboss</attribute>

<attribute name="IterationCount">13</attribute>

</mbean>

**Note**: In the above example, welcometojboss is the salt and 13 is the iteration count.

- 15. Save and close the jboss-service.xml
- 16. Start and open CA Access Control Enterprise Management.

**Note**: After you complete this procedure, you can select to connect to JBoss, and CA Access Control Enterprise Management, in either SSL or non-SSL modes.

## Message Queue Server SSL Port Numbers

When you install CA Access Control Enterprise Management, the Message Queue Server is configured with the default SSL communication port numbers. You can modify the port numbers after you installed CA Access Control Enterprise Management, for example, to prevent unauthorized access from well-known ports.

#### Example: Modifying the Message Queue Server SSL Port Numbers

The following example explains how to modify the Message Queue Server SSL port numbers from the default port numbers.

#### To modify the Message Queue Server SSL Port Numbers

**Note**: Stop all the CA Access Control services or daemons before you modify the Message Queue Server settings.

1. In the CA Access Control Enterprise Management Server, navigate to the following directory:

ACServer\_InstallDir/AccessControlServer/MessageQueue/tibco/ems/bin

- 2. Open the routes.conf file for editing.
- 3. Locate the entry [PR\_DMS\_SERVER] and modify the port number value at the url field. For example:

url = ssl://PR\_DMS\_SERVER:7777

- 4. Open the tibemsd.conf file for editing.
- 5. Locate the entry listen ports and modify the port number. For example:

listen = ssl://7777

- 6. Open the tibcoems-service.xml file for editing.
- 7. Locate the section <!-- The JMS provider loader --> and modify the port number at the java.naming.provider.url line. For example:

java.naming.provider.url=tibjmsnaming://localhost:7777

- 8. Open the factories.conf file for editing.
- Locate the following sections: [SSLQueueConnectionFactory], [SSLTopicConnectionFactory], [SSLXAQueueConnectionFactory] and modify the port number at the url field. For example:

```
[SSLQueueConnectionFactory]
 type
                          = queue
 url
                          = ssl://7777
 ssl_verify_host
                          = disabled
[SSLTopicConnectionFactory]
 type
                          = topic
 url
                          = ssl://7777
 ssl_verify_host
                          = disabled
[SSLXAQueueConnectionFactory]
 type
                          = xaqueue
 url
                          = ssl://7777
 ssl verify host
                         = disabled
```

10. Locate the following entry: org.jboss.naming.NamingAlias and modify the port number. For example:

tibjmsnaming://localhost:7777

11. Start the CA Access Control services.

The Message Queue Server SSL port numbers are now modified as required.

#### How You Configure CA Access Control Enterprise Management for SSL Communication

By default, CA Access Control Enterprise Management is not installed with SSL support. Therefore, communication between CA Access Control Enterprise Management and the users directory is not encrypted. You can configure CA Access Control Enterprise Management to use SSL when working with Active Directory or CA Directory. To configure CA Access Control Enterprise Management to use SSL, do the following:

- 1. Obtain the users directory certificate in a DER, CRT or CERT format.
- 2. Add the certificate to the keystore.
- 3. Configure CA Access Control Enterprise Management to use SSL communication.

#### More information:

Adding the Users Directory Certificate to the Keystore (see page 75) Configure CA Access Control Enterprise Management for SSL Communication (see page 76)

## Adding the Users Directory Certificate to the Keystore

Before you can configure CA Access Control Enterprise Management to use SSL communication, add the users directory certificate to the keystore.

**Note:** For more information about how to configure SSL for Active Directory or CA Directory, see the Active Directory and CA Directory documentation.

#### Example: Adding the Active Directory Certificate to the Keystore

**Important!** This example shows you how to configure CA Access Control Enterprise Management to use SSL for secure communication with Active Directory using JBoss version 4.2.3 and JDK version 1.5.0. You must obtain the Active Directory certificate in a DER, CER or CERT encoded binary format before you begin this procedure.

- 1. Stop JBoss if it is running. Do *one* of the following:
  - From the JBoss job windows, interrupt (Ctrl+C) the process.
  - Stop the JBoss Application Server service from the Services Panel.

2. On the Enterprise Management Server, open a command prompt window and navigate to the following directory:

jbossInstallDir/server/default/deploy/IdentityMinder.ear/custom/ppm/truststor
e

3. Enter the following command:

keytool -import -keystore ssl.keystore -alias ad -file <activedirecoty.cert>
A password prompt appears.

-import

Specifies that the utility reads the certificates and stores it in the keystore.

-alias

Specifies the alias to use for adding an entry to the keystore.

-file

Specifies the full pathname of the Active Directory certificate file.

- 4. Enter the password *secret*.
- 5. Navigate to the JBoss bin directory. By default this directory is found in:

*JbossInstallDir/*bin

6. Open the run.bat file and set the java\_ops parameter with the trusted user store data. For example:

set JAVA\_OPTS=%JAVA\_OPTS% -Xms128m -Xmx512m
-Djavax.net.ssl.trustStore=C:\jboss-4.2.3.GA\server\default\deploy\IdentityMi
nder.ear\custom\ppm\truststore\ssl.keystore

7. Save the file and start JBoss.

#### More information:

<u>Configure CA Access Control Enterprise Management for SSL Communication</u> (see page 76)

## Configure CA Access Control Enterprise Management for SSL Communication

After you add the users directory certificate to the keystore, you can configure CA Access Control Enterprise Management to work with SSL communication.

**Note**: To configure CA Access Control Enterprise Management for SSL connection you must enable the CA Identity Manager Management Console. For more information about the CA Identity Manager Management Console, see the CA Identity Manager Management Console online help.

#### To configure CA Access Control Enterprise Management for SSL communication

- 1. In the CA Identity Manager Management Console, click Directories.
- 2. Click the ac-dir directory.

The Directory Properties windows appears.

- 3. At the bottom of the properties window, click Export.
- 4. When prompted, save the XML file.
- 5. Open the XML file for editing.
- 6. Locate the <Provider userdirectory="ac-dir" type="LDAP"> tag.
- 7. Change the secure parameter to true. For example:

<LDAP searchroot="DC=abc,DC=company,DC=com" secure="true">

8. Locate the <Connection host="COMPUTER.abc.company.com" port=" "> tag and change the port number to 636. For example:

<Connection host="COMPUTER.abc.company.com" port="636">

 Search for all appearances of the <Container objectclass="top,organizationalUnit" attribute="ou"/> tag and enter the *value* parameter at the end of each line. For example:

<Container objectclass="top,organizationalUnit" attribute="ou" value=""/>

- 10. Save the file.
- 11. In the CA Identity Manager Management Console, from the directory properties page, click Update.

The Update Directory window appears.

12. Type the path and file name of the XML file for updating the Identity Manager directory, or browse for the file, then click Finish.

Status information is displayed in the Directory Configuration Output field.

13. Click Continue, and restart the environment.

CA Access Control Enterprise Management can now communicate with the users directory using SSL.

#### More information:

Enable the CA Identity Manager Management Console (see page 78) Open the CA Identity Manager Management Console (see page 79) Adding the Users Directory Certificate to the Keystore (see page 75)

# Advanced Configuration

You use the CA Identity Manager Management Console to perform advanced configuration tasks, such as modifying the properties of the reporting database to generate custom reports and configuring CA Access Control Enterprise Management to send email notifications when a specific event occurs.

The CA Identity Manager Management Console lets you create and manage environments that control the management and graphical presentation of a directory.

**Note**: For more information, see the *CA Identity Manager Management Console Online Help*, which you can access from the application.

#### More information:

Enable the CA Identity Manager Management Console (see page 78) Open the CA Identity Manager Management Console (see page 79) Configure Email Notification Settings (see page 79)

## Enable the CA Identity Manager Management Console

When you install the Enterprise Management Server for the first time, the CA Identity Manager Management Console option is disabled. To enable the CA Identity Manager Management Console, change the default settings.

**Important!**: Complete the following procedure only if you selected to use Active Directory or the embedded user store during installation.

#### To enable the CA Identity Manager Management Console

- 1. Stop JBoss if it is running. Do one of the following:
  - From the JBoss job windows, interrupt (Ctrl+C) the process.
  - Stop the JBoss Application Server service from the Services Panel.
- 2. Navigate to the following directory, where *JBoss\_HOME* is the directory where you installed JBoss:

JBoss\_HOME/server/default/deploy/ IdentityMinder.ear/management\_console.war/WEB-INF

- 3. Open the *web.xml* file in an editable form.
- 4. Search for the following section:

AccessFilter

- 5. In the <param-value> field, change the value to True.
- 6. Save and close the file.
- 7. Start JBoss.

The CA Identity Manager Management Console is enabled.

#### **Open the CA Identity Manager Management Console**

The CA Identity Manager Management Console has a web-based interface. Once you enable the CA Identity Manager Management Console and start CA Access Control Enterprise Management, you can open the CA Identity Manager Management Console from any computer on your network.

To open the CA Identity Manager Management Console, open a web browser and enter the following URL, for your host:

http://enterprise\_host:port/idmmanage

The CA Identity Manager Management Console opens.

#### Example: Open the CA Identity Manager Management Console

Enter the following URL into your web browser to open the CA Identity Manager Management Console from any computer on the network:

http://appserver123:18080/idmmanage

In this example, the CA Identity Manager Management Console is installed on a host named appserver123 and uses the default CA Access Control Enterprise Management port 18080.

#### **Configure Email Notification Settings**

When you open the CA Identity Manager Management Console, you work in an *environment*. An environment controls the management and graphical presentation of a directory. For example, you can set email notification options and define the reporting database settings in an environment. We recommend that you only enable email notifications for PUPM events.

**Note:** For more information about environments, see the *CA Identity Manager Management Console Online Help*, which is available from the console.

**Important!** Changes you make to the environment may affect the stability of CA Access Control Enterprise Management. For assistance, contact CA Support at <a href="http://ca.com/support">http://ca.com/support</a>.

#### To configure email notification settings

- 1. Stop JBoss if it is running. Do one of the following:
  - If JBoss is not installed as a service, interrupt the JBoss application server window (Ctrl+C).
  - If JBoss is installed as a service, stop the JBoss service from the Services panel.
- 2. Open the mail-service.xml file. By default, the file is located in the following directory:

JBoss\_HOME/server/default/deploy

3. Locate the following entry in the file:

<property name="mail.smtp.host" value="smtp.nosuchhost.nosuchdomain.com"/>

4. Change the smtp.nosuchhost.nosuchdomain.com value to the full DNS domain name of the outgoing email server host (the SMTP server). For example:

myMailServer.myDomain.com

**Note:** The hosts file on the Enterprise Management Server must resolve the IP address of the SMTP server to the full DNS domain name that you specify for this property.

- 5. Do the following for each event for which you want to configure email notifications:
  - a. Open the corresponding email template. For example, to configure email notifications that let recipients know that a privileged account password request was approved, open the CreatePrivilegedAccountExceptionEvent.tmpl file in the following directory:

JBoss\_HOME/server/default/deploy/IdentityMinder.ear/custom/emailTemplates
/default/approved

**Note:** For more information about email templates, see the *Enterprise Administration Guide*.

- b. Modify the template host name and port from 'localhost:8080" to the Enterprise Management Server host name and port, for example, *computer.com:18080*
- c. Save and close the file.
- 6. Open the email.properties file. The file is located in the following directory:

JBoss\_HOME/server/default/deploy/IdentityMinder.ear/config/com/netegrity/conf ig/

7. Specify the sender email address then save and close the file For example:

admin.email.address=admin@company.com

8. Start JBoss.

9. In the CA Identity Manager Management Console, click Environments, the environment that you want to configure, Advanced Settings, E-mail.

The E-mail Properties window appears.

10. Configure the applicable options for your enterprise, as follows:

#### **Events e-mail Enabled**

Enables email notifications for CA Access Control Enterprise Management events, including PUPM events.

#### **Tasks e-mail Enabled**

Enables email notifications for CA Access Control Enterprise Management tasks.

**Note:** CA Access Control Enterprise Management does not provide email templates for tasks. We recommend that you do not enable email notifications for tasks.

#### **Template Directory**

Specifies the location of the email templates that CA Access Control Enterprise Management uses to create the email messages.

**Note:** The email templates are located in the following directory:

jboss\_dir/server/default/deploy/IdentityMinder.ear/custom/emailTemplates/
default

11. Specify the events for which email notifications are sent.

We recommend that you specify only PUPM events for which email templates are provided. Do the following:

- a. Select the check box next to every event, except the following PUPM events:
  - BreakGlassCheckOutAccountEvent
  - CheckOutAccountPasswordEvent
  - CreatePrivilegedAccountExceptionEvent
- b. Click Delete.

All but the three PUPM events are deleted. You have configured CA Access Control Enterprise Management to send email notifications for these three PUPM events.

12. Click Save.

The email notification properties are saved.

13. Click Restart.

The CA Identity Manager Management Console restarts the environment and applies your changes.

**Note:** For more information about email notifications, see the *Enterprise Administration Guide*.

# Configure the Servers to Use an Identical Encryption Key

When you install more than one Enterprise Management Server, each server uses its own encryption key with which to encrypt and decrypt data in the central database. If your environment uses multiple Enterprise Management Servers to write data to and read data from a single central database, each server must use an identical encryption key.

**Important!** Complete the following steps only if you did not specify the FIPS key that the primary Enterprise Management Server uses when you installed the secondary Enterprise Management Server, using the **-DFIPS\_KEY** option.

#### To configure the servers to use an identical encryption key

- 1. Stop JBoss if it is running. Do one of the following:
  - Interrupt the JBoss application server window (Ctrl+C).
  - Stop the JBoss service from the Services panel.
- 2. Configure the Enterprise Management Servers to use an identical encryption key. Do as follows:
  - a. Copy the FIPSKey.dat file in the following directory from the primary Enterprise Management Server:

JBoss\_HOME/server/default/deploy/IdentityMinder.ear/config/com/netegrity/ config/keys

b. Paste the FIPSKey.dat file in this directory on each secondary Enterprise Management Server.

A message appears informing you that files by that name exists.

c. Select to overwrite the existing file with the new file.

The new files are placed in the directory. Each Enterprise Management Server now uses an identical encryption key.

- 3. Use the new encryption key to update the AES passwords on each secondary Enterprise Management Server. Do as follows:
  - a. Encrypt the clear text password (see page 493).
  - b. Locate the following files on each secondary Enterprise Management Server:

JBoss\_HOME/server/default/conf/login-config.xml

JBoss\_HOME/server/default/deploy/properties-service.xml

- c. Replace each AES password in the files with the new, encrypted password.
- 4. Start JBoss.

The primary and secondary Enterprise Management Servers now encrypt and decrypt data with an identical encryption key.

#### **Example: Encrypted AES Password**

The following snippet of the login-config.xml file shows an encrypted AES password:

# Change the CA Access Control Web Service URL

You use the CA Access Control Web Service to access CA Access Control Enterprise Management and CA Access Control Endpoint Management. The CA Access Control Web Service URL has the format HTTP:*hostname:port;* for example, http://entmserver:5248. By default, *hostname* is the name of the Enterprise Management Server.

When you change the CA Access Control Web Service URL, you change the IP address and port that the web service listens on. To increase security, you can change the host name to localhost; for example, http://127.0.0.1:5248. Using localhost helps to limit the exposure of the web service, because it helps to prevent scanners from detecting the web service from outside the immediate localhost environment.

#### Follow these steps:

- 1. Stop JBoss and CA Access Control services if they are running.
- 2. Change the host name in the URL, as follows:
  - (Windows) Change the value of the machineName registry value in the WebService registry key to the new host name.
  - (Linux) Change the value of the machineName configuration setting in the WebService section of the seos.ini file to the new host name.
- 3. (Optional) Change the port number in the URL, as follows:
  - (Windows) Change the value of the portNumber registry value in the WebService registry key to the new port number.
  - (Linux) Change the value of the portNumber configuration setting in the WebService section of the seos.ini file to the port number.
- 4. Open the following file, where *JBoss\_home* is the home directory in which you installed JBoss:

JBoss\_home/server/default/conf/webservice.properties

5. Change the value of the webservice.url property to the new host name and port. For example:

webservice.url=http://127.0.0.1:5248

- 6. Save and close the file.
- 7. Restart CA Access Control services, including the CA Access Control Web Service.
- 8. Restart JBoss.

The CA Access Control Web Service URL is changed.

# Modify the Microsoft SQL Server Database Connectivity Settings

When you install the Enterprise Management Server on a Microsoft SQL server, the authentication mode is set to SQL Server Authentication. You can modify the database authentication mode after the installation is complete to work in Windows Authentication mode.

When the SQL Server is working in Windows Authentication mode, the Enterprise Management Server uses the JBoss service account to administer the central database on the SQL Server. If you want to use a different JBoss service account, you change the account on the SQL Server database instance.

**Important!** To set the SQL Server to work in Windows Authentication mode requires you to install the SQL Server JDBC 2.0 driver.

**Important!** Verify that you assign the user you specify in the Microsoft SQL Server the dbowner database role.

#### To modify the SQL server database connectivity settings

- 1. If you have not already do so, download and extract the SQL Server JDBC 2.0 driver files into a temporary folder.
- 2. Stop JBoss if it is running. Do one of the following:
  - Interrupt the JBoss application server window (Ctrl+C).
  - Stop the JBoss service from the Services panel.
- 3. Navigate to the JBoss lib directory. The directory is located under:

JBossInstallDir/server/default/lib

- Copy the file sqljdbc.jar from the temporary directory to the JBoss lib directory.
   A message appears informing you that a file by that name exists.
- 5. Select to overwrite the existing file with the new file.

The new file is placed in the directory.

6. Navigate to the JBoss bin directory. By default, this directory is located at:

JBossInstallDir/bin

7. Copy the file sqljdbc\_auth.dll from the temporary directory to the JBoss bin directory.

The new file is placed in the directory.

8. Navigate to the JBoss deploy directory. By default, this directory is located at:

JBoss-directory/server/default/deploy

- 9. Open the following files:
  - imauditdb-ds.xml
  - imtaskpersistencedb-ds.xml
  - imworkflowdb-ds.xml
  - objectstore-ds.xml
  - reportsnapshot-ds.xml
- 10. In each file, locate the <connection-url> tag and add the following at after the DatabaseName= parameter:

;integratedSecurity=true

11. From each file, delete the <security-domain> tag.

12. Save the files and restart JBoss.

CA Access Control Enterprise Management can now work with the SQL server in Windows Authentication mode.

# Example: Modifying the JBoss Configuration Files to Enable Windows Authentication Mode

This example shows you how to modify one of the JBoss configuration files to switch from SQL Authentication mode to Windows Authentication mode. In this example the administrator modifies the file objectstore-ds.xml and specifies that the connection mode is Windows Authentication (;integratedSecurity=true). Next the administrator removes the <security-domain> tag from the file. This tag is removed because it is applicable only to SQL Authentication mode.

The following extract displays the objects tore-ds.xml file after the administrator modified the connection settings:

<connection-url>jdbc:sqlserver://example.comp.com:1433; selectMethod=cursor;DatabaseName=ACDB; integratedSecurity=true</connection-url>

# **Uninstall CA Access Control Enterprise Management on Windows**

#### Valid on Windows

To uninstall CA Access Control Enterprise Management on Windows, you must be logged in to the Windows system as a user with Windows administrative privileges (that is, the Windows administrator or a member of the Windows Administrators group).

**Note:** This procedure does not uninstall the prerequisite software. If you want to uninstall the prerequisite software, you must uninstall JBoss before you uninstall the JDK. For more information about uninstalling prerequisite software, refer to the product documentation.

#### To uninstall CA Access Control Enterprise Management on Windows

- 1. Stop JBoss if it is running.
- 2. Click Start, Control Panel, Add or Remove Programs.

The Add or Remove Program dialog appears.

- 3. Scroll through the program list and select CA Access Control Enterprise Management.
- 4. Click Change/Remove.

The Uninstall CA Access Control Enterprise Management wizard appears.

5. Follow the wizard instructions to uninstall CA Access Control Enterprise Management.

The uninstall completes and removes CA Access Control Enterprise Management from your computer.

6. Click Done to close the wizard.

# **Uninstall CA Access Control Enterprise Management on Linux**

If you want to remove CA Access Control Enterprise Management from your computer you need to use the uninstall program that CA Access Control Enterprise Management provides.

#### Follow these steps:

- 1. Stop JBoss by doing *one* of the following:
  - From the JBoss job windows, interrupt (Ctrl+C) the process.
  - From a separate window, type:
    - ./*JBoss\_path*/bin/shutdown -S
- 2. Enter the following command:

"/ACPMInstallDir/Uninstall\_EnterpriseManagement/Uninstall\_CA\_Access\_Control\_E nterprise\_Management"

#### ACPMInstallDir

Defines the installation directory of CA Access Control Enterprise Management. By default this path is:

/opt/CA/AccessControlServer/

InstallAnywhere loads the uninstall wizard or console.

3. Follow the prompts to uninstall CA Access Control Enterprise Management.

The uninstall completes and removes CA Access Control Enterprise Management from your computer.

# **Remove Additional Components from the Enterprise Management Server**

To completely uninstall CA Access Control Enterprise Management, you remove additional components from the computer after you run the uninstallation program.

To prevent the loss of business data, the uninstall program does not remove the following resources:

- CA Access Control Endpoint Management filters, located at JBoss\_Dir/server/default/conf/accesscontrol
- Message Queue data files, located at ACServerDir/MessageQueue/tibco/ems/data

#### To remove additional components from the Enterprise Management Server

- 1. Delete the following directories:
  - *JBoss\_Dir*/server/default/deploy/IdentityMinder.ear
  - JBoss\_Dir/server/default/deploy/SiteMinderAgent.ear
- 2. Uninstall CA Access Control.
- 3. (Windows) Delete the following registry key:

HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\uninstall\ CA Access Control Advanced Policy Management Server

- 4. Delete the JCS, as follows:
  - a. (Windows) Use the Add or Remove Programs dialog to uninstall CA Identity Manager Connector Server.
  - b. Terminate the jcs.exe process.
  - c. Delete the CA Identity Manager Connector Server (Java) service.
- 5. Delete the directory in which you installed the Enterprise Management Server.

For example, delete C:\Program Files\CA\AccessControlServer

All CA Access Control Enterprise Management components are now removed from the computer.

#### More information:

Uninstallation Methods (see page 193)

# **Implementing the Distribution Server**

The Distribution Server handles communication between the application server and the endpoints. The Distribution Server is installed by default on the Enterprise Management Server. For failover and high availability purposes, you can install more than one Distribution Server in your enterprise.

## Install the Distribution Server

If you plan to scale your CA Access Control deployment or service endpoints that are on separated endpoints, then install the Distribution Servers on separate computers and configure the Distribution Servers to propagate files between them.

#### Follow these steps:

- 1. Insert the appropriate CA Access Control Premium Edition Server Components DVD for your operating system into your optical disc drive.
- 2. Complete the following steps:
  - On Windows:

If you have autorun enabled, the Product Explorer automatically appears. Perform the following steps:

- a. If the Product Explorer does not appear, navigate to the optical disc drive directory and double-click the ProductExplorerx86.EXE file.
- b. Expand the Components folder in the Product Explorer, select CA Access Control Distribution Server, then click Install.
- On Linux:
  - a. Mount the optical disc drive.
  - b. Open a terminal window and navigate to the following directory on the optical disc drive:

/DistServer/Disk1/InstData/NoVM

c. Run the following command:

./install\_DistServer\_r125.bin -i console

3. Complete the wizard as required. The following installation inputs are not self-explanatory:

#### **Message Queue Settings**

Defines the Message Queue server administrator password (Communication Password).

Limits: Minimum of six (6) characters

#### Java Connector Server - Provisioning Directory Information

Defines the password for the Java Connector Server.

**Note:** The Java Connector Server provides CA Access Control Enterprise Management with privileged account management capabilities.

The CA Access Control Distribution Server installation is complete.

**Important!** Verify that you specify the same Communication Password you defined while installing the Enterprise Management Server. CA Access Control Enterprise Management uses the communication password to manage the Message Queue keystore, administrator account, handle communication between CA Access Control Enterprise Management and the endpoints, and manage the Java Connection Server.

**Note:** Complete additional steps if you install the Distribution Server as part of a disaster recovery implementation.

#### More information:

<u>Set Up the Production Distribution Server</u> (see page 371) <u>Set Up the Disaster Recovery Distribution Server</u> (see page 373)

# **Configure the Distribution Server**

The Distribution Server contains the DH. The DH distributes policy deployments that are made on the DMS to the endpoints, and receives deployment status updates from the endpoints to send to the DMS.

#### To configure the Distribution Server

1. Run the following command to configure the DH:

dmsmgr -remove -auto

dmsmgr -create -dh name -parent name\
[-admin user[,user...]] [-desktop host[,host...]]

#### -dh *name*

Creates a DH with the *name* specified on the local host.

#### -parent name

Defines the production DMS that the DH sends endpoint notifications to. Specify the production DMS in the following format: *DMS\_name@hostname*.

#### -admin user[,user...]

(Optional) Defines internal users as administrators of the created DH.

#### -desktop host[,host...]

(Optional) Defines a list of computers that have TERMINAL access rights to the computer with the created DH.

**Note:** Whether specified or not, the terminal running the utility is always granted administration rights for the created DH.

The production DH is created and configured.

2. Run the following command:

sepmd -n prDMS\_name prDH\_name

#### prDMS\_name

Defines the name of the production DMS.

#### prDH\_name

Defines the name of the production DHs. Specify the name in the following format: *prDH\_name@hostname*.

Example: DH\_\_\_@prdh.com

The DH is subscribed and synchronized with the production DMS.

# How to Configure Message Routing Settings

When working in an environment that consists of a single instance of the Enterprise Management Server and multiple Distribution Servers, you must configure the MQ routing settings on all the Distribution Servers to point to the MQ on the Enterprise Management Server. This helps ensure that all the messages that the CA Access Control endpoints send are ultimately routed to a single MQ, that is located on the Enterprise Management Server. To route messages from the MQ on every Distribution Server to the Enterprise Management Server, do the following:

- On each Distribution Server in your enterprise, do the following:
  - Stop the Message Queue service.
  - Modify the routing to the Enterprise Management Server Message Queue.
  - Define the parameters of the Enterprise Management Server Message Queue.
  - Configure the names of the Distribution Server message queues.
  - Specify the location of the Enterprise Management Server Message Queue.
  - Start the Message Queue service.
- On the Enterprise Management Server, do the following:
  - Stop the Message Queue service.
  - Modify the routing to the Distribution Server Message Queue.
  - Define the parameters of the Distribution Server Message Queue.
  - Configure the names of the Enterprise Management Server message queues.
  - Specify the location of the Enterprise Management Server Message Queue.
  - Start the Message Queue service.

## Modify the Message Queue Settings on the Distribution Server

By default, every Distribution Server is configured to work with the Message Queue that is running on that server. To route messages to another Message Queue, you must reconfigure the Message Queue settings.

This procedure shows you how to modify the Message Queue settings on the Distribution Server to enable communication with the CA Access Control Enterprise Management Message Queue. Complete this procedure for every Distribution Server in your enterprise.

#### To modify the Message Queue settings on the Distribution Server

1. Stop the CA Access Control Message Queue service.

**Important!** When you stop the CA Access Control Message Queue service, the CA DSM r11Common Application Framework service is also stopped.

2. On the Distribution Server, open the file tibemsd.conf file, located by default in the following directory, where *DistServerInstallDir* is the directory in which you installed the Distribution Server:

DistServerInstallDir/ACMQ/tibco/cfgmgmt/ems/data

- 3. Enter the Distribution Server short host name in the 'server' parameter.
- 4. Change the 'routing' parameter value to enabled.
- 5. Start the CA Access Control Message Queue service.

You have modified the message queue settings on the Distribution Server.

#### Example: tibemsd.conf file

The example shows you a snippet from the tibemsd.conf file after you modify the routing settings for a Distribution Server named DS\_Example:

#### 

# Server Identification Information. # server: unique server name # password: password used to login into other routed server server = DS Example password = # Routing. Routes configuration is in 'routes.conf'. This enables or # disables routing functionality for this server. = enabled routing 

#### Modify the Message Queue Settings on the Enterprise Management Server

This procedure shows you how to modify the Message Queue settings on the Enterprise Management Server to enable communication with the Distribution Server.

#### To modify the Message Queue settings on the Enterprise Management Server

1. Stop the CA Access Control Message Queue service.

**Important!** When you stop the CA Access Control Message Queue service, the CA DSM r11Common Application Framework service is also stopped.

2. On the Enterprise Management Server, open the tibemsd.conf file for editing. This file is located in the following directory, where *ACServerInstallDir* is the directory in which you installed the Enterprise Management Server:

ACServerInstallDir/MessageQueue/tibco/cfgmgmt/ems/data

- 3. Enter the Enterprise Management Server short host name, not separated by dots, in the 'server' parameter.
- 4. Change the 'routing' parameter value to enabled.
- 5. Start the CA Access Control Message Queue service.

You have modified the message queue settings on the Enterprise Management Server.

#### Example: tibemsd.conf file

The example shows you a snippet from the tibemsd.conf file after you modify the routing settings for a CA Access Control Enterprise Management Server named ENTM\_Example:

#### 

routing = enabled

## Message Queue Connection Configuration

To route messages from the Message Queue on the Distribution Server to the Enterprise Management Server conversely, you modify the existing Message Queue settings in your enterprise.

# Example: Configuring the Message Queue Connection Settings on the Distribution Server

This example shows you how to configure the Message Queue server settings on the Distribution Server. You configure the Message Queue to send messages to the Enterprise Management Server by defining the parameters of the Message Queue that is running on the Enterprise Management Server.

#### Follow these steps:

- 1. On the Distribution Server, do one of the following:
  - (Windows 2003 Server) Select Start, Programs, TIBCO-CA\_AC, TIBCO EMS 5.1, Start EMS Administration Tool.
  - Linux:
    - a. Navigate to the following directory, where *DistServerInstallDir* is the directory in which you installed the Distribution Server:
      - DistServerInstallDir/MessageQueue/tibco/ems/5.1/bin
    - b. Run the following command:
      - tibemsadmin

The TIBCO EMS Administration Tool command prompt window opens.

- 2. Connect to the Message Queue using either of the following:
  - Enter the following command to connect using SSL:

connect ssl://localhost:7243

• Enter the following command to connect using TCP:

connect tcp://localhost:7222

A login name prompt appears.

3. Enter admin.

A password prompt appears.

- 4. Enter the password that you provided when you installed the Distribution Server.
- 5. When prompted, enter a new password for the Message Queue server.
- 6. Define the Message Queue password.

set server password=

Example: set server password=<COmp1ex>

7. Create a user named ENTM-NAME and assign a password to the user.

create user ENTM-NAME password=acserver\_user-passwd

Example: create user EMS-SERVER password=<acserver\_user-passwd>

**Important!** Specify the same name that you defined in the 'server' parameter of the tibemsd.conf file on the Enterprise Management Server.

- 8. Do the following:
  - a. Enter the following command:

add member ac\_server\_users ENTM\_NAME

The user you created is added to the ac\_server\_users group.

b. Enter the following command:

add member ac\_endpoint\_users ENTM\_NAME

The user you created is added to the ac\_endpoint\_users group.

c. Enter the following command:

add member report\_publishers ENTM\_NAME

The user you created is granted permissions to read and publish messages to CA Access Control queues.

9. Restart the Distribution Server.

The changes you made are applied.

# Example: Configure the Message Queue Connection Settings on the Enterprise Management Server

This example shows you how to configure the Message Queue server settings on the Enterprise Management Server. You configure the Message Queue to send messages to the Distribution Server.

In this example the term *DS-NAME* relates to the name of the Distribution Server computer and the term *ENTM-NAME* relates to name of the Enterprise Management Server. When you define the message queue server settings, you replace the name with the server actual names, as defined in the 'server' token in the *tibemsd.conf* file.

#### Follow these steps:

- 1. On the Enterprise Management Server, do one of the following:
  - (Windows 2003 Server) Select Start, Programs, TIBCO-CA\_AC, TIBCO EMS 5.1, Start EMS Administration Tool.
- 2. Connect to the Message Queue using either of the following:
  - Enter the following command to connect using SSL:

connect ssl://localhost:7243

Enter the following command to connect using TCP:

connect tcp://localhost:7222

A login name prompt appears.

3. Enter admin.

A password prompt appears.

- 4. Enter the password that you provided when you installed the Enterprise Management Server.
- 5. Define the Message Queue password.

set server password=entm\_server-passwd

Example: set server password=<ENTM\_SERVER\_NAME-passwd>

6. For each Distribution Server, create a user named DS-NAME and assign a password to the user.

create user DS-NAME password=dist\_server\_user

Example: create user EMS-Server password=<COmplex>

**Important!** Specify the same name that you defined in the 'server' parameter of the tibemsdf.conf file on the Enterprise Management Server.

- 7. Do the following:
  - a. Enter the following command:

add member ac\_server\_users DS\_NAME

The user you created is added to the ac\_server\_users group.

b. Enter the following command:

add member ac\_endpoint\_users DS\_NAME

The user you created is added to the ac\_endpoint\_users group.

c. Enter the following command.

add member report\_publishers DS\_NAME

The user you created is granted permissions to read and publish messages to CA Access Control queues.

8. Restart the Distribution Server for the changes to take effect.

You have configured the message queue connection settings on the Enterprise Management Server.

## Configure the Names of the Message Queues on the Distribution Server

To forward messages from the Distribution Server to the Enterprise Management Server, configure each messages route to forward the messages from the Message Queue on the Distribution Server to the Message Queue on the Enterprise Management Server.

In this procedure you define the message queue settings on the Distribution Server. You modify the message queue settings file to provide the settings of the Message Queue on the Enterprise Management Server.

#### To configure the names of the Message Queue on the Distribution Server

1. On the Distribution Server, open the file queues.conf. The file is located by default in the following directory, where *DistServerInstallDir* is the directory in which you installed the Distribution Server:

#### DistServerInstallDir/ACMQ/tibco/cfgmgmt/ems/data

2. Locate the queue named 'queue/snapshots' and add the ENTM-NAME value at the end of the queue name, preceded by a @ sign as follows:

#### queue/snapshots@ENTM-NAME

#### ENTM-NAME

Defines the short name of the Enterprise Management Server.

**Important!** Specify the same name that you defined in the 'server' parameter of the tibemsd.conf file on the Enterprise Management Server.

3. Locate the queue name 'queue/audit' and add the ENTM-NAME value at the end of the queue name, preceded by a @ sign as follows:

#### queue/audit@ENTM-NAME

4. Locate the queue named 'ac\_endpoint\_to\_server' and add the ENTM-NAME value at the end of the queue name, preceded by a @ sign as follows:

ac\_endpoint\_to\_server@ENTM-NAME

5. Locate the queue named 'ac\_server\_to\_endpoint' and add the ENTM-NAME value at th end of the queue name, preceded by a @ sign as follows:

ac\_server\_to\_endpoint@ENTM-NAME

6. Save and close the file.

## Configure the Names of the Message Queues on the Enterprise Management Server

In this procedure you define the message routing settings on the Enterprise Management Server. You configure the Message Queue settings on the Enterprise Management Server to identify this Message Queue as the primary server.

#### To configure the names of the Message Queues on the Enterprise Management Server

1. On the Enterprise Management Server, open the file queues.conf in an editable form. The file is located in the following directory, where *ACServerInstallDir* is the directory in which you installed the Enterprise Management Server:

ACServerInstallDir/MessageQueue/tibco/cfgmgmt/ems/data

2. Locate the queue named 'queue/snapshots' and add the word 'global' after the word 'secure' at the end of the queue name, as follows:

queue/snapshot secure, global

3. Locate the queue named 'queue/audit' and add the word 'global' after the word 'secure' at the end of the queue name, as follows:

queue/audit secure, global

4. Locate the queue named 'ac\_endpoint\_to\_server' and add the word 'global' after the word 'secure' at the end of the queue name, as follows:

ac\_endpoint\_to\_server secure, global

5. Locate the queue named 'ac\_server\_to\_endpoint' and add the word 'global' after the word 'secure' at the end of the queue name, as follows:

ac\_server\_to\_endpoint secure, global

6. Save and close the file.

**Note:** For information about message routing, refer to the *TIBCO Enterprise Message Service User's Guide*. Tibco documentation is installed as part of the Message Queue and is located at *ACServerInstallDir*/MessageQueue/tibco/ems/5.1/doc.

# Message Routing Configuration

After you have configured the Message Queue settings and configured the message queue routing settings on the Distribution Server and on the Enterprise Management Server, you set up the message routes on the Distribution Server and on the Enterprise Management Server.

#### Example: Set Up Message Routes on the Distribution Server

This example shows you how to set up the message route settings on the Distribution Server. You set up a route between the Distribution Server and the Enterprise Management Server to route messages arriving from CA Access Control endpoints to the Message Queue on the Enterprise Management Server. Complete this procedure on every Distribution Server in your enterprise.

1. On the Distribution Server, open the file routes.conf for editing. The file is located by default in the following directory, where *DistServerInstallDir* is the directory in which you installed the Distribution Server:

DistServerInstallDir/MessageQueue/tibco/cfgmgmt/ems/data

2. Add the following entries:

[ENTM-NAME]

url = ENTM-URL

ssl\_verify\_host = disabled

ssl\_verify\_hostname = disabled

#### ENTM-NAME

Defines the short name of the Enterprise Management Server.

#### ENTM\_URL

Defines the Enterprise Management Server URL.

- 3. Save the file.
- 4. Restart the CA Access Control Message Queue service.

#### Example: Set Up Message Routes on the Enterprise Management Server

This example shows you how to set up the message route settings on the Enterprise Management Server. You set up a route between the Enterprise Management Server and the Distribution Server to send messages from the Enterprise Management Server to the Distribution Server and from there to the endpoints.

1. On the Enterprise Management Server, open the file routes.conf. The file is located by default in the following directory, where *ACServerInstallDir* is the directory in which you installed the Enterprise Management Server:

ACServerInstallDir/MessageQueue/tibco/cfgmgmt/ems/data

2. Add the following entries:

[DS-NAME]

url = DS-URL

ssl\_verify\_host = disabled

ssl\_verify\_hostname = disabled

#### DS\_NAME

Defines the short name of the Distribution Server.

#### DS\_URL

Defines the Distribution Server URL.

- 3. Save the file.
- 4. Restart the CA Access Control Message Queue service.

# Chapter 4: Implementing Enterprise Reporting

This section contains the following topics:

Enterprise Reporting Capabilities (see page 103) Reporting Service Architecture (see page 103) How to Set Up Reporting Service Server Components (see page 105)

# **Enterprise Reporting Capabilities**

CA Access Control Enterprise Management provides reporting capabilities through a CA Business Intelligence Common Reporting server (CA Access Control Reports Portal). Enterprise reporting lets you view the security status of each endpoint (users, groups, and resources) from a central location. CA Access Control reports describe the rules and policies on each endpoint that determine who can do what, and any policy deviations.

Once configured, CA Access Control enterprise reporting works independently to collect data from each endpoint and to store the information in the central server on a continues basis without the need for manual intervention. The collection of data from each endpoint can be scheduled or on demand. You do not need to connect to each endpoint to find out who is authorized to access which resource. Each endpoint reports on its status whether the collection server is up or down.

# **Reporting Service Architecture**

The CA Access Control reporting service provides a server-based platform for CA Access Control enterprise reporting. You can use this platform to create reports that contain data from all your CA Access Control endpoints. The reports that you create can be viewed and managed over a web-enabled application.

The reporting service lets you build a reporting environment on top of an existing CA Access Control infrastructure.

**Note:** For more information about enterprise reporting, see the *Enterprise Administration Guide*.



The following diagram shows the architecture of reporting services components. The diagram also shows the flow of data among the components.

The preceding diagram illustrates the following:

- Each endpoint, which contains a CA Access Control database (seosdb) and any number of Policy Models (PMDB), has the Report Agent component installed.
- The Report Agent collects data from the endpoint and sends it to the Distribution Server for processing.
- In a simple enterprise model, one Distribution Server processes all endpoint data and sends it to the central database for storage. You can also replicate Distribution Server components to design for fault tolerance and faster processing in large enterprise environments.
- The central database (an RDBMS) stores endpoint data.
- The Report Portal lets you access the data in the central database to produce built-in reports, or to interrogate the data and produce custom reports.

# How to Set Up Reporting Service Server Components

To use enterprise reporting, install and configure the CA Access Control reporting service server components. After you install and configure the server components, configure the Report Agent on each endpoint.

**Note:** Report Agent installation and configuration are part of the CA Access Control and UNAB endpoint installation and are not covered in this procedure.

To set up reporting service server components, follow these steps:

- 1. If you have not already done so, install and configure the Enterprise Management Server.
- 2. Set up the Report Portal computer (CA Business Intelligence).

You can find the CA Business Intelligence installation files on the CA Support website.

- 3. Deploy the CA Access Control report package on the Report Portal.
- 4. Configure the connection to CA Business Intelligence.
- 5. Create a snapshot definition.

You can now generate and view reports in CA Business Intelligence and CA Access Control Enterprise Management.

**Note:** For more information about generating and viewing reports, see the *Enterprise Administration Guide*.

#### More information:

<u>Configure a Windows Endpoint for Reporting</u> (see page 191) <u>Configure a UNIX Endpoint for Reporting</u> (see page 249) <u>Configure UNAB for Reporting</u> (see page 321)

# How to Set Up the Report Portal Computer

The Report Portal lets you access the endpoint data that CA Access Control Enterprise Management stores in the central database to produce built-in reports, or to interrogate the data and produce custom reports. The Report Portal uses CA Business Intelligence.

**Note:** If you already have an older version of the Report Portal or a standalone installation of CA Business Intelligence or BusinessObjects Enterprise XI, you do not need to upgrade and can use the existing installation instead.

To set up the Report Portal, do the following:

- 1. If you use an Oracle database, install a full Oracle client on the Report Portal computer.
- 2. If you use Microsoft SQL Server, install the Microsoft SQL Server Native Client on the Report Portal computer.
- 3. If you have not already done so, set up the central database and Distribution Server.

**Note:** You set up the central database and Distribution Server when you install the Enterprise Management Server.

- 4. (UNIX) If the Report Portal computer is a Solaris or a Linux computer, prepare the UNIX computer for CA Business Intelligence installation.
- 5. Synchronize the system times of the Report Portal computer and the Enterprise Management Server.

If you do not synchronize the system times, reports that CA Access Control Enterprise Management generates will remain in a pending or recurring status.

6. Install CA Business Intelligence for your operating system.

You can find the CA Business Intelligence installation files on the CA Support website.

**Note**: Report Portal for Windows authenticates connections using Microsoft SQL Server Authentication by default. You can configure the Report Portal to <u>work in</u> <u>Windows Authentication</u> (see page 115)if you want to use a domain user account settings for authentication.

The Report Portal is set up and you can now deploy the CA Access Control report package.

**Note:** For more information about CA Business Intelligence, see the *CA Business Intelligence Installation Guide*, which is available from <u>CA Technologies Support</u>.

#### **Example: Install CA Business Intelligence on Windows**

The following procedure demonstrates how you can install CA Business Intelligence on Windows:

**Note:** The installation can take approximately an hour to complete.

- 1. Insert the CA Business Intelligence for Windows DVD into your optical disc drive.
- 2. Navigate to the \Disk1\InstData\VM folder and double-click install.exe.

The CA Business Intelligence installation wizard begins.

3. Complete the installation wizard using the following table:

Information	Action
Installation language	Select a supported installation language you want to use, then click OK.
	<b>Note:</b> You need a localized operating system to install in any of the supported non-English languages.
License Agreement	Select I accept the terms of the License Agreement and click Next.
Installation Type	Select Typical and click Next
Non-Root Credentials	Enter a non-root user name and password.
BusinessObjects XI Administrator Password	Type P@ssw0rd twice to set and confirm the password and click Next.
	<b>Note:</b> For password rules, see the <i>CA Business</i> <i>Intelligence Installation Guide</i> , which is available from the CA Access Control Premium Edition bookshelf.
Web Server Configuration	Click Next to accept the defaults.
CMS Database Settings	Enter the following information, then click Next:
	MySQL Root Password: P@ssw0rd
	User Name: cadbusr
	Password: C0nf1dent1al
	Database Name: MySQL1
	<b>Note:</b> The CA Business Intelligence Central Management Server (CMS) is used for internal management purposes only.
Enable Auditing	Click Next to accept the defaults.
Audit Database Settings	Enter the following information, then click Next:
	User Name: cadbusr
	Password: C0nf1dent1al
	Database Name: MySQL1
Review Settings	Review the settings and click Install to complete the installation.

The installation starts and can take up to an hour to complete.

**Important!** The CA Business Intelligence Central Management Server (CMS) is used for internal management purposes only and does not contain the report data that is used to generate and display the reports. The reporting database that you defined when you installed CA Access Control Enterprise Management, contains data that the Report Agent uploads to the Distribution Server. For more information about the CMS, see to the *CA Business Intelligence Installation Guide*.

#### More information:

Prepare the Central Database for Enterprise Management (see page 43)

# **Prepare Linux for CA Business Intelligence Installation**

Before you can install CA Business Intelligence on Linux, you prepare the computer for installation. You create a non-root user for the CA Business Intelligence installation, verify that the Oracle RDBMS is exposed to the installation of CA Business Intelligence and set the environment variables.

#### Follow these steps:

- 1. Log in as a root user.
- 2. Create a non-root user. The CA Business Intelligence installation requires a non-root user.

For example, enter the following commands to create a user named bouser that belongs to the group other:

groupadd other useradd -d /home/bouser -g other -m -s /bin/bash -c bouser bouser passwd bouser

When prompted, enter and confirm a password for the user you defined.

3. Verify that the LANG environment variable is configured as follows:

LANG=en US.utf8

4. Log in as the non-root user you created.
5. Enter the following commands to verify that the ORACLE\_HOME and TNS\_ADMIN environment variables are set correctly:

echo \$ORACLE\_HOME echo \$TNS\_ADMIN

A non-empty output verifies that these environment variables are valid. For example:

/opt/oracle/app/oracle/product/10.2.0/client\_1
/opt/oracle/app/oracle/product/10.2.0/client\_1/admin/network

If you receive an empty output for the commands, verify that the variables are set for the non-root user you created. For example, edit /home/bouser/.profile as follows:

ORACLE\_HOME=/opt/oracle/app/oracle/product/10.2.0/client\_1
export ORACLE\_HOME
TNS\_ADMIN=\$ORACLE\_HOME/network/admin
export TNS\_ADMIN

6. Verify that LD\_LIBRARY\_PATH for your non-root user contains the following paths:

\$0RACLE\_HOME/lib:\$0RACLE\_HOME/lib32

For example, type the following command and search the output for these paths:

echo \$LD\_LIBRARY\_PATH

If these paths are missing, append them to LD\_LIBRARY\_PATH. For example, edit /home/bouser/.profile as follows:

LD\_LIBRARY\_PATH=\$LD\_LIBRARY\_PATH:\$ORACLE\_HOME/lib:\$ORACLE\_HOME/lib32 export LD\_LIBRARY\_PATH Verify that the folders in LD\_LIBRARY\_PATH and TNS\_ADMIN are accessible, as follows:

```
ls -l $ORACLE_HOME
```

ls -l \$TNS\_ADMIN/tnsnames.ora

The commands should not return a **permission denied** error. If they do, you must grant proper permissions. For example, the root/oracle user should run the following command:

chmod -R +xr \$ORACLE\_HOME

8. Verify that Oracle connectivity is valid, using the TNS Ping utility as follows:

\$0RACLE\_HOME/bin/tnsping service\_name

The output from TNS Ping should look be similar to the following example:

TNS Ping Utility for Solaris: Version 10.2.0.1.0 - Production on 07-MAY-2008
09:17:02
Copyright (c) 1997, 2005, Oracle. All rights reserved.
Used parameter files:
/opt/oracle/app/oracle/oracle/product/10.2.0/client\_1/network/admin/sqlnet.or
a
Used TNSNAMES adapter to resolve the alias
Attempting to contact (DESCRIPTION = (ADDRESS\_LIST = (ADDRESS = (PROTOCOL =
TCP)(HOST = 172.16.234.75)(PORT = 1521))) (CONNECT\_DATA = (SERVICE\_NAME =
service\_name)))
OK (30 msec)

You can now install CA Business Intelligence on Linux.

## **Report Package Deployment**

The report package is a .BIAR file, which deploys the CA Access Control standard reports. It contains a collection of artifacts and descriptors for deployment on the Report Portal. To make use of these standard reports, you need to import the report package file into BusinessObjects InfoView.

**Note:** The package is backwards compatible with previous versions of the Report Portal. You do not need to upgrade the Report Portal to make use of the latest report package. You can also deploy localized report packages, which are provided as separate .biar files, alongside each other.

#### Deploy the Report Package on the Report Portal

To use the standard CA Access Control reports, import the report package file into BusinessObjects InfoView.

**Note:** This procedure describes how you deploy a report package on the Report Portal when no previous version of the same package is already deployed.

#### Follow these steps:

1. Verify that the central database, Distribution Server, and Report Portal are set up.

Note: Verify that the JAVA\_HOME variable is set up on the Report Portal computer.

- 2. Insert the CA Business Intelligence for Windows DVD into your optical disc drive and navigate to the \Disk1\cabi\biconfig folder.
- 3. Copy the contents of the biconfig directory into a temporary directory.
- 4. Insert the appropriate CA Access Control Premium Edition Server Components DVD for your operating system into your optical disc drive and navigate to the \ReportPackages folder.
- 5. Copy the following files from the optical disc into the same temporary directory:
  - ReportPackages\RDBMS\import\_biar\_config.xml
  - ReportPackages\RDBMS\AC\_BIAR\_File.biar

#### RDBMS

Defines the type of RDBMS used for CA Access Control reporting.

Values: Oracle, MSSQL2005

#### import\_biar\_config.xml

Defines the name of the import configuration file (.xml) for your RDBMS.

Values: import\_biar\_config\_oracle10g.xml, import\_biar\_config\_oracle11g.xml, import\_biar\_config\_mssql\_2005.xml

**Note:** If you use MS SQL Server 2008 as your central database, configure the import\_biar\_config\_mssql\_2005.xml file.

#### AC\_BIAR\_File.biar

Defines the name of the CA Access Control reports file (.biar) for your language and RDBMS.

**Note:** The <biar-file name> property of the import configuration file for your RDBMS points to this file. The property is set by default to the name of the English version for your RDBMS.

6. Edit your copy of the *import\_biar\_config*.xml file. Define the following XML properties:

#### <biar-file name>

Defines the full pathname to the CA Access Control reports file (.biar). You copied the file in the previous step.

#### <networklayer>

Defines the network layer supported by your RDBMS.

#### Values (Windows):

- OLE DB—for MS SQL Server authentication mode.
- Oracle OCI
- ODBC—for Windows Authentication mode.

#### <rdms>

Defines the type of RDBMS used for CA Access Control reporting.

Values (Oracle OCI): Oracle 10 or Oracle 11

Values (ODBC): Generic ODBC datasource

Values (OLE DB): MS SQL Server 2005, or any value *except* Oracle 10 or Oracle 11

**Note:** If you use MS SQL Server 2008, specify MS SQL Server 2005 for this property. For more information about the values that you can specify for this property, see the CA Business Intelligence documentation.

#### <username>

Defines the user name of the RDBMS administrative user you created when you prepared the central database for Enterprise Management.

#### <password>

Defines the password of the RDBMS administrative user you created when you prepared the central database for Enterprise Management.

#### <datasource>

Defines one of the following:

- (Oracle) The name of the database
- (SQL Server 2005 or 2008) The database you created
- (ODBC) The DSN you created

**Important!** Specify the name of the database used by CA Access Control for reporting and not the CA Business Intelligence CMS.

#### <server>

Defines the name of the SQL Server 2005 or 2008 computer. Leave this value empty for Oracle Database 10g, 11g, and ODBC.

- 7. Perform the following:
  - Open a command prompt and enter the following command:

System\_Drive:\B0\biconfig.bat -h host\_name -u user\_name -p password -f
ac\_biar\_config.xml

#### host\_name

Defines the Report Portal host name.

#### user\_name

Defines the Report Portal administrator you configured when you installed the Report Portal.

#### password

Defines the password for the Report Portal administrator.

#### For example:

biconfig.bat -h reportportal.comp.com -u Administrator -p P@ssw0rd -f C:\B0\import\_biar\_config\_oraclellg.xml

 (UNIX) Set the execute permission for the script file biconfig.sh and execute it as follows:

temp\_dir/biconfig.sh -h host\_name -u user\_name -p password -f
ac\_biar\_config.xml

#### For example:

biconfig.sh -h reportportal.comp.com -u Administrator -p P@ssw0rd -f
/tmp/rp/import\_biar\_config\_orcl.xml

The batch file imports the CA Access Control reports into InfoView. The import can take a few minutes to complete. A log file (biconfig.log) is created in the same folder as the batch file and indicates whether the import was successful.

#### Example: Sample Oracle Database 11g Import Configuration File

The following code snippet is an example of an edited import configuration file (import\_biar\_config\_oracle11g.xml) for Oracle Database 11g:

```
<?xml version="1.0"?>
<biconfig version="1.0"?>
<biconfig version="1.0">
<step priority="1">
<add>
<biar-file name="c:\temp\AccessControl_R12.5_EN_ORCL_22_JUN_2009.biar">
<adbiar-file name="c:\temp\AccessControl_R12.5_EN_ORCL_22_JUN_2009.biar">
<abr/>
<abr
```

#### Example: Sample Microsoft SQL Server 2005 Import Configuration File

The following code snippet is an example of an edited import configuration file (import\_biar\_config\_mssql2005.xml) for MS SQL Server 2005:

```
<?xml version="1.0"?>
<biconfig version="1.0"?>
<biconfig version="1.0">
<step priority="1">
<add>
<biar-file name="c:\temp\AccessControl_R12.5_EN_SQL_11_JUN_2009.biar">
<adbiar-file name="c:\temp\AccessControl_R12.5_EN_SQL_11_JUN_2009.biar">
<adbiar-file name="c:\temp\AccessControl_R12.5_EN_SQL_11_JUN_2009.biar">
<abr/>
<adbiar-file name="c:\temp\AccessControl_R12.5_EN_SQL_11_JUN_2009.biar">
<abr/>
<adbiar-file name="c:\temp\AccessControl_R12.5_EN_SQL_11_JUN_2009.biar">
<abr/>
<adbiar-file name="c:\temp\AccessControl_R12.5_EN_SQL_11_JUN_2009.biar">
<abr/>
<abr/>
<abr/>
<abr/>
</adbiar-file name="c:\temp\AccessControl_R12.5_EN_SQL_11_JUN_2009.biar">
<abr/>
<abr/>
<abr/>
<abr/>
</adbiar-file name="c:\temp\AccessControl_R12.5_EN_SQL_11_JUN_2009.biar">
</adbiar</adbiar</a>
```

#### More information:

<u>Configure a UNIX Endpoint for Reporting</u> (see page 249) <u>Configure a Windows Endpoint for Reporting</u> (see page 191)

## Windows Authentication Configuration For the Report Portal

#### Valid on Windows

When you install the Report Portal (CA Business Intelligence) and select to use Microsoft SQL Server as the CMS database, the authentication mode is set to SQL Server Authentication. Microsoft SQL Server authentication uses a SQL user account to authenticate database connections.

If Active Directory is used in your organization, you can modify the authentication method to Windows Authentication. In Windows Authentication, connections to the CMS database are authenticated using a Domain user account and not a local user account.

Authenticating connection in Windows Authentication provides a secured method of communication between all Report Portal components. You can remove clear text passwords from the report packages you deploy on the Report Portal because you configure an ODBC connection to the database that contains the user credentials.

**Important!** Windows Authentication requires that you use both Internet Information Server (IIS) and Microsoft SQL Server.

## How to Configure the Report Portal to Work in Windows Authentication

Understanding the steps you take to modify the Report Portal database connection authentication mode helps you to implement the Report Portal in Windows Authentication.

Do the following to configure the Report Portal for Windows Authentication:

- 1. Prepare a supported version of Microsoft SQL Server database to use as the CMS database.
- 2. Prepare the CA Business Intelligence CMS database using the default user and collation.
- 3. Create a System DSN and specify to use SQL Server Authentication.

The system DSN is used to connect to the Report Portal CMS database.

4. Add an Active Directory user to the local Administrators group.

You specify this user to authenticate when you configure the report portal to work in Windows Authentication.

5. Set the ASP.NET Web Service Extension to Allowed.

- 6. <u>Install the Report Portal (CA Business Intelligence)</u> (see page 105). Do the following during the installation:
  - a. Select to install CA Business Intelligence in custom mode.
  - b. Specify Microsoft SQL Server 2005 as the database.
  - c. Specify IIS as the web server.
- 7. Configure the Report Portal for Windows Authentication.

You configure the CA Business Intelligence services to use the Active Directory user account to authenticate in Windows Authentication.

8. Create a System DSN for the CA Access Control reporting database using Windows Authentication.

The System DSN is used to connect to the CA Access Control reporting portal.

9. Deploy the report packages on the Report Portal.

## **Configure the Report Portal for Windows Authentication**

After you install the Report Portal, you can now configure the Report Portal to work in Windows Authentication. You configure the Report Portal to use the Active Directory user account and modify the system DSN connection parameters.

#### To configure the Report Portal for Windows Authentication

- 1. Log into the Report Portal host as the operating system administrator.
- 2. Modify the System DSN for the Report Portal CMS to Windows NT Authentication.
- 3. Select Start, Programs, BusinessObjects XI Release 2, Business Objects Enterprise, Central Configuration Manager.

The Central Configuration Manager opens, displaying the CA Business Intelligence services.

- 4. Stop all CA Business Intelligence services.
- 5. Modify the services Log On As settings to the Active Directory user credentials. Do so to all the CA Business Intelligence services.

**Important!** Do not change the settings of the WinHTTP Web Proxy Auto-Discovery and World Wide Web Publishing services.

6. Start all CA Business Intelligence services.

The Report Portal is now configured to authenticate in Windows Authentication.

**Note**: You can verify that the connections to the reporting database use the Active Directory user account from the Microsoft SQL Server Activity Monitor.

Example: Modify the CA Business Intelligence services Log On As connection settings

The following example shows you how to modify the CA Business Intelligence Connection Server service Log On As credentials from system account to an Active Directory account.

1. Right-click the Connection Server service from the list and select Properties.

The Connection Server service properties window opens.

- At the Log On As section, remove the mark from the System Account option. The connection settings fields are enabled.
- 3. Enter the Active Directory user name, password, and confirm the password.

Example: Domain/username

Click OK. The service connection settings are changed.

4. Exit the Central Configuration Manager.

#### System DSN Connection Configuration Example

System DSN connection settings define the parameters needed to connect to a database. In the following example, you create a system DSN that authenticates users connection in SQL Server Authentication, because the Report Portal only supports SQL Authentication when it is installed. You configure the CMS database system DSN before you install CA Business Intelligence.

In the following example, you create a System DSN for the Report Portal CMS database:

- Select Start, Settings, Control Panel, Administrative Tools, Data Sources (ODBC). The ODBC Data Sources Administrator opens.
- 2. From the System DSN tab, select Create.

The Select a New Data Source window opens.

3. Scroll down and select SQL Server, then click Finish.

The Create a New Data Source to SQL Server wizard opens.

- 4. Enter the connection name, description and SQL server name. Click Next.
- 5. Select to use SQL Server Authentication.
- 6. Enter the administrator user credentials to connect to the SQL server. Click Next.
- 7. Select the Change the default database to option and select the Report Portal CMS database from the list. Click Next.
- 8. Click Finish. Select to test the connection, then click OK.

The System DSN is created.

## Deploy the Report Package on a Report Portal that Works in Windows Authentication

#### Valid on Windows

To make use of the standard CA Access Control reports, you need to import the report package file into BusinessObjects InfoView.

**Note:** This procedure describes how you deploy a report package on the Report Portal when no previous version of the same package is already deployed.

#### To deploy the report package on the Report Portal

1. Verify that the central database, Distribution Server, and Report Portal are set up.

Note: Verify that the JAVA\_HOME variable is set up on the Report Portal computer.

2. Create a System DSN for the CA Access Control reporting database and specify to use Windows NT Authentication.

The system DSN you create is used to connect to the CA Access Control reporting database. You specify the system DSN when you configure the report package.

3. Insert the CA Business Intelligence for Windows DVD into your optical disc drive and navigate to the \Disk1\cabi\biconfig folder.

- 4. Copy the contents of the biconfig directory into a temporary directory.
- Insert the appropriate CA Access Control Premium Edition Server Components DVD for your operating system into your optical disc drive and navigate to the \ReportPackages folder.
- 6. Copy the following file from the optical disc into the same temporary directory:
  - ReportPackages\RDBMS\import\_biar\_config.xml
  - \ReportPackages\RDBMS\AC\_BIAR\_File.biar

#### RDBMS

Defines the type of RDBMS used for CA Access Control reporting.

Value: MSSQL2005.

## import\_biar\_config.xml

Defines the name of the import configuration file (.xml) for your RDBMS.

Value: import\_biar\_config\_mssql\_2005.xml

**Note**: If you use MS SQL Server 2008 as your central database, configure the import\_biar\_config\_mssql\_2005.xml file.

#### AC\_BIAR\_File.biar

Defines the name of the CA Access Control reports file (.biar) for your language and RDBMS.

**Note:** The <biar-file name> property of the import configuration file for your RDBMS points to this file. It is set by default to the name of the English version for your RDBMS.

7. Edit your copy of the *import\_biar\_config*.xml file. Define the following XML properties:

Important! Remove the user name, password and server fields from the file.

#### <br/> <br/> hiar-file name>

Defines the full pathname to the CA Access Control reports file (.biar). This is the file that you copied in the previous step.

#### <networklayer>

Defines the network layer supported by your RDBMS.

Value: ODBC.

#### <rdms>

Defines the type of RDBMS used for CA Access Control reporting.

Value: Generic ODBC datasource

#### <datasource>

Defines the DSN you created

**Important!** Specify the name of the database used by CA Access Control for reporting and not the CA Business Intelligence CMS.

8. Open a command prompt window and enter the following command:

System\_Drive:\B0\biconfig.bat -h host\_name -u user\_name -p password -f
ac\_biar\_config.xml

#### host\_name

Defines the Report Portal host name.

#### user\_name

Defines the Report Portal administrator you configured when you installed the Report Portal.

#### password

Defines the password for the Report Portal administrator.

#### For example:

biconfig.bat -h reportportal.comp.com -u Administrator -p P@ssw0rd -f C:\B0\import\_biar\_config\_mssql\_2005.xml

## Example: Sample Microsoft SQL Server 2005 Import Configuration File Configured to use Windows Authentication

The following code snippet is an example of an edited import configuration file (import\_biar\_config\_mssql2005.xml) for MS SQL Server 2005 you deploy on a Report Portal that works in Windows Authentication:

## **Configure BusinessObjects for Large Deployments**

To run CA Access Control reports on large deployments, you need to change the BusinessObjects default configuration. You change the maximum number of concurrent connections that the BusinessObjects page server can create (the default is 20,000). You also change the maximum number of values that are shown in input parameters selection lists.

#### To configure BusinessObjects for large deployments

- 1. Change the number of concurrent connections that the BusinessObjects page server can create:
  - a. On the Report Portal computer, click Start, Programs, Crystal Enterprise, Crystal Configuration Manager.

The BusinessObjects Configuration Manager opens.

- b. Right-click Crystal Page Server and select stop.
- c. Right-click Crystal Page Server and select Properties.
- d. Verify that the following text appears after *-restart* in the Path to Executable field:

-maxDBResultRecords 0

- e. Restart the BusinessObjects page server.
- 2. Change the maximum number of values that are shown in the input parameters selection lists for reports:
  - a. Open the Windows Registry Editor.
  - b. Navigate to the following registry key:

HKEY\_CURRENT\_USER/Software/Business Objects/Suite 11.5/Crystal Reports/Database

c. Click Edit, New, DWORD Value.

A new registry entry of type REG\_DWORD appears.

- d. Rename the entry to QPMaxLOVSize.
- e. Double-click the entry and edit its Value data to 1000.

The new registry entry is set.

- f. Open BusinessObjects Central Management Console (CMC).
- g. Navigate to the Servers management area.

h. Click the Web Intelligence Report Server whose settings you want to change.

The Web Intelligence Report Server page opens in the Properties tab.

- i. Modify the following values to more than 1000 or as required:
  - List of Values Batch Size
  - Maximum Size of List of Values for Custom Sorting

Click Apply to submit changes and restart the server so that the changes take effect immediately.

## **Configure the Connection to CA Business Intelligence**

CA Access Control Enterprise Management provides reporting capabilities through a CA Business Intelligence Common Reporting server (CA Access Control Report Portal). After installing the Report Portal and deploying the reports, you need to configure the connection from CA Access Control Enterprise Management to CA Business Intelligence. You use the CA Identity Manager Management Console to configure this connection.

#### To configure the connection to CA Business Intelligence

- 1. <u>Enable the CA Identity Manager Management Console</u> (see page 78).
- 2. Open the CA Identity Manager Management Console (see page 79).
- 3. Click Environments, ac-env, Advanced Settings, Reports.

The Reports Properties window appears.

4. Enter the database and Business Objects properties.

**Important!** The CA Business Intelligence Central Management Server (CMS) is used for internal management purposes only and does not contain the report data that is used to generate and display the reports. For more information about the CMS, see the CA Business Intelligence Installation Guide.

**Note**: For more information, see the *CA Identity Manager Management Console Online Help*, which you can access from the application.

**Important!** In the Business Objects Port field, enter the port number that the Report Portal uses. The default port is 8080. In the Business Objects Report folder field, enter CA Access Control r12.

5. Click Save.

The CA Business Intelligence settings are saved.

**Note:** For more information about CA Business Intelligence, see the *CA Business Intelligence Installation Guide*, which is available from <u>CA Technologies Support</u>.

## **Configure SSL Communication to CA Business Intelligence**

SSL, including Transport Layer Security (TLS) provides secure communications between computer programs. By default, the Enterprise Management Server components do not use SSL for communication.

By default, the Enterprise Management Server components do not use SSL for communication. You configure the Enterprise Management Server to communicate with CA Business Intelligence over SSL using the CA Identity Manager Management Console and by modifying the CA Business Intelligence Server. When you configure SSL communication to CA Business Intelligence, data is encrypted between the CA Business Intelligence Server and Enterprise Management Server.

The following illustration shows the process to configure SSL communication to CA Business Intelligence.



#### Configure SSL Communication to CA Business Intelligence

To configure SSL communication to CA Business Intelligence, follow these steps:

- 1. Enable the CA Identity Manager Management Console (see page 124).
- 2. Open the CA Identity Manager Management Console (see page 125).
- 3. Configure the SSL Communication to CA Business Intelligence (see page 126).
- 4. Create a CSR (SSL Certificate Signing Request) (see page 128).
- 5. <u>Enable SSL in the Server.xml File</u> (see page 129).
- 6. Install the CSR (see page 130).
- 7. <u>Verify the SSL Connection</u> (see page 131).

#### Enable the CA Identity Manager Management Console

When you install the Enterprise Management Server for the first time, the CA Identity Manager Management Console option is disabled. To enable the CA Identity Manager Management Console, change the default settings.

**Important!** Complete the following procedure only if you selected to use Active Directory or the embedded user store during installation.

#### Follow these steps:

- 1. Stop JBoss if it is running. Do *one* of the following steps:
  - From the JBoss job windows, interrupt (Ctrl+C) the process.
  - Stop the JBoss Application Server service from the Services Panel.
- 2. Navigate to the following directory, where *JBoss\_HOME* is the directory where you installed JBoss:

JBoss\_HOME/server/default/deploy/ IdentityMinder.ear/management\_console.war/WEB-INF

3. Open the *web.xml* file and search for the following section:

AccessFilter

- 4. In the <param-value> field, change the value to True.
- 5. Save and close the file.
- 6. Start JBoss.

The CA Identity Manager Management Console is enabled.

#### **Open the CA Identity Manager Management Console**

The CA Identity Manager Management Console is a web-based interface. Once you enable the CA Identity Manager Management Console and start CA Access Control Enterprise Management, you can open the CA Identity Manager Management Console from any computer on your network.

#### Follow these steps:

- 1. Open a web browser.
- 2. Enter the following URL, for your host:

http://enterprise\_host:port/idmmanage

The CA Identity Manager Management Console opens.

#### **Example: Open the CA Identity Manager Management Console**

Enter the following URL into your web browser to open the CA Identity Manager Management Console from any computer on the network:

http://appserver123:18080/idmmanage

In this example, the CA Identity Manager Management Console is installed on a host named appserver123 and uses the default CA Access Control Enterprise Management port 18080.

## **Configure the SSL Connection to CA Business Intelligence**

You can configure the Enterprise Management Server to communicate with CA Business Intelligence over SSL using the CA Identity Manager Management Console and by modifying the CA Business Intelligence Server. When you configure SSL communication to CA Business Intelligence, data is encrypted between the CA Business Intelligence Server and Enterprise Management Server.

#### Follow these steps:

1. Click Environments, ac-env, Advanced Settings, Reports.

The Reports Properties window appears.

2. Enter the database and the business objects properties. Use the <u>information</u> <u>worksheet</u> (see page 126) to gather the details.

**Important!** The CA Business Intelligence Central Management Server (CMS) is used for internal management purposes only and does not contain the report data that is used to generate and display the reports. For more information about the CMS, see the *CA Business Intelligence Installation Guide*.

**Note**: For more information, see the *CA Identity Manager Management Console Online Help*, which you can access from the application.

3. Enter the port in the Business Objects Port field.

Note: We recommend you to use port 8443.

- 4. Select SSL in the Business Objects Secure Communication field.
- 5. Click Save.

The CA Business Intelligence settings are saved.

#### More information:

Reports Properties Information Worksheet (see page 126)

## **Reports Properties Information Worksheet**

Use this worksheet to gather the required information to configure the Reports Properties page in CA Identity Manager Management Console.

Information Needed	Your Value	Notes
Database Host Name		Hostname of the server where the Enterprise Management Server is installed.
Database Port		Enter the database port number.
Database Name		

Information Needed	Your Value	Notes
Database Type		Oracle or Microsoft SQL Server.
Database Username		User ID of the database user that you specified during the installation of Enterprise Management Server.
Database User Password		Password for the Database user.
Business Objects Server Name		Hostname of the server where CA Business Intelligence is installed.
Business Objects Port		The Tomcat server port number. The default port is 8080.
Business Objects Reports folder		Enter CA Access Control r12.6
Business Objects Web Server		Select if the CA Business Intelligence server is IIS or non-IIS.
Business Objects Secure Communication		Select Enable SSL.
Business Objects Username		User ID for the CA Business Intelligence Administrator provided during CA Business Intelligence installation.
Business Objects User Password		Password for the Administrator.

#### Create a CSR (SSL Certificate Signing Request)

Before you enable SSL, generate a CSR (Certificate Signing Request) on the CA Business Intelligence Reporting Server. CA Access Control supports only JCEKS key stores. The keytool application described in this procedure is installed with your Java development kit.

#### Follow these steps:

- 1. On the system hosting your CA Business Intelligence Reporting Server, open a command prompt window.
- 2. Browse to the following directory:

Program\_Files\Java\your\_Java\_version\bin

3. Run the following command:

keytool -certreq -keyalg RSA -alias tomcat -file certreq.csr -keystore
key\_store\_path

**Example**: keytool -certreq -keyalg RSA -alias tomcat -file certreq.csr -keystore c:keystorekeystore.jks

4. Enter your keystore password as secret.

The certreq.csr file is created.

The file is encoded in PEM format and can be entered into the CA (Certificate Authority) website. You have generated a CSR on the CA Business Intelligence Reporting Server.

Note: Verify to include the following tags:

-----BEGIN NEW CERTIFICATE REQUEST-----

-----END NEW CERTIFICATE REQUEST-----

#### More information:

Obtain Certificate Signed by a CA (see page 128)

#### Obtain Certificate Signed by a CA

To obtain a certificate that is signed by a Certificate Authority, go to the CA's website and complete the online submission form. For more information about commercial CAs, you can visit one of these web sites:

- VeriSign http://digitalid.verisign.com/server/apacheNotice.htm
- Thawte http://www.thawte.com/certs/server/request.html

Allow 5-10 working days for the CA to process your request.

## Enable SSL in the Server.xml File

You configure the SSL Connector in the Tomcat server.xml file.

#### Follow these steps:

Locate the Tomcat server.xml file, and open it in a text editor. The server.xml file located in the following directory:

Tomcat\_Home/conf/server.xml

1. Locate the following text:

```
<!--
<Connector
```

port="8443" minProcessors="5" maxProcessors="75"
enableLookups="true" disableUploadTimeout="true"
acceptCount="100" debug="0" scheme="https" secure="true";
clientAuth="false" sslProtocol="TLS"/>

- ->

- 2. Comment out the following tags <!-- and --> to enable the Connector.
- 3. Locate the following text:

port=

4. Verify that the port number is set to 8443.

**Note**: Verify that the *redirectPort* property is also updated to port number 8443 in the server.xml file.

5. Add the following properties:

keystoreFile="key\_store\_path" keystorePass="password\_of\_the\_key\_store\_file"

- 6. Save and close the file.
- 7. Restart Tomcat.

You have configured the SSL connector in the server.xml file.

To verify the changes, open a browser and enter https://localhost. A Tomcat certificate error appears.

#### Install the CSR

Install the certificate that you received from the CA to the same keystore that you used to generate your CSR. In this scenario, this is the CA Business Intelligence Reporting Server keystore. Install the CA-signed CSR to enable SSL.

**Note**: Back up your CA-signed certificate in a safe location. Backing up this file makes re-securing your server easier if your server crashes.

#### Follow these steps:

1. Copy and paste the CA-signed certificate into a text file.

Note: Verify that the file includes the following tags:

-----BEGIN NEW CERTIFICATE REQUEST-----

-----END NEW CERTIFICATE REQUEST-----

- 2. Rename the file as rootcert.txt.
- 3. Open the command prompt, and enter the following command to import the root certificate:

keytool -import -alias tomcat -keystore key\_store\_path -trustcacerts -file
rootcert.txt

**Example**: keytool -import -alias tomcat -keystore C:keystorekeystore.jks -trustcacerts -file rootcert.txt

The root certificate is installed.

- 4. Open the certreq.csr file created in create a CSR procedure (see page 128).
- 5. Rename the file as mycert.txt.
- 6. In the command prompt, enter the following command to import your new certificate:

keytool -import -alias tomcat -keystore key\_store\_path -trustcacerts -file
mycert.txt

**Example**: keytool -import -alias tomcat -keystore C:keystorekeystore.jks -trustcacerts -file mycert.txt

You have installed the CA-signed certificate.

#### More information:

Obtain Certificate Signed by a CA (see page 128)

#### Verify the SSL Connection

You can verify the SSL connection to CA Business Intelligence Report Server.

#### Follow these steps:

- 1. Open a web browser.
- 2. Enter the following address:

https://locahost:port

For example, if your SSL was issued to cabireportserver.com, enter https://cabireportserver.com into your browser.

The Tomcat default page appears without any certificate errors. You have successfully configured SSL connection to CA Business Intelligence.

## **Create a Snapshot Definition**

Reports are based on data snapshots that are collected from CA Access Control and UNAB endpoints and stored in the central database, on PUPM data from CA Access Control Enterprise Management, and on data from the user store.

You create a snapshot definition and capture snapshot data before you can run and view CA Access Control reports. A snapshot definition specifies the report data that CA Access Control collects and the schedule for data collection.

The snapshot parameter XML file specifies the report data that CA Access Control collects. By default, this file specifies to include all CA Access Control and UNAB endpoints, PUPM data, and data from the user store in the report snapshot. You can customize the snapshot parameter XML file to limit the scope of the report snapshot.

To help ensure that the reports contain the most up-to-date data, do not schedule the snapshot to run more often than the endpoint snapshots. For example, if you configure your endpoints to send a snapshot each week and configure CA Access Control Enterprise Management to capture a snapshot each day, report data is collected weekly from the endpoints but daily from PUPM and the user store, and out-of-date endpoint data appears in the reports.

**Important!** Do not enable more than one snapshot definition. CA Access Control Enterprise Management cannot successfully run all reports if more than one snapshot definition is enabled.

**Note:** By default, you must have the System Manager role to create a snapshot definition.

#### To create a snapshot definition

- 1. In CA Access Control Enterprise Management, do as follows:
  - a. Click Reports.
  - b. Click the Tasks subtab.
  - c. Expand the Manage Snapshot Definition tree in the task menu on the left.
     The Create Snapshot Definition task appears in the list of available tasks.
- 2. Click Create Snapshot Definition.

The Create Snapshot Definition: Select Snapshot Definition page appears.

3. Click OK.

The Create Snapshot Definition page appears.

4. Complete the following fields in the Profile tab:

#### **Snapshot Definition Name**

Defines the name of the snapshot definition.

#### **Snapshot Definition Description**

Specifies any additional information to describe the snapshot definition.

#### Enabled

Specifies that CA Access Control Enterprise Management enables the snapshot definition.

**Note:** If you do not select this checkbox, CA Access Control Enterprise Management does not capture snapshots and you cannot view reports. You can enable only one snapshot at a time.

#### Identifier

Specifies the snapshot parameter XML file that defines the scope of the report snapshot.

#### Default: PPM\_ALL.xml

#### **Keep Last**

Specifies the number of successful snapshots stored in the central database. CA Access Control deletes old snapshots when the number of snapshots in the database reaches the number that you specify.

**Note:** The number of snapshots should be greater than zero. If you do not specify a value for this field, CA Access Control stores unlimited snapshots. We recommend that you store a maximum of three successful snapshots.

5. Click the Recurrence tab and select Schedule.

The schedule options appear.

6. Specify the snapshot execution time and recurrence pattern, and click Submit.

**Note:** We recommend that you schedule the snapshot to run less frequently than the snapshots from CA Access Control and UNAB endpoints.

CA Access Control is configured to capture snapshots at the scheduled time and frequency.

**Note:** After you create a snapshot definition, you can choose to capture snapshots on demand and capture snapshots at the scheduled time and frequency. For more information about capturing snapshot data, see the *Enterprise Administration Guide*.

#### Limit the Scope of the Report Snapshot

When CA Access Control Enterprise Management captures a report snapshot, it collects data from snapshots of CA Access Control and UNAB endpoints, PUPM data from CA Access Control Enterprise Management, and data from the user store. After CA Access Control Enterprise Management collects the report data, it stores the data in the central database.

The snapshot parameter XML file specifies the report data that CA Access Control Enterprise Management collects. You can limit the scope of the report snapshot by customizing the snapshot parameter XML file.

For example, if you use Active Directory as your user store, CA Access Control Enterprise Management collects data for every Active Directory user when it captures a report snapshot. This operation may take a long time to complete. To decrease the time it takes to capture a snapshot, you can limit the scope of the Active Directory snapshot by customizing the snapshot parameter XML file.

#### To limit the scope of the report snapshot

1. Navigate to the following directory, where *JBOSS\_HOME* is the directory where you installed JBoss:

JBOSS\_HOME/server/default/deploy/IdentityMinder.ear/config/com/netegrity/ config/imrexport/sample

Copy the PPM\_ALL.xml file, rename the new file, and save the file in the same directory.

You have created a new snapshot parameter XML file.

- 3. Open the new snapshot parameter XML file in an editable form.
- 4. Edit the entries in the <!--IM COLLECTORS--> section to specify the scope of the data that CA Access Control Enterprise Management collects from the user store.

- Comment out (!-- ) and ( --) the entries in the <!--PUPM COLLECTORS--> section that correspond to the CA Access Control Enterprise Management components that you do not want to include in the report snapshot.
- 6. (Optional) Limit the scope of the Active Directory snapshot:
  - a. Review the <u>How the LDAP Queries Limit the Report Snapshot</u> (see page 140) and the <u>LDAP Syntax Considerations</u> (see page 140) topics.

The information in these topics helps you define the correct LDAP queries in the following steps.

b. Locate the following element in the <!--PUPM COLLECTORS--> section:

```
<export object="com.ca.ppm.export.ADUsersCollector">
</export>
```

This element specifies the Active Directory user data that is included in the snapshot.

c. Edit the element so it appears as follows, where *ldap\_query* specifies an LDAP query that defines the users for which data is collected:

</export>

d. Locate the following element in the <!--PUPM COLLECTORS--> section:

<export object="com.ca.ppm.export.ADGroupsCollector"> </export>

e. Edit the element so it appears as follows, where *ldap\_query* specifies an LDAP query that defines the groups for which data is collected:

</export>

You have limited the scope of the Active Directory snapshot.

- 7. Save and close the new snapshot parameter XML file.
- 8. Modify the snapshot definition in CA Access Control Enterprise Management to use the new snapshot parameter XML file.

When the capture snapshot task runs, it collects only the data that you specified in the snapshot parameter XML file.

#### Example: Limit the Scope of Report Snapshots to CA Access Control Endpoints

If you do not use PUPM and UNAB, you can limit the scope of the report snapshot to collect data only from CA Access Control endpoints. To limit the scope of data collection to CA Access Control endpoints, you comment (!-- ) and ( --) all the entries under the <-- PUPM COLLECTORS --> section *except* for the ReportIdMarkerCollector entry.

The following is a snippet from the PPM\_ALL.xml file after it was modified to comment all entries under the <-- PUPM COLLECTORS --> section, excluding the ReportIdMarkerCollector entry:

```
<!-- PUPM COLLECTORS -->
        <!-- export object="com.ca.ppm.export.AccountPasswordCollector">
        </export -->
        <!-- export object="com.ca.ppm.export.PPMRolesCollector">
                <exportattr attr="|rolemembers|" />
        </export -->
        <!-- export object="com.ca.ppm.export.
                PrivilegedAccountExceptionCollector">
        </export -->
        <!-- export object="com.ca.ppm.export.PPMPasswordPolicyCollector">
        </export -->
        <!-- export object="com.ca.ppm.export.ADUsersCollector">
        </export -->
        <export object="com.ca.ppm.export.PPMAccountUserAccessCollector">
        </export --!>
        <!-- export object="com.ca.ppm.export.ADGroupsCollector">
                <exportattr attr="|groupmembers|" />
        </export -->
        <export object="com.ca.ppm.export.ReportIdMarkerCollector">
        </export>
```

#### Snapshot Parameter XML File Syntax—Limit Report Snapshot

The snapshot parameter XML file specifies that report data that CA Access Control Enterprise Management collects. You can limit the scope of the report snapshot by editing the snapshot parameter XML file.

CA Access Control Enterprise Management collects report data only for the objects that meet the criteria that you define in the snapshot parameter XML file. Each collector in the file defines a set of objects that CA Access Control Enterprise Management collects.

Each collector has the following structure:

</export>

Note: The <where>, <value>, and <exportattr> elements are optional.

Each collector contains the following elements:

#### <export>

Indicates the object data that CA Access Control Enterprise Management collects. For example, the <export> element may specify that CA Access Control Enterprise Management collects user data.

The <export> element can include one or more <exportattr> and <where> elements, which let you collect only the data that meets certain criteria. If you do not specify any <exportattr> or <where> elements, CA Access Control Enterprise Management collects all of the data for the object.

The <export> element has only the object parameter.

#### <where>

Filters the collected data based on the criteria defined by the <value> element. A <where> element must include at least one <value> element. You can specify multiple <where> elements to refine your filter (they act as OR elements).

The following table describes the parameters for the <where> element:

Parameter	Description
attr	Indicates the attribute to use in the filter.

Parameter	Description	
satisfy	Indicates whether some or all of the value evaluations must be satisfied for the object or attributes to be collected.	
	<ul> <li>ALL—An attribute or object must satisfy all of the value evaluations.</li> </ul>	
	<ul> <li>ANY—An attribute or object must satisfy at least one value evaluation.</li> </ul>	

#### <value>

Defines, in a <where> element, the condition that an attribute or an object must meet to be collected. The <value> element requires the operator (op) parameter. The operator can be EQUALS or CONTAINS.

**Note:** In the <!--PUPM COLLECTORS--> section of the snapshot parameter XML file, you can use LDAP syntax in <value> elements. The LDAP syntax lets you specify the user and group data that CA Access Control Enterprise Management collects from Active Directory.

#### <exportattr>

Indicates a specific attribute to collect. Use the <exportattr> element to collect a subset of attributes for the object you are collecting. For example, you can use the <exportattr> element to collect only a user's ID.

The <exportattr> element has the attr parameter.

Object	Attributes you can use in a <where> element</where>	Attributes you can use in an <exportattr> element</exportattr>
role	You can filter with the name attribute. name—the roles with names that satisfy the	You can collect any of the following attributes:
		<ul> <li> tasks —all tasks associated with the role</li> </ul>
	filter	<ul> <li> rules —all member, admin, owner, and scope rules that apply to the role</li> </ul>
		<ul> <li> users —all members, administrators, and owners of the role</li> </ul>
		<ul> <li> rolemembers —all role members</li> </ul>
		<ul> <li> roleadmins —all role administrators</li> </ul>
		<ul> <li> roleowners —all role owners</li> </ul>
user	<ul> <li>Any well-known or physical attribute and any of the following attributes:</li> <li> groups —the members of a group</li> <li> roles —the members of a role</li> </ul>	You can collect any of the following attributes:
		<ul> <li> all_attributes —all available user attributes</li> </ul>
		<ul> <li> groups —all groups where the user is a member or admin</li> </ul>
		<ul> <li> roles —all roles where the user is a member, admin, or an</li> </ul>
	<ul> <li> orgs —users whose profiles exist in organizations that satisfy the filter</li> </ul>	owner

The following table shows attributes that can be used in a <where> element or an <exportattr> element, by object:

Object	Attributes you can use in a <where> element</where>	Attributes you can use in an <exportattr> element</exportattr>
group	Any well-known or physical attribute or the following attribute:	You can collect any well-known or physical attribute or any of the following attributes:
	groups —the list of nested groups within a group that satisfies the filter	<ul> <li> all_attributes —all attributes defined for the Group object in the directory configuration file (directory.xml)</li> </ul>
		<ul> <li> groups —all nested groups within the group</li> </ul>
		<ul> <li> users —all members of the group</li> </ul>
		<ul> <li> groupadmins —all users who are administrators of the specified group</li> </ul>
		<ul> <li> groupmembers —all users who are members of the specified group</li> </ul>
		<ul> <li> users —all group administrators and members</li> </ul>
organization	Any well-known or physical attribute	You can collect any well-known or physical attribute or any of the following attributes:
		<ul> <li> all_attributes —all attributes defined for the Organization object in the directory configuration file (directory.xml)</li> </ul>
		<ul> <li> orgs —all nested organizations within the organization</li> </ul>
		<ul> <li> groups —all groups in the organization</li> </ul>
		<ul> <li> users —all users in the organization</li> </ul>

## How LDAP Queries Limit the User and Group Data in the Report Snapshot

If you use Active Directory as your user store, you can specify the user and group data that is captured in the report snapshot.

You can use LDAP queries in the snapshot parameter XML file that filter the Active Directory data by user and by group. However, you cannot use LDAP queries that filter the Active Directory data by role membership. You can use LDAP queries only in the <!--PUPM COLLECTORS--> section of the snapshot parameter XML file

The following process describes how the LDAP queries in the snapshot parameter XML file limit the Active Directory data that CA Access Control Enterprise Management collects. This information helps you write the correct LDAP query to limit the report snapshot.

When CA Access Control Enterprise Management captures an Active Directory report snapshot, it does the following:

1. Collects data for only the Active Directory users that are specified in the LDAP query within the following element:

<export object="com.ca.ppm.export.ADUsersCollector">

If the element does not contain an LDAP query, CA Access Control Enterprise Management includes data for all Active Directory users in the snapshot.

2. Collects data for only the Active Directory groups that are specified in the LDAP query within the following element:

<export object="com.ca.ppm.export.ADGroupsCollector">

If the element does not contain an LDAP query, CA Access Control Enterprise Management includes data for all Active Directory groups in the snapshot.

**Note:** CA Access Control Enterprise Management does not collect data for any user that is not returned by the query in Step 1. If a user is a member of a group that is returned by the query in Step 2, but the user is not returned by the query in Step 1, CA Access Control Enterprise Management does not include any data for the user in the Active Directory snapshot.

#### LDAP Syntax Considerations

Consider the following when you write LDAP queries to limit the scope of the Active Directory snapshot:

- You can use the following logical operators in the LDAP query:
  - EQUAL TO ( = )
  - OR(|)

– AND(&)

Note: Some restrictions apply to the use of the ampersand ( & ) character.

- NOT ( ! )
- wildcard (\*)
- You can use the ampersand character ( & ) and left angle bracket character ( < ) only in the following contexts:
  - As a markup delimiter
  - Within a comment
  - Within a processing instruction
  - Within a CDATA section

Use the string **&amp**; or the Unicode character reference to represent the ampersand character in any other context. Use the string **&lt**; or the Unicode character reference to represent the left angle bracket character in any other context.

 You can use the right angle bracket character ( > ) only at the end of a string marking the end of a CDATA section ( ]]> ).

Use the string **>** or the Unicode character reference to represent the right angle bracket character in any other context.

#### **Example: The Ampersand Character**

The following snippet of a snapshot parameter XML file specifies to include all Active Directory user data in the report snapshot. The LDAP query in the snippet uses the & amp; string to represent an ampersand:

# Deploy the Report Package on a Report Portal That You Installed with CA Access Control r12.0

#### Valid on Windows

To make use of the standard CA Access Control reports, you need to import the report package file into BusinessObjects InfoView.

This procedure describes how you deploy a report package on an existing installation of CA Business Intelligence that you installed with CA Access Control r12.0.

#### Follow these steps:

- 1. Insert the appropriate CA Access Control Premium Edition Server Components DVD for your operating system into your optical disc drive and navigate to the /ReportPackages directory.
- 2. Create a temporary folder for the installation files:
  - On Windows, create a folder named BO under the root C:\ drive.

Note: You need approximately 2 GB of memory in this folder.

- On Linux, create the directory /work/bo
- 3. Copy the following files from the optical disc drive into the same temporary directory:
  - /ReportPackages/RDBMS/import\_biar\_config.xml
  - /ReportPackages/RDBMS/AC\_BIAR\_File.biar

#### RDBMS

Defines the type of RDBMS you are using.

Values: Oracle, MSSQL2005

#### import\_biar\_config.xml

Defines the name of the import configuration file (.xml) for your RDBMS.

Values: import\_biar\_config\_oracle10g.xml, import\_biar\_config\_oracle11g.xml, import\_biar\_config\_mssql\_2005.xml

**Note:** If you use MS SQL Server 2008 as your central database, configure the import\_biar\_config\_mssql\_2005.xml file.

#### AC\_BIAR\_File.biar

Defines the name of the CA Access Control reports file (.biar) for your language and RDBMS.

**Note:** The <biar-file name> property of the import configuration file for your RDBMS points to this file. It is set by default to the name of the English version for your RDBMS.

4. Insert the CA Access Control Premium Edition r12.0 Server Components DVD for your platform into the optical disc drive and navigate to the /ReportPortal directory.

Note: This DVD is part of the media you received with r12.0.

- 5. Complete one of the following steps:
  - On Windows, copy the contents of the \ReportPortal\BO directory from the DVD to the C:\BO folder that you created.
  - On Linux, extract /ReportPortal/bo\_install.tar.gz to the /work/bo folder you created.
- 6. Copy the contents of the \ReportPortal\BO directory from the DVD to the C:\BO folder that you created.
- 7. Open the target directory and browse to *BO\_files*/biek-sdk.
- 8. Edit your copy of the biekInstall.properties file as follows:

BIEK\_CONNECT\_LAYER=networklayer BIEK\_CONNECT\_DB=rdms BIEK\_CONNECT\_USER=rdbms\_adminUserName BIEK\_CONNECT\_PASSWORD=rdbms\_adminUserPass BIEK\_CONNECT\_SOURCE=rdbms\_Datasource BIEK\_CONNECT\_SERVER=rdbms\_hostName BIEK\_B0\_USER=InfoView\_adminUserName BIEK\_B0\_PASSWORD=InfoView\_adminUserPass BIEK\_BIAR\_FILE=AC\_BIAR\_File.biar

#### networklayer

Defines the network layer supported by your RDBMS.

Limit: Case-sensitive.

#### rdms

Defines the type of RDBMS you are using.

Limit: Case-sensitive.

#### rdbms\_adminUserName

Defines the user name of the RDBMS administrative user you created.

#### rdbms\_adminUserPass

Defines the password of the RDBMS administrative user you created.

#### rdbms\_Datasource

Defines the name of the Transparent Network Substrate (TNS) of the Oracle database.

#### rdbms\_hostName

Defines the host name of the RDBMS server.

#### InfoView\_adminUserName

Defines the user name of the InfoView administrative user. By default, this user is *Administrator*.

#### InfoView\_adminUserPass

Defines the password of the InfoView administrative user. By default, this user does not have a password (leave it empty).

#### AC\_BIAR\_File.biar

Defines the full pathname to the CA Access Control reports file (.biar). This is the file you copied earlier.

9. Launch the *BO\_Files*/biek-sdk/importBiarFile.bat batch file.

The file imports the CA Access Control reports into InfoView. The import may take a few minutes to complete.
## Chapter 5: Installing Endpoint Management

This section contains the following topics:

How to Prepare the Endpoint Management Server (see page 145) Install CA Access Control Endpoint Management on Windows (see page 146) Install CA Access Control Endpoint Management on Linux (see page 147) Uninstall CA Access Control Endpoint Management on Windows (see page 148) Uninstall CA Access Control Endpoint Management on Linux (see page 149) Start CA Access Control Endpoint Management (see page 150) Open CA Access Control Endpoint Management (see page 151)

### How to Prepare the Endpoint Management Server

Before you install CA Access Control Endpoint Management, you need to prepare the server.

**Important!** If you intend to install CA Access Control Enterprise Management on the same computer, you do not need to follow these steps. The installation program installs CA Access Control Endpoint Management as part of CA Access Control Enterprise Management installation.

To prepare the Endpoint Management server, do the following:

1. Install a supported Java Development Kit (JDK).

**Note:** You can find prerequisite third-party software on the CA Access Control Premium Edition Third Party Components DVDs. For information about supported versions, see the *Release Notes*.

2. Install a supported JBoss version.

We recommend that you run JBoss as a service. (daemon on UNIX).

**Note:** You can find prerequisite third-party software on the CA Access Control Premium Edition Third Party Components DVDs. For information about supported versions, see the *Release Notes*.

3. Install CA Access Control.

Note: Follow the instructions for installing a CA Access Control endpoint.

- 4. (Windows only) Restart the computer.
- 5. Stop CA Access Control services (secons -s).

The server is now ready for CA Access Control Endpoint Management to be installed.

### **Install CA Access Control Endpoint Management on Windows**

### Valid on Windows

The graphical installation uses a wizard to support and guide you when installing CA Access Control Endpoint Management on a Windows computer.

#### To install CA Access Control Endpoint Management on Windows

- 1. Verify that you prepare the server correctly.
- Insert the CA Access Control Premium Edition Server Components for Windows DVD into your optical disc drive.
- 3. Open the CA Access Control Product Explorer (ProductExplorerx86.EXE).

The CA Access Control Product Explorer appears.

4. Expand the Components folder, select CA Access Control Endpoint Management, then click Install.

The InstallAnywhere wizard starts loading.

5. Complete the wizard as required. The following installation inputs are not self-explanatory:

#### **JBoss Folder**

Defines the location where JBoss Application Server is installed.

If you use the supplied JBoss version, this is the location where you extracted the contents of the JBoss zip file.

### Web Service Information

Defines the *location* where you want to install the CA Access Control Web Service and the *port* you want this service to use (by default, 5248).

#### Full computer name

Defines the name of the application server (the local computer). This is the name you then need to use in the URL when you access the application.

The installation is now complete.

### **Install CA Access Control Endpoint Management on Linux**

You must use console installation to install CA Access Control Endpoint Management on a Linux computer.

### To install CA Access Control Endpoint Management on Linux

- 1. Make sure that you prepare the server correctly.
- 2. Insert the CA Access Control Premium Edition Server Components for Solaris or Server Component for Linux DVD into your optical disc drive.
- 3. Mount the optical disc drive.
- 4. Open a terminal window and navigate to the EndPointMgmt directory on the optical disc drive.
- 5. Enter the following command:

install\_EM\_r125.bin -i console

The InstallAnywhere console appears after a few moments.

6. Complete the prompts as required. The following installation inputs are not self-explanatory:

#### **Choose Locale By Number**

Defines the number representing the locale you want to install in.

**Note:** You need a localized operating system to install in any of the supported non-English languages.

#### **JBoss Folder**

Defines the location where JBoss Application Server is installed.

If you use the supplied JBoss version, this is the location where you extracted the contents of the JBoss zip file.

### Web Service Information

Defines the *location* where you want to install the CA Access Control Web Service and the *port* you want this service to use (by default, 5248).

### Full computer name

Defines the name of the application server (the local computer). This is the name you then need to use in the URL when you access the application.

The installation is now complete.

# Uninstall CA Access Control Endpoint Management on Windows

Be sure you are logged in to the Windows system as a user with Windows administrative privileges (that is, the Windows administrator or a member of the Windows Administrators group).

### To uninstall CA Access Control Endpoint Management on Windows

- 1. Stop JBoss if it is running.
- 2. Click Start, Control Panel, Add or Remove Programs.

The Add or Remove Program dialog appears.

- 3. Scroll through the program list and select CA Access Control Endpoint Management.
- 4. Click Change/Remove.

The Uninstall CA Access Control Endpoint Management wizard appears.

5. Follow the wizard's instructions to uninstall CA Access Control Endpoint Management.

The uninstall completes and removes CA Access Control Endpoint Management from your computer.

6. Click Done to close the wizard.

### **Uninstall CA Access Control Endpoint Management on Linux**

If you want to remove CA Access Control Endpoint Management from your computer you need to use the uninstall program that CA Access Control Endpoint Management provides.

### Follow these steps:

- 1. Stop JBoss by doing *one* of the following:
  - From the JBoss job windows, interrupt (Ctrl+C) the process.
  - From a separate window, type:

./*JBoss\_path*/bin/shutdown -S

2. Enter the following command:

"/ACEMInstallDir/Uninstall\_EndpointManagement/Uninstall\_CA\_Access\_Control\_End point\_Management"

### ACEMInstallDir

Defines the installation directory of CA Access Control Endpoint Management. By default this path is:

/opt/CA/AccessControlServer/EndpointManagement/

InstallAnywhere loads the uninstall console.

3. Follow the prompts to uninstall CA Access Control Endpoint Management.

The uninstall completes and removes CA Access Control Endpoint Management from your computer.

### Start CA Access Control Endpoint Management

Once you install CA Access Control Endpoint Management you need to start CA Access Control and the web application server.

### To start CA Access Control Endpoint Management

1. Start CA Access Control services.

CA Access Control Endpoint Management requires that CA Access Control be running.

- 2. Start the following additional services, which do not load when you issue the seosd -start command:
  - CA Access Control Web Service
  - CA Access Control Message Queue (if present)
- 3. Start JBoss Application Server by doing either of the following:
  - Click Start, Programs, CA, Access Control, Start Task Engine.

**Note:** The Task Engine may take some time to load the first time that you start it.

• Start JBoss Application Server service from the Services panel.

When JBoss Application Server completes loading, you can log in to the CA Access Control Endpoint Management web-based interface.

**Note:** JBoss Application Server may take some time to load the first time that you start it.

When JBoss Application Server completes loading, you can log in to the CA Access Control Endpoint Management web-based interface.

### **Open CA Access Control Endpoint Management**

Once you install and start CA Access Control Endpoint Management you can open the web-based interface from a remote computer using the URL for CA Access Control Endpoint Management.

#### **To open CA Access Control Endpoint Management**

1. Open a web browser and enter the following URL, for your host:

http://enterprise\_host:port/acem

2. Enter the following information:

#### User Name

Defines the name of the user that has privileges to perform CA Access Control administration tasks.

**Note:** The user name you use to log in should include the computer name (for example, *myComputer\Administrator* on Windows or *root* on UNIX).

### Password

Defines the password of the CA Access Control user.

### **Host Name**

Defines the name of the endpoint you want to perform administrative tasks on. This can be either a host or a PMDB, specified in the format: PMDB\_name@host\_name

**Note:** You must have permissions to manage the endpoint from the computer where CA Access Control Endpoint Management is installed (using the TERMINAL resource).

Click Log In.

CA Access Control Endpoint Management opens on the Dashboard tab.

**Note:** You can also open CA Access Control Endpoint Management from a Windows computer where you installed it by clicking Start, Programs, CA, Access Control, Endpoint Management.

### **Example: Open CA Access Control Endpoint Management**

Enter the following URL into your web browser to open CA Access Control Endpoint Management from any computer on the network:

http://appserver123:18080/acem

The URL suggests that CA Access Control Endpoint Management is installed on a host named appserver123 and uses the default JBoss port 18080.

## Chapter 6: Preparing Your Endpoint Implementation

This section contains the following topics:

Deciding on the Policy Objects to Protect (see page 153) Authorization Attributes (see page 157) Using a Warning Period (see page 158) Implementation Tips (see page 159)

### **Deciding on the Policy Objects to Protect**

The following sections describe some of the important objects that can be used by your security policy to authorize access to your enterprise applications and data.

### Users

In CA Access Control, there are different types of users. Each type of user has a certain level of authority and certain limitations. Part of developing a security policy for your organization is deciding which special privileges to grant to whom.

CA Access Control stores information about a user, such as the number of times the user is permitted to log on, and the type of auditing to be done on the user. Information about a user is stored in properties of database records.

Note: For more information about users, see the Endpoint Administration Guide.

### **Types of Users**

CA Access Control supports the following types of users, that are used for managing resources in the CA Access Control database:

### **Regular users**

Your organization's in-house end users—the people who carry out the business of your organization. You can limit regular users' access to the system with both the native OS and CA Access Control.

### Users with special privileges (sub administrators)

Regular users who have been given the ability to perform one or more specific administrative tasks. When regular users are given the ability to carry out specific administrative functions, the workload of the administrator is lessened. In CA Access Control, this is called task delegation.

#### Administrators

Users who have the highest authority within the native OS and CA Access Control. Administrators can add, delete, and update users and can perform almost all administrative tasks. With CA Access Control, you are able to limit the abilities of the native superuser. You can allocate administration tasks to specific users whose accounts are not automatically known. This means that it is not immediately clear to an intruder which user performs administrative tasks.

#### **Group administrators**

Users who can perform most administrative functions, such as adding, deleting, and updating users, within one particular group. This type of user, with its particular, limited authority, is not found in native Windows.

### **Password managers**

Users who have the authority to change the password of other users. A password manager cannot change other user attributes. This type of user is not found in the native OS.

### Group password managers

Users who have the authority to change the password of other users in one particular group. A group password manager cannot change other user attributes for users within the group. This type of user is not found in the native OS.

#### Auditors

Users who have the authority to read audit logs. They also determine the kind of auditing done on each login and each attempt to access a resource. This type of user is not found in the native OS.

#### **Group auditors**

Users who can read audit logs relevant to their group. They also have the authority to determine the kind of auditing done within a particular group. This type of user is not found in the native OS.

### Operators

Users who can display (read) all the information in the database, shut down CA Access Control, and use the secons utility to perform tasks such as manage CA Access Control tracing and display run-time statistics. This type of user is not found in the native OS.

**Note:** For more information about the secons utility, see the *Reference Guide*.

#### **Group operators**

Users who can display all the information in the database for the group in which they are defined. This type of user is not found in the native OS.

#### Server

A special type of user that is really a process, which can ask for authorization for other users.

### **Security Policies and Users**

When preparing the implementation, you should decide:

- What special privileges, if any, to give to the defined users
- What global authorization and group authorization attributes to grant to defined users

For example, you should decide whom to define as system administrators, password managers, group password managers, auditors, and operators.

### Groups

A group is a set of users who usually share the same access authorizations. Administrators can add users to groups, remove users from groups, and assign or deny access to system resources by group. This type of group exists in both native OS and CA Access Control.

The group record contains information about the group. The most important information stored in the group record is the list of users who are members of the group.

**Important!** Authorization rules for a group record apply recursively for each user in the group's hierarchy.

For example, Group A has two members: User X and Group B. User Y is a member of Group B. When you change an authorization rule for Group A, CA Access Control applies the changed authorization rule to all the users and groups in the Group A hierarchy, that is, User X, Group B, and User Y.

Information in a group record is stored in *properties*.

In CA Access Control, a group administrator can manage group functions for the specific group in which the group administrator is defined. A group password manager can change the password of group members.

### **Security Policies and Groups**

When developing a security policy for your organization, you should decide:

- What groups to create for security administration purposes
- Which users to join to each group
- Whether to define group administrators and group password managers, and if so, which users to give these administrative roles

### **Predefined Groups of Users**

CA Access Control includes predefined groups to which a user can be joined. One such group is the \_restricted group. For users in the \_restricted group, all files and registry keys are protected by CA Access Control. If a file or a registry key do not have an access rule explicitly defined, access permissions are covered by the \_default record for that class (FILE or REGKEY).

Use the \_restricted group with caution. Users in the \_restricted group may not have sufficient authorization to do their work. If you plan to add users to the \_restricted group, consider using Warning mode initially. In Warning mode, the audit log shows which files and registry keys users need for their work. After examining the audit log, you can grant the appropriate authorizations and turn Warning mode off.

### **Predefined Groups for Resource Access**

Other types of predefined groups in CA Access Control define the type of access that is allowed or prohibited to a particular resource. These groups include the following:

\_network

(Windows only) The \_network group defines access from the network to a particular resource. All users are treated as if they are members of the group; no user has to be explicitly added to the group.

For example, you can specify that a particular resource can only be read from the network. Using selang, you define the new resource as follows:

newres FILE c:\temp\readonly defaccess(none)

Then specify the access allowed through the network:

authorize FILE c:\temp\readonly gid(\_network) access(read)

You can also do this using CA Access Control Endpoint Management.

Now when accessing c:\temp\readonly from the network, users can read the file only from the network.

\_interactive

The \_interactive group defines the access permitted to a particular resource from the computer on which the resource resides. For example, You can authorize READ access to a file from the computer on which it is defined, although no access is permitted to the resource from the network.

The following points are important:

- There is no connection in CA Access Control between the \_network and \_interactive groups. This means that there can be a rule in the \_network group that defines access from the network to a specific resource. Another rule in the \_interactive group can define access to the same resource.
- You do not have to add users to the \_network and \_interactive groups.
- These groups can protect all the Windows resources defined in the database.

### **Authorization Attributes**

An authorization attribute is set in the user record in the database and permits the user to do things that an ordinary user cannot do. The two kinds of authorization attributes are *global* and *group*. Each global authorization attribute permits the user to perform certain types of functions on any record in the database. A group authorization attribute permits the user to perform certain types of functions within one specified group. The functions and the limits of each global and group authorization attribute are described in the following sections.

### **Global Authorization Attributes**

Users who have a global authorization attribute set in their own user records can perform special functions on any relevant record in the database. The global authorization attributes are:

- ADMIN
- AUDITOR
- OPERATOR
- PWMANAGER
- SERVER
- IGN\_HOL

**Note:** For more information about global authorization attributes, see the *Endpoint Administration Guides*.

### **Group Authorization Attributes**

Users who have a *group authorization attribute* in their own user records can perform special functions within a specified group. The group authorization attributes are:

- GROUP-ADMIN
- GROUP-AUDITOR
- GROUP-OPERATOR
- GROUP-PWMANAGER

**Note:** For more information about group authorization attributes, see the *Endpoint Administration Guides*.

### **Using a Warning Period**

In addition to deciding what to protect, the implementation team must consider how to phase in the new security controls. To minimize disruption to current work patterns, you should consider an initial period in which you only monitor access to resources, rather than enforcing access restrictions.

You can monitor access by putting the resources into Warning Mode. When Warning Mode is enabled for a resource or a class, and user access violates access restrictions, CA Access Control records a Warning message in the audit log, and gives the user access to the resource.

**Note:** If you use Warning Mode, consider increasing the maximum size of the audit logs. For more information about Warning Mode, see the *Endpoint Administration Guide*.

### CA Access Control Backdoor

When you first install CA Access Control, for example in an evaluation deployment, you may incorrectly define rules in the CA Access Control database. Incorrectly defined rules can prevent users from logging in or executing commands. For example, you may mistakenly define a rule that denies access to the system directory or to vital parts of the Windows registry.

Because it is difficult to stop CA Access Control and fix these mistakes, CA Access Control comes with a backdoor that lets you fix these types of problems. Because backdoors can be maliciously exploited, CA Access Control also lets you disable this backdoor once your system is set up and stable.

To access this backdoor, when you start the computer, select Safe Mode or Safe Mode with Networking from the boot menu. When you select one of these options the system starts without automatically starting the CA Access Control services.

To disable this backdoor, define the registry value 'LockEE' of data type reg\_dword under the registry key HKEY\_LOCAL\_MACHINE\Software\ComputerAssociates\ AccessControl\AccessControl\ and set it to 1.

Note: This registry value does not exist by default.

Now when you start the system with LockEE set to 1 in:

Safe Mode, only CA Access Control Engine and CA Access Control Watchdog load.

The CA Access Control Agent (and any Policy Models), which rely on network services, do not load.

Safe Mode with Networking, CA Access Control starts normally.

### **Implementation Tips**

This section provides some miscellaneous implementation information to consider once you have installed CA Access Control.

### **Types of Security**

You can handle security at your site by using one of the following approaches:

- Whatever is not explicitly allowed is forbidden. This is the ideal approach, but it is impossible to use during implementation. Since no rules exist that allow anything to be done on the system, the system blocks all attempts to define access rules. It is like locking yourself out of your car with the keys still in the ignition.
- Whatever is not specifically forbidden is allowed. This approach may be less secure, but it is a practical way to implement a security system.

CA Access Control lets you start with the second approach and, once access rules have been defined, switch to the first approach. Default access (defaccess) and universal access (\_default) rules let you define approach and switch protection policy at any time.

**Important!** You may need to add all users to the \_restricted group when switching a protection policy. Performance may be significantly effected when switching between protection policies.

### Accessors

An *accessor* is an entity that can access resources. The most common type of accessor is a user or group, for whom access authorities should be assigned and checked. When programs access resources, the owner (a user or group) of the program is the accessor. Accessors fall into three categories:

- A person who is associated with a specific user ID
- A person who is a member of a group that has access authority
- A production process that is associated with a certain user ID

The most common type of accessor is a user, a person who can perform a login and for whom access authorities should be assigned and checked. One of the most important features of CA Access Control is accountability. Each action or access attempt is performed on behalf of a user who is held responsible for the request.

CA Access Control lets you define groups of users. Users are usually grouped together by projects, departments, or divisions. By grouping users together, you can significantly reduce the amount of work needed to administer and manage security.

You can define new users and groups and modify existing users and groups through CA Access Control Endpoint Management or through selang commands.

### **Resources**

An essential part of any security policy is deciding which system resources must be protected and defining the type of protection these resources are to receive.

### **Resource Classes and Access Rules**

When installed, CA Access Control immediately begins intercepting system events and checking for users' authority to access resources. Until you tell CA Access Control how to restrict access to your system's resources and which resources to restrict, the result of all authorization checks is to permit access.

The properties of a protected resource are stored in a resource record, and resource records are grouped into classes. The most important information contained in a resource record is its access rules. An *access rule* governs the permission of one or more accessors to work with one or more resources. Several ways to define access rules are:

- An access control list (a specific list of the accessors authorized to access the resource and the exact access they can have), also called an ACL
- A negative access control list (a specific list of the accessors for which access should be denied), also called NACL
- A default access for the resource, which specifies access rules for accessors not specifically listed in an ACL
- A universal access (the \_default record for a class), which specifies access for resources that do not yet have specific resource records in that class
- A program ACL, which defines access for a specific accessor through a specific program
- A conditional ACL, which makes access dependent on some condition. For example, in a TCP record, you can define access to a specific remote host through a specific accessor
- An Inet ACL, which defines access for inbound network activity through specific ports

### Using defaccess and \_default

When access to a resource is requested, the database is searched in the following order to determine how the request should be treated, and CA Access Control uses the first access rule that is found. Notice the distinction between *default access* (defaccess) and \_default.

- 1. If the resource has a record in the database, and the record has a rule governing the accessor, then CA Access Control uses that rule.
- 2. If the record exists but does not have a rule governing the accessor, that *record's* default access rule—its *defaccess value*—is applied to the accessor.
- 3. If the record does not exist, but in the resource class the \_default record has a rule governing the accessor, then CA Access Control uses that rule.
- 4. If the record does not exist, and in the resource class the \_default record does not have a rule governing the accessor, then the \_default record's default access rule-its defaccess value-is applied to the accessor. For files and registry keys, this applies only to \_restricted users (see page 156).



**Note:** For more information about resource classes and access rules see the *selang Reference Guide*.

## Chapter 7: Installing and Customizing a Windows Endpoint

This section contains the following topics:

Before You Begin (see page 163) Product Explorer Installations (see page 167) Command Line Installations (see page 176) Upgrade a Windows Endpoint (see page 187) Starting and Stopping CA Access Control (see page 188) Checking Your Installation (see page 190) Displaying Login Protection Screen (see page 190) Configure an Endpoint for Advanced Policy Management (see page 191) Configure a Windows Endpoint for Reporting (see page 191) Customizing CA Access Control for Cluster Environments (see page 192) Uninstallation Methods (see page 193)

### **Before You Begin**

Before you can install CA Access Control, you must make sure certain preliminary requirements are met and several items of necessary information are available.

### **Installation Methods**

You can install CA Access Control for Windows from the CA Access Control Endpoint Components for Windows DVD using the following methods:

- Product Explorer—The easiest way to install CA Access Control is to use the Product Explorer. The Product Explorer is a graphical installation program that lets you select between different architecture installations of CA Access Control and install the Runtime SDK. The Product Explorer steps you through each stage of the installation process and prompts you for the information that you must provide at each stage.
- **Command line**—The command line interface to the installation program lets you:
  - Set custom defaults for running the graphical installation program

You can pass defaults to the graphical installation program from the command line. Use this method to create a batch file that opens the installation program with the preset defaults you want to use, but lets you customize options for each installation.

Perform a silent installation

You can silently install CA Access Control, rather than just pass defaults to the graphical installation program, using the command line. Use this method to push the installation to remote computers.

 Unicenter Software Delivery—You can create a package for distributing CA Access Control with Unicenter Software Delivery.

### **Firewall Settings**

When you install CA Access Control on Windows Server 2003, or Windows Server 2008, CA Access Control opens port 8891 for non-SSL TCP connections and port 5249 for SSL TCP connections. This serves as the default port for CA Access Control agent-client connections.

**Note:** For more information on ports CA Access Control uses on Windows, see the *Reference Guide*.

### **New Installations**

When installing a new instance of CA Access Control, note the following:

■ Read the *Release Notes*.

This document contains information about supported platforms, known issues, considerations, and other important information you should read before installing CA Access Control.

- The Windows Administrator or a member of the Administrators group must install CA Access Control.
- Install CA Access Control in a unique directory, different from any other product installation directory.
- You must have Microsoft Internet Explorer 6.x or 7.x installed.
- CA Access Control needs the Microsoft Visual C++ 2005 Redistributable Package to complete the product installation.

If this package is missing, the installation program installs it first.

Using CA Technologies Licensing

All CA Technologies enterprise products and their options require a license file, CA.OLF, for each computer within a network where CA Technologies software runs. When you purchase CA Access Control, you receive a license certificate that contains necessary information to successfully install and license the product.

In order to install an enterprise license file, copy the CA.OLF file (with the addition of the CA Access Control line) to the CA\_license directory (for example, C:\Program Files\CA\SharedComponents\CA\_LIC).

### **Upgrades and Reinstallations**

When upgrading CA Access Control, note the following:

■ Read the *Release Notes*.

This document contains information about supported platforms, CA Access Control versions you can upgrade from, known issues, considerations, and other important information you should read before installing CA Access Control.

- We recommend that you perform a scaled-down internal testing of the new release before you upgrade your production environment.
- You may need to reboot the computer when you upgrade CA Access Control for the installation to complete. Future patches may not require a reboot.

**Note:** For information about which releases of CA Access Control require a reboot when you upgrade, see the *Release Notes*.

- If your environment is set up with a PMDB hierarchy or you are setting such an environment, we recommend that you:
  - Install or upgrade each computer in your hierarchy bottom-up (subscribers first).

Upgraded PMDBs having subscribers with an earlier version may result in erroneous commands being sent. This can happen as a result of new PMDBs containing classes and properties that do not exist in the earlier version PMDBs.

**Note:** A PMDB hierarchy running on a single computer can be upgraded simultaneously.

- Do not upgrade during PMDB or policy updates.
- Back up subscriber and PMDB policies.

**Note:** Earlier PMDB versions are permitted to have later versions of subscribers, but not vice versa. As commands in earlier versions are supported in later versions, earlier PMDBs can propagate to current CA Access Control subscribers.

- You must use the same encryption key that was used before the upgrade.
- The installation program automatically saves and upgrades registry settings of your previous installation. If an earlier version's registry key was relocated, the upgrade process copies your previous settings to the new location.

CA Access Control registry settings are stored in the following location:

HKEY\_LOCAL\_MACHINE\SOFTWARE\ComputerAssociates\AccessControl

• Full auditing is enabled by default when you upgrade CA Access Control.

**Important!** Depending on the rules you have in the database, the number of audit events that CA Access Control records to the log file could significantly increase as a result of this feature. We recommend that you review your audit log file size and backup settings.

**Note:** For more information about full auditing and how to configure and use the registry settings for audit log backup, see the *Endpoint Administration Guide for Windows*.

### **Coexistence with Other Products**

When installing CA Access Control, consider the issue of CA Access Control coexistence with other programs on the computer.

CA Access Control runs in an environment alongside other programs, for example, CA Antivirus. This can lead to collisions between CA Access Control and the programs running on the local computer. To this end, the coexistence utility (eACoexist.exe) runs during CA Access Control installation to detect programs on the local computer that can cause a conflict. The utility uses a plug-in (binary module) for each coexisting program CA Access Control supports. If a program CA Access Control detects is trusted, CA Access Control registers the program by creating a SPECIALPGM rule. This SPECIALPGM rule determines the access to this program and makes sure that CA Access Control bypasses it when granting access.

**Note:** For more information about the eACoexist utility and the supported plug-ins, see the *Reference Guide*.

### **Example: Trusted Program Rules for Dr Watson**

This example shows you the trusted program rules the coexistence utility can create for the Dr Watson application if it discovers it on the same computer as CA Access Control. These rules are as follows on a computer with a default Windows 2000 Server installation:

editres SPECIALPGM ('C:\WINNT\system32\DRWTSN32.EXE') pgmtype(DCM)
editres PROGRAM ('C:\WINNT\system32\DRWTSN32.EXE') owner(nobody) defacc(x) trust

### **Product Explorer Installations**

The CA Access Control Product Explorer lets you select between different architecture installations of CA Access Control and install the Runtime SDK. You can also view system requirements for installation components.

**Note:** If you have autorun enabled, the Product Explorer automatically displays when you insert the CA Access Control Endpoint Components for Windows DVD into your optical disc drive.

### Install Using Product Explorer

The CA Access Control Product Explorer lets you select between different architecture installations of CA Access Control and install the Runtime SDK. The Product Explorer uses a graphical interface to install CA Access Control and provides interactive feedback.

#### To install using Product Explorer

- Log into the Windows system as a user with Windows administrative privileges (that is, as the Windows administrator or a member of the Windows Administrators group.)
- 2. Close any applications that are running on your Windows system.
- 3. Insert the CA Access Control Endpoint Components for Windows DVD into your optical disc drive.

If you have autorun enabled, the Product Explorer automatically appears. Otherwise, navigate to the optical disc drive directory and double-click the PRODUCTEXPLORERX86.EXE file.

4. From the Product Explorer main menu, expand the Components folder, select CA Access Control for Windows (*my\_architecture*), then click Install.

You need to select the installation option that matches the architecture of the computer you are installing on (32-bit, 64-bit x64, or 64-bit Itanium).

The Choose Setup Language window appears.

5. Select the language you want to install CA Access Control with and click OK.

The CA Access Control installation program starts loading and, after a short while, the Introduction screen appears.

**Note:** If the installation program detects an existing installation of CA Access Control, you are prompted to select whether you want to upgrade CA Access Control.

6. Follow the instructions on the installation screens.

During the installation, the installation program prompts you to supply information. For the information that you need when installing CA Access Control, refer to the <u>installation worksheets</u> (see page 169).

The installation program installs CA Access Control. When the installation is complete, you are given the choice of restarting Windows now or later.

7. Select Yes, I want to restart my computer now, and then click OK.

After your system reboots, you can <u>check that CA Access Control was installed</u> <u>properly</u> (see page 190).

**Note:** If you choose to restart your computer later, an additional warning cautions you that the installation is not complete until your computer is rebooted. Some CA Access Control functionality, such as logon interception, does not work until after you restart your computer.

### **Installation Worksheets**

The installation program prompts you for the information it requires for the initial CA Access Control setup. The following sections explain what information you need to provide and give recommendations.

### **Feature Selection**

The Select Features screen of the installation program lets you define the location where you want CA Access Control installed, and the features you want to install on this computer. The following features are available:

Feature	Description	Recommendation
Task Delegation	Lets you grant ordinary users the necessary privileges to perform administrative tasks. <b>Note:</b> Selected by default.	Select this feature if you want to provide users with sub-administration rights. You can also configure this post installation.
SDK	Creates a subdirectory called SDK. It contains the libraries and files required for using the CA Access Control SDK, and API samples.	Select this feature if you want to develop in-house CA Access Control-secured applications.
Stack Overflow Protection (STOP)	Enables the CA Access Control stack overflow protection feature.	Select this feature to protect your program from being exploited.
Mainframe Password Synchronization	Lets you synchronize user passwords with your mainframe computers.	Select this feature if you have mainframe computers you want to keep synchronized.
Unicenter Integration	Lets you integrate Unicenter NSM with CA Access Control and migrate Unicenter NSM data. CA Access Control sends audit data to the host specified by the configuration parameters of Unicenter NSM or a host you select. <b>Note:</b> This feature is only available if you have Unicenter NSM installed on this computer.	

Feature	Description	Recommendation
Advanced Policy Management Client	Configures the local computer for advanced policy management.	Select this feature for every endpoint you want to be able to deploy policies to (using advanced policy management).
		<b>Note:</b> For more information about advanced policy management, see the <i>Enterprise Administration Guide</i> .
Policy Model Subscriber	Configures the local computer to receive updates from a PMDB parent.	Select this feature for every endpoint you want to be able to update from a PMDB parent.
		<b>Note:</b> For more information on the Policy Model service, see the <i>Endpoint Administration Guide for Windows</i> .
PUPM Integration	The PUPM integration configures the local computer for Privileged User Password Management (PUPM), so that you can discover and manage privileged accounts and applications on the computer.	Select this feature for every endpoint that has privileged accounts that you want to use PUPM to manage.
		Enterprise Administration Guide.
Report Agent	Lets you configure the computer to send scheduled snapshots of the database to the Distribution Server.	Select the Report Agent feature if you want to include this endpoint in your enterprise reports. Select the Audit Routing sub-feature if you want to
You can then select to also send use CA Enterprise Log Ma audit records to the Distribution enterprise audit logs. Server.	use CA Enterprise Log Manager to manage your enterprise audit logs.	

### **Administrator and Host Information**

The following table explains what information you need to provide and gives recommendations:

Information	Description	Recommendation
Administrators	Lets you define users with administrative access to the CA Access Control database.	
Administration terminals	Lets you define computers from which administrators can administer the CA Access Control database.	If the administrators are using CA Access Control Endpoint Management to administer CA Access Control, you only need to define the computer where CA Access Control Endpoint Management is installed. You do not need to define the computer where the administrator opens the browser.
DNS domain names	Lets you enter the domain names of your networks for CA Access Control to add to host names.	You must enter at least one domain name that CA Access Control adds to host names.

### **Users and Groups**

The following table explains what information you need to provide and gives recommendations:

Information	Description	Recommendation
Support users and groups from primary stores	Lets you use existing enterprise user stores (primary stores) so that you do not need to duplicate these users in the CA Access Control database.	We recommend that you set CA Access Control to support primary stores, that is, to support enterprise user stores. If you choose <i>not</i> to support enterprise stores, you will have to duplicate, in the CA Access Control database, the accessors you want to protect.

Information	Description	Recommendation
Import Windows If you choose users' and groups' accessors you data lets you auto existing Wind into the data	If you choose to create the accessors you want to protect, it lets you automatically create existing Windows users and groups	If you select to import Windows users and groups, select one or more of the following options:
		<ul> <li>Import users—import your Windows users to the database.</li> </ul>
		<ul> <li>Import groups—import your Windows groups to the database.</li> </ul>
		<ul> <li>Connect users to their default groups—automatically add the imported users to the appropriate imported groups in the database.</li> </ul>
		<ul> <li>Change owner of imported data—define someone other than you as an owner of the imported data.</li> <li>By default, the owner of these records is set to the administrator doing the installation (you).</li> </ul>
		<ul> <li>Import from domain—import the accessor data from the specified domain.</li> </ul>

### **Unicenter Integration**

The following table explains what information you need to provide and gives recommendations:

Information	Description	Recommendation
Integrate CA Access Control with Unicenter TNG	Lets you set CA Access Control to send audit data to the host specified by the configuration parameters of Unicenter TNG or a host you select.	To integrate, you specify that audit data should be sent to Unicenter NSM and then select the host to which CA Access Control should send the audit data.
Integrate CA Access Control with Unicenter Calendars	Lets you set support of integration of Users and Access permissions with Unicenter NSM calendars.	Configure CA Access Control to retrieve updates from the Unicenter NSM calendar host server more or less frequently than the default of 10 minutes.
Migrate Unicenter Security Data	Lets you migrate Unicenter security data to CA Access Control.	If you do not select this option, the Unicenter Security to CA Access Control migration is not performed and user names in CA Access Control appear fully qualified (DOMAINNAME\USERNAME). With migration, user names are not qualified (USERNAME).

### **Inter-Component Communication Encryption**

The following table explains what information you need to provide and gives recommendations.

Screen	Description	Recommendation
SSL Communication	Lets you specify whether you want to use Secure Socket Layer (SSL) for inter-component communications. You can use both SSL and symmetric key encryption.	We recommended that you use both SSL (which uses public keys), and symmetric key encryption.
Certificate Settings	If you chose to use SSL, lets you specify what certificates to use.	We recommend that you use a certificate from a well-known Certificate Authority (CA).
Generate Certificate	Lets you create a self-signed certificate and key pair to use as a root certificate.	Although it is not recommended, you can use self-signed certificates. If you use self-signed certificates you must allow their use on all hosts.
Change Certificate Settings	Lets you change certificate settings.	We strongly recommended that you change the settings from the default certificate and key pair. You can also specify a password to protect the private key for the server certificate.
Existing Certificate	Lets you supply the information for the certificate you have installed.	
Encryption Settings	Lets you set the encryption method and the key for symmetric encryption.	We strongly recommend that you change the encryption key from its default setting.

More information:

<u>Symmetric Encryption</u> (see page 457) <u>SSL, Authentication, and Certificates</u> (see page 461)

### **Policy Model Subscriber Settings**

The following table explains what information you need to provide and gives recommendations:

Information	Description	Recommendation
Specify Parent Policy Model Databases	Lets you define one or more parent PMDBs to which this database subscribes. The local database will not accept updates from any PMDB that you do not specify in this list. Define the parent PMDB in the format pmdb@hostname.com	After the installation is finished, you need to define this database as a subscriber on the parent PMDB. <b>Note:</b> Specify _NO_MASTER_ as a parent PMDB to indicate that the local database accepts updates from any PMDB.
Password Policy Model	Lets you define the parent password Policy Model from which password changes are propagated. Define the password PMDB in the format <i>pmdb@hostname.com</i>	After the installation is finished, you need to define this database as a subscriber on the password PMDB.

### **Advanced Policy Management Client**

The following table explains what information you need to provide and gives recommendations:

Information	Description	Recommendation
Specify Advanced Policy Management Server host name	Lets you define the name of the server where the advanced policy management server components are installed.	Define the host name using the format <i>dhName@hostName</i> . <b>Note:</b> For more information on advanced policy management and reporting, see the <i>Enterprise</i> <i>Administration Guide</i> .

### **Report Agent Configuration**

The following table explains what information you need to provide and gives recommendations:

Information	Description	Recommendation
Select Report Schedule	Lets you specify when the Report Agent sends snapshots of the database to the Distribution Server.	We recommend that you do not schedule the Report Agent to send snapshots at times when there is a heavy drain on system resources.

Information	Description	Recommendation
Audit Routing Configuration	Lets you specify to keep time-stamped backups of the audit log file. <b>Note:</b> This option displays only if you chose to install Audit Routing on the Select Features page.	Make sure you select to keep time-stamped backups of your audit log file. This is the default setting and is required to ensure that all audit records can be read by the Report Agent. CA Access Control overwrites the backup audit log files when they reach 50 files. If this is not suitable, you should edit the audit_max_files token in the logmgr registry subkey to a value suitable to your enterprise.

### Distribution Server Configuration

The following table explains what information you provide and gives recommendations:

Information	Description	Recommendation
Server Name	Lets you define the name of the host where the Distribution Server is installed.	You must specify the fully-qualified host name of the host where the Distribution Server is installed.
Use Secure Communication	Lets you specify whether you want to use SSL for communication between the Distribution Server and the Report Agent, and the Distribution Server and the PUPM Agent.	We recommend that you use SSL. If you do not use SSL, the Distribution Server uses TCP to communicate with the Report Agent and the PUPM Agent.
Server Port	Lets you define the port number that is used for communication between the Distribution Server and the Report Agent, and the Distribution Server and the PUPM Agent.	If you use SSL communication, the default server port is 7243. If you do not use SSL communication, the default server port is 7222.

Information	Description	Recommendation
Communication Key	Lets you define a new key to authenticate communication between the Distribution Server and the Report Agent, and the Distribution Server and the PUPM Agent.	Make sure that you use the same key when you install the Distribution Server. <b>Note:</b> If you use SSL communication you must specify a communication key. If you do not use SSL communication, you can choose not to specify a communication key.

### **Command Line Installations**

You can use the command line to:

- Pass defaults to the graphical installation program.
- Silently install CA Access Control.

### Set Custom Defaults for the Installation Program

To set the CA Access Control installation program with the defaults you want to use for your company, you can use the command line. The graphical installation program accepts input from the command line that determines which options are preselected.

### To set custom defaults for the installation program

- 1. Log in to the Windows system as a user with Windows administrative privileges (that is, as the Windows administrator or a member of the Windows Administrators group.)
- 2. Close any applications that are running on your Windows system.
- 3. Insert the CA Access Control Endpoint Components for Windows DVD into your optical disc drive.

The CA Access Control Product Explorer appears if you have autorun enabled.

4. Close the Product Explorer if it appears.

5. Open a command line and navigate to the following directory on the optical disc drive:

\architecture

### architecture

Defines the architecture abbreviation for your operating system.

Can be one of X86, X64, and IA64.

6. Enter the following command:

setup [/s] /v"<insert\_params\_here>"

The *<insert\_params\_here>* variable specifies the installation settings you want to pass to the installation program.

The installation program appears. The installation program screens will show the default options you chose to pass, and lets you modify these to install CA Access Control.

### **Install Silently**

To install CA Access Control without interactive feedback, you can install CA Access Control silently using the command line.

### To install CA Access Control silently

- Log in to the Windows system as a user with Windows administrative privileges (that is, as the Windows administrator or a member of the Windows Administrators group.)
- 2. Close any applications that are running on your Windows system.
- 3. Insert the CA Access Control Endpoint Components for Windows DVD into your optical disc drive.

The CA Access Control Product Explorer appears if you have autorun enabled.

4. Close the Product Explorer if it appears.

5. Open a command line and navigate to the following directory on the optical disc drive:

\architecture

### architecture

Defines the architecture abbreviation for your operating system.

Can be one of X86, X64, and IA64.

6. Enter the following command:

setup /s /v"/qn COMMAND=keyword <insert\_params\_here>"

The *<insert\_params\_here>* variable specifies the installation settings you want to pass to the installation program.

**Note:** To execute a silent installation you have to accept the license agreement. The *keyword* required for accepting the license agreement and silently installing CA Access Control is found at the bottom of the license agreement available when running the installation program.

### setup Command—Install CA Access Control for Windows

Use the setup command to install CA Access Control for Windows with <u>preset custom</u> <u>defaults</u> (see page 176) or when performing a <u>silent installation</u> (see page 177).

**Note:** For more information about the command line syntax, see the Windows Installer SDK documentation that is available at the Microsoft Developer Network Library.

This command has the following format:

setup [/s] [/L] [/v"<insert\_params\_here>"]

/s

Hides the setup initialization dialog.

### /L

Defines the CA Access Control installation language.

**Note:** For more information about the CA Access Control installation languages that are supported in this release, see the *Release Notes*.

### /v "<insert\_params\_here>"

Defines the parameters to pass to the installation program.

Note: All parameters must be placed within the quotes ("").

The following parameters are passed to the installation program through the /v parameter:

### /I[mask] log\_file

Defines the full path and name of the installation log file. Use the mask v to log all available information.

### /forcerestart

Specifies to force the computer to restart after the installation is complete.

### /norestart

Specifies not to restart the computer after the installation is complete.

### /qn

Specifies a silent installation, with the /s option.

Important! Use the COMMAND parameter to execute a silent installation.

### AC\_API={1 | 0}

Specifies whether to install SDK libraries and samples (1).

Default: 0 (not installed).

### ADMIN\_USERS\_LIST=\"users\"

Defines a space-separated list of users with administrative access to the CA Access Control database.

Default: User performing the installation.

**Important!** Do not define the NT Authority\System user in the list. Define a local administrative user account.

### ADV\_POLICY\_MNGT\_CLIENT={1 | 0}

Configures the local computer for advanced policy management (1).

### Default: 1

If this option is set to 1, specify the following:

### – APMS\_HOST\_NAME=\"name\"

Defines the name of the server where the advanced policy management components are installed.

### COMMAND=keyword

Defines the command required for accepting the license agreement and silently installing the CA Access Control. The actual *keyword* is found at the bottom of the license agreement that is available when running the graphical installation program.

### Default: none

### DIST\_SERVER\_NAME=\"name\"

Defines the fully qualified name of the Distribution Server host that the PUPM Agent and Report Agent communicate with (for example, test.company.com).

### Default: none

### DIST\_SERVER\_PORT=\"port\"

Defines the port number that the PUPM Agent and Report Agent use for communication with the Distribution Server.

### Default: 7243

### DOMAIN\_LIST=\"domains\"

Defines a space-separated list of your network DNS domain names for CA Access Control to add to host names.

### Default: none

### ENABLE\_STOP={1 | 0}

Specifies whether the stack overflow protection (STOP) feature is enabled (1).

Default: 0 (disabled).

**Note:** STOP support is applicable to x86 and x64 installations only.

### HOSTS\_LIST=\"hosts\"

Defines a space-separated list of computers from which administrators can administer the CA Access Control database (CA Access Control terminals).

Default: The current computer.
# IMPORT\_NT={Y | N}

Specifies whether to support primary (enterprise) user stores. If you specify N, primary user stores are supported. If you specify Y, primary user stores are not supported and you can specify one or more of the following options to import Windows users and groups into the CA Access Control database:

– IMPORT\_USERS={1 | 0}

Specifies whether to import Windows users to the database.

- IMPORT\_GROUPS={1 | 0}

Specifies whether to import Windows groups to the database.

– IMPORT\_CONNECT\_USERS={1 | 0}

Specifies whether to add the imported users to the appropriate imported groups in the database.

- IMPORT\_CHANGE\_OWNER={1 | 0} NEW\_OWNER\_NAME=name

Specifies someone other than you as an owner of the imported data.

- IMPORT\_FROM\_DOMAIN={1 | 0} IMPORT\_DOMAIN\_NAME=name

Specifies whether to import the accessor data from the defined domain.

**Note:** By default, all of these options are not specified (equivalent to a value of 0).

# INSTALLDIR=\"location\"

Defines the location where CA Access Control installs.

Default: C:\Program Files\CA\AccessControl\

# MAINFRAME\_PWD\_SYNC={1 | 0}

Specifies whether the mainframe password synchronization feature is installed (1).

Default: 0 (not installed)

# NEW\_KEY=\"name\"

Defines the SSL key that authenticates communication between the Distribution Server and the PUPM Agent and Report Agent.

# PMDB\_CLIENT={1 | 0}

Specifies whether the local CA Access Control database is subscribed to a parent Policy Model database.

# Default: 0 (no)

If you specify this option and set it to 1, specify the following:

# – PMDB\_PARENTS\_STR=\"parents\"

Defines a comma-separated list of parent Policy Model databases the local CA Access Control database is subscribed to. Specify \_NO\_MASTER\_ as a parent PMDB to indicate that the local database accepts updates from any PMDB.

Default: none

– PWD\_POLICY\_NAME=\"name\"

Defines the name of the password Policy Model.

Default: none

# PMDB\_PARENT={1 | 0}

Specifies whether a Policy Model parent database is created. If you specify this option and set it to 1, specify the following:

– PMDB\_NAME=\"name\"

Defines the name of the PMDB to create.

Default: pmdb

# – PMDB\_SUBSCRIBERS\_STR=\"subs\"

Defines a space-separated list of subscriber databases to which the PMDB specified with the PMDB\_NAME option propagates changes to. Essentially, these are the subscriber databases for the installed PMDB parent.

# PUPM\_AGENT={1 | 0}

Specifies whether the PUPM Agent is installed (1).

Default: 0 (not installed)

If you specify this option and set it to 1, specify DIST\_SERVER\_NAME, DIST\_SERVER\_PORT, and USE\_SECURE\_COMM.

# REPORT\_AGENT={1 | 0}

Specifies whether the Report Agent is installed (1).

## **Default:** 0 (not installed)

If you specify this option and set it to 1, specify DIST\_SERVER\_NAME, DIST\_SERVER\_PORT, USE\_SECURE\_COMM, and the following parameters:

# – AUDIT\_ROUTING={1 | 0}

Specifies whether the Audit Routing feature is installed (1).

Default: 0 (not installed)

# – REPORT\_DAYS\_SCHEDULE=days

Defines a comma-separated list of days on which the Report Agent runs.

Values: Sun, Mon, Tue, Wed, Thu, Fri, Sat

**Default:** none

# – REPORT\_TIME\_SCHEDULE={hh:mm}

Defines the time at which the Report Agent runs on designated days (for example, 14:30).

Limits: *hh* is a number in the range 0-23 and *mm* is a number in the range 0-59

Default: none

#### TASK\_DELEGATION={1 | 0}

Specifies whether the task delegation feature is enabled.

Default: 1 (enabled).

# UNICENTER\_INTEGRATION={1 | 0}

Specifies whether the Unicenter Integration feature is enabled (1). This feature is only available if you have Unicenter NSM installed on this computer.

Default: 0 (not enabled)

If you specify this option and set it to 1, specify the following:

# - SEND\_DATA\_TO\_TNG={1 | 0}

Specifies if audit data is sent to Unicenter NSM (1).

Default: 1 (data is sent)

# – OTHER\_TNG\_HOST\_NAME=\"name\"

Defines the host to which the audit data is sent to.

Default: Host name specified in Unicenter NSM

# – SUPPORT\_TNG\_CALENDAR= {1 | 0}

Specifies if the Unicenter NSM calendar is supported (1).

Default: 1 (supported)

# - TNG\_REFRESH\_INTERVAL=\"mm\"

Defines the refresh interval in minutes. Verify that you also set SUPPORT\_TNG\_CALENDAR=1.

# Default: 10

# UNICENTER\_MIGRATION={1 | 0}

Specifies if Unicenter security data is migrated to CA Access Control (1).

Default: 1 (migrated)

# USE\_SECURE\_COMM={1 | 0}

Specifies whether the PUPM Agent and the Report Agent use secure communication (1).

# Default: 0 (no)

If you specify this option and set it to 1, then specify the value of the SSL key in NEW\_KEY.

# USE\_SSL={1 | 0}

Specifies whether to set up SSL for communication encryption.

# Default: 0 (no)

If you specify this option and set it to 1, then specify the following:

# – CERT\_OPTION={1 | 2}

Specifies which certification option to use.

Values: 1—Generate CA Access Control certificate; 2—Use an existing installed certificate.

## Default: 1

# GENERATE\_OPTION={1 | 2}

Specifies how to generate the CA Access Control certificate. Verify that you set CERT\_OPTION=1.

**Values: 1**—Use default root certificate; **2**—Specify root certificate.

# – SERVER\_PRIV\_KEY\_PWD=\"password\"

Defines the password for the private key for the generated CA Access Control certificate. Verify that you set CERT\_OPTION=1.

# – GEN\_ROOT\_CERT=\"file\"

Defines the fully qualified file name of the root certificate file (.pem). Verify that you set CERT\_OPTION=1 and GENERATE\_OPTION=2.

# - GEN\_ROOT\_PRIVATE=\"file\"

Defines the fully qualified file name of the root private key file (.key). Verify that you set CERT\_OPTION=1 and GENERATE\_OPTION=2.

# – ROOT\_PRIV\_KEY\_PWD=\"password\"

Defines the password for the root private key. Verify that you set CERT\_OPTION=1 and GENERATE\_OPTION=2.

# – EXIST\_ROOT\_CERT=\"file\"

Defines the fully qualified file name of the root certificate file (.pem). Verify that you set CERT\_OPTION=2.

# – EXIST\_SERVER\_CERT=\"file\"

Defines the fully qualified file name of the server certificate file (.pem). Verify that you set CERT\_OPTION=2.

# – EXIST\_PRIVATE\_KEY=\"file\"

Defines the fully qualified file name of the server private key file (.key). Verify that you set CERT\_OPTION=2.

# – EXIST\_PRIV\_KEY\_PWD=\"password\"

Defines the password for the server private key. Verify that you set CERT\_OPTION=2.

# USE\_SYMT\_KEY={1 | 0}

Specifies whether to set up symmetric key encryption for communication. If USE\_SSL=0, this parameter is set to 1.

# Default: 1

If you specify this option and set it to 1, then you also specify the following:

# ENCRYPTION\_METHOD={Default | DES | 3DES | 256AES | 192AES | 128AES}

Specifies the encryption method to use for communications.

Default: 256AES

– CHANGE\_ENC\_KEY={1 | 0}

Specifies to change the default encryption key (1).

Default: 1 (yes)

# – NEW\_ENCRYPT\_KEY=\"key\"

Defines the encryption key if you select to change the default encryption key. Also set CHANGE\_ENC\_KEY=1.

### **Example: Use the setup Command to Set Installation Defaults**

The following example sets the installation directory, defines installation log file defaults for the CA Access Control installation, then opens the graphical installation program.

```
setup.exe /s /v"INSTALLDIR="C:\Program Files\CA\AccessControl\" /L*v
%SystemRoot%\eACInstall.log"
```

## **Examples: Use the setup Command to Specify Encryption Settings**

The following examples install CA Access Control in silent mode with various encryption settings. In each example, the command also installs CA Access Control, installs the default Report Agent and Task Delegation features, enables SSL, and defines the path and name of the installation log file:

This example generates a server certificate from the default CA Access Control root certificate and defines the password for the server private key:

setup.exe /s /v"qn COMMAND=proceed USE\_SSL=1 CERT\_OPTION=1 GENERATE\_OPTION=1
SERVER\_PRIV\_KEY\_PWD=\"P@ssw0rd\" /l\*v C:\AC\_silent.log"

This example generates a server certificate from a third-party root certificate. The root private key is password-protected:

setup.exe /s /v"qn COMMAND=proceed USE\_SSL=1 CERT\_OPTION=1 GENERATE\_OPTION=2
GEN\_ROOT\_CERT=\"C:\Crypto\example.pem\"
GEN\_ROOT\_PRIVATE=\"C:\Crypto\example.key\" ROOT\_PRIV\_KEY\_PWD=\"P@ssw0rd\" /l\*v
C:\AC\_silent.log"

This example specifies that CA Access Control uses third-party root and server certificates. The server private key is password-protected:

```
setup.exe /s /v"qn COMMAND=proceed USE_SSL=1 CERT_0PTI0N=2
EXIST_R00T_CERT=\"C:\Crypto\example.pem\"
EXIST_SERVER_CERT=\"C:\Crypto\server.pem\"
EXIST_PRIVATE_KEY=\"C:\Crypto\server.key\" EXIST_PRIV_KEY_PWD=\"P@ssw0rd\"
/l*v C:\AC_silent.log"
```

### More information:

Communication Encryption (see page 457)

# **Upgrade a Windows Endpoint**

When you upgrade an endpoint, the CA Access Control installation program upgrades the core CA Access Control functionality and any features that are already installed on the endpoint. You can choose to install new features after you upgrade the core CA Access Control functionality.

**Note:** You may have to reboot the computer to complete the upgrade. For information about which releases of CA Access Control require a reboot when you upgrade, see the *Release Notes*.

# To upgrade an endpoint

- 1. Log into the Windows system as a user with Windows administrative privileges (that is, as the Windows administrator or a member of the Windows Administrators group.)
- 2. Close any applications that are running on your Windows system.
- 3. Insert the CA Access Control Endpoint Components for Windows DVD into your optical disc drive.

If you have autorun enabled, the Product Explorer automatically appears. Otherwise, navigate to the optical disc drive directory and double-click the PRODUCTEXPLORERX86.EXE file.

4. From the Product Explorer main menu, expand the Components folder, select CA Access Control for Windows (*my\_architecture*), then click Install.

**Note:** The installation option that matches the architecture of the computer is highlighted to show that there is an existing installation of CA Access Control on the computer.

A dialog appears asking if you want to perform an upgrade of CA Access Control.

5. Click Yes.

The CA Access Control installation program starts loading and, after a short while, the Introduction screen appears.

6. Follow the instructions on the installation screens.

The installation program upgrades CA Access Control. When the upgrade is complete, you are given the choice of restarting Windows now or later.

7. (Optional) Select Yes to restart your computer now.

The computer reboots and the upgrade completes.

- 8. (Optional) Install additional CA Access Control features, as follows:
  - a. Click Start, Control Panel, Add or Remove Programs.
  - b. Scroll through the program list and select CA Access Control, and click Change.

The CA Access Control installation program starts loading and, after a short while, the Program Maintenance screen appears.

c. Select Modify and follow the instructions on the installation screens to install the features.

During the installation, the installation program prompts you to supply information. For the information that you need when installing the features, refer to the <u>installation worksheets</u> (see page 169). You may need to reboot your computer for the installation to complete.

# **Starting and Stopping CA Access Control**

By default, CA Access Control services start automatically whenever you start Windows.

# Stop CA Access Control

You use the secons utility to stop CA Access Control on local and remote computers. You do not require any specific Windows privileges to stop CA Access Control, but you must have the ADMIN or OPERATOR attribute in CA Access Control.

**Note:** You cannot stop CA Access Control while it is running from Windows Services Manager. You must use the secons utility to stop CA Access Control before you modify a CA Access Control service in Windows Services Manager.

# **To stop CA Access Control**

1. Open a command prompt window and navigate to the directory containing the CA Access Control binaries.

By default, the CA Access Control binaries are located at C:\Program Files\CA\AccessControl\\bin.

2. Enter the following command:

secons -s [hosts | ghosts]

#### -s [hosts | ghosts]

Shuts down the CA Access Control services on the defined, space-separated, remote hosts. If you do not specify any hosts, CA Access Control shuts down on the local host.

You can define a group of hosts by entering the name of a ghost record. If you use this option from a remote terminal, the utility requests password verification. You also need admin privileges on both the remote and local computers, and write permission to the local computer on the remote host database.

When you stop CA Access Control on a local computer, the following message appears:

CA Access Control is now DOWN

When you stop CA Access Control on remote hosts, CA Access Control reports whether the remote host shutdown was successful. An attempt is made to shut down each host on the list, even if the remote host preceding it was not shut down successfully.

# Start CA Access Control Manually

Typically, you start CA Access Control by starting Windows.

If you stopped CA Access Control, you can also restart it manually by issuing commands from the command prompt.

# To start CA Access Control manually

- 1. Be sure you are logged in to the Windows system as a user with Windows administrative privileges (that is, as the Windows administrator or a member of the Windows Administrators group).
- 2. In a command prompt window, change to the directory containing the CA Access Control binaries (by default, C:\Program Files\CA\AccessControl\\bin on your system directory).
- 3. Start CA Access Control by entering:

seosd -start

# **Checking Your Installation**

If you have installed CA Access Control successfully, you will notice the following changes:

• A new key is added to the Windows registry:

HKEY\_LOCAL\_MACHINE\Software\ComputerAssociates\AccessControl

While CA Access Control is running, the CA Access Control keys and sub-keys are protected and you can modify the keys only through CA Access Control Endpoint Management or by using selang commands. However, you do not need to use CA Access Control Endpoint Management or selang commands to read the keys and values.

When you restart your computer, several new CA Access Control services start automatically. These services include the Watchdog, Engine, and Agent, which are always installed. Other services, such as Task Delegation, exist depending on the options you chose during installation. The Display name for all CA Access Control services begins with "CA Access Control". You can check what services are installed, and verify that these services are running, using Windows Services Manager.

# **Displaying Login Protection Screen**

By default, after you install CA Access Control, every time a user logs in interactively (GINA) and CA Access Control services are running, a protection screen appears, telling the user that this computer is protected by CA Access Control.

The splash screen displays for four seconds and closes automatically.

To disable this protection message, change the HKEY\_LOCAL\_MACHINE\SOFTWARE\ComputerAssociates\AccessControl\AccessControl \SplashEnable registry key value from 1 to 0.

# **Configure an Endpoint for Advanced Policy Management**

Once you install the advanced policy management server components, you need to configure each endpoint in your enterprise for advanced policy management. In doing so, you configure the endpoint to send information to and receive information from the server components.

**Note:** This procedure shows you how to configure an existing installation of CA Access Control for advanced policy management. If you specified this information when you installed CA Access Control on the endpoint you do not need to configure the endpoint again.

To configure an endpoint for advanced policy management, open a command window and enter the following command:

dmsmgr -config -dhname dhName

#### dhName

Defines a comma-separated list of Distribution Host (DH) names you want the endpoint to work with.

Example: DH\_\_@centralhost.org.com

This command configures the endpoint for advanced policy management and sets it to work with the defined DH.

Note: For more information, see the dmsmgr -config command in the Reference Guide.

# **Configure a Windows Endpoint for Reporting**

Once you have CA Access Control Endpoint Management and the Report Portal installed and configured, you can configure your endpoints to send data to the Distribution Server for processing by enabling and configuring the Report Agent.

**Note:** When you install CA Access Control, it lets you configure the endpoint for reporting. This procedure illustrates how you configure an existing endpoint for sending reports if you did not configure this option at install time.

#### To configure a Windows endpoint for reporting

1. Click Start, Control Panel, Add or Remove Programs.

The Add or Remove Program dialog appears.

2. Scroll through the program list and select CA Access Control.

3. Click Change.

The CA Access Control installation wizard appears.

4. Follow the wizard prompts to modify the CA Access Control installation so that you enable the Report Agent feature.

**Note**: After you enable the Report Agent, you can modify CA Access Control configuration settings to change performance-related settings. For more information on Report Agent configuration settings, see the *Reference Guide*.

# **Customizing CA Access Control for Cluster Environments**

To use CA Access Control in a cluster environment, you must install CA Access Control on each node of the cluster. Define the same set of rules (quorum disk or network if you use network interception) for common resources on each node as well.

CA Access Control can detect that it is running in a cluster environment. If CA Access Control detects that the cluster has its own network with separate network adapters used for cluster internal communications only, network interception is disabled for these network adapters. For network interfaces that connect the cluster to the rest of the enterprise, network interception works as usual.

**Note:** This feature is not enabled if the cluster uses the same network interface for cluster internal communications *and* communication to the rest of the network.

#### Example

Suppose you have two nodes:

- NODE1 that has two IP addresses:
  - 10.0.0.1 is an internal cluster network IP address.
  - 192.168.0.1 is an outside network connection.
- NODE2 has also two IP addresses
  - 10.0.0.2 is an internal cluster network IP address.
  - 192.168.0.2 is an outside network connection.

The cluster itself has an additional IP address of 192.168.0.3.

Network interception does not prevent NODE1 from connecting to NODE2 and vice versa as long as they do their communications using the internal cluster network IP addresses.

Network interception acts as defined by CA Access Control rules if NODE1 or NODE2 are contacted using outside network IP addresses.

In addition, network interception acts as defined by CA Access Control rules if the cluster is contacted at its 192.168.0.3 IP address.

# **Uninstallation Methods**

You can use the following methods to uninstall CA Access Control from a Windows endpoint:

- Regular uninstallation—This method uses a graphical interface to uninstall CA Access Control and provides interactive feedback.
- Uninstall silently—This method uses the command line to uninstall CA Access Control without interactive feedback.

# **Uninstall CA Access Control**

Be sure you are logged in to the Windows system as a user with Windows administrative privileges (that is, as the Windows administrator or a member of the Windows Administrators group).

## To uninstall CA Access Control

1. (Optional) Shut down CA Access Control (see page 189).

**Note:** If you do not do this manually, the installation program shuts CA Access Control down for you.

2. Choose Start, Settings, Control Panel.

The Windows Control Panel appears.

3. Double-click Add/Remove Programs.

The Add/Remove dialog appears.

- 4. Select CA Access Control from the installed programs list and click Add/Remove.
- 5. In the message box confirming that you want to remove CA Access Control, click Yes.
- 6. When uninstall is complete, click OK.
- 7. Reboot the computer to remove all CA Access Control components.

# Uninstall CA Access Control Silently

To uninstall CA Access Control without interactive feedback, you can uninstall CA Access Control silently using the command line. Be sure you are logged in to the Windows system as a user with Windows administrative privileges (that is, as the Windows administrator or a member of the Windows Administrators group).

To uninstall CA Access Control r12.5 silently, enter the following command:

Msiexec.exe /x{822BFADC-E040-4F5C-A00A-B8E558A2D616} /qn insert\_params\_here

The *<insert\_params\_here>* variable specifies the installation settings you want to pass to the installation program. For example, this command uninstalls CA Access Control creates an uninstall log in c:\ac\_uninst.log:

Msiexec.exe /x{822BFADC-E040-4F5C-A00A-B8E558A2D616} /qn /l\*v c:\ac\_uninst.log

**Note:** If you do not do this manually, the installation program shuts CA Access Control down for you.

# Chapter 8: Installing and Customizing a UNIX Endpoint

This chapter guides through the CA Access Control UNIX endpoint installation process. When you have finished installing CA Access Control following the instructions in this chapter, your system should contain a copy of the CA Access Control endpoint software and an elementary CA Access Control database. The chapter then explains how to start CA Access Control and how to use its commands. Later, by editing the database, you can define access rules to protect your system.

This section contains the following topics:

Before You Begin (see page 195) Native Installations (see page 202) Regular Script Installations (see page 236) Configure Post-Installation Settings (see page 246) Start CA Access Control (see page 246) Configure an Endpoint for Advanced Policy Management (see page 248) Configure a UNIX Endpoint for Reporting (see page 249) Customizing CA Access Control (see page 250) Maintenance Mode Protection (Silent Mode) (see page 257) Solaris 10 Zones Implementation (see page 258) Start CA Access Control Automatically (see page 264) Using the Service Management Facility to Manage CA Access Control (see page 264)

# **Before You Begin**

Before you can install CA Access Control, you must make sure that the preliminary requirements are met and that you have all of the necessary information.

# **Operating System Support and Requirements**

You can install CA Access Control on any one of the supported UNIX operating systems.

Note: For more information, check the *Release Notes*.

# **Administration Terminals**

You can administer CA Access Control policy from a central place using CA Access Control Endpoint Management and CA Access Control Enterprise Management, or by connecting to the computer with command line (selang) and updating the access rules directly on the computer.

To update the computer's access rules directly, you need write access on the terminal you are managing from and the *admin* attribute on the computer policy in the CA Access Control database.

By default, CA Access Control installation sets up terminal authority only for the local computer terminal. You can change that by either disabling this option from a local terminal or adding more terminals that can manage remotely.

To add the administration option for the terminal *my\_terminal* to the computer *my\_machine* using the user *my\_user*, write the following selang rules:

er terminal my\_terminal owner(nobody) defaccess(r)
auth terminal my\_terminal xuid(my\_user) access(all)

These rules let everyone log in to this terminal (regular login, not CA Access Control management), and let enterprise user *my\_uid* log in to the computer and use CA Access Control management tools (selang, CA Access Control Endpoint Management, and so on).

**Note:** If the administrators are using CA Access Control Endpoint Management to administer CA Access Control, you only need to define the computer where CA Access Control Endpoint Management is installed. You do not need to define the computer where the administrator opens the browser.

# **Installation Notes**

When installing CA Access Control (whether for the first time or as part of an upgrade), note the following:

Read the *Release Notes*.

This document contains information about supported platforms, known issues, considerations, and other important information you should read before installing CA Access Control.

- If your environment is set up with a PMDB hierarchy or you are setting such an environment, we recommend that you:
  - Install or upgrade the Deployment Map Server (DMS) computer first.

This is only required if you are going to use advanced policy-based management, and ensures that the DMS registers each Policy Model node and its subscribers.

Install or upgrade each computer in your hierarchy bottom-up (subscribers first).

Upgraded PMDBs having subscribers with an earlier version may result in erroneous commands being sent. This can happen as a result of new PMDBs containing classes and properties that do not exist in the earlier version PMDBs.

**Note:** A PMDB hierarchy running on a single computer can be upgraded simultaneously.

- Do not upgrade during PMDB or policy updates.
- Back up subscriber and PMDB policies.

**Note:** Earlier PMDB versions are permitted to have later versions of subscribers, but not vice versa. As commands in earlier versions are supported in later versions, earlier PMDBs can propagate to CA Access Control r12.0 subscribers.

- If you are upgrading from a pre-r12.0 version:
  - Programs that should be bypassed by STOP are now defined as database rules;
     SPECIALPGM records of a *stop* type.
  - Programs that should be bypassed by SURROGATE are now be defined as database rules; SPECIALPGM records of a *surrogate* type.

**Note:** The upgrade process converts old definitions (kept in a file) to the new database rules. Add these new rules to any existing selang scripts.

• You can upgrade the existing seos.ini and pmd.ini files, or create new ones.

Either way, the installation script saves a copy of the old seos.ini file as seos\_ini.back and a copy of each pmd.ini file as pmd\_ini.back (in its respective Policy Model directory).

 CA Access Control backs up the following existing files during an upgrade: serevu.cfg, audit.cfg, trcfilter.init, and sereport.cfg.

If you want to keep the changes you made to these files, you need to use the backed up files.

- If you are upgrading an existing database, we recommend that you:
  - Back it up first.

Use dbmgr -b to backup the database.

- Ensure that there are no subscribers in *sync* mode.

Use sepmd -L to verify subscriber's status.

- Unicenter security integration and migration is only available for AIX, HP-UX PA-RISC, Solaris SPARC, and Linux x86 platforms.
- Unicenter TNG and CA Access Control for UNIX

If you have a version of Unicenter TNG installed earlier than Unicenter NSM 3.0, install the following Unicenter TNG fix to permit CA Access Control to get process information:

- HP-UX users with Unicenter TNG 2.4, install fix QO01182.
- Linux users with Unicenter TNG 2.4, install fix PTF LO91335.
- Sun users with Unicenter TNG 2.4, install fix QO00890.

**Note:** Users with AIX 5.x running Unicenter NSM 3.0 must contact the CA Technologies Unicenter support team for a compatibility patch. You must install this compatibility patch before installing CA Access Control on the host.

 If you want to install Unicenter related options (install\_base options: -uni or -mfsd) on Linux s390, you must have korn shell (ksh) installed before you install CA Access Control.

The setup script for CCI Standalone (CCISA) uses ksh which is not installed by default on Linux.

To install CA Access Control 32-bit binaries on Linux x86 64-bit we recommend that you use the \_LINUX\_xxx.tar.Z or CAeAC-xxxx-y.y.iiii.i386.rpm installation packages. These installation packages install 32-bit CA Access Control binaries on Linux x86 64-bit systems. If you are upgrading, these packages maintain compatibility with the previous 32-bit CA Access Control installation. Before you install CA Access Control, you must make sure that the following operating system 32-bit libraries are installed:

Id-linux.so.2, libICE.so.6, libSM.so.6, libX11.so.6, libXext.so.6, libXp.so.6, libXt.so.6, libc.so.6, libcrypt.so.1, libdl.so.2, libgcc\_s.so.1, libm.so.6, libncurses.so.5, libnsl.so.1, libpam.so.0, libpthread.so.0, libresolv.so.2, libstdc++.so.5, libaudit.so.0 (RHEL5 and OEL 5 and up only).

The following is a list of relevant RPM packages that are required:

- SLES 10: compat-libstdc++, glibc-32bit, libgcc, ncurses-32bit, pam-32bit, xorg-x11-libs-32bit
- SLES 9: glibc-32bit, libgcc, libstdc++, ncurses-32bit, pam-32bit, XFree86-libs-32bit
- RHEL 5 and OEL 5: audit-libs, compat-libstdc++, glibc, libgcc, libICE, libSM, libXext, libXp, libXt, ncurses, pam
- RHEL 4 and OEL 4: compat-libstdc++, glibc, libgcc, ncurses, pam, xorg-x11-deprecated-libs, xorg-x11-libs
- RHEL 3: glibc, libgcc, libstdc++, ncurses, pam, XFree86-libs

To install CA Access Control 64-bit binaries on Linux x86 64-bit, use the \_LINUX\_X64\_xxx.tar.Z or CAeAC-xxxx-y.y.iiii.x86\_64.rpm installation packages. If you use these installation packages, you do not have to install any additional RPM packages.

Note the following before installing or upgrading CA Access Control 64-bit binaries on Linux x86 64-bit:

- The 64-bit installation package does not support CA Access Control GUI utilities, such as selock and selogo.
- If the install\_base script can access both the 32-bit and 64-bit tar files, then by default the install\_base script uses the 32-bit tar file. To override this behavior, specify the desired tar file when you run the install\_base command. If you install the 64-bit RPM package you install only 64-bit binaries and libraries. For example:

./install\_base\_LINUX\_X64\_125.tar.Z

- Any applications that are built and linked to the API must be rebuilt for the 64-bit installation. Use the LINUX64 target to build 64-bit API samples. This target uses D64BIT and -D64BITALL (-m32 removed). You need -m elf\_x86\_64 to build libraries.
- If you use the install\_base script to upgrade to a 64-bit CA Access Control installation from a 32-bit installation, you must set the -force\_install flag prior to installation. The installation will fail if you do not set this flag.
- To fully uninstall cawin after uninstalling CA Access Control, use rpm -e
   --allmatches to ensure that the uninstall process removes both 32-bit and
   64-bit versions of cawin.
- To install CA Access Control on Linux s390x 64-bit, you must make sure that the following operating system 32-bit libraries are installed:

Id.so.1, libcrypt.so.1, libc.so.6, libdl.so.2, libICE.so.6, liblaus.so.1 (SLES 8, RHEL 3), libaudit.so.0 (RHEL 4, RHEL 5), libm.so.6, libnsl.so.1, libpam.so.0, libresolv.so.2, libSM.so.6, libX11.so.6, libXext.so.6, libXp.so.6, libXt.so.6

The following is a list of relevant RPM packages that are required:

- SLES 10: glibc-32bit, pam-32bit, xorg-x11-libs-32bit
- SLES 9: XFree86-libs-32bit, glibc-32bit, pam-32bit
- RHEL 5: audit-libs, libXp, glibc, libICE, libSM, libX11, libXext, libXt, pam
- RHEL 4: audit-libs, glibc, pam, xorg-x11-deprecated-libs, xorg-x11-libs
- RHEL 3: glibc, laus-libs, pam
- If you install CA Access Control on Linux and Linux-IA64 platforms using the -all option, mfsd is not installed.
- If you install CA Access Control on Solaris, install the SUNWlibc (Sun Workshop Compilers Bundled libC) package.

- Before you install CA Access Control 32-bit binaries on a 32-bit or 64-bit Linux computer, you must make sure that the libstdc++.so.5 32-bit library is installed. If you do not install this library, the ReportAgent daemon will not start after you install CA Access Control.
- Before you install CA Access Control on Linux, specify the home directory in the environment.

# Installation Considerations for Linux s390 Endpoints

If you want to use Message Queue functionality, to remotely manage UNAB on CA Access Control Linux s390 and use reporting capabilities on Linux IA64 you install J2SE version 5.0 or later on the endpoint.

Message Queue functionality lets you send report and audit data from CA Access Control endpoints to the Report Portal and CA Enterprise Log Manager, respectively. Remote management lets you use CA Access Control Enterprise Management to manage UNAB endpoints.

You can install J2SE before or after you install CA Access Control or UNAB on the endpoint. If you install J2SE after you install CA Access Control or UNAB, you must also configure the Java location on the endpoint.

# How the Installation Interacts with Java

### Valid on Linux s390, Linux s390x and Linux IA64

To use Message Queue functionality, to remotely manage UNAB Linux s390 endpoints and use reporting capabilities on Linux IA64 and Linux s390, you install a supported Java version on the endpoint.

When you install CA Access Control or UNAB on a Linux s390 or a Linux IA64 endpoint, the installation does the following:

- 1. Checks the following locations for a path to a valid Java environment, in order:
  - a. The JAVA\_HOME parameter in the installation input.

Installation input includes the UNAB installation parameters file, the UNIX CA Access Control installation parameters file, customized packages for native installations, and user input from interactive CA Access Control installations.

- b. The JAVA\_HOME environment variable.
- c. (Linux s390 and Linux s390x) The default installation path, /opt/ibm/java2-s390-50/jre

- 2. Sets the value of the java\_home configuration setting in the global setting of the accommon.ini file to one of the following \_values:
  - If the installation finds a path to a valid Java environment, it sets the value of the configuration setting to this path.
  - If the installation does not find a path to a valid Java environment, it sets the value of the configuration setting to *ACSharedDir*/JavaStubs.

By default, ACSharedDir is /opt/CA/AccessControlShared.

# Configure the Java Location on Linux s390 and Linux s390x Endpoints

# Valid on Linux s390 and Linux s390x

To use Message Queue functionality and to remotely manage UNAB Linux s390 endpoints, you must install J2SE version 5.0 or later on the endpoint. If you install J2SE after you install CA Access Control or UNAB, you must perform additional configuration steps.

# To configure the Java location on the Linux s390 and Linux s390x endpoint

- 1. Stop CA Access Control and UNAB if they are running.
- 2. Change the value of the java\_home configuration setting in the global section of the accommon.ini file to the path of the Java installation.

For example, java\_home=/opt/ibm/java2-s390-50/jre

3. Start CA Access Control and UNAB.

The Java location is configured.

# **Native Installations**

CA Access Control offers native package formats for installing and managing CA Access Control natively on supported operating systems. Native packages let you manage your CA Access Control installation using native package management tools.

# **Native Packages**

CA Access Control includes native packages for each supported native installation format. These packages let you use native package features to manage installation, update, and removal of CA Access Control components. Native packages are located in the NativePackages directory of the CA Access Control Endpoint Components for UNIX DVD.

The following are the packages and their descriptions:

## ca-lic

(Linux only) Installs the CA Technologies license program which is a prerequisite for all other packages.

Note: Only available in RPM format for Linux.

#### CAeAC

Installs the core CA Access Control components. This is the main CA Access Control installation package and combines the server, client, documentation, TNG integration, API, and mfsd packages which are traditionally packaged separately.

Note: The UNAB package also installs the CAWIN shared component.

You need to know the name of the package to perform some native commands (such as removing a package with RPM). To determine the name of a package using the package file, enter the appropriate native package command. For example, for an RPM package enter:

rpm -q -p RPMPackage\_filename

# Additional Considerations for Native Installations

When installing CA Access Control using native packaging, note the following additional considerations:

- To install the CA Access Control RPM package you must have the license program package ca-lic-01.0080 or higher
- To build a custom CA Access Control RPM native installation package (customize\_eac\_rpm), you must have the rpmbuild utility on your computer.
- To build a custom CA Access Control AIX native installation package (customize\_eac\_bff), you must install bos.adt.insttools on your computer.

For AIX 5.2, the version of bos.adt.insttools should be 5.2.0.75 or newer.

- The AIX native packages are built with bos.rte.install 5.2.0.75. Therefore we recommend that you use bos.rte.install 5.2.0.75 or greater to let you work with native packaging without error.
- The HP-UX native package uses Perl during installation.

- The Solaris native package must be located in a public location with read access for group and world, such as, /var/spool/pkg.
- The Solaris native package command pkgadd -R is not supported for the CA Access Control package.

Use the CA Access Control package customization script to modify the installation directory (customize\_eac\_pkg -i *install\_loc*).

 To install a localized version of a HP-UX native package, you *must* set a value for the LANG setting in the parameters file you use for your customized package.

**Note:** The parameters file already includes the LANG setting. To set it, remove the preceding comment character (#) and space and enter a value for it. You can find OS supported encoding values using the locale -a command.

# How to Specify That CA Access Control Uses a Password-Protected Root Certificate

When you install CA Access Control, you can configure it to use a third-party password-protected root certificate.

After you install CA Access Control, you use the root certificate to create CA Access Control server certificates. The server certificates encrypt and authenticate communication between CA Access Control components.

To configure CA Access Control to use a third-party password-protected root certificate, you must perform some additional steps when you use native packages to install CA Access Control, as follows:

- 1. When you customize the params file as part of the native package installation, specify the following parameters in the file:
  - ENCRYPTION\_METHOD\_SET=2
  - ROOT\_CERT\_PATH=root\_cert\_path
  - ROOT\_CERT\_KEY=root\_key\_path

- 2. After you install CA Access Control, do the following:
  - a. Create a CA Access Control server certificate from the root certificate, as follows, where *ACInstallDir* is the directory in which you installed CA Access Control:

ACInstallDir/bin/sechkey -e -sub -in /opt/CA/AccessControl/crypto/sub\_cert\_info -priv root\_key\_path -capwd password [-subpwd password]

# -priv root\_key\_path

Specifies the file that holds the private key for the root certificate.

# -ca password

Specifies the password for the private key of the root certificate.

# -subpwd password

Specifies the password for the private key of the server certificate.

b. If you specified a password for the server key, verify that CA Access Control can use the stored password to open the key:

ACInstallDir/bin/sechkey -g -verify

c. Change the value of the communication\_mode configuration setting in the crypto section to one of the following:

# all\_modes

Specify this value if you want to enable both symmetric and SSL encryption. This value lets the computer communicate with all CA Access Control components.

#### use\_ssl

Specify this value to enable SSL encryption only. This value lets the computer communicate with only the CA Access Control components that use SSL encryption.

d. Start CA Access Control.

CA Access Control starts and uses the CA Access Control server certificate to encrypt and authenticate communication.

Note: For more information about the sechkey utility, see the *Reference Guide*.

# How to Specify That CA Access Control Uses a Third-Party Password-Protected Server Certificate

You can use third-party password-protected server certificates to encrypt and authenticate communication between CA Access Control components.

To configure CA Access Control to use third-party password-protected server certificates, you must perform some additional steps when you use native packages to install CA Access Control, as follows:

- 1. When you customize the params file as part of the native package installation, specify the following parameters in the file:
  - ENCRYPTION\_METHOD\_SET=2
  - ROOT\_CERT\_PATH=root\_cert\_path
  - ROOT\_CERT\_KEY=root\_key\_path
  - PROVIDE\_OR\_GEN\_CERT=2
  - SUBJECT\_CERT\_PATH=server\_cert\_path
  - SUBJECT\_KEY\_PATH=subject\_key\_path
- 2. After you install CA Access Control, do the following:
  - a. Store the password for the for the private key on the computer, as follows, where *ACInstallDir* is the directory in which you installed CA Access Control:

ACInstallDir/bin/sechkey -g -subpwd password

# -subpwd password

Specifies the password for the private key of the server certificate.

b. Verify that CA Access Control can use the stored password to open the key:

ACInstallDir/bin/sechkey -g -verify

c. Change the value of the communication\_mode configuration setting in the crypto section to one of the following:

# all\_modes

Specify this value if you want to enable both symmetric and SSL encryption. This value lets the computer communicate with all CA Access Control components.

#### use\_ssl

Specify this value to enable SSL encryption only. This value lets the computer communicate with only the CA Access Control components that use SSL encryption.

d. Start CA Access Control.

CA Access Control starts and uses the third-party password-protected server certificate to encrypt and authenticate communication.

Note: For more information about the sechkey utility, see the *Reference Guide*.

# **RPM Package Manager Installation**

The RPM Package Manager (RPM) is a command-line utility that lets you build, install, query, verify, update, and erase individual software packages. It is intended for use on UNIX platforms.

**Note:** For more information, see the RPM Package Manager website at <u>http://www.rpm.org</u> and the UNIX man pages for RPM.

Instead of a regular installation, you can use the RPM packages CA Access Control provides. This lets you manage your CA Access Control installation with all your other software installations performed using RPM.

# **Remove Existing RPM Packages from the RPM Database**

If you have already installed a CA Access Control RPM package that you created yourself, you must remove it from the RPM database so that the database reflects which packages you have installed. If you do not remove the existing package and install the new package, the RPM database will show that both the old package and the new one are installed, but in your file system, files from the newer package overwrite existing files. For RPM to upgrade a package, it has to have the same name as the currently installed package.

**Note:** Removing the package does not remove any CA Access Control files and the native package installation performs an upgrade.

To remove a package from the RPM database, use the following command:

rpm -e --justdb your\_ACPackageName

# Customize the CA Access Control RPM Package

Before you can install CA Access Control using a native package, you must customize the CA Access Control package to specify that you accept the license agreement. You can also specify custom installation settings when you customize a package.

You customize a package by extracting the installation parameters file from the package, modifying it as required, and then loading it back into the package. Some commands are available in the customization script so that you do not have to modify the parameters file.

**Note:** We recommend that you *do not* modify the package manually. Instead, use the script as described in the following procedure to customize the CA Access Control package.

You can find the RPM packages for each of the supported Linux operating systems in the NativePackages/RPMPackages directory of the CA Access Control Endpoint Components for UNIX DVD.

#### To customize the CA Access Control RPM package

1. Copy the package you want to customize to a temporary location on your file system.

OS is the appropriate subdirectory name of your operating system.

In the read/write location on the file system, the package can be customized as required.

Copy the customize\_eac\_rpm script file and the pre.tar file to a temporary location on your file system.

The pre.tar file is compressed tar file containing installation messages and the CA Access Control license agreement.

**Note:** You can find the customize\_eac\_rpm script file and the pre.tar file in the same location where the native packages are.

3. Display the license agreement:

customize\_eac\_rpm -a [-d pkg\_location] pkg\_filename

4. Take note of the keyword that appears at the end of the license agreement inside square brackets.

You specify this keyword in the next step.

5. Customize the CA Access Control package to specify that you accept the license agreement:

customize\_eac\_rpm -w keyword [-d pkg\_location] pkg\_filename

6. (Optional) Set the language of the installation parameters file:

customize\_eac\_rpm -r -l lang [-d pkg\_location] pkg\_filename

7. (Optional) Upgrade from an eTrust Access Control r8 SP1 package:

customize\_eac\_rpm -u install\_prefix [-d pkg\_location] pkg\_filename

8. (Optional) Change the default encryption files:

customize\_eac\_rpm -s -c certfile -k keyfile [-d pkg\_location] pkg\_filename

9. (Optional) Get the installation parameters file:

customize\_eac\_rpm -g -f tmp\_params [-d pkg\_location] pkg\_filename

10. (Optional) Edit the installation parameters file to suit your installation requirements.

This file lets you set the installation defaults for the package. For example, activate the POSTEXIT setting (remove the preceding # character) and point it to a post-installation script file you want to run.

11. (Optional) Set the installation parameters in your customized package:

customize\_eac\_rpm -s -f tmp\_params [-d pkg\_location] pkg\_filename

You can now use the package to install CA Access Control with the customized defaults.

#### **Example: Specify That You Accept the License Agreement**

To accept the license agreement when installing a native package, you customize the package. The following example shows you how you do customize the x86 CA Access Control RPM package that you can find on the CA Access Control Endpoint Components for UNIX DVD (mounted to /mnt/AC\_DVD) to accept the license agreement: cp /mnt/AC\_DVD/NativePackages/RPMPackages/LINUX/CAeAC\*i386.rpm /tmp cp /mnt/AC\_DVD/NativePackages/RPMPackages/pre.tar /tmp chmod 777 /tmp/CAeAC\*i386.rpm /mnt/AC\_DVD/NativePackages/RPMPackages/customize\_eac\_rpm -w keyword -d /tmp CAeAC\*i386.rpm

You can now use the customized package in the /tmp directory to install CA Access Control.

#### More information:

customize eac rpm Command—Customize RPM Package (see page 213)

# Install CA Access Control RPM Packages

To manage the CA Access Control installation with all your other software installations, install the customized CA Access Control RPM package.

**Important!** You must customize the package to specify that you accept the license agreement using a keyword you can find inside the license agreement.

**Note:** The actual command you use varies depending on many variables, including whether you are upgrading or installing for the first-time, or whether you want to install to the default directory. Some command examples are available in this topic.

#### To install CA Access Control RPM packages

1. Use the rpm command to install the ca-lic package.

The license program installs.

2. Customize the CAeAC package (see page 208).

You must customize the package to specify that you accept the license agreement using a keyword that you can find inside the license agreement. You can also customize the package to specify custom installation settings.

**Note:** If you are upgrading CA Access Control, you do not need to customize the package to specify that you accept the license agreement.

3. Use the rpm command to install the CAeAC package.

CA Access Control installs.

Note: The UNAB package also installs the CAWIN shared component.

**Important!** If you are upgrading an existing CA Access Control package, unload SEOS syscall before you try to install the new package. Otherwise, the installation fails.

# Example: Install or Upgrade CA Access Control on Red Hat Linux

The following example shows how you can install the CA Access Control package that you can find on the CA Access Control Endpoint Components for UNIX DVD (mounted to /mnt/AC\_DVD) on a Red Hat Linux x86 ES 4.0 computer. This can be a fresh installation of CA Access Control or an upgrade of a currently installed CA Access Control RPM package (without needing to remove the installed package first). To do this, you install the license program package and then customize the CA Access Control package to accept the license agreement and install it as follows:

cd /mnt/AC\_DVD/NativePackages/RPMPackages/LINUX
rpm -U ca-lic\*i386.rpm ca-cs-cawin\*i386.rpm
cp CAeAC\*i386.rpm /tmp
cp ../pre.tar /tmp
chmod 777 /tmp/CAeAC\*i386.rpm
../customize\_eac\_rpm -w keyword -d /tmp CAeAC\*i386.rpm
rpm -U /tmp/CAeAC\*i386.rpm

## Example: Upgrade from an eTrust Access Control r8 SP1 Package Installation

The following example shows how you can upgrade an eTrust Access Control r8 SP1 package, which is installed at /opt/CA/eTrustAccessControl, to the CA Access Control package that you can find on the CA Access Control Endpoint Components for UNIX DVD (mounted to /mnt/AC\_DVD) on a Linux s390 SLES 9 computer. To do this, you install the license program package, CAWIN package, and the customized CA Access Control package (in that order) as follows:

cd /mnt/AC\_DVD/NativePackages/RPMPackages/LINUX390
rpm -U ca-lic\*rpm ca-cs-cawin\*rpm
cp -R CAeAC\*s390.rpm /tmp
cp ../pre.tar /tmp
chmod 777 /tmp/CAeAC\*s390.rpm
../customize\_eac\_rpm -u /opt/CA -d /tmp CAeAC\*s390.rpm
../customize\_eac\_rpm -w keyword -d /tmp CAeAC\*s390.rpm
rpm -U /tmp/CAeAC\*s390.rpm

#### Example: Install CA Access Control and the Prerequisites to a Custom Directory

The following example shows how you can install the default CA Access Control and the prerequisite package that you can find on the CA Access Control Endpoint Components for UNIX DVD (mounted to /mnt/AC\_DVD) to custom directories on a Red Hat Linux Itanium IA64 ES 4.0. To do this, use the following commands:

```
cd /mnt/AC_DVD/NativePackages/RPMPackages/LINUX_IA64
rpm -U --prefix /usr/CA/shared ca-lic*ia64.rpm
cp -R CAeAC*ia64.rpm /tmp
cp ../pre.tar /tmp
chmod 777 /tmp/CAeAC*ia64.rpm
../customize_eac_rpm -u /usr/CA -d /tmp CAeAC*ia64.rpm
rpm -U --prefix /usr/CA /tmp/CAeAC*ia64.rpm
```

CA Access Control installs into the custom directory /usr/CA/AccessControl, which, is a concatenation of the custom directory you provided and the name of the product (Access Control).

**Note:** The license program installs to the specified directory only if \$CASHCOMP variable is not defined in the environment (it can be defined in /etc/profile.CA). Otherwise, the license program installs to \$CASHCOMP. If \$CASHCOMP is not defined and you do not specify -lic\_dir, the license program installs to the /opt/CA/SharedComponents directory.

#### More information:

Additional Considerations for Native Installations (see page 203) <u>Customize the CA Access Control RPM Package</u> (see page 208) <u>customize eac rpm Command—Customize RPM Package</u> (see page 213)

# customize\_eac\_rpm Command—Customize RPM Package

The customize\_eac\_rpm command runs the CA Access Control RPM package customization script.

You should consider the following when using this command:

The script works on the CA Access Control RPM packages only.

Note: The script is not intended for use with the license program package.

 To customize a package, the package must be in a read/write directory on your file system.

This command has the following format:

```
customize_eac_rpm -h [-l]
customize_eac_rpm -a [-d pkg_location] pkg_filename
customize_eac_rpm -w keyword [-d pkg_location] pkg_filename
customize_eac_rpm -r [-d pkg_location] [-l lang] pkg_filename
customize_eac_rpm -s [-f tmp_params] | -c certfile | -k keyfile} [-d pkg_location]
pkg_filename
customize_eac_rpm -g [-f tmp_params] [-d pkg_location] pkg_filename
customize_eac_rpm -u install_prefix [-d pkg_location] pkg_filename
customize_eac_rpm -t tmp_dir [-d pkg_location] pkg_filename
```

# pkg\_filename

Defines the file name of the CA Access Control package you want to customize.

**Note:** If you do not specify the -d option, you must define the full pathname of the package file.

-a

Displays the license agreement.

-c certfile

Defines the full pathname of the root certificate file.

Note: This option is applicable to the CAeAC package only.

# -d pkg\_location

(Optional) Specifies the directory where you placed your package on the file system. If you do not specify a directory where the package is located, the script assumes the full pathname to the package file is *pkg\_filename*.

# -f tmp\_params

Specifies the full path and name of the installation parameters file to create or retrieve information from.

**Note:** If you do not specify a file when using the -g option, the installation parameters are directed to the standard output (stdout).

## -g

Gets the installation parameters file and places it in the file specified by the -f option.

-h

Displays command usage. When used in conjunction with the -l option, displays the language code for supported languages.

## -k keyfile

Defines the full pathname of the root private key file.

Note: This option is applicable to the CAeAC package only.

# -l lang

Sets the language of the installation parameters file to *lang*. You can set the language only in conjunction with the -r option.

**Note:** For a list of supported language codes you can specify, run -l with the -h option. By default, the installation parameters file is in English.

#### -r

Resets the package to use default values as in the original package.

-s

Sets the specified package to use inputs from the customized installation parameters file specified by the -f option.

-t tmp\_dir

Sets the temporary directory for installation operations.

**Note:** The default temporary directory is /tmp.

#### -u install\_prefix

Defines the prefix for the location where you have an installation of an eTrust Access Control r8 SP1 package. The actual installation location is a concatenation of this prefix and the product's name. The r8 SP1 package had eTrust in the product name and was therefore installed into the eTrustAccessControl subdirectory. Newer versions install into the AccessControl subdirectory.

For example, if you had r8 SP1 installed in /opt/CA/eTrustAccessControl and you are upgrading to r12.0 SP1, enter the following before you use the rpm command to install the package:

./customize\_eac\_rpm -u /opt/CA -d . CAeAC-1200-0.1106.i386.rpm

## -w keyword

Defines the keyword that specifies that you accept the license agreement. You can find this keyword at the end of the license agreement (inside square brackets). To locate the license agreement file, use the -a option.

# Uninstall RPM Package

To uninstall a CA Access Control RPM package installation, you need to uninstall the CA Access Control packages in the reverse order of their installation.

To uninstall the RPM package run the following command:

rpm -e CAeACPackage\_name

# **Solaris Native Packaging Installation**

Solaris native packaging is provided as command-line utilities that let you create, install, remove, and report on individual software packages.

**Note:** For more information about Solaris native packaging, see the <u>Sun Microsystems</u> website and the man pages for pkgadd, pkgrm, pkginfo, and pkgchk.

Instead of a regular installation, you can use the Solaris native packages CA Access Control provides. This lets you manage your CA Access Control installation with all your other software installations performed using Solaris native packaging.

**Important!** To uninstall CA Access Control after a package installation, you must use the *pkgrm* command. Do not use uninstall\_AC script.

# **Customize the Solaris Native Packages**

Before you can install CA Access Control using a native package, you must customize the CA Access Control package to specify that you accept the license agreement. You can also specify custom installation settings when you customize a package.

You customize a package by extracting the installation parameters file from the package, modifying it as required, and then loading it back into the package. Some commands are available in the customization script so that you do not have to modify the parameters file.

**Note:** We recommend that you do not modify the package manually. Instead, use the script as described in the following procedure to customize the CA Access Control package.

You can find the Solaris native package for each of the supported Solaris operating systems in the NativePackages directory of the CA Access Control Endpoint Components for UNIX DVD.

# To customize the Solaris native packages

1. Extract the package you want to customize to a temporary location on your file system.

In the read/write location on the file system, you can customize the package as required.

**Important!** When you extract the package, verify that file attributes for the entire directory structure of the package are preserved or Solaris native packaging tools will consider the package corrupt.

2. Copy the customize\_eac\_pkg script file and the pre.tar file to a temporary location on your file system.

The pre.tar file is compressed tar file containing installation messages and the CA Access Control license agreement.

**Note:** You can find the customize\_eac\_pkg script file and the pre.tar file in the same location where the native packages are.

3. Display the license agreement:

customize\_eac\_pkg -a [-d pkg\_location] pkg\_name

4. Take note of the keyword that appears at the end of the license agreement inside square brackets.

You specify this keyword in the next step.

5. Customize the CA Access Control package to specify that you accept the license agreement:

customize\_eac\_pkg -w keyword [-d pkg\_location] [pkg\_name]
6. (Optional) Set the language of the installation parameters file:

customize\_eac\_pkg -r -l lang [-d pkg\_location] [pkg\_name]

7. (Optional) Change the installation directory:

customize\_eac\_pkg -i install\_loc [-d pkg\_location] [pkg\_name]

8. (Optional) Change the default encryption files:

customize\_eac\_pkg -s -c certfile -k keyfile [-d pkg\_location] [pkg\_name]

9. (Optional) Get the installation parameters file:

customize\_eac\_pkg -g -f tmp\_params [-d pkg\_location] [pkg\_name]

10. (Optional) Edit the installation parameters file to suit your installation requirements.

This file lets you set the installation defaults for the package. For example, activate the POSTEXIT setting (remove the preceding # character) and point it to a post-installation script file you want to run.

11. (Optional) Set the installation parameters in your customized package:

customize\_eac\_pkg -s -f tmp\_params [-d pkg\_location] [pkg\_name]

You can now use the package to install CA Access Control with the customized defaults.

### **Example: Specify That You Accept the License Agreement**

To accept the license agreement when installing a native package, you customize the package. The following example shows you how you do customize the x86 CA Access Control Solaris package that you can find on the CA Access Control Endpoint Components for UNIX DVD (mounted to /mnt/AC\_DVD) to accept the license agreement:

cp /mnt/AC\_DVD/NativePackages/\_SOLARIS\_X86\_PKG\*.tar.Z /tmp cp /mnt/AC\_DVD/NativePackages/pre.tar /tmp cd /tmp zcat \_SOLARIS\_X86\_PKG\*.tar.Z | tar -xvf -/mnt/AC\_DVD/NativePackages/customize\_eac\_pkg -w keyword -d /tmp CAeAC

You can now use the customized package in the /tmp directory to install CA Access Control.

### More information:

customize eac pkg Command—Customize Solaris Native Package (see page 220)

### **Install Solaris Native Packages**

To manage the CA Access Control installation with all your other software installations, install the customized CA Access Control Solaris native package. The CA Access Control Solaris native packages let you install CA Access Control on Solaris easily.

**Important!** You must customize the package to specify that you accept the license agreement using a keyword you can find inside the license agreement.

### To install the CA Access Control Solaris native packages

- 1. (Optional) Configure Solaris native installation defaults:
  - a. Get a copy of the installation administration file to the current location:

convert\_eac\_pkg -p

The installation administration file is copied to the current location with the name *myadmin*.

You can edit the installation administration file to change pkgadd installation defaults. You can then use the modified file for specific installations, such as CA Access Control, using the pkgadd -a option. However, this file is not specific to CA Access Control.

**Important!** You must perform this step to upgrade an existing Solaris package installation from an older CA Access Control release.

b. Edit the installation administration file (myadmin) as desired, then save the file.

You can now use the modified installation settings for the CA Access Control native installation without affecting other installations.

**Note:** Solaris native packaging may require user interaction by default. For more information about the installation administration file and how to use it, see the Solaris man page for pkgadd(1M) and admin(4).

2. <u>Customize the CAeAC package</u> (see page 216).

You must customize the package to specify that you accept the license agreement using a keyword that you can find inside the license agreement. You can also customize the package to specify custom installation settings.

3. Install the package:

pkgadd [-a dir/myadmin] -d pkg\_location CAeAC

### -a dir/myadmin

Defines the location of the myadmin installation administration file you created in step 1.

If you do not specify this option, pkgadd uses the default installation administration file.

#### pkg\_location

Defines the directory where the CA Access Control package (CAeAC) is located.

**Important!** The package must be located in a public location (that is, read access for group and world). For example, /var/spool/pkg

**Note:** You can find the Solaris native packages in the NativePackages directory of the CA Access Control Endpoint Components for UNIX DVD.

CA Access Control is now fully installed but not started.

#### More information:

Additional Considerations for Native Installations (see page 203) Install Solaris Native Packages on Selected Zones (see page 219) Customize the Solaris Native Packages (see page 216) customize eac pkg Command—Customize Solaris Native Package (see page 220) convert\_eac\_pkg—Configure Solaris Native Installation (see page 222)

### **Install Solaris Native Packages on Selected Zones**

You can use Solaris native packaging to install CA Access Control to selected zones. However, you must also install CA Access Control on the global zone.

**Note:** We recommend that you use Solaris native packaging to install CA Access Control to *all* zones.

#### To install CA Access Control to selected zones

Important! Make sure you use the same CA Access Control version in all zones.

1. From the global zone, issue the command to install CA Access Control.

pkgadd -G -d pkg\_location CAeAC

#### pkg\_location

Defines the directory where the customized CA Access Control package (CAeAC) is located.

**Important!** The package must be located in a public location (that is, read access for group and world). For example, /var/spool/pkg

This command installs CA Access Control only to the global zone.

2. In the global zone, enter the SEOS\_load command to load the CA Access Control kernel module.

**Note:** The CA Access Control kernel loads but CA Access Control does not intercept events in the global zone.

- 3. On each of the non-global zones where you want to install CA Access Control:
  - a. Copy the CAeAC package to a temporary location on the non-global zone.
  - b. Issue the following command from the non-global zone:

pkgadd -G -d pkg\_location CAeAC

This command installs CA Access Control (using the package you copied in the previous step) on the non-global zone you are working from.

You can now start CA Access Control on the internal zone.

**Note:** You must uninstall from all non-global zones before you remove CA Access Control from the global zone.

### customize\_eac\_pkg Command—Customize Solaris Native Package

The customize\_eac\_pkg command runs the CA Access Control Solaris native package customization script.

You should consider the following when using this command:

- The script works on any of the available CA Access Control Solaris native packages.
- To customize a package, the package must be in a read/write directory on your file system.
- For localized script messages, you need to have pre.tar file in the same directory as the script file.

This command has the following format:

```
customize_eac_pkg -h [-1]
customize_eac_pkg -a [-d pkg_location] [pkg_name]
customize_eac_pkg -w keyword [-d pkg_location] [pkg_name]
customize_eac_pkg -r [-d pkg_location] [-1 lang] [pkg_name]
customize_eac_pkg -i install_loc [-d pkg_location] [pkg_name]
customize_eac_pkg -s {-f tmp_params | -c certfile | -k keyfile} [-d pkg_location]
[pkg_name]
customize_eac_pkg -g [-f tmp_params] [-d pkg_location] [pkg_name]
customize_eac_pkg -t tmp dir [-d pkg location] [pkg_name]
```

### pkg\_name

(Optional) The name of the CA Access Control package you want to customize. If you do not specify a package, the script defaults to the main CA Access Control package (CAeAC).

-a

Displays the license agreement.

#### -c certfile

Defines the full pathname of the root certificate file.

Note: This option is applicable to the CAeAC package only.

#### -d pkg\_location

(Optional) Specifies the directory where you placed your package on the file system. If you do not specify a directory where the package is located, the script defaults to /var/spool/pkg.

### -f tmp\_params

Specifies the full path and name of the installation parameters file to create or retrieve information from.

**Note:** If you do not specify a file when using the -g option, the installation parameters are directed to the standard output (stdout).

### -g

Gets the installation parameters file and places it in the file specified by the -f option.

#### -h

Displays command usage. When used in conjunction with the -l option, displays the language code for supported languages.

### -i install\_loc

Sets the installation directory for the package to *install\_loc*/AccessControl.

#### -k keyfile

Defines the full pathname of the root private key file.

Note: This option is applicable to the CAeAC package only.

### -l lang

Sets the language of the installation parameters file to *lang*. You can set the language only in conjunction with the -r option.

**Note:** For a list of supported language codes you can specify, run -l with the -h option. By default, the installation parameters file is in English.

-r

Resets the package to use default values as in the original package.

-s

Sets the specified package to use inputs from the customized installation parameters file specified by the -f option.

### -t tmp\_dir

Sets the temporary directory for installation operations.

**Note:** The default temporary directory is /tmp.

### -w keyword

Defines the keyword that specifies that you accept the license agreement. You can find this keyword at the end of the license agreement (inside square brackets). To locate the license agreement file, use the -a option.

## convert\_eac\_pkg—Configure Solaris Native Installation

The default Solaris pkgadd behavior is determined by an installation administration file. To override default settings, you need to change the installation administration file (by default, /var/sadm/install/admin/default). For example, the CA Access Control package installs setuid executables and, optionally, lets you run a post-installation script (which will run as *root*). The default Solaris pkgadd behavior is to prompt you to confirm these operations.

**Note:** You can edit the installation administration file to change pkgadd installation defaults. You can then use the modified file for specific installations, such as CA Access Control, using the pkgadd -a option. However, this file is not specific to CA Access Control.

This command has the following format:

convert\_eac\_pkg -c [-d pkg\_location] [pkg\_name]

convert\_eac\_pkg -p [-f file]

-C

Converts an old-format package to the new format.

**Note:** Old-format packages were used in CA Access Control r8 SP1. You need to convert these before you upgrade.

You can convert information for an installed CA Access Control package or a spooled package. For a spooled package, use the -d option to indicate where the package is located.

### -d pkg\_location

Defines the directory where you placed your package on the file system

#### pkg\_name

Defines the name of the package (CAeAC by default).

-p

Prepares a custom package configuration file named

### -f file

Defines the location where you want to create the CA Access Control installation administration file.

If not specified, the command creates a file called *myadmin* in the current directory.

### Example: Configure Solaris Native Installation for a Silent Installation

The following procedure shows how you configure Solaris native installation so that it does not prompt you to confirm installing setuid executables or running a post installation script:

1. Get a copy of the installation administration file to the current location:

convert\_eac\_pkg -p

This lets you modify the configuration settings for the CA Access Control native installation without affecting other installations.

2. Edit the following settings in your package configuration file (myadmin) as shown:

setuid=nocheck
action=nocheck

Save the file.

3. Customize the package.

As a minimum, you need to specify that you accept the license agreement.

4. Run the following command to install the customized CA Access Control package silently:

pkgadd -n -a config\_path\myadmin -d pkg\_path CAeAC

### Example: Upgrade a Solaris Native Installation that Uses an Old Format

The following procedure shows you how convert an existing installation of CA Access Control native package installation before you upgrade to a new release. To do this, run the following command:

convert\_eac\_pkg -c CAeAC

## **HP-UX Native Package Installation**

HP-UX native packaging is provided as a set of GUI and command-line utilities that let you create, install, remove, and report on individual software packages. HP-UX native packaging also lets you install software packages on remote computers.

**Note:** For more information about the HP-UX native packaging, Software Distributor-UX (SD-UX), see the HP website at <u>http://www.hp.com</u>. You can also refer to the man pages for swreg, swinstall, swpackage, and swverify.

Instead of a regular installation, you can use the SD-UX native packages CA Access Control provides. This lets you manage your CA Access Control installation with all your other software installations performed using the SD-UX.

**Important!** To uninstall CA Access Control after a package installation, you must use the *swremove* command. Do not use the uninstall\_AC script.

### **Customize the SD-UX Format Packages**

Before you can install CA Access Control using a native package, you must customize the CA Access Control package to specify that you accept the license agreement. You can also specify custom installation settings when you customize a package.

You customize a package by extracting the installation parameters file from the package, modifying it as required, and then loading it back into the package. Some commands are available in the customization script so that you do not have to modify the parameters file.

**Note:** We recommend that you do not modify the package manually. Instead, use the script as described in the following procedure to customize the CA Access Control package.

You can find the Software Distributor-UX (SD-UX) format package for each of the supported HP-UX operating systems in the NativePackages directory of the CA Access Control Endpoint Components for UNIX DVD.

### To customize the SD-UX format packages

1. Extract the package you want to customize to a temporary location on your file system.

In the read/write location on the file system, the package can be customized as required.

**Important!** When you extract the package, you must make sure that file attributes for the entire directory structure of the package are preserved or HP-UX native packaging tools will consider the package corrupt.

Copy the customize\_eac\_depot script file and the pre.tar file to a temporary location on your file system.

The pre.tar file is compressed tar file containing installation messages and the CA Access Control license agreement.

**Note:** You can find the customize\_eac\_depot script file and the pre.tar file in the same location where the native packages are.

3. Display the license agreement:

customize\_eac\_depot -a [-d pkg\_location] pkg\_name

4. Take note of the keyword that appears at the end of the license agreement inside square brackets.

You specify this keyword in the next step.

5. Customize the CA Access Control package to specify that you accept the license agreement:

customize\_eac\_depot -w keyword [-d pkg\_location] [pkg\_name]

6. (Optional) Set the language of the installation parameters file:

customize\_eac\_depot -r -l lang [-d pkg\_location] [pkg\_name]

7. (Optional) Change the installation directory:

customize\_eac\_depot -i install\_loc [-d pkg\_location] [pkg\_name]

8. (Optional) Change the default encryption files:

customize\_eac\_depot -s -c certfile -k keyfile [-d pkg\_location] [pkg\_name]

9. (Optional) Get the installation parameters file:

customize\_eac\_depot -g -f tmp\_params [-d pkg\_location] [pkg\_name]

10. (Optional) Edit the installation parameters file to suit your installation requirements.

This file lets you set the installation defaults for the package. For example, activate the POSTEXIT setting (remove the preceding # character) and point it to post-installation script file you want to run.

11. (Optional) Set the installation parameters in your customized package:

customize\_eac\_depot -s -f tmp\_params [-d pkg\_location] [pkg\_name]

You can now use the package to install CA Access Control with the customized defaults.

### Example: Specify That You Accept the License Agreement

To accept the license agreement when installing a native package, you customize the package. The following example shows you how you do customize the x86 CA Access Control SD-UX package that you can find on the CA Access Control Endpoint Components for UNIX DVD (mounted to /mnt/AC\_DVD) to accept the license agreement:

cp /mnt/AC\_DVD/NativePackages/\_HPUX11\_PKG\_\*.tar.Z /tmp cp /mnt/AC\_DVD/NativePackages/pre.tar /tmp cd /tmp zcat \_HPUX11\_PKG\_\*.tar.Z | tar -xvf -/mnt/AC\_DVD/NativePackages/customize\_eac\_depot -w keyword -d /tmp CAeAC

You can now use the customized package in the /tmp directory to install CA Access Control.

### More information:

customize eac depot Command—Customize an SD-UX Format Package (see page 228)

### Install HP-UX Native Packages

To manage the CA Access Control installation with all your other software installations, install the customized CA Access Control SD-UX format package. The CA Access Control SD-UX format packages let you install CA Access Control on HP-UX easily.

**Important!** You must customize the package to specify that you accept the license agreement using a keyword you can find inside the license agreement.

### To install the CA Access Control HP-UX native packages

1. Log in as root.

To register and install HP-UX native packages you need permissions associated with the root account.

2. <u>Customize the CAeAC package</u> (see page 225).

You must customize the package to specify that you accept the license agreement using a keyword that you can find inside the license agreement. You can also customize the package to specify custom installation settings.

3. Register the customized package with SD-UX using the following command:

swreg -l depot pkg\_location

### pkg\_location

Defines the directory where the CA Access Control package (CAeAC) is located.

4. Install the CA Access Control package using the following command:

swinstall -s pkg\_location CAeAC

SD-UX starts installing the CAeAC package from the *pkg\_location* directory.

CA Access Control is now fully installed but not started.

### More information:

<u>Additional Considerations for Native Installations</u> (see page 203) <u>Customize the SD-UX Format Packages</u> (see page 225)

### customize\_eac\_depot Command—Customize an SD-UX Format Package

The customize\_eac\_depot command runs the CA Access Control native package customization script for SD-UX format packages.

You should consider the following when using this command:

- The script works on any of the available CA Access Control Solaris native packages.
- To customize a package, the package must be in a read/write directory on your file system.
- For localized script messages, you need to have pre.tar file in the same directory as the script file.

This command has the following format:

```
customize_eac_depot -h [-1]
customize_eac_depot -a [-d pkg_location] [pkg_name]
customize_eac_depot -w keyword [-d pkg_location] [pkg_name]
customize_eac_depot -r [-l lang] [-d pkg_location] [pkg_name]
customize_eac_depot -i install_loc [-d pkg_location] [pkg_name]
customize_eac_depot -s {-f tmp_params | -c certfile | -k keyfile} [-d pkg_location]
[pkg_name]
customize_eac_depot -g [-f tmp_params] [-d pkg_location] [pkg_name]
```

#### pkg\_name

(Optional) The name of the CA Access Control package you want to customize. If you do not specify a package, the script defaults to the main CA Access Control package (CAeAC).

#### -a

Displays the license agreement.

### -c certfile

Defines the full pathname of the root certificate file.

Note: This option is applicable to the CAeAC package only.

### -d pkg\_location

(Optional) Specifies the directory where you placed your package on the file system. If you do not specify a directory where the package is located, the script defaults to /var/spool/pkg.

### -f tmp\_params

Specifies the full path and name of the installation parameters file to create or retrieve information from.

**Note:** If you do not specify a file when using the -g option, the installation parameters are directed to the standard output (stdout).

### -g

Gets the installation parameters file and places it in the file specified by the -f option.

#### -h

Displays command usage. When used in conjunction with the -l option, displays the language code for supported languages.

### -i install\_loc

Sets the installation directory for the package to *install\_loc*/AccessControl.

#### -k keyfile

Defines the full pathname of the root private key file.

**Note:** This option is applicable to the CAeAC package only.

### -l lang

Sets the language of the installation parameters file to *lang*. You can set the language only in conjunction with the -r option.

**Note:** For a list of supported language codes you can specify, run -l with the -h option. By default, the installation parameters file is in English.

-r

Resets the package to use default values as in the original package.

-S

Sets the specified package to use inputs from the customized installation parameters file specified by the -f option.

### -w keyword

Defines the keyword that specifies that you accept the license agreement. You can find this keyword at the end of the license agreement (inside square brackets). To locate the license agreement file, use the -a option.

### **Uninstall HP-UX Packages**

To uninstall a CA Access Control HP-UX package installation, you need to uninstall the CA Access Control packages in the reverse order of their installation.

To uninstall CA Access Control packages uninstall the main CA Access Control package:

swremove CAeAC

## **AIX Native Package Installation**

AIX native packaging is provided as a set of GUI and command-line utilities that let you manage individual software packages.

Instead of a regular installation, you can use the AIX native packages CA Access Control provides. This lets you manage your CA Access Control installation with all your other software installations performed using the AIX installp.

**Note:** While some AIX versions support several package formats (installp, SysV, RPM), CA Access Control provides the AIX native package format (installp) only.

**Important!** To uninstall CA Access Control after a package installation, you must use the *installp* command. Do not use the uninstall\_AC script.

### Customize the bff Native Package Files

Before you can install CA Access Control using a native package, you must customize the CA Access Control package to specify that you accept the license agreement. You can also specify custom installation settings when you customize a package.

You customize a package by extracting the installation parameters file from the package, modifying it as required, and then loading it back into the package. Some commands are available in the customization script so that you do not have to modify the parameters file.

**Note:** We recommend that you do not modify the package manually. Instead, use the script as described in the following procedure to customize the CA Access Control package.

You can find the installp format native packaging (bff files) for each of the supported AIX operating systems in the NativePackages directory of the CA Access Control Endpoint Components for UNIX DVD.

#### To customize the bff native package files

1. Extract the package you want to customize to a temporary location on your file system.

In the read/write location on the file system, the package (a bff file) can be customized as required.

**Important!** This location needs to have disk space that is at least twice the size of the package, so that it can hold temporary repackaging files.

2. Copy the customize\_eac\_bff script file and the pre.tar file to a temporary location on your file system.

The pre.tar file is compressed tar file containing installation messages and the CA Access Control license agreement.

**Note:** You can find the customize\_eac\_bff script file and the pre.tar file in the same location where the native packages are.

3. Display the license agreement:

customize\_eac\_bff -a [-d pkg\_location] pkg\_name

4. Take note of the keyword that appears at the end of the license agreement inside square brackets.

You specify this keyword in the next step.

5. Customize the CA Access Control package to specify that you accept the license agreement:

customize\_eac\_bff -w keyword [-d pkg\_location] pkg\_name

6. (Optional) Set the language of the installation parameters file:

customize\_eac\_bff -r -l lang [-d pkg\_location] pkg\_name

7. (Optional) Change the installation directory:

customize\_eac\_bff -i install\_loc [-d pkg\_location] pkg\_name

8. (Optional) Change the default encryption files:

customize\_eac\_bff -s -c certfile -k keyfile [-d pkg\_location] pkg\_name

9. Get the installation parameters file:

customize\_eac\_bff -g -f tmp\_params [-d pkg\_location] pkg\_name

10. (Optional) Edit the installation parameters file to suit your installation requirements.

This file lets you set the installation defaults for the package. For example, activate the POSTEXIT setting (remove the preceding # character) and point it to post-installation script file you want to run.

11. (Optional) Set the installation parameters in your customized package:

customize\_eac\_bff -s -f tmp\_params [-d pkg\_location] pkg\_name

You can now use the package to install CA Access Control with the customized defaults.

### More information:

customize eac bff Command—Customize a bff Native Package File (see page 233)

### Install AIX Native Packages

To manage the CA Access Control installation with all your other software installations, install the customized CA Access Control AIX native package. The CA Access Control AIX native packages (bff files) let you install CA Access Control on AIX easily.

**Important!** You must customize the package to specify that you accept the license agreement using a keyword you can find inside the license agreement.

### To install the CA Access Control AIX native packages

1. Log in as root.

To register and install AIX native packages, you need permissions associated with the root account.

2. <u>Customize the CAeAC package</u> (see page 230).

You must customize the package to specify that you accept the license agreement using a keyword that you can find inside the license agreement. You can also customize the package to specify custom installation settings. 3. (Optional) Record the level (version) of the package that you want to install:

installp -l -d pkg\_location

### pkg\_location

Defines the directory where the CA Access Control package (CAeAC) is located.

For each package in *pkg\_location*, AIX lists the level of the package.

**Note:** For more information about the AIX native packaging installation options, refer to the man pages for installp.

4. Install the CA Access Control package using the following command:

installp -ac -d pkg\_location CAeAC [pkg\_level]

### pkg\_level

Defines the level number of the package you recorded earlier.

AIX starts installing the CAeAC package from the *pkg\_location* directory.

CA Access Control is now fully installed but not started.

### More information:

<u>Customize the bff Native Package Files</u> (see page 230) <u>Additional Considerations for Native Installations</u> (see page 203)

### customize\_eac\_bff Command—Customize a bff Native Package File

The customize\_eac\_bff command runs the CA Access Control native package customization script for bff native package files.

The script works on any of the available CA Access Control native packages for AIX. To customize a package, the package must be in a read/write directory on your file system.

**Important!** The location where you extract the package to should have enough space to contain at least twice the size of the package for intermediate repackaging results.

**Note:** For localized script messages, you need to have pre.tar file in the same directory as the script file.

This command has the following format:

```
customize_eac_bff -h [-l]
customize_eac_bff -a [-d pkg_location] pkg_name
customize_eac_bff -w keyword [-d pkg_location] pkg_name
customize_eac_bff -r [-d pkg_location] [-l lang] pkg_name
customize_eac_bff -i install_loc [-d pkg_location] pkg_name
customize_eac_bff -s {-f tmp_params | -c certfile | -k keyfile} [-d pkg_location]
pkg_name
customize_eac_bff -g [-f tmp_params] [-d pkg_location] pkg_name
```

#### pkg\_name

The name of the CA Access Control package (bff file) you want to customize.

-a

Displays the license agreement.

#### -c certfile

Defines the full pathname of the root certificate file.

Note: This option is applicable to the CAeAC package only.

#### -d pkg\_location

(Optional) Specifies the directory where you placed your package on the file system. If you do not specify a directory where the package is located, the script defaults to /var/spool/pkg.

#### -f tmp\_params

Specifies the full path and name of the installation parameters file to create or retrieve information from.

**Note:** If you do not specify a file when using the -g option, the installation parameters are directed to the standard output (stdout).

### -g

Gets the installation parameters file and places it in the file specified by the -f option.

### -h

Displays command usage. When used in conjunction with the -l option, displays the language code for supported languages.

### -i install\_loc

Sets the installation directory for the package to *install\_loc*/AccessControl.

### -k keyfile

Defines the full pathname of the root private key file.

**Note:** This option is applicable to the CAeAC package only.

-l lang

Sets the language of the installation parameters file to *lang*. You can set the language only in conjunction with the -r option.

**Note:** For a list of supported language codes you can specify, run -l with the -h option. By default, the installation parameters file is in English.

-r

Resets the package to use default values as in the original package.

-S

Sets the specified package to use inputs from the customized installation parameters file specified by the -f option.

-w keyword

Defines the keyword that specifies that you accept the license agreement. You can find this keyword at the end of the license agreement (inside square brackets). To locate the license agreement file, use the -a option.

### **Uninstall AIX Packages**

To uninstall a CA Access Control AIX package installation, you need to uninstall the CA Access Control packages in the reverse order of their installation.

To uninstall CA Access Control packages uninstall the main CA Access Control package:

installp -u CAeAC

# **Regular Script Installations**

CA Access Control offers the install\_base script for installing CA Access Control on UNIX interactively or silently.

If you are using a regular script installation (not a native installation), you will need three files from the CA Access Control installation media:

- install\_base—A script that installs CA Access Control from the tar file.
- \_opSystemVersion\_ACVersion.tar.Z—A compressed tar file containing all the CA Access Control files. For example, if you are installing CA Access Control r12.0 on IBM AIX version 5 then your tar file is \_AIX5\_120.tar.Z
- pre.tar—A compressed tar file containing messages for installation as well as the license agreement.

After you read the license agreement file, you can continue the installation by entering the command found at the end of that file:

- If you are running a silent install (using install\_base -autocfg), you can use the -command option with the command that can be found at the bottom of the license agreement file.
- If you are using a response file (-autocfg file\_name), you do not need to use the -command option.

To get the license file name and location, run install\_base -h. You also get the file name and location if you enter the wrong command.

You can find these files in the /Unix/Access-Control directory of the CA Access Control Endpoint Components for UNIX DVD.

## Install Using install\_base Script

You can install CA Access Control on any supported OS using the install\_base script. This is an interactive script but you can also run it silently.

**Note:** Before you run the install\_base script, make sure you decide which functionality you want to install and review the <u>install\_base command</u> (see page 238) so you know how to initiate the installation of this functionality. You may also want to learn first <u>how</u> the install\_base script works (see page 243).

### **To install CA Access Control**

1. If you already have CA Access Control installed and it is running, shut it down by logging in as an administrator and entering the following commands:

ACInstallDir/bin/secons -sk ACInstallDir/bin/SEOS load -u

2. Log in as root.

To install CA Access Control, you need to have root permissions.

 Mount the optical disc drive with the CA Access Control Endpoint Components for UNIX DVD.

**Important!** If you are installing on HP from an optical disk drive, you need to ensure the proper reading of file names from the DVD. To prevent the file names from being forced into a shortened and all-uppercase format, enter the *pfs\_mountd* & and the *pfsd* & commands and make sure that the following four daemons are invoked: pfs\_mountd, pfsd.rpc, pfs\_mountd.rpc, and pfsd. For more information, see the man pages of the particular pfs\* daemons and commands.

4. Read the license agreement.

To run the install\_base script you need to accept the End User License Agreement. After you have read the license agreement, you can continue the installation by entering the command found at the end of that file. To get the license file name and location, run install\_base -h.

5. Run the install\_base script.

The install\_base script starts and, based on your choices, prompts you for the appropriate installation questions.

**Note:** The installation script finds the appropriate compressed tar file, so typing the name the tar file for your platform is optional.

Now the CA Access Control installation is complete; however, it is not yet running.

### **Example: Install the Client and Server Packages with Default Features**

The following command shows how to initiate the install\_base interactive script to install the client and server packages with all default CA Access Control features. During the installation you are asked to answer questions related to installing the client and server packages of CA Access Control.

/dvdrom/Unix/Access-Control/install\_base

**Note:** As we did not specify a package to install, the install\_base command installs both client and server packages.

### Example: Install the Client Package with STOP Enabled to a Custom Directory

The following command shows how to initiate the install\_base interactive script to install the client package to the /opt/CA/AC directory, and enable the Stack Overflow Protection option.

/dvdrom/Unix/Access-Control/install\_base -client -stop -d /opt/CA/AC

## install\_base Command—Run Installation Script

The install\_base command runs the installation script and installs one or more of the CA Access Control packages with one or more of the selected installation options.

This command has the following format:

install\_base [tar\_file] [packages] [options]

#### tar\_file

(Optional) Defines the name of the tar file containing the CA Access Control installation files for your platform. The installation script finds the appropriate compressed tar file automatically, so typing the name of your tar file is optional.

#### packages

(Optional) Defines the CA Access Control packages you want to install. If you do not specify any packages, the installation script installs both the client and server packages unless you are upgrading CA Access Control, in which case the installation script installs the same packages you already have installed.

**Note:** You must install the client package before you install any other package. You can, however, specify to install the client package together with any other package.

The following are the CA Access Control packages you can install:

-all

Installs all CA Access Control packages. These are the client package, server package, API package, and the MFSD package. It also enables STOP (-stop option).

#### -api

Installs the API package that includes API libraries and sample programs.

### -client

Installs the client package that has the core CA Access Control functionality required for a standalone computer.

#### -mfsd

Installs the MFSD package that includes the mainframe synchronization daemon.

Note: You must install the server package before you install the MFSD package.

#### -server

Installs the server package, which includes more binaries and scripts (selogrcd, sepmd, sepmdd, sepmdadm, secrepsw). These complement the client package. For example, sepmdd lets you set up the computer with a Policy Model.

#### -uni

Installs the Unicenter security integration and migration package that supports CA Access Control integration with CAUTIL, Workload Management, and Event Management components of Unicenter, and the Unicenter EMSec API.

### options

(Optional) Defines additional installation options you want to set.

**Note:** Installation options that affect CA Access Control functionality, (for example, -stop) can only be specified when you install the *client* package. Installation options that affect the installation process (for example, -verbose) can be specified with any package.

The following are the options you can specify:

#### -autocfg [response\_file]

Runs the installation in silent mode (not in interactive mode). If a response file is specified, the installation uses the preferences stored in the file to automatically respond to the interactive installation process. If you do not specify a response file, or if the response file is missing any options, the installation uses preset defaults.

To create a response file:

- Use the *-savecfg* option.
- Edit an installation parameters file, which you can find inside parameters.tar

**Important!** If you do not specify a response file, you must use the *-command* option when using the *-autocfg* option.

When running a silent installation, consider the following:

- You cannot change the encryption key.
- Only the client and server packages are installed by default.

To install any other package or feature, you must specify the appropriate option as you would in a normal installation.

 The install\_base command does not print installation details on the screen during installation.

To view installation messages on the screen during installation, use the *-verbose* option.

 For security reasons, you cannot specify the Shared Secret that that secures SSL communication between the Report Agent and the Distribution Server in a silent installation. To specify the Shared Secret you need to configure the Report Agent user (+reportagent) after installation.

### -command keyword

Defines the command that specifies that you accept the license agreement. You can find this command at the end of the license agreement (inside square brackets) and you must use it when you use the -autocfg option. To locate the license agreement file, run *install\_base -h* 

**Note:** The license agreement is only available while the help is displayed. When you finish reading the help, the license agreement is deleted.

### -d target\_dir

Defines a custom installation directory. The default installation directory is /opt/CA/AccessControl/.

**Important!** You cannot put the CA Access Control database in a mounted network file system (NFS).

### -dns | -nodns

Creates a lookaside database with or without DNS hosts. The -nodns option specifies that CA Access Control will not perform an nslookup on any hosts in the DNS during installation.

### -fips

Specifies to activate FIPS-only public key (asymmetric) encryption.

### -force

Forces the installation to ignore an active new subscriber update (*sepmd -n* and *subs <pmdb> newsubs(sub\_name)*) and continue the installation. By default, the installation stops and asks you to finish the subscriber update first.

Note: If you use this option, the new subscriber update will fail.

#### -force\_encrypt

Forces the installation to accept a non-default encryption key without warning you.

**Important!** After the upgrade is complete, your encryption key is set to the default.

**Note:** CA Access Control also provides SSL, AES (128bit, 192bit, and 256bit), DES, and 3DES encryption options that you can choose.

### -force\_install

Forces the new installation over the already installed version. Use this option when you want to install over the same version.

### -force\_kernel

Forces the installation to continue without warning you it cannot unload your old kernel.

Note: You may need to reboot the computer after the installation is complete.

### -g groupname

Defines the name of the group owner of CA Access Control files. The default value is 0.

### -h | -help

Displays help for this command.

### -ignore\_dep

Specifies that the installation does *not* check for dependency with other products.

### -key encryption\_key

Restores your encryption key during an upgrade.

**Note:** During an upgrade you must use the same encryption key that you used before the upgrade.

### -lang lang

Defines the language in which to install CA Access Control. For a list of supported languages and character sets, read the description for this option when you display the help (install\_base -h).

### -lic\_dir license\_dir

If the license program is not already installed, defines the license program installation directory.

**Note:** The license program installs to the specified directory only if \$CASHCOMP variable is not defined in your or the computer's environment (it can be defined in /etc/profile.CA). Otherwise, the license program installs to \$CASHCOMP. If \$CASHCOMP is not defined and you do not specify -lic\_dir, the license program installs to the /opt/CA/SharedComponents directory. CAWIN installs to the same directory as the license package.

#### -nolink

Specifies not to create a link to seos.ini in the /etc directory when you install CA Access Control to the default path (/opt/CA/AccessControl/).

CA Access Control creates a link to seos.ini in the /etc directory when you install CA Access Control to a non-default directory. This lets CA Access Control "detect" the Installation location. Use this option if you are installing to the default path and you do not want to update /etc (due to a security requirement).

#### -nolog

Specifies that a log is not kept for the installation process. By default, all transactions associated with the installation process are stored to *ACInstallDir*/AccessControl\_install.log (where *ACInstallDir* is the installation directory for CA Access Control).

#### -no\_tng\_int

Specifies for the installation not to attempt to set up selogrd integration with Unicenter Event Management.

If you do not specify this option, the installation script checks whether Unicenter Event Management is installed. If the script finds that Unicenter Event Management seems to be installed, it sets up selogrd integration with Unicenter Event Management by adding the following line to selogrd.cfg:

uni hostname

#### -post program\_name

Specifies a program to run after the installation is complete.

#### -pre program\_name

Specifies a program to run before the installation starts.

#### -rcert certificate.pem

Specifies the full path name to the root certificate file.

**Note:** When you use this option, the script extract the tar file and then repackages it with the file you provide replacing the default file (def\_root.pem).

### -rkey certificate.key

Specifies the full path name to the root key file.

**Note:** When you use this option, the script extract the tar file and then repackages it with the file you provide replacing the default file (def\_root.key).

### -rootprop

Specifies that sepass changes to the root password are sent to the Policy Model.

**Note:** You can set this after the installation is complete using the AllowRootProp token of the seos.ini file. For more information about the seos.ini initialization file, see the *Reference Guide*.

#### -savecfg <response\_file>

Stores your responses to the interactive installation for later use by the *-autocfg* option.

### -stop

Enables the use of the STOP (Stack Overflow Protection) feature.

#### -system\_resolve

Specifies to use system functions, which define a bypass for network caching on your system.

Note: You cannot use this option on IBM AIX platforms.

### -v

Displays the version of the CA Access Control package.

#### -verbose

Specifies that installation messages are displayed on the screen during installation. This is the default in an interactive installation and you only need to specify this option if you want to see these messages when you use the *-autocfg* option.

# How the install\_base Script Works

The install\_base script performs the following steps:

- 1. Asks you whether you want to change the default installation directory.
- 2. Displays the installation options you supplied and asks that you to confirm that you want to continue with the installation.
- 3. Extracts the data from the tar.Z file into the installation location (default or as specified by *target\_dir*).

- 4. Different platforms cause different actions:
  - For Sun Solaris, the script adds the CA Access Control syscall script to the file /etc/name\_to\_sysnum. The original file is saved as /etc/name\_to\_sysnum.bak. It then creates the file /etc/rc2.d/S68SEOS that forms part of the boot sequence.
  - For IBM AIX, the script loads the SEOS\_syscall script.
- 5. Allocates, initializes, and formats the CA Access Control database and builds the seos.ini file. The database files are placed in the *ACInstallDir*/seosdb directory (*ACInstallDir* is the CA Access Control installation directory.)
- 6. Determines if the machine is NIS+
  - If it is, it sets the nis\_env token in the [passwd] section to *nisplus*
  - If it is not and the machine is NIS, it sets the token to *nis*.

In addition, if rpc.nisd is running, the script sets the NisPlus\_server token in the [passwd] section to yes.

7. Under supported 32-bit platforms Sun Solaris, IBM AIX, HP-UX, and Linux, the script determines if the machine is running under NIS or DNS (using caching). If it is, the script automatically creates a lookaside database and sets two tokens in the [seosd] section of the seos.ini file to yes: under\_NIS\_server and use\_lookaside.

**Note:** On other platforms the script prompts you for whether you want to install a lookaside database and for the target installation directory.

- 8. Prompts you for the following additional information: (You can modify these settings any time after installation.)
  - The name for the group of auditors that can read the audit file.
  - Whether you want to add all your UNIX users, user groups, and hosts to the CA Access Control database now.
  - Whether you want your database to be subscribed to a PMDB; and if so, to which one.

Your answer does not actually subscribe your database to a PMDB; it only lets the specified PMDB make updates to this database when you create the subscription later.

Two safe responses to this question include:

If you want to:	Respond with:
Allow your database to be subscribed to a specific PMDB	The name of the PMDB in the format <i>pmd_name@hostname</i>
Prevent your database from being subscribed to any PMDB (at least until you specify otherwise)	The Enter key.

A third response, \_NO\_MASTER\_ , allows your database to be subscribed to any PMDB. However, this can be a dangerous response, because it removes the selection of the PMDB from your control.

- The password Policy Model name.
- What users will be security administrators for CA Access Control.
- Whether you want CA Access Control to support enterprise users; and if so, whether you want to define any as security administrators.
- If you chose a FIPS-only installation, whether you want to specify FIPS-only options related to encryption.
- If you did not choose FIPS-only encryption, whether you want to replace the default encryption method.

CA Access Control provides you with symmetric, public key, and a combination of the two as encryption options that you can choose.

 If you choose public key encryption, CA Access Control lets you specify how you want to provide the subject certificate and root certificate.

Depending on your choices, CA Access Control helps you set up SSL.

 If you choose symmetric encryption, whether you want to set a new encryption key.

Note: See sechkey in the *Reference Guide* for information about encryption.

Whether you want to install the Baseline Security rules.

Baseline Security rules offer administrators an opportunity to install a package containing two sets of rules to better protect your system, password and log files. One set of rules applies to all platforms to protect CA Access Control files. The other set protects UNIX files and is specific to the Sun Solaris, HP-UX, IBM AIX, and Digital DEC UNIX platforms. You cannot install one set of rules without the other. Baseline Security rules install in Warning mode providing you with information but not actual protection. That is why we recommend that you remove the Warning mode as soon as you become familiar with the rules.

- Whether you want to be able to start CA Access Control from a remote host.
- Whether you want to enable the Report Agent, and if so, whether you want to enable CA Enterprise Log Manager.

The Report Agent sends scheduled snapshots of the database to the Message Queue. You must define the Distribution Server host name, the port to use, and the queue name if you enable the Report Agent. If you enable CA Enterprise Log Manager, you can also specify to keep time-stamped backups of the audit log file. Whether you want to enable the PUPM Agent.

The PUPM Agent configures the local computer for PUPM, so that you can obtain privileged account passwords from this computer. You must define the Distribution Server host name, the port to use, and the queue name if you enable the PUPM Agent.

 Whether you want to set up this endpoint for advanced policy management; and if so, the Distribution Host (DH) name to send calculation deviation results to.

Define the DH host name using the format *dhName@hostName* For example, if you installed the Distribution Server on a host named host123.comp.com, you should use the following: DH\_\_\_@host123.comp.com

# **Configure Post-Installation Settings**

Once the installation is complete, you need to configure CA Access Control for your environment.

#### To configure post-installation settings

1. Append the ACInstallDir/bin directory to your path

By default, the installation directory is /opt/CA/AccessControl/

2. Check the <u>seos.ini</u> (see page 254) file tokens to make sure that the settings meet your requirements.

If necessary, modify the settings.

3. To give yourself access to the CA Access Control man pages, add the directory *ACInstallDir/*man to your MANPATH.

For example, if you are using csh, for the sake of your current session, enter the command:

setenv MANPATH \$MANPATH:/opt/CA/AccessControl//man

For the sake of future sessions, add a similar line to your .login, .profile, or .cshrc file.

# Start CA Access Control

Assuming you are working in an X Windows environment, invoke CA Access Control, verify that it is correctly installed on your system, and perform the following steps to initiate important protection:

1. Open two windows under root (superuser) authority.

2. In either window, enter the command:

seload

Wait while the seload command starts three CA Access Control daemons: Engine, Agent, and Watchdog.

3. After you have started the daemons, go to the other window and enter the command:

secons -t+ -tv

CA Access Control accumulates a file of messages reporting operating system events. The secons -tv command displays the messages on the screen as well.

4. In the first window, where you gave the seload command, enter the following command:

who

Watch the second window, where CA Access Control is writing the trace messages, to see whether CA Access Control intercepts the execution of the who command and reports on it. CA Access Control is correctly installed on your system if it reports interception of the who command.

5. If you want, enter more commands to see how CA Access Control reacts to them.

The database does not yet contain any rules for blocking access attempts. Nevertheless, CA Access Control monitors the system so that you can see how the system behaves with CA Access Control installed and running, and which events CA Access Control intercepts.

6. Shut down the seosd daemon, by entering the following command:

secons -s

The following message displays on the screen:

CA Access Control is now DOWN !

# **Configure an Endpoint for Advanced Policy Management**

Once you install the advanced policy management server components, you need to configure each endpoint in your enterprise for advanced policy management. In doing so, you configure the endpoint to send information to and receive information from the server components.

**Note:** This procedure shows you how to configure an existing installation of CA Access Control for advanced policy management. If you specified this information when you installed CA Access Control on the endpoint you do not need to configure the endpoint again.

To configure an endpoint for advanced policy management, open a command window and enter the following command:

dmsmgr -config -dhname dhName

### dhName

Defines a comma-separated list of Distribution Host (DH) names you want the endpoint to work with.

Example: DH\_\_@centralhost.org.com

This command configures the endpoint for advanced policy management and sets it to work with the defined DH.

Note: For more information, see the dmsmgr -config command in the Reference Guide.

# **Configure a UNIX Endpoint for Reporting**

Once you have CA Access Control Endpoint Management and the Report Portal installed and configured, you can configure your endpoints to send data to the Distribution Server for processing by enabling and configuring the Report Agent.

**Note:** When you install CA Access Control, it lets you configure the endpoint for reporting. This procedure illustrates how you configure an existing endpoint for sending reports if you did not configure this option at install time.

### To configure a UNIX endpoint for reporting

1. Run ACSharedDir/lbin/report\_agent.sh:

report\_agent config -server hostname [-proto {ssl|tcp}] [-port port\_number [-rqueue queue\_name]

If you omit any configuration options, the default setting is used.

Note: For more information on the report\_agent.sh script, see the *Reference Guide*.

2. Create a *+reportagent* user in database.

This user should have ADMIN and AUDITOR attributes and *write* access to local terminal. You should also set epassword to the Report Agent Shared Secret (which you defined when you installed the Distribution Server).

3. Create a SPECIALPGM for the Report Agent process.

The SPECIALPGM maps the root user to the +reportagent user.

**Note**: After you enable the Report Agent, you can modify CA Access Control configuration settings to change performance-related settings. For more information on Report Agent configuration settings, see the *Reference Guide*.

### Example: Configure a UNIX Endpoint for Reporting Using selang

The following selang commands show you how, assuming you enabled and configured the Report Agent, you create the required Report Agent user and specify special security privileges for the Report Agent process:

eu +reportagent admin auditor logical epassword(Report\_Agent) nonative auth terminal (terminal101) uid( +reportagent) access(w) er specialpgm (/opt/CA/AcessControl/bin/ReportAgent) Seosuid(+reportagent) \ Nativeuid(root) pgmtype(none)

# **Customizing CA Access Control**

Implementing full-scale security using CA Access Control requires the definition of the security policies you want enforced. The time taken to make these definitions depends on the size of your site and the way you choose to manage security.

For instance, at a university you would probably not define most students to CA Access Control; they would get access based solely on resource \_default settings. At a bank, however, you would probably define every user to CA Access Control and set access lists for every resource to allow specific users access to specific resources. Thus, for the same number of users, implementing CA Access Control at the university would take less time than implementing it at a bank.

As security administrator, you must define the objectives of the project. Decisions regarding site policy must be made carefully. CA Access Control includes several files that you can customize to help you implement the security policies of your site.

## **Trusted Programs**

A trusted program is one that can be executed only as long as it has not been altered. Ordinarily it is a setuid/setgid program. CA Access Control also allows you to specify regular programs as trusted. When you are sure that the program has not been tampered with, register it in the PROGRAM class, where CA Access Control can guard its integrity.

You may want to use trusted programs together with *program pathing*, so users can perform certain tasks only by means of trusted programs.

**Note:** For more information about program pathing, see the *Endpoint Administration Guide for UNIX*.

CA Access Control can help you with a script to register a whole collection of setuid and setgid programs as trusted.

1. To save yourself the effort of remembering all your setuid and setgid programs, use the seuidpgm program that follows. It scans your file system, locates all setuid and setgid programs, and creates a script of selang commands that will register them all in the PROGRAM class.

Issue this command:

seuidpgm -q -l -f / > /opt/CA/AccessControl//seuid.txt

Run as shown, seuidpgm does the following:

- Scans the entire file system (starting from /).
- Remains quiet (the -q option suppresses the "cannot chdir" messages).
- Ignores any symbolic links (-I).
- Registers the programs in both the FILE and PROGRAM classes (-f).
- Outputs the commands to file /opt/CA/AccessControl//seuid.txt.

Note: For a complete description of seuidpgm, see the *Reference Guide*.

- 2. Using a text editor, check the seuid.txt file to be sure that it includes all the setgid/setuid programs that you want to have trusted, and no other programs. Edit the file if necessary.
- 3. Use selang to run the edited file of commands. If the seosd daemon is not running, include the -l switch.

selang [-l] -f /opt/CA/AccessControl//seuid.txt

It may take a few minutes for selang to finish.

- 4. Restart the seosd daemon if it is not already running. Then check whether your system works as expected and whether setuid programs can be invoked.
- 5. It is advisable to change the default access of the PROGRAM class to NONE to prevent new untrusted setuid or setgid programs from being added and run without the knowledge of the security administrator.

Enter the following selang command to set that default access value:

chres PROGRAM \_default defaccess(none)

**Note:** Veteran CA Access Control users will remember the UACC class in this connection. That class still exists and can be used to specify the default access of a resource. However, for ease of use we recommended that for specifying the default access of a class, you use the class's \_default record instead. The \_default specification overrides any UACC specification for the same class. The records in the PROGRAM class representing the setuid, setgid, and regular programs that you have registered store the following attributes of the executable files.

- Device-number
- Inode
- Owner
- Group
- Size
- Creation Date
- Creation Time
- Last-Modification Date
- Last-Modification Time
- MD5 Signature
- SHA1 Signature
- Checksum CRC (Cyclical Redundancy Check)

The most important attribute of each program you register is that the program is *trusted*. That is, the program is considered OK to run. Any change in any of the attributes listed previously causes the program to lose its trusted status, and then CA Access Control can prevent the program from running.

### **Monitor Use of Unregistered Programs**

If you are not sure whether you have successfully registered all the appropriate programs in the database, use the following command to watch for unregistered programs:

chres PROGRAM \_default warning

The warning property puts the PROGRAM class into Warning mode, meaning that a special audit record appears as a warning each time an unregistered setuid or setgid program is used but the use of such programs *is not prevented*.

### **Review the Audit Log**

You can search for untrusted records manually in the audit log, or you can set special notification instructions to be informed when certain programs become untrusted. The special notification is especially helpful so that users do not have to contact you to use a program that has become untrusted; instead, you can check the file as soon as you receive a notification that it has become untrusted.

Note: To set up special audit notifications, see the *Endpoint Administration Guide*.
#### Protection

To prevent execution of setuid and setgid commands that are not trusted, issue the following command:

Note: CA Access Control automatically includes the user "nobody" in the database.

newres PROGRAM \_default defaccess(none) \
owner(nobody) audit(all)

CA Access Control then protects you against back doors and Trojan horses by requiring approval from you before allowing any new or changed program to run.

Now suppose, for example, that you have received a new, useful program that is a setuid program. You are sure it is not a Trojan horse, and you want all users to be able to execute it. To register the program as trusted, issue the following command:

newres PROGRAM program-pathname \ defaccess(EXEC)

#### **Retrust Untrusted Programs**

If a program has been untrusted by CA Access Control because of a change in its size, its modification date, or any other monitored property, the program will run again only if you *retrust* it, registering a new approval for it in the database. To retrust a program:

editres PROGRAM progam\_name trust

**Note:** You can also retrust a program with the seretrust utility. For more information about this utility and its options, see the *Reference Guide*.

# **Initialization Files**

This section describes various files that CA Access Control reads at initialization time. By default, CA Access Control places the initialization files in the directory containing the file seos.ini, which is the installation directory for CA Access Control.

#### seos.ini

The seos.ini file sets global parameters.

**Note:** For information about the structure of the file and supported tokens see the *Reference Guide*.

The seos.ini file, as installed, is protected and cannot be updated while CA Access Control is running, though all users can always access it on a READ basis. Enter the following command to let an authorized user update the file while CA Access Control is running:

newres FILE ACInstallDir/seos.ini owner(authUser) defacc(read)

ACInstallDir is the installation directory for CA Access Control, by default /opt/CA/AccessControl/.

This command establishes that the default access for the file is READ; however, only the owner of the file, *authUser*, can update the file.

**Note:** It is important that the default access for the seos.ini file be READ because many utilities access seos.ini during their processing. If they cannot read the file, they will fail.

#### **Trace Filter File**

This optional file contains entries that specify filter masks for filtering out CA Access Control trace messages of any kind.

The trace filter file specifies the trace messages that are to be filtered out (that is, those messages that are not to appear in the trace file). Each line specifies a mask that identifies a group of messages to be suppressed. For example, the following file suppresses all messages that begin with WATCHDOG or INFO and all messages that end with BYPASS.

WATCHDOG\* \*BYPASS INFO\*

By default, CA Access Control uses a trace filter file named trcfilter.init. You can change the name and location of the trace filter file by editing the value of the trace\_filter token in the [seosd] section of the seos.ini file.

To filter trace records, edit the file as required. To add remarks (comment lines) to the file, place a semicolon (;) at the beginning of the line.

The trcfilter.init file does not filter audit records generated by user traces. To filter these audit records, edit the audit.cfg file.

Note: For more information, see the seosd utility in the *Reference Guide*.

# **Advanced Policy Management**

Multiple-rule policies (selang commands) you create can be stored and then deployed to your enterprise in the manner you define. Using this policy-based method, you can store policy versions and then assign those to hosts or group host. Once assigned, policies are queued for deployment. Alternatively, you can deploy and undeploy policy versions directly onto hosts or group hosts.

**Note:** For more information about advanced policy management, see the *Enterprise Administration Guide*.

#### **Configure Advanced Policy Management**

If you are setting your enterprise to use advanced policy-based management, you need to install a DMS and a DH in a central location and then <u>configure each endpoint for</u> <u>advanced policy management</u> (see page 255).

To configure your hierarchy for advanced policy management post-installation, use the dmsmgr utility.

Note: For more information about the dmsmgr utility, see the *Reference Guide*.

## **Configure an Endpoint for Policy Deviation Calculations**

Each endpoint must be configured to allow policy deviation calculation. Normally, you do this during the installation. This procedure is aimed at achieving this post-installation instead.

To configure an endpoint for policy deviation calculations, enter the following selang command:

so dms+(DMS@host)

#### DMS@host

Defines the name of your DMS specified in the shown format.

## sesu and sepass Utilities

We recommend that you use sepass instead of the operating system's passwd command and sesu instead of the su command. To do this, you need to save the original system binaries and replace them with symbolic links to sepass and sesu respectively. Once this is done, you need to make sure you can always use these utilities.

On most operating systems, the sepass and sesu utilities run even when CA Access Control is not loaded. However, on some operating systems (for example, AIX) these utilities do not work when CA Access Control is not loaded. For these operating systems, CA Access Control provides wrapper scripts.

#### sesu and sepass Wrapper Scripts

The sesu and sepass wrapper scripts are found in the following directory:

ACInstallDir/samples/wrappers

This directory contains the following files:

File	Description
sesu_wrap.sh	Wrapper script for sesu
sepass_wrap.sh	Wrapper script for sepass
README	A text file with usage and conceptual information for these wrappers

#### Use the Wrapper Script to Run sesu

Using the wrapper scripts to run the sesu utility lets you run it on operating systems where it does not work when CA Access Control is not loaded.

**Note:** You only need to follow this procedure if the sesu utility does not run when CA Access Control is not loaded.

#### To use wrapper scripts to run sesu

1. Open the sesu\_wrap.sh script in a text editor.

The wrapper script displays in the text editor.

2. If necessary, change the following two variables:

#### SEOSDIR

Defines the CA Access Control installation directory. By default, this is set to the default installation directory:

/opt/CA/AccessControl/

#### SYSSU

Defines the name of the original su system binary that you need to replace. By default, this is set to:

/usr/bin/su.orig

3. Replace the su symbolic link to point to the sesu\_wrap.sh wrapper script rather than to the sesu utility.

Whenever you run su, the sesu wrapper script runs the sesu utility.

#### Use the Wrapper Script to Run sepass

Using the wrapper scripts to run the sepass utility lets you run it on operating systems where it does not work when CA Access Control is not loaded.

**Note:** You only need to follow this procedure if the sepass utility does not run when CA Access Control is not loaded.

#### To use wrapper scripts to run sepass

1. Open the sepass\_wrap.sh script in a text editor.

The wrapper script displays in the text editor.

2. If necessary, change the following two variables:

#### SEOSDIR

Defines the CA Access Control installation directory. By default, this is set to the default installation directory:

/opt/CA/AccessControl/

#### SYSPASSWD

Defines the name of the original sepass system binary that you need to replace. By default, this is set to:

/usr/bin/passwd.orig

3. Replace the passwd symbolic link to point to the sepass\_wrap.sh wrapper script rather than to the sepass utility.

Whenever you run passwd, the sepass wrapper script runs the sepass utility.

# Maintenance Mode Protection (Silent Mode)

CA Access Control has a maintenance mode, also known as silent mode, for protection when the CA Access Control daemons are down for maintenance. In this mode, CA Access Control denies events while these daemons are down.

When CA Access Control is running, it intercepts security sensitive events and checks whether the event is allowed. Without activating maintenance mode, all events are permitted when CA Access Control services are down. With active maintenance mode, events are denied when CA Access Control daemons are down, stopping user activity while the system is maintained.

Maintenance mode can be tuned, and it is disabled by default.

When the CA Access Control security services are down:

- If maintenance mode is active, all security sensitive events are denied, except for special cases and for events executed by the maintenance user.
- If maintenance mode is disabled, CA Access Control does not intervene and execution is passed to the operating system.

When maintenance mode is activated and security is down, the prevented events are not logged in the audit log file.

To enable maintenance mode, follow these steps:

**Important!** If root is not the maintenance user, make sure you have an open session for the maintenance user as you will not be able to log in otherwise.

- 1. Make sure the CA Access Control daemons are down.
- 2. Using seini utility, change the token silent\_deny value to yes.

The token is located under SEOS\_syscall section.

seini -s SEOS\_syscall.silent\_deny yes

3. Change the token silent\_admin value to the numeric UNIX UID that you want to let access the computer while CA Access Control daemons are down.

seini -s SEOS\_syscall.silent\_admin <maintenance\_UID>

**Note:** *root* is the default maintenance mode user (UID 0).

**Important!** If the maintenance user is not *root*, you must make the CA Access Control authorization daemon setuid to the root user so that you can start CA Access Control in maintenance mode. To make this change enter the following command:

chmod 6111 seosd

4. Start CA Access Control daemons with seload command.

**Note:** If the maintenance mode user is not root, start CA Access Control daemons with seosd command.

# Solaris 10 Zones Implementation

Solaris 10 provides virtualized OS services which look like different Solaris instances, called *zones*. All Solaris 10 systems contain a master zone, called the *global zone*. Non-global zones run alongside it, and you can configure, monitor, and control them from the global zone.

You can protect each zone (or selected zones) in your environment using CA Access Control. This lets you define different rules and policies for each zone, and therefore defining different access restrictions for each zone.

Installing CA Access Control on Solaris 10 zones is no different to a regular installation, and you can do it by either one of the following methods:

Install CA Access Control using Solaris native packaging

CA Access Control is designed to be installed and uninstalled using Solaris native packaging tools (pkgadd and pkgrm).

If you install using the Solaris native package installation, you can either:

Install CA Access Control on all zones (see page 215).

The easiest and recommended way of installing CA Access Control on Solaris 10 is to either install on the global zone, *or* on *all* zones, including non-active zones and any zones that are created in the future.

Install CA Access Control on selected zones (see page 219).

While we do not recommend this, you can use Solaris native packaging tools to install CA Access Control on selected zones. However, for CA Access Control to work in any non-global zone, you must also install CA Access Control in the global zone.

If you installed using Solaris native packaging, use the native packaging to uninstall CA Access Control from all zones.

Install CA Access Control in each zone using the install base script (see page 237).

The install\_base script installs CA Access Control in the zone you are executing the script in.

For CA Access Control to work in any non-global zone, you must also install CA Access Control in the global zone.

If you installed CA Access Control using the install\_base script, you can uninstall it from individual non-global zones. However, the CA Access Control kernel can be uninstalled only from the global zone *and* only after CA Access Control has been stopped in all zones.

**Important!** If you uninstall CA Access Control from the global zone using install\_base before you uninstall from all zones, users may be locked out of the zones. We recommend you use Solaris native packaging to install and uninstall CA Access Control on Solaris zones.

# **Zone Protection**

CA Access Control protects Solaris 10 zones in the same way it protects any computer. Each zone is protected in isolation from any other zones, with each rule you define in CA Access Control applying only to users working in that zone. Rules you apply in the global zone, even those that cover resources that are visible in a non-global zone, only apply to users who access them from the global zone.

**Note:** Make sure you protect non-global zone resources in both the non-global and the global zone as necessary.

#### **Example: Global Zone Rules and Non-Global Zone Rules**

In the following example, we define rules to protect a non-global zone (myZone1) file. All system files are always visible from the global zone.

The file we want to protect is /myZone1/root/bin/kill (path from global zone). To protect this file, we define the following CA Access Control rules:

In the global zone:

nu admin\_pers owner(nobody)
nr FILE /myZonel/root/bin/kill defaccess(none) owner(nobody)
authorize FILE /myZonel/root/bin/kill uid(admin\_pers) access(all)

In myZone1 (the non-global zone):

nu admin\_pers owner(nobody)
nr FILE /bin/kill defaccess(none) owner(nobody)
authorize FILE /bin/kill uid(admin\_pers) access(all)

Using these rules in both the global and non-global zones, we defined a user (admin\_pers), defined our file as resource to be protected, and authorized our user to access the file. Without doing this in both zones, we would leave the resource exposed.

## **New Zone Setup**

If you install CA Access Control using Solaris native packaging on all zones, CA Access Control also automatically installs on any zones you create after the original installation. However, while the post-installation CA Access Control procedure scripts need to run from within the non-global zone, for new zones, these scripts can only run once the new zone configuration is complete. Specifically, you must run the "zlogin -C zonename" command (which, completes the configuration of the name service, the root password, and so on).

**Important!** If you do not run the "zlogin -C *zonename*" command, or if you boot and log in to the new zone very quickly, CA Access Control installation will be incomplete as the post-installation scripts did not run.

**Note:** For more information on setting up a new zone correctly, see Sun's *System Administration Guide: Solaris Containers--Resource Management and Solaris Zones*, which is available at <u>Sun Microsystems Documentation website</u>.

# Install on a Solaris Branded Zone

Solaris limitations mean that pkgadd does not support propagation of applications installed in the Solaris 10 global zone into branded zones. Also, CA Access Control must use an ioctl instead of a syscall to communicate with the kernel module.

#### To install on a Solaris branded zone

- 1. Install CA Access Control in the Solaris global zone using pkgadd.
- 2. Install CA Access Control in the Solaris branded zone using pkgadd.

**Note:** The installation parameter file also lets you do this automatically when you install on the global zone.

3. In the branded zone, verify that the seos.ini entry SEOS\_use\_ioctl is set to 1 and fix if needed.

This confirms that CA Access Control is configured to use ioctl.

4. In the global zone, verify that the seos.ini entry SEOS\_use\_ioctl is set to 1.

This confirms that CA Access Control is configured to use ioctl.

The installation is complete and you can now start CA Access Control in the branded zone.

**Important!** If SEOS\_use\_ioctl is set to 0, you need to modify CA Access Control to use ioctl for communication in all zones. Once you make this change and reboot all zones, the installation is complete.

#### **Use ioctl for Communication**

If you want to install CA Access Control in Solaris branded zones, you must use an ioctl instead of a syscall to communicate with the kernel module.

#### To modify CA Access Control to use ioctl for communication

1. Stop CA Access Control in the global zone and all non-global zones.

Stop the last zone with secons -sk to disable event interception and prepare the kernel module for unloading.

2. Unload the CA Access Control kernel module in the global zone (SEOS\_load -u).

**Note:** The SEOS\_load -u command ensures that CA Access Control is not running on any non-global zone before unloading it.

- 3. In each zone where CA Access Control is installed (global, non-global, and branded zones), set the seos.ini entry SEOS\_use\_ioctl = 1 (by default, this is set to 0).
- 4. Load the kernel module in the global zone (SEOS\_load).

This installs a pseudo device to let CA Access Control communicate with its kernel module via ioctl, and identifies zones that require a reboot so that they can utilize the ioctl.

5. Reboot each non-global and brand zone, identified as requiring a reboot, where CA Access Control is installed.

# Starting and Stopping CA Access Control in a Zone

Starting and stopping CA Access Control in Solaris 10 zones is generally done in the same way you would normally start and stop CA Access Control on any Solaris computer.

The following exceptions apply to starting CA Access Control in zones:

- You can load the CA Access Control kernel module (SEOS\_load) from the global zone only.
- You must load the CA Access Control kernel module in the global zone before you can start CA Access Control in any non-global zone.

Once the CA Access Control kernel module is loaded in the global zone, you can then start and stop CA Access Control in any non-global zone and in any order.

The following exceptions apply to stopping CA Access Control in zones:

- You cannot unload the CA Access Control kernel module when one or more zones has <u>maintenance mode</u> (see page 257) enabled.
- You can stop CA Access Control in all zones in any order by issuing the secons -s command in each zone.

You can stop CA Access Control in all zones at the same time by adding all zones to a GHOST record and then issuing the secons -s ghost\_name command from the global zone.

This is useful, for example, when you want to upgrade CA Access Control across all zones.

- You should stop the last zone with the *secons* -*sk* to disable event interception and prepare the CA Access Control kernel module for unloading.
- You can unload the CA Access Control kernel module (SEOS\_load -u) from the global zone only.

**Note:** The SEOS\_load -u command ensures that CA Access Control is not running on any non-global zone before unloading it.

# Start CA Access Control in A Non-global Zone

You can start CA Access Control from any non-global zone just as you would normally, but you must first load the CA Access Control kernel module in the global zone.

#### To start CA Access Control in a non-global zone

1. In the global zone, enter the SEOS\_load command to load the CA Access Control kernel module.

The CA Access Control kernel loads and you can now start CA Access Control in any zone.

**Note:** The CA Access Control kernel loads but CA Access Control does not intercept events in the global zone.

2. In the non-global zone, enter the seload command to start CA Access Control in that zone.

The non-global zone is protected by CA Access Control.

**Note:** You can also start CA Access Control in the non-global zone remotely. For more information, see the seload command in the *Reference Guide*.

## zlogin Utility Protection

The zlogin utility lets an administrator enter a zone. You should add a LOGINAPPL resource for this utility to control who can log in to any non-global zone.

CA Access Control comes with a predefined LOGINAPPL resource for protecting the zlogin utility.

# Start CA Access Control Automatically

After you have tested CA Access Control and experimented with its features, you are ready to implement CA Access Control protection.

To arrange for the seosd daemon to start automatically upon boot, so that your resources are protected immediately, use the *ACInstallDir*/samples/system.init/*sub-dir* directory, where *sub-dir* is the directory for your operating system. Each sub-directory contains a README file with instructions for performing this task on the respective operating system.

# Using the Service Management Facility to Manage CA Access Control

#### Valid on Solaris 10

You can use the Solaris Service Management Facility (SMF) utility to manage the CA Access Control daemons. Using the SMF utility, you control the authorization daemon (seosd), that manages the watchdog daemon (seoswd) and the seagent daemon. You use SMF-specific commands instead of the seload and secons commands.

**Note**: You can use the Service Management Facility utility to manage CA Access Control immediately after you install CA Access Control on Solaris 10.

**Note**: For more information about the seload and secons commands, refer to the *Reference Guide*.

The SMF commands have the following format:

#svcadm enable daemon

#svcadm disable daemon

#svcadm restart daemon

#svcadm refresh daemon

#svcs daemon

#svcs -l daemon

#svcadm clear daemon

#### Example: Start the seosd daemon

The following example shows how you start the seosd daemon:

#svcadm enable seosd

Note: This command is equivalent to using the seload command.

#### Example: Stop the seosd daemon

The following example shows you how to stop the seosd daemon:

#svcadm disable seosd

Note: This command is equivalent to using the secons -sk command.

#### **Example: Restart the sesod daemon**

The following example shows you how to restart the seosd daemon:

#svcadm restart seosd

#### **Example: Reload the seosd configuration**

This example shows you how to reload the seosd daemon configuration:

#svcadm refresh seosd

**Note**: This command is equivalent to using the secons -rl command.

#### Example: Display the status of the seosd dameon

The following example shows you how to list the status of the seosd daemon:

#svcs -l seosd

#### Example: Clear the maintenance state of the seosd daemon

The following example shows you how to clear the maintenance service state of the seosd daemon:

#svcadm clear seosd

# Chapter 9: Installing and Customizing a UNAB Host

This section contains the following topics:

The UNAB Host (see page 267) How to Implement UNAB (see page 267) Before You Begin (see page 268) RPM Package Manager Installation (see page 291) Solaris Native Package Installation (see page 297) HP-UX Native Package Installation (see page 305) AIX Native Package Installation (see page 311) Post-Installation Tasks (see page 318) How to Implement Full Integration Mode (see page 323) Implementing UNAB in a Trusted Domains Environment (see page 331)

# **The UNAB Host**

UNIX Authentication Broker (UNAB) lets you log in to UNIX computers using an Active Directory data store. This means you can use a single repository for all your users, letting them log in to all platforms with the same user name and password.

Integrating UNIX accounts with Active Directory enforces strict authentication and password policies, transferring the rudimentary UNIX user and group properties to Active Directory. This lets you manage UNIX users and groups in the same location that you also manage Windows users and groups.

**Note**: UNAB does not replace any of the existing PAM modules when installed. UNAB PAM is inserted into the existing PAM stack.

# How to Implement UNAB

Before you start implementing UNAB, we recommend that you review the following steps to customize, install, and configure UNAB in your enterprise.

- 1. <u>Verify that the UNIX computer name resolves</u> (see page 280).
- 2. <u>Check for system compliance</u> (see page 276).

The uxpreinstall utility verifies that the system is compatible with the UNAB requirements.

3. Customize the UNAB installation package (see page 281).

**Note:** You do not need to customize the UNAB installation package for every UNIX host that you plan to install UNAB on. Customize the installation package for each operating system once and use it to install UNAB in your enterprise.

4. <u>Configure UNAB to work with CA Access Control Enterprise Management</u> (see page 285).

Use the CA Access Control Enterprise Management server user interface to manage the UNAB endpoints.

5. Install the UNAB package on the UNIX hosts.

**Note:** For more information about system requirements and operating system support, see the *Release Notes*.

- 6. <u>Register the UNIX host with Active Directory</u> (see page 319).
- 7. Start UNAB (see page 322).

This step starts the UNAB daemon (uxauthd).

8. Create login authorization policies in CA Access Control Enterprise Management and assign the policy to the UNAB endpoints.

A login policy defines which enterprise users and groups are permitted or denied access to the UNIX host.

**Note:** For more information about login policies, see the *Enterprise Administration Guide*.

9. Activate UNAB on the UNIX host (see page 322).

Activating UNAB lets enterprise users login to UNIX hosts.

10. (Optional) Implement UNAB in full integration mode (see page 323).

In full integration mode, UNAB uses Active Directory to both authenticate and authorize users.

# **Before You Begin**

Before you can install UNAB, make sure the preliminary requirements are met and that necessary information is available. We recommend that you review the steps that you need to complete to implement UNAB and perform the preliminary verifications.

# **Installation Modes**

UNAB supports two installation modes:

- Full integration—In full integration mode the UNIX host relies on the Active Directory server for both authentication and authorization of users.
- Partial integration—In partial integration mode the UNIX host relies on the Active Directory server for authentication only, and uses a UNIX-based user store for authorization purposes. Use partial integration mode if you want to maintain the UNIX user store.

## **Active Directory Site Support**

Before you install UNAB, you should understand how UNAB implements Active Directory site support. Active Directory site support helps to optimize network traffic, increase connection speed, and decrease response time.

When you register a UNAB endpoint with Active Directory, by default the uxconsole utility does the following:

- Discovers the Active Directory site that is closest to the physical location of the endpoint.
- Writes the name of the Active Directory site to the ad\_site configuration setting in the ad section of the uxauth.ini file.

After registration, the UNAB endpoint communicates only with the domain controllers (DCs) in the discovered Active Directory site. If the endpoint cannot communicate with a DC in this site, the status of the UNAB endpoint changes to offline.

We recommend that you do not change the default behavior. However, when you customize the UNAB installation package, you can specify a list of DCs that the UNAB endpoint communicates with and a list of DCs that the UNAB endpoint ignores (the lookup\_dc\_list and the ignore\_dc\_list parameters, respectively). The DCs that you specify in these lists interact with Active Directory site support in the following ways:

- lookup\_dc\_list—The UNAB endpoint communicates with the DCs listed in this configuration setting, and does not communicate with the DCs discovered by Active Directory site support or DNS query.
- ignore\_dc\_list—The UNAB endpoint communicates with any DC discovered by Active Directory site support or DNS query that is *not* listed in this configuration setting.

**Note:** After installation, you can use the uxconsole -register utility to manually set the Active Directory site with which the UNAB endpoint communicates. For more information about the uxconsole utility, see the *Reference Guide*.

# **Installation Considerations for 64-bit Linux Hosts**

Before you install UNAB on a Linux 64-bit computer, you must make sure that the following operating system 32-bit libraries are installed:

ld-linux.so.2, libICE.so.6, libcrypt.so.1, libdl.so.2, libgcc\_s.so.1, libm.so.6, libnsl.so.1, libpam.so.0, libpthread.so.0, libresolv.so.2, libstdc++.so.5 (and libstdc++.so.6 on kernel v2.6), libaudit.so.0 (RHEL5 and OEL 5 only).

The following is a list of relevant RPM packages that are required:

- SLES 10: compat-libstdc++, glibc-32bit, libgcc, pam-32bit
- SLES 9: glibc-32bit, libgcc, libstdc++, pam-32bit
- RHEL 5 and OEL 5: audit-libs, compat-libstdc++, glibc, libgcc, pam
- RHEL 4 and OEL 4: compat-libstdc++, glibc, libgcc, pam
- RHEL 3: glibc, libgcc, libstdc++, pam

Before you install UNAB on a Linux s390x 64-bit computer, you must make sure that the following operating system 32-bit libraries are installed:

ld.so.1, libcrypt.so.1, libc.so.6, libdl.so.2, liblaus.so.1 (RHEL 3), libaudit.so.0 (RHEL 4, RHEL 5), libm.so.6, libnsl.so.1, libpam.so.0, libresolv.so.2

The following is a list of relevant RPM packages that are required:

- SLES 10: compat-libstdc++, glibc-32bit, pam-32bit
- SLES 9: glibc-32bit, libstdc++, pam-32bit
- RHEL 5: audit-libs, compat-libstdc++, glibc, pam
- RHEL 4: audit-libs, compat-libstdc++, glibc, pam
- RHEL 3: glibc, laus-libs, libstdc++, pam

# Installation Considerations for Linux s390 Endpoints

If you want to use Message Queue functionality, to remotely manage UNAB on CA Access Control Linux s390 and use reporting capabilities on Linux IA64 you install J2SE version 5.0 or later on the endpoint.

Message Queue functionality lets you send report and audit data from CA Access Control endpoints to the Report Portal and CA Enterprise Log Manager, respectively. Remote management lets you use CA Access Control Enterprise Management to manage UNAB endpoints.

You can install J2SE before or after you install CA Access Control or UNAB on the endpoint. If you install J2SE after you install CA Access Control or UNAB, you must also configure the Java location on the endpoint.

#### How the Installation Interacts with Java

#### Valid on Linux s390, Linux s390x and Linux IA64

To use Message Queue functionality, to remotely manage UNAB Linux s390 endpoints and use reporting capabilities on Linux IA64 and Linux s390, you install a supported Java version on the endpoint.

When you install CA Access Control or UNAB on a Linux s390 or a Linux IA64 endpoint, the installation does the following:

- 1. Checks the following locations for a path to a valid Java environment, in order:
  - a. The JAVA\_HOME parameter in the installation input.

Installation input includes the UNAB installation parameters file, the UNIX CA Access Control installation parameters file, customized packages for native installations, and user input from interactive CA Access Control installations.

- b. The JAVA\_HOME environment variable.
- c. (Linux s390 and Linux s390x) The default installation path, /opt/ibm/java2-s390-50/jre
- 2. Sets the value of the java\_home configuration setting in the global setting of the accommon.ini file to one of the following \_values:
  - If the installation finds a path to a valid Java environment, it sets the value of the configuration setting to this path.
  - If the installation does not find a path to a valid Java environment, it sets the value of the configuration setting to ACSharedDir/JavaStubs.

By default, ACSharedDir is /opt/CA/AccessControlShared.

#### Configure the Java Location on Linux s390 and Linux s390x Endpoints

#### Valid on Linux s390 and Linux s390x

To use Message Queue functionality and to remotely manage UNAB Linux s390 endpoints, you must install J2SE version 5.0 or later on the endpoint. If you install J2SE after you install CA Access Control or UNAB, you must perform additional configuration steps.

#### To configure the Java location on the Linux s390 and Linux s390x endpoint

- 1. Stop CA Access Control and UNAB if they are running.
- 2. Change the value of the java\_home configuration setting in the global section of the accommon.ini file to the path of the Java installation.

For example, java\_home=/opt/ibm/java2-s390-50/jre

3. Start CA Access Control and UNAB.

The Java location is configured.

#### Configure the Java Location on Linux IA64 Endpoint

#### Valid on Linux IA64

To use Message Queue functionality and reporting capabilities on CA Access Control Linux IA 64 endpoints, you install J2SE version 6.0 or later on the endpoint. If you install J2SE after you install CA Access Control you perform additional configuration steps.

#### To configure the Java location on the Linux IA64 endpoint

- 1. Stop CA Access Control if running.
- 2. Change the value of the java\_home configuration setting in the global section of the accommon.ini file to the path of the Java installation.

For example, java\_home=/usr/share/java016.0/jre

3. Start CA Access Control.

The Java location is configured.

# **Kerberos and SSO Considerations**

You can install and register UNAB on a Kerberos enabled endpoint to leverage the Kerberos Single Sign On (SSO) service to authenticate once and log into multiple endpoints with the same user credentials. If not configured, you enable SSO functionality on the endpoint by installing and configuring Kerberized network services and applications.

Because configurations differ between systems, we strongly recommend that you do the following before you enable Kerberos and SSO on the endpoint:

- Read the system man pages and release specific options of native application service binaries, that you plan to use in SSO, especially the following:
  - sshd(1M)
  - telnetd
  - in.telnetd
  - inetd
  - pam.conf
  - inetd.sec
- Verify the PATH variable of the Kerberos supported versions of network applications. For example, on most Linux systems Kerberos tools are located under the /usr/Kerberos directory.
- Verify that the following Kerberos supported applications are configured as follow:
  - SSH—support credentials delegation, for example, set the GSSAPIDelegateCredentials token to yes
  - SSHD—support and enable GSSAPIAuthentication token
  - Telnet—on Solaris, PAM stack configured and Kerberos configuration and keytab files made available. Create a symbolic link or environment variable KRB5\_CONFIG and KRB5\_KTNAME to make the keytab files available
  - rlogin—install a Kerberos supported version of the application.

**Note**: For more system-specific Kerberos and SSO configuration, see your system documentation.

#### **Example: Configure Kerberos on Solaris**

The following example shows you the configuration required to configure Kerberos on Solaris. In this example, you install and configure Solaris packages to enable Kerberos.

**Important!** You may need to install and configure additional packages to configure the system you are using for Kerberos.

- Install the SUNWcry package to enable strong encryption
- On Solaris 10, SSH does not support GSSAPIDelegateCredentials
- Enable svc:/network/shell:kshell, svc:/network/login:klogin, svc:/network/telnet:default to use rsh, rlogin, and telnet services
- Modify the /etc/pam.conf file to handle Kerberos authentication.

The following is a snippet from the /etc/pam.conf file displays the added sections that enable Kerberos authentication for rlogin, rsh and telnet:

# Kerberi #	ized	rlogin service		
krlogin a	auth	required	pam unix cred.so.1	
krlogin a	auth	required	pam krb5.so.1	
#				
<pre># rsh service (explicit because of pam_rhost_auth,</pre>				
<pre># and pam_unix_auth for meaningful pam_setcred)</pre>				
#				
rsh a	auth	sufficient	<pre>pam_rhosts_auth.so.1</pre>	
rsh a	auth	required	<pre>pam_unix_cred.so.1</pre>	
#				
# Kerberized rsh service				
#				
krsh a	auth	required	pam_unix_cred.so.1	
krsh a	auth	required	pam_krb5.so.1	
#				
# Kerberized telnet service				
#				
ktelnet a	auth	required	<pre>pam_unix_cred.so.1</pre>	
ktelnet a	auth	required	pam_krb5.so.1	

#### How UNAB Registration Works in a Kerberos Enabled Environment

When you register the host in Active Directory, UNAB creates user tickets in the same location as native Kerberos. The user can then transparently proceed to using kerberized application without having to acquire a Ticket Granting Ticket (TGT) manually.

The UNAB registration process in a Kerberos enabled host is as follows:

1. You run the uxconsole -register command and specify the -sso argument to register UNAB in Active Directory.

The -sso argument forces the uxconsole to use the host Kerberos files and not the uxauth.ini file.

- 2. uxconsole verifies that UNAB can use the host Kerberos file for configuration purposes. *One* of the following occurs:
  - a. uxconsole identifies that the file contains the required domain information to register UNAB.
  - b. uxconsole identifies that the file does not contain the required information to register.
- 3. If the file does not contain the information, UNAB creates a backup of the original file and sets the kerberos\_configuration token to internal.

**Note**: If you remove UNAB from Active Directory using the uxconsole -deregister command, the Kerberos configuration file is not modified nor is the backup file removed.

- 4. If the file contains the required information, the uxconsole sets the kerberos\_configuration token to standard.
- 5. The uxconsole continues with the registration process.

**Note**: For more information about the uxconsole -register command and the seos.ini kerberos\_configuration token, refer to the *Reference Guide*.

**Important!** If the Kerberos file on the host does not contain the required information to register UNAB, the registration fails.

#### Enable a UNAB Host for SSO

You can configure UNAB host for SSO to enable Active Directory users logged in to one UNAB host to log in to another UNAB host with their user names. In SSO enabled mode, UNAB maintains the keys it generated in the UNIX repository. Kerberos enabled applications use the keys to authenticate users when they log in to a no ther host.

**Important!** Verify that each host that you enable UNAB in SSO mode on is Kerberos enabled. Use the uxpreinstall utility to check for system compliance before you begin this procedure.

#### To enable a UNAB host for SSO

- 1. Log in to the UNIX host as root.
- 2. Register UNAB with Active Directory in SSO mode. Run the following command:

./uxconsole -register -d<active\_directory\_domain> -sso

Note: You do not need to de-register UNAB before you register UNAB in SSO mode.

3. Activate UNAB to enable users to log in to the UNIX host. Run the following command:

./uxconsole -activate

4. Verify that the Kerberos mode is set to Standard using the -status -detail arguments. For example:

./uxconsole -status -detail | grep Kerberos

Kerberos configuration - standard

You have configured the UNAB host for SSO.

# **Check for System Compliance**

The uxpreinstall utility verifies that a UNIX computer complies with UNAB system requirements. We strongly recommend that you use uxpreinstall to check for system compliance, and that you resolve any errors or conflicts that the utility identifies, before you start and activate UNAB. Resolving these errors helps prevent UNAB operational problems.

**Important!** The uxpreinstall utility informs you of real or potential problems but does not correct them. You cannot use the utility to configure the operating system or UNAB.

You can use uxpreinstall before or after you install UNAB. uxpreinstall does not modify the endpoint or the UNAB installation, but diagnoses possible problems and suggests solutions for the problems. Any problems that uxpreinstall identifies are problems on the endpoint, not problems with uxpreinstall.

**Note:** To run uxpreinstall before you install UNAB, copy the utility from another endpoint on which UNAB is installed. For more information about the uxpreinstall utility, see the *Reference Guide*.

#### To check for system compliance

- 1. Log in to the UNIX computer as a superuser.
- 2. Run uxpreinstall with a verbosity level of 0.

uxpreinstall runs and displays a summary of the checks it performs and any errors or conflicts it identifies.

3. If uxpreinstall identifies any errors or conflicts, run uxpreinstall again with a verbosity level of 2 or higher.

uxpreinstall displays more information about the errors and conflicts that it identifies.

- 4. Resolve the errors and conflicts.
- 5. Repeat Steps 2-4 until uxpreinstall does not identify any errors or conflicts.

When the uxpreinstall output does not display any errors or conflicts, the computer complies with UNAB requirements. You can now start and activate UNAB.

#### **Example: Run the uxpreinstall Utility**

This example runs the uxpreinstall utility with the credentials of the administrator user against the Active Directory domain domain.com with a verbosity level of 3:

```
./uxpreinstall -a administrator -w admin -d domain.com -v 3
```

#### Troubleshoot Active Directory Issues using Uxconsole and Microsoft Utilities

During the implementation process, you can encounter various issues with Active Directory, such as registration and activation issues. The uxpreinstall utility can help you gather, identify and evaluate all the contributing factors. To enhance your ability to troubleshoot Active Directory, you can use the dcdiag (Domain Controller Diagnostics) and the netdiag (Network Diagnostics) utilities from Microsoft

**Important!** If you are using Windows Server 2003, you can find the dcdiag.exe and netdiag.exe utilities in the Support Tools software bundle. For more information, see Microsoft Knowledge Base articles: KB247811, KB265706, KB321708.

Use the following procedure to troubleshooting Active Directory:

1. Run uxpreinstall with a verbosity level of 0.

uxpreinstall runs and displays a summary of the checks it performs and any errors or conflicts it identifies.

2. If uxpreinstall identifies any errors or conflicts, run uxpreinstall again with a verbosity level of 2 or higher.

uxpreinstall displays more information about the errors and conflicts that it identifies.

**Note**: We recommend that you be cautious when using –I (system logger check) and –k (Single Sign On readiness check) arguments, due to a large amount of output.

- 3. To log the uxpreinstall output, run uxpreinstall -f.
- 4. To log the Microsoft dcdiag utility output, run dcdiag /f.

Note: The netdiag utility automatically creates the following log file: NetDiag.log.

- 5. Review the log files to failure, error messages; or warnings. If exist, run the uxpreinstall and the dcdiag utility with a higher verbosity level.
- 6. Review the log files again to locate actions that were not completed successfully and warning messages.

Errors can be logged as warnings and not as error messages, due to user preferences.

- 7. Run the dcdiag /test:DNS /v /e to troubleshoot the domain controllers parameters.
- 8. Review the output, starting form the end of the log file.
- 9. Continue troubleshooting until you resolve all warning and error messages.

#### **Example: Use dsquery to query users and groups**

The following example shows you how to use the dsquery utility to query for users and groups:

dsquery user -name user1
dsquery group -name grp1
dsquery \* "CN=Users,DC=example,DC=com" -scope base -attr \*

#### Example: Use dnscmd utility to retrieve DNS settings

The following example shows you how to use the dnscmd to retrieve DNS settings:

dnscmd /enumzones
dnscmd /zoneprint <zonename>

#### Example: Use dsquery utility to discover Active Directory sites

The following example shows you how to use the dsquery utility to discover Active Directory sites:

dsquery subnet -name 192.168.\*
dsquery site -o dn
dsquery subnet -o rdn -site <mysite>
nltest /DSGETSITECOV

# Verify that the UNIX Computer Name Resolves Correctly

For UNAB to work, both the UNIX computer and the Active Directory computer must resolve the IP address of the UNIX computer to the same computer name, including the domain name.

To verify that the UNIX computer name resolves correctly, run the uxpreinstall utility.

Example: Verify that the Name of a UNIX Computer Resolves Correctly using uxpreinstall utility

This example shows you the result running the uxpreinstall with verbosity level 3 on a Linux for a computer named computer.caom on both a Windows, Active Directory server and UNIX computer:

Locating Active Directory services in domain <DOMAIN.COM> Locating '\_ldap.\_tcp.DOMAIN.COM.' records in DNS ... computer.com:389 [100:0] (\_ldap) computer.com:389 [100:0] (\_ldap) Found LDAP services: computer:389 Performing name resolution on <computer.com> Running command "host computer.com" ... DNS server reply: computer.com has address 192.168.1.1 Name <computer.com> was resolved to IP address <1192.168.1.1>

# Example: Verify that the Name of a UNIX Computer Resolved Correctly using nslookup command

This example shows you the result of a forward nslookup resolution command on Linux for a computer named acctdept on both a Windows, Active Directory server and UNIX computer:

# nslookup acctdept
Server: 172.24.789.0
Address: 172.24.789.0#53

Name: acctdept.parallel.com Address: 172.24.123.110

# UNAB Installation Parameters File—Customize UNAB Installation

The UNAB parameters file contains installation parameters that you can customize for your requirements.

This file has the following format:

#### AUDIT\_BK

Specifies whether to keep time stamped backups of the audit file.

**Note**: Set the value to yes if you want to send audit data to the Distribution Server. If you set the value to yes, CA Access Control backs up the audit file when it reaches the size limit specified by the audit\_size configuration settings and time stamps the file. This ensures that all audit data is available to the Report Agent.

Limits: yes, no

Default: no

#### COMPUTERS\_CONTAINER

Defines the container name in the Active Directory under which the UNIX computer is registered.

Default: cn=Computers

#### DIST\_SRV\_HOST

Specifies the Distribution Server host name.

Limits: any valid host name.

Default: none

#### DIST\_SRV\_PORT

Specifies the Distribution Server port number.

Limits: SSL: 7243, TCP: 7222

Default: 7243

#### DIST\_SRV\_PROTOCOL

Specifies the Distribution Server communication protocol.

Limits: tcp, ssl

Default: ssl

#### ENABLE\_ELM

Specifies whether the Report Agent sends endpoint audit data to the Distribution Server. This lets you integrate with CA Enterprise Log Manager.

**Note:** If you set the value to yes, set CA Access Control to keep audit backups (AUDIT\_BK=yes).

Limits: yes, no

Default: no

#### **GROUP\_CONTAINER**

Defines the name of the Active Directory container that holds the definitions of UNIX groups.

#### IGNORE\_DC\_LIST

Specifies which Active Directory Domain Controllers UNAB ignores when establishing LDAP connection.

**Note**: You can specify Domain Controllers from both the current and trusted domains.

Limits: none, comma separated list

Default: none

#### IGNORE\_DOMAIN\_LIST

Specifies which Active Directory domains UNAB ignores when querying for users and groups.

**Limits**: none, UNAB queries the current and all trusted domains; all, UNAB queries only the current domain; a comma separated list of domains to ignore

Default: none

#### IGNORE\_USER\_CONTAINER

Specifies the user containers to ignore when searching Active Directory.

Containers are defined by their distinguished names (DN) separated by semicolon. If the container DN does not contain domains names, it is applied to all queried domains.

Limits: list of container DN separated by semicolon, none

Default: none

#### IGNORE\_GROUP\_CONTAINER

Specifies the group containers to ignore when searching Active Directory.

Containers are defined by their distinguished names (DN) separated by semicolon. If the container DN does not contain domains names, it is applied to all queried domains.

Limits: list of container DN separated by semicolon, none

Default: none

#### INTEGRATION\_MODE

Specifies the UNAB integration mode.

Limits: 1, partial integration; 2, full integration

Default: 2

#### JAVA\_HOME

(Linux s390) Specifies the full pathname to the installed Java environment, depending on the Java version and operating system.

Specify this parameter only if the Java environment is not installed in the default location. If the Java environment is installed in the default location, the installation program sets the value of this parameter.

#### LANG

Specifies the installation language.

#### LIC\_CMD

Specifies the license acceptance command.

#### LOCAL\_POLICY

Specifies the login policy usage options.

Limits: yes, use UNAB policy and local login file, no, use UNAB login policy only.

Default: no

#### LOOKUP\_DC\_LIST

Specifies the Active Directory Domain Controllers (DCs) to establish LDAP connection with.

**Note**: You can specify DCs from both the current and trusted domains. If you specify the DCs to use, UNAB retrieves the list of DCs from Active Directory. If you do not specify the DCs to use, UNAB discovers the Active Directory site that is closest to the physical location of the endpoint and communicates with DCs in the discovered site.

Limits: none, comma separated list.

Default: none

#### NTP\_SRV

Defines the name or IP address of the Network Time Protocol (NTP) server.

#### REPORT\_SHARED\_SECRET

Specify the shared secret that the Report Agent uses to authenticate against the Distribution Server.

Limits: Any valid string.

#### Default: none

**Note**: You must specify the same shared secret that you defined when you installed the Distribution Server.

#### REPORT\_SRV\_QNAME

Specifies the name of the queue that snapshots are sent to.

**Limits**: A string representing the queue name.

Default: queue/snapshots

#### REPORT\_SRV\_SCHEDULE

Defines when the Report Agent generates reports and sends them to the Distribution Server.

This token uses the following format: time@day[,day2] [...]

Default: 00:00@Sun,Mon,Tue,Wed,Thu,Fri,Sat

#### SSO

Specifies whether UNAB supports Kerberos-based Single Sign On (SSO)

Limits: yes, no

Default: no

#### TIME\_SYNCH

Specifies whether UNAB synchronizes system time with an NTP (Network Time Protocol) server.

**Note**: If you set this value to yes, you must specify a value for the NTP\_SRV token. If you set this value to no, UNAB uses the UNIX mechanism for system time that is defined in /etc/ntp.conf.

Limits: yes, no

Default: no

#### **USER CONTAINER**

Defines the Active Directory container name holding the definitions of UNIX users.

#### UXACT\_ADMINISTRATOR

Defines the user name of the Active Directory administrator.

#### UXACT\_ADMIN\_PASSWORD

Defines the account password of the Active Directory administrator.

#### UXACT\_DOMAIN

Defines the domain that the UNIX computer is part of.

#### UXACT\_RUN

Specifies whether to execute the uxconsole -register command during installation.

Limits: yes, no

Default: no

**Note:** The uxconsole -register command registers the UNIX computer in the Active Directory server under the Computers container.

#### UXACT\_RUN\_AGENT

Specifies whether to start UNAB daemon at the end of the installation process.

Limits: yes, no

Default:yes

#### UXACT\_SERVER

Defines the name of the Active Directory server.

#### UXACT\_VERB\_LEVEL

Defines the verbosity level.

Limits: 0-7

## Manage UNAB with CA Access Control Enterprise Management

You can use CA Access Control Enterprise Management to manage UNAB endpoints. This lets you view UNAB endpoints from the World View, create and assign login and configuration policies, and resolve conflicts that were discovered in the migration process. For CA Access Control Enterprise Management to manage UNAB endpoints, you register UNAB with CA Access Control Enterprise Management. Customize the UNAB installation package to modify the package parameters.

Note: Complete this procedure before you install UNAB.

#### To manage UNAB with CA Access Control Enterprise Management

- 1. Extract the installation parameters from the UNAB package into a temporary file.
- 2. Open the temporary file in a text editor.

3. Modify the following parameters for your enterprise:

#### DISTRIBUTION\_SRV\_HOST

Specifies the Distribution Server host name.

Limits: any valid host name.

Default: none

#### DISTRIBUTION\_SRV\_PROTOCOL

Specifies the Distribution Server communication protocol.

Limits: tcp, ssl

Default: ssl

#### DISTRIBUTION\_SRV\_PORT

Specifies the Distribution Server port number.

Limits: ssl: 7243, tcp: 7222

Default: 7243

- 4. Set the installation parameters in the customized package.
- 5. Install UNAB using the customized package.

UNAB is installed with the customized settings.

6. Use the acuxchkey utility to set the Message Queue password you specified during the Enterprise Management Server installation to the UNAB host. For example:

acuxchkey -t pwd "password"

After the installation is complete and the Message Queue password set on the UNAB host, use CA Access Control Enterprise Management to manage UNAB endpoints.

**Note**: For more information about the acuxcheky utility, refer to the *Reference Guide*.

# **Integration with CA Access Control**

If you intend to install UNAB and CA Access Control on the same endpoint, you can leverage some UNAB capabilities to display UNAB specific information in CA Access Control. For example, you can display the enterprise user name instead of the UNIX account name in audit records. The seos.ini configuration file contains tokens that you enable when you want to integrate UNAB with CA Access Control

**Important!** Before you integrate UNAB with CA Access Control, verify that CA Access Control version r12.5 or later is installed on the endpoint.

The following tokens in the [seosd] section control the integration of UNAB with CA Access Control:

#### use\_unab\_db

Specifies that seosd uses the UNAB database to resolve user and groups names. This token enables CA Access Control to detect changes in UNAB, such as a new user login.

#### use\_mapped\_user\_name

Specifies whether seosd uses the user enterprise name in audit records. When enabled, the seaudit utility displays the enterprise user name rather than the UNIX account name.

The following tokens in the [OS\_User] section control the integration of UNAB with CA Access Control:

#### nonunix\_unabgroup\_enabled

Specifies whether CA Access Control supports non UNIX groups of users in the UNAB database. When enabled, CA Access Control supports users from non UNIX groups.

#### osuser\_enabled

Specifies whether enterprise users and groups are enabled.

The following tokens in the [seos] section control the integration of UNAB with CA Access Control:

#### auth\_login

Determines the login authority method. This token enables password checks to authenticate users, for example, sesudo, sesu, and sepass.

### pam\_enabled

Specifies whether the local host enables use of PAM for authentication and password changes in the LDAP database.

The following tokens in the [passwd] section control the integration of UNAB with CA Access Control:

#### nis\_env

Specifies whether the local host is an NIS or NIS+ client.

#### change\_pam

Specifies whether the local host uses PAM for password authentication and changes in the LDAP database. Use this token to enable sepass to work with external pam stores, for example UNAB.

The following tokens in the [pam\_seos] section control the integration of UNAB with CA Access Control:

#### PamPassUserInfo

Specifies whether pam\_seos sends user information to seosd.

#### pam\_login\_events\_enabled

Specifies whether pam\_seos sends login events to seosd.

#### pam\_surrogate\_events\_enabled

Specifies whether pam\_seos sends surrogate events to seosd.

Note: For more information about the seos.ini tokens, see the Reference Guide.

## Integration with RSA SecurID

If your organization uses RSA SecurID to authenticate users, you can use the capabilities of RSA SecurID to authenticate users login to UNAB endpoints. You can install UNAB on a host that has an RSA SecurID client installed and manage user login policies in Active Directory.

If UNAB is running on a host that has RSA SecurID installed, UNAB does not authenticate users on login. UNAB detects that users authentication is done by a third-party program. UNAB is then able to manage users activities on the endpoint, for example, enforce local and enterprise security policies and generate audit messages.
#### How UNAB Integrates With the RSA SecurID

UNAB integrates with the RSA SecurID by leveraging PAM stack capabilities. PAM stack capabilities allow you to set which authentication program to use for users authentication during the login process and the order in which the authentication occurs.

The following process explains UNAB integration with RSA SecurID:

- 1. Install UNAB on an endpoint that has RSA SecurID client installed.
- Configure the PAM stack in the order by which you want users authentication to occur. For example, you configure the PAM stack to call the RSA SecurID to authenticate the user passcode and PIN number and if unsuccessful, use UNAB to authenticate the user Active Directory credentials.
- 3. When a user attempts to log into the UNAB host the following occurs:

Using RSA SecurID authentication and UNAB authentication:

- a. RSA SecurID prompts the user for a passcode and PIN number.
- b. The user enters the passcode and PIN number.
- c. The RSA SecurID attempts to authenticate the user passcode and PIN number. The following occurs:
  - The RSA SecurID validates the user passcode and PIN number and enables the user to login. The authentication process ends and this point and user account management process starts.
  - The RSA Securid rejects the user passcode or PIN number.
  - UNAB prompts the user for a Active Directory user account or local account credentials.
  - UNAB attempts to authenticate the user credentials and if authenticated the authentication process ends and the user account management process starts.

#### Example: Using RSA SecurID authentication in Red Hat Advanced Server 5.3

The following snippet from the /etc/pam.d/system-auth file indicates that users authentication to the Red Hat Linux Advanced Server 5.3 is done by RSA SecurID only:

auth required pam\_securid.so

# Example: Using RSA SecurID, local UNIX and UNAB authentication in Red Hat Linux Advanced Server 5.3

The following snippet from the /etc/pam.d/system-auth file indicates that users authentication to the Red Hat Linux Advanced Server 5.3 is done by RSA SecurdID, local UNIX and UNAB:

auth sufficient pam\_securid.so auth sufficient pam\_unix.so auth sufficient pam\_uxauth.so

In this example the /etc/pam.d/system-auth file is configured to call the RSA SecurID (pam\_securid.so) module to attempts and authenticate the user credentials. If unsuccessful, the local UNIX PAM module (pam\_unix.so) attempts to authenticate the user credentials. If unsuccessful, the UNAB PAM stack module (pam\_uxauth.so) attempts to authenticate the user credentials. In this exmaple, when the UNAB PAM module attempts to authenticate the user credentials, UNAB does not prompt the user for a password. The local UNIX PAM module provides the UNAB PAM stack module with the password.

Note: The authentication process can end with either of the PAM stack modules.

# Example: Using UNAB authentication and RSA SecurID authentication in Red Hat Advanced Server 5.3

The following snippet from the /etc/pam.d/system-auth file indicates that users authentication to the Red Hat Advanced Server 5.3 is done using UNAB authentication and RSA SecurID authentication:

auth	optional	pam_unix.so
auth	sufficient	pam_uxauth.so
auth	sufficient	<pre>pam_securid.so</pre>

In this example the /etc/pam.d/system-auth file is configured to use the UNAB PAM stack (pam\_uxauthd.so) to attempt and authenticate the user Active Directory credentials before using the RSA SecurID PAM stack (pam\_securid.so) to authenticate the user passcode. The local UNIX PAM stack module (pam\_unix.so) is set to optional. This indicates that the local UNIX PAM stack does not authenticate the user but rather prompts the user for password and forwards the password to the PAM stack.

**Note**: In this example the authentication process can end with either the RSA SecurID or UNAB modules successful authentication without using local UNIX authentication.

## **RPM Package Manager Installation**

The RPM Package Manager (RPM) is a command-line utility that lets you build, install, query, verify, update, and delete individual software packages. It is intended for use on Linux platforms.

**Note:** For more information, see the RPM Package Manager website at <u>http://www.rpm.org</u> and the UNIX man pages for RPM.

You can use the RPM package CA Access Control provides for UNAB to manage your UNAB installation with all your other software installations performed using RPM.

### Install UNAB RPM Packages

To log in to a UNIX computer using Active Directory user accounts, you need to install UNAB on each UNIX computer that you want to access. You use UNAB RPM packages to install UNAB on a Linux computer.

#### To install UNAB RPM packages

- 1. Log in to the Linux computer as root.
- 2. Copy the compressed tar file appropriate for the server platform from the /UNAB directory of the CA Access Control Endpoint Components for UNIX DVD to a temporary location on your file system.

In the read/write location on the file system, the package can be customized as required. The compressed tar file contains the UNAB package and installation files.

3. Navigate to the temporary directory, uncompress, and extract the contents from the compressed tar file. For example, the following commands uncompress and extract the contents from a file named \_LINUX\_Ux\_PKG\_125.tar.Z:

gunzip \_LINUX\_Ux\_PKG\_125.tar.Z
tar xvf \_LINUX\_Ux\_PKG\_125.tar

4. Use the rpm command to install the ca-lic package. ca-lic is a CA Technologies license program that is a prerequisite for all other packages. For example:

rpm -U ca-lic-0.0080-04.i386.rpm

The ca-lic package installs.

5. <u>Customize the UNAB package</u> (see page 292).

You must customize the package to specify that you accept the license agreement using a keyword that you can find inside the license agreement. You can also customize the package to specify custom installation settings. 6. Use the rpm command to install the UNAB package. For example:

rpm -U uxauth-125-3.0.1517.i386.rpm

The installation process begins.

A message informs you that the installation process completed successfully.

Note: The UNAB package also installs the CAWIN shared component.

7. Review the installation log file, uxauth\_install.log, for information about the installation process.

You can find the log file in the UNAB installation directory, which by default is at the following location:

/opt/CA/uxauth

8. Verify that the installation completed successfully (see page 296).

### Customize the UNAB RPM Package

Before you can install UNAB, you must customize the RPM package to specify that you accept the license agreement. You can also specify custom installation settings when you customize a package.

We recommend that you do not modify the package manually. Instead, use the customize\_uxauth\_rpm script as described. To build a custom UNAB rpm installation package, you must have the rpmbuild utility on your computer.

#### To customize the UNAB package

- 1. If you have not already done so, do the following:
  - a. Copy the compressed tar file appropriate for the server platform from the /UNAB directory of the CA Access Control Endpoint Components for UNIX DVD to a temporary location on your file system.

In the read/write location on the file system, the package can be customized as required.

b. Navigate to the temporary directory, uncompress and extract the contents from the compressed tar file.

The compressed tar file contains the UNAB installation files.

2. Enter the following command to extract the uxpreinstall utility from the installation package:

customize\_uxauth\_rpm -e uxpreinstall -f tmp\_params [-d pkg\_location]
pkg\_filename

Use the uxpreinstall utility to check for system compliance before you install UNAB.

3. (Optional) Enter the following command to set the language of the installation parameters file:

customize\_uxauth\_rpm -r -l lang [-d pkg\_location] pkg\_filename

4. Enter the following command to display the license agreement:

customize\_uxauth\_rpm -a [-d pkg\_location] pkg\_filename

5. Take note of the keyword that appears at the end of the license agreement inside square brackets.

You specify this keyword in the next step.

6. Enter the following command:

customize\_uxauth\_rpm -w keyword [-d pkg\_location] pkg\_filename This command specifies that you accept the license agreement.

7. Enter the following command to get the installation parameters file:

customize\_uxauth\_rpm -g -f tmp\_params [-d pkg\_location] pkg\_filename

8. <u>Edit the installation parameters file to suit your installation requirements</u> (see page 281).

This file lets you set the installation defaults for the package.

9. Enter the following command:

customize\_uxauth\_rpm -s -f *tmp\_params* [-d *pkg\_location*] *pkg\_filename* This command sets the installation parameters in your customized package. You can now use the package to install UNAB with the customized defaults.

#### Example: Customize the UNAB RPM Package

The following examples show you how to customize a UNAB RPM package named uxauth-125-3.0.1517.i386.rpm that is located in the /unab\_tmp directory.

This example displays the license agreement and keyword:

./customize\_uxauth\_rpm -a /unab\_tmp/uxauth-125-3.0.1517.i386.rpm

This example accepts the license agreement. The keyword in this example is agreement:

./customize\_uxauth\_rpm -w agreement /unab\_tmp/uxauth-125-3.0.1517.i386.rpm

This example gets the installation parameters file and places it in the parameters.txt file in the same directory:

./customize\_uxauth\_rpm -g -f parameters.txt
/unab\_tmp/uxauth-125-3.0.1517.i386.rpm

This example sets the installation parameters from the parameters in the parameters.txt file:

./customize\_uxauth\_rpm -s -f parameters.txt
/unab\_tmp/uxauth-125-3.0.1517.i386.rpm

### customize\_uxauth\_rpm Command—Customize the UNAB RPM Package

The customize\_uxauth\_rpm command runs the UNAB RPM package customization script.

**Note:** To customize a package, the package must be in a read/write directory on your file system.

This command has the following format:

```
customize_uxauth_rpm -h [-l]
```

```
customize_uxauth_rpm -a [-d pkg_location] pkg_filename
customize_uxauth_rpm -w keyword [-d pkg_location] pkg_filename
customize_uxauth_rpm -r [-d pkg_location] [-l lang] pkg_filename
customize_uxauth_rpm -s -f tmp_params [-d pkg_location] pkg_filename
customize_uxauth_rpm -g [-f tmp_params] [-d pkg_location] pkg_filename
customize_uxauth_rpm -e uxpreinstall [-d pkgdir] [pgn_name]
customize_uxauth_rpm -t tmp_dir [-d pkg_location] pkg_filename
```

#### pkg\_filename

Defines the file name of the UNAB package you want to customize.

**Note:** If you do not specify the -d option, you must define the full pathname of the package file.

-a

Displays the license agreement.

#### -e uxpreinstall

Specifies to extract the uxpreinstall utility from the installation package.

#### -w keyword

Defines the keyword that specifies that you accept the license agreement. You can find this keyword at the end of the license agreement (inside square brackets). To locate the license agreement file, use the -a option.

#### -d pkg\_location

(Optional) Specifies the directory where you placed your package on the file system. If you do not specify a directory where the package is located, the script assumes the full pathname to the package file is included in *pkg\_filename*.

#### -f tmp\_params

Specifies the full path and name of the installation parameters file to create or retrieve information from.

**Note:** If you do not specify a file when using the -g option, the installation parameters are directed to the standard output (stdout).

-g

Gets the installation parameters file and places it in the file specified by the -f option.

-h

Displays command usage. When used in conjunction with the -l option, displays the language code for supported languages.

-l lang

Sets the language of the installation parameters file to *lang*. You can set the language only in conjunction with the -r option.

**Note:** For a list of supported language codes you can specify, run customize\_uxauth\_rpm -l -h. By default, the installation parameters file is in English.

-r

Resets the package to use default values as in the original package.

-S

Sets the specified package to use inputs from the customized installation parameters file specified by the -f option.

-t tmp\_dir

Sets the temporary directory for installation operations.

**Note:** The default temporary directory is /tmp.

### Verify That the Installation Completed Successfully

After you finish installing UNAB, you should verify that the installation completed successfully.

To verify that the installation completed successfully enter the following command:

rpm -q unab\_package\_name

#### unab\_package\_name

Defines the name of the UNAB native package.

If you successfully installed UNAB, a message informs you that the package is installed.

#### Example: Verify That the Installation Completed Successfully

The following example verifies that the installation completed successfully for a UNAB native package named uxauth:

rpm -q uxauth

### Upgrade the UNAB RPM Package

If an existing version of UNAB is installed and you want to install a new version, you can upgrade the existing version of UNAB without removing the installed version. You use UNAB RPM packages to upgrade UNAB on a Linux computer.

**Note:** You do not need to manually upgrade ca-lic.

#### To upgrade the UNAB RPM package

- 1. Log in to the Linux computer as root.
- 2. Copy the compressed tar file appropriate for the server platform from the /UNAB directory of the CA Access Control Endpoint Components for UNIX DVD to a temporary location on your file system.

The compressed tar file contains the installation and upgrade files.

 Navigate to the temporary directory, uncompress and extract the contents from the compressed file. For example, the following commands uncompress a file named \_LINUX\_Ux\_PKG\_125.tar.Z:

unzip \_LINUX\_Ux\_PKG\_125.tar.Z
tar xvf \_LINUX\_Ux\_PKG\_125.tar

The compressed package contains the UNAB installation and upgrade files.

4. Use the rpm command to upgrade UNAB. For example:

rpm -U uxauth-125-3.0.1517.i386.rpm --verbose

The upgrade process begins.

A message informs you that the upgrade process completed successfully.

### Uninstall the UNAB RPM Package

To uninstall UNAB you need to remove the RPM package from the UNIX computer where you installed it.

To uninstall UNAB, log in as root and enter the following command:

rpm -e unab\_package\_name

#### unab\_package\_name

Defines the name of the UNAB native package.

The uninstall process begins.

A message informs you that the process completed successfully.

## **Solaris Native Packaging Installation**

Solaris native packaging is provided as command-line utilities that let you create, install, remove, and report on individual software packages.

**Note:** For more information about Solaris native packaging, see the <u>Sun Microsystems</u> website and the man pages for pkgadd, pkgrm, pkginfo, and pkgchk.

**Important!** To uninstall UNAB after a package installation, you must use the *pkgrm* command.

### **Customize the UNAB Solaris Native Packages**

Before you install UNAB using Solaris native packaging customize the installation package and accept the license agreement. You can also specify custom installation settings when you customize a package.

Follow the steps in this procedure to customize any of the UNAB packages. We recommend that you do not modify the packages manually. Instead, use the customize\_uxauth\_pkg script as described.

#### To customize the Solaris native packages

1. Extract the package you want to customize from the /UNAB directory of the CA Access Control Endpoint Components for UNIX DVD to a temporary location on your file system.

In the read/write location on the file system, the package can be customized as required.

**Important!** When you extract the package, you must verify that file attributes for the entire directory structure of the package are preserved or the Solaris native packaging tools will consider the package corrupt.

2. (Optional) Copy the customize\_uxauth\_pkg script file and the pre.tar file to a temporary location on your file system.

Place the pre.tar file in the same directory as the script file to receive script messages in all languages. The pre.tar file is a compressed tar file containing installation messages and the UNAB license agreement.

**Note:** You can find the customize\_uxauth\_pkg script file and the pre.tar file in the same location where you extracted the package to.

3. Enter the following command to extract the uxpreinstall utility from the installation package:

customize\_uxauth\_pkg -e uxpreinstall -f tmp\_params [-d pkg\_location] [pkg\_name]

Use the uxpreinstall to check for system compliance before you install UNAB.

4. (Optional) Enter the following command:

customize\_uxauth\_pkg -r -l lang [-d pkg\_location] [pkg\_name]

The language of the installation parameters file is set.

5. Enter the following command:

customize\_uxauth\_pkg -a [-d pkg\_location] pkg\_name

This command displays the license agreement.

6. Take note of the keyword that appears at the end of the license agreement inside square brackets.

You specify this keyword in the next step.

7. Enter the following command:

customize\_uxauth\_pkg -w keyword [-d pkg\_location] [pkg\_name]
This command specifies that you accept the license agreement.

8. (Optional) Enter the following command:

customize\_uxauth\_pkg -i install\_loc [-d pkg\_location] [pkg\_name]
This command changes the installation directory.

9. Enter the following command to get the installation parameters file:

customize\_uxauth\_pkg -g -f tmp\_params [-d pkg\_location] [pkg\_name]

10. Edit the installation parameters file to suit your installation requirements. (see page 281)

This file lets you set the installation defaults for the package.

11. Enter the following command to set the installation parameters in your customized package:

customize\_uxauth\_pkg -s -f tmp\_params [-d pkg\_location] [pkg\_name]
You can now use the package to install UNAB with the customized defaults.

### customize\_uxauth\_pkg Command—Customize Solaris Native Package

The customize\_uxauth\_pkg command runs the UNAB Solaris native package customization script.

You should consider the following when using this command:

- The script works on any of the available UNAB Solaris native packages.
- To customize a package, the package must be in a read/write directory on your file system.
- For localized script messages, you need to have pre.tar file in the same directory as the script file.

This command has the following format:

```
customize_uxauth_pkg -h [-1]
customize_uxauth_pkg -a [-d pkg_location] [pkg_name]
customize_uxauth_pkg -w command [-d pkg_location] [pkg_name]
customize_uxauth_pkg -r [-d pkg_location] [-l lang] [pkg_name]
customize_uxauth_pkg -i install_loc [-d pkg_location] [pkg_name]
customize_uxauth_pkg -s -f tmp_params [-d pkg_location] [pkg_name]
customize_uxauth_pkg -g [-f tmp_params] [-d pkg_location] [pkg_name]
customize_uxauth_pkg -e uxpreinstall [-d pkg_location] [pkg_name]
customize_uxauth_pkg -t tmp_dir [-d pkg_location] [pkg_name]
```

#### pkg\_name

(Optional) The name of the UNAB package you want to customize. If you do not specify a package, the script defaults to the main UNAB package (uxauth).

#### -a

Displays the license agreement.

#### -e uxpreinstall

Specifies to extract the uxpreinstall utility from the installation package.

#### -w keyword

Defines the keyword that specifies that you accept the license agreement. You can find this keyword at the end of the license agreement (inside square brackets). To locate the license agreement file, use the -a option.

#### -I lang

Sets the language of the installation parameters file to *lang*. You can set the language only in conjunction with the -r option.

**Note:** For a list of supported language codes you can specify, run -l with the -h option. By default, the installation parameters file is in English.

#### -d pkg\_location

(Optional) Specifies the directory where you placed your package on the file system. If you do not specify a directory where the package is located, the script defaults to /var/spool/pkg.

#### -f tmp\_params

Specifies the full path and name of the installation parameters file to create or retrieve information from.

**Note:** If you do not specify a file when using the -g option, the installation parameters are directed to the standard output (stdout).

#### -g

Gets the installation parameters file and places it in the file specified by the -f option.

#### -h

Displays command usage. When used in conjunction with the -l option, displays the language code for supported languages.

#### -i install\_loc

Sets the installation directory for the package to *install\_loc*/uxauth.

-r

Resets the package to use default values as in the original package.

-S

Sets the specified package to use inputs from the customized installation parameters file specified by the -f option.

#### -t tmp\_dir

Sets the temporary directory for installation operations.

**Note:** The default temporary directory is /tmp.

### Install UNAB Solaris Native Packages

The UNAB Solaris native packages let you install UNAB on Solaris easily.

**Note:** The following procedure installs UNAB with the default settings. You can customize the UNAB package before installing it.

#### To install UNAB Solaris native packages

- 1. (Optional) Configure Solaris native installation defaults:
  - a. Enter the following command:

convert\_uxauth\_pkg -p

The installation administration file is copied to the current location with the name *myadmin*.

You can edit the installation administration file to change pkgadd installation defaults. You can then use the modified file for specific installations, such as UNAB, using the pkgadd -a option. However, this file is not specific to UNAB.

b. Edit the installation administration file (myadmin) as desired, then save the file.

You can now use the modified installation settings for the UNAB native installation without affecting other installations.

**Note:** Solaris native packaging may require user interaction by default. For more information about the installation administration file and how to use it, see the Solaris man page for pkgadd(1M) and admin(4).

2. Enter the following command:

pkgadd [-a dir/myadmin] -d pkg\_location uxauth

#### -a dir/myadmin

Defines the location of the myadmin installation administration file you created in step 1.

If you do not specify this option, pkgadd uses the default installation administration file.

#### pkg\_location

Defines the directory where the UNAB package (uxauth) is located.

**Important!** The package must be located in a public location (that is, read access for group and world). For example, /var/spool/pkg

**Note:** You can find the Solaris native packages in the UNAB directory of the CA Access Control Endpoint Components for UNIX DVD.

UNAB is now fully installed but not started.

### Install UNAB Solaris Native Packages on Selected Zones

You can use Solaris native packaging to install UNAB to selected zones. However, you must also install UNAB on the global zone.

Note: We recommend that you use Solaris native packaging to install UNAB to all zones.

#### To install UNAB to selected zones

Important! Make sure you use the same UNAB version in all zones.

1. From the global zone, enter the following the command.

pkgadd -G -d pkg\_location uxauth

#### pkg\_location

Defines the directory where the UNAB package (uxauth) is located.

**Important!** The package must be located in a public location (that is, read access for group and world). For example, /var/spool/pkg

This command installs UNAB only to the global zone.

- 2. On each of the non-global zones where you want to install UNAB, do the following:
  - a. Copy the uxauth package to a temporary location on the non-global zone.
  - b. Enter the following command from the non-global zone:

pkgadd -G -d pkg\_location uxauth

This command installs UNAB (using the package you copied in step number 1) on the non-global zone you are working from.

You can now start UNAB on the internal zone.

**Note:** You must uninstall from all non-global zones before you remove UNAB from the global zone.

### **Upgrade UNAB on Solaris**

The UNAB Solaris native packages let you upgrade and existing version UNAB on Solaris to a newer version of UNAB.

#### To upgrade UNAB on Solaris

- 1. Stop all UNAB daemons.
- 2. (Optional) Configure Solaris native installation defaults:
  - a. Enter the following command:

convert\_uxauth\_pkg -p

The installation administration file is copied to the current location with the name *myadmin*.

You can edit the installation administration file to change pkgadd installation defaults. You can then use the modified file for specific installations, such as UNAB, using the pkgadd -a option. However, this file is not specific to UNAB.

b. Edit the installation administration file (myadmin) as desired, then save the file.

You can now use the modified installation settings for the UNAB native installation without affecting other installations.

**Note:** Solaris native packaging may require user interaction by default. For more information about the installation administration file and how to use it, see the Solaris man page for pkgadd(1M) and admin(4).

3. Enter the following command:

pkgadd [-a dir/myadmin] -v -d . UNAB

#### -a dir/myadmin

Defines the location of the myadmin installation administration file you created in step 1.

If you do not specify this option, pkgadd uses the default installation administration file.

#### UNAB

Defines the name of the UNAB native package.

**Note**: If you installed the previous version of UNAB in a directory that is not the default directory, specify the full path to the UNAB directory by running the following command:

./customize\_eac\_pkg -i previous-path -d ./ CAeAC

#### -i Previous-path

Defines the full path to the existing UNAB directory.

**Note**: Verify that the full path name does not contain a slash character (/) at the end.

The new version of UNAB is now installed but not started.

### Uninstall UNAB Solaris Native Package

To uninstall a UNAB Solaris package installation, uninstall the UNAB package.

To uninstall the main UNAB package, enter the following command:

pkgrm unab\_package\_name

unab\_package\_name

Defines the name of the UNAB native package.

UNAB is removed from the computer.

## **HP-UX Native Package Installation**

HP-UX native packaging is provided as a set of GUI and command-line utilities that let you create, install, remove, and report on individual software packages. HP-UX native packaging also lets you install software packages on remote computers.

**Note:** For more information about the HP-UX native packaging, Software Distributor-UX (SD-UX), see the HP website at <u>http://www.hp.com</u>. You can also refer to the man pages for swreg, swinstall, swpackage, and swverify.

**Important!** To uninstall UNAB after a package installation, you must use the *swremove* command.

### Customize the UNAB SD-UX Format Packages

Before you can install UNAB using a native package, you must customize the UNAB package and accept the license agreement. You can also specify custom installation settings when you customize a package.

We recommend that you do not modify the package manually. Instead, use the script as described in the following procedure to customize the UNAB package.

You can find the Software Distributor-UX (SD-UX) format package for each of the supported HP-UX operating systems in the UNAB directory of the CA Access Control Endpoint Components for UNIX DVD.

#### To customize the SD-UX format packages

1. Extract the package you want to customize to a temporary location on your file system.

In the read/write location on the file system, the package can be customized as required.

**Important!** When you extract the package, you must make sure that file attributes for the entire directory structure of the package are preserved or HP-UX native packaging tools will consider the package corrupt.

2. Copy the customize\_uxauth\_depot script file and the pre.tar file to a temporary location on your file system.

The pre.tar file is compressed tar file containing installation messages and the UNAB license agreement.

**Note:** You can find the customize\_uxauth\_depot script file and the pre.tar file in the following directory:

/uxauth/FILESET/opt/CA/uxauth/lbin

3. Enter the following command to extract the uxpreinstall utility from the installation package

customize\_exauth\_depot -e uxpreinstall -f tmp\_params [-d pkg\_location]
[pkg\_name]

Use the uxpreinstall to check for system compliance before you install UNAB

4. Enter the following command:

customize\_uxauth\_depot -a [-d pkg\_location] [pkg\_name]

This command displays the license agreement.

5. Take note of the keyword that appears at the end of the license agreement inside square brackets.

You specify this keyword in the next step.

6. Enter the following command:

customize\_uxauth\_depot -w keyword [-d pkg\_location] [pkg\_name]
This command specifies that you accept the license agreement

7. (Optional) Enter the following command:

customize\_uxauth\_depot -r -l lang [-d pkg\_location] [pkg\_name]
This command sets the language of the installation parameters file

8. (Optional) Enter the following command:

customize\_uxauth\_depot -i install\_loc [-d pkg\_location] [pkg\_name]
This command changes the installation directory.

9. (Optional) Enter the following command to get the installation parameters file:

customize\_uxauth\_depot -g -f tmp\_params [-d pkg\_location] [pkg\_name]

 (Optional) Edit the installation parameters file to suit your installation requirements (see page 281).

This file lets you set the installation defaults for the package.

11. (Optional) Enter the following command:

customize\_uxauth\_depot -s -f tmp\_params [-d pkg\_location] [pkg\_name]
This command sets the installation parameters in your customized package

You can now use the package to install UNAB with the customized defaults.

#### **Example: Specify That You Accept the License Agreement**

To accept the license agreement when installing a native package, you customize the package. The following example shows you how you do customize the x86 UNAB SD-UX package that you can find on the directory where you extracted the package files into in order to accept the license agreement:

cp /mnt/AC\_DVD/UNAB/\_HPUX11\_Ux\_PKG\_1\*.tar.Z /tmp cd /tmp zcat \_HPUX11\_Ux\_PKG\_1\*.tar.Z | tar -xvf -/uxauth/FILESET/opt/CA/uxauth/lbin/customize\_eac\_depot -w keyword -d /tmp uxauth

You can now use the customized package in the /tmp directory to install UNAB.

#### More information:

customize\_eac\_depot Command—Customize an SD-UX Format Package (see page 228)

### customize\_uxauth\_depot Command—Customize an SD-UX Format Package

The customize\_uxauth\_depot command runs the UNAB native package customization script for SD-UX format packages.

You should consider the following when using this command:

- The script works on any of the available UNAB HP-UX native packages.
- To customize a package, the package must be in a read/write directory on your file system.
- For localized script messages, you need to have pre.tar file in the same directory as the script file.

This command has the following format:

```
customize_uxauth_depot -h [-1]
customize_uxauth_depot -a [-d pkg_location] [pkg_name]
customize_uxauth_depot -w keyword [-d pkg_location] [pkg_name]
customize_uxauth_depot -r [-1 lang] [-d pkg_location] [pkg_name]
customize_uxauth_depot -i install_loc [-d pkg_location] [pkg_name]
customize_uxauth_depot -s -f tmp_params [-d pkg_location] [pkg_name]
customize_uxauth_depot -e uxpreinstall [-d pkg_location] [pkg_name]
customize_uxauth_depot -g [-f tmp_params] [-d pkg_location] [pkg_name]
```

#### pkg\_name

(Optional) The name of the UNAB package you want to customize. If you do not specify a package, the script defaults to the main UNAB package (uxauth).

-a

Displays the license agreement.

#### -e uxpreinstall

Specifies to extract the uxpreinstall utility from the installation package.

#### -d pkg\_location

(Optional) Specifies the directory where you placed your package on the file system. If you do not specify a directory where the package is located, the script defaults to /var/spool/pkg.

#### -f tmp\_params

Specifies the full path and name of the installation parameters file to create or retrieve information from.

**Note:** If you do not specify a file when using the -g option, the installation parameters are directed to the standard output (stdout).

#### -g

Gets the installation parameters file and places it in the file specified by the -f option.

#### -h

Displays command usage. When used in conjunction with the -l option, displays the language code for supported languages.

#### -i install\_loc

Sets the installation directory for the package to install\_loc/uxauth.

-l lang

Sets the language of the installation parameters file to *lang*. You can set the language only in conjunction with the -r option.

**Note:** For a list of supported language codes you can specify, run -l with the -h option. By default, the installation parameters file is in English.

-r

Resets the package to use default values as in the original package.

-S

Sets the specified package to use inputs from the customized installation parameters file specified by the -f option.

-w keyword

Defines the keyword that specifies that you accept the license agreement. You can find this keyword at the end of the license agreement (inside square brackets). To locate the license agreement file, use the -a option.

### Install UNAB HP-UX Native Packages

To manage the UNAB installation with all your other software installations, install the customized UNAB SD-UX format package. The UNAB SD-UX format packages let you install UNAB on HP-UX easily.

**Important!** You must customize the package to specify that you accept the license agreement using a keyword you can find inside the license agreement.

#### To install the UNAB HP-UX native packages

1. Log in as root.

To register and install HP-UX native packages you need permissions associated with the root account.

2. <u>Customize the UNAB package</u> (see page 305).

You must customize the package to specify that you accept the license agreement using a keyword that you can find inside the license agreement. You can also customize the package to specify custom installation settings. 3. Register the customized package with SD-UX using the following command:

swreg -l depot pkg\_location

#### pkg\_location

Defines the directory where the UNAB package is located.

4. Install the UNAB package using the following command:

swinstall -s pkg\_location uxauth

SD-UX starts installing the package from the *pkg\_location* directory.

UNAB is now fully installed but not started.

#### More information:

Additional Considerations for Native Installations (see page 203) Customize the SD-UX Format Packages (see page 225)

### **Uninstall HP-UX Packages**

To uninstall a UNAB HP-UX package installation, you need to uninstall the UNAB packages in the reverse order of their installation.

To uninstall CA Access Control packages uninstall the main UNAB package:

swremove unab\_package\_name

#### unab\_package\_name

Defines the name of the UNAB native package.

## **AIX Native Package Installation**

AIX native packaging is provided as a set of GUI and command-line utilities that let you manage individual software packages.

**Note:** While some AIX versions support several package formats (installp, SysV, RPM), UNAB provides the AIX native package format (installp) only.

#### Important!

- To uninstall UNAB after a package installation, you must use the *installp* command.
- UNAB uses the Pluggable Authentication Mode (PAM) and not the AIX Loadable Authentication Module (LAM) to authenticate users. Configure the AIX system to enable PAM before installing UNAB.
- To prevent application failure, verify that the user IDs and primary group IDs do not originate from different user stores. For example, if the user ID originates from /etc/passwd and the primary group originates from Active Directory.

### Pluggable Authentication Module (PAM) on AIX

By default, AIX uses the Loadable Authentication Module (LAM) for identification and authentication purposes. To enable UNAB to authenticate users accessing the system, you must configure AIX to use PAM. Configure the AIX system to use PAM before you customize and install UNAB.

Note: You can enable PAM on AIX versions 5.3 and above.

#### **Example: Configuring AIX to use PAM**

The following example shows you how to configure AIX version 5.3 and above to use PAM, used by UNAB for authentication purposes.

1. Create a PAM configuration file.

AIX does not provide a default /etc/pam.conf file.

2. Open the pam.conf file and include the basic module stack, then save the file. For example:

#			
# Authe	nticatio	n	
#			
ftp	auth	required	/usr/lib/security/pam aix
imap	auth	required	/usr/lib/security/pam_aix
login	auth	required	/usr/lib/security/pam aix
rexec	auth	required	/usr/lib/security/pam_aix
rlogin	auth	required	/usr/lib/security/pam_aix
snapp	auth	required	/usr/lib/security/pam_aix
su	auth	required	/usr/lib/security/pam_aix
telnet	auth	required	/usr/lib/security/pam_aix
<b>OTHER</b>	auth	required	/usr/lib/security/pam_aix
#			
# Accou	nt Manage	ement	
#			
ftp	account	required	/usr/lib/security/pam_aix
login	account	required	/usr/lib/security/pam_aix
rexec	account	required	/usr/lib/security/pam_aix
rlogin	account	required	/usr/lib/security/pam_aix
rsh	account	required	/usr/lib/security/pam_aix
su	account	required	/usr/lib/security/pam_aix
telnet	account	required	/usr/lib/security/pam_aix
<b>OTHER</b>	account	required	/usr/lib/security/pam_aix
#			
# Passw	ord Manag	gement	
#			
login	passwore	d required	/usr/lib/security/pam_aix
rlogin	passwore	d required	/usr/lib/security/pam_aix
su	passwore	d required	/usr/lib/security/pam_aix
telnet	passwore	d required	/usr/lib/security/pam_aix
OTHER	passwore	d required	/usr/lib/security/pam_aix
#			
# Sessi	on Manage	ement	
#			
ftp	session	required	/usr/lib/security/pam_aix
imap	session	required	/usr/lib/security/pam_aix
login	session	required	/usr/lib/security/pam_aix
rexec	session	required	/usr/lib/security/pam_aix
rlogin	session	required	/usr/lib/security/pam_aix

rsh	session required	/usr/lib/security/pam_aix
snapp	session required	/usr/lib/security/pam_aix
su	session required	/usr/lib/security/pam_aix
telnet	session required	/usr/lib/security/pam_aix
OTHER	session required	/usr/lib/security/pam_aix

- 3. Navigate to /lib/security and open the methods.cfg file for editing.
- 4. Enable PAM authentication by adding the following lines, then save the file:

```
PAM:
```

```
program = /usr/lib/security/PAM
PAMfiles:
```

options = auth=PAM,db=BUILTIN

- 5. Navigate to /etc/security and open the login.cfg file for editing.
- Configure the authentication type to PAM, then save the file: auth\_type = PAM\_AUTH

For example:

chsec -f /etc/security/login.cfg -s usw -a auth\_type=PAM\_AUTH

- 7. Navigate to /etc/ssh/ and open the sshd\_config file for editing.
- 8. Enable SSH PAM authentication by adding the following parameters, then save the file:

UsePAM yes

**Note**: Verify that you use a PAM supported version of OpenSSH (version 3.9p1 and above). To verify the version use the following command:

lslpp -i openssh.base.server

- 9. Navigate to /etc and open the pam.conf file for editing.
- 10. Add SSH PAM authentication by adding the following lines, then save the file:

sshd	auth	required	/usr/lib/security/pam_aix
<b>OTHER</b>	auth	required	/usr/lib/security/pam_aix
sshd	account	required	/usr/lib/security/pam_aix
<b>OTHER</b>	account	required	/usr/lib/security/pam_aix
sshd	password	required	/usr/lib/security/pam_aix
<b>OTHER</b>	password	required	/usr/lib/security/pam_aix
sshd	session	required	/usr/lib/security/pam_aix
<b>OTHER</b>	session	required	/usr/lib/security/pam_aix

11. Restart the computer.

AIX is configured to use PAM for authentication purposes. You can now customize the AIX native package and install UNAB.

### **Customize the bff Native Package Files**

Before you install UNAB using a native package, customize the UNAB package to specify that you accept the license agreement. You can also specify custom installation settings when you customize a package.

We recommend that you do not modify the package manually. Instead, use the script as described in the following procedure to customize the UNAB package.

You can find the installp format native packaging (bff files) for each of the supported AIX operating systems in the UNAB directory of the CA Access Control Endpoint Components for UNIX DVD.

**Important!** Before you install UNAB, verify that you have configured AIX to use PAM for authentication purposes.

#### To customize the bff native package files

1. Extract the package you want to customize to a temporary location on your file system.

In the read/write location on the file system, the package (a bff file) can be customized as required.

**Important!** This location needs to have disk space that is at least twice the size of the package, so that it can hold temporary repackaging files.

2. Copy the customize\_uxauth\_bff script file and the pre.tar file to a temporary location on your file system.

The pre.tar file is compressed tar file containing installation messages and the UNAB license agreement.

**Note:** You can find the customize\_uxauth\_bff script file and the pre.tar file in the same location where the native packages are.

3. Enter the following command to extract the uxpreinstall utility from the installation package

customize\_uxauth\_bff -e uxpreinstall -f tmp\_params [-d pkg\_location] pkg\_name

Use the uxpreinstall to check for system compliance before you install UNAB

4. Enter the following command:

customize\_uxauth\_bff -a [-d pkg\_location] pkg\_name

This command displays the license agreement.

5. Take note of the keyword that appears at the end of the license agreement inside square brackets.

You specify this keyword in the next step.

6. Enter the following command:

customize\_uxauth\_bff -w keyword [-d pkg\_location] pkg\_name This command specifies that you accept the license agreement

7. (Optional) Enter the following command

customize\_uxauth\_bff -r -l lang [-d pkg\_location] pkg\_name
This command sets the language of the installation parameters file:

8. (Optional) Enter the following command:

customize\_uxauth\_bff -i install\_loc [-d pkg\_location] pkg\_name This command changes the installation directory.

9. Enter the following command to get the installation parameters file:

customize\_uxauth\_bff -g -f tmp\_params [-d pkg\_location] pkg\_name

 (Optional) Edit the installation parameters file to suit your installation requirements (see page 281).

This file lets you set the installation defaults for the package.

11. (Optional) Enter the following command to set the installation parameters in your customized package:

customize\_uxauth\_bff -s -f tmp\_params [-d pkg\_location] pkg\_name

You can now use the package to install UNAB with the customized defaults.

### customize\_uxauth\_bff Command—Customize a bff Native Package File (UNAB)

The customize\_uxauth\_bff command runs the <uxauth> native package customization script for bff native package files.

The script works on any of the available <uxauth> native packages for AIX. To customize a package, the package must be in a read/write directory on your file system.

**Important!** The location where you extract the package to should have enough space to contain at least twice the size of the package for intermediate repackaging results.

**Note:** For localized script messages, you need to have pre.tar file in the same directory as the script file.

This command has the following format:

```
customize_uxauth_bff -h [-1]
customize_uxauth_bff -a [-d pkg_location] pkg_name
customize_uxauth_bff -w keyword [-d pkg_location] pkg_name
customize_uxauth_bff -r [-d pkg_location] [-l lang] pkg_name
customize_uxauth_bff -i install_loc [-d pkg_location] pkg_name
customize_uxauth_bff -s -f tmp_params [-d pkg_location] pkg_name
customize_uxauth_bff -e uxpreinstall [-d pkg_location] pkg_filename
customize_uxauth_bff -g [-f tmp_params] [-d pkg_location] pkg_name
```

#### pkg\_name

The name of the UNAB package (bff file) you want to customize.

-a

Displays the license agreement.

#### -e uxpreinstall

Specifies to extract the uxpreinstall utility from the installation package.

#### -c certfile

Defines the full pathname of the root certificate file.

Note: This option is applicable to the CAeAC package only.

#### -d pkg\_location

(Optional) Specifies the directory where you placed your package on the file system. If you do not specify a directory where the package is located, the script defaults to /var/spool/pkg.

#### -f tmp\_params

Specifies the full path and name of the installation parameters file to create or retrieve information from.

**Note:** If you do not specify a file when using the -g option, the installation parameters are directed to the standard output (stdout).

#### -g

Gets the installation parameters file and places it in the file specified by the -f option.

#### -h

Displays command usage. When used in conjunction with the -l option, displays the language code for supported languages.

#### -i install\_loc

Sets the installation directory for the package to *install\_loc/*uxauth.

-I lang

Sets the language of the installation parameters file to *lang*. You can set the language only in conjunction with the -r option.

**Note:** For a list of supported language codes you can specify, run -l with the -h option. By default, the installation parameters file is in English.

-r

Resets the package to use default values as in the original package.

-S

Sets the specified package to use inputs from the customized installation parameters file specified by the -f option.

-w keyword

Defines the keyword that specifies that you accept the license agreement. You can find this keyword at the end of the license agreement (inside square brackets). To locate the license agreement file, use the -a option.

### Install UNAB AIX Native Package

To manage the UNAB installation with all your other software installations, install the customized UNAB AIX native package. The UNAB AIX native packages (bff files) let you install UNAB on AIX easily.

**Important!** You must customize the package to specify that you accept the license agreement using a keyword you can find inside the license agreement. If you want to manage the UNAB endpoint through CA Access Control Enterprise Management, you must register the UNAB endpoint with CA Access Control Enterprise Management *before* you install UNAB.

#### To install the UNAB AIX native packages

1. Log in as root.

To register and install AIX native packages, you need permissions associated with the root account.

2. <u>Customize the UNAB package</u> (see page 314).

You must customize the package to specify that you accept the license agreement using a keyword that you can find inside the license agreement. You can also customize the package to specify custom installation settings.  (Optional) Record the level (version) of the package that you want to install: installp -l -d pkg\_location

#### pkg\_location

Defines the directory where the UNAB package (uxauth) is located.

For each package in *pkg\_location*, AIX lists the level of the package.

**Note:** For more information about the AIX native packaging installation options, refer to the man pages for installp.

4. Install the UNAB package using the following command:

installp -ac -d pkg\_location uxauth[pkg\_level]

#### pkg\_level

Defines the level number of the package you recorded earlier.

AIX starts installing the UNAB package from the *pkg\_location* directory.

UNAB is now fully installed but not started.

#### More information:

Additional Considerations for Native Installations (see page 203)

### Uninstall AIX Packages

To uninstall a UNAB AIX package installation, you need to uninstall the UNAB packages in the reverse order of their installation.

To uninstall UNAB packages uninstall the main UNAB package:

installp -u unab\_package\_name

#### unab\_package\_name

Defines the name of the UNAB native package.

## **Post-Installation Tasks**

The following topics describe the post-installation tasks that you need to perform to configure the UNAB endpoint and activate UNAB.

### **Register a UNIX Host in Active Directory**

To let users defined in Active Directory log in to UNIX computers, register on the Active Directory server each UNIX computer on which you installed UNAB.

**Note:** You can configure the UNAB installation parameters file to specify that the installation process registers the UNIX endpoint on Active Directory during UNAB installation.

#### To register a UNIX host in Active Directory

- 1. Verify that the time on the UNIX host and Active Directory server is synchronized.
- 2. Log in to the UNIX computer as a superuser.

**Note:** You must activate UNAB before Active Directory users can log on to the UNIX computer.

3. If you use Microsoft Services for UNIX (SFU), specify the attribute names in the map section of the uxauth.ini file.

If you do not specify the attribute names in the uxauth.ini file, users that are defined only in SFU cannot log in to UNAB hosts.

**Note:** For more information about the uxauth.ini file, see the *Reference Guide*.

4. Navigate to the UNAB bin directory. By default the directory is:

/opt/CA/uxauth/bin

5. Run the uxconsole -register utility.

UNAB registers the UNIX computer in Active Directory and starts the uxauthd daemon.

Note: For more information about uxconsole -register, see the *Reference Guide*.

#### **Example: Register a UNIX Host in Active Directory**

This example shows you how to register a UNIX computer in Active Directory. You type in the user name (-a administrator) and password (-w admin), define the Active Directory host name (-d Active\_Directory\_Host), set the verbosity level (-v 3), specify that the UNAB agent does not run at the end of the installation (-n), and define the name of the container in Active Directory (-o OU=COMPUTERS). The container must exist before you register the UNIX computer in Active Directory:

./uxconsole -register -a administrator -w admin -d *Active\_Directory\_Host* -v 3 -n -o OU=COMPUTERS

#### Example: Delegating an Active Directory User the Privileges to Register a UNIX Host

If you do not want to specify an administrator user name and password when you run the uxconsole -register command, you can specify the user name and password of a user with delegated privileges for registering the UNIX host in Active Directory. The following example shows you how to delegate the privileges for registering a UNIX host in Active Directory to an Active Directory user.

1. On the Active Directory computer, click Start, Programs, Administrative Tools, Active Directory Users and Computers.

The Active Directory Users and Computers management console opens.

2. Right-click the Computers folder and select Delegate Control.

The Delegation Control Wizard opens.

3. Click Next.

The wizard starts.

4. Complete the installation wizard using the following table, and click Finish:

Information	Action	
Users and Groups	Specifies the user to which you want to delegate control to.	
	Select Add and search for the user you want to delegate control to.	
Tasks to Delegate	Defines the tasks to delegate to the selected users or groups. Select "Create a custom task to delegate"	
Active Directory Object Type	Defines the scope of the task to delegate. Do the following:	
	<ul> <li>Select "This folder, existing objects in this folder, and creation of new objects in this folder".</li> </ul>	
	<ul> <li>Select "Create Computer objects permission from the list".</li> </ul>	
Permissions	Defines the permissions to delegate to the user.	
	Select "Creation/delegation of specific child objects ".	

The wizard closes. You have delegated permission to create computer objects in Active Directory to the user. The user now has sufficient privileges to register a UNIX host in Active Directory.

### **Configure UNAB**

The uxauth.ini file specifies the actions UNAB takes during startup and run time. The uxauth.ini file contains a default set of values that you can change to meet your specifications.

#### To configure UNAB

- 1. Log in to the UNIX host that is running UNAB.
- 2. Open the uxauth.ini file that is located by default in the following directory:

/opt/CA/uxauth

3. Review the settings and change as required.

**Note:** For more information about uxauth.ini configuration settings, see the *Reference Guide*.

**Note**: You can use CA Access Control Enterprise Management to configure the uxauth.ini file.

### **Configure UNAB for Reporting**

Once you have UNAB installed and configured, you can configure it to send data to the Distribution Server for processing by enabling and configuring the Report Agent. If you did not configure the Report Agent settings when you installed UNAB, configure the Report Agent when you enable it.

**Note:** This procedure illustrates how you configure an existing UNAB endpoint for sending reports. If you installed CA Access Control and UNAB on the same computer, you only need to configure the Report Agent settings once.

To configure UNAB for reporting run *ACSharedDir*/lbin/report\_agent.sh:

report\_agent config {-server hostname [-proto {ssl|tcp}] [-port port\_number] [-rqueue
queue\_name] -schedule <time@day> [,day2][...] > [-audit] | [-silent] ]

If you omit any configuration options, the script sets the default value for that option.

**Note:** For more information about the report\_agent.sh script, and the Report Agent configuration settings, see the *Reference Guide*.

### Start UNAB

For users from Active Directory log into the UNIX computer, start up UNAB.

#### To start UNAB

- 1. Log in to the UNIX computer as a superuser.
- 2. Locate the UNAB lbin directory.
- 3. Enter the following command:

./uxauthd.sh start

The UNAB daemon starts.

### **Activate UNAB**

After you have registered the UNIX host in Active Directory, you need to activate UNAB. Activation is the final step in the implementation process of UNAB. Once UNAB is activated it authenticates users based on their Active Directory password.

#### To activate UNAB

- 1. Log in to the UNIX computer as a superuser.
- 2. Navigate to the UNAB bin directory. By default the directory is:

/opt/CA/uxauth/bin

3. Run the following command:

./uxconsole -activate

#### -activate

Specifies that login is activated for Active Directory users

UNAB is activated

**Note:** Activating UNAB lets local users that have an Active Directory account to continue logging into the UNIX host.

Note: For more information about the uxconsole utility, see the Reference Guide.

#### **Example: Login to UNAB after activation**

The following example shows you how you can log in to a UNIX computer using an Active Directory account after you installed UNAB in partial mode and registered it.

- 1. Open a terminal window.
- 2. Connect to the UNIX host:

telnet computer.com

You are connected to the UNIX computer and a UNIX shell opens.

3. Enter the user name and password of an Active Directory account.

If successful, a message is displayed, informing you of your last login details.

## How to Implement Full Integration Mode

In full integration mode, the UNAB endpoint relies on the Active Directory server to both authenticate and authorize users.

#### To implement UNAB in full integration mode

1. Implement UNAB.

This step installs and activates UNAB on UNIX endpoints.

2. Install a tool that lets you manage the UNIX attributes of Active Directory users.

Because Active Directory Users and Computers does not expose UNIX attributes, you must install an additional tool to view and modify these attributes. For example, you can use the CA Access Control UNIX Attributes plug-in, Microsoft Identity Management for UNIX, ADSI Edit, or a simple LDAP client to view and modify UNIX attributes.

- 3. Migrate the attributes of users and groups on UNAB endpoints to Active Directory. Do *one* of the following:
  - Use the UNAB migration tool to copy the properties of UNAB endpoint users and groups to Active Directory.
  - Use the tool that you installed in Step 2 to manually configure the attributes of UNAB endpoint users and groups on Active Directory.

This step lets you use Active Directory to control access to the endpoints. UNAB is now implemented in full integration mode.

- 4. (Optional) Delegate permission to manage privileges for UNAB users and groups to UNIX administrators on Active Directory.
- 5. Use the tool that you installed in Step 2 to update the UNIX attributes of Active Directory as needed.

For example, an administrator uses the tool to update a user's default login shell.

### **UNAB Interactions with Active Directory**

In full integration mode, the following UNIX user and group attributes are stored on Active Directory:

- UID
- GID
- Home directory
- Login shell
- GECOS

UNAB uses the Windows 2003 R2 schema to store these attributes. Generally UNAB reads these attributes, but does not write to them. UNAB writes to Active Directory attributes only if you use the uxconsole -migrate utility to migrate UNIX users and groups to Active Directory.

UNAB does not extend the Active Directory schema.

### Install the CA Access Control UNIX Attributes Plug-in

The CA Access Control UNIX Attributes plug-in lets you manage UNIX attributes for UNAB users on Active Directory. The plug-in does not install an NIS server. Other tools that you can use to manage UNIX attributes for UNAB users include Microsoft Identity Management for UNIX, ADSI Edit, or simple LDAP clients.

By default, the plug-in uses the Active Directory 2003 R2 schema to read and write Active Directory data. If the R2 schema is not present, you can configure the plug-in to use different attributes.

You must install the plug-in on the server that users use to manage Active Directory, but you do not need to install the plug-on on the Active Directory domain controller (DC).

#### To install the CA Access Control UNIX Attributes plug-in

- 1. Insert the CA Access Control Endpoint Components for UNIX DVD into an optical disc drive on the server.
- 2. Browse to the following directory:

ADTools\UnixADTabExt
- 3. Choose the directory that suites the operating system you are using.
- 4. Double-click the setup.exe file.

The CA Access Control UNIX Attributes plug-in installation wizard opens.

5. Follow the instructions to install the CA Access Control UNIX Attributes plug-in.

The CA Access Control UNIX Attributes plug-in is installed on the Active Directory host.

6. (Optional) Configure the Active Directory attributes that the plug-in uses.

Complete this step if the Active Directory schema is not Windows 2003 R2.

#### Configure the Attributes That the Plug-in Uses

The CA Access Control UNIX Attributes plug-in uses the Active Directory 2003 R2 schema to read and write Active Directory data. If your Active Directory server does not use the 2003 R2 schema, you can configure the plug-in to use attributes from a different schema.

If you configure the plug-in to use attributes from a different schema, you must also configure the UNAB endpoints to use the same attributes. You use the map section of the uxauth.ini file to configure the attributes that UNAB endpoints use.

To configure the attributes that the plug-in uses, change the value of the following registry entries. The entries are located in the following registry key:

HKEY\_LOCAL\_MACHINE\SOFTWARE\ComputerAssociates\AccessControl\uxauth

Entry	Default Value	Field Name in Plug-in
user_uid_attr_name	uidNumber	UID
user_loginshell_attr_name	loginShell	Login Shell
user_homedir_attr_name	unixHomeDirectory	Home Directory
user_gecos_attr_name	gecos	GECOS
user_gid_attr_name	gidNumber	Primary Group Name/GID
group_gid_attr_name	gidNumber	GID (Group ID)

**Note:** For more information about the uxauth.ini file, see the *Reference Guide*.

#### Uninstall the CA Access Control UNIX Attributes Plug-in

The CA Access Control UNIX Attributes plug-in lets you manage UNIX attributes for users and groups on Active Directory.

#### To uninstall the CA Access Control UNIX Attributes plug-in

1. Click Start, Control Panel, Add or Remove Programs.

The Add or Remove Program dialog appears

Note: On Windows Server 2008 click Start, Control Panel, Programs and Features.

- 2. Scroll through the program list and select CA Access Control UNIX Attributes Snap-in.
- 3. Click Change\Remove or Uninstall depending on the operating system you use.

The uninstall process removes the CA Access Control UNIX Attributes plug-in from the system.

4. Delete the following registry key:

HKEY\_LOCAL\_MACHINE\SOFTWARE\ComputerAssociates\AccessControl\uxauth

5. Delete the ACUnixAttributesShellExt.dll file from the computer.

The CA Access Control UNIX Attributes plug-in is uninstalled.

#### Example: Uninstall ACUnixAttributesShellExt.dll

The following example uninstalls the CA Access Control UNIX Attributes plug-in from the directory C:\WINDOWS\system32:

regsvr32 /u %WINDIR%\system32\ACUnixAttributesShellExt.dll

### **Users and Groups Migration**

Migrating users from a UNIX host to Active Directory simplifies user and group management on UNIX hosts, by consolidating management tasks into a single management application. After you migrate UNIX users into Active Directory you control access to the UNIX hosts and no longer need to maintain the password or shadow files on each UNIX host.

After you migrate users and groups from the UNIX hosts to Active Directory (full integration mode), Active Directory performs authentication and authorization of users.

#### More information:

<u>How Migration Works</u> (see page 327) <u>Migrate UNIX Users and Groups to Active Directory</u> (see page 328)

#### **How Migration Works**

When you start the migration process on a UNIX host, UNAB performs the following tasks:

1. Retrieves the list of local users and NIS/NIS+ users.

Inspects Active Directory for each user name on the list and does one of the following for each user:

- If the user exists in Active Directory and the user UNIX attributes are identical to the attributes that appear in the UNIX host, the user account is migrated.
- If the user exists in Active Directory and several of the user UNIX attributes are missing, UNAB does not migrate the user and logs the missing properties.
- If the user exists in Active Directory and the user does not have any UNIX attributes, UNAB migrates the user and adds the missing attributes.
- If the user does not exist in Active Directory, UNAB does not create the user account in Active Directory.
- 2. Retrieves the list of local groups and NIS/NIS+ groups.

Inspects the Active Directory for the groups name and for each group does one of the following:

- If the group exist in Active Directory and the group UNIX attributes are identical to the attributes of the UNIX host, the group is migrated.
- If the groups exist in Active Directory and the group ID is different to the ID on the UNIX host, UNAB does not migrate the group including its members to Active Directory.
- If the group exists in Active Directory and the group IDs are identical but several UNIX attributes are missing, UNAB migrates the group to Active Directory and completes the missing attributes.
- If the group does not exist in Active Directory, UNAB creates a group and migrates the groups to Active Directory.

**Note:** You cannot migrate a user or group if a user or group with the same name exists in Active Directory. For example, if you try to migrate a group named g1, but a user named g1 exists in Active Directory, UNAB cannot migrate the group.

**Note**: If you select to migrate the root user to Active Directory, the root account is authenticated locally and in Active Directory on login. As a result, you can experience a long authentication process.

#### Migrate UNIX Users and Groups to Active Directory

You migrate users from the local UNIX host into Active Directory to manage access to the host from a single location.

#### To migrate UNIX users and groups to Active Directory

- 1. Log in to the UNIX computer as the root user.
- 2. Navigate to the UNAB installation bin directory, by default:

/opt/CA/uxauth/bin

3. Run the -uxconsole -migrate utility.

The uxconsole program migrates the UNIX users and groups to Active Directory. A message appears informing you that the operation completed successfully.

**Note:** For more information about resolving migration conflicts, see the *Enterprise Administration Guide*. For more information about the uxconsole utility, see the *Reference Guide*.

## Delegating UNIX Administrators the Privileges to Manage UNIX Users and Groups Attributes

For UNIX administrators to manage UNIX users and groups attributes in Active Directory, you can delegate specific management privileges over to UNIX administrators. Delegating the management privileges enables the UNIX administrators to continue managing the UNIX users and groups attributes after they are migrated to Active Directory.

Before you delegate the management privileges, verify that you installed a tool that lets you manage the UNIX attributes of Active Directory users. We recommend that you delegate management privileges to a group, rather than to individual users.

# Example: Delegating UNIX administrators the privileges to manage UNIX users and groups attributes

The following example shows you how to delegate the privileges for managing UNIX users and groups in Active Directory to a group of UNIX administrators.

1. On the Active Directory computer, click Start, Programs, Administrative Tools, Active Directory Users and Computers.

The Active Directory Users and Computers management console opens.

2. Right click the Organizational Unit (OU) and select Properties.

The Organizational Unit properties window opens.

3. Select the Security tab.

**Note**: If you do not see the Security tab, verify that the Advanced Features option, under the View tab, is highlighted.

4. Click Advanced, then click the Add button.

The Select User, Computer or Group window opens.

5. Enter the name of the group or users to delegate management privileges to. Click OK.

The Permission Entry window opens.

6. Click the Properties tab.

You assign permissions to the group or users in this window.

- 7. From the Apply Onto menu, select Group Objects.
- 8. Select the Read gidNumber and Write gidNumber options from the Allow column.
- 9. Click OK.

You have delegated management attributes over UNIX groups to the UNIX administrators group.

- 10. Repeat Steps 1-6 to delegate management privileges over UNIX users.
- 11. From the Apply Onto menu, select Users Objects.
- 12. Select the following attributes from the Allow column:
  - Read Gecos
  - Write Gecos
  - Read gidNumber
  - Write gidNumber
  - Read uid
  - Write uid
  - Read uidNumber
  - Write uidNumber
  - Read unixHomeDirectory
  - Write unixHomeDirectory
  - Read loginShell
  - Write LoginShell
- 13. Click OK.

You have delegated management attributes over UNIX users to the UNIX administrators group.

## **Configure UNIX Attributes for an Active Directory User**

This procedure describes how to use the CA Access Control UNIX Attributes plug-in to manage the attributes of UNIX users on Active Directory. You can use other tools to manage UNIX attributes on Active Directory, such as Microsoft Identity Management for UNIX, ADSI Edit, or a simple LDAP client.

**Note**: When you define user account properties, you do not need to specify the computers that this user can log on to. These settings do not apply to UNIX hosts.

#### Configure the UNIX attributes for an Active Directory user

1. Select Start, Programs, Administrative Tools, Active Directory Users and Computers.

The Active Directory Users and Computers window opens.

2. Double-click a user account.

The user account properties appear.

3. Click the CA Access Control UNIX Attributes tab.

The CA Access Control UNIX Attributes tab appears.

4. Complete the following fields:

#### **Enable UNIX Attributes**

Specifies if UNIX attributes are enabled on the user account. You must select this checkbox to enable UNIX attributes for the user.

#### UID

Defines the user ID number on the UNIX computer. Click Generate to find the next available UID.

#### **Home Directory**

Defines the user home directory on the UNIX computer.

Example: /home/user

**Important!** Verify that the parent directory of the home directory exists before you configure the user home directory.

#### Login Shell

Defines the user account login shell

Example: /bin/sh

#### GECOS

Specifies the user GECOS information.

#### **Primary Group Name/GID**

Defines the primary group name or GID that the user is a member of.

Example: UNIXUsers

**Important!** You must assign a valid group name/GID when defining the user account.

5. Click OK.

The user UNIX attributes are configured.

# **Implementing UNAB in a Trusted Domains Environment**

When you install UNAB, you specify the parameters of the domain UNAB will register with. Affter installing, registering and activating UNAB, you migrate users and groups into the domain.

If the domain that you specified has established trust relationships with other domains, users from those domains can potentially have access to computers in the domain that UNAB is a member of.



This diagram displays a UNAB implementation in a trusted domains environment:

In the previous diagram UNAB is installed in a domain that has established a trust connection with other domains. In this environment, users from a trusted domain can access the other domain although these users are not members of that domain.

Consider the following before you install UNAB in a trusted domains environment:

- The UNAB login policy controls access to computer in the domain based on user names. If multiple users have identical user names and are defined in more than one domain, UNAB cannot distinguish the domain of origin of the users and grants access to the domain.
- You can generate reports only for the domain that UNAB is a member of. You cannot generate reports for the trusted domains.
- You can migrate users to Active Directory that are defined in the domain UNAB is a member of.

We recommend that you maintain unique user and group names to prevent access from unauthorized users of trusted domains.

# Chapter 10: Installing a High Availability Deployment

This section contains the following topics:

<u>High Availability</u> (see page 335) <u>Components of a High Availability Environment</u> (see page 339) <u>How to Configure CA Access Control Enterprise Management for High Availability</u> (see page 341) <u>How to Configure the Distribution Servers for High Availability</u> (see page 350) <u>Configure Endpoints for High Availability</u> (see page 354) <u>Oracle RAC Configuration for High Availability</u> (see page 355)

## **High Availability**

CA Access Control Enterprise Management uses mirrored sites to provide high availability deployments. *Mirrored* sites are fully redundant facilities with full, real-time information mirroring and are identical to the primary site in all technical aspects. Data is processed and stored at the primary and mirrored sites simultaneously.

Mirrored sites employ an active-passive deployment for failover. An *active-passive* deployment includes two or more data centers, with one actively processing requests and the other ready to service requests if the active one fails. The clustering solution software that you select is responsible for controlling the active and passive servers and switching between them in case of failure.

In an active-passive deployment, the active server is referred to as the primary server, and the passive server is referred to as the secondary server.

## Benefits and Limitations of a High Availability Deployment

A high availability deployment helps ensure that your CA Access Control Enterprise Management components continue to service requests if one or more components or servers fails. If the endpoints cannot connect to the primary environment, they connect to the secondary server until the primary environment is restored.

A high availability deployment has the following benefits:

- Prevents loss of privileged accounts, DMS datasource files and endpoints definitions if the primary Enterprise Management Server fails.
- Helps ensure uninterrupted use.

Consider the following limitations when planning a high availability deployment:

- The Enterprise Management Server does not support session continuity in an event of a failure. User sessions terminate if the active server fails to respond. Logged-in users must log in again.
- Only one active DMS is supported.
- Identical communication passwords used when installing the primary and secondary Enterprise Management Servers.
- The Java Connector Sever (JCS) on the primary and secondary servers must have the same name.

**Note**: We recommend that you use virtual DNS names that are controlled by the clustering software solution to seamlessly transition between the servers in case of failure.

For example, in case the primary Enterprise Management Server fails when a user session is open, the user can either type in the URL of the secondary Enterprise Management Server or, using a virtual DNS or load balancer, continue working using the same URL.

## **High Availability Deployment Architecture**

The following diagram shows CA Access Control Enterprise Management in a high availability environment:



As illustrated in the preceding diagram, a high availability deployment has the following components:

- A primary Enterprise Management Server and at least one secondary Enterprise Management Server
- A clustered installation of a policy and reporting store and a user store
- Shared storage that is accessible by both the primary and secondary CA Access Control Enterprise Management servers
- A shared host name
- CA Access Control endpoints able to work with both the primary and secondary Enterprise Management Servers

## **Distribution Servers in a High Availability Environment Architecture**

You can deploy additional Distribution Servers for high availability to prevent loss of audit events collected from the endpoints in an event of failure to the Distribution Server.

The following diagram shows an implementation of primary and secondary Distribution Servers in a high availability environment:



As illustrated in the previous diagram, a high availability implementation of the Distribution Server is based on the following:

- A primary Distribution Server and at least one secondary Distribution Server.
- A shared storage that holds the Message Queue data files and that is accessible by both the primary and secondary Distribution Servers.

You place the Message Queue data files on the shared storage to verify that audit events messages that arrived form the endpoints are not lost if the Distribution Server fails.

- A shared host name.
- CA Access Control endpoints able to work with both the primary and secondary Distribution Servers.

# **Components of a High Availability Environment**

You need the following to deploy CA Access Control in a high availability environment.

- Primary server:
  - Enterprise Management Server
- Secondary server:
  - Enterprise Management Server
- User repository
- Policy and reporting database
- Shared storage solution:
  - The cluster software
  - The shared storage

## **The Shared Storage**

We recommend that you implement a shared storage solution using shared storage devices. The shared storage must be accessible to both the active and passive servers. Verify that the shared storage solution you use meets the following criteria:

- Write order—the shared storage solution must write data blocks to the shared storage in the same order as they occur in the buffer.
- Synchronous write persistence—upon return from a synchronous write call, the storage solution guarantees that all the data has been written to durable, persistent storage.

The following are examples of the software based shared storage solutions:

- Dual-Port SCSI device
- Storage Area Network (SAN)

Dual-Port SCSI and SAN solutions comply with the write order and synchronous write persistence requirements.

## **The Cluster Software**

The cluster software enables servers across a network to work together in a computer cluster to provide application high availability.

**Important!** The steps described in this chapter apply to Microsoft cluster software and Active Directory only.

In a high availability deployment, the cluster software performs the following tasks:

- Monitors the status of the primary and secondary Enterprise Management Servers
- Verifies that only one instance, either the primary or secondary servers, is active at a time
- Manages the CA Access Control services on the Enterprise Management Servers
- Manages the shared host name that points the endpoints to the active server

## What Happens In Case of a Failure?

In a high availability deployment, the clustering solution software queries the primary server for availability at a fixed interval. If the primary server fails to respond within the predefined period, the clustering solution software and CA Access Control do the following:

- 1. The clustering solution software stops all the Enterprise Management Server services running on the primary server.
- 2. The clustering solution software starts all the Enterprise Management Server services on the secondary server.
- 3. CA Access Control endpoints attempt to connect to the secondary server and continue working.
- 4. When the clustering software solution stops Enterprise Management Server services on the primary server, any users who are logged in to the application are logged out. To continue using the application, the users must log in to CA Access Control Enterprise Management again.

# How to Configure CA Access Control Enterprise Management for High Availability

To correctly configure the high availability deployment, you must set up the primary and secondary Enterprise Management Servers in the correct order.

The following diagram shows the steps that you take to implement multiple Enterprise Management Servers in a high availability environment.

**Note:** Configuring Active Directory for failover and implementing the Distribution Servers on separate computers are optional steps.



#### More information:

Install CA Access Control Enterprise Management on Windows (see page 50) How to Install the Enterprise Management Server Components (see page 48) How to Set Up Reporting Service Server Components (see page 105)

### **Configure the Primary Enterprise Management Server**

The primary Enterprise Management Server is the central management server and contains components and tools that let you deploy policies to endpoints, manage privileged accounts, and define resources, accessors, and access levels.

#### Follow these steps:

1. If you did not do so, install CA Access Control Enterprise Management on the primary server.

All the web-based applications, the Distribution Server, the DMS, and CA Access Control are installed.

- 2. Stop all CA Access Control services.
- 3. Modify the services to start up manually and not automatically.
- 4. Copy the DMS and the DH to the shared storage as follows:
  - a. Locate the DMS directory and copy it to the shared storage. This directory is located in the following location:

ACServerInstallDir/APMS/AccessControl/data/DMS\_\_

#### ACServerInstallDir

Defines the name of the directory where the Enterprise Management Server is installed.

b. Locate the DH directory and copy it to the shared storage. This directory is located in the following location:

ACServerInstallDir/APMS/AccessControl/Data/DH\_\_

c. Locate the DH\_\_\_WRITER directory and copy it to the shared storage. By default this directory is located in the following location:

ACServerInstallDir/APMS/AccessControl/Data/DH\_WRITER

d. Set the \_pmd directory\_ registry key configuration setting to the full pathname of the shared storage directory you copied the DMS and the DH to. For example: Z:\PMD.

The primary server is configured to use the DMS and DH on the shared storage.

- 5. Configure the Message Queue to use the shared storage as follows:
  - a. Copy the Message Queue datastore folder to the shared storage. These files are located in the following directory:

ACServerInstallDir/MessageQueue/tibco/cfgmgmt/ems/data

b. Open the tibemsd.conf file for editing. This file is located by default in the following directory:

EACServerInstallDir/MessageQueue/tibco/cfgmgmt/ems/data

- Set the value of the "store" token to point to the directory on the shared storage where you copied the datastore files to. For example:Z:\PMD\DATASTORE
- d. Save and close the file.
- e. Open the queues.conf file for editing.
- f. Append a comma and add the word "failsafe" at the end of every queue definition line, then save and close the file.
- 6. Create a batch file to start all CA Access Control services when the primary Enterprise Management Server resumes operation, as follows:

```
seosd -start
net start acrptmq
net start "CA Access Control Web Service"
net start im_jcs
net start JBAS50SVC
```

7. Create a batch file to stop all CA Access Control service when the primary Enterprise Management Server fails, as follows:

secons -s

net stop acrptmq
net stop "CA Access Control Web Service"
net stop im\_jcs
net stop JBAS50SVC

- 8. Configure the cluster software to run the scripts on failure.
- 9. Start all CA Access Control services

#### Example: Edit the queues.conf File

The following snippet from the queues.conf file is an example of how you amend the file to configure the Message Queue to use the shared storage.

queue/snapshots secure,failsafe
queue/audit secure,failsafe
ac\_endpoint\_to\_server secure,failsafe
ac\_server\_to\_endpoint secure,failsafe

#### More information:

Install CA Access Control Enterprise Management on Windows (see page 50)

## **Configure the Secondary Enterprise Management Server**

The secondary Enterprise Management Server handles endpoint requests in an event of failure to the primary server.

#### Follow these steps:

1. If necessary, copy the FIPS key from the primary Enterprise Management Server to a temporary directory. The file is located in the following directory:

JBOSS\_HOME/server/default/deploy/IdentityMinder.ear/config/com/ netegrity/config/keys

#### JBOSS\_HOME

Defines the name of the directory where JBoss is installed.

 Install the Enterprise Management Server on the secondary server from a Command Prompt window and specify the -DFIPS\_KEY=<full\_pathname\_to\_key> option.

**Important!** Specify the --**DFIPS\_KEY** option when you run the secondary Enterprise Management Server installation program. Copy the FIPS key from the primary Enterprise Management Server to the secondary Enterprise Management Server before you begin the installation process.

All the web-based applications, the Distribution Server, the DMS, and CA Access Control are installed.

- 3. Stop all CA Access Control services.
- 4. Modify the services to start up manually and not automatically.
- Set the \_pmd directory\_ registry key configuration setting to the full pathname of the shared storage directory you copied the DMS and the DH to. For example: Z:\PMD.

The secondary server is configured to use the DMS and DH on the shared storage.

- 6. Configure the Message Queue to use the shared storage. Do the following:
  - a. Open the tibemsd.conf file for editing. This file is located by default in the following directory:

ACServerInstallDir/MessageQueue/tibco/cfgmgmt/ems/data

#### ACServerInstallDir

Defines the name of the directory where the Enterprise Management Server is installed.

- b. Set the value of the "*store*" token to point to the directory on the shared storage where you copied the datastore files to, for example: Z:\PMD.
- c. Save and close the file.
- d. Open the queues.conf file for editing.
- e. Append a comma and add the word "failsafe" at the end of every queue definition line, then save and close the file.
- 7. Verify that the CA Access Control services are not running.
- 8. Configure the DMS to authorize the secondary Enterprise Management Server, as follows:
  - a. On the primary Enterprise Management Server, start the JCS, JBoss Application Server, CA Access Control and Message Queue services.
  - b. Open a selang Command Prompt window and enter the following command:

host DMS\_\_@

A message appears informing you that you are connected to the local host.

c. Enter the following command to display the list of authorized terminals:

```
sr TERMINAL *
```

CA Access Control displays the details of the authorized terminals.

d. Enter the following commands to add the secondary Enterprise Management Server to the authorized terminals list:

```
newres TERMINAL
<secondary_enterprise_management_server_full_DN> audit (f)
owner(nobody)defacc(r)
authorize TERMINAL
<ssecondary_enterprise_management_server_full_DN>
uid(+reportagent) access(write)
authorize TERMINAL
<ssecondary_enterprise_management_server_full_DN>
uid(DOMAIN\Administrator) access(write,read)
authorize TERMINAL
<secondary_enterprise_management_server_full_DN>
uid(an_entm_pers) access(write,read)
```

9. Create a batch file to start all CA Access Control services in case the primary Enterprise Management Server fails, as follows:

seosd -start
net start acrptmq
net start "CA Access Control Web Service"
net start im\_jcs
net start JBAS50SVC

10. Create a batch file to stop all CA Access Control service when the primary Enterprise Management Server resumes operation, as follows:

secons -s
net stop acrptmq
net stop "CA Access Control Web Service"
net stop im\_jcs
net stop JBAS50SVC

11. Configure the Microsoft cluster software to run the scripts on failure.

You have configured the secondary Enterprise Management Server.

#### More information:

Install CA Access Control Enterprise Management on Windows (see page 50)

## **Configure Active Directory for Failover**

If you use Active Directory as the user store, you can configure the Enterprise Management Server to work with multiple Domain Controllers. If the primary Domain Controller fails, another Domain Controller takes over and continues to service client requests.

#### Follow these steps:

1. Enable the CA Identity Manager Management Console (see page 78).

You use the CA Identity Manager Management Console to configure the list of Domain Controllers in the environment.

- 2. Open the CA Identity Manager Management Console (see page 79).
- 3. Click Directories, then select click ac-dir environment.

The Directory Properties window appears.

- 4. Click Export and save the XML file.
- Open the XML file for editing. Locate the <Connection host= host\_name> tag. For example:

<Connection host="primaryDir.com" port="389">

6. Append the string "**failover**" to the end of the line and specify the host name and port number of your Domain Controllers in a space separated list, then save the file. For example:

<Connection host="ADserver1" port="389" failover="ADserver2:389"/>

7. In the Management Console, click Update.

The Update Directory window opens.

8. Enter the full pathname of the XML file that you edited, or browse for the file, then click Finish.

Status information is displayed in the Directory Configuration Output field.

9. Click Continue, and restart the environment.

The Enterprise Management Server can now work with the primary and secondary Domain Controllers.

## **Configure CA Access Control Enterprise Management with Local DMS**

Configuring the DMS on the Enterprise Management Server to connect to the DMS using "localhost" rather than the fully qualified domain name.

#### To configure CA Access Control Enterprise Management with local DMS

1. Log into CA Access Control Enterprise Management, then select System, DMS, Modify Connection.

The Modify Connection:Search Connection windows appears.

2. Search for the default DMS connection and click Select.

The Modify Connection: ConnectionName window opens.

3. Modify the Host Name to LocalHost, as follows:

DMS\_\_@localhost

4. Click Submit.

The primary and secondary Distribution Hosts can now share the DMS computer.

# How to Configure the Distribution Servers for High Availability

To correctly configure multiple Distribution Servers in a high availability environment, set up the primary and secondary Distribution Servers in the correct order.

The following diagram shows the steps that you take to set up multiple Distribution Servers to work with one Enterprise Management Server.

**Important!** Complete the following steps only if you integrate CA Access Control Enterprise Management with CA Enterprise Log Manager. Configure the Distribution Servers for high availability to avoid losing all the events that the failed Distribution Server collected and did not send to the Enterprise Management Server and to the CA Enterprise Log Manager.



#### More information:

Install the Distribution Server (see page 370)

## **Configure the Primary Distribution Server**

The Distribution Server handles communication between the Application Server and the endpoints.

You should complete this procedure if you install standalone Distribution Servers only.

#### Follow these steps:

- 1. From the Services window, stop the JCS, CA Access Control and Message Queue Server services.
- 2. Modify the services to start up manually and not automatically.
- 3. Create the PMD directory on the shared storage.
- 4. Configure the Distribution Host to use the shared storage, as follows:
  - a. Copy the DH directory to the shared storage. This directory is located in the following location:

DistServerInstallDir/APMS/AccessControl/Data/DH\_\_

#### DistServerInstallDir

Defines the name of the directory where you installed the Distribution Server.

b. Copy the DH\_\_WRITER directory to the shared storage. This directory is located in the following location:

DistServerInstallDir/APMS/AccessControl/Data/DH\_WRITER

c. Copy the DMS\_\_ directory to the shared storage. This directory is located in the following location:

DistServerInstallDir/APMS/AccessControl/Data/DMS\_\_

 d. Set the \_pmd\_directory\_ registry key, under \ComputerAssociates\AccessControl\PMD, configuration setting to the full pathname of the shared storage directory you copied the DMS and DH to. For example: Z:\PMD.

The primary server is configured to use the DMS and DH on the shared storage.

- 5. Configure the Message Queue to use the shared storage, as follows:
  - a. Create a directory on the shared storage. For example: Z\MessageQueue
  - b. Copy the Message Queue datastore files to the shared storage. These files are located in the following directory:

DistServerInstallDir/MessageQueue/tibco/cfgmgmt/ems/data

c. Open the tibemsd.conf file for editing. This file is located in the following directory:

DistServerInstallDir/MessageQueue/tibco/cfgmgmt/ems/data

- d. Set the value of the "store" token to point to the directory on the shared storage where you copied the datastore files to. For example:
   F:\MessageQueue.
- e. Save and close the file.
- f. Open the queues.conf file for editing.
- g. Append a comma and add the word "**failsafe**" to the end of every queue definition line, then save the file.
- 6. Start the CA Access Control services.

#### Example: Edit the queues.conf File

The following snippet from the queues.conf file shows you how amend the file to configure the Message Queue to use the shared storage. queue/snapshots secure, failsafe queue/audit secure, failsafe ac\_endpoint\_to\_server secure, failsafe ac\_server\_to\_endpoint secure, failsafe

## **Configure the Secondary Distribution Server**

The secondary Distribution Server handles communication between the Application Server and the endpoints in case the active Distribution Server fails to respond within a predefined interval.

#### Follow these steps:

- 1. Stop the JCS, CA Access Control and Message Queue Server services.
- 2. Modify the services to start up manually and not automatically.
- SSet the \_pmd\_directory\_ registry key, under \ComputerAssociates\AccessControl\PMD, configuration setting to the full pathname of the shared storage directory you copied the DMS and DH to. For example: Z:\PMD.

The secondary Distribution Server can now access the DMS and DH files on the shared storage. You have configured the Distribution Host to use the shared storage.

- 4. Configure the Message Queue to use the shared storage, as follows:
  - a. Open the tibemsd.conf file for editing. This file is located in the following directory:

DistServerInstallDir/MessageQueue/tibco/cfgmgmt/ems/data

#### DistServerInstallDir

Defines the name of the directory where you installed the Distribution Server.

- b. Set the value of the "*store*" token to point to the directory on the shared storage where you copied the datastore files to, for example: Z:\Datastore.
- c. Save and close the file.
- d. Open the queues.conf file for editing.
- e. Append a comma and add the word "**failsafe**" at the end of every queue definition line, then save the file.
- 5. Verify that the CA Access Control services on the secondary server are stopped.

# **Configure Endpoints for High Availability**

After you installed and configured the primary and secondary Enterprise Management Servers, you set up the CA Access Control endpoints to work in a high availability environment.

#### To configure endpoints for high availability

1. Install CA Access Control with the Advanced Policy Management Client feature enabled on the endpoint.

The CA Access Control endpoint is installed.

2. Open a command prompt window on the endpoint and enter the following command:

dmsmgr -config -dhname names

This command configures the endpoint to work with the comma-separated list of Distribution Hosts.

Note:For more information about the dmsmgr utility, see the Reference Guide.

3. Set the *Distribution\_Server* configuration setting to list the Distribution Servers, separated by a comma:

ssl://ds1.sample.com:7243, ssl://ds2.sample.com:7243

4. Save the settings.

You have configured a list of Distribution Hosts and Distribution Servers with which the endpoint can communicate. The endpoint can now work in a high availability environment.

#### **Example: Configure a List of Distribution Servers**

The following example shows you how to configure a list of Distribution Servers for high availability.

During the installation of the endpoint, you are asked to enter the parameters of the Distribution Server that the endpoint communicates with. By default, this is the Enterprise Management Server. For high availability, you configure the endpoint to use the secondary Distribution Server when the primary Distribution Server fails.

1. Enter the names of the primary and secondary Distribution Servers:

dmsmgr -config -dhname DH\_\_@node1.computer.com,DH\_\_@node2.computer.com

A message appears confirming the action.

- 2. Specify the list of primary and secondary Distribution Server URLs.
  - UNIX: Modify the Distribution\_Server parameter in the [communication] section of accommon.ini file.
  - Windows: Modify the Distribution\_Sever value the Windows Registry. This parameter is found in:

 $\label{eq:heat} HKEY\_LOCAL\_MACHINE\SOFTWARE\ComputerAssociates\AccessControl\common\communication$ 

#### More information:

Installing and Customizing a Windows Endpoint (see page 163) Installing and Customizing a UNIX Endpoint (see page 195)

## **Oracle RAC Configuration for High Availability**

If you are using Oracle as the policy and reporting database, you can configure Oracle for high availability using Oracle RAC.Oracle Real Applications Cluster (RAC) is a cluster database based on a shared disc architecture that provides high availability for Oracle databases.

# Example: Configuring CA Access Control Enterprise Management for High Availability using Oracle RAC

The following example explains how you configure CA Access Control Enterprise Management to use Oracle RAC for high availability.

1. Prepare the Oracle database for Enterprise Management.

You create a user account on the Oracle RAC server and assign the user privileges to install CA Access Control Enterprise Management.

2. Implement CA Access Control Enterprise Management for high availability.

Install and configure the Primary and Secondary Enterprise Management Servers.

**Note**: Specify the logical name of the Oracle RAC in the Host Name and the shared service name in the Service Name field.

3. Verify that the Oracle RAC host name resolves correctly.

Map the host IP address to the logical name of the Oracle RAC. For example:

11.11.111.11	Node1MachineName
11.11.111.12	Node2MachineName
11.11.111.11	Node1LogicalMachineName
11.11.111.12	Node2LogicalMachineName

- 4. Modify the Primary and Secondary Enterprise Management Servers settings to use Oracle RAC. Do the following:
  - a. Stop the JBoss application server.
  - b. Navigate to the following path, where JBoss\_HOME indicates the directory where you install JBoss:

JBoss\_HOME/server/default/deploy

5. Open the following files for editing:

imauditdb-ds.xml
imtaskpersistencedb-ds.xml
imworkflowdb-ds.xml
objectstore-ds.xml
reportsnapshot-ds.xml

6. In each file, locate the <connection-url> tag and specify the host names and service name as follows:

<connection-url>jdbc:oracle:thin:@(DESCRIPTION=(LOAD\_BALANCE=off)(FAILOVER=on )(ADDRESS\_LIST=(ADDRESS=(protocol=tcp)(host=Node1LogicalMachineName)(port=152 1))(ADDRESS=(protocol=tcp)(host= Node2LogicalMachineName)()(port=1521)))(CONNECT\_DATA=(SERVER=DEDICATED)(SERVI

CE\_NAME=SharedService)))</connection-url>

7. In each file, add the following line:

<check-valid-connection-sql>select 1 from dual</check-valid-connection-sql>

8. Save and close the files.

9. Start the JBoss application server.

You have configured the Primary and Secondary Enterprise Management Servers.

# Chapter 11: Installing a Disaster Recovery Deployment

This section contains the following topics:

<u>Disaster Recovery Overview</u> (see page 359) <u>How to Install a Disaster Recovery Deployment</u> (see page 364) <u>The Disaster Recovery Process</u> (see page 374) <u>How to Recover from a Disaster</u> (see page 378) <u>How To Synchronize the Message Queue Servers Data Files</u> (see page 385)

## **Disaster Recovery Overview**

Disaster recovery lets you restore your system after a subsystem crash or other catastrophic failure occurs.

The goal of disaster recovery is to restore as much data as possible, and to limit the resources needed during the backup and restore phases.

#### More information:

Disaster Recovery (see page 359) Disaster Recovery Architecture (see page 361) Components for Disaster Recovery (see page 362) How a Disaster Recovery Deployment on the Endpoint Works (see page 362)

## **Disaster Recovery**

A disaster recovery deployment makes it easier to restore the Enterprise Management Server in the event of a catastrophic system failure. If the CA Access Control and PUPM endpoints cannot connect to the production environment, they connect to the disaster recovery environment until the production environment is restored. A disaster recovery deployment has the following benefits:

- The database of the disaster recovery DMS is a duplicate of the production DMS database. This means that you have a copy of your policies if the production DMS database becomes corrupt.
- An endpoint can connect to the production or disaster recovery environment. If the production environment goes down, an endpoint sends data to the disaster recovery environment, so information about policy status and deviations is not lost in the event of a catastrophic system failure.
- You do not have to re-subscribe each endpoint after you have recovered from a disaster.

The following CA Access Control components are not backed up or restored during the disaster recovery process. Back up these components separately:

- Password policy models
- PMDBs
- RDBMSs
- CA Access Control Endpoint Management
- CA Access Control Enterprise Management
- data on the endpoints
- CA Access Control audit files
- The CA Access Control endpoints
- Reports
- Message Queue
- CA Business Intelligence

Note: The DMS audit file is saved when the DMS is backed up.
## **Disaster Recovery Architecture**



The following diagram shows how you deploy CA Access Control in a disaster recovery configuration.

## **Components for Disaster Recovery**

You need the following components to deploy CA Access Control in a disaster recovery configuration:

- For the production environment:
  - One installation of the Enterprise Management Server
  - Central database (RDBMS)
  - One or more installation of the Distribution Server.
- For the disaster recovery environment:
  - One installation of Enterprise Management Server
  - Central database (RDBMS)
  - One or more installation of the Distribution Server.

Consider the following points when planning a disaster recovery deployment:

- You can restore a DMS only from backup files saved on the same platform, operating system, and version of CA Access Control. For example, you cannot restore a DMS using CA Access Control r12.5 from backup files of a DMS using CA Access Control r12.0 SP1.
- You can set up clustering or other failover solution on your RDBMS.
- You should synchronize the data in the RDBMS between the production and disaster recovery server.
- You should synchronize Message Queue data stores between the production and disaster recovery servers.

## How a Disaster Recovery Deployment on the Endpoint Works

A disaster recovery deployment creates a duplicate of your production Distribution Server database, helps ensure that data sent from endpoints is not lost in a system failure, and makes it easier to restore the production environment after a disaster.

The following process describes how a disaster recovery deployment on the endpoint works:

1. You configure the endpoint to work against a list of production and disaster recovery Distribution Servers.

- 2. At the specified time, the endpoint attempts to connect to the Distribution Server in the production environment.
  - a. The endpoint attempts to connect to the first production Distribution Server in its list. If it does not connect, it tries to connect to that Distribution Server for a specified number of attempts. *One* of the following happens:
    - The endpoint connects to the production Distribution Server. The process ends at this step.
    - The endpoint can not connect to the production Distribution Server. The process goes to step b.

**Note:** The number of times the endpoint attempts to connect to Distribution Server and the Distribution Servers to connect to is defined in the Distribution\_Server configuration setting in the communication section and max\_dh\_command\_retry configuration setting in the policyfetcher section.

- b. The endpoint attempts to connect to the second production Distribution Server in its list, then the third, and so on (for the same defined number of times, if necessary). One of the following happens:
  - The endpoint connects to a production Distribution Server. The process ends at this step.
  - The endpoint can not connect to any production Distribution Server, and the cycle ends. The process goes to step 3.
- 3. The endpoint repeats Step 2 for a specified number of cycles. *One* of the following happens:
  - The endpoint connects to a production Distribution Server. The process ends at this step.
  - The endpoint does not connect to a production Distribution Server. The process goes to the next step.

**Note:** The number of times the endpoint attempts to connect to Distribution Server and the Distribution Servers to connect to is defined in the Distribution\_Server configuration setting in the communication section and max dh command retry configuration setting in the policyfetcher section.

4. The endpoint attempts to connect to the first disaster recovery Distribution Server in its list. If it does not connect to this Distribution Server, it tries to connect to the second disaster recovery Distribution Server in its list, then the third, and so on, until the endpoint connects to a disaster recovery Distribution Server.

**Note:** If an endpoint cannot connect to a production or disaster recovery Distribution Server, it will not send a heartbeat to the DMS. To determine if an endpoint is online or offline, check what time the last heartbeat notification was sent to the DMS.

- 5. After it has connected to a disaster recovery Distribution Server, the endpoint continually tries to connect to a production Distribution Server. *One* of the following happens:
  - The endpoint connects to a production Distribution Server, and returns to the production environment.
  - The endpoint does not connect a production Distribution Server. The endpoint remains in the disaster recovery environment, and repeats Step 4.

**Note:** For more information about the policyfetcher and communication sections, see the *Reference Guide*.

## How to Install a Disaster Recovery Deployment

To verify that you correctly subscribe the disaster recovery components to each other, you setup the production and disaster recovery components in the order specified in the following process.

A disaster recovery configuration makes it easier to restore your Enterprise Management Server components in the event of a catastrophic system failure. You may need to back up other CA Access Control components separately, for example the central database (RDBMS).

**Important!:** You cannot restore a DMS from backup files that use another operating environment or version of CA Access Control. Verify that the production and disaster recovery environments are deployed on identical platforms, operating systems, and versions of CA Access Control.

Note: This process assumes that you installed the DMS and DH on separate hosts.

The following process describes how to install a disaster recovery deployment:

- 1. Set up the production Enterprise Management Sever (see page 365)
- 2. <u>Set up the disaster recovery Enterprise Management Server</u> (see page 366)
- Configure databases replication between the production and disaster recovery servers
- 4. <u>Configure DMS subscriptions</u> (see page 368)
- 5. Synchronize the Message Queue servers data files (see page 385)
- 6. <u>Set up an endpoint</u> (see page 369).

**Note**: We recommend that you install the RDBMS over a cluster or any other method that allows data synchronization between sites.

## Set Up the Production CA Access Control Enterprise Management

The production Enterprise Management Server contains the DMS. The DMS stores up-to-date information about policy versions, policy scripts, and the policy deployment status of each endpoint. You use the production DMS to deploy and manage your enterprise policies.

Because the production DHs and the disaster recovery DMS subscribe to the production DMS, set up the production DMS before you set up any other disaster recovery component. This helps ensure that the subscriptions are correctly configured later in the installation process.

#### To set up the production Enterprise Management Server

1. Implement the Enterprise Management Server (see page 50).

All the web-based applications, the Distribution Server, the DMS, and CA Access Control are installed.

2. (Optional) Implement the Distribution Server (see page 370).

The Message Queue and the Java Connector Server are installed.

3. (Optional) If you want to remove the local DH from the Enterprise Management Server and use the DH on the Distribution Server, to maintain a separation between the management and distribution server, run the following command on the production Enterprise Management Server:

dmsmgr -remove -dh name

#### -dh *name*

Removes a DH with the name specified on the local host.

Example: dmsmgr -remove -dh DH

The above example removed a DH named DH from the host.

The production DMS is created with no subscribers.

- 4. Configure the Message Queue to work in failsafe mode. Do the following:
  - a. Navigate to the following directory, where *ACServerInstallDir* is the directory where the directory where you installed the Enterprise Management Server:

ACServerInstallDir/MessageQueue/tibco/cfgmgmt/ems/data

- b. Open the queues.conf file for editing.
- c. Add the word "**failsafe**" at the end of every queue definition line, then save and close the file.
- 5. <u>Configure CA Access Control Enterprise Management with local DMS</u> (see page 349).

You have installed and configured the production Enterprise Management Server. You can now configure the disaster recovery Enterprise Management Server.

#### Example: Edit the queues.conf File

The following snippet from the queues.conf file is an example of how you amend the file to configure the Message Queue to use the shared storage.

queue/snapshots secure,failsafe
queue/audit secure,failsafe
ac\_endpoint\_to\_server secure,failsafe
ac\_server\_to\_endpoint secure,failsafe

## Set up the Disaster Recovery CA Access Control Enterprise Management

The disaster recovery Enterprise Management Server deploys and manages your enterprise policies in the event of a catastrophic system failure. Because the disaster recovery Enterprise Management Server is a subscriber of the production Enterprise Management Server, its database contains the same information about policy versions, policy scripts, and endpoint deployment status as the production Enterprise Management Server.

**Note**: Configure the production Enterprise Management Server before you set up the disaster recovery Enterprise Management Server.

#### To set up the disaster recovery Enterprise Management Server

1. Copy the FIPSKey.dat file from the production Enterprise Management Server to the disaster recovery server. The file is located in the following directory, where *JBoss\_HOME* indicates the directory where you installed JBoss:

JBoss\_HOME/server/default/deploy/IdentityMinder.ear/config/com/netegrity/conf ig/keys

2. <u>Implement the Enterprise Management Server on the disaster recovery server</u> (see page 50).

All the web-based applications, the Distribution Server, the DMS, and CA Access Control are installed.

Important! Specify the FIPSKey.dat file you copied from the production Enterprise Management Server when you launch the installation process. For example: E:\EnterpriseMgmt\Disk1\InstData\NoVM\install\_EntM\_r125.exe -DFIPS\_KEY=C:\tmp\FIPSkey.dat 3. (Optional) Implement the disaster recovery Distribution Server (see page 373).

The Message Queue and Java Connector Server are installed.

4. (Optional) If you want to remove the local DH and use the DH on the Distribution Server, to maintain a separation between the management and distribution server, run the following command on the disaster recovery Enterprise Management Server:

dmsmgr -remove -dh name

#### -dh *name*

Removes a DH with the name specified on the local host.

**Example**: *dmsmgr* -*remove* -*dh* DH

The disaster recovery DMS is created with no subscribers.

- 5. Configure the Message Queue to work in failsafe mode. Do the following:
  - a. Navigate to the following directory, where *ACServerInstallDir* is the directory where the directory where you installed the Enterprise Management Server:

ACServerInstallDir/MessageQueue/tibco/cfgmgmt/ems/data

- b. Open the queues.conf file for editing.
- c. Add the word "failsafe" at the end of every queue definition line, then save and close the file.
- <u>Configure CA Access Control Enterprise Management with local DMS</u> (see page 349).

You have installed and configured the disaster recovery Enterprise Management Server.

#### Example: Edit the queues.conf File

The following snippet from the queues.conf file is an example of how you amend the file to configure the Message Queue to use the shared storage.

queue/snapshots secure,failsafe
queue/audit secure,failsafe
ac\_endpoint\_to\_server secure,failsafe
ac\_server\_to\_endpoint secure,failsafe

## **Configure the DMS Subscription**

The disaster recovery Enterprise Management Server is a subscriber of the production Enterprise Management Server. Therefore, its database contains the same information about policy versions, policy scripts, and endpoint deployment status as the production Enterprise Management Server.

You configure the database of the disaster recovery Enterprise Management Server as a subscriber of the production Enterprise Management Server to synchronize the two databases.

#### To configure the DMS subscription

- 1. Move to the disaster recovery Enterprise Management Server.
- 2. Define the production Enterprise Management Server as the parent of the disaster recovery Enterprise Management Server. Run the following command:

env pmd

subs drpmd\_name parentpmd(<pr\_dms\_pmdname>@pr\_host)

#### drpmd\_name

Defines the name of the disaster recovery PMDB.

- 3. Move to the production Enterprise Management Server:
- 4. Run the following command:

sepmd -n prDMS\_name drDMS\_name

#### prDMS\_name

Defines the name of the production DMS.

#### drDMS\_name

Defines the name of the disaster recovery DMS. Specify the disaster recovery DMS in the following format: *drDMS\_name@hostname*.

The disaster recovery Enterprise Management Server is subscribed to and synchronized with the production Enterprise Management Server.

## Set Up an Endpoint

Once you install the Enterprise Management Server in the production and disaster recovery environments, you need to configure each endpoint in your enterprise to work with the production and disaster recovery server components. In doing so, you configure the endpoint to send information to and receive information from the server components.

**Note:** Provide the Advanced Policy Management Server Component host name as part of the installation process. Enter the names of the production DHs in the following format: *prDH\_name@hostname[, prDH\_name@hostname..*]

#### To set up an endpoint

1. Install CA Access Control endpoint functionality, with the Advanced Policy Management Client Components enabled, on the endpoint host.

CA Access Control endpoint functionality is installed on the host, and the endpoint is subscribed to the production DHs.

- 2. Open a selang command window on the endpoint.
- 3. Enter the following command:

so dh\_dr+(drDH\_name[, drDH\_name...])

#### drDH\_name

Defines the names of the disaster recovery DH.Format: *drDH\_name@hostname*.

The endpoint is subscribed to the disaster recovery DHs.

- 4. Specify the list of production and disaster recovery Distribution Server URLs.
  - UNIX: Modify the Distribution\_Server parameter in the [communication] section of accommon.ini file.
  - Windows: Modify the Distribution\_Sever value the Windows Registry. This parameter is found in:

 $\label{eq:heat} \texttt{HKEY\_LOCAL\_MACHINE\SOFTWARE}\computerAssociates\AccessControl\common\communication} \\$ 

**Note**: For more information about the Distribution\_Server value, see the *Reference Guide*.

**Note:** You can also subscribe an endpoint to a disaster recovery DH by creating a policy with the stated selang command and deploying it to the endpoint. For more information about creating and deploying policies, see the *Enterprise Administration Guide*.

## Additional Information for Installing a Disaster Recovery Deployment

The following topics describe additional configuration steps that you may need to perform to install a disaster recovery deployment.

### Install the Distribution Server

When you configure CA Access Control to work in a disaster recovery or high availability environment, you install the Distribution Servers on separate computers and configure the Distribution Servers to propagate files between them.

#### To install the Distribution Server

- 1. Insert the appropriate CA Access Control Premium Edition Server Components DVD for your operating system into your optical disc drive.
- 2. Do either of the following:
  - On Windows:

If you have autorun enabled, the Product Explorer automatically appears. Do the following:

- a. If the Product Explorer does not appear, navigate to the optical disc drive directory and double-click the ProductExplorerx86.EXE file.
- b. Expand the Components folder in the Product Explorer, select CA Access Control Distribution Server, then click Install.

The InstallAnywhere installation program starts.

- On UNIX:
  - a. Mount the optical disc drive.
  - b. Open a terminal window and navigate to the following directory on the optical disc drive:

/DistServer/Disk1/InstData/NoVM

c. Run the following command:

./install\_DistServer\_r125.bin -i console

The InstallAnywhere installation program starts.

3. Complete the wizard as required. The following installation inputs are not self-explanatory:

#### **Message Queue Settings**

Defines the Message Queue server administrator password (Communication Password).

Limits: Minimum of six (6) characters

#### Java Connector Server - Provisioning Directory Information

Defines the password for the Java Connector Server.

**Note:** The Java Connector Server provides CA Access Control Enterprise Management with privileged account management capabilities.

The CA Access Control Distribution Server installation is complete.

**Note:** You must complete additional steps if you install the Distribution Server as part of a disaster recovery implementation.

#### More information:

<u>Set Up the Production Distribution Server</u> (see page 371) <u>Set Up the Disaster Recovery Distribution Server</u> (see page 373)

### Set Up the Production Distribution Server

The production Distribution Server contains the DH. The DH distributes policy deployments made on the production DMS to the endpoints, and receives deployment status updates from the endpoints to send to the production DMS.

Because the production DHs and the disaster recovery DMS subscribe to the production DMS, set up the production DMS before you set up any other disaster recovery component. This helps ensure that the subscriptions are correctly configured later in the installation process.

#### To set up the production Distribution Server

- 1. <u>Install the Distribution Server</u> (see page 370) on the production Distribution Server computer.
- 2. Run the following command on the production Distribution Server to configure the DH:

```
dmsmgr -remove -auto
```

```
dmsmgr -create -dh name -parent name\
[-admin user[,user...]] [-desktop host[,host...]]
```

#### -dh *name*

Creates a DH with the *name* specified on the local host.

#### -parent name

Defines the production DMS that the DH will send endpoint notifications to. Specify the production DMS in the following format: *DMS\_name@hostname*.

#### -admin user[,user...]

(Optional) Defines internal users as administrators of the created DH.

#### -desktop host[,host...]

(Optional) Defines a list of computers that have TERMINAL access rights to the computer with the created DH.

**Note:** Whether specified or not, the terminal running the utility is always granted administration rights for the created DH.

The production DH is created and configured.

3. Run the following command:

sepmd -n prDMS\_name prDH\_name

#### prDMS\_name

Defines the name of the production DMS.

#### prDH\_name

Defines the name of the production DHs. Specify the name in the following format: *prDH\_name@hostname*.

#### Example: DH\_\_\_@prdh.com

The DH is subscribed to and synchronized with the production DMS.

- Set up Message Queue routing between the Distribution Server and the production DMS (see page 91).
- 5. Repeat Steps 1-4 for each production Distribution Server.

#### Set Up the Disaster Recovery Distribution Server

Because the disaster recovery Distribution Server is a subscriber of the production Distribution Server, its database contains the same information about policy versions, policy scripts, and endpoint deployment status as the production Distribution Server.

**Note:** You must set up the production Distribution Server before you set up the disaster recovery Distribution Server.

#### To set up the disaster recovery Distribution Server

- 1. <u>Install the Distribution Server</u> (see page 370) on the disaster recovery Distribution Server computer.
- 2. Run the following command on the disaster recovery Distribution Server to configure the DH:

dmsmgr -remove -auto

dmsmgr -create -dh name -parent name\
[-admin user[,user...]] [-admin user[,user...]]

#### -dh name

Creates a DH with the *name* specified on the local host.

#### -parent name

Defines the disaster recovery DMS that the DH will send endpoint notifications to. Specify the disaster recovery DMS in the following format: *drDMS\_name@hostname*.

#### -admin user [,user...]

(Optional) Defines internal users as administrators of the created DH.

#### -desktop *host*[,*host*...]

(Optional) Defines a list of computers that have TERMINAL access rights to the computer with the created DH.

**Note:** Whether specified or not, the terminal running the utility is always granted administration rights for the created DH.

The disaster recovery DH is created and configured.

3. Run the following command on the disaster recovery Distribution Server:

sepmd -n drDMS\_name drDH\_name

#### drDMS\_name

Defines the name of the disaster recovery DMS.

#### drDH\_name

Defines the name of the disaster recovery DH. Specify the name in the following format: *drDH\_name@hostname*.

Example: DH\_\_@drdh.com

The DH is subscribed to and synchronized with the disaster recovery DMS.

- Set up Message Queue routing between the Distribution Server and the disaster recovery DMS (see page 91).
- 5. Repeat Steps 1-4 for each disaster recovery Distribution Server.

## **The Disaster Recovery Process**

The disaster recovery process has two stages: backup and restoration. In the backup stage, the data in the DMS database is copied into another directory. In the restoration stage, the dmsgmr utility uses the backup DMS files to restore an existing DMS, or create a DMS.

**Note:** A disaster recovery configuration makes it easier to restore your advanced policy management components in the event of a catastrophic system failure. You may need to back up other CA Access Control components separately.

#### More information:

Data That Can Be Restored (see page 375) When to Restore a DMS (see page 375) When to Restore a DH (see page 376) How a DMS Is Restored (see page 376) How a DH Is Restored (see page 377)

### **Data That Can Be Restored**

When you restore a DMS, dmsmgr uses backup files from another DMS to create a new DMS. When you restore a DH, dmsmgr copies data from the DMS backup files to the DH Reader directory. In both cases you restore the same data.

The data that you restore is a duplicate of the data in the DMS database, and includes:

- Information about your enterprise policies, versions, and assignments
- Information about deployment and policy status, deployment deviation, and deployment hierarchy
- Host and host group definitions
- Configuration settings
- The updates.dat file
- Registry entries
- DMS audit file

Note: You do not need to restore the DH\_\_\_Writer because it has a transient database.

### When to Restore a DMS

When you restore a DMS, dmsmgr uses backup files from another DMS to create a new DMS. The following scenarios describe when to restore a production DMS:

- When a catastrophic production system failure has occurred.
- When the production DMS database is corrupt.
- When you need to set up a new production DMS on a different host.

The following scenarios describe when to restore a disaster recovery DMS:

- When the disaster recovery DMS is not in sync with the production DMS.
- When the disaster recovery DMS database is corrupt.
- When you need to set up a new disaster recovery DMS on a different host.

**Note:** You can restore a DMS over an existing DMS, or into a new directory where no DMS exists.

## When to Restore a DH

When you restore a DH, dmsmgr copies data from the DMS backup files to the DH Reader directory. The following scenarios describe when to restore a DH:

- When a catastrophic production system failure has occurred.
- When the DH database is corrupt.
- When the DH is out of sync with its DMS.
- When you need to set up a new DH on a different host.

**Note:** You do not need to restore the DH Writer because it has a transient database. Check that the DH Writer is present in the existing DH file structure before you restore a DH.

## How a DMS Is Restored

Understanding how the dmsmgr utility restores a DMS helps you diagnose any problems that may occur during the restoration process.

The following process describes how dmsmgr restores a DMS:

- 1. dmsmgr removes the existing DMS.
- 2. dmsmgr copies the backup DMS files from the location that you specified into the DMS directory.
- 3. dmsmgr deletes any subscribers to the DMS.
- 4. One of the following happens:
  - If you restore a production DMS, dmsmgr adds the disaster recovery DMS to the production DMS as its first subscriber, with an offset value equal to the last global offset stored in the backup files.
  - If you restore a disaster recovery DMS, dmsmgr re-subscribes the disaster recovery DMS to the production DMS, with an offset value equal to the last global offset stored in the backup files.
- 5. dmsmgr subscribes each DH to the DMS. Each DH has an offset value of 0 and out of sync status.

**Note:** A DH cannot receive updates from the DMS when it is out of sync. To release the DH from out of sync status, restore the DH.

### How a DH Is Restored

Understanding how the dmsmgr utility restores a DH helps you diagnose any problems that may occur during the restoration process.

The following process describes how dmsmgr restores a DH:

- 1. dmsmgr removes the existing DH.
- 2. dmsmgr copies the backup DH files from the location that you specified into the DH directory.
- 3. dmsmgr subscribes the DH to the DMS with an offset value equal to the last global offset stored in the backup files.
- 4. dmsmgr clears the out of sync flag on the DH.

## **Offset Values**

The updates.dat file stores each command that the DMS deploys. When you create a new subscriber, the Policy Model sends the commands in the updates.dat file to the subscriber. Each command is indexed by an increasing number, called the *offset value*.

When you add a subscriber to the DMS, you can specify an offset of:

- **0**—The Policy Model sends all commands to the subscriber.
- **The last offset**—The Policy Model sends no commands to the subscriber.
- An integer X between 0 and the last offset—The Policy Model sends all commands between X and the last offset to the subscriber.

### **Out of Sync Subscribers**

An *out of sync subscriber* is a subscriber that has not received any updates since the updates.dat file was last truncated. Flagging a subscriber as out of sync lets CA Access Control ignore the subscriber, and no commands are sent to this subscriber.

An out of sync subscriber does not receive any updates from its parent DMS or Policy Model. To clear the out of sync flag and let the subscriber receive updates, you must re-subscribe the subscriber to its parent.

If every subscriber to a parent DMS or Policy Model is out of sync, the parent effectively has no subscribers.

## How to Recover from a Disaster

If a production system failure occurs, the endpoints work against the disaster recovery environment. When you recover from a disaster, you move operation from the disaster recovery environment back to the restored production environment.

The following process describes how to recover from a disaster:

- 1. Stop CA Access Control on the production Enterprise Management Server and the production Distribution Servers.
- 2. Stop all administrative work against the disaster recovery DMS, that is, stop CA Access Control Enterprise Management and the policydeploy utility.
- 3. (Optional) Auto-truncate the updates.dat file.
- 4. Back up the disaster recovery DMS. You can back up the DMS using either of the following methods:
  - local backup (see page 379)
  - <u>remote backup</u> (see page 380)
- 5. Restore the production database (RDBMS).
- <u>Restore the production DMS</u> (see page 382) from the disaster recovery DMS backup files.
- 7. Start CA Access Control on the production DMS.
- 8. Back up the production DMS.You can back up the DMS using either of the following methods:
  - <u>local backup</u> (see page 379)
  - <u>remote backup</u> (see page 380)
- 9. <u>Restore each production DH</u> (see page 381) from the production DMS backup files.
- 10. Start CA Access Control on each production Distribution Server.
- 11. Move all administrative work to the production DMS, that is, start CA Access Control Enterprise Management and the policydeploy utility on the production CA Access Control Enterprise Management.

- 12. (Optional) If the disaster recovery DMS is out of sync with the production DMS, complete the following steps:
  - a. <u>Restore the disaster recovery DMS</u> (see page 383) from the production DMS backup files.
  - b. Back up the disaster recovery DMS.You can back up the DMS using either of the following methods:
    - <u>the sepmd utility</u> (see page 379)
    - <u>selang commands</u> (see page 380)
  - c. <u>Restore each disaster recovery DH</u> (see page 381) from the disaster recovery DMS backup file.

## Back Up the DMS Using sepmd

Backup the DMS to save copies of the policies that you deployed to the endpoints and reports snapshots that the Enterprise Management Server received from the endpoints.

When you back up the DMS, you copy the data from the DMS database to a specified directory.

The sepmd utility backs up the DMS only on a local host. You should store the backed up DMS files in a secure location, preferably protected by CA Access Control access rules. We recommend that you auto-truncate the updates.dat file before you back up the DMS.

Note: You can also use selang commands to back up a DMS on a local or remote host.

#### To back up the DMS using sepmd

1. Lock the DMS using the following command:

sepmd -bl dms\_name

The DMS is locked, and cannot send any commands to its subscribers.

2. Back up the DMS database using the following command:

sepmd -bd dms\_name [destination\_directory]

#### dms\_name

Defines the name of the DMS that is backed up on the local host.

#### destination\_directory

Defines the directory the DMS is backed up to.

Default: (UNIX) ACInstallDir/data/policies\_backup/dmsName

Default: (Windows) ACInstallDir\data\policies\_backup\dmsName

The DMS database is backed up to the destination directory.

3. Unlock the DMS using the following command:

sepmd -ul dms\_name

The DMS is unlocked, and can send commands to its subscribers.

## Back Up the DMS Using selang

Back up the DMS to copy the data from the DMS database to a specified directory.

You can use selang commands to back up a DMS on a local or a remote host. You should store the backed up DMS files in a secure location, preferably protected by CA Access Control access rules. We recommend that you auto-truncate the updates.dat file before you back up the DMS.

Note: You can also use the sepmd utility to back up a DMS on a local host.

#### To back up the DMS using selang

1. (Optional) If you are using selang to connect to the DMS from a remote host, connect to the DMS host using the following command:

host dms\_host\_name

2. Move to the PMD environment using the following command:

env pmd

3. Lock the DMS using the following command:

pmd *dms\_name* lock

The DMS is locked, and cannot send any commands to its subscribers.

4. Back up the DMS database using the following command:

backuppmd dms\_name [destination(destination\_directory)]

#### dms\_name

Defines the name of the DMS that is backed up on the local host.

#### destination(destination\_directory)

Defines the directory the DMS is backed up to.

Default: (UNIX) ACInstallDir/data/policies\_backup/dmsName

Default: (Windows) ACInstallDir\data\policies\_backup\dmsName

The DMS database is backed up to the destination directory.

5. Unlock the DMS using the following command:

pmd dms\_name unlock

The DMS is unlocked, and can send commands to its subscribers.

### **Restore a DH**

Restore a DH to copy data from the DMS backup files into the DH\_Reader directory using the dmsmgr utility.You do not need to restore a DH Writer because it has a transient database. Check that the DH Writer is present in the existing DH file structure before you restore a DH.

**Note**: If the DH Writer is not present in the existing DH file structure, or you want to set up a new DH, use the dmsmgr -create function to create a new DH before you restore a DH.

**Note:** You must have full administrative access to the operating system to use the dmsmgr utility.

To restore a DH, run the following command on the DH host:

dmsmgr -restore -dh name -source path -parent name\
[-admin user[,user...]] [-xadmin user[,user...]] [-desktop host[, host...]]

#### -admin user[,user...]

(UNIX) Defines internal users as administrators of the restored DMS or DH.

#### -desktop host[, host...]

(Optional) Defines a list of computers that have TERMINAL access rights to the computer with the restored DH.

**Note:** Whether specified or not, the terminal running the utility is always granted administration rights for the restored DH.

#### -dh name

Defines the name of the DH that is restored on the local host.

#### -parent name

Defines the name of the parent DMS the restored DH will subscribe to. Specify the parent DMS in the following format: DMS\_name@hostname.

#### -source path

Defines the directory that contains the backup files to restore.

#### -xadmin user[,user...]

(UNIX) Defines enterprise users as administrators of the restored DMS or DH.

The DH is restored and the DH is subscribed to the DMS.

## **Restore the Production DMS**

When you restore the production DMS, dmsmgr copies the data from the disaster recovery DMS backup files into the production DMS directory.

**Note:** You must have full administrative access to the operating system to use the dmsmgr utility.

To restore the production DMS, enter the following command on the production DMS host:

dmsmgr -restore -dms name -source path -replica name\
[-subscriber dhname[,dhname...]] [-admin user[,user...]]\
[-xadmin user[,user...]]

#### -admin user[,user...]

(UNIX) Defines internal users as administrators of the restored DMS or DH.

#### -dms name

Defines the name of the DMS that is restored on the local host.

#### -replica name

Defines the name of the disaster recovery DMS that is subscribed to the production DMS. Specify the disaster recovery DMS in the following format: DMS name@hostname.

#### -subscriber dh\_name[, dh\_name...]

(Optional) Defines a comma-separated list of DHs that the restored DMS will send policy updates to. Specify each DH in the following format: *DH\_name@hostname*.

#### -source path

Defines the directory that contains the backup files to restore.

#### -xadmin user[,user...]

(UNIX) Defines enterprise users as administrators of the restored DMS or DH.

The production DMS is restored.

**Note:** After you restore the production DMS, you must back up the production DMS and restore the production DHs from the backup file. This ensures that the production DMS and production DHs are synchronized.

## **Restore the Disaster Recovery DMS**

When you restore the disaster recovery DMS, dmsmgr copies the data from the backup files into the disaster recovery DMS directory.

**Note:** You must have full administrative access to the operating system to use the dmsmgr utility.

To restore the disaster recovery DMS, enter the following command on the disaster recovery DMS host:

dmsmgr -restore -dms name -source path -parent name\
[-subscriber dhname[, dhname...]] [-admin user[, user...]]\
[-xadmin user[, user...]]

#### -admin user[,user...]

(UNIX) Defines internal users as administrators of the restored DMS or DH.

#### -dms name

Defines the name of the DMS that is restored on the local host.

#### -parent name

Defines the name of the production DMS that the restored disaster recovery DMS will subscribe to. Specify the production DMS in the following format: DMS\_name@hostname.

#### -source path

Defines the directory that contains the backup files to restore.

#### -subscriber dh\_name[, dh\_name...]

(Optional) Defines a comma-separated list of DHs that the restored DMS will send policy updates to. Specify each DH in the following format: *DH\_name@hostname*.

-xadmin user[,user...]

(UNIX) Defines enterprise users as administrators of the restored DMS or DH.

The disaster recovery DMS is restored and the disaster recovery DMS is subscribed to the production DMS.

**Note:** After you restore the disaster recovery DMS, you must back up the disaster recovery DMS and restore the disaster recovery DHs from the backup file. This ensures that the disaster recovery DMS and disaster recovery DHs are synchronized.

## Back Up the Message Queue Server Data Files

Back up the Message Queue Servers data files to copy data from the production Message Queue Server to the disaster recovery Message Queue Server.

To back up the message queue server data files, copy the Message Queue Server data file from the production Distribution Server to the disaster recovery Distribution Server. By default, the data files are located in the following directory, where *ACServerInstallDir* is the directory in which you installed the Message Queue Server:

ACServerInstallDir/MessageQueue/tibco/ems/bin/datastore

## **Restore the Message Queue Server Data Files**

Restore the Message Queue Servers data files to copy data from the disaster recovery Message Queue Server to the production Message Queue Server.

To restore the message queue server data files, copy the Message Queue Server data file from the disaster recovery Distribution Server to the production Distribution Server. By default, the data files are located in the following directory, where *ACServerInstallDir* is the directory in which you installed the Message Queue Server:

ACServerInstallDir/MessageQueue/tibco/ems/bin/datastore

## How To Synchronize the Message Queue Servers Data Files

When you work in a disaster recovery environment, it is crucial to synchronize the production and disaster recovery Message Queue Servers. Synchronizing the servers helps ensure that the data on both the production and disaster recovery Message Queue Servers is updated and, if the production servers do not function, the disaster recovery servers can continue servicing the data without interruptions.

**Note:** The synchronization solution is based on a third-party replication tool. Verify that the storage solution writes the data blocks to a shared storage in the same order as they occur in the data buffer. Verify that upon return from a synchronous write call, the storage solution help ensure that all the data was written to durable, persistent storage.

To synchronize the data files of the Message Queue Servers, do the following:

- 1. On the production Distribution Server, set up message routing settings between the Message Queue Server and all the Message Queue Servers installed on the Enterprise Management Server.
- 2. Set up message routing settings between the Message Queue Servers on the disaster recovery Distribution Servers and the disaster recovery Enterprise Management Server.
- 3. Modify the queues.conf file on both the disaster recovery and production Message Queue Servers on the Enterprise Management Server and add a "fail-safe" line.

For example:

queue/snapshots secure,failsafe
queue/audit secure, failsafe
ac\_endpoint\_to\_server secure, failsafe
ac\_server\_to\_endpoint secure,failsafe

By default this file is located in the following directory, where *ACServerInstallDir* is the directory in which you installed the Enterprise Management Server:

ACServerInstallDir/MessageQueue/tibco/cfgmgmt/ems/data

4. Replicate the production Message Queue Server EMS data files on the Enterprise Management Server to the Message Queue Server on the disaster recovery Enterprise Management Server using a third-party replication tool.

By default, the Message Queue Server EMS data files are located in the following directory, where *ACServerInstallDir* is the directory in which you installed Enterprise Management Server:

ACServerInstallDir/MessageQueue/tibco/cfgmgmt/ems/data/datastore

You have configured the Message Queue Servers EMS data files synchronization settings.

# Chapter 12: Integrating with CA User Activity Reporting Module

This section contains the following topics:

About CA User Activity Reporting Module (see page 387) CA User Activity Reporting Module Integration Architecture (see page 387) How to Set Up CA User Activity Reporting Module for CA Access Control (see page 391) How Configuration Settings Affect the Report Agent (see page 394) Configure an Existing Windows Endpoint for CA User Activity Reporting Module Integration (see page 398) Configure an Existing UNIX Endpoint for CA User Activity Reporting Module Integration (see page 399) Queries and Reports for CA Access Control Events (see page 400) How to Enable CA User Activity Reporting Module Reports in CA Access Control (see page 400)

## About CA User Activity Reporting Module

CA User Activity Reporting Module focuses on IT compliance and assurance. It lets you collect, normalize, aggregate, and report on IT activity, and generate alerts requiring action when possible compliance violations occur. You can collect data from disparate security and non-security devices.

## CA User Activity Reporting Module Integration Architecture

Integration with CA User Activity Reporting Module lets you send CA Access Control audit events from each of your endpoints for collection and reporting by CA User Activity Reporting Module.

You can configure CA Access Control to send audit events from the audit file on the local endpoint to a remote audit queue on the Distribution Server. You can then configure a CA User Activity Reporting Module connector to connect with the audit queue and pull events (messages) from it. CA User Activity Reporting Module processes these events and sends them to the CA User Activity Reporting Module server.

The CA Access Control installation supports CA User Activity Reporting Module integration.



The following diagram shows the architecture of CA User Activity Reporting Module integration components:

The preceding diagram illustrates the following:

- Each endpoint, containing a CA Access Control database (seosdb), has the Report Agent component installed.
- The Report Agent collects audit data from the endpoint and sends them to the Distribution Server.
- The Distribution Server accumulates the audit data in an audit queue.
- A CA User Activity Reporting Module agent collects events from the audit queue and sends it to the CA User Activity Reporting Module server for processing.

**Note:** CA User Activity Reporting Module integration relies on reporting service components. As such, your architecture includes other reporting service components and features that are not used for CA User Activity Reporting Module integration. These components and features are dimmed in the diagram.

**Note**: CA Access Control Enterprise Management installs the Distribution Server on the Enterprise Management Server by default. For high availability purposes, you can install the Distribution Server on a separate computer.

#### More information:

Reporting Service Architecture (see page 103)

## **CA User Activity Reporting Module Integration Components**

CA User Activity Reporting Module integration uses the following CA Access Control components. These components are part of the CA Access Control enterprise reporting service:

- A Report Agent is a Windows service or a UNIX daemon that runs on each CA Access Control or UNAB endpoint and sends information to queues on a configured Message Queue that resides on the Distribution Server. For CA User Activity Reporting Module integration, the Report Agent collects endpoint audit messages from the audit log files on a scheduled basis, and sends these events to the audit queue on a configured Distribution Server.
- A Message Queue is a component of the Distribution Server that is configured for receiving endpoint information that Report Agents send. For reporting, the Message Queue forwards endpoint database snapshots to the central database using the CA Access Control Web Service. For redundancy and failover, you can have multiple Distribution Servers collecting and forwarding the information.

**Note:** CA Access Control Enterprise Management installs the Distribution Server on the Enterprise Management Server by default.

CA User Activity Reporting Module integration also uses the following CA User Activity Reporting Module components:

- A CA User Activity Reporting Module agent is a generic service configured with connectors, each of which collects raw events from a single event source and then sends the events to a CA User Activity Reporting Module server for processing. For CA Access Control audit data, the agent deploys the CA Access Control connector.
- A CA Access Control connector is an out-of-the-box CA User Activity Reporting Module integration for a CA Access Control audit event source. The connector enables raw event collection from a CA Access Control Distribution Server and the rule-based transmission of converted events to an event log store, where they are inserted into the hot database.
- A collection server is a CA User Activity Reporting Module server that refines incoming event logs, insert them into the hot database, compresses the hot database when it reaches the configured size into a warm database, and auto-archives the warm database to the related management server on the configured schedule.

**Note:** For more information about CA User Activity Reporting Module components, see the CA User Activity Reporting Module documentation.

#### More information:

Reporting Service Architecture (see page 103)

## How Audit Data Flows from CA Access Control to CA User Activity Reporting Module

To understand how CA Access Control integrates with CA User Activity Reporting Module, and what to consider when configuring this integration, first consider the flow of audit data between CA Access Control and CA User Activity Reporting Module. The following illustration describes how CA Access Control routes audit events to a messaging queue on a Distribution Server, where the CA Access Control connector of the CA User Activity Reporting Module agent pulls, maps, transforms, and then sends the events to the CA User Activity Reporting Module server:



- 1. The Report Agent collects audit events from the local endpoint audit files, applies any filtering policies, and places the events on a audit queue located on the Distribution Server.
- 2. A CA User Activity Reporting Module connector, deployed by the CA User Activity Reporting Module agent, connects with the audit queue and pulls events (messages) from it.
- 3. The CA User Activity Reporting Module connector and agent maps the events to the Common Event Grammar (CEG) using data mapping and parsing files, and then applies suppression and summarization rules before routing the events to the CA User Activity Reporting Module server.
- 4. The CA User Activity Reporting Module server receives the events and may apply additional suppression and summarization rules before the events are stored.

**Note:** For more information about how CA User Activity Reporting Module works, see the CA User Activity Reporting Module documentation.

## How to Set Up CA User Activity Reporting Module for CA Access Control

To use CA User Activity Reporting Module to create reports that contain audit data from all your CA Access Control endpoints, first implement enterprise reporting. You must implement enterprise reporting before you integrate with CA User Activity Reporting Module because implementing enterprise reporting enabled the Report Agents on your endpoints. Once you have enterprise reporting implemented, set up CA User Activity Reporting Module for CA Access Control.

To set up CA User Activity Reporting Module for CA Access Control, follow these steps:

1. Install the CA User Activity Reporting Module server.

**Note:** For more information, see the *CA User Activity Reporting Module Implementation Guide*.

2. Install the CA User Activity Reporting Module agent on or near the Distribution Server.

The agent must be accessible to the Distribution Server and communicate with it through a specified port. It must also be accessible to the CA User Activity Reporting Module server.

**Note:** Verify the operating system support for the CA User Activity Reporting Module agent before you install it. For more information about installing the agent, see the *CA User Activity Reporting Module Agent Installation Guide*.

3. Install CA Access Control Enterprise Management.

Note: For more information, see the Implementation Guide.

4. Create a connector for the agent.

Once you have the CA User Activity Reporting Module agent installed and communicating with the CA User Activity Reporting Module server, create a connector and configure it so that it can access the CA Access Control event source (the audit queue on the Distribution Server).

**Note:** The following topics describe settings that are required for CA Access Control event collection, including the connector details and connector configuration requirements that you must configure for the integration to succeed. For more information about how to create a connector, see the *CA User Activity Reporting Module Administration Guide* and the *Online Help*.

- 5. Create a connection to CA User Activity Reporting Module from CA Access Control Enterprise Management.
- 6. (Optional) Configure an audit collector.
- 7. Configure CA Access Control endpoints for audit collection.

#### More information:

Enterprise Reporting Capabilities (see page 103) How to Set Up Reporting Service Server Components (see page 105)

## **Connector Details**

After you install the CA User Activity Reporting Module agent on a computer, that computer appears in the CA User Activity Reporting Module server management interface (for example, to view a computer in the Default Agent Group click Administration, Log Collection, Agent Explorer, Default Agent Group, *computer\_name*). You must now create a connector. This topic describes the settings that you *must* configure on the Connector Details page of the Connector Creation wizard.

#### Integration

Specifies the integration you want to use as a template.

Select the appropriate CA Access Control integration.

Example: AccessControl\_R12SP5\_TIBCO

You can optionally change the name of the connector and add a description. You can then apply suppression rules to events handled by the connector.

**Note:** For information about other optional settings that let you customize your event collection, see the *CA User Activity Reporting Module Administration Guide* and the *Online Help.* 

## Suppression and Summarization Rules

Once you create the connector and specify the connector details, you can optionally apply suppression rules on the Apply Suppression Rules page of the Connector Creation wizard.

The name of the Ideal Model for the suppression and summarization rules for CA Access Control is Host IDS/IPS. When you create rules, select the values for Event Category, Event Class, and Event Action as needed to identify events.

**Note:** For information about other optional settings that let you customize your event collection, see the *CA User Activity Reporting Module Administration Guide* and the *Online Help.* For more information on field identification or individual values, see the Common Event Grammar Reference in the *CA User Activity Reporting Module Online Help.* 

## **Connector Configuration Requirements**

Once you create the connector and specify the connector details, you can configure the connector. This topic describes the settings that you *must* configure on the Connector Configuration page of the Connector Creation wizard to begin event collection.

**Note:** For information about other optional settings that let you customize your event collection, see the *CA User Activity Reporting Module Administration Guide* and the *Online Help*.

#### **TIBCO Server**

Specifies the host name or IP address of the Message Queue (TIBCO server) in the following format:

Protocol://server IP or name:Port number

The Message Queue is installed on CA Access Control Enterprise Management.

Define the following value:

ssl://ACentmserver:7243

The port values and communication method are the default ports that CA Access Control Enterprise Management uses. If you configured different values after installing CA Access Control Enterprise Management, use that port and communication method values.

#### **TIBCO User**

Specifies the user name for Message Queue authentication. CA Access Control defines a default user named "reportserver".

#### **TIBCO** Password

Specifies the password for Message Queue authentication. Enter the password that you defined in the "Communication Password" dialog when you installed CA Access Control Enterprise Management.

#### **Event Log Name**

Specifies the log name for the event source.

Accept the default, "CA Access Control".

#### PollInterval

Specifies the number of seconds the agent waits before polling for events when the Message Queue has become unavailable or disconnected.

#### SourceName

Specifies the identifier for the Message Queue queue.

Accept the default, "queue\_audit".

#### **TIBCO Queue**

Specifies the name of the Message Queue queue from which the log sensor is to read messages (events).

Accept the default, "queue/audit".

#### Number of Collection threads

Specifies the number of threads the log sensor spawns to read Message Queue messages.

You should consider the number of events in the Message Queue queue and the CPU of the CA User Activity Reporting Module agent system when you adjust this value.

**Limits:** The minimum value is 1. The maximum number of threads that the log sensor can spawn is 20.

## How Configuration Settings Affect the Report Agent

For CA User Activity Reporting Module integration, the Report Agent collects endpoint audit messages from the audit log files on a scheduled basis, and routes these events to the audit queue on a configured Distribution Server. You can affect performance by tuning the Report Agent settings.

**Note:** The Report Agent is part of the CA Access Control enterprise reporting service and is also responsible for sending database snapshots for endpoint reporting purposes. This process describes only those actions that the Report Agent takes for audit event routing to CA User Activity Reporting Module.

The Report Agent does the following when you enabled audit collection (set the audit\_enabled configuration settings to 1):

 Collects new audit records by reading records from the endpoint audit files and committing them to memory.

The Report Agent reads the number of audit records that you defined in the audit\_read\_chunk configuration setting and then waits for the duration that you defined in the audit\_sleep configuration setting before reading the audit files again. The Report Agent reads previously unread records in the active audit log *and* all the backup audit files. It then commits to memory those records that pass the audit filter as defined in the audit filter file (audit\_filter configuration setting).

 Sends a group of audit records it has in memory to the Distribution Server Message Queue that you defined in the audit\_queue configuration setting.

The Report Agent sends audit records when *one* of the following applies:

- The number of records in memory reaches the number defined by the audit\_send\_chunk configuration setting.
- The amount of time that has passed because the last audit records were sent equals the interval defined by the audit\_timeout configuration setting.

#### **Example: Default Report Agent Settings for Audit Collection and Routing**

This example illustrates how we set the default Report Agent configuration settings, what environment these are set for, and how they affect performance.

We expect an average environment to have 30 events per second (EPS). Therefore, the Report Agent reads 30 events for every second that passes. To reduce the impact on other running applications (CPU use and context switches) we chose to have the Report Agent read 300 events every 10 seconds, as follows:

audit\_sleep=10
audit\_read\_chunk=300

The message bus CA Access Control uses to transport messages between the Report Agent and the Distribution Server handles large packets that are sent at long intervals better than it handles small packets at short intervals. The following configuration setting specifies that when the number of audit records the Report Agent collects reaches the defined number, the Report Agent sends the records to the Distribution Server. Assuming 30 events per second, if we want the Report Agent to send audit records at approximately one-minute intervals (60 seconds), we et the Report Agent as follows:

audit\_send\_chunk=1800

However, at night, or at other times when there are less than 30 events per second, there are less than 1800 events per minute. To verify that the Report Agent still regularly sends audit records to the Distribution Server, we set a maximum interval of 5 minutes between sending audit records, as follows:

audit\_timeout=300

## Filter Events from CA User Activity Reporting Module

You can use a filter file to prevent CA Access Control from sending every audit record in the log file to CA User Activity Reporting Module. The filter file specifies the audit records that are not sent to CA User Activity Reporting Module.

Note: This filter file prevents CA Access Control from sending the specified audit events to the Distribution Server, but does not stop CA Access Control from writing the audit events to the local files. To filter out audit events from the local audit file, modifyfilter rules in the file defined be the AuditFiltersFile configuration setting in the logmgr section (by default, audit.cgf).

To filter events from CA User Activity Reporting Module, edit the audit filter file on the endpoint. If you want to apply the same filtering rules to more than one endpoint, we recommend that you create an audit filtering policy and assign the policy to the endpoints where you want it to be effective.

Note: For more information, see the *Reference Guide*.

#### **Example: Audit Filter Policy**

This example shows you what an audit filtering policy looks like:

env config
er config auditrouteflt.cfg line+("FILE;\*;\*;R;P")

This policy writes the following line to the auditrouteflt.cfg file:

FILE;\*;\*;R;P

This line filters audit records that record a permitted attempt by any accessor to access any file resource for reading. CA Access Control will not send these audit records to the Distribution Server.

## Secure Communications using SSL

When you install CA Access Control Enterprise Management you can select to either secure the communication between the Distribution Server and Report Agent by using SSL or select not to secure the communication. Whichever option you select, specify the same option when you install the Report Agent on the endpoint.
For example, if you use SSL to encrypt the communications between the Report Agent and the Distribution Server (the default), then you must provide authentication information when you install CA Access Control Enterprise Management, such as the password required for the Report Agents to communicate with the Distribution Server.

This is the password you provide when you configure the CA Access Control Report Agent on the endpoint and in the CA User Activity Reporting Module agent Connector Configuration page.

You must provide the same information when you install the Report Agent. Only Report Agents that can provide the correct certificate and password information can write events to the audit queue on the Distribution Server and thus be retrieved by CA User Activity Reporting Module.

### Audit Log Files Backup for CA User Activity Reporting Module Integration

To collect audit data, the Report Agent reads the CA Access Control audit log files according to its configuration settings. The Report Agent reads a configured number of audit records from the audit log files at configured intervals. In a default legacy installation, or when you do not enable audit log routing during installation, CA Access Control keeps a single size-triggered audit log backup file. Every time the audit log reaches the configured maximum size, it creates a backup file, overwriting the existing audit log backup file. As a result, it is possible that the backup file will be overwritten before the Report Agent read all of its records.

We strongly recommend that you set CA Access Control to keep time-stamped backups of your audit log file. This way, CA Access Control does not overwrite the backup audit log files until it reaches a configured maximum of audit log files it should keep. This is the default setting when you enable the audit log routing sub-feature during installation on the endpoint.

#### **Example: Audit Log Backup Settings**

This example illustrates how the recommended configuration settings affect CA User Activity Reporting Module integration. When you enable the audit log routing sub-feature during installation on an endpoint, CA Access Control sets the following logmgr section configuration settings:

BackUp\_Date=yes
audit\_max\_files=50

In this case, CA Access Control timestamps each backup copy of the audit log file and keeps a maximum of 50 backup files. This provides plenty of opportunity for the Report Agent to read all of the audit records from the files and for you to copy the backup files for safe keeping if required.

**Important!** If you set audit\_max\_files to 0, CA Access Control does not delete backup files and will keep accumulating the files. If you want to manage the backup files through an external procedure, remember that CA Access Control protects these files by default.

## Configure an Existing Windows Endpoint for CA User Activity Reporting Module Integration

Once you have CA Access Control Enterprise Management installed and configured, you can configure your endpoints for sending audit data to the Distribution Server by enabling and configuring the Report Agent.

**Note:** When you install CA Access Control, it lets you configure the endpoint for collecting and sending audit data. This procedure illustrates how you configure an existing endpoint for sending audit data if you did not configure this option at install time.

# To configure an existing Windows endpoint for CA User Activity Reporting Module integration

1. Click Start, Control Panel, Add or Remove Programs.

The Add or Remove Program dialog appears.

- 2. Scroll through the program list and select CA Access Control.
- 3. Click Change.

The CA Access Control installation wizard appears.

Follow the wizard prompts to modify the CA Access Control installation so that you enable the Report Agent feature and the Audit Routing sub-feature.

Verify that you also specify to keep time-stamped backups of the audit log file.

**Note**: After you enable the Report Agent and audit routing, you can modify CA Access Control configuration settings to change performance-related settings. Before you do this, you should understand how the Report Agent collects audit events and routes them to the Distribution Server (see page 394). For more information about Report Agent configuration settings, see the *Reference Guide*.

# Configure an Existing UNIX Endpoint for CA User Activity Reporting Module Integration

Once you have CA Access Control Enterprise Management installed and configured, you can configure your endpoints for sending audit data to the Distribution Server by enabling and configuring the Report Agent.

**Note:** When you install CA Access Control, it lets you configure the endpoint for collecting and sending audit data. This procedure illustrates how you configure an existing endpoint for sending audit data if you did not configure this option at install time.

### Follow these steps

1. Run ACSharedDir/lbin/report\_agent.sh:

report\_agent config -server hostname [-proto {ssl|tcp}] [-port port\_number [-rqueue queue\_name] -audit -bak

If you omit any configuration options, the default setting is used.

**Note:** For more information about the report\_agent.sh script, see the *Reference Guide*.

2. Create a *+reportagent* user in database.

This user should have ADMIN and AUDITOR attributes and *write* access to local terminal. You should also set epassword to the Report Agent Shared Secret (which you defined when you installed the Distribution Server).

3. Create a SPECIALPGM for the Report Agent process.

The SPECIALPGM maps the root user to the +reportagent user.

**Note**: After you enable the Report Agent and audit routing, you can modify CA Access Control configuration settings to change performance-related settings. Before you do this, you should understand how the Report Agent collects audit events and routes them to the Distribution Server (see page 394). For more information about Report Agent configuration settings, see the *Reference Guide*.

# Example: Configure a UNIX Endpoint for CA User Activity Reporting Module Integration Using selang

The following selang commands show you how, assuming you enabled and configured the Report Agent, you create the required Report Agent user and specify special security privileges for the Report Agent process:

eu +reportagent admin auditor logical epassword(Report\_Agent) nonative auth terminal (terminal101) uid( +reportagent) access(w) er specialpgm (/opt/CA/AcessControl/bin/ReportAgent) Seosuid(+reportagent) \

Nativeuid(root) pgmtype(none)

## **Queries and Reports for CA Access Control Events**

The queries, reports, and action alerts for CA Access Control are grouped under the Server Resource Protection tags in the CA User Activity Reporting Module interface.

**Note:** For information, visit the CA User Activity Reporting Module Product page at <a href="http://ca.com/support">http://ca.com/support</a>

## How to Enable CA User Activity Reporting Module Reports in CA Access Control

Before you can view CA User Activity Reporting Module reports in CA Access Control Enterprise Management, you must enable CA User Activity Reporting Module reporting, export and add the CA User Activity Reporting Module certificate and configure the connection to CA User Activity Reporting Module from CA Access Control Enterprise Management.

- <u>Enable CA User Activity Reporting Module reporting by configuring advanced</u> settings (see page 78).
- Export and add the CA User Activity Reporting Module trusted certificate to the keystore. (see page 401)
- 3. <u>Configure the connection to CA Enterprise Log Manager</u> (see page 402).
- 4. (Optional) Configure an audit collector (see page 404).

Configure an audit collector if you want to send PUPM audit events to CA User Activity Reporting Module.

### Add the CA User Activity Reporting Module Trusted Certificate to the Keystore

CA User Activity Reporting Module reports are authenticated using trusted certificates. The certificate verifies that the information displayed in the reports originated from a trusted CA User Activity Reporting Module source, which verifies the authenticity of the data.

To view CA User Activity Reporting Module reports in CA Access Control Enterprise Management, you first export the certificate and add than it to the keystore.

### To add the CA User Activity Reporting Module trusted certificate to the keystore

1. Enter the URL of the CA User Activity Reporting Module server in a web browser in the format: https://host:port

A security alert dialog appears.

2. Click View Certificate.

The Certificate dialog appears.

3. Click Details, Copy to File.

The Certificate Export Wizard appears.

- 4. Complete the wizard using the following instructions:
  - Export File Format—Select Base-64 encoded X.509 (.CER).
  - File to Export—Define the full pathname of the exported certificate file.

For example, C:\certificates\computer.base64.cer

A message appears indicating that the export completed successfully.

5. Import the certificate to the keystore. For example:

C:\jdk1.5.0\jre\lib\security>c:\jdk1.5.0\bin\keytool.exe -import -file computer.base64.cer -keystore C:\jboss-4.2.3.GA\server\default\deploy\IdentityMinder.ear\custom\ppm\trustst ore\ssl.keystore

- 6. Enter the keystore password. The default password is 'secret'.
- 7. Click Yes to trust the certificate.

The certificate is added to the keystore.

### **Configure the Connection to CA User Activity Reporting Module**

CA Access Control Enterprise Management communicates with CA User Activity Reporting Module to display reports with CA Access Control related information. To display these reports you need to configure the connection to CA User Activity Reporting Module.

### To configure the connection to CA User Activity Reporting Module

- 1. In CA Access Control Enterprise Management, do as follows:
  - a. Click System.
  - b. Click Connection Management subtab.
  - c. Expand the UARM tree in the task menu on the left.

The Manage CA User Activity Reporting Module Connection task appears in the list of available tasks.

2. Click Manage CA User Activity Reporting Module Connection .

The Manage CA User Activity Reporting Module Connection: *PrimaryCALMServer* task page appears.

3. Complete the fields in the dialog. The following fields are not self-explanatory:

### **Connection name**

Identifies the name of the CA User Activity Reporting Module connection.

### Description

(Optional) Defines a description for this connection.

#### Host Name

Defines the name of the CA User Activity Reporting Module host you want CA Access Control Enterprise Management to work against.

Example: host1.comp.com

#### Port #

Defines the port that the CA User Activity Reporting Module host uses for communication.

Default: 5250

### **Certificate Authority Signed SSL certificate**

Specifies whether the connection to CA User Activity Reporting Module uses an SSL certificate signed by a certificate authority.

### Certificate name

Defines the name of the certificate.

### Password

Defines the certificate password.

4. Click Submit.

CA Access Control Enterprise Management saves the CA User Activity Reporting Module connection settings.

### Example: Obtain the CA User Activity Reporting Module Certificate Information

The following example shows you how to obtain the CA User Activity Reporting Module certificate information that you need to provide when creating and managing the CA User Activity Reporting Module connection settings in CA Access Control Enterprise Management.

1. Enter the CA User Activity Reporting Module URL in a web browser using the following format:

https://host:port/spin/calmapi/products.csp

Example: https://localhost:5250/spin/calmapi/products.csp

- 2. Enter a valid user name and password to log in to CA User Activity Reporting Module.
- 3. Select the Register option to register a certificate with CA User Activity Reporting Module.

The New Product Registration screen appears.

4. Enter the certificate name and password and select Register.

A message appears informing you that the certificate registered successfully.

### **Configure an Audit Collector**

CA Access Control Enterprise Management collects audit events, including PUPM audit events, and stores them in the central database. You can configure CA Access Control Enterprise Management to send the audit events to CA User Activity Reporting Module.

#### To configure an audit collector

- 1. In CA Access Control Enterprise Management, do as follows:
  - a. Click System.
  - b. Click Connection Management subtab.
  - c. Expand the UARM tree in the task menu on the left.

The Create Audit Collector task appears in the list of available tasks.

2. Click Create Audit Collector.

The Create Audit Collector: Audit Collector Search Screen appears.

- 3. (Optional) Create a copy of an existing audit collector, as follows:
  - a. Select Create a copy of an object of type UARM Sender.
  - b. Select an attribute for the search, type in the filter value, and click Search.

A list of UARM Senders that match the filter criteria appear.

- c. Select the object you want to use as a basis for the new audit collector.
- 4. Click OK.

The Create Audit Collector task page appears. If you created the audit collector from an existing object, the dialog fields are pre-populated with the values from the existing object.

5. Complete the fields in the dialog. The following fields are not self-explanatory:

### Job Enable

Specifies whether the audit collector is enabled.

### Name

Defines the name of audit collector.

#### Queue Jndi

Defines the name of the Message Queue queue that CA Access Control Enterprise Management sends audit event messages to.

Example: queue/audit

### Sleep

Defines the interval, in minutes, between database queries.

Default: 1

### Time Out

Defines the collector time out period, in minutes, for sending the audit event messages to the messages queue.

### Default: 10

**Note**: Once the timeout period has passed, the collector sends the messages although the number of messages in the queue did not reach the level defined in the Msg Block Size field.

### **Msg Block Size**

Defines the maximum number of messages to accumulate in the database before sending the message to the queue.

### Default. 100

6. Click Submit.

CA Access Control Enterprise Management creates the audit collector.

# **Chapter 13: Integration with RSA SecurID**

This section contains the following topics:

How To Integrate CA Access Control Enterprise Management with RSA SecurID (see page 407) How RSA SecurID Authenticates Users Login (see page 408) Configuring a Web Server as a Reverse Proxy Server (see page 409)

# How To Integrate CA Access Control Enterprise Management with RSA SecurID

If your organization uses RSA SecurID to authenticate users, you can use the capabilities of RSA SecurID to authenticate users login to CA Access Control Enterprise Management. When you integrate the Enterprise Management Server with RSA SecurID, CA Access Control Enterprise Management does not authenticate users on login. CA Access Control Enterprise Management detects that users authentication is done by a third-party program.

The following process explains how to integrate CA Access Control Enterprise Management with RSA SecurID:

- 1. Prepare the Enterprise Management Server.
- 2. Install a supported web server:
  - Windows-Internet Information Server 7.0 with the Application Request Routing (ARR) module.
  - Linux-Apache 2.2.6 web server with the proxy module
- 3. <u>Configure the Web server as a reverse proxy server</u> (see page 409).

The web server acts as a reverse proxy server for all login authentication requests.

4. Configure RSA SecurID to block all network access to CA Access Control Enterprise Management except from the web server.

RSA SecurID prevents users from accessing CA Access Control Enterprise Management directly.

- 5. Install the Enterprise Management Server components (see page 48).
- 6. Define a user account in CA Access Control Enterprise Management for each RSA SecurID user that will log in to CA Access Control Enterprise Management.

Define only those users that you want to grant access to CA Access Control Enterprise Management.

Important! If you are using Active Directory you do not need to complete this step.

- 7. Install the RSA Authentication Agent on the following servers:
  - (Linux) Enterprise Management Server
  - The web server

RSA Authentication Agent intercepts user access requests and forwards the requests to RSA Authentication Manager.

- 8. Configure the RSA web Agent to enable Single Sign On (SSO) to CA Access Control Enterprise Management.
- 9. Install the RSA Authentication Manager on a dedicated host.

RSA Authentication Manager authenticates users access requests.

Each time a user tries to log in to CA Access Control Enterprise Management, RSA SecurID prompts the user for a valid RSA SecurID credentials instead of CA Access Control Enterprise Management user account details. If authenticated, RSA SecurID logs the user in to CA Access Control Enterprise Management.

**Note**: For more information about the RSA SecurID web Agent and Authentication Manager, refer to the <u>RSA SecurID</u> website.

### How RSA SecurID Authenticates Users Login

When you integrate the Enterprise Management Server with RSA SecurID, each time a user logs into CA Access Control Enterprise Management,RSA SecurID authenticates the login request. If RSA SecurID validates the user login, the user automatically gains access to CA Access Control Enterprise Management.

The following diagram illustrates how RSA SecurID authenticates user logins to CA Access Control Enterprise Management:



## Configuring a Web Server as a Reverse Proxy Server

When a user attempts to login to CA Access Control Enterprise Management, RSA SecurID intercepts the request and prompts the user for a valid SecurID user name and password. The Web server you installed acts as a reverse proxy server that receives login requests from the RSA Authentication Web agent on the Enterprise Management Server and forwards the requests to the RSA Authentication Manager.

A *reverse proxy* is a gateway for other servers that enables one web server to provide content from another.

# Example: Configuring Internet Information Services 7.0 on Windows Server 2008 as a Reverse Proxy Server

In this example, Steve the system administrator installed the Enterprise Management Server and Internet Information Services (IIS) 7.0 on a Windows Server 2008 with the Application Request Routing (ARR) module installed. The ARR module enables the IIS to act as a proxy server.

- 1. Steve enables the IIS proxy settings on the internet Information Services server:
  - a. Selects Start, Administrative Tools, internet Information Services (IIS) Manager
     The internet Information Services (IIS) Manager console opens.
  - b. Selects the host from the left pane to expend the actions pane and selects the Application Request Routing Cache icon.

The Application Request Routing Cache management console opens.

- c. Selects Server Proxy Settings from the actions pane.
- d. Marks the Enable Proxy check box and clicks Apply.

Steve has enabled the IIS proxy settings.

- 2. Steve configures the IIS to forward requests to the Enterprise Management Server:
  - a. Expands the Sites menu and selects the default website.
  - b. Highlights the URL Rewrite icon and selects Open Feature from the Actions menu.
    - The URL Rewrite configuration console opens.
  - c. Selects Add Rules from the Actions menu.

The Add Rules window opens.

d. Under the Inbound Rules, selects Blank Rule and clicks Ok.

The Edit Inbound Rule configuration window opens.

- e. Specifies the rule name and selects (iam.+) from the Patterns menu.
- f. Scrolls down to the Action section and selects Rewrite from the Action type menu.
- g. Enters the CA Access Control Enterprise Management URL in the URL Rewrite filed using the following format.

http://enterprise\_host:8080/{R:0}

h. Clicks Apply to create the rule.

The new inbound rule is created.

i. Repeats steps c to h using (castyles.+) from the Patterns menu.

Steve has configured the IIS to forward requests to the Enterprise Management Server.

- 3. Steve configures RSA SecurID to secure the web server:
  - a. Selects the Default Web Site in the internet Information Services (IIS) Manager console and double clicks the RSA SecurID icon.

The RSA SecurID settings window opens.

- b. Selects the following check boxes:
  - Enables RSA SecurID Web Access Authentication Feature on This Server
  - Protect This Resource
- c. Selects apply from the Actions menu

- 4. Steve configures the RSA Web Agent to enable Single Sign Off (SSO) for CA Access Control Enterprise Management
  - a. Opens the regedit utility and navigates to the following location:

HKEY\_LOCAL\_MACHINE\SOFTWARE\SDTI\RSAWebAgent

- b. Creates a registry key of type DWORD under the name RSAUSERCustomHeader.
- c. Sets the registry key value to 1

Steve has configured Internet Information Services as a reverse proxy server.

# Example: Configuring the Apache Web server 2.2.6 as a Reverse Proxy Server on a Red Hat Enterprise Linux 5.0

In this example, Steve the system administrator installed the Enterprise Management Server on a Red Hat Enterprise Linux 5.0. Steve now needs to install and configure the Apache Web Server 2.2.6 as a reverse proxy server.

- 1. Steve does the following to install and configure the Apache Web Server 2.2.6 with the proxy module:
  - a. Configures the Apache Web Server 2.2.6 installation to install the proxy module, as follows:

```
tar -zxvf httpd_2.2.6.tar.gz
./configure --prefix=/usr/local/apache --enable-proxy --enable-proxy-http
make
make install
```

The Apache Web Server 2.2.6 is installed with the proxy module.

- 2. Steve does the following to configure the reverse proxy:
  - a. Navigates to the conf directory of the Apache web server.
  - b. Opens the httpd.conf file for editing.
  - c. Locates the LoadModule list of entries and adds the following section:

# Used for proxy to the Enterprise Management Server
ProxyPass /iam http://196.168.1.1:8080/iam
ProxyPass /castylesr5.1.1 http://192.168.1.1:8080/castylesr5.1.1
ProxyPassReverse/iam http://192.168.1.1:8080/iam

- d. Saves and closes the file.
- e. Restarts the Apache Web Server.

Steve configured the Apache Web Server 2.2.6 to act as a reverse proxy server.

- 3. Steve configures the RSA web agent to ignore the web browser IP address for cookie validation:
  - a. Navigates to the RSA web agent installation directory:

/usr/local/apache/rsawebagent/

- b. Runs the RSA web agent configuration utility.
- c. Selects the RSA server that is currently in use from the list.
- d. Browses to the second configuration screen.
- e. Verifies that the Ignore browser IP address for cookie validation is enabled.

Steve has configured the RSA web agent to ignore the web browser IP address for cookie validation.

- 4. Steve configures the RSA web agent to enable Single Sign Off (SSO) for CA Access Control Enterprise Management:
  - a. Opens the Linux web agent distribution and locates the following file:

rsacookieapi.tar

- b. Copies the file to a temporary directory and extracts the content of the file.
- c. Locates the following files:
  - RSACookieAPI.jar
  - librsacookieapi.so
- d. Copies the librsacookieapi.so file to the following location, where *JBOSS\_HOME* indicates the location where Steve installed Jboss:

JBOSS\_HOME/server/default/deploy/IderntityMinder.ear/library

e. Copies the RSACookieAPI.jar file to the following location:

JBOSS\_HOME/server/default/deploy/IderntityMinder.ear/user\_console.war/WEB
-INF/lib/

Steve configured the RSA web agent to enable SSO for CA Access Control Enterprise Management.

# Chapter 14: Working with Multiple LDAP Servers

This section contains the following topics:

Introduction (see page 413) How to Configure Multiple LDAP Servers (see page 413)

## Introduction

This information in this chapter describes how a system or a database administrator configures CA Access Control Enterprise Management with multiple LDAP servers using CA Directory. Working with multiple LDAP servers, enables the administrator to integrate multiple LDAP user stores into a single enterprise-wide user store.

## How to Configure Multiple LDAP Servers

CA Directory supports the integration of LDAP servers into a distributed directory backbone.

CA Directory provides a utility called DXlink, that enables searches over a number of LDAP directory server.

The following diagram illustrates how to configure CA Access Control Enterprise Management for multiple LDAP servers using CA Directory:



You perform the following steps to configure the Enterprise Management Server for multiple LDAP servers using CA Directory:

- 1. Install CA Directory
- 2. <u>Configure the CA Directory router</u> (see page 415)
- 3. <u>Customize the CA Directory router definitions</u> (see page 417)
- 4. Populate the database with entities to create a DIT (see page 420)
- 5. Start CA Directory
- Install the Enterprise Management Server with Active Directory as the user store (see page 48)

**Important!** When you install the Enterprise Management Server, specify the following:

- Host name—CA Directory host name
- Port number—25389
- Base DN—specify a DN that is common to all Active Directory servers in the environment. Leave this field blank if not applicable.
- (Linux) Search Root—pecify a DN that is common to all Active Directory servers in the environment. Leave this field blank if not applicable.
- Administrative account—an administrative account from one of the Active Directory domains.

**Note**: When you log in to CA Access Control Enterprise Management, verify that you specify the domain name that the administrative account you are using is a member.

### **Configure the CA Directory Router**

CA Directory routes requests to the Active Directory that correspond to the suffix defined in the client request to the Active Directory used by CA Access Control. CA Directory uses the DXlink utility to route the request.

Before you completed this procedure, you installed two Active Directory user stores, for example: acdir1 and acdir2 and CA Directory, named dsarouter.

### Follow these steps:

- 1. From the CA Directory server, open a Command Prompt window
- 2. Run the following command:

dxnewdsa -s 1 cadirhost-adrouter 25389

-s 1

Specify the database size of 1 MB

### cadirhost -adrouter

Defines the name of the router

### 25389

Specifies the router port

3. Stop the router using the following command:

dxserver stop cadirhost-adrouter

4. Install the router using the following command:

dxserver install cadirhost-adrouter

5. Navigate to the following directory, where *DXHOME* is the name of the directory where you installed the router:

DXHOME/config/knowledge

- 6. Duplicate the cadirhost-router.dxc file, as follows:
  - a. Rename one file to acdir1-dxlink.dxc
  - b. Rename the second file to acdir2-dxlink.dxc
  - c. Edit the acdir1-dxlink.dxc file to appear as follows:

```
set dsa "acdir1-dxlink" =
{
                    = <dc "acdir1"><dc "com">
   prefix
   dsa-name
                  = <cn "acdir1-dxlink">
   dsa-password
                  = "secret"
   ldap-dsa-name
                    = <dc "acdir1"><dc "com"><cn "users"><cn</pre>
"Administrator">
   ldap-dsa-password = "{CADIR}yKW2cVbG"
   address
                  = tcp "acdir1" port 389
   auth-levels
                  = clear-password
   trust-flags
                  = allow-check-password, no-server-credentials
   link-flags
                  = dsp-ldap, ms-ad
};
```

#### Idap-dsa-name

Specifies the Distinguished Named (DN) used to bind to Active Directory

### Idap-dsa-password

Defines the encrypted password for the DN

**Note**: Use the dxpassword utility to encrypt the password. For example: dxpassword -P CADIR *<password>*.

#### address

Specifies the Active Directory domain controller address

d. Edit the acdir2-dxlink.dxc to appear as follows:

```
set dsa "aclabcail-dxlink" =
{
   prefix
                  = <dc "acdir2"><dc "com">
   dsa-name
                  = <cn "acdir2-dxlink">
   dsa-password
                  = "secret"
   ldap-dsa-name = <dc "acl"><dc "aclab"><cn "users"><cn "Administrator">
   ldap-dsa-password = "{CADIR}yKW2cVbG"
   address = tcp "acdir2" port 389
   auth-levels
                  = clear-password
   trust-flags
                  = allow-check-password, no-server-credentials
   link-flags
                  = dsp-ldap, ms-ad
};
```

You have configured the CA Directory router.

### **Customize the CA Directory Router Definitions**

After configuring the CA Directory router, you need to customize the CA Directory router definitions.

### Follow these steps:

1. Navigate to the following directory, where *DXHOME* is the directory where CA Directory is installed:

DXHOME/config/limits

- 2. Do the following:
  - a. Create a copy of the default.dxc file and renames the original file to dsarouter-adrouter.dxc
  - b. Remove the ReadOnly flag from the file
  - c. Open the dsarouter-adrouter.dxc file and modify the following fields as follows:

```
# size limits
set max-users = 255;
set max-local-ops = 100;
set max-op-size = 0;
# time limits
set max-bind-time = none;
set bind-idle-time = 3600;
set max-op-time = 600;
```

Save and close the file.

3. Navigate to the following directory:

DXHOME/config/settings

- 4. Do the following:
  - a. Create a copy of the default.dxc file and rename the original file to dsarouter-adrouter.dxc
  - b. Remove the ReadOnly flag from the file
  - c. Open the dsarouter-adrouter.dxc file and modify the following fields as follows:

# directory information base
set alias-integrity = true;
# distribution controls
set multi-casting = true;
set always-chain-down = false;

```
# security controls
set min-auth = clear-password;
set allow-binds = true;
set ssl-auth-bypass-entry-check = false;
# general controls
set op-attrs = true;
set transparent-routing = true;
Save and close the file
```

5. Navigate to the following directory:

DXHOME/config/knowledge

6. Open, or create, the dsarouter-adrouter.dxc file and remove the auth-levels string value "anonymous" to enable clear password login only. For example:

```
set dsa "cadirhost-adrouter" =
{
prefix = <>
dsa-name = <cn "cadirhost-adrouter">
dsa-password = "secret"
address = tcp "cadirhost" port 25389
disp-psap = DISP
snmp-port = 25389
console-port = 25390
auth-levels = clear-password
```

Save and close the file.

Important! If you installed CA Directory on a server where both IPv4 and IPv6 addresses are defined, specify IPv6 and IPv4 address types in the tcp value. For example: address = tcp "fe80::20d:56ff:fed4:8300%5" port 19389, tcp "192.168.1.1" port 19389

7. Create a file named adrouter.dxa and add the following lines, then save and close the file:

```
source "dsarouter-adrouter.dxc";
source "acdir1-dxlink.dxc";
source "acdir2-dxlink.dxc";
```

8. Navigate to the following directory:

DXHOME/config/logging

- 9. Do the following:
  - a. Create a copy of the default.dxc file
  - b. Rename the original file to dsarouter-adrouter.dxc
  - c. Remove the ReadOnly tag.
- 10. Navigate to the following directory:

DXHOME/config/servers

```
11. Do the following:
```

a. Edit the *cadirhost*-adrouter.dxi, modify the following lines as follows then save and close the file:

```
#
# Initialization file written by DXnewdsa
#
# logging and tracing
source "../logging/cadirhost-adrouter.dxc";
# schema
clear schema;
source "../schema/default.dxg";
# knowledge
clear dsas;
source "../knowledge/adrouter.dxg";
# operational settings
source "../settings/cadirhost-adrouter.dxc";
# service limits
source "../limits/cadirhost-adrouter.dxc";
# access controls
clear access;
source "../access/default.dxc";
# ssl
source "../ssld/default.dxc";
# replication agreements (rarely used)
# source "../replication/";
# multiwrite DISP recovery
set multi-write-disp-recovery = false;
# grid configuration
set dxgrid-db-location = "data";
set dxgrid-db-size = 1;
set cache-index = all-attributes;
set lookup-cache = true;
```

**Note**: Replace *cadirhost* with the CA Directory host name.

You have customized the CA Directory router definitions.

### Populate the CA Directory Database to Create a DIT

You can choose to populate the CA Directory database with entities to create a Directory Informational Tree (DIT). A DIT enables you to browse the organizational hierarchy from the top down.

### Follow these steps:

1. On the server hosting the CA Directory router, create a file named input.ldif and enter the following entities, for example:

```
dn: dc=com
objectClass: domain
objectClass: top
dc: com
dn: dc=company,dc=com
objectClass: domain
objectClass: top
dc: company
dn: dc=demo
objectClass: top
objectClass: top
dc: demo
```

- 2. Save and close the file.
- 3. Open a Command Prompt window and run the following command:

dxloaddb cadirhost-adrouter input.ldif

4. Run the following command to start up the CA Directory router:

dxserver start cadirhost-adrouter

Note: Replace *cadirhost* with the CA Directory host name.

You have populated the CA Directory database with entities to create a DIT.

# **Chapter 15: Integrating with CA SiteMinder**

This section contains the following topics:

Introduction (see page 421) How CA SiteMinder Authenticates CA Access Control Users (see page 421) How to Integrate with CA SiteMinder (see page 422)

## Introduction

The information in this chapter describes how a system, network or security administrator secure CA Access Control Enterprise Management with CA SiteMinder. CA SiteMinder can authenticate users from a CA SiteMinder directory and allow CA Access Control users only to log in to CA Access Control Enterprise Management. Securing CA Access Control Enterprise Management with CA SiteMinder enables the administrator to use CA SiteMinder advanced user authentication methods.

## How CA SiteMinder Authenticates CA Access Control Users

When you use CA SiteMinder to secure CA Access Control Enterprise Management, each time a user logs in to CA Access Control Enterprise Management, CA SiteMinder authenticates the login request. If CA SiteMinder authorizes the login request, the user gains access to CA Access Control Enterprise Management.

The following diagram illustrates how CA SiteMinder authenticates and authorizes CA Access Control users to log in to CA Access Control Enterprise Management:



# How to Integrate with CA SiteMinder

You integrate CA Access Control Enterprise Management with CA SiteMinder to leverage CA SiteMinder advanced users authentication and authorization capabilities.

The following diagram illustrates how a system or a security administrator integrates CA Access Control Enterprise Management with CA SiteMinder:



The following process explains how to integrate with CA SiteMinder:

1. Install the Enterprise Management Server (see page 50)

All the web-based applications, the Distribution Server, the DMS, and CA Access Control are installed.

**Note**: Before you install the Enterprise Management Server, prepare the computer by installing and configuring the prerequisites.

- 2. <u>Configure the Apache web server on the Enterprise Management Server</u> (see page 424)
- 3. Install the CA SiteMinder Policy Server
- 4. <u>Configure CA SiteMinder for the Enterprise Management Server</u> (see page 428)
- 5. <u>Configure the CA SiteMinder web agent</u> (see page 429)
- 6. <u>Configure CA SiteMinder to secure the Enterprise Management Server</u> (see page 430)
- <u>Configure the Enterprise Management Server to use CA SiteMinder to authenticate</u> <u>users</u> (see page 432)

**Note**: For more information about CA SiteMinder Policy Server, Web Agent and Administrator UI, see the CA SiteMinder documentation.

# Example: Configuring the Apahce Web Server Proxy Plug In on the Enterprise Management Server

In this example, you installed the Enterprise Management Server on a Windows 2008 Server. You also needs installed the Apache web server version 2.2.19 on the Enterprise Management Server with SSL support enables. Now you configure the Apache web server proxy plug-in. Do the following:

- 1. Stop the JBoss application server on the Enterprise Management Server
- 2. Navigate to the following directory:

APACHE\_HOME/conf

### APACHE\_HOME

The directory where the Apache web server is installed

- 3. Edit the httpd.conf file to enable the proxy modules and include the proxy configuration:
  - a. Uncomment the following lines:

LoadModule proxy\_module modules/mod\_proxy.so LoadModule proxy\_http\_module modules/mod\_proxy\_http.so

b. Add the following line at the end of the Global configuration section:

Include conf/extra/httpd-proxy-entm.conf

4. Navigate to the following directory:

APACHE\_HOME/conf/extra

5. Create a file named httpd-proxy-entm.conf, and add the following content, then save and close the file:

# /iam section END

```
# /castylesr5.1.1 section BEGIN
    <Proxy /castylesr5.1.1>
      Order allow, deny
      Allow from all
    </Proxy>
    ProxyPass /castylesr5.1.1
http://acentmnode.example.com:8080/castylesr5.1.1
    ProxyPassReverse /castylesr5.1.1
http://acentmnode.example.com:8080/castylesr5.1.1
    ProxyPass /castylesr5.1.1/
http://acentmnode.example.com:8080/castylesr5.1.1/
    ProxyPassReverse /castylesr5.1.1/
http://acentmnode.example.com:8080/castylesr5.1.1/
        # /castylesr5.1.1 section END
  </IfModule>
</IfModule>
```

**Note**: Replace the *acentmnode.example.com:port* with the actual hostname and port of the server where you installed the Enterprise Management server.

- 6. Restart the Apache web server.
- 7. Restart the JBoss application server.
- 8. Browse to the Enterprise Management Server to verify that the Apache web server forwards the requests successfully. Use the following URL:

http://enterprise\_host:port/iam/ac

You have configured the Apache web server proxy plug-in on the Enterprise Management Server.

### Example: Configuring CA SiteMinder for the Apache Web Server

In this example, after you have configured the Apache web server proxy plug-in on the Enterprise Management Server, you now configure CA SiteMinder for the Apache web server.

- 1. Do the following using the CA SiteMinder Administrator interface:
  - a. Go to Start, All Programs, CA, CA SiteMinder, CA SiteMinder Administrative UI.

The CA SiteMinder Administrative User Interface opens, prompting the user for a user name and password.

- b. Log in to the CA SiteMinder Administrative UI.
- c. Select Infrastructure, Hosts, Host Configuration, Create Host Configuration, Create a copy of an object of type Host Configuration.
- d. Select the DefaultHostSettings object and click OK.
- e. Complete the following fields:
  - Name-webservernode-HCO
  - Description—web server host configuration
- f. Move to the Configuration Values frame, clicks Add and enters the host name of the CA SiteMinder Policy Server, as follows:

Host: policyserver.company.com

g. Click Submit.

You have configured the host configuration object.

- 2. Select Infrastructure, Agents, Agent, Create Agent, Create a new object of type Agent.
- 3. Complete the following fields and then click Submit:
  - Name-webserver-agent
  - Description—web server node web agent
  - Select an Agent type—SiteMinder
  - Agent type—web agent
  - Supports 4.x Agents-clear

You have configured the web agent object.

- 4. Select Agent Configuration, Create Agent Configuration, Create a copy of an object of type Agent Configuration.
- 5. Select ApacheDefaultSettings, click OK and do the following:
  - a. Complete the following field:
    - Name-webservernode-ACO
  - b. From the Parameters list, edit the #DefaultAgentName field and remove the # character in the name value
  - c. Set the agent name value as follows:
    - DefaultAgentName—webserver-agent
  - d. Edit #LogoffUri and removes the # character in the name value.
  - e. Set the value as follows:
    - LogoffUri—/iam/logout.jsp

**Note**: For more information about the agent parameters, see the CA SiteMinder Agent Configuration Guide.

6. Click Submit.

You have created the agent configuration object.

### Example: Configuring CA SiteMinder for the Enterprise Management Server

In this example, you configure CA SiteMinder for the Enterprise Management Server.

- 1. Complete the following using the CA SiteMinder Administrator interface:
- 2. Go to Start, All Programs, CA, CA SiteMinder, CA SiteMinder Administrative UI.

The CA SiteMinder Administrative UI opens, prompting the user for a user name and password.

- 3. Log in to the CA SiteMinder Administrative UI.
- 4. Select Infrastructure, Hosts, Host Configuration, Create Host Configuration, Create a copy of an object of type Host Configuration.
- 5. Select the DefaultHostSettings object and click OK.
- 6. Complete the following fields:
  - Name—acentmnode-HCO
  - Description—ENTM host configuration
- 7. Move to the Configuration Values frame, click Add and enters the host name of the CA SiteMinder Policy Server as follows:

Host: policyserver.company.com

8. Click Submit

You have configured the agent object. Next you install and configures the CA SiteMinder Web Agent.

### Example: Configuring the CA SiteMinder Web Agent

In this example, Steve the system administrator installed the CA SiteMinder web agent on the Enterprise Management Server. Steve now configures the web agent for the Apache web server using the host and agent objects configuration that he defined previously.

- 1. Do the following:
  - a. Navigate to the following directory, where *APACHE\_HOME* indicates the directory where you installed the Apache web server:

APACHE\_HOME/conf

b. Edit the WebAgent.conf file to enable the web agent, as follows:

EnableWebAgent="YES"

- c. Save and close the file:
- 2. Restart the Apache web server

You have configured the CA SiteMinder web agent.

### Example: Configuring CA SiteMinder to Secure the Enterprise Management Server

In this example, you configure CA SiteMinder to secure the Enterprise Management Server log in session. You need to configure the user store that CA SiteMinder secures the authentication scheme and the domain policy.

- 1. Do the following:
  - Go to Start, All Programs, CA, CA SiteMinder, CA SiteMinder Administrative UI. The CA SiteMinder Administrative UI opens prompting Steve for a username and password.
  - b. Enter the credentials for the CA SiteMinder administrator user account.
  - c. Select Infrastructure, Directory, User Directory, Create User Directory.
  - d. Complete the following fields in the General frame:
    - Name-ac-dir
    - Description—Access Control User Store
  - e. Move to the Directory Setup frame and complete the following fields:
    - Namespace—LDAP
    - **Server**—directory\_hostname:port
  - f. Move to the Administrator Credentials and complete the following fields:
    - Require credentials—check
    - Username—Bind user full DN
    - Password—password
    - **Confirm Password**—password
  - g. Move to the LDAP Settings frame and complete the following fields:
    - Root—searchroot
    - Scope—Sub-Tree
    - Start—(&(sAMAccountName=
    - End—)(objectclass=top)(objectclass=person)(objectclass=organizationalper son)(objectclass=user))
  - h. Move to the User Attributes frame and complete the following fields:
    - Universal ID—Attribute name corresponding to %USER\_ID%
- 2. Click Submit.

CA SiteMinder creates the user directory object.

3. Select View User Directory, ac-dir, View Content.

The user store entries appear.

- 4. Select Infrastructure, Authentication, Authentication Scheme, Create Authentication Scheme, complete the following fields:
  - Name—ac-basic-auth
  - Description—CA Access Control Enterprise Management basic authentication
  - Authentication Scheme Type—Basic Template
  - Protection Level—5
  - Library—smauthdir
- 5. Click Submit

CA SiteMinder creates the authentication scheme object.

- 6. Select Policies, Domains, Domain, Create Domain.
- 7. Specify the name of the domain.
- 8. Move to the User Directories frame and clicks Add/Remove.
- 9. Move ac-dir from the Available Members list to the Selected Members list, and then click OK.
- 10. Select Realms, Create Realm and complete the following fields:
  - Name—ac-realm
  - Agent—webserver-agent
  - Resource Filter—/iam/
  - Default Resource Protection—Protected
  - Authentication Scheme—ac-basic-auth
- 11. Move to the Rules frame, select Create and complete the following fields:
  - Name—ac-rule
  - Resource-\*
  - Allow Access—select
  - Web Agent Actions—Get, Post
- 12. Click OK twice.
- 13. Select Policies, Create and complete the following field in the General tab:
  - Name—ac-policy
- 14. Move to the Users tab and select Add All
- 15. Move to the Rules tab, click Add Rule, select ac-rule and click OK
- 16. Click OK and Submit to create the domain.

You have configured the domain and realm policy.

# Example: Configuring the Enterprise Management Server to Use CA SiteMinder To Authenticate Users

In this example, you configure the Enterprise Management Server for CA SiteMinder integration.

- 1. On the Enterprise Management Server host, do the following:
  - a. Stop the JBoss application server.
  - b. Navigate to the following directory, where *JBOSS\_HOME* is the directory where you installed JBoss:

JBOSS\_HOME/server/default/deploy/IdentityMinder.ear/user\_console.war/WEB-INF

- c. Open the web.xml file and locate the FrameworkAuthFilter section.
- d. Modify the value to false, then save and close the file. For example:

```
<filter>
<filter-name>FrameworkAuthFilter</filter-name>
```

```
<filter-class>com.netegrity.webapp.authentication.FrameworkLoginFilter</f
ilter-class>
```

```
<init-param>
    <param-name>Enable</param-name>
    <param-value>false</param-value>
    </init-param>
</filter>
```

2. Navigate to the following directory:

JBOSS\_HOME/server/default/deploy/IdentityMinder.ear/policyserver.rar/META-INF

- 3. Do the following:
  - a. Open the ra.xml file and set the value to true to enable the connection, as follows:

```
<config-property>
<config-property-name>Enabled</config-property-name>
<config-property-type>java.lang.String</config-property-type>
<config-property-value>true</config-property-value>
</config-property>
```

b. Configure the FIPS mode according to the CA SiteMinder Policy Server configuration, as follows:

#### <config-property>

```
<config-property-name>FIPSMode</config-property-name>
<config-property-type>java.lang.String</config-property-type>
<config-property-value>false</config-property-value>
</config-property>
```
c. Define the CA SiteMinder Policy Server hostname, IP address and port number, as follows:

```
<config-property>
```

<config-property-name>ConnectionURL</config-property-name> <config-property-type>java.lang.String</config-property-type>

<config-property-value>policyservernode.example.com,44441,44442,44443</co nfig-property-value> </config-property>

d. Define the administrative user account settings, as follows:

```
<config-property>
<config-property-name>UserName</config-property-name>
<config-property-type>java.lang.String</config-property-type>
<config-property-value>siteminder</config-property-value>
</config-property
```

e. Run the password tool located in the following directory:

/CA/AccessControlServer/IAMSuite/AccessControl/tools/PasswordTool

```
For example:
pwdTools -FIPS -p <clear_text_password> -k
JBoss_HOME/server/default/deploy/IdentityMinder.ear/config/com/netegrity/
config/keys/FIPSKey.dat
```

f. Define AdminSecret as the output of the following encryption command, as follows:

```
<config-property>
```

```
<config-property-name>AdminSecret</config-property-name>
<config-property-type>java.lang.String</config-property-type>
```

```
<config-property-value>{AES}:gSez2/BhDGzEKWvFmzca4w==</config-property-value>
```

</config-property>

g. Define AgentName as the CA Access Control Enterprise Management node agent name:

config-property>

<config-property-name>AgentName</config-property-name>
<config-property-type>java.lang.String</config-property-type>
<config-property-value>webserver-agent</config-property-value>
</config-property>

h. Encrypt the CA Access Control Enterprise Management shared secret using the following password tool command:

ACServerInstallDir/IAMSuite/AccessControl/tools/Passwordtool/pwdtools.bat
-FIPS -p <your\_shared\_secret> -k
JBoss\_HOME/server/default/deploy/IdentityMinder.ear/config/com/netegrity/
config/keys/FIPSKey.dat

i. Define AgentSecret as the encrypted output of the following command:

<config-property>

<config-property-name>AgentSecret</config-property-name> <config-property-type>java.lang.String</config-property-type>

<config-property-value>{AES}:gSez2/BhDGzEKWvFmzca4w==</config-property-value> lue> </config-property>

- 4. Save and close the file.
- 5. Navigate to the following directory:

JBoss\_HOME/bin

6. Edit the run\_idm.bat and set the %PATH% variable to the JBoss installation path: For example:

set

PATH=%PATH%;C:\jboss-4.2.3\server\default\deploy\IdentityMinder.ear\library;%
SystemRoot%\SYSTEM32;%SystemRoot%;%SystemRoot%\SYSTEM32\WBEM

- 7. Save and close the file.
- 8. Start the JBoss application server.

You have configured the Enterprise Management Server for CA SiteMinder integration. You can now browse to the CA Access Control Enterprise Management URL and verify that CA SiteMinder secures the login session.

# Chapter 16: Upgrading from CA Access Control r12.0 SP1

This section contains the following topics:

<u>Upgrade from CA Access Control r12.0 SP1</u> (see page 435) <u>Before You Begin</u> (see page 436) <u>How to Upgrade from r12.0 SP1</u> (see page 437)

# Upgrade from CA Access Control r12.0 SP1

This chapter takes you through the steps of upgrading an existing CA Access Control r12.0 SP1 deployment. The upgrade process in the chapter assumes that you installed CA Access Control r12.0 SP1 components on separate computers.

For example, CA Access Control Enterprise Management is installed on one computer, where as the DMS, DH and Report Server are also installed on separate computers.

The upgrade process described in this chapter instructs you how to upgrade each component separately.

Note: You can upgrade from CA Access Control Enterprise Management r12.0 SP1 only.

# **Before You Begin**

Before you begin the process of upgrading the current CA Access Control installation consider the following:

- We recommend that you backup CA Access Control components before starting the upgrade process. We recommend backing up the system files before starting the upgrade process, including all databases.
- CA Access Control Enterprise Management installs the following components: CA Access Control Enterprise Management, CA Access Control, Distribution Server, Enterprise reporting service.
- After upgrading the previous DMS is unavailable. You must upgrade CA Access Control Enterprise Management, DMS and DH before starting the server.
- Specify to use an embedded user store when installing CA Access Control Enterprise Management.

**Important!** You cannot use UNAB reports and login authorization policies when you install CA Access Control Enterprise Management on the embedded user store. To generate UNAB reports and configure login authorization policies, you must install Active Directory. If you choose to install Active Directory all records of the existing users and roles will be lost.

# How to Upgrade from r12.0 SP1

Before you start upgrading we recommend that you review the steps that you need to complete to upgrade your existing CA Access Control r12.0 SP1 deployment:

- 1. Upgrade CA Access Control Enterprise Management.
  - a. Uninstall CA Access Control Enterprise Management r12.0 SP1, JBoss and JDK
  - b. Install JDK 1.5.0 and JBoss 4.2.3 using the Prerequisite Installer
  - c. Install CA Access Control Enterprise Management
- 2. Encrypt the existing passwords in AES.

In CA Access Control Enterprise Management r12.5 SP1, the encryption method was changed from RC2 to AES.

3. Upgrade the DMS computer.

**Note**: You do not need to complete this step if the DMS is installed on the same computer as CA Access Control Enterprise Management.

4. Upgrade the DH computer.

**Note**: You must upgrade every DH in your enterprise. You do not need to complete this step if the DH is installed on the same computer as the CA Access Control Enterprise Management.

- 5. Define Message Queue (MQ) route settings.
- 6. Migrate the Report Server to Enterprise Reporting Services.
- 7. Subscribe the DH with the new DMS.
- 8. (Optional) Install CA Access Control on endpoints.

## **CA Access Control Upgrade Process**

The following diagram displays an example of a CA Access Control r12.0 SP1 deployment architecture before the upgrade:



The following diagram displays an example of a CA Access Control deployment after it was upgraded:



## Upgrade the Enterprise Management Server

This procedure shows you the steps you follow for upgrading the Enterprise Management Server and the post installation steps that you need to do.

#### To upgrade the Enterprise Management Server

1. Uninstall CA Access Control Enterprise Management r12.0 SP1.

**Note**: For information about uninstalling CA Access Control Enterprise Management r12.0 SP1, see the *Implementation Guide* for that release.

**Important!** On Solaris, search for and remove the /var/.CA\_IAM\_FW.registry and.com.zerog.registry.xml hidden files if they exist.

- 2. Uninstall the existing JDK and JBoss.
- 3. Install prerequisite software.
- 4. Install CA Access Control Enterprise Management.

CA Access Control Enterprise Management also installs the following:

- Enterprise Management Server
- CA Access Control
- Enterprise reporting service
- Distribution Server

**Important!** You must specify an embedded user store when you install CA Access Control Enterprise Management.

- 5. Update the database schema by running the supplied scripts if the reporting database schema is not identical to the schema on CA Access Control Enterprise Management.
- 6. (Optional) Configure secure communication for JBoss.
- 7. Disable the DMS and DH on CA Access Control Enterprise Management. Run the following command:

dmsmgr -remove -auto

**Important!** Complete this step only if the DMS is installed on a separate computer than CA Access Control Enterprise Management.

**Note**: After upgrading the existing DMS is no longer available. Upgrade the DMS after installing the new Enterprise Management Server. For more information about the dmsmgr utility, see the *Reference Guide*.

The new CA Access Control Enterprise Management Server is installed. You must now upgrade the DMS and Distribution Host before you start CA Access Control Enterprise Management.

## **Encrypt Passwords in AES Encryption Method**

In CA Access Control r12.0 SP1, passwords were encrypted using the RC2 encryption method. In CA Access Control r12.5 SP1, the password encryption method was changed to AES. Therefore, passwords that were encrypted using RC2 encryption method cannot work in newer versions of CA Access Control. To solve this problem, you encrypt the existing passwords in AES after you upgrade from CA Access Control r12.0SP1.

#### To encrypt passwords in AES encryption method

- 1. If you have not already done so, install CA Access Control Enterprise Management.
- 2. Stop all the CA Access Control services.
- 3. Do the following:
  - a. Connect to the Enterprise Management Server database as a user with read and write access privileges.
  - b. Run the following query to remove the password CA Access Control Enterprise Management use to connect to the user store:

update IM\_DIR\_CONNECTION set password=null where connection\_name='java:/userstore';

4. Encrypt all the passwords in the database using the pwdtools utility.

For each entry in the tlbusers table, change the password with the encrypted passwords that you generate.

5. Remove the DMS settings from the connection table. Run the following query:

DELETE FROM connection WHERE connection\_name='con1';

The DMS connection settings are removed from the database.

- 6. Start CA Access Control Enterprise Management.
- 7. Configure the DMS connection settings in CA Access Control Enterprise Management.

**Note**:For more information about the DMS connection settings, see the *Online Help*.

#### Example: Encrypt passwords using the pwdtools utility

This example shows you how to encrypt a user password in AES encryption mode using the pwdtools utility and set the encrypted password in the Enterprise Management Server database.

1. Open the pwdtool.bat for editing. The file is located in the following directory, where *ACServerInstallDir* is the directory where the Enterprise Management Server is installed:

ACServerInstallDir/IAM\_Suite/Access\_Control/tools/PasswordTool/

2. Enter the JAVA\_HOME path in the "::SET JAVA\_HOME=<enter valid java home here>" token. For example:

SET JAVA\_HOME=C:\jdk1.5.0

3. From a command-line window, run the following command, where *password* is a clear text password and *JBOSS\_Home* is the directory where JBoss is installed:

pwdtools -FIPS -p <"password"> -k
JBOSS\_HOME\server\default\deploy\IdentityMinder.ear\config\com\netegrity\conf
ig\keys\FIPSkey.dat

The encrypted password is displayed. Copy the password to a clipboard.

- 4. Connect to the Enterprise Management Server as a user with read and write access rights to the database.
- 5. Run the following query where *encrypted password* is the encrypted password that you previously copied to a clipboard and *username* is the name of the user account:

update tblusers set password = '<encrypted password>' where loginid='<username>';

You have set the account password with an encrypted password.

## Upgrade the DMS

After installing the new CA Access Control Enterprise Management Server, you must upgrade the existing DMS. You do not need to remove the existing installation of the DMS before upgrading.

**Important!** Complete this step only if the DMS is installed on a separate computer than CA Access Control Enterprise Management.

To upgrade the DMS, install CA Access Control on the DMS computer.

You can now configure CA Access Control Enterprise Management to connect to the DMS.

## Upgrade the Distribution Host (DH)

After successfully upgrading the DMS, you must upgrade the Distribution Host (DH). You upgrade the DH by installing the Distribution Server on every computer that is running the Distribution Host. After installing the Distribution Server, you must configure the Message Queue routing settings to establish routes for sending and receiving messages between the Distribution Server and CA Access Control Enterprise Management.

**Important!** Complete this step only if the DH is installed on a separate computer than CA Access Control Enterprise Management.

#### To upgrade the distribution host

1. Install the Distribution Server on the DH computer.

The Distribution Server installs the Java Connector Server (JCS), the DH, and the Message Queue.

2. <u>Define the Message Queue routing settings</u> (see page 444) between the Distribution Server and CA Access Control Enterprise Management.

The Distribution Server is now configured.

## Subscribe a DH to a DMS

When you create a new DH, you must subscribe it to the DMS.

If you are upgrading from r12.0 SP1, once you have completed upgrading CA Access Control Enterprise Management components, you cannot continue working with the previous DMS. You must configure the upgraded DH to work with the new DMS before starting CA Access Control Enterprise Management.

**Important!** If you are upgrading from r12.0 SP1, complete this step only if you installed the Distribution Server on the Report Server computer.

#### To subscribe a DH to a DMS

- 1. Open a command prompt window on the Distribution Server.
- 2. Subscribe the new DMS with the Distribution Host.

Example: sepmd -s DH\_\_WRITER DMS\_\_@<entm>

3. Add the new DMS as the Distribution Host parent.

**Example**: sepmd -s DMS\_\_ DH\_\_@<host\_name>

4. On the Enterprise Management Server, open a command prompt window and create a new subscriber.

**Example**: sepmd -n DH\_\_@<host\_name>

Note: For more information about the sepmd utility, see the *Reference Guide*.

## Migrate the Report Server to the Enterprise Reporting Services

The Enterprise Reporting services bundle the Report Server functionality into a single enterprise wide reporting service. Due to architectural changes, the Report Server is now a part of CA Access Control Enterprise Management and is no longer an individual component. You migrate the Report Server by installing Distribution Server on the Report Server and reconfiguring the Message Queue settings.

**Note**: This migration process lets existing endpoints continue using the Message Queue on the Report Server computer. You do not need to reconfigure the ReportAgent settings on the endpoints after you complete this procedure.

**Important!** Complete this step only if the Report Server is installed on a separate computer than CA Access Control Enterprise Management.

#### To migrate the Report Server to Enterprise Reporting services

- 1. Install the Distribution Server on the Report Server computer.
- 2. Disable the JBoss service.
- 3. <u>Define Message Queue route settings</u> (see page 444) between the Distribution Server and CA Access Control Enterprise Management.

The Enterprise Reporting services (including the Report Server) are installed. You can now configure the Enterprise Reporting server components.

4. <u>Subscribe the DH on the new DMS</u> (see page 442).

## **Upgrade CA Access Control Endpoints**

After upgrading CA Access Control Enterprise Management, the DMS, the Distribution Host and the Report Server, you can now upgrade the existing CA Access Control r12.0 SP1 endpoints.

To upgrade CA Access Control endpoints install CA Access Control on the endpoints.

## How to Configure Message Routing Settings

When working in an environment that consists of a single instance of CA Access Control Enterprise Management and multiple Distribution Servers, you must configure the MQ routing settings on all the Distribution Servers to point to the MQ on the CA Access Control Enterprise Management. This helps ensure that all the messages that the CA Access Control endpoints send are ultimately routed to a single MQ, that is located on the CA Access Control Enterprise Management server.

To route messages from the MQ on every Distribution Server to the CA Access Control Enterprise Management server, do the following:

- On each Distribution Server in your enterprise, do the following:
  - Stop the Message Queue service.
  - Modify the routing to the CA Access Control Enterprise Management Message Queue.
  - Define the parameters of the CA Access Control Enterprise Management Message Queue.
  - Configure the names of the Distribution Server message queues.
  - Specify the location of the CA Access Control Enterprise Management Message Queue.
  - Start the Message Queue service.
- On the CA Access Control Enterprise Management, do the following:
  - Stop the Message Queue service.
  - Modify the routing to the Distribution Server Message Queue.
  - Define the parameters of the Distribution Server Message Queue
  - Configure the names of the CA Access Control Enterprise Management message queues.
  - Specify the location of the CA Access Control Enterprise Management Message Queue
  - Start the Message Queue service.

**Note**: For information about message routings, refer to the *TIBCO Enterprise Message* Server User's Guide.

#### More information:

Modify the Message Queue Settings on the Distribution Server (see page 445) Modify the Message Queue Settings on CA Access Control Enterprise Management (see page 446) Message Queue Connection Configuration (see page 447) Configure the Names of the Message Queues on the Distribution Server (see page 452) Configure the Names of the Message Queues on the CA Access Control Enterprise Management Computer (see page 453) Message Routing Configuration (see page 453)

#### Modify the Message Queue Settings on the Distribution Server

By default, every Distribution Server is configured to work with the Message Queue that is running on that server. To route messages to another Message Queue, you must reconfigure the Message Queue settings.

This procedure shows you how to modify the Message Queue settings on the Distribution Server to enable communication with the CA Access Control Enterprise Management Message Queue. Complete this procedure for every Distribution Server in your enterprise.

#### To modify the Message Queue settings on the Distribution Server

- 1. Stop the CA Access Control Message Queue service.
- 2. On the Distribution Server, open the file tibemsd.conf file, located by default in the following directory, where *DistServerInstallDir* is the directory in which you installed the Distribution Server:

#### DistServerInstallDir/ACMQ/tibco/ems/bin

- 3. Enter the Distribution Server short host name in the 'server' parameter.
- 4. Change the 'routing' parameter value to enabled.
- 5. Start the CA Access Control Message Queue service.

You have modified the message queue settings on the Distribution Server.

**Note:** For information about message routings, see the *TIBCO Enterprise Message Server User's Guide*.

#### Example: tibemsd.conf file

The example shows you a snippet from the tibemsd.conf file after you modify the routing settings for a Distribution Server named DS\_Example:

#### 

# Server Identification Information. # server: unique server name # password: password used to login into other routed server server = DS Example password = # Routing. Routes configuration is in 'routes.conf'. This enables or # disables routing functionality for this server. = enabled routing 

#### Modify the Message Queue Settings on CA Access Control Enterprise Management

This procedure shows you how to modify the Message Queue settings on CA Access Control Enterprise Management to enable communication with the Distribution Server.

#### To modify the Message Queue settings on CA Access Control Enterprise Management

- 1. Stop the CA Access Control Message Queue service.
- 2. On CA Access Control Enterprise Management, open the tibemsd.conf file for editing. This file is located in the following directory by default, where *DistServerInstallDir* is the directory in which you installed the Distribution Server:

DistServerInstallDir/ACMQ/tibco/ems/bin

- 3. Enter the CA Access Control Enterprise Management server short host name, not separated by dots, in the 'server' parameter.
- 4. Change the 'routing' parameter value to enabled.
- 5. Start the CA Access Control Message Queue service.

You have modified the message queue settings on CA Access Control Enterprise Management.

**Note:** For information about message routings, refer to the *TIBCO Enterprise Message Server User's Guide*.

#### Example: tibemsd.conf file

The example shows you a snippet from the tibemsd.conf file after you modify the routing settings for a CA Access Control Enterprise Management Server named ENTM\_Example:

#### 

## 

### **Message Queue Connection Configuration**

To route messages from the Message Queue on the Distribution Server to the Enterprise Management Server conversely, you modify the existing Message Queue settings in your enterprise.

# Example: Configuring the Message Queue Connection Settings on the Distribution Server

This example shows you how to configure the Message Queue server settings on the Distribution Server. You configure the Message Queue to send messages to the Enterprise Management Server by defining the parameters of the Message Queue that is running on the Enterprise Management Server.

#### To configure the Message Queue connection settings on the Distribution Server

- 1. On the Distribution Server, do one of the following:
  - (Windows 2003 Server) Select Start, Programs, TIBCO, TIBCO EMS 4.4.1, Start EMS Administration Tool.
  - (UNIX) Do the following:
    - a. Navigate to the following directory, where *DistServerInstallDir* is the directory in which you installed the Distribution Server:

DistServerInstallDir/MessageQueue/tibco/ems/bin

b. Run the following command:

tibemsadmin

The TIBCO EMS Administration Tool command prompt window opens.

- 2. Connect to the Message Queue using either of the following:
  - Enter the following command to connect using SSL:

connect ssl://localhost:7243

Enter the following command to connect using TCP:

connect tcp://localhost:7222

A login name prompt appears.

3. Enter admin.

A password prompt appears.

- 4. Enter the password that you provided when you installed the Distribution Server.
- 5. When prompted, enter a new password for the Message Queue server.
- 6. Define the Message Queue password.

set server password=

Example: set server password=<COmplex>

7. Create a user named ENTM-NAME and assign a password to the user.

create user ENTM-NAME password=acserver\_user-passwd

Example: create user EMS-SERVER password=<acserver\_user-passwd>

**Important!** Specify the same name that you defined in the 'server' parameter of the tibemsdf.conf file on the Enterprise Management Server.

- 8. Do the following:
  - a. Enter the following command:

add member ac\_server\_users ENTM\_NAME

The user you created is added to the ac\_server\_users group.

b. Enter the following command:

add member ac\_endpoint\_users ENTM\_NAME

The user you created is added to the ac\_endpoint\_users group.

c. Enter the following command:

add member report\_publishers ENTM\_NAME

The user you created is granted permissions to read and publish messages to CA Access Control queues.

9. Restart the Distribution Server.

The changes you made are applied.

# Example: Configure the Message Queue Connection Settings on CA Access Control Enterprise Management

This example shows you how to configure the Message Queue server settings on the Enterprise Management Server. You configure the Message Queue to send messages to the Distribution Server.

In this example the term *DS-NAME* relates to the name of the Distribution Server computer and the term *ENTM-NAME* relates to name of the Enterprise Management Server. When you define the message queue server settings, you replace the name with the server actual names, as defined in the 'server' token in the *tibemsd.conf* file.

#### To configure the Message Queue connection settings on CA Access Control Enterprise Management

- 1. On the CA Access Control Enterprise Management computer, do one of the following:
  - (Windows 2003 Server) Select Start, Programs, TIBCO, TIBCO EMS 4.4.1, Start EMS Administration Tool.
  - (UNIX) Do the following:
    - a. Navigate to the following directory, where *ACServerInstallDir* is the directory in which you installed CA Access Control Enterprise Management:

ACServerInstallDir/MessageQueue/tibco/ems/bin

b. Run the following command:

tibemsadmin

The TIBCO EMS Administration Tool command prompt window opens.

- 2. Connect to the Message Queue using either of the following:
  - Enter the following command to connect using SSL:

connect ssl://localhost:7243

Enter the following command to connect using TCP:

connect tcp://localhost:7222

A login name prompt appears.

3. Enter admin.

A password prompt appears.

4. Enter the password that you provided when you installed the Enterprise Management Server.

5. Define the Message Queue password.

set server password=entm\_server-passwd

Example: set server password=<ENTM\_SERVER\_NAME-passwd>

6. For each Distribution Server, create a user named DS-NAME and assign a password to the user.

create user DS-NAME password=dist\_server\_user

Example: create user EMS-Server password=<COmplex>

**Important!** Specify the same name that you defined in the 'server' parameter of the tibemsdf.conf file on the Enterprise Management Server.

- 7. Do the following:
  - a. Enter the following command:

add member ac\_server\_users DS\_NAME

The user you created is added to the ac\_server\_users group.

b. Enter the following command:

add member ac\_endpoint\_users DS\_NAME

The user you created is added to the ac\_endpoint\_users group.

c. Enter the following command.

add member report\_publishers DS\_NAME

The user you created is granted permissions to read and publish messages to CA Access Control queues.

8. Restart the Distribution Server for the changes to take effect.

You have configured the message queue connection settings on CA Access Control Enterprise Management.

**Note:** For information about message routings, see the *TIBCO Enterprise Message Server User's Guide*.

#### Configure the Names of the Message Queues on the Distribution Server

To forward messages from the Distribution Server to CA Access Control Enterprise Management, configure each messages route to forward the messages from the Message Queue on the Distribution Server to the Message Queue on CA Access Control Enterprise Management.

In this procedure you define the message queue settings on the Distribution Server. You modify the message queue settings file to provide the settings of the Message Queue on CA Access Control Enterprise Management.

#### To configure the names of the Message Queue on the Distribution Server

1. On the Distribution Server, open the file queues.conf. The file is located by default in the following directory, where *DistServerInstallDir* is the directory in which you installed the Distribution Server:

#### DistServerInstallDir/ACMQ/tibco/ems/bin

2. Locate the queue named 'queue/snapshots' and add the ENTM-NAME value at the end of the queue name, preceded by a @ sign as follows:

queue/snapshots@ENTM-NAME

#### ENTM-NAME

Defines the short name of the CA Access Control Enterprise Management computer.

**Important!** Specify the same name that you defined in the 'server' parameter of the tibemsd.conf file on CA Access Control Enterprise Management.

3. Locate the queue name 'queue/audit' and add the ENTM-NAME value at the end of the queue name, preceded by a @ sign as follows:

queue/audit@ENTM-NAME

4. Locate the queue named 'ac\_endpoint\_to\_server' and add the ENTM-NAME value at the end of the queue name, preceded by a @ sign as follows:

ac\_endpoint\_to\_server@ENTM-NAME

5. Locate the queue named 'ac\_server\_to\_endpoint' and add the ENTM-NAME value at th end of the queue name, preceded by a @ sign as follows:

ac\_server\_to\_endpoint@ENTM-NAME

6. Save and close the file.

**Note:** For information about message routings, see the *TIBCO Enterprise Message Server User's Guide*.

### Configure the Names of the Message Queues on the CA Access Control Enterprise Management Computer

In this procedure you define the message routing settings on CA Access Control Enterprise Management. You configure the Message Queue settings on CA Access Control Enterprise Management to identify this Message Queue as the primary server.

#### To configure the names of the Message Queues on the CA Access Control Enterprise Management computer

1. On CA Access Control Enterprise Management, open the file queues.conf in an editable form. The file is located by default in the following directory, where *ACServerInstallDir* is the directory in which you installed CA Access Control Enterprise Management:

ACServerInstallDir/MessageQueue/tibco/ems/bin

2. Locate the queue named 'queue/snapshots' and add the word 'global' after the word 'secure' at the end of the queue name, as follows:

queue/snapshot secure, global

3. Locate the queue named 'queue/audit' and add the word 'global' after the word 'secure' at the end of the queue name, as follows:

queue/audit secure, global

4. Locate the queue named 'ac\_endpoint\_to\_server' and add the word 'global' after the word 'secure' at the end of the queue name, as follows:

ac\_endpoint\_to\_server secure, global

5. Locate the queue named 'ac\_server\_to\_endpoint' and add the word 'global' after the word 'secure' at the end of the queue name, as follows:

ac\_server\_to\_endpoint secure, global

6. Save and close the file.

**Note:** For information about message routings, refer to the *TIBCO Enterprise Message* Server User's Guide.

#### Message Routing Configuration

After you have configured the Message Queue settings and configured the message queue routing settings on the Distribution Server and CA Access Control Enterprise Management, you set up the message routes on the Distribution Server and CA Access Control Enterprise Management.

#### Example: Set Up Message Routes on the Distribution Server

This example shows you how to set up the message route settings on the Distribution Server. You set up a route between the Distribution Server and CA Access Control Enterprise Management to route messages arriving from CA Access Control endpoints to the Message Queue on CA Access Control Enterprise Management. Complete this procedure on every Distribution Server in your enterprise.

1. On the Distribution Server, open the file routes.conf for editing. The file is located by default in the following directory, where *DistServerInstallDir* is the directory in which you installed the Distribution Server:

DistServerInstallDir/MessageQueue/tibco/ems/bin

2. Add the following entries:

[ENTM-NAME]

url = ENTM-URL

ssl verify host = disabled

ssl\_verify\_hostname = disabled

#### ENTM-NAME

Defines the short name of the CA Access Control Enterprise Management computer.

#### ENTM\_URL

Defines the CA Access Control Enterprise Management URL.

- 3. Save the file.
- 4. Restart the CA Access Control Message Queue service.

#### Example: Set Up Message Routes on CA Access Control Enterprise Management

This example shows you how to set up the message route settings on CA Access Control Enterprise Management. You set up a route between CA Access Control Enterprise Management and the Distribution Server to send messages from CA Access Control Enterprise Management to the Distribution Server and from there to the endpoints.

1. On CA Access Control Enterprise Management, open the file routes.conf. The file is located by default in the following directory, where *ACServerInstallDir* is the directory in which you installed CA Access Control Enterprise Management:

ACServerInstallDir/MessageQueue/tibco/ems/bin

2. Add the following entries:

[DS-NAME]

url = DS-URL

ssl\_verify\_host = disabled

ssl\_verify\_hostname = disabled

#### DS\_NAME

Defines the short name of the Distribution Server.

#### DS\_URL

Defines the Distribution Server URL.

- 3. Save the file.
- 4. Restart the CA Access Control Message Queue service.

**Note:** For information about message routings, refer to the *TIBCO Enterprise Message Server User's Guide*.

# Appendix A: Changing Communication Encryption Methods

This section contains the following topics:

<u>Communication Encryption</u> (see page 457) <u>Symmetric Encryption</u> (see page 457) <u>SSL, Authentication, and Certificates</u> (see page 461)

## **Communication Encryption**

You can use the following methods to encrypt communication between CA Access Control components and to encrypt CA Access Control client/server communication:

- Symmetric encryption
- SSL

**Note**: On Windows, when you change the encryption mode (for example, to FIPS-only mode), restart CA Access Control services if you need to propagate passwords from a password PMDB.

## Symmetric Encryption

CA Access Control uses encryption libraries to implement symmetric (standard) encryption. You can use the following methods to encrypt communication between CA Access Control components:

- Default (proprietary) encryption
- AES128
- AES192
- AES256
- DES
- 3DES

**Note:** The encryption method named default is not the default CA Access Control encryption method. The default encryption method is AES256.

When you install CA Access Control, the installer stores the encryption libraries in the following directory, where *ACInstallDir* is the directory in which you installed CA Access Control:

- (Windows) ACInstallDir\bin
- (UNIX) ACInstallDir/lib

On Windows, CA Access Control stores the full path of the encryption library that you use for symmetric encryption in the following configuration setting:

HKEY\_LOCAL\_MACHINE\Software\ComputerAssociates\AccessControl\Encryption Package

You use the sechkey utility to change the symmetric encryption key and the symmetric encryption method.

More information:

<u>Change the Symmetric Encryption Key</u> (see page 459) <u>Change the Symmetric Encryption Method</u> (see page 460)

### How sechkey Configures Symmetric Encryption

A symmetric encryption key is 55 characters long. sechkey automatically truncates longer keys and pads out shorter keys.

When you use sechkey to change an encryption key, sechkey changes the key in all programs in the CA Access Control database at once. When sechkey changes the symmetric key or symmetric encryption method, it decrypts then re-encrypts the following:

- Encrypted records for any Policy Model installed on the computer
- All encrypted passwords in the CA Access Control database, including CA Access Control Message Queue passwords and, if CA Access Control uses bi-directional passwords, USER passwords
- The server private key, if the key is not password-protected
- The password for the server private key, if the key is password-protected

In addition, whenever you use a CA Access Control API to create a program that communicates with CA Access Control, the communication for the new program is encrypted with the same key.

## **Change the Symmetric Encryption Key**

Symmetric encryption keys protect communication between CA Access Control components. You use the sechkey utility to change the symmetric encryption keys. You can use sechkey in interactive or non-interactive mode.

Before you change the symmetric encryption key, note the following limitations:

- The password must be 1-55 characters long
- The password must not contain high ASCII characters
- The password must not contain double quotes ( " )

You must have the ADMIN attribute to use sechkey.

**Important!** To avoid communication problems, use the same encryption key on all computers that run CA Access Control components.

#### To change the symmetric encryption key

1. Stop CA Access Control.

If you are changing the encryption settings on a CA Access Control Enterprise Management server, also stop the CA Access Control Web Service.

2. Run the sechkey utility in interactive mode:

sechkey

The utility prompts you to enter the existing key and the new key, and changes the symmetric encryption key.

3. Start CA Access Control.

If you are changing the encryption settings on a CA Access Control Enterprise Management server, also start the CA Access Control Web Service.

CA Access Control starts and encrypts communication with the new encryption key.

#### Example: Change the Symmetric Encryption Key in Non-interactive Mode

The following example changes the default CA Access Control symmetric key to a new key with the value newkey:

sechkey -d newkey

Note: For more information about the sechkey utility, see the Reference Guide.

## **Change the Symmetric Encryption Method**

Symmetric encryption protects communication between CA Access Control components and is implemented by encryption libraries. You use the sechkey utility to change the encryption library, and therefore change the symmetric encryption method.

You must have the ADMIN attribute to use sechkey.

**Note:** If CA Access Control is operating in FIPS-only mode, you cannot change the symmetric encryption method. CA Access Control operates in FIPS-only mode when the value of the fips\_only configuration token in the crypto section is 1. This restriction prevents you from changing the encryption method to a non-FIPS compliant method.

**Important!** To avoid communication problems, use the same encryption method on all computers that run CA Access Control components.

#### To change the symmetric encryption method

1. Stop CA Access Control.

If you are changing the encryption settings on a CA Access Control Enterprise Management server, also stop the CA Access Control Web Service.

- 2. Use the sechkey utility to change the symmetric encryption method.
- 3. Start CA Access Control.

If you are changing the encryption settings on a CA Access Control Enterprise Management server, also start the CA Access Control Web Service.

CA Access Control starts and encrypts communication with the new encryption method.

#### **Example: Change the Symmetric Encryption Method to 3DES**

The following command changes the symmetric encryption method to 3DES:

sechkey -m -sym tripledes

**Note:** For more information about the sechkey utility, see the *Reference Guide*.

## **Multiple Symmetric Encryption Methods in an Enterprise Deployment**

Endpoints can communicate with other CA Access Control components that use different encryption methods. The encryption\_methods configuration setting in the crypto section specifies the symmetric encryption methods that the endpoint accepts.

By default the configuration setting lists the following encryption methods, in order:

- AES256
- AES192
- AES128
- DES
- 3DES

When the CA Access Control Agent decrypts incoming communication from another component, it attempts to use each method in the list, in turn, until the decryption is successful. The Agent uses the same encryption method to encrypt outgoing communication to that component.

Similarly, when the CA Access Control Web Service tries to connect to an endpoint, it attempts to use each method in the list, in turn, until it successfully communicates with the endpoint.

Multiple encryption methods let you easily upgrade an enterprise CA Access Control deployment. For example, you have an r12.5 deployment that uses DES encryption. You want to perform a staged upgrade to r12.5 SP4 and change the encryption method to AES256 for the upgraded components. You upgrade the Enterprise Management Server to r12.5 SP4; the server now uses AES256 encryption by default. However, because the r12.5 SP4 server can also communicate with CA Access Control components that use DES encryption, the Enterprise Management Server can continue to manage the r12.5 endpoints.

## SSL, Authentication, and Certificates

Secure Sockets Layer (SSL), including TLS, provides communications between computer programs. SSL helps ensure that communications have the following properties:

- The participants in the communication are authenticated, that is, the participants in the communication are the programs, or users, that they purport to be.
- The data is securely encrypted, and only the participants can read it.

Participants authenticate each other by using X.509 certificates. An X.509 certificate is an electronic document that links the certificate owner's address with a public key. The certificate is not forgeable.

SSL works on a client/server model and uses PKI (public key infrastructure). When a client receives an X.509 certificate from a server, it checks if the certificate is valid. If the certificate is valid, the client knows that the server is the program or user that it purports to be, so the server is authenticated. Also, if the client uses the certificate's public key to encrypt data, only the server can decrypt that data, so the data is secure. Conversely, the server uses the X.509 certificate it receives from a client in the same way.

## What a Certificate Contains

Programs send X.509 certificates to prove that their identity is bound to a public key. This lets other programs encrypt messages knowing that only the subject of the certificate can decrypt those messages.

The contents of an X.509 certificate are as follows:

- Certificate data—The most important certificate data fields are as follows:
  - The public identifier of the certificate subject (for example, a web address)
  - The period (start and end dates) for which the certificate is valid
- Name of the Certificate Authority (CA) certifying the certificate The reader of the certificate can be sure that if the signature is valid, the CA validates that the public key is associated with the subject. This means that if readers of the certificate trust the CA, they can trust that data encrypted with the public key can only be read by the subject.
- The subject's public key—The reader of the certificate uses the public key to encrypt data to send to the certificate subject.
- A digital signature—The digital signature is a hashed encapsulation of all the other data in the certificate, encrypted with the CA's private key. (Note the contrast to the encryption case, in which the sender encrypts data with a public key.) Anyone with access to the CA's public key can read the signature and check that this matches the other data in the certificate. If any of the text in the certificate has been changed, the signature will no longer match the certificate text.

Associated with the certificate, but kept separate and secure, is the subject's private key. The subject uses the private key to decrypt messages that programs have encrypted with the public key.

### What a Certificate Proves

A reader can validate the certificate signature by using the public key of the Certificate Authority (CA). If the decrypted signature matches the rest of the certificate, and the reader trusts the CA, this means the reader knows the following are true:

- That when the reader encrypts data using the public key, only the owner of the private key will be able to decrypt and read that data.
- That the owner of the certificate private key is the subject given in the certificate.

To be confident that the certificate is valid, the reader needs to trust the CA, and also needs to access the CA's public keys. In most cases the CA is a well known company and the program (and all popular web browsers) has copies of the CA's public keys, so the reader does not need to go online to check that the CA really did validate the certificate.

If the issuer is also the owner, the certificate is said to be self-signed, and trusting the issuer is more problematic.

To check that the program that sent the certificate is the certificate owner, the reader needs to use some other method. Usually the reader checks that the address it used to find the sender of the certificate is the same as the address that is in the certificate.

## **Root and Server Certificates**

A root, or CA, certificate is a trusted X.509 certificate that is validated by a Certificate Authority (CA). You use this trusted certificate to create additional X.509 certificates named server, or subject, certificates. Each server certificate is signed by the private key of the root certificate. If a reader trusts the root certificate, the reader knows they can trust any server certificate that is created from the root certificate.

The root certificate generates and authenticates server certificates. You can use the following types of root certificate in CA Access Control:

- The default CA Access Control root certificate
- A third-party root certificate, including a password-protected certificate

The server certificate encrypts and authenticates CA Access Control client/server communication and communication between CA Access Control components. You can use the following types of server certificate in CA Access Control:

- The default CA Access Control server certificate
- A third-party server certificate, including a password-protected certificate
- A CA Access Control server certificate created from a third-party root certificate

## **Enable SSL Encryption**

You configure encryption settings when you install CA Access Control. After installation, you can use the sechkey utility to change SSL encryption. You may also need to change the value of configuration settings.

**Important!** To avoid communication problems, use the same encryption method on all computers that run CA Access Control components.

#### To enable SSL encryption

1. Stop CA Access Control.

If you are changing the encryption settings on a CA Access Control Enterprise Management Server, also stop the CA Access Control Web Service.

2. Change the value of the communication\_mode configuration setting in the crypto section to *one* of the following:

#### all\_modes

Specify this value if you want to enable both symmetric and SSL encryption. This value lets the computer communicate with all CA Access Control components.

**Note:** If you specify this value, CA Access Control uses SSL encryption each time that it tries to communicate with another CA Access Control component. If SSL fails, it then uses symmetric encryption. This value lets you migrate your CA Access Control deployment from a symmetric encryption environment to an SSL encryption environment.

#### use\_ssl

Specify this value to enable SSL encryption only. This value lets the computer communicate with only the CA Access Control components that use SSL encryption.

**Note:** (Windows) If you are working with a third-party program that uses the CA Access Control SDK, the crypto section is located at the CA Access Control SDK registry path that you defined during installation.

- 3. (Recommended) Configure SSL communication to do one of the following:
  - <u>Use third-party root and server certificates</u> (see page 465).
  - Use a server certificate you generate from a third-party root certificate (see page 467).

**Note:** If you do not configure SSL encryption further, you can use the default CA Access Control X.509 certificates to encrypt and authenticate communication between CA Access Control components. However, we recommend that you change the default certificates instead.

- 4. Start CA Access Control:
  - If you are changing the encryption settings on a CA Access Control Enterprise Management Server, also start the CA Access Control Web Service.
  - If you are working with a third-party program that uses the CA Access Control SDK, restart the process that uses the CA Access Control SDK.

SSL encryption is enabled.

#### **Use Third-Party Root and Server Certificates**

If you use SSL encryption, you can use third-party root and server certificates to encrypt and authenticate communication between CA Access Control components.

You need the following files to use third-party root and server certificates:

- root.pem—Root certificate
- server.pem—Server certificate
- server.key—Private key for the server certificate

If you use OU password-protected server certificates, you also need the password for the private key for the server certificate.

**Note:** Because the server certificates are already created, you do not need the private key for the root certificate.

#### To use third-party root and server certificates

- 1. Verify that CA Access Control services are stopped and that SSL is enabled.
- 2. Replace the root certificate. Do one of the following:
  - Copy the new root certificate to the location specified in the ca\_certificate configuration setting in the crypto section.
  - Edit the value of the ca\_certificate configuration setting in the crypto section to specify the full path to the new root certificate.

**Note:** If you install the root certificate in a new directory, write CA Access Control FILE rules to protect the new directory.

- 3. Replace the server certificate. Do *one* of the following:
  - Copy the new server certificate to the location specified in the subject\_certificate configuration setting in the crypto section.
  - Edit the value of the subject\_certificate configuration setting in the crypto section to specify the full path to the new server certificate.

**Note:** If you install the server certificate in a new directory, write CA Access Control FILE rules to protect the new directory.

- 4. Replace the server key. Do *one* of the following:
  - Copy the new server key to the location specified in the private\_key configuration setting in the crypto section.
  - Edit the value of the private\_key configuration setting in the crypto section to specify the full path to the new server key.

**Note:** If you install the server key in a new directory, write CA Access Control FILE rules to protect the new directory.

- 5. If you use OU password-protected certificates do the following:
  - a. Verify that the value of the fips\_only configuration setting in the crypto section is 0.

**Note:** You cannot use password-protected certificates if CA Access Control is operating in FIPS-only mode.

b. Store the password for the server certificate private key on the computer as follows:

sechkey -g -subpwd private\_key\_password

Note: You must have the ADMIN attribute to use sechkey.

c. Verify that CA Access Control can use the stored password to open the private key:

sechkey -g -verify

If CA Access Control cannot open the key, repeat Step b and specify the correct password.

**Note:** For more information about the sechkey utility, see the *Reference Guide*.

- 6. Start CA Access Control:
  - If you are changing the encryption settings on a CA Access Control Enterprise Management Server, also start the CA Access Control Web Service.
  - If you are working with a third-party program that uses the CA Access Control SDK, restart the process that uses the CA Access Control SDK.

SSL encryption is enabled.

#### Use a Server Certificate You Generate from a Third-Party Root Certificate

If you use SSL encryption, you can create server certificates from third-party root certificates. You use these certificates to encrypt and authenticate communication between CA Access Control components.

You can create a password-protected server certificate; if you do, CA Access Control uses a specified password to protect the private key for the server certificate.

You need the following files to create a server certificate from a third-party root certificate:

- root.pem—Root certificate
- root.key—Private key for the root certificate

#### To use a server certificate you generate from a third-party root certificate

- 1. Verify that CA Access Control services are stopped and that SSL is enabled.
- 2. If you use OU password-protected certificates, verify that the value of the fips\_only configuration setting in the crypto section is 0.

**Note:** You cannot use password-protected certificates if CA Access Control is operating in FIPS-only mode.

3. Delete every file *except* sub\_cert\_info in the following directory, where *ACInstallDir* is the directory in which you installed CA Access Control:

ACInstallDir/data/crypto

Important! Do not delete the sub\_cert\_info file.

The default server certificate and default key for the server certificate are deleted.

- 4. Replace the root certificate. Do *one* of the following:
  - Copy the new root certificate to the location specified in the ca\_certificate configuration setting in the crypto section.
  - Edit the value of the ca\_certificate configuration setting in the crypto section to specify the full path to the new root certificate.

**Note:** If you install the root certificate in a new directory, write CA Access Control FILE rules to protect that directory.

5. Use the sechkey utility to generate a server certificate.

**Note:** For more information about the sechkey utility, see the *Reference Guide*. You must have the ADMIN attribute to use sechkey. If you are working with a third-party program that uses the CA Access Control SDK, append the -s option to the sechkey command when you run sechkey.

6. (Optional) Delete the private key for the root certificate.

If you do not want to create another server certificate from the root certificate, you can delete the private key for the root certificate.

- 7. Start CA Access Control:
  - If you are changing the encryption settings on a CA Access Control Enterprise Management Server, also start the CA Access Control Web Service.
  - If you are working with a third-party program that uses the CA Access Control SDK, restart the process that uses the CA Access Control SDK.

SSL encryption is enabled.

#### Example: Use sechkey to Create a Server Certificate

This example creates a server certificate from a third-party root certificate. This example uses the default CA Access Control certificate information file. The private key for the root certificate is named custom\_root.key and located at /opt/CA/AccessControl/data/crypto:

sechkey -e -sub -in "/opt/CA/AccessControl/data/crypto/sub\_cert\_info" -priv /opt/CA/AccessControl/data/crypto/custom\_root.key

#### **Password-Protected Server Certificates**

You can configure CA Access Control to use a password-protected server certificate; if you do, CA Access Control uses a specified password to protect the private key for the server certificate. CA Access Control stores the password in the crypto.dat file in the *ACInstallDir*/Data/crypto directory, where *ACInstallDir* is the directory in which you installed CA Access Control. The crypto.dat file is hidden, encrypted, read-only, and protected by CA Access Control. If CA Access Control is stopped, only the superuser can access the password.

If you create a password-protected server certificate, sechkey does not encrypt the certificate. If you create a server certificate that is not password-protected, sechkey encrypts the certificate using AES256 and the CA Access Control encryption key.
# Appendix B: Changing CA Access Control Service Account Settings

This section contains the following topics:

How CA Access Control Service Accounts Interact with CA Access Control Components (see page 470) Service Account Passwords (see page 472) Change the JNDI Connection Account (see page 481) Changing Message Queue Communication Settings (see page 484) Password Change Procedures (see page 489)

## How CA Access Control Service Accounts Interact with CA Access Control Components

The following diagram shows how the service accounts interact with various CA Access Control components.



The numbers in the diagram correspond to the following service accounts:

1. RDBMS\_service\_user

This account authenticates communication between the Enterprise Management Server and the RDMBS.

**Note:** This account is not named RDBMS\_service\_user. You specify the name of this account when you create a user to prepare the database for CA Access Control Enterprise Management.

2. guest

This account is the JNDI connection account that locates the message queue in the Message Queue server.

Note: You can change the JNDI connection account after installation.

3. reportserver

This account lets the DMS and CA Access Control Enterprise Management log in to the Message Queue.

4. +reportagent

This account lets an endpoint log in to the Message Queue.

5. +policyfetcher

This account executes the policyfetcher daemon or service on the endpoint.

6. +devcalc

This account executes the policy deviation calculation on the endpoint.

7. ac\_entm\_pers

This account authenticates communication between the Enterprise Management Server and the DMS.

8. ADS\_LDAP\_bind\_user

This account lets CA Access Control Enterprise Management perform LDAP queries against Active Directory.

**Note:** This account is not named ADS\_LDAP\_bind\_user. The name of this account is the User DN that you specify in the Active Directory Settings wizard page when you install CA Access Control Enterprise Management.

## Service Account Passwords

In most cases, you set the password for CA Access Control service accounts when you install CA Access Control Enterprise Management. However, you may need to change the password for these accounts after installation. For example, you may be required to change the passwords each year to comply with your organization's security or password policies.

If a service account interacts with two CA Access Control components, you must change the password for the account on each component. If you change the password on only one component, the service account cannot log in to the other component.

## Change the RDBMS\_service\_user Password

The RDBMS\_service\_user account authenticates communication between the Enterprise Management Server and the RDBMS. This account is not named RDBMS\_service\_user. You create this account when you prepare the database for CA Access Control Enterprise Management, and you provide the account name and password, along with other database information, when you install CA Access Control Enterprise Management.

You may need to regularly change the RDBMS\_service\_user password to comply with your organization's security and password policies. You must change the password on both the Enterprise Management Server and the RDBMS.

Before you change the password for this account, note the following:

- The default password for this account is the password that you specified when you created the user.
- The password has the following limitations:
  - Must be 1-50 characters long
  - Must not contain high ASCII characters
  - Must not contain double quotes (")
  - Must adhere to RDBMS password rules
- The password is stored in the following XML file, where JBoss\_home is the directory in which you installed JBoss:

JBoss\_home/server/default/conf/login-config.xml

#### To change the RDBMS\_service\_user password

1. Change the password using your database tools.

**Note:** For more information about how to change the password, see the MS SQL or Oracle documentation.

- 2. Change the password in the Enterprise Management Server:
  - a. Stop JBoss Application Server.
  - b. <u>Encrypt the clear text password</u> (see page 493).
  - c. <u>Change the password in the login-config.xml file</u> (see page 495).
  - d. Restart JBoss Appplication Server.
  - e. Verify that you can log in to CA Access Control Enterprise Management.

JBoss is successfully started and the password is changed in the Enterprise Management Server.

The RDBMS\_service\_user password is changed in all locations.

#### Example: Change the Password in the login-config.xml File

This snippet of the login-config.xml file shows you one instance of the changed RDMBS\_service\_user password. The user is named caidb01. The password has been encrypted and is }>8:Jt^+%INK&i^v:

## **Change the reportserver Password**

CA Access Control Enterprise Management and the DMS use the reportserver account to connect to the Message Queue.

CA Access Control Enterprise Management uses the reportserver account to do the following:

- Send reporting data to CA Enterprise Log Manager
- Send UNAB remote migration commands
- Provide privileged account passwords to the PUPM Agent on PUPM endpoints
- Receive reporting data from CA Access Control endpoints

The DMS uses the reportserver account to do the following:

- Send UNAB policies to UNAB endpoints
- Receive policy deployment status information that is sent from UNAB endpoints

You may need to regularly change the reportserver password to comply with your organization's security and password policies. You must change the password on the Distribution Server, Enterprise Management Server, and DMS.

Before you change the reportserver password, note the following:

- The default password for this account is the communication password that you specify when you install CA Access Control Enterprise Management.
- The password has the following limitations:
  - Must be 1–240 characters long
  - Must not contain high ASCII characters
  - Must not contain double quotes (")
- The password is stored in the Message Queue and the following XML files, where JBoss\_home is the directory in which you installed JBoss:
  - JBoss\_home/server/default/deploy/properties-service.xml
  - JBoss\_home/server/default/conf/login-config.xml

**Important!** If you have more than one Distribution Server in your enterprise, first change the password on the Distribution Server installed on the Enterprise Management Server, then change the password on the other Distribution Servers in your enterprise.

#### To change the reportserver password

1. On the Distribution Server, <u>set the Message Queue password for the reportserver</u> <u>user</u> (see page 491).

You have changed the reportserver password on the Distribution Server.

- 2. Change the password on the Enterprise Management Server, as follows:
  - a. Stop JBoss Application Server.
  - b. <u>Encrypt the clear text password</u> (see page 493).
  - c. <u>Change the password in the properties-service.xml file</u> (see page 494).
  - d. Change the password in the login-config.xml file (see page 495).
  - e. Restart JBoss Application Server.
  - f. Verify that you can log in to CA Access Control Enterprise Management.

JBoss is successfully started and the password on the Enterprise Management Server is changed.

3. <u>Use sechkey to change the reportserver password on the DMS</u> (see page 490).

The reportserver password is changed in all locations.

#### Example: Set the Message Queue Password For the reportserver User

This Tibco EMS Administration Tool command sets the Message Queue password for the reportserver user. The password is "secret", and must be in clear text and enclosed in double quotes: ssl://localhost:7243> set password reportserver "secret"

Password of user 'reportserver' has been modified ssl://localhost:7243>

#### Example: Change the Password in the properties-service.xml File

This snippet of the properties-service.xml file shows you the changed reportserver password. The password has been encrypted and is }>8:Jt^+%INK&i^v:

<attribute name="Properties"> SamMDB.mdb-user=**reportserver** <!-- encoded tibco password --> SamMDB.mdb-passwd={AES}:**}>8:Jt^+%INK&i^v==** </attribute>

#### Example: Change the Password in the login-config.xml File

This snippet of the login-config.xml file shows you the changed reportserver password. The password has been encrypted and is }>8:Jt^+%INK&i^v:

```
<application-policy name="JmsXATibcoRealm">
        <authentication>
        <login-module
code="com.netegrity.jboss.datasource.PasswordEncryptedLogin" flag="required">
        <module-option name="userName">reportserver</module-option>
        <module-option name="userName">reportserver</module-option>
        <module-option
name="password">{AES}:}>8:Jt^+%INK&i^v==</module-option>
        <module-option name="managedConnectionFactoryName">
            jboss.jca:service=TxCM, name=TibcoJmsXA</module-option>
        </login-module>
        </authentication>
        </authentication>
        </application-policy>
```

#### Example: Use sechkey to Change the Message Queue Password on the DMS

This command changes the Message Queue password on the DMS. The password is "secret", and must be in clear text and enclosed in double quotes:

sechkey -t -server -pwd "secret"

### Change the +reportagent Password

The +reportagent account lets an endpoint log in to the Message Queue. On each endpoint, the UNAB Agent, PUPM Agent, and Report Agent use this account to communicate with the Message Queue.

You may need to regularly change the +reportagent password to comply with your organization's security and password policies. Change the password on both the Message Queue and the endpoints.

Before you change the +reportagent password, note the following:

- The default password is the communication password that you specify when you install CA Access Control Enterprise Management.
- The password has the following limitations:
  - Must be 1–240 characters long
  - Must not contain high ASCII characters
  - Must not contain double quotes (")
- The password is stored in the Message Queue and the CA Access Control database on the endpoint (seosdb).

**Important!** If you have more than one Distribution Server in your enterprise, first change the password on the Distribution Server installed on the Enterprise Management Server, then change the password on the other Distribution Servers in your enterprise. The Message Queue is part of the Distribution Server.

#### To change the +reportagent password

 On the Distribution Server, <u>set the Message Queue password for the +reportagent</u> <u>user</u> (see page 491).

The +reportagent password is changed on the Message Queue.

2. <u>Use sechkey to change the password</u> (see page 490) that ReportAgent uses to connect to the Message Queue on the endpoints.

The changed +reportagent password is propagated to the endpoints.

**Note:** You can also use selang to change the +reportagent password on the endpoints. However, you cannot use a policy to propagate the selang command, because you cannot use advanced policy management to set user passwords.

#### Example: Set the Message Queue Password For the +reportagent User

This Tibco EMS Administration Tool command sets the Message Queue password for the +reportagent user. The password is "secret", and must be in clear text and enclosed in double quotes:

ssl://localhost:7243> set password +reportagent "secret"
Password of user '+reportagent' has been modified
ssl://localhost:7243>

#### Example: Use sechkey to Change the Message Queue Password on the Endpoints

This command propagates the Message Queue password for the +reportagent user to the endpoints that are subscribed to the Distribution Server. The password is "secret", and must be in clear text and enclosed in double quotes:

sechkey -t -pwd "secret"

## Change the +policyfetcher Password

The +policyfetcher account executes the policyfetcher daemon or service, which looks for deployment tasks on the DH, applies policy updates to the local CA Access Control database (seosdb), and sends a heartbeat to the DH at regular intervals. CA Access Control uses a SPECIALPGM rule to define +policyfetcher as a system user. +policyfetcher runs as the NT Authority\System user in Windows.

You may need to regularly change the +policyfetcher password to comply with your organization's security and password policies.

Before you change the +policyfetcher password, note the following:

- There is no default password for this account. CA Access Control does not set a password for +policyfetcher during installation.
- The password has the following limitations:
  - Must be 1–240 characters long
  - Must not contain high ASCII characters
  - Must not contain double quotes (")
- The password is stored in seosdb, the local CA Access Control database.

**Important!** To prevent this user from logging in to the CA Access Control database, we recommend that you do not set a password for this user.

To change the +policyfetcher password, <u>use selang to change the password</u> (see page 489).

#### Example: Change the +policyfetcher Password

This command changes the password for the +policyfetcher user. The password is "secret", and must be in clear text and enclosed in double quotes:

AC> cu +policyfetcher password("secret") grace- nonative
(localhost)
Successfully updated USER +policyfetcher

### Change the +devcalc Password

The +devcalc account executes the policy deviation calculation, which calculates the difference between the expected access rules that will be deployed on an endpoint (as a result of policy deployment) and the actual rules that have been successfully deployed on the same endpoint. CA Access Control uses a SPECIALPGM rule to define +devcalc as a system user. +devcalc runs as the NT Authority\System user in Windows.

You may need to regularly change the +devcalc password to comply with your organization's security and password policies.

Before you change the +devcalc password, note the following:

- There is no default password for this account. CA Access Control does not set a password for +devcalc during installation.
- The password has the following limitations:
  - Must be 1–240 characters long
  - Must not contain high ASCII characters
  - Must not contain double quotes ( " )
- The password is stored in seosdb, the local CA Access Control database.

**Important!** To prevent this user from logging in to the CA Access Control database, we recommend that you do not set a password for this user.

To change the +devcalc password, <u>use selang to change the password</u> (see page 489).

#### Example: Change the +devcalc Password

This command changes the password for the +devcalc user. The password is "secret", and must be in clear text and enclosed in double quotes:

AC> cu +devcalc password("secret") grace- nonative
(localhost)
Successfully updated USER +devcalc

## Change the ac\_entm\_pers Password

The ac\_entm\_pers account authenticates communication between the DMS and the Enterprise Management Server.

You may need to regularly change the ac\_entm\_pers password to comply with your organization's security and password policies. You must change the password on both the RDBMS and the DMS.

Before you change the ac\_entm\_pers password, consider the following:

- The default password is a password that is randomly generated by CA Access Control during installation.
- The password has the following limitations:
  - Must be 1-48 characters long
  - Must not contain double quotes ( " )
  - Must not contain high ASCII characters
- The password is stored in the RDBMS and the DMS.

#### To change the ac\_entm\_pers password

- 1. Use selang to change the ac entm pers password in the DMS (see page 489).
- 2. In CA Access Control Enterprise Management, configure the connection to the DMS and specify the new password.

The ac\_entm\_pers password is changed in all locations.

**Note:** For more information about configuring the connection to the DMS, see the *CA Access Control Enterprise Management Online Help*.

#### Example: Use selang to Change the ac\_entm\_pers Password

This command connects to the DMS and changes the password for the ac\_entm\_pers user. The password is "secret", and must be in clear text and enclosed in double quotes:

AC> host DMS\_\_@example.com
(DMS\_\_@example.com)
Successfully connected
AC> cu ac\_entm\_pers password("secret") grace- nonative
(localhost)
Successfully updated USER ac\_entm\_pers

## Change the ADS\_LDAP\_bind\_user Password

The ADS\_LDAP\_bind\_user account lets CA Access Control Enterprise Management perform LDAP queries against Active Directory. This account is not named ADS\_LDAP\_bind\_user. The name of this account is the User DN that you specify in the Active Directory Settings wizard page when you install CA Access Control Enterprise Management.

You may need to regularly change the ADS\_LDAP\_bind\_user password to comply with your organization's security and password policies. You must change the password on both Active Directory and the RDBMS.

Before you change the ADS\_LDAP\_bind\_user password, note the following:

- The default password is the password that you specify in the Active Directory Settings wizard page when you install CA Access Control Enterprise Management.
- The password has the following limitations:
  - Must be 7-120 characters long
  - Must not contain high ASCII characters
  - Must not contain a colon ( : )
  - Must adhere to Active Directory password rules
- The password is stored in Active Directory and the RDBMS

#### To change the ADS\_LDAP\_bind\_user password

1. Change the password in Active Directory, using Active Directory tools.

**Note:** For more information about how to change the password, see the Active Directory documentation.

2. <u>Change the user directory password in the CA Identity Manager Management</u> <u>Console</u> (see page 497).

The ADS\_LDAP\_bind\_user password is changed in all locations.

## Change the JNDI Connection Account

The JNDI connection account is named guest and locates the message queue in the Message Queue server. By default, this account does not have a password.

You can change the account that JNDI uses to locate the message queue in the Message Queue server. The name of this account is stored in the Message Queue and the following XML file, where *JBoss\_home* is the directory in which you installed JBoss:

JBoss\_home/server/default/deploy/jms/tibco-jms-ds.xml

#### To change the JNDI connection account

- 1. Create a Message Queue user.
- 2. Change the JNDI connection account, as follows:
  - a. Stop JBoss Application Server.
  - b. Replace the account name in the tibco-jms-ds.xml file with the name of the Message Queue user you created.
  - c. Restart JBoss Application Server.
  - d. Verify that you can log into CA Access Control Enterprise Management.

JBoss is successfully started and the JNDI connection account is changed.

### Create a Message Queue User

You create a Message Queue user when you change the JNDI connection account.

#### To create a Message Queue user

1. Navigate to the following directory, where *DistServer* is the directory in which you installed the Distribution Server:

DistServer/MessageQueue/tibco/ems/5.1/bin

2. (UNIX) Enter the following command:

tibemsadmin

The Tibco EMS Administration Tool starts.

3. (Windows) Enter the following command:

tibemsadmin.exe

The Tibco EMS Administration Tool starts.

- 4. Connect to the current environment, using one of the following commands:
  - If the Distribution Server listens for the Report Agent on port 7222 (the default port), use the following command:

connect

If the Distribution Server listens for the Report Agent in SSL mode on port 7243, use the following command:

connect SSL://7243

5. Enter your username and password.

**Note:** The default username is admin and the password is the communication password that you specified when you installed CA Access Control Enterprise Management.

You are connected to the Message Queue.

6. Enter the following command:

create user username

#### username

Specifies the name of the new Message Queue user.

The new user is created.

#### **Example: Create a Message Queue User**

This Tibco EMS Administration Tool command creates a Message Queue user named example:

> connect SSL://7243 Login name (admin): admin Password: Connected to: ssl://localhost:7243 ssl://localhost:7243> create user example User 'example' has been created ssl://localhost:7243>

## Change the Account in the tibco-jms-ds.xml File

You change the account in the tibco-jms-ds.xml file when you change the JNDI connection account.

#### To change the account in the tibco-jms-ds.xml file

- 1. Stop JBoss Application Server if it is not already stopped.
- 2. Navigate to the following directory, where *JBoss\_home* is the directory in which you installed JBoss:

JBoss\_home/server/default/deploy/jms

- 3. Open the tibco-jms-ds.xml file in a text-based editor.
- 4. Change the account name at the end of the following parameter:

java.naming.security.principal=

5. Save and close the file.

#### Example: Change the Account Name in the tibco-jms-ds.xml File

This snippet of the tibco-jms-ds.xml file shows the changed JNDI connection account. The account is named example:

```
<!-- The JMS provider loader -->
        <mbean code="org.jboss.jms.jndi.JMSProviderLoader"
        name=":service=JMSProviderLoader,name=TibjmsProvider">
                <attribute name="ProviderName">TIBCOJMSProvider</attribute>
                <attribute name="ProviderAdapterClass">
                org.jboss.jms.jndi.JNDIProviderAdapter</attribute>
                <attribute
name="FactoryRef">SSLXAQueueConnectionFactory</attribute>
                <attribute
name="QueueFactoryRef">SSLXAQueueConnectionFactory</attribute>
                <attribute
name="TopicFactoryRef">SSLXATopicConnectionFactory</attribute>
                <attribute name="Properties">
                        java.naming.security.principal=example
        java.naming.factory.initial=com.tibco.tibjms.naming.TibjmsInitialContextF
actory
                        java.naming.provider.url=tibjmsnaming://localhost:7243
                        java.naming.factory.url.pkgs=com.tibco.tibjms.naming
                        com.tibco.tibjms.naming.security_protocol=ssl
                        com.tibco.tibjms.naming.ssl enable verify host=false
                </attribute>
        </mbean>
```

## **Changing Message Queue Communication Settings**

You can change the following Message Queue communication settings:

- The password for the Message Queue administrator
- The Message Queue server certificate
- The password for the Message Queue SSL keystore
- The password that endpoints use to connect to the Message Queue

**Note:** Endpoints use the +reportagent service account to connect to the Message Queue.

The password that CA Access Control Enterprise Management and the DMS use to connect to the Message Queue

**Note:** CA Access Control Enterprise Management and the DMS use the reportserver service account to connect to the Message Queue.

#### More information:

<u>Change the +reportagent Password</u> (see page 477) <u>Change the reportserver Password</u> (see page 474)

### Change the Message Queue Administrator Password

The Message Queue administrator account is named *admin* and lets you perform administrative tasks in the Message Queue.

You may need to regularly change the admin password to comply with your organization's security and password policies.

Before you change the Message Queue administrator password, note the following:

- The default password for this account is the communication password that you specify when you install CA Access Control Enterprise Management.
- The password has the following limitations:
  - Must be 1-240 characters long
  - Must not contain high ASCII characters
  - Must not contain double quotes (")
- The password is stored in the Message Queue.

**Important!** If you have more than one Distribution Server in your enterprise, first change the password on the Distribution Server installed on the Enterprise Management Server, then change the password on the other Distribution Servers in your enterprise. The Message Queue is part of the Distribution Server.

To change the Message Queue administrator password, <u>set the Message Queue</u> password for the admin user (see page 491).

#### Example: Set the Message Queue Password For the admin User

This Tibco EMS Administration Tool command sets the Message Queue password for the admin user. The password is "secret", and must be in clear text and enclosed in double quotes:

ssl://localhost:7243> set password admin "secret"
Password of user 'admin' has been modified
ssl://localhost:7243>

## Change the Message Queue Server Certificate

The Message Queue uses the server certificate for SSL communication between the Message Queue and its clients. The Message Queue clients are CA Access Control endpoints and CA Access Control Enterprise Management.

#### To change the Message Queue server certificate

- 1. Stop the CA Access Control Message Queue.
- 2. Create an X.509 server certificate.

We recommend that you create a .p12 format certificate.

3. Navigate to the following directory, where *DistServer* is the directory in which you installed the Distribution Server:

DistServer/MessageQueue/tibco/bin/ems

4. Enter the following command:

tibemsadmin -mangle password

#### password

Specifies the password for the server certificate.

The password for the server certificate is encrypted.

5. Open the tibemsd.conf file in a text-based editor. The file is located in the following directory:

DistServer/MessageQueue/tibco/bin/ems

6. Change the value of the following parameters:

#### ssl\_server\_identity

Specifies the full path to the server certificate.

#### ssl\_server\_key

Specifies the full path to the server certificate key.

Note: Leave this parameter blank if you use a .p12 certificate.

#### ssl\_password

Specifies the encrypted password for the server certificate.

7. Save and close the file.

The Message Queue server certificate is changed.

8. Restart the CA Access Control Message Queue.

#### Example: The tibemsd.conf file

The following is an example of the Message Queue server parameters in the tibemds.conf file for a .p12 server certificate. The password has been encrypted and is }>8:Jt^+%INK&i^v, and the ssl\_server\_key parameter has no value:

```
ssl_server_identity = "C:\Program
Files\CA\AccessControlServer\MessageQueue\conf\keystore.p12"
ssl_server_key =
ssl_password = }>8:Jt^+%INK&i^v
```

## Change the Password for the Message Queue SSL Keystore

The Message Queue SSL keystore stores the server certificates that the Message Queue uses for SSL communication. When you change the password for the Message Queue SSL keystore, you update the public/private key pair that signs the server certificates.

You may need to regularly change the password for the Message Queue SSL keystore to comply with your organization's security and password policies.

Before you change the password for the Message Queue SSL keystore, note the following:

- The default password is the communication password that you specify when you install CA Access Control Enterprise Management.
- The password has the following limitations:
  - Must be 6-50 characters long
  - Must not contain high ASCII characters
  - Must not contain double quotes (")
- The password is stored in the following file, where ACServer is the directory in which you installed CA Access Control Enterprise Management:

ACServer/MessageQueue/conf/keystore.p12

**Important!** If you have more than one Distribution Server in your enterprise, first change the password on the Distribution Server installed on the Enterprise Management Server, then change the password on the other Distribution Servers in your enterprise. The Message Queue is part of the Distribution Server.

#### To change the password for the Message Queue SSL keystore

- 1. Stop the CA Access Control Message Queue service.
- 2. Open a command prompt window and navigate to the following directory, where *JDK* is the directory in which you installed the Java Development Kit:

*JDK/*bin

3. Run the following command:

keytool -genkey -keyalg RSA -keysize 1024 -keystore "keystore.p12" -storetype
PKCS12 -dname "cn=acmq" -alias acmq -storepass "password" -keypass "password"

#### -genkey

Specifies that the command creates a key pair (public and private keys).

#### -keyalg RSA

Specifies to use the RSA algorithm to generate the key pair.

#### -keysize 1024

Specifies that the size of the generated key is 1024 bits.

#### -storetype PKCS12

Specifies that the generated key is in the PKCS12 file format.

#### -dname "cn=acmq"

Specifies that X.500 distinguished name for the generated certificate is acmq. This name is used in the issuer and subject fields of the certificate.

#### -alias acmq

Specifies to update the keystore entry names acmq.

#### -storepass "password"

Specifies the password that protects the Message Queue SSL keystore. The password must be identical to the password that you specify for the -keypass parameter.

#### -keypass "password"

Specifies the password that protects the private key of the new key pair. The password must be identical to the password that you specify for the -storepass parameter.

The keytool utility changes the password for the Message Queue SSL keystore.

4. Navigate to the following directory, where *DistServer* is the directory in which you installed the Distribution Server:

DistServer/MessageQueue/tibco/bin/ems

5. Run the following command:

tibemsadmin -mangle password

The password for the SSL keystore is encrypted.

## **Password Change Procedures**

The following procedures explain the different ways in which you can change CA Access Control passwords.

## Use selang to Change a Password

You can use selang to change the password for the following service accounts:

- +policyfetcher
- +devcalc
- ac\_entm\_pers

You may need to regularly change the password for these accounts to comply with your organization's security and password policies.

When you use selang to change a password, note the following:

- You must enclose the password in double quotes.
- You cannot use advanced policy management to propagate password change commands.

**Note:** You may need to use more than one method to change the password on all components that the service account interacts with.

To use selang to change a password, run the following command:

cu user password("password") grace- nonative

user

Specifies the name of the user whose password you change.

password

Specifies the new password.

**Note:** If you cut and paste the password into the command, verify that the password does not contain carriage returns or line feeds.

#### Example: Change the +policyfetcher Password

This command changes the password for the +policyfetcher user. The password is "secret", and must be in clear text and enclosed in double quotes:

AC> cu +policyfetcher password("secret") grace- nonative
 (localhost)
 Successfully updated USER +policyfetcher

#### More information:

<u>Change the +policyfetcher Password</u> (see page 478) <u>Change the +devcalc Password</u> (see page 479) <u>Change the ac entm pers Password</u> (see page 480)

## Use sechkey to Change a Message Queue Password

You can use sechkey to change the password for the following service accounts:

- reportserver
- +reportagent

You may need to regularly change the password for these accounts to comply with your organization's security and password policies. When you use sechkey to change a password, you must enclose the password in double quotes.

**Note:** You may need to use more than one method to change the password on all components that the service account interacts with.

To use sechkey to change a Message Queue password, run the following command on the Distribution Server:

{sechkey | acuxchkey} -t [-server] -pwd "password"

#### sechkey

Specifies to change the password on a CA Access Control endpoint.

#### acuxchkey

Specifies to change the password on a UNAB endpoint.

#### -server

Specifies to change the password on the DMS.

**Note:** This parameter is only valid with the sechkey parameter.

#### password

Specifies the new password.

**Note:** If you cut and paste the password into the command, verify that the password does not contain carriage returns or line feeds.

#### **Example: Change the Message Queue Password on a UNAB Endpoint**

This command propagates the Message Queue password to all UNAB endpoints that communicate with the Distribution Server. The password is "secret", and must be in clear text and enclosed in double quotes:

acuxchkey -t -pwd "secret"

#### **Example: Change the Message Queue Password on the DMS**

This command changes the Message Queue password on the DMS. The password is "secret", and must be in clear text and enclosed in double quotes:

sechkey -t -server -pwd "secret"

#### More information:

<u>Change the reportserver Password</u> (see page 474) <u>Change the +reportagent Password</u> (see page 477)

#### Set a Message Queue Password

You set the Message Queue password to change the password for the following service accounts:

- reportserver
- +reportagent

You may need to regularly change the password for these accounts to comply with your organization's security and password policies. When you set a Message Queue password, you must enclose the password in double quotes.

**Note:** You may need to use more than one method to change the password on all components that the service account interacts with.

#### To set a Message Queue password

1. Navigate to the following directory, where *DistServer* is the directory in which you installed the Distribution Server:

DistServer/MessageQueue/tibco/ems/5.1/bin

2. (UNIX) Enter the following command:

tibemsadmin

The Tibco EMS Administration Tool starts.

3. (Windows) Enter the following command:

tibemsadmin.exe

The Tibco EMS Administration Tool starts.

- 4. Connect to the current environment, using one of the following commands:
  - If the Distribution Server listens for the Report Agent on port 7222 (the default port), use the following command:

connect

 If the Distribution Server listens for the Report Agent in SSL mode on port 7243, use the following command:

connect SSL://7243

5. Enter your username and password.

**Note:** The default username is admin and the password is the communication password that you specify when you install CA Access Control Enterprise Management.

You are connected to the Message Queue.

6. Run the following command:

set password user "password"

```
user
```

Specifies the name of the user whose password you change.

#### "password"

Specifies the new password.

The password for the user is changed on the Message Queue.

**Note:** If you cut and paste the password into the command, verify that the password does not contain carriage returns or line feeds.

#### Example: Set the Message Queue Password for the reportserver User

This Tibco EMS Administration Tool command sets the Message Queue password for the reportserver user. The password is "secret", and must be in clear text and enclosed in double quotes:

> connect SSL://7243 Login name (admin): admin Password: Connected to: ssl://localhost:7243 ssl://localhost:7243> set password reportserver "secret" Password of user 'reportserver' has been modified ssl://localhost:7243>

#### More information:

<u>Change the reportserver Password</u> (see page 474) <u>Change the +reportagent Password</u> (see page 477)

## **Encrypt a Clear Text Password**

You encrypt clear text passwords for the following service accounts:

- RDBMS\_service\_user
- reportserver

You encrypt the passwords because they are stored in clear text XML files in the JBoss directory. You use the pwdtools utility to encrypt clear text passwords.

To avoid accidentally selecting carriage breaks in the encrypted password, we recommend that you direct the encrypted password (the output of the utility) to a text file. Otherwise, carriage breaks may occur if the encrypted password wraps over more than one line.

When you use pwdtools to encrypt a clear text password, you must enclose the password in double quotes.

#### To encrypt clear text passwords

- 1. Open a command prompt window.
- 2. Navigate to the following directory, where *ACServerInstallDir* is the directory in which you installed CA Access Control Enterprise Management:

ACServerInstallDir/IAM Suite/Access Control/tools/PasswordTool

3. Run the following command:

pwdtools -FIPS -p "password" -k [filename]

#### password

Specifies the clear text password.

#### filename

Specifies the name of the file to which pwdtools outputs the encrypted password.

pwdtools encrypts the password.

#### **Example: Encrypt a Clear Text Password**

This command encrypts a clear text password and directs the encrypted password to the file pw.txt. The clear text password is "secret" and must be enclosed in double quotes:

C:\Program Files\CA\AccessControlServer\IAM Suite\Access Control\tools\PasswordTool> pwdtools.bat -FIPS -p "secret" -key C:\jboss-4.2.3.GA\server\default\deploy\IdentityMinder.ear\config\com\netegrity\c onfig\keys\FIPSkey.dat"

#### More information:

<u>Change the RDBMS\_service\_user Password</u> (see page 472) <u>Change the reportserver Password</u> (see page 474)

## Change the Password in the properties-service.xml File

You change the password in the properties-service.xml file to change the password for the reportserver account. You may need to regularly change the password for this account to comply with your organization's security and password policies.

**Note:** You may need to use more than one method to change the password on all components that the service account interacts with.

#### To change the password in the properties-service.xml file

- 1. Stop JBoss Application Server.
- Navigate to the following directory, where JBoss\_home is the directory in which you installed JBoss:

JBoss\_home/server/default/deploy

- 3. Open the properties-service.xml file in a text-based editor.
- 4. Change the password in the SamMDB.mdb-passwd parameter.
- 5. Save and close the file.

#### Example: Change the Password in the properties-service.xml File

This snippet of the properties-service.xml file shows you the changed reportserver password. The password has been encrypted and is }>8:Jt^+%INK&i^v:

<attribute name="Properties">
 SamMDB.mdb-user=reportserver
 <!-- encoded tibco password -->
 SamMDB.mdb-passwd={AES}:}>8:Jt^+%INK&i^v==
</attribute>

#### More information:

Change the reportserver Password (see page 474)

## Change the Password in the login-config.xml File

You change the password in the login-config.xml file when you change the password for the following service accounts:

- RDBMS\_service\_user
- reportserver

You may need to regularly change the password for these accounts to comply with your organization's security and password policies.

**Note:** You may need to use more than one method to change the password on all components that the service account interacts with. If the password is a clear text password, use the pwdtools utility to encrypt it before you change the password in the login-config.xml file.

#### To change the password in the login-config.xml file

- 1. Stop the JBoss Application Server.
- Navigate to the following directory, where JBoss\_home is the directory in which you installed JBoss:

JBoss\_home/server/default/conf

3. Open the login-config.xml file in a text-based editor.

- 4. Change the RDBMS\_service\_user password:
  - a. Locate each instance of the name of the RDBMS\_service\_user account in the file.

There are six instances in the file. You name this account when you create a user to prepare the database for CA Access Control Enterprise Management.

b. Change the password in the parameter that is immediately after each instance of the name.

The parameter is enclosed by the <module-option name="password"> and </module-option> tags.

The RDBMS\_service\_user password is changed.

- 5. Change the reportserver password:
  - a. Locate the following parameter in the file:

<module-option name="userName">reportserver</module-option>

b. Change the password in the parameter that is immediately after this parameter.

The parameter is enclosed by the <module-option name="password"> and </module-option> tags.

The reportserver password is changed.

6. Save and close the file.

#### Example: Change the RDBMS\_service\_user Password in the login-config.xml File

This snippet of the login-config.xml file shows you one instance of the changed RDMBS\_service\_user password. The user is named caidb01. The password has been encrypted and is }>8:Jt^+%INK&i^v:

</authentication>

</application-policy>

#### Example: Change the reportserver Password in the login-config.xml File

This snippet of the login-config.xml file shows you the changed reportserver password. The password has been encrypted and is }>8:Jt^+%INK&i^v:

<application-policy name="JmsXATibcoRealm">
<authentication>
<login-module</li>
code="com.netegrity.jboss.datasource.PasswordEncryptedLogin" flag="required">
<module-option name="userName">reportserver</module-option>
<module-option</li>
amodule-option
name="password">{AES}:j>8:Jt^+%INK&i^v==</module-option>
<module-option name="managedConnectionFactoryName">
jboss.jca:service=TxCM, name=TibcoJmsXA</module-option>
</login-module>
</authentication>
</application-policy>

More information:

<u>Change the RDBMS service user Password</u> (see page 472) <u>Change the reportserver Password</u> (see page 474)

## Change the User Directory Password in the CA Identity Manager Management Console

You change the user directory password in the CA Identity Manager Management Console when you change the ADS\_LDAP\_bind\_user password. You may need to regularly change the password for this account to comply with your organization's security and password policies.

**Note:** You may need to use more than one method to change the password on all components that the service account interacts with.

# To change the user directory password in the CA Identity Manager Management Console

- 1. <u>Encrypt the clear text password</u> (see page 493).
- 2. Open the CA Identity Manager Management Console (see page 79).
- 3. Click Directories.

The Directories page appears.

4. Click ac-dir.

The Directory Properties page appears.

5. Click Export.

The ac-dir.xml file is exported.

- 6. Open the exported file in a text-based editor.
- 7. Find the following parameter:

<Credentials user=

8. Enter the encrypted password in the following field, which is after the <credentials> parameter:

{PBES}=

- 9. Save and close the file.
- 10. In the CA Identity Manager Management Console, from the Directory Properties page, click Update.

The Update Directory window appears.

11. Type the path and file name of the XML file that you edited, or browse for the file, then click Finish.

Status information is displayed in the Directory Configuration Output field.

12. Click Continue, and restart the environment.

You have changed the user directory password in the CA Identity Manager Management Console.

#### **Example: Change the User Directory Password**

This snippet of the exported ac-dir.xml file shows you the changed user directory password. The user is named Administrator. The password has been encrypted and is }>8:Jt^+%INK&i^v:

<Credentials user="CN=Administrator,cn=Users,DC=unixauthdemo,DC=co,DC=il">
{PBES}:}>8:Jt^+%INK&i^v=</Credentials>

#### More information:

Enable the CA Identity Manager Management Console (see page 78) Open the CA Identity Manager Management Console (see page 79) Change the ADS\_LDAP\_bind\_user Password (see page 481)