

# **CA Access Control Premium Edition**

**Enterprise Administration Guide**  
**r12.5 SP1**



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CONTAINS IBM(R) 32-bit Runtime Environment for AIX(TM), Java(TM) 2  
Technology Edition, Version 1.4 Modules

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## CA Product References

This document references the following CA products:

- CA Access Control Premium Edition
- CA Access Control
- CA Single Sign-On (CA SSO)
- CA Top Secret®
- CA ACF2™
- CA Audit
- CA Network and Systems Management (CA NSM, formerly Unicenter NSM and Unicenter TNG)
- CA Software Delivery (formerly Unicenter Software Delivery)
- CA Service Desk Manager (formerly Unicenter Service Desk)
- CA Enterprise Log Manager
- CA Identity Manager

## Documentation Conventions

The CA Access Control documentation uses the following conventions:

<b>Format</b>	<b>Meaning</b>
Mono-spaced font	Code or program output
<i>Italic</i>	Emphasis or a new term
<b>Bold</b>	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):

<b>Format</b>	<b>Meaning</b>
<i>Italic</i>	Information that you must supply
Between square brackets ([ ])	Optional operands

<b>Format</b>	<b>Meaning</b>
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:  <i>{username groupname}</i>
...	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.

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- Information about user communities and forums
- Product and documentation downloads
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## Documentation Changes

The following documentation updates have been made since the r12.5 release of this documentation:

- [Admin Roles in CA Access Control Enterprise Management](#) (see page 19)—Updated topic removes the redundant Reporting JP and Reporting KO admin roles.
- [Active Directory Restrictions](#) (see page 32)—Updated topic adds the Modify Role Members/Administrators task to the list of Active Directory restrictions.
- [Open CA Access Control Endpoint Management to Manage a Windows Endpoint](#) (see page 49)—Updated topic provides Windows-specific information.
- [Configure CA Access Control Endpoint Management to Log You In to a UNIX Endpoint Automatically](#) (see page 50)—New topic explains how to automatically log in to a UNIX endpoint from CA Access Control Endpoint Management.
- [Troubleshooting Policy Deployment](#) (see page 86)—Updated topic provides more information about the Reset and Restore options.
- [Deviation Calculation Trigger](#) (see page 90)—Updated topic explains how to see the items that were added to the endpoint database.
- [Policy Deviation Data File](#) (see page 91)—Updated topic describes the -precise line of the data file.
- [Managing Privileged Accounts](#) (see page 95)—Updated chapter explains the new PUPM features and updates the PUPM endpoint topics.
- [Resolve Migration Conflicts](#) (see page 160)—Updated topic explains that you cannot migrate a user or group if a user or group with that name exists in Active Directory.
- [Reporting Service Components](#) (see page 167)—Updated topic provides additional information about the Enterprise Management Server.
- [How the Reporting Service Works](#) (see page 168)—Updated section provides additional information about how the reporting service works.
- [Send a Report Snapshot to the Distribution Server](#) (see page 170)—New topic explains how to send a report snapshot on demand.
- [How to View Reports in CA Access Control Enterprise Management](#) (see page 200)—New section explains how to run and view reports in CA Access Control Enterprise Management.



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# Chapter 1: Introduction

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This section contains the following topics:

[About this Guide](#) (see page 15)

[Who Should Use this Guide](#) (see page 15)

[Enterprise Management](#) (see page 15)

## About this Guide

This guide provides information about enterprise administration and reporting in CA Access Control Premium Edition and the CA Access Control Enterprise Management web-based interface. Enterprise administration and reporting for CA Access Control includes advanced policy management, reporting, and the World View enterprise viewer.

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

## Who Should Use this Guide

This guide was written for security and system administrators using CA Access Control who want to take advantage of its enterprise administration and reporting capabilities:

- Enterprise policy management
- Enterprise reporting
- Web-based interface for handling your enterprise host access management.
- Privileged User Password Management (PUPM)

## Enterprise Management

The CA Access Control Enterprise Management is a Web based user interface that enables you to perform access related management tasks across your enterprise. Using the CA Access Control Enterprise Management you can perform a number of management tasks such as deploying access policies through the enterprise from a central location, managing individual hosts, managing privileged accounts, generating enterprise reports and more.

## Enterprise Management Interface

The CA Access Control Enterprise Management interface is your enterprise management tool that contains everything that you require to manage your enterprise. CA Access Control Enterprise Management interface contains tools for used for configuring hosts, create and assign policies, manage users, groups and administrative tasks and configure and manage access to privileged accounts throughout the enterprise. Further, you gain access to enterprise reporting and auditing capabilities.

## Central Policy Management

Use the central policy management capabilities of the CA Access Control Enterprise Management to create and assign an uninformed policy to hosts or host groups in the enterprise. The CA Access Control Enterprise Management interface enables assigning an enterprise wide policy using a wizard and displays the status of the deployment process on every host.

Further, you can use the CA Access Control Enterprise Management central policy management capabilities to troubleshoot the policy deployment process, unassign, upgrade or downgrade existing policies.

## Enterprise View

You can use CA Access Control Enterprise Management to view information about and manage CA Access Control, PUPM and UNAB hosts from a central location. The CA Access Control Enterprise Management World View displays detailed information about each host type, when it was last updated, which type of devices are configured on each host and enables you to modify the host's settings and manage it remotely.

## Privileged User Password Management

Privileged User Password Management (PUPM) is the process through which an organization secures, manages and tracks all activities associated with the most powerful accounts within the organization.

CA Access Control Enterprise Management provides role based access management for privileged accounts on managed devices from a central location. CA Access Control Enterprise Management provides secure storage of privileged accounts and application ID passwords and control access to privileged accounts and passwords based on policies.

Further, CA Access Control Enterprise Management manages privileged accounts and application password life cycle and allows the removal of any passwords from configuration files and scripts.

## UNAB Management

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 enabling them to log in with the same user name and password to all platforms.

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 from a single point as you manage Windows users and groups.

Use the CA Access Control Enterprise Management central policy management capabilities to control access to UNIX hosts by creating and assigning a login policy containing a set of login rules.

## Enterprise Reports

The CA Access Control Enterprise Management reporting options lets you view the security status of each endpoint (users, groups, and resources) in a central location. 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.

CA Access Control reporting service, once set up, works independently to collect data from each endpoint and report it to a central server and continues to report endpoint status without the need for manual intervention. This means that each endpoint reports on its status whether the collection server is up or down.

CA Access Control Enterprise Management comes out-of-the-box with a set of pre-defined reports that displays an array of information regarding the each endpoint. Further, you can both customize existing reports and create your own reports to display the information you are interested in viewing.

# Chapter 2: Administering CA Access Control Enterprise Management

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This section contains the following topics:

[Administrative Scoping](#) (see page 19)

[Users, Groups, and Administrative Roles](#) (see page 31)

[Audit Data](#) (see page 40)

## Administrative Scoping

In CA Access Control Enterprise Management, you assign privileges to users and administrators by assigning admin and privileged access roles. A role contains tasks that correspond to application functions in CA Access Control Enterprise Management.

Roles simplify privilege management. Instead of associating a user with each task that they perform, you can assign a role to the user. The user can perform all the tasks in their assigned role. You can then edit the role by adding tasks. Every user who has the role can now perform the new task. If you remove a task from a role, the user can no longer perform that task.

When a user logs in to CA Access Control Enterprise Management, they see tabs based on their role. The user can see only the tabs and tasks that are assigned to their role.

You can assign separate roles to different users to prevent one user being able to complete every task. This may help your organization comply with separation of duties requirements. However, you can assign more than one role to a user.

## Admin Roles in CA Access Control Enterprise Management

Predefined admin roles in CA Access Control Enterprise Management provide a basic set of admin roles that you can assign to administrators in your enterprise according to your requirements. Out-of-the-box, CA Access Control Enterprise Management comes with the following admin roles:

- **CA Access Control Host Manager**—Responsible for the definition of hosts and logical host groups.

This admin role lets users create hosts and host groups, assign hosts to host groups, and modify them. It does not let users define policies or deploy policies but does let users view them and provides access to World View.

- **CA Access Control Policy Deployer**—Responsible for the deployment of policies across the environment.

This admin role lets users assign policies to hosts and host groups, upgrade and downgrade policies, reset host configuration, and have access to the deployment audit. It lets users view policies and hosts but not define them and provides access to World View.

- **CA Access Control Policy Manager**—Responsible for creating policies.

This admin role lets users create, modify, view, and delete policies. The admin role does not let users deploy the policies to hosts or host groups but they can view them and have access to the World View.

- **CA Access Control User Manager**—Responsible for user management in CA Access Control Enterprise Management: creating and managing users and groups, and assigning CA Access Control Enterprise Management roles to users.

**Note:** The CA Access Control User Manager cannot create new admin roles. Only the System Manager can create new admin roles.

- **System Manager**—Responsible for managing CA Access Control Enterprise Management.

A user with this admin role can perform, create, and manage all tasks in CA Access Control Enterprise Management.

Use this role for the implementation phase to define the actual admin roles in your organization and for emergency situations. We recommend that you assign this role to a minimal number of users, ideally only one user, and closely monitor this user's actions.

- **Reporting**—Responsible for managing English reports. A user with this role can schedule and view reports.

- **UNAB Administrator**—Responsible for managing UNAB. A user with this role can configure UNAB hosts and host groups, manage login authorization policies, and resolve migration conflicts.

**Note:** A user that is assigned the System Manager role is also assigned the UNAB Administrator role.

- **CA Enterprise Log Manager User**—Responsible for viewing CA Enterprise Log Manager reports. A user with this role can view CA Enterprise Log Manager reports.

- **CA Enterprise Log Manager Admin**—Responsible for managing CA Enterprise Log Manager reports. A user with this role can administer the CA Enterprise Log Manager reports in CA Access Control Enterprise Management and manage the connection to the CA Enterprise Log Manager server.

- **Delegation Manager**—Responsible for delegating work items. A user with this role can delegate work items to users.

- **Self Manager**—Responsible for managing their own user account. A user with this role can perform administrative actions on their account: change the account password, modify their user profile, view their assigned roles, submitted tasks, and the items that are waiting for their approval.

**Note:** By default, every user in the system is assigned the Self Manager role.

## Create an Admin Role

If the predefined admin roles in CA Access Control Enterprise Management are not suitable for your organization requirements, you can create new ones.

### To create an admin role

1. In CA Access Control Enterprise Management, do as follows:

- a. Click Users and Groups.
- b. Click Roles subtab.
- c. Expand the Admin Roles tree in the task menu on the left.

The Create Admin Role task appears in the list of available tasks.

2. Click Create Admin Role.

The Create Admin Role: Select Admin Roles page appears.

3. (Optional) Select an existing admin role to create the new admin role as a copy of it, as follows:

- a. Select Create a copy of a role.
- b. Select an attribute for the search, type in the filter value, and click Search.

A list of admin roles that match the filter criteria appear.

- c. Select the object you want to use as a basis for the new admin role.
4. Click OK.

The Create Admin Role task page appears. If you created the admin role from an existing object, the dialog fields are pre-populated with the values from the existing object.

5. Complete the following fields in the Profile tab of the dialog:

**Name**

Defines the name of the role.

**Description**

A textual description of the role.

**Enabled**

Specifies whether the role can be assigned to users and groups.

6. Add tasks to the role, as follows:
  - a. Click the Tasks tab.
  - b. (Optional) Select a task category from the Filter tasks drop-down list  
The tasks in this category load.  
**Note:** The task category matches the tab on which tasks in this category appear in CA Access Control Enterprise Management.
  - c. Select a task from the Add Task drop-down list.  
The task is added to the role.
  - d. Repeat steps b through c to add more tasks to the role.
7. [Add Member and Scope Rules](#) (see page 26).
8. Click Submit.  
The role is created.

## Privileged Access Roles

Privileged access roles in CA Access Control Enterprise Management provide a basic set of roles that you can assign to administrators and users in your enterprise according to your requirements. Out-of-the-box, CA Access Control Enterprise Management comes with the following privileged access roles:

- **Break Glass**—A user with this role can initiate a Break Glass privileged account password check out. A Break Glass check out lets a user gain immediate access to an endpoint to which they do not have privileged access. This role is assigned by default to all the users in CA Access Control Enterprise Management.
- **Endpoint Privileged Access Role**—A user with this role can perform privileged account tasks on the specified endpoint type. The first time that you define a new type of endpoint, CA Access Control creates a corresponding endpoint privileged access role. For example, the first time you create a Windows endpoint in CA Access Control Enterprise Management, CA Access Control creates the Windows Agentless Connection endpoint privileged access role.
- **Privileged Account Request**—A user with this role can submit or delete requests for privileged account passwords. This role is assigned by default to all the users in CA Access Control Enterprise Management.
- **PUPM Approver**—A user with this role can respond to privileged access requests that CA Access Control Enterprise Management users have submitted. This role is assigned by default to all the users in CA Access Control Enterprise Management.

- **PUPM Audit Manager**—A user with this role can audit privileged account activity and manage the CA Enterprise Log Manager audit collection parameters.
- **PUPM Policy Manager**—A user with this role can manage role members and member polices, assign role owners, and create and delete roles.
- **PUPM Target System Manager**—A user with this role can administer password policies and privileged accounts, and can execute the privileged accounts discovery wizard to discover privileged accounts on endpoints.
- **PUPM User**—A user with this role can check in and check out privileged account passwords that they are permitted to use. This role is assigned by default to all the users in CA Access Control Enterprise Management.
- **PUPM User Manager**—A user with this role can administer CA Access Control Enterprise Management users and groups and password policies, and manage the work items of users.

You should note the following when you assign privileged access roles to users:

- To respond to a privileged account request, a user must have the PUPM Approver role and be the requesting user's manager.
- If a user has the Break Glass, Privileged Account Request, or PUPM User role but does not also have an endpoint privileged access role, the user cannot access any endpoints. Effectively, the user cannot perform any tasks.
- If a user has an endpoint privileged access role but does not have any other role, the user cannot perform any tasks.

## Create a Privileged Access Role

A privileged access role defines the tasks that role members, administrators and owners can perform when using PUPM, for example, check-in and check-out privileged accounts. If the predefined privileged access roles in CA Access Control Enterprise Management are not suitable for your organization requirements, you can create new ones.

### To create a privileged access role

1. In CA Access Control Enterprise Management, do as follows:
  - a. Click Users and Groups.
  - b. Click Roles subtab.
  - c. Expand the Privileged Access Roles tree in the task menu on the left.  
The Create Privileged Access Role task appears in the list of available tasks.
2. Click Create Privileged Access Role.  
The Create Role: Select Privileged Access Role page appears.
3. (Optional) Select an existing privileged access role to create the new role as a copy of it, as follows:
  - a. Select Create a copy of a role.
  - b. Select an attribute for the search, type in the filter value, and click Search.  
A list of privileged access roles that match the filter criteria appear.
  - c. Select the object you want to use as a basis for the new privileged access role.
4. Click OK.  
The Create Admin Role task page appears. If you created the admin role from an existing object, the dialog fields are pre-populated with the values from the existing object.
5. Complete the following fields in the Profile tab of the dialog:
  - Name**  
Defines the name of the role.
  - Description**  
A textual description of the role.
  - Enabled**  
Specifies whether the role can be assigned to users and groups.

6. Add tasks to the role, as follows:
  - a. Click the Tasks tab.
  - b. (Optional) Select a task category from the Filter tasks drop-down list  
The tasks in this category load.  
**Note:** The task category matches the tab on which tasks in this category appear in CA Access Control Enterprise Management.
  - c. Select a task from the Add Task drop-down list.  
The task is added to the role.
  - d. Repeat steps b through c to add more tasks to the role.
7. [Add Member and Scope Rules](#) (see page 26).
8. Click Submit.  
The role is created.

## Methods to Assign Roles to a User

You can use the following methods to assign roles to a user:

- You add or remove multiple users from a role, by using the Modify Role Members/Administrators task.
- You add or remove roles from a single user, by using the Admin Roles tab or the Privileged Access Roles tab on the Modify User task.
- You modify the member policy for the role, using the Members tab on the Modify Admin Role task or on the Modify Privileged Access Role tab.

## How to Add a User to an Admin Role

Once you created the admin role you can now add members and administrators to that role. Users that are members of a role assign the privileges that are attributed to the role. The following steps are prerequisites for adding members to the role:

1. Modify the admin role members policy definition to define the members of this rule.

Modify the role members policy allows you to add users that are members of other roles to the role that you are modifying.

**Example:** *where Logon Name = "Administrator" or Admin roles = "SystemManager"*

2. Verify that administrators can add or remove members to this role.
3. Define the actions that occur when a user is added to or removed from this role.

**Example:** *Add SystemManager to Admin Roles, Remove SystemManager from Admin Roles.*

4. Modify the admin policies to add a user as an administrator to this role in the admin rule and assign that user administrator privileges.

The user that you assigned as the role administrator is authorized to add members to this role.

You can now add members to this role.

## Add Member and Scope Rules

Once you have defined the profile and tasks of the role, you add members, administrators, and owners.

### To add member and scope rules

1. Click the Members tab, and do the following:
  - a. Click Add.
  - b. Specify a Member Rule and a Scope Rule for the [member policy](#) (see page 27), and click OK.
  - c. (Optional) Select Administrators can add and remove members of this role, and specify an [Add Action and Remove Action](#) (see page 28).

The member policy for the role is created.

2. Click the Administrators tab, and do the following:
  - a. Click Add.
  - b. Specify an Admin Rule and Scope Rule and specify the Administrator Privileges for the [admin policy](#) (see page 28), and click OK.
  - c. (Optional) Select Administrators can add and remove administrators of this rule, and specify an [Add Action and Remove Action](#) (see page 28).

The admin policy for the role is created.

3. Click the Owners tab, click Add, specify an [owner rule](#) (see page 28), and click OK.

The owner rule for the policy is created.

## Member Policies

A *member policy* defines the users that can carry out the tasks in a role. A member policy contains the following:

- **Member rule**—Defines the users that can perform the role
- **Scope rule**—Defines the objects the users can manage

For example, admin roles, connection, privileged accounts, and policies are all objects. You can specify many other objects in scope rules. Each member policy can have more than one member rule, and each member rule can have more than one scope rule.

### Example: A Member Policy for New York CA Access Control Host Managers

Don Hailey is the IT Manager for Forward, Inc and has the System Manager admin role. Don wants to create an admin role that lets employees with the CA Access Control Host Manager admin role in New York manage hosts and host groups in Forward, Inc New York offices only. All New York employees are members of the NY employees group, and the names of all the hosts and host groups in New York begin with the letters NY.

Don creates the following member policy. The member policy contains two member rules. The first member rule contains no scope rules. The second member rule contains two scope rules:

- Member rule 1—Admin roles contains "AC Host Manager".
- Member rule 2—Users who are members of group "NY employees"; scope rules—hosts where name starts with "NY", and host groups where name starts with "NY".

## Add and Remove Actions

If you specify that the administrators of an admin role can assign and unassign users from that role, you must specify an Add and Remove Action for the admin role.

An Add and Remove Action contains the following:

- **Add action**—Ensures the user meets the criteria in one of the role's member rules
- **Remove action**—Ensures the user no longer meets the criteria in one of the role's member rules

## Admin Policies

An *admin policy* specifies the users that are administrators of the admin role. An admin role administrator manages an admin role's member policies, and adds and removes users and groups from the admin role.

An admin policy contains the following:

- **Admin rule**—Defines the users who are administrators of the role
- **Scope rule**—Defines which users the administrators can manage
- **Administrator's privileges**—Specifies if the administrator can manage members and administrators of that admin role

## Role Owners

A role owner adds and removes tasks from an admin role. You can define only one owner rule, but you can specify members of different groups within the owner rule.

## Create an Admin Task

If the predefined admin tasks in CA Access Control Enterprise Management are not suitable for your organization requirements, you can create an admin task.

### To create an admin task

1. Select the Users and Groups tab, select the Tasks link and click Create Admin Task.

The Create Admin Task: Select Admin Task page appears.

2. Select Create a new admin task, and click OK.

The Profile tab of the Create Admin task page appears.

**Note:** To create a copy of an existing admin task, select Create a copy of an admin task, search for the admin task you want to copy, select the admin task, and click OK.

3. Enter the task name and description. Notice that the name appears in the tag field when you place the cursor in the field.
4. Select the position of the task in the tasks list from the menu.
5. Select the category that this task is part of.
6. (Optional) Select the order and category name of up to three (3) tasks.
7. Select the primary object that this task is part of. A primary object is the highest category that this task can appear in.
8. Select the action to associate with the task.
9. Select if to synchronize the user and account with the task.
10. Select either of the following options:

#### Hide in menus

Select not to display the task.

#### Public task

Select to make the task available to all users.

#### Enable auditing

Select to enable audit events logging for this task.

#### Enable workflow

Select to enable workflow.

#### Enable web services

Select to enable accessing this task using Web services.

#### Workflow process

Select the workflow process to associate with the task.

11. Select the task priority.
12. Select Submit.

CA Access Control Enterprise Management creates the admin task.

**More information:**

[Add Search Screens](#) (see page 30)

[Add Tabs](#) (see page 30)

[Configure Fields, Events, and Role Use](#) (see page 31)

## Add Search Screens

Select the search screen to associate with this task. In this tab, you can select to use existing search screens in this task or create a new search screen that displays information and provide search options that are specific to this task.

**To add search screens**

1. Select the browse button to search for an existing search screen or to create a new search screen.

**Note:** To create a copy of an existing search screen, select Copy scope from another task, search for the admin task you want to copy, select the admin task, and click OK.

2. Select New to create a new search screen.
3. Select the type of search screen to create.
4. Enter the required information and click OK.

The new search screen is added to the task.

## Add Tabs

Use the tabs screen to select the tab controller to use with this task and the tabs that will appear in the task.

**To add tabs**

1. Select the tab controller to use in this task.

**Note:** To create a copy of an existing tab definition, select Copy tabs from another task, search for the admin task you want to copy, select the admin task, and click OK.

2. Select the tabs that will appear in this task from the menu.
3. Click Submit.

CA Access Control Enterprise Management adds the tab to the new task.

## Configure Fields, Events, and Role Use

The fields, events, and role use tabs to display information regarding the fields that this task accesses, the events that the task is associated with, and the user roles that this task appears in. You cannot change the information that is displayed in these fields.

You can change the information that these tabs display by changing the settings. For example, to change the admin roles that this task appears in, modify the admin role settings to include or exclude this task.

## Users, Groups, and Administrative Roles

When creating a user, you assign it one or more *admin roles* or *privileged access roles*. An admin role contains tasks that correspond to application functions in CA Access Control Enterprise Management. When you assign an admin role to a user, that user can perform the tasks contained in the admin role. Tasks enable users to perform CA Access Control functions, such as creating a policy, deploying a policy, creating a host group, and managing other users.

A privileged access role defines the tasks that correspond to privileged accounts management on the managed endpoints. When assigning a privileged access role to a user, that user can perform privileged account management task such as, checking and out privileged accounts passwords.

To make administration easier, you can create groups of users, and assign an admin role to a group. Each user in the group can then complete all the tasks in that admin role.

### **More information:**

[Create a User](#) (see page 32)

[Types of Groups](#) (see page 35)

## Active Directory Restrictions

If you use Active Directory as your user store, you cannot create and delete users and groups in CA Access Control Enterprise Management. You do not see the following tasks in the interface, and you cannot assign these tasks to an admin role or a privileged access role:

- Create User
- Delete User
- Modify Role Members/Administrators
- Create Group
- Delete Group

When you assign admin roles to an Active Directory user, CA Access Control Enterprise Management modifies the user profile and notes the admin roles that are assigned to this user in the registered address field.

## Create a User

Users perform tasks in CA Access Control Enterprise Management. You create a user with the System Manager role when you install CA Access Control Enterprise Management. Create additional users when you start CA Access Control Enterprise Management to enforce separation of duties.

**Note:** If you use Active Directory as your user store, you cannot create a user in CA Access Control Enterprise Management.

### To create a user

1. In CA Access Control Enterprise Management, click Users and Groups.  
The Create User task appears in the list of available tasks.
2. Click Create User.  
The Create User: Select User window appears.
3. (Optional) Select an existing user to create the new user as a copy of it, as follows:
  - a. Select Create a copy of a user.
  - b. Select an attribute for the search, type in the filter value, and click Search.  
A list of users that match the filter criteria appears.
  - c. Select the object you want to use as a basis for the new user.

4. Click OK.

The Create User task page appears. If you created a user from an existing object, the dialog fields are pre-populated with the values from the existing object.

5. Complete the fields in the Profile tab. The following fields are not self-explanatory:

**User ID**

Defines the string that identifies the user to CA Access Control Enterprise Management. This is the name the user used to log in.

**Password Must Change**

Specifies to force the user to change the password on first login.

**Enabled**

Specifies whether the user can log in to CA Access Control Enterprise Management.

6. (Optional) Click the Admin Roles tab to assign admin roles to the user, as follows:

- a. Click Add an admin role.

The Select Admin Roles section appears.

- b. Type a filter value and Click Search.

A list of roles that match the filter criteria appears.

- c. Select the admin roles that you want to assign to the user, and click Select.

The admin roles are assigned to the user.

7. (Optional) Click the Privileged Access Roles tab to assign privileged access roles to the user, as follows:

- a. Click Add a privileged access role.

The Select Privileged Access Roles section appears.

- b. Type a filter value and Click Search.

A list of roles that match the filter criteria appears.

- c. Select the privileged access roles that you want to assign to the user, and click Select.

The privileged access roles are assigned to the user.

8. (Optional) Click the Groups tab to add the user to groups, as follows:
  - a. Click Add a group.  
The Select Group section appears.
  - b. Type a filter value and Click Search.  
A list of groups that match the filter criteria appears.
  - c. Select the groups that you want to assign to the user, and click Select.  
The user is added to the groups.
9. Click Submit.  
The user is created.

## Reset a User Password

Reset a user password when a user account was locked after several failed login attempts, or when the user has lost or forgot the password.

### **To reset a user password**

1. In CA Access Control Enterprise Management, click Users and Groups.  
The Reset User Password appears in the list of available tasks.
2. Click Reset User Password.  
The Reset User Password search page opens.
3. Type in the search query and click Search.  
The query displays the results according to the search criteria.
4. Select the user account and click Select.  
The reset password window opens.
5. Type in the account password in the Confirm Password field.
6. (Optional) Select the Password Must Change option.
7. Click Submit.  
CA Access Control Enterprise Management resets the user password.

## Enable or Disable a User

Enable a user account so that a user can use the account credentials to log in to CA Access Control Enterprise Management. Disable a user account to prevent that user from accessing CA Access Control Enterprise Management, and to keep the user profile in the system.

**To enable or disable a user**

1. In CA Access Control Enterprise Management, click Users and Groups.  
The Enable/Disable User task appears in the list of available tasks.
2. Click Enable/Disable User.  
The Enable/Disable User page appears.
3. Define a search query and click Search.  
The list of users that matches the search query displays.
4. Specify the user accounts to disable and enable, as follows:
  - Clear a user to disable that account.
  - Select a user to enable that account.
5. Click Select.  
A screen summarizing the changes you specified appears.
6. Click Yes to confirm the modifications you made.  
CA Access Control Enterprise Management submits the task to make the requested changes.

## Types of Groups

You can create several types of groups, or a combination of these types:

- **Static groups**

A list of users that are added interactively.

- **Dynamic groups**

Users belong to the group if they meet an LDAP query. (Requires an LDAP directory as the user store).

**Note:** To view the dynamic group query field, you must include it in the task by editing the associated profile screen.

- **Nested groups**

Groups containing other groups. (Requires an LDAP directory as the user store).

**Note:** To view static, dynamic and nested groups to which a user belongs, use the Groups tab for the User object. The tab appears in the View and Modify User tasks.

## Create a Static or a Dynamic Group

You can associate a collection of users in a static group. You manage the group by adding or removing users from the group membership list. To view the members of a group, use the Membership tab in the View or Modify Group tasks.

You create a dynamic group by defining an LDAP filter query using the CA Access Control Enterprise Management to determine group membership at runtime.

**Note:** The Membership tab displays only the members that are explicitly added to the group. If you use Active Directory as your user store, you cannot create a group in CA Access Control Enterprise Management.

### To create a static or dynamic group

1. Log into CA Access Control Enterprise Management as a user with group management privileges.

2. Select Groups, Create Group.

The create group search screen appears.

3. Select to create a group and click OK.

The group profile tab appears.

4. Enter the group name and description.

5. Navigate to the Membership tab.

**Note:** Only an administrator with the Modify Group task can change a group dynamic membership.

6. Click Add a User.

The select user search window opens.

7. Enter the search query and click Search.

The query returns the results according to the search criteria.

8. Select a user and click Select.

Navigate to the Administrators tab.

9. Click Submit.

A message appears informing you that the process completed successfully.

**Note:** When you assign a user as a group administrator, verify that the administrator has a role with appropriate scope for managing the group.

## LDAP Filter Query—Define Dynamic Group Query Parameters

You create a dynamic group by defining an LDAP filter query using the CA Access Control Enterprise Management to determine group membership at runtime.

This filter query has the following format:

```
LDAP:///search_base_DN??search_scope?searchfilter
```

### ***search\_base\_DN***

Defines the point from where you begin the search in the LDAP directory. If you do not specify the base DN in the query, then the group organization is the default base DN.

### ***search\_scope***

Specifies the extent of the search and includes:

- **sub**—Returns entries at the base DN level and below.
- **one**—Returns entries one level below the base DN you specify in the URL.
- **base**—Uses one instead, ignoring base as a search option.

Using *one* or *base* obtains only the users in the Base DN organization.

Using *sub* obtains all users under the Base DN organization and all sub-organizations in the tree.

**searchfilter**

Defines the filter that you want to apply to entries within the scope of the search. When you enter a search filter, use the standard LDAP query syntax as follows:

*(([logical\_operator]Comparison)*

**logical operator**

Defines a logical operator. Can be one of:

- |—Logical OR
- &—Logical AND
- !—Logical NOT

**Comparison**

Defines *AttributeOperatorValue*

- *Attribute*—Defines the name of the LDAP attribute.
- *Operator*—Specifies the comparison operator. Can be one of: = (equals), <= (less than or equals), >= (greater than or equals), or ~= (approximately equals).
- *Value*—Defines the value for the attribute data.

**Example:** (&(city=Boston)(state=Massachusetts))

**Default:** (objectclass=\*)

Note the following when creating a dynamic query:

- The "LDAP" prefix must be lowercase, for example:

`ldap:///o=MyCorporation??sub?(title=Manger)`

- You cannot specify the LDAP server host name or port number. All searches occur within the LDAP directory that you configured for your environment.

**Example: Sample LDAP Queries**

The following are sample LDAP queries:

Description	Query
All users who are managers.	<code>ldap:///o=MyCorporation??sub?(title=Manger)</code>
All managers in the New York West branch office	<code>ldap:///o=MyCorporation??one?(&amp;(title=Manager)(office=NYWest))</code>
All technicians with a cell phones	<code>ldap:///o=MyCorporation??one?(&amp;(employeetype=technician)(mobile=*))</code>

Description	Query
All employees with employee numbers from 1000 through 2000	ldap:///o=MyCorporation, (& (ou=employee) (employeenumber >=1000) (employeenumber <=2000))
All help desk administrators who have been employed at the company for more than six months	ldap:///o=MyCorporation, (& (cn=helpdeskadmin) (DOH => 2004/04/22) <b>Note:</b> This query requires that you create a DOH attribute for the user date of hire.

**Note:** The > and < (greater than and less than) comparisons are lexicographic, not arithmetic. For details on their use, see the documentation for your LDAP directory server.

## Modify Group Members

Use this option to add or remove members and groups. Use the procedure to modify the group list of members.

### To modify group members

1. Log into CA Access Control Enterprise Management as a user with group management privileges.
2. Select Groups, Modify Group Members.  
The modify group members screen appears.
3. Select a group and click Select.  
The group members list opens.
4. To remove a member, clear the check box next to the member name.
5. To add a member click Add a User.
  - a. Type in the search query and click Search.  
The search query displays the results according to the search criteria.
  - b. Select the user and click Select.  
The user is added as a group member.
6. To add a group click the Add a Group button.
  - a. Type in the search query and click Search.  
The search query displays the results according to the search criteria.
  - b. Select the group and click Select.  
The group is added.

7. Click Submit.

A confirmation message appears informing you that the task completed successfully.

## Audit Data

Audit data provides a historical record of operations that occur in a CA Access Control Enterprise Management environment. Some examples of audit data include the following:

- System activity for a specified period.
- A list of objects that were modified during a specific period.
- The roles assigned to a user
- The operations performed for a particular user account

Audit data is generated for *events*. An event is an operation that is generated by a CA Access Control Enterprise Management task. For example, the Create User task can include an AssignAccessRoleEvent event.

### **More information:**

[Search for Submitted Tasks](#) (see page 40)

[View Task Details](#) (see page 44)

[View Event Details](#) (see page 45)

## Search for Submitted Tasks

Submitted tasks provide information about tasks in a CA Access Control Enterprise Management environment. You can search for and view high-level details about actions that CA Access Control Enterprise Management performs. Detail screens provide additional information about each task and event.

Depending on the status of the task, you can cancel or resubmit a task.

Submitted tasks let you track the processing of a task from beginning to end.

**To search for submitted tasks**

1. In CA Access Control Enterprise Management, click System, Audit subtab.  
The View Submitted Tasks task appears in the list of available tasks.
2. Click View Submitted Tasks.  
The View Submitted Tasks page appears.
3. Specify [search criteria](#) (see page 41), enter the number of rows to display, and click Search.  
The tasks that satisfy your search criteria are displayed.

**Search Attributes for Viewing Submitted Tasks**

To review tasks that have been submitted for processing, you can use the search feature in View Submitted Tasks. You can search for tasks based on the following criteria:

**Initiated By**

Identifies the name of the user who has initiated a task as the search criteria. Searches are based on the user name. To ensure that you entered a valid user name, use the Validate button.

**Approval By**

Identifies the name of the task approver as the search criteria. Searches are based on the user name. To ensure that you entered a valid user name, use the Validate button.

**Note:** If you select Approval Tasks Performed By criteria to filter the tasks, the Show approval tasks criteria is also enabled by default.

**Task Name**

Identifies the task name as the search criteria. You can refine the search by specifying conditions such as equals, contains, starts with, or ends with the value of the Where Task Name field. For example, you can specify the search criteria "task name equals Create User" by selecting the equals condition, and entering Create User in the text field.

### **Task Status**

Identifies [task status](#) (see page 43) as the search criteria. You can select the task status by enabling Where task status equals, and selecting the condition. You can further refine the search based on the following conditions:

- Completed
- In Progress
- Failed
- Rejected
- Partially Completed
- Cancelled
- Scheduled

### **Task Priority**

Identifies task priority as the search criteria. You can select the task priority by enabling Where task priority equals, and selecting the condition. You can further refine the search based on the following conditions:

#### **Low**

Specifies that you can search for tasks that have a low priority.

#### **Medium**

Specifies that you can search for tasks that have a medium priority.

#### **High**

Specifies that you can search for tasks that have a high priority.

### **Performed On**

Identifies tasks that are performed on the selected instance of the object. If you do not select an instance of the object, the tasks that were performed on all the instances of that object will be displayed.

**Note:** This field appears only when the Configure Performed On field is populated in the Configure Submitted Tasks screen. You use this screen to configure the Submitted Tasks tab.

### **Date range**

Identifies the dates between which you want to search submitted tasks. You must provide the From and To dates.

**Show unsubmitted tasks**

Identifies the tasks in the Audited state. Identifies the tasks that have initiated other tasks or tasks that have not been submitted. All such tasks will be audited and displayed if you select this tab.

**Show approval tasks**

Identifies the tasks that have to be approved as part of a workflow.

**More information:**

[Task Status Description](#) (see page 43)

**Task Status Description**

A submitted task exists in one of the states described below. Based on the state of the task, you can perform actions such as cancelling or resubmitting a task.

**Note:** To cancel or resubmit a task, you must configure View Submitted Tasks to display the cancel and resubmit buttons based on the tasks status.

**In progress**

Displayed when any of the following occurs:

- Workflow is initiated but not yet completed
- Tasks, which are initiated before the current tasks, are in progress
- Nested tasks are initiated but not yet completed
- The primary event is initiated but not yet completed
- Secondary events are initiated but not yet completed

You can cancel a task in this state.

**Note:** Cancelling a task will cancel all the incomplete nested tasks and events for the current task.

**Cancelled**

Displayed when you cancel any of the tasks or events in progress.

**Rejected**

Displayed when CA Access Control Enterprise Management rejects an event or task that is part of a workflow process. You can resubmit a rejected task.

**Note:** When you resubmit a task, CA Access Control Enterprise Management will resubmit all the failed or rejected nested tasks and events.

**Partially Completed**

Displayed when you cancel some of the events or nested tasks. You can resubmit a partially completed event or nested task.

**Completed**

Displayed when a task is completed. A task is completed when the nested tasks and nested events of the current task are completed.

**Failed**

Displayed when a task, nested task, or event nested in the current task are invalid. This status is displayed when the task fails. You can resubmit a failed task.

**Scheduled**

Displayed when the task is scheduled to execute at a later date. You can cancel a task in this state.

**Audited**

Displayed when the current task is audited.

## View Task Details

CA Access Control Enterprise Management provides task details, such as the status of a submitted task, nested tasks, and events associated with a task.

**To view details of a submitted task**

1. Click the right arrow icon next to the selected task in the View Submitted Tasks page.

The task details appear.

**Note:** Events and nested tasks (if any) are displayed in the Task Details page. You can view the task details for each of the tasks and events.

2. Click Close.

The Task Details tab closes and CA Access Control Enterprise Management displays the View Submitted Tasks tab with the tasks list.

## View Event Details

CA Access Control Enterprise Management provides events details, such as the status of a submitted event, event attributes, and any additional information about the events.

### **To view details of a submitted event**

1. Click the right arrow icon next to an event in the View Task Details page.  
The event details appear.
2. Click Close.  
The Event Details page is closed.



# Chapter 3: Viewing Your Enterprise Implementation

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This section contains the following topics:

[World View](#) (see page 47)

[View Your Enterprise CA Access Control Implementation](#) (see page 48)

[Open CA Access Control Endpoint Management to Manage an Endpoint](#) (see page 49)

[Configure a UNIX Endpoint for CA Access Control Endpoint Management SSO](#) (see page 50)

[Modify a PUPM Endpoint](#) (see page 51)

## World View

World View in CA Access Control Enterprise Management lets you view the enterprise implementation of CA Access Control that you are managing on the connected DMS.

Using World View you can:

- Identify which endpoints report to the connected DMS.
- Identify the endpoint type, which can be one or more of CA Access Control, PMDB, PUPM, and UNAB.
- See when each endpoint last sent a heartbeat to the DMS.
- View more details about the endpoint, such as which policies are deployed, what is the operating system, and what managed devices are on the endpoint.
- Open CA Access Control Endpoint Management to manage a CA Access Control endpoint.
- Modify a UNAB host or a PUPM managed device.

## View Your Enterprise CA Access Control Implementation

Using CA Access Control Enterprise Management you can display your enterprise implementation of CA Access Control. This enterprise "World View" is a snapshot of all your endpoints, the logical host groups they are grouped into, the deployed policies on these endpoints, and the managed devices they have.

### To view your enterprise CA Access Control implementation

1. In CA Access Control Enterprise Management click the World View tab, then click the World View link in the task menu on the left.

The World View page appears with the Search section visible.

2. (Optional) Define the search criteria.

You can use two types of searches:

- **Simple**—Use the simple search to define a host name mask and specify the type of endpoint you want to filter the results by.
- **Advanced**—Click the Advanced link to also filter the results by specified host groups, assigned policies, managed devices name mask, and managed devices type.

**Note:** By default, World View displays results for all of the endpoints that are defined to the DMS CA Access Control Enterprise Management is connected to.

3. Click Go.

The results, matching the criteria you defined, are displayed by one of the following categories:

- **Results by Host Name**—These are the hosts (endpoints) that you define on the DMS. This is the default display category for the results.
- **Results by Host Group**—These are the logical host groups you define.
- **Results by Policies**—These are the policies that are deployed on the endpoints.
- **Results by Managed Devices**—These are the managed devices on the endpoints.

## Open CA Access Control Endpoint Management to Manage an Endpoint

CA Access Control Enterprise Management supports Single-Sign On (SSO) to let you easily log in to CA Access Control Endpoint Management to manage any of the endpoints that CA Access Control Enterprise Management manages.

If you want to set up automatic log in to manage a Windows endpoint, verify that you use identical user name and password in CA Access Control Enterprise Management and the CA Access Control endpoint and have terminal access rights to manage the endpoint using CA Access Control Endpoint Management.

**Note:** To set up automatic log in to manage a UNIX endpoint, you need to configure the endpoint for CA Access Control Endpoint Management SSO.

### **To open CA Access Control Endpoint Management to manage an endpoint**

1. Use World View to view one or more endpoints you want to manage.
2. Click Manage in the Actions column.

CA Access Control Endpoint Management opens and the endpoint host name and your credentials are automatically entered. If the CA Access Control Enterprise Management user you are logged in as does not exist in CA Access Control Endpoint Management, you need to enter the credentials manually.

### **More information:**

[View Your Enterprise CA Access Control Implementation](#) (see page 48)  
[Configure a UNIX Endpoint for CA Access Control Endpoint Management SSO](#)  
(see page 50)

## Configure a UNIX Endpoint for CA Access Control Endpoint Management SSO

CA Access Control Enterprise Management lets you easily log in to CA Access Control Endpoint Management to manage any of the endpoints that CA Access Control Enterprise Management manages. In an automatic login, you log in to CA Access Control Enterprise Management with your Active Directory credentials. CA Access Control Enterprise Management retains the credentials and provides them to the endpoint when you open CA Access Control Endpoint Management to manage the endpoint. Automatic login to CA Access Control using CA Access Control Endpoint Management relies on the user account you use to authenticate to CA Access Control Enterprise Management.

**Note:** To configure automatic login to UNAB endpoints, verify that both CA Access Control Enterprise Management and UNAB use the same Active Directory.

**Important!** Configure the user you want to use as a UNIX user in Active Directory.

### To configure a UNIX endpoint for CA Access Control Endpoint Management SSO

1. On the CA Access Control endpoint, open the seos.ini file, locate the [OS\_User] section and set the value of the token osuser\_enabled to **1**.  
Enterprise users and groups are enabled.
2. Locate the [seos] section and set the value of the token auth\_login to **pam**.  
The login authority method used is PAM.
3. Create a TERMINAL record for the CA Access Control Endpoint Management computer.  
The CA Access Control Endpoint Management computer is assigned TERMINAL access.
4. Configure the user account you use to log in to CA Access Control Enterprise Management as an XUSER and assign it the admin attribute. Use the following format: *<DOMAIN-NAME>user\_account*.
5. Define an ACL for the superadmin user in TERMINAL class with read and write access rights. For example:

```
Defaccess      : R, W
ACLs           :
  Accessor      Access
  DOMAIN\user(XUSER ) R, W
```

The user can use the CA Access Control Enterprise Management Server to manage the endpoint.

## Modify a PUPM Endpoint

Using the CA Access Control Enterprise Management World View you can modify the settings of a PUPM endpoint managed device. Managed devices are applications that you administer using privileged accounts. The PUPM endpoint stores the privileged accounts in a password database, using a role-based management system to grant access to the accounts. The managed devices may be installed on the PUPM endpoint itself or on the enterprise.

### To modify a PUPM endpoint

1. Select World View, World View task.  
The World View search screen appears.
2. Type in the query and click Go.  
The query displays the search results.
3. Click the down arrow (Show) icon in the row of the PUPM endpoint that you want to modify.  
The extended information displays the managed devices on the endpoint.
4. Click Modify to modify the endpoint settings.  
The Modify Endpoint window appears, displaying the endpoint settings.
5. Modify the endpoint settings and click Submit.  
A message appears information you that the task completed.

### More information:

[Create an Endpoint](#) (see page 125)



# Chapter 4: Managing Policies Centrally

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This section contains the following topics:

- [Policy Types](#) (see page 53)
- [Methods for Centrally Managing Policies](#) (see page 54)
- [Advanced Policy Management](#) (see page 54)
- [How Advanced Policy-based Management Works](#) (see page 55)
- [Hosts and Host Groups](#) (see page 61)
- [How to Create and Deploy a Policy](#) (see page 66)
- [Policy Maintenance](#) (see page 76)
- [Variables](#) (see page 80)
- [Troubleshooting Policy Deployment](#) (see page 86)
- [How to Remove Obsolete Endpoints](#) (see page 87)
- [View Deployment Audit Information](#) (see page 88)
- [How Policy Deviation Calculations Work](#) (see page 89)

## Policy Types

In CA Access Control Enterprise Management, you use three types of policies to manage CA Access Control endpoints and UNAB hosts: CA Access Control policies, UNAB configuration policies, and UNAB login policies.

You use CA Access Control policies to create a unified policy for controlling access to resources and setting accessor rights to CA Access Control endpoints throughout the enterprise.

You use UNAB login policies to manage access to the UNIX hosts in your enterprise. Login policies control users' login to UNIX hosts that have UNAB running on them. CA Access Control Enterprise Management automatically creates, assigns, and deploys the login policies based on the authorization lists that you populate.

You use UNAB configuration policies to set the values of tokens in the configuration files on remote UNAB hosts to facilitate deploying and configuring UNAB hosts in the organization.

This chapter explains how to use CA Access Control policies.

### **More information:**

- [Manage UNAB Login Authorization](#) (see page 157)
- [Configure a UNAB Host or Host Group](#) (see page 159)

## Methods for Centrally Managing Policies

CA Access Control lets you manage several databases from a single computer in the following ways:

- **Automatic rule-based policy updates**—Regular rules you define in a central database (PMDB) are automatically propagated to databases in a configured hierarchy.

**Note:** Dual control is only available with this method and on UNIX only. Information about dual control for automatic rule-based policy updates is found in the *Endpoint Administration Guide for UNIX*. Information about automatic rule-based policy updates can also be found in the *Endpoint Administration Guide for Windows*.

- **Advanced policy management**—Policies (groups of rules) you deploy are propagated to all databases based on host or host group assignment. You can also undeploy (remove) policies and view deployment status and deployment deviation. You need to install and configure additional components to use this functionality.

**Note:** Information about advanced policy management is found in the *Enterprise Administration 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 policies and then assign those to hosts or group hosts. Once assigned, policies are queued for deployment. Alternatively, you can deploy and undeploy policy versions directly onto hosts or group hosts.

A central database—the Deployment Map Server (DMS)—collects all the information about your enterprise policies, versions, assignments, and deployment. This means that you can easily report on deployment status, deployment deviation, and deployment hierarchy.

**Note:** Dual control is *not* available with this method and is only available on UNIX. For more information, see the *Endpoint Administration Guide for UNIX*.

## How Advanced Policy-based Management Works

Advanced policy-based management lets you store, deploy, and undeploy policy versions, and later check the deployment status, deployment deviation, and deployment distribution.

Advanced policy-based management works in the following way:

1. You create a policy.

Each policy contains a pair of `selang` command scripts. The first script is a *deployment script* and contains a set of `selang` commands that construct the policy. The second script is an *undeployment script* and contains commands that are required for undeploying (removing) the policy from the endpoint database.

2. You store policy details in the DMS using either CA Access Control Enterprise Management or the `policydeploy` utility, and CA Access Control then stores the policy using automatic version-control.

Policy details include the policy description, deployment and undeployment scripts, and policy dependency.

3. Depending on whether the policy already exists on the DMS, CA Access Control does *one* of the following:

- If the policy name does not exist on the DMS, CA Access Control creates the first version of the policy (*policy\_name#01*) and the logical policy object (GPOLICY class), and then adds the policy version as a member of the logical policy.
- If the policy name already exists on the DMS, CA Access Control creates a new policy version, incrementing the highest found policy version by one and adds the policy version as a member of the logical policy (GPOLICY object).

4. When you decide it is time, you use CA Access Control Enterprise Management or the `policydeploy` utility to deploy a stored policy to target databases. CA Access Control creates deployment tasks (DEPLOYMENT objects) automatically on the DMS.

**Note:** CA Access Control deploys the latest finalized policy version of the stored policy. New policy versions that you create are not sent automatically to assigned hosts. You need to manually upgrade assigned hosts to the latest policy version.

**Note:** CA Access Control Enterprise Management automatically deploys the UNAB login and procedures policies after you create them. You can only assign UNAB login and configuration policies to UNAB hosts.

5. CA Access Control creates a deployment package (GDEPLOYMENT object) automatically on the DMS.

The deployment package groups all the deployment tasks created in the previous step.

6. The DMS sends the deployment tasks to the Distribution Host (DH).
7. The endpoint, which periodically checks for new policy deployment tasks (using policyfetcher), fetches the pending deployment tasks from the DH and executes each rule-the selang commands specified in the deployment script-on the target databases.
8. The endpoint updates the DH with the deployment task status (failed, success), the resultant selang result messages for failed commands, and the policy status on the HNODE.

**Note:** If a policy is deployed with errors, you can use Deployment Audit in CA Access Control Enterprise Management to detail the selang output for the failed commands. Otherwise, you need to view the log file on the computer where the policy was deployed with errors.

9. The DH updates the deployment task status and policy status on the DMS, where this information is stored.

**Note:** UNAB login policies and UNAB config policies do not work in the same way as advanced policy-based management.

**More information:**

[Policy Dependency](#) (see page 67)

[Policy Verification](#) (see page 68)

[Assignment Paths](#) (see page 65)

[How You Control Host Access and Configure UNAB](#) (see page 157)

## How Deployment Methods Affect Deployment Tasks

When you deploy a stored policy to target databases, CA Access Control creates deployment tasks automatically on the DMS. A deployment task (a DEPLOYMENT object) is a work order, generated by the DMS for execution on the endpoint. Each deployment task is intended for one endpoint and contains information about the policy version that needs to be deployed on the endpoint.

**Note:** CA Access Control uses a different deployment method to deploy UNAB login and config policies.

The method you use to deploy the stored policy affects the deployment tasks that CA Access Control creates. The following shows the results of choosing different methods:

- Assign a policy (GPOLICY object) to one or more hosts  
CA Access Control creates, for each host, a deployment task for the latest finalized version of the policy.
- Assign a policy (GPOLICY object) to one or more host groups  
CA Access Control creates, for each host that is a member of one of the host groups, a deployment task for the latest finalized version of the policy.
- Add a host to a host group that has stored policies (GPOLICY objects) assigned to it  
CA Access Control creates for the new host a deployment task for the latest finalized version of the policy.
- Redeploy a policy to one or more hosts  
CA Access Control creates, for each host, a deployment task for the latest finalized version of the policy.
- Restore the policies on an HNODE (redeploy the policies that should be deployed on the host)  
CA Access Control creates, for each policy that should be deployed on the host, a deployment task for the policy version that is effective on the host.
- Upgrade a deployed policy on one or more hosts  
CA Access Control creates, for each host, a deployment task for the latest finalized policy version if the version stored on the host is newer than the one that is deployed on the host.

#### **Example: Assign a Policy to a Host**

If you assign policy IIS to hosts host1.comp.com and host2.comp.com, CA Access Control creates two deployment tasks: a task to deploy the latest IIS policy version on host1.comp.com and a task to deploy the latest IIS policy version on host2.comp.com.

#### **Example: Assign a Policy to a Host Group**

The host group Servers has two members: hostA.comp.com and hostB.comp.com. If you assign policy IIS is assigned to the host group Servers, CA Access Control creates two deployment tasks: a task to deploy the latest IIS policy version on hostA.comp.com and a task to deploy the latest IIS policy version on hostB.comp.com.

### **Example: Add a Host to a Host Group That Has Assigned Policies**

The host group Servers has two assigned policies (IIS and ORACLE). If you add host test.comp.com to the host group, CA Access Control creates two deployment tasks: a task to deploy the latest IIS policy version on test.comp.com and a task to deploy the latest ORACLE policy version on test.comp.com.

### **Example: Restore a Host**

A host has two policies assigned: policy1 and policy2. If you restore the host, CA Access Control creates two deployment tasks: a task to deploy the latest finalized policy1 version and a task to deploy the latest finalized policy2 version on the host.

### **Example: Upgrade a Deployed Policy**

Policy IIS is deployed on two hosts, host1.comp.com and host2.comp.com, but the latest version of policy IIS is not deployed to host1.comp.com. If you upgrade policy IIS on both hosts, CA Access Control creates only one deployment task to deploy the latest IIS policy version on host1.comp.com.

### **More information:**

[How You Control Host Access and Configure UNAB](#) (see page 157)

## **Endpoint Data That the DMS Holds**

When you configure your environment for advanced policy management, endpoints in your enterprise notify the DMS, through the configured DHs, of status changes in three areas:

- Policy deployment and undeployment

When a policy is being deployed or undeployed, the endpoint sends a notification. The following details are then updated according to the result of the operation:

- Policy details
- Deployment status (succeeded, failed, and so on)
- The selang command output for policy commands that failed to execute
- HNODE policy status (deployed, deployment failed, and so on)

- Host heartbeat

At regular configurable intervals, each endpoint sends a heartbeat to account for the host being online.

- Deviation status

After each heartbeat, the endpoint calculates policy deviation, and sends the result (deviation found or not found). If the policyfetcher finds deployment and deviation status conflicts between the endpoint and the DH, it resolves the conflicts based on endpoint information.

## How Endpoints Update the DMS

Each endpoint sends a heartbeat (host status), policy status, and deviation status notifications to the DMS, through the DHs you configured. Those DMS notifications are handled in the following way:

1. The DH stores notification messages in an update file.

These are heartbeats and policy deployment and undeployment notifications from the endpoint.

2. The DH contacts the DMS, which is its subscriber:

- If a DMS is unavailable, the DH tries to communicate with the DMS periodically, until all messages are successfully sent.
- If the DMS is available, the DH sends the stored notifications.

3. The DMS stores the information it receives from each DH for later use.

Each time you create a report, CA Access Control retrieves the information on the DMS.

**Note:** UNAB endpoints use a different process to update the DMS.

**More information:**

[How You Control Host Access and Configure UNAB](#) (see page 157)

## Advanced Policy Management Classes

CA Access Control uses specific classes that let the DMS:

- Keep an up-to-date map of the status of policies deployed on each computer
- Send deployment information to a DH so that the endpoint can fetch the relevant policy deployment information it should contain

**Note:** For more information about the properties these classes accept, see the *selang Reference Guide*.

## DEPLOYMENT Class

Each object in the DEPLOYMENT class represents a policy *deployment task*. CA Access Control creates the deployment task automatically on the DMS when you assign or unassign a policy to a host, or when you directly deploy or undeploy a policy. It is also created when you add (assign) or remove (unassign) a host to or from a host group that has assigned policies, downgrade or upgrade a policy on a host, and reset or restore a host.

Endpoints use this object as a work order: they deploy or undeploy policy versions based on the information in a pending DEPLOYMENT object. Each work order is intended for one endpoint and contains information about the policy version that needs to be deployed on the endpoint. In addition, the DEPLOYMENT object has a status property which indicates whether deployment was successful or not and a result property (result\_message) which contains the selang command output from the policy deployment task.

**Note:** A deployment task can be empty (has no action status) if the policy already exists on the HNODE as a result of another assignment path.

## GDEPLOYMENT Class

Each object in the GDEPLOYMENT class represents a *deployment package*. A deployment package is created automatically on the DMS and groups together all the deployment tasks that are created as a result of the same transaction (policy assignment, upgrade, and so on) and for a particular host. This means that each transaction you make creates the required number of deployment tasks (DEPLOYMENT objects) and groups these by host (GDEPLOYMENT objects).

A deployment package lets you track and troubleshoot policy deployment and records the trigger—the reason why the deployment was initiated.

## HNODE Class

Each object in the HNODE class represents an endpoint in your enterprise. It holds information about the particular node it represents, the host groups it belongs to, and when it was last detected online. In addition, each HNODE object holds information about the policy versions that are effective on node it represents (through direct or indirect assignment), and the status of each policy (deployed, deployed with errors, and so on).

The name of the HNODE object is the actual host name. For example, myhost.mydomain.com

### GHNODE Class

Each object in the GHNODE class represents a group of CA Access Control nodes (HNODE object). It lets you group endpoints into logical groups for the purpose of deploying policies. Each GHNODE object holds information about the policies that are assigned to the nodes it represents.

### POLICY Class

Each object in the POLICY class represents a version of a policy (GPOLICY object) that may be deployed on any host (HNODE object) or logical group of hosts (GHNODE object). It contains information about where the associated policy scripts are stored (in which RULESET object) and which nodes or group of nodes it is deployed on.

The name of the object is the name of the policy, suffixed by a version number (*policy\_name#xx*).

### GPOLICY Class

Each object in the GPOLICY class represents a logical policy. It contains information about the policy versions (POLICY objects) that belong to this policy and the hosts and host groups it is assigned to.

The name of the object is the name of the logical policy.

### RULESET Class

Each object in the RULESET class holds both the deployment and undeployment (removal) scripts that are associated with a policy version.

The name of the object is based on the respective POLICY object name.

## Hosts and Host Groups

To use advanced policy management, you need to define your enterprise implementation of CA Access Control. To do this, you create HNODE objects to represent endpoints (or hosts) and GHNODE objects to represent logical host groups. Hosts can be members of a number of logical host groups depending on their properties and policy demands. For example, if you have hosts running a Red Hat operating system and Oracle, these can be members of a Red Hat logical host group to get the baseline Red Hat access control policy, and also members of the Oracle logical host group to get the Oracle access control policy.

## Define an Endpoint as a Host in Your Enterprise

To deploy policies to your endpoints and to view their deployment status, you need to define your endpoints on the Deployment Map Server (DMS) you manage your enterprise through. When you install CA Access Control on the endpoint with advanced policy management enabled, an HNODE record that represents the endpoint is automatically created on the DMS. You should manually define your endpoints on the DMS only if you want to model the environment before installing CA Access Control on endpoints.

**Important!** You must use the fully qualified host name as HNODE name, otherwise the endpoint does not collect its deployments.

### To define an endpoint as a host in your enterprise

1. In CA Access Control Enterprise Management click Policy Management, then Host subtab, and expand the Host tree in the task menu on the left.

The Create Host task appears in the list of available tasks.

2. Click Create Host.

The Create Host: Host Search screen appears.

3. Verify that Create a new object of type Host is selected and click OK.

The Create Host task page appears.

4. Complete the following fields in the dialog:

#### **Name**

Defines the name of the endpoint (HNODE object). This name has to be unique on the DMS (enforced).

#### **Description**

(Optional) Defines a business description (free text) of the host. Use this field to record any information that helps you identify the endpoint.

#### **IP address**

(Optional) Defines the IP address of the host.

5. Click Submit.

The task is submitted and if successful, a message indicating that a new host (HNODE) was created appears shortly afterwards.

## Define a Logical Host Group

To manage policies on a group of related endpoints, you can define the endpoints as a logical host group and perform advanced policy management actions on the whole group. Before you can create meaningful host groups, you must have your endpoints defined on the DMS.

**Note:** This procedure describes how you use CA Access Control Enterprise Management to define a logical host group on the DMS.

### To define a logical host group

1. In CA Access Control Enterprise Management click Policy Management, then Host subtab, and expand the Host Group tree in the task menu on the left.

The Create Host Group appears in the list of available tasks.

2. Click Create Host Group.

The Create Host Group: Host Group Search screen appears.

3. Verify that Create a new object of type Host Group is selected and click OK.

The Create Host Group task page appears.

4. Complete the following fields in the dialog:

#### **Name**

Defines the name of the logical host group (GHNODE object).

#### **Description**

(Optional) Defines a business description (free text) of the host group. Use this field to record any information that helps you identify the host group.

5. Click the Host Selection, then click Add.

The Add Member dialog appears.

6. Select the endpoints you want to add to the host group, then click Select

The Add Member dialog closes and the endpoints you selected are added to the Members List for the logical group host you are defining.

7. Click Submit.

The task is submitted and if successful, a message indicating that a new group host (GHNODE) was created appears shortly afterwards.

## Import a Host Group

Importing a host group helps you migrate your existing PMDB structure to advanced policy management. When you import a host group, you create or join hosts to a host group. The hosts correspond to the subscribers of a PMDB.

**Note:** Advanced policy management does not support hierarchical host groups. When you import a host group from a PMDB, you flatten all subscribers into the same host group. CA Access Control Enterprise Management does not create hosts that correspond to subscriber PMDBs.

For each PMDB subscriber that you join to the host group, CA Access Control Enterprise Management checks if a host (HNODE object) that corresponds to the subscriber already exists on the DMS. If a corresponding host exists on the DMS, CA Access Control adds that host to the host group. If a corresponding host does not exist on the DMS, CA Access Control creates a new host and adds the new host to the host group.

If you do not have permission to access an endpoint, the endpoint does not appear in the wizard and you cannot add the corresponding host to the host group.

### To import a host group

1. In CA Access Control Enterprise Management, do as follows:
  - a. Click Policy Management.
  - b. Click Host subtab.
  - c. Expand the Host Group tree in the task menu on the left.

The Host Group Import task appears in the list of available tasks.

2. Click Host Group Import.

The PMDB Host Login page appears.

3. Type the user name, password, and name of the PMDB, and click Log In.

**Note:** Specify the PMDB name in the format *PMDBname@host*, for example, *master\_pmdb@example*

The Host Group Import wizard appears at the General task stage.

4. Complete the wizard, then click Finish after you read the summary.

CA Access Control adds the hosts to the host group. If a host does not exist in the DMS, CA Access Control creates a HNODE object for the host before it adds it to the host group (GHNODE).

**Note:** When you add a host to an existing host group, CA Access Control automatically deploys to the host any policies that are assigned to the host group.

## Assignment Paths

An *assignment path* describes a policy assignment to a specific host or host group. A policy can be assigned to a host by the following paths:

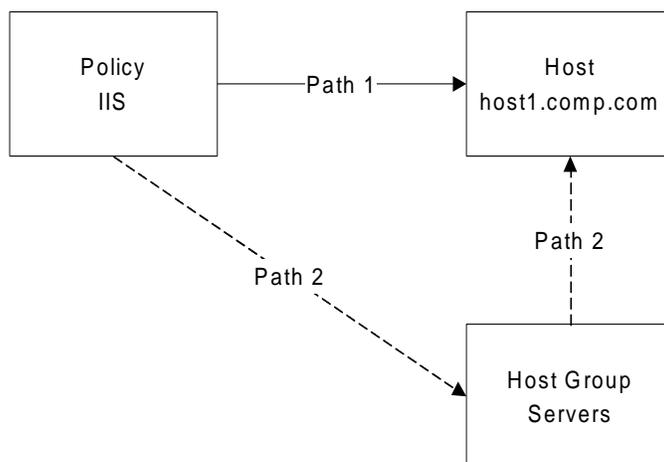
- A policy is directly assigned to a host.
- A policy is assigned to a host group of which a host is a member.
- A host is joined to a host group that has one or more policies assigned to it.

Assignment paths are important because when multiple assignment paths exist it impacts advanced policy management, as follows:

- If you remove an assignment path, CA Access Control does not undeploy the policy because the other assignment paths between the host and the policy still exist.
- If you add an assignment path, a deployment package and deployment tasks are created for tracking and administrative purposes. However, the deployment task has the status of *No Action*, and so does not initiate policy deployment on the endpoint.

### Example: Multiple Assignment Paths for Policy IIS

The following illustration shows an example of multiple assignment paths for policy IIS. Host `host1.comp.com` is a member of the host group `Servers`. Path 1 shows the assignment path when you directly assign policy IIS to the host `host1.comp.com`. Path 2 shows the assignment path when you assign policy IIS to the host group `Servers`:



### Example: Remove an Assignment Path

In the previous illustration, policy IIS is assigned to the host group Servers and to the host host1.comp.com. If you remove host1.comp.com from the Servers host group, you remove Path 2. However, CA Access Control does not undeploy policy IIS from host1.comp.com, because the policy is still directly assigned to the host (Path 1).

## How to Create and Deploy a Policy

Using advanced policy-based management you can store a draft version of a policy, have it reviewed and modified as required, then deploy the approved version.

To deploy approved policy versions using CA Access Control Enterprise Management, do the following:

1. Store a policy version on the DMS.

Once you have a stored policy version, the policy can be reviewed and deployed.

2. Review the policy.

Once the policy version is stored, you should have the rules associated with the policy reviewed.

3. Finalize the policy.

Once you finalize a policy, you can assign it to the hosts or host groups where you want it to be deployed.

4. Assign the policy to endpoints through one of the available assignment paths:

- Assign the stored policy to a host or host group.
- Assign a host to a logical group of hosts that already has the policy assigned.

Once a policy is assigned, CA Access Control works to deploy the latest finalized version of the policy automatically.

**Note:** You follow a different process to create and deploy UNAB login and config policies.

### More information:

[Manage UNAB Login Authorization](#) (see page 157)

[Configure a UNAB Host or Host Group](#) (see page 159)

[Assignment Paths](#) (see page 65)

## Administration Requirements

To store policies on the DMS or assign these policies you, and the computer you are working from, need to have appropriate permissions.

To store policies on the DMS:

- The *computer* from which you are managing the DMS from, or the one you are running the `policydeploy` utility from, needs to have terminal rights (TERMINAL class) for the DMS.
- You need to have sub-administration rights for the POLICY, GPOLICY, and RULESET classes on the DMS.

To assign policies to hosts or host groups:

- The *computer* from which you are managing the DMS from needs to have terminal rights (TERMINAL class) for the DMS.
- You need to have sub-administration rights for the DEPLOYMENT, GDEPLOYMENT, POLICY, GPOLICY, HNODE, and GHNODE (if you assign the policy to a host group) classes on the DMS.

**Note:** For more information about terminal rights and sub-administration rights, see the *Endpoint Administration Guide for UNIX* and the *Endpoint Administration Guide for Windows*.

## Policy Dependency

Advanced policy management lets you enforce the order in which policies are deployed and undeployed.

Using policy dependency you can define that a policy that is dependent on one or more other policies, cannot be deployed until all of the prerequisite policies are also deployed. Similarly, you cannot undeploy a prerequisite policy if one or more dependent policies are still deployed.

You define policy dependency when you create or modify a policy.

## Policy Verification

When policy verification is enabled, CA Access Control checks that a policy does not contain errors before it deploys the policy. If CA Access Control finds errors in the policy deployment script, the policy script does not execute on the endpoint. This ensures that policies do not deploy with errors and lets you trace script errors on the endpoint. Policy verification is disabled by default.

If policy verification is not enabled and you deploy a policy with errors, some policy commands may still execute despite the errors in other commands.

Policy verification checks CA Access Control database commands only, that is, selang commands in the AC environment. Policy verification does not check commands in the native, configuration, or policy model environments. If a policy contains commands for both the AC environment and another environment, policy verification checks commands in the AC environment only.

Policy verification cannot check undeploy scripts.

## How Policy Verification Works

Policy verification verifies that a policy can deploy without errors before it actually deploys on the endpoint.

**Note:** Policy verification is not enabled by default.

The following process describes how policy verification works:

1. You assign a policy to a host or host group.
2. On each endpoint, CA Access Control Enterprise Management verifies the policy.
3. *One* of the following happens:

- If the policy does not contain errors, CA Access Control Enterprise Management deploys the policy to the endpoint.

The endpoint updates the DMS that the policy status is *Deployed*.

- If the policy script contains an error, CA Access Control Enterprise Management does *not* deploy the policy to the endpoint.

The endpoint updates the DMS that the policy status is *Not executed*. The DMS also updates the status of each deployment task that corresponds to the policy with the script error to *Fail*.

**Note:** You can use the Deployment Audit feature in CA Access Control Enterprise Management to view the scripts with errors.

## Enable Policy Verification

Policy verification ensures that a policy can deploy without errors before it actually deploys on the endpoint.

To enable policy verification, set the value of the `policy_verification` configuration setting in the `policyfetcher` section to 1.

Policy verification is enabled.

## Create and Store a Policy Version

Every policy you create and store on the DMS automatically gets a version number. The first time you store a policy it receives a version number "01". For example, the first time you store policy *myPolicy*, CA Access Control Enterprise Management creates a GPOLICY object named *myPolicy* and a POLICY object named *myPolicy#01*. Every time you store a policy that already exists on the DMS, the latest stored version of the policy is incremented by one to create the new policy version. For example, when you store a version of *myPolicy* for the twenty-eighth time, CA Access Control Enterprise Management creates a POLICY object named *myPolicy#28*.

**Note:** This procedure describes how you use CA Access Control Enterprise Management to create and store a policy version. This procedure does not apply to UNAB login and configuration policies.

### To create and store a policy version

1. (Optional) Create a new script file with `selang` deployment commands.  
These are the commands necessary to construct the policy you want to deploy on endpoints in your enterprise.  
**Important!** Policy deployment does not support commands that set user passwords. Do not include such commands in your deployment script file. Native `selang` commands are supported but will not show in deviation reports.
2. (Optional) Create a new script file with `selang` undeployment commands.  
These are the commands necessary for undeploying (removing) the policy from endpoints in your enterprise.
3. In CA Access Control Enterprise Management click Policy Management, Policy task, and expand the Policy tree in the task menu on the left.  
The Policy tasks appear.

4. Click Create Policy.

The Create Policy: Policy Search screen appears.

**Note:** If you want to create a new version for an existing policy, click Modify Policy instead and search for the policy you want to modify.

5. Click OK.

The Create Policy task page appears.

6. Complete the following fields in the dialog:

**Name**

Defines the name of the policy (GPOLICY object). This name has to be unique on the DMS (enforced) and in your enterprise (not enforced but you will not be able to deploy a policy to a host if a policy of the same name already exists).

**Description**

(Optional) Defines a business description (free text) of the policy. Use this field to record what this policy is for and any other information that helps you identify the policy.

7. Click the Policy Script tab and provide a deployment and an undeployment script, using *one* of the following methods:

- Type the deployment and undeployment scripts into the appropriate fields.

Use this option if you did not create a script file with the deployment commands.

- Load the commands from an existing selang script file:

- a. Click Browse and locate the file that contains the selang script you want to use.
- b. Click Load to populate the script field with the contents of the file you selected.

8. (Optional) Provide a description for this policy version.

Use this to provide specific information about the deployment scripts you use for this policy version.

9. (Optional) Select Finalize on Submit.

This option specifies that the new policy version you create can be deployed. If you are not finished creating the deployment script, clear this option.

**Note:** If you do not select this option, you can modify the deployment scripts without creating a new version of the policy. However, a non-finalized policy version cannot be deployed.

10. Click the Policy Dependency tab, then click Add.

The Add Member dialog appears.

11. Select the policies you want to add as prerequisites to the policy, then click Select.

The Add Member dialog closes and the policies you selected are added to the Members List for the policy you are creating.

12. Click Submit.

The task is submitted and, if successful, a message indicating that a new policy version was created appears shortly afterwards.

**Note:** You can also use the `policydeploy` utility to perform this task. For more information about the `policydeploy` utility, see the *Reference Guide*.

**More information:**

[Manage UNAB Login Authorization](#) (see page 157)

[Configure a UNAB Host or Host Group](#) (see page 159)

## Create a Policy That Defines a Variable

Creating and deploying a policy that defines a variable lets you define the same variable on many endpoints.

### To create a policy that defines a variable

1. Create a script file with `selang` deployment commands that define the variables. Use the following `selang` command to define each variable:

```
editres ACVAR ("variable_name") value("variable_value")
```

2. (Optional) Add `selang` commands that use the variable to the script file.

**Note:** You must define each variable in the policy before you refer to it in a subsequent rule in the policy. Use the following format to refer to the variable: "`<!variable>`"

3. Store the policy on the DMS.

### Example: Create a Policy That Defines a Variable

In this example, the following policy defines a variable named `jboss_home` that has a value of `/opt/jboss`, and creates a rule that authorizes user Mark to access any resource in the `/opt` directory that accesses through JBoss.

```
editres ACVAR ("jboss_home") value("/opt/jboss")
authorize FILE /opt/* uid(Mark) access(all) via(pgm("<!jboss_home>/jboss")
```

When the endpoint compiles the policy, it creates the following rule:

```
authorize FILE /opt/* uid(Mark) access(all) via(pgm(/opt/jboss/jboss))
```

### Example: Create a Policy That Defines Multiple Variable Values

The following policy defines a variable named `jboss_home` that has a value of `C:\JBoss`, adds the `C:\Program Files\JBoss` value to the `jboss_home` variable, and creates an access rule:

```
editres ACVAR ("jboss_home") value("C:\JBoss")
editres ACVAR ("jboss_home") value+("C:\Program Files\JBoss")
editres FILE ("<jboss_home>\bin") defacc(none) audit(a)
```

When the endpoint compiles the policy, it creates the following rules:

```
editres FILE ("C:\JBoss\bin") defacc(none) audit(a)
editres FILE ("C:\Program Files\bin") defacc(none) audit(a)
```

### Example: Use Variables to Deploy the Same Policy to Windows and UNIX Endpoints

The following example explains how you can use variables to deploy the same JBoss policy to Windows and UNIX endpoints, despite the different JBoss installation location on each operating system. This example defines two `jboss_home` variables that define the JBoss installation location for each operating system:

1. Define two `jboss_home` variables that define the JBoss installation location for each operating system.

- Create a policy that defines the JBoss installation location for Windows and deploy the policy to Windows endpoints:

```
editres ACVAR ("jboss_home") value("C:\JBoss")
```

- Create a policy that defines the JBoss installation location for UNIX and deploy the policy to UNIX endpoints:

```
editres ACVAR ("jboss_home") value("/opt/jboss")
```

2. Create a policy that uses the `jboss_home` variable to protect the JBoss installation location, and deploy the policy to Windows and UNIX endpoints:

```
editres FILE "<jboss_home>" defacc(none) audit(all)
```

- When a Windows endpoint compiles the policy it creates the following rule:

```
editres FILE "C:\JBoss" defacc(none) audit(all)
```

- When a UNIX endpoint compiles the policy it creates the following rule:

```
editres FILE "/opt/jboss" defacc(none) audit(all)
```

## View the Rules Associated with a Policy

Once a policy is stored on the DMS, you can view the rules in the deploy and undeploy scripts for each policy version.

### To view the rules associated with a policy

1. In CA Access Control Enterprise Management click Policy Management, then Policy subtab, and expand the Policy tree in the task menu on the left.

The Policy tasks appear.

2. Click View Policy.

The View Policy: Policy Search screen appears.

3. Define a scope for the search, then click Search.

A list of policies, which match the scope of the search you defined, appears.

4. Select the policy you want to view, then click Select.

The View Policy: *policyName* page appears. On the various tabs you can view the properties of the policy including, its name and description, deployment and undeployment scripts for the latest version, a list of all policy versions that exist for this policy, any policy dependencies, and generic information about the policy creation and update events.

5. Click the Version History tab.

A list of policy versions appears, each with a link to a deployment and undeployment script.

6. Do either of the following:

- Click the Deploy Script link.

A pop-up window with the deployment script appears.

- Click the UnDeploy Script link.

A pop-up window with the undeployment script appears.

**Note:** You can also use the `policydeploy` utility to perform this task. For more information about the `policydeploy` utility, see the *Reference Guide*.

## Import a Policy

When you import a policy, CA Access Control Enterprise Management exports the selang rules from a local CA Access Control database or PMDB, and creates and stores a policy that contains the rules on the DMS. This lets you convert the rules that protect an endpoint into a policy that can protect many endpoints, and helps you migrate a PMDB to advanced policy management.

**Note:** The endpoint or PMDB from which you export the rules must be on a host that has CA Access Control r12.0, or later, installed. To import a policy from earlier CA Access Control versions, upgrade the endpoint first.

### To import a policy

1. In CA Access Control Enterprise Management, do as follows:
  - a. Click Policy Management.
  - b. Click Policy subtab.
  - c. Expand the Policy tree in the task menu on the left.

The Policy Import task appears in the list of available tasks.

2. Click Policy Import.

The Host Login page appears.

3. Type the user name, password, and name of the PMDB or host that you want to export the rules from, and click Log In.

**Note:** Specify the PMDB name in the format *PMDBname@host*, for example, *master\_pmdb@example*

The Policy Import Process wizard appears at the General task stage.

4. Complete the following fields, and click Next:

#### **Name**

Defines the name of the policy. The name must be unique on the DMS (enforced) and in your enterprise (not enforced but you will not be able to deploy a policy to a host if a policy of the same name already exists).

#### **Description**

(Optional) Defines a business description (free text) of the policy. Use this field to record what this policy is for and any other information that helps you identify the policy.

### **Policy Classes**

Specifies the classes whose rules you want to export for inclusion in the policy. If you do not specify any classes in the Selected List column, all classes are exported and included in the policy.

### **Export dependent classes**

Specifies to export all the classes that are dependent on the classes that you specify in the Selected List column. If you do not select this option, CA Access Control exports only the classes that you specify in the Selected List column.

The Policy Script stage appears.

5. Review the exported rules and modify them as necessary, and click Next.

The Summary stage appears.

6. Click Finish.

The policy is created.

## **Assign a Stored Policy Version**

You can assign the latest finalized version of a multiple-rule policy to specific hosts or to host groups. Assigned policies are automatically deployed and you can monitor their status from the DMS.

**Note:** This procedure does not apply to login and configuration policies.

### **To assign a stored policy version**

1. In CA Access Control Enterprise Management click Policy Management, then Policy subtab, expand the Assignment tree in the task menu on the left, and click Assign Policy.

The Assign Policy wizard appears at the Policy Selection task stage.

2. Complete the wizard, then click Finish after you read the summary.

CA Access Control submits the policy assignment task. Once a policy is assigned to hosts (directly or through a logical host group membership), CA Access Control creates DEPLOYMENT tasks for each host to retrieve.

**Note:** You can also use the policydeploy utility to perform this task. For more information about the policydeploy utility, see the *Reference Guide*.

## Policy Maintenance

You can perform the following actions on a deployed policy:

- Unassign the policy from an assigned host
- Upgrade a host to the latest policy version
- Downgrade a host to an earlier policy version
- Verify that the policy is deployed without errors
- Delete a policy or a policy version

You perform these actions in CA Access Control Enterprise Management or using the `policydeploy` utility.

### Unassign an Assigned Policy

You can unassign an assigned policy from specific hosts or to host groups. Unassigned policies are automatically undeployed.

#### To unassign an assigned policy

1. In CA Access Control Enterprise Management click Policy Management, then Policy subtab, expand the Assignment tree in the task menu on the left, and click UnAssign Policy.

The UnAssign Policy wizard appears at the Policy Selection task stage.

2. Complete the wizard, then click Finish after you read the summary.

CA Access Control submits the policy assignment task. Once a policy is unassigned from hosts (directly or through a logical host group membership), CA Access Control creates DEPLOYMENT tasks for each host to retrieve.

**Note:** You can also use the `policydeploy` utility to perform this task. For more information about the `policydeploy` utility, see the *Reference Guide*.

## Upgrade Assigned Hosts to the Latest Policy Version

New policy versions are not sent automatically to assigned hosts or to hosts where the policy is deployed. You need to manually upgrade hosts where the policy is deployed to the latest policy version.

### To upgrade assigned hosts to the latest policy version

1. In CA Access Control Enterprise Management click Policy Management, then Policy subtab, expand the Assignment tree in the task menu on the left, and click Upgrade Policy.

The Upgrade Policy wizard appears at the Policy Selection task stage.

2. Complete the wizard, then click Finish after you read the summary.

CA Access Control submits the policy upgrade task. For the policy to be upgraded on a host, CA Access Control creates a DEPLOYMENT task for the host to retrieve.

**Note:** When you select host groups to upgrade, CA Access Control Enterprise Management lets you choose from only those host groups that contain hosts that have an older version of the policy deployed.

**Note:** You can also use the policydeploy utility to perform this task. For more information about the policydeploy utility, see the *Reference Guide*.

## Downgrade Assigned Hosts to a Particular Policy Version

If you inadvertently assigned the wrong policy version to one or more hosts, or if you want to go back to an older version of a policy on specific hosts, you can downgrade a policy.

### To downgrade assigned hosts to a particular policy version

1. In CA Access Control Enterprise Management click Policy Management, then Policy subtab, expand the Assignment tree in the task menu on the left, and click Downgrade Policy.

The Downgrade Policy wizard appears at the Policy Selection task stage.

2. Complete the wizard, then click Finish after you read the summary.

CA Access Control submits the policy downgrade task. For the policy to be downgraded on a host, CA Access Control creates a DEPLOYMENT task for the host to retrieve.

**Note:** You can also use the policydeploy utility to perform this task. For more information about the policydeploy utility, see the *Reference Guide*.

## Deleted Policies

You can delete a logical policy (GPOLICY object) or a policy version (POLICY object) from the DMS. When you delete a policy version, CA Access Control Enterprise Management also deletes the deployment and undeployment scripts (RULESET object) associated with the policy version. When you delete a logical policy, you delete every policy version associated with the logical policy, and their associated scripts.

You cannot restore a deleted logical policy or policy version.

## Policies That You Cannot Delete

You cannot delete a policy if:

- One or more of the policy's policy versions cannot be deleted.
- The policy is a prerequisite for another policy.  
You must remove any dependencies on a policy before you delete the policy.
- The policy is assigned or deployed on a host.  
You must unassign or undeploy the policy from the host before you delete the policy.

## Policy Versions That You Cannot Delete

You cannot delete a policy version if:

- The policy version is assigned or deployed on a host.  
You must unassign or undeploy the policy version from the host before you delete the policy version.
- The policy version has a status on the DMS.  
You must unassign or undeploy the policy version, or otherwise remove the policy version from the host, before you delete the policy version.
- The policy has a status of Undeployed with failures.  
You must remove this status before you delete the policy version.

## Delete a Policy

You can delete a policy from CA Access Control Enterprise Management when the policy is no longer assigned to a host or host group.

**Important!** When you delete a policy (GPOLICY object), CA Access Control Enterprise Management deletes all its policy versions (POLICY objects) and the RULESET object associated with each policy version.

### To delete a policy

1. In CA Access Control Enterprise Management click Policy Management, then the Policy subtab, and expand the Policy tree in the task menu on the left.  
The Policy tasks appear.
2. Click Delete Policy.  
The Delete Policy: Policy Search screen appears.
3. Define a scope for the search, and click Search.  
A list of policies, which match the scope of the search you defined, appears.
4. Select the policy you want to delete, and click Select.  
A message appears asking if you want to delete the policy.
5. Click Yes.  
The policy is deleted.

**Note:** You can also use the policydeploy utility to perform this task. For more information about the policydeploy utility, see the *Reference Guide*.

### More information:

[Policies That You Cannot Delete](#) (see page 78)

## Delete a Policy Version

You can delete saved policy versions (POLICY object) that you no longer need. When you delete a policy version (POLICY object), CA Access Control Enterprise Management deletes all deployment and undeployment scripts associated with the policy version.

To delete a policy version, run the following command:

```
policydeploy -delete name#xx [-dms list]
```

**-delete *name#xx***

Deletes the specified policy version.

**-dms *list***

(Optional) Specifies a comma-separated list of DMS nodes from which to delete the policy version. If you do not specify DMS nodes, the policydeploy utility uses the list of DMS nodes specified in the local CA Access Control database.

### Example: Delete an IIS 5 Protection Policy Version

The following example shows you how to delete the unassigned policy version IIS5#05 from the DMS. In this example, policy version IIS5#05 is not assigned to any hosts or host groups and is stored on the crDMS@cr\_host.company.com DMS node.

To delete the IIS 5 protection policy version, open a command prompt window and run the policydeploy utility:

```
policydeploy -delete IIS5#05
```

Policy version IIS5#05 is deleted from the crDMS@cr\_host.company.com DMS node.

## Variables

Variables let you deploy the same policy to endpoints that have different configurations and different operating systems. For example, you can use variables to deploy the same policy to Windows and Solaris endpoints despite the different CA Access Control installation location on each operating system.

---

## How You Create Variables

Variables are objects in the ACVAR class and can have more than one value. Each variable on an endpoint must have a unique name, and each variable in a policy must have a unique name. You use either of the following methods to create a variable:

- Use CA Access Control Endpoint Management to define a variable on an endpoint.
- Create a policy that defines a variable, and deploy the policy to many endpoints

**Important!** You can only create rules that use variables in policies. If you directly update the CA Access Control database with a rule that contains a variable, the database cannot compile the rule and CA Access Control cannot enforce the rule. You must define a variable before you refer to it in a policy script.

## Variable Types

CA Access Control supports user-defined and built-in variables:

- User-defined variables are variables that you define in the CA Access Control database.
- Built-in variables are variables that CA Access Control creates during installation. You cannot modify built-in variables.

### User-Defined Variables

CA Access Control supports the following user-defined variables:

#### Static variables

Define a fixed location on a CA Access Control endpoint.

You can define static variables that have the same name and different values, but each variable must exist on a separate endpoint and in a separate policy.

**Note:** If you do not specify a variable type when you create a variable, CA Access Control creates a static variable.

### Registry value variables

(Windows) Define a location on a CA Access Control endpoint based on a registry value.

**Note:** You can only define registry variables that point to REG\_SZ or REG\_EXPAND\_SZ registry types.

**Example:** The following rule defines a registry variable named jboss\_home:

```
editres ACVAR ("jboss_home") value("HKLM\Software\Jboss\home") type(regval)
```

When you deploy this rule in a policy, the Windows endpoint uses the value of the HKLM\Software\Jboss\home registry key to resolve the variable value.

### Operating system variables

Define a location on a CA Access Control endpoint based on an operating system environment value.

**Example:** The following rule defines an operating system variable named jboss\_home:

```
editres ACVAR ("jboss_home") value("JBOSS_HOME") type(osvar)
```

When you deploy this rule in a policy, the endpoint uses the value of the JBOSS\_HOME operating system environment variable to resolve the variable value.

## Built-In Variables

CA Access Control creates built-in variables in the CA Access Control database during the installation process. You cannot modify or delete built-in variables, but you can use built-in variables in policies. Built-in variables are dynamic and dependent on system settings on the CA Access Control endpoint. The value of a built-in variable changes when the corresponding system settings do.

**Note:** When you export a CA Access Control database, built-in variables are not included in the output. CA Access Control does not create built-in variables when you create a DMS or a PMDB.

CA Access Control supports the following built-in variables:

### <!HOSTNAME>

Identifies the fully qualified host name of the local computer.

### <!HOSTIP>

Identifies the host IP address or addresses.

### <!AC\_ROOT\_PATH>

Identifies the CA Access Control installation path.

### <!AC\_REGISTRY\_KEY>

(Windows) Identifies the CA Access Control root registry key.

### <!USER\_OS\_ADMIN>

Identifies the administrator of the operating system on the local computer.

### <!DOMAINNAME>

Identifies the domain name of the local computer.

### <!DNSDOMAINNAME>

Identifies the DNS domain name of the local computer.

### Example: Use a Built-in Variable in a Policy

This example creates a network resource rule:

```
authorize TCP 8333 uid(*) host(<!HOSTNAME>) access(WRITE)
```

When you deploy the policy to the endpoint host1.example.com and the endpoint compiles the policy, it creates the following rule:

```
authorize TCP 8333 uid(*) host(host1.example.com) access(WRITE)
```

## Guidelines for Using Variables

You should observe the following guidelines when you use variables:

- You cannot delete a variable that is used by another variable or by a policy.
- Variables can have multiple values. You can add and remove variable values.
- Variables can be nested. For example, the following rule defines a variable named `ac_data` that contains the built-in `<!AC_ROOT_PATH>` variable:

```
editres ACVAR ac_data value("<!AC_ROOT_PATH>\data")
```

When a Windows endpoint with a default CA Access Control installation compiles this rule, it creates the following rule:

```
editres ACVAR ac_data value("C:\Program Files\CA\AccessControl\data")
```

- Each variable can only have one type, for example, you cannot define a variable that is both a static variable and a registry value variable.
- You cannot deploy a policy that contains an undefined variable. If you deploy a policy with an undefined variable, CA Access Control changes the deployment status of the policy to Deploy Pending. To deploy the policy, you must define the undefined variable and redeploy the policy.

**Note:** To discover which variable in the policy is undefined, review the DEPLOYMENT object for the policy. CA Access Control checks for undefined variables regardless of whether you have enabled or disabled policy verification.

- CA Access Control cannot resolve rules that combine CA Access Control variables and Windows system variables. For example, CA Access Control cannot resolve the following rule that defines a variable named `var1`:

```
editres ACVAR var1 value("%SYSTEMROOT%\temp")
```

To create a policy that defines `%SYSTEMROOT%` as a CA Access Control variable and that protects `%SYSTEMROOT%\temp`, use the following rules:

```
editres ACVAR var1 value("SYSTEMROOT") type(osvar)
```

```
editres ACVAR var2 value("<lvar1>\temp")
```

- CA Access Control cannot resolve variables that are dependent on each other. For example, CA Access Control cannot resolve variables `var1` and `var2` in the following example:

```
editres ACVAR var1 value("<lvar2>")
```

```
editres ACVAR var2 value("<lvar1>")
```

- When you use a slash to define a directory in a variable, CA Access Control resolves the slash in the correct direction for Windows and UNIX endpoints.
- If you use selang rules to define a variable, you must use a policy to deploy the rules to an endpoint. If you use selang rules to directly update the CA Access Control database on the endpoint, CA Access Control cannot compile the rules. For example, if you have defined a variable named `jboss_home` on an endpoint, and you directly update the database with the following selang rule:

```
editres FILE <jboss_home> audit(all)
```

CA Access Control cannot compile the rule, but instead creates a FILE object named `<jboss_home>` in the database.

## How an Endpoint Resolves Variables

Variables let you deploy the same policy to endpoints that have different configurations and different operating systems. The following process explains how a CA Access Control endpoint resolves variables in a policy after you have created and deployed the policy:

1. When `policyfetcher` fetches the policy, CA Access Control checks that the variables in the policy are defined in the policy or in the CA Access Control database. *One* of the following occurs:
  - If the variable is not defined in the policy or in the database, CA Access Control changes the policy status to Deploy Pending.  
**Note:** To deploy the policy, you must define the undefined variables and redeploy the policy.
  - If the variable is defined in the policy or in the database, CA Access Control compiles the policy and enforces the rules it contains.
2. Every heartbeat, `policyfetcher` checks if a variable value has changed in the CA Access Control database. *One* of the following occurs:
  - If no variable values have changed, `policyfetcher` repeats Step 2.
  - If a variable value has changed, CA Access Control changes the policy status to Out of Sync for any policy on the endpoint that uses the changed variable.  
**Note:** To clear the Out of Sync status for the policy, you must redeploy the policy.

## Troubleshooting Policy Deployment

When you assign a policy to a host, the policy is not deployed on the assigned endpoint until policyfetcher retrieves the deployment task and runs the policy script. As a result, deployment errors may occur for different reasons when the policy is transferred or deployed at the endpoint.

To resolve policy deployment errors, advanced policy management provides you with troubleshooting actions. You can perform these actions using either CA Access Control Enterprise Management or the policydeploy utility. In CA Access Control Enterprise Management, the troubleshooting actions are located in the Policy sub-tab of the Policy Management tab.

The troubleshooting actions are as follows:

- **Redeploy**—Creates a new deployment task that contains the policy script and deploys the task to the endpoint.

Use this option when the policy deploys on the endpoint with errors. That is, selang policy script execution failed. You need to manually fix the reason for the script error on the endpoint before you can redeploy the policy.

**Note:** This option is only available in CA Access Control Enterprise Management, and is not supported in the policydeploy utility.

- **Undeploy**—Undeploys the policy from the specified endpoint without unassigning the policy from the corresponding host.

Use this option to remove any policies from the endpoint that are not assigned to the host on the DMS.

- **Reset**—Resets an endpoint. CA Access Control resets host status, undeploys all effective policies, and deletes all GPOLICY, POLICY, and RULESET objects.

Use this option to clean an endpoint, and its status on the DMS, from all policy deployments.

**Note:** This option does not remove DEPLOYMENT or GDEPLOYMENT objects from the endpoint or from the DMS, because you may need these objects for auditing purposes. You can use the dmsmgr -cleanup function to remove the DEPLOYMENT and GDEPLOYMENT objects after you reset the endpoint. After you reset an endpoint, you can assign policies to the endpoint as normal.

- **Restore**—Undeploys any policies on the specified host, then restores all the policies that should be deployed (assigned or directly deployed) on the host by creating new deployment tasks and sending the tasks to the host for execution.

Use this option when you re-install CA Access Control or the operating system on the endpoint, or when you restore an endpoint from a backup, to redeploy all the policies that the DMS indicates are effective on that endpoint.

## How to Remove Obsolete Endpoints

The DMS stores information about your enterprise. If you remove a computer from the enterprise when you uninstall CA Access Control from that computer, the DMS still contains a reference to that node. As a routine maintenance procedure, you should clean the DMS from these obsolete nodes.

To remove obsolete nodes, do one of the following:

- Run the `dmsmgr` utility on the DMS computer to perform a routine clean up:

```
dmsmgr -cleanup number_of_days -dms name
```

***number\_of\_days***

Defines the minimum number of days in which the CA Access Control node has been unavailable for.

- Manually delete a specific node by issuing the following `selang` command on the DMS computer:

```
rr HNODE HNODE_name
```

**Important!** When you delete a node, CA Access Control removes all the HNODE related deployment tasks, removes all the deployment tasks' packages (unless they have other deployment task members), and only then removes the HNODE object.

## View Deployment Audit Information

CA Access Control Enterprise Management provides an audit of your policy deployments. This audit gives you a view of your policy deployments—a descriptive list of deployment tasks. The list details what triggered each deployment task, when it was created, and what type of deployment was involved. For each deployment task, you can further explore the following details: which host and policy pair was the deployment task created for, the version of the policy that was deployed, the status of the deployment task (queued, succeeded, or failed), and the selang output (result of deploying the command).

### To view deployment audit information

1. In CA Access Control Enterprise Management, do as follows:
  - a. Click Policy Management.
  - b. Click Policy subtab.
  - c. Expand the Deployment tree in the task menu on the left.

The Deployment Audit task appears in the list of available tasks.
2. Click Deployment Audit.

The Deployment Audit page appears.
3. Define a scope for the deployment audit, then click GO.

CA Access Control Enterprise Management retrieves information about deployments that are in the scope you defined and displays the results after a short delay.
4. (Optional) Click on the trigger of a deployment to view more information about the associated deployment tasks.

## How Policy Deviation Calculations Work

Advanced policy management lets you see the difference between the access rules that should be deployed on an endpoint (as a result of policy deployment) and the actual rules that have been successfully deployed on the same endpoint. It also resolves property additions and changes made to policy objects. This lets you resolve problems associated with the deployment of your policies.

When the policy deviation calculator runs on an endpoint, it performs the following actions:

1. Retrieves from the local host the list of rules that should be deployed on the endpoint.

These are the rules that are specified for each of the deployed policies, as specified in the local RULESET object that is associated with the POLICY object for each deployed policy version.

2. Checks that each of these rules is applied to the endpoint.

**Important!** The deviation calculation does not check whether native rules are applied. It also ignores rules that remove objects (user or object attributes, user or resource authorization, or actual users or resources) from the database. For example, the calculation cannot verify whether the following rule is applied:

```
rr FILE /etc/passwd
```

3. (Optional) Compares between the local policy objects and the ones on the DMS.

Normally, the deviation calculator checks for deviations only on the local host. If you specify the *-strict* option, the deviation calculator also compares the policies associated with the local HNODE object to the policies associated with HNODE object on the DMS. It compares the following:

- a. List of policies associated with the HNODE object representing the local host
  - b. Policy state of each POLICY object associated with the HNODE object
  - c. Policy signature of each POLICY object associated with the HNODE object
4. Outputs the following two files:

- *ACInstallDir/data/devcalc/deviation.log*

Log and error messages collected during the last deviation calculation.

- *ACInstallDir/data/devcalc/deviation.dat*

List of policies and their deviations. You can get the contents of this file using the *selang* command *get devcalc* on the endpoint.

**Note:** CA Access Control also sends audit events which can be viewed using *seaudit -a*. For more information about the *seaudit* utility, see the *Reference Guide*.

5. Notifies the DMS of any deviations found.

Notifications are sent to the DMS through the DHs specified for the local CA Access Control database.

## Deviation Calculation Trigger

You should regularly perform a deviation calculation so that the DMS contains recent information about policy deviation status. If you enable advanced policy management on your endpoint, `policyfetcher` triggers the deviation calculator after each heartbeat.

**Note:** The deviation calculation that runs by default does not consider items that were added to the endpoint. To view these items, change the `devcalc_command` configuration setting to run the deviation calculation in *precise* mode.

We recommend that you modify the `policyfetcher` settings so that a policy deviation calculation occurs in an interval that supports your requirements.

## Policy Deviation Log and Error File

The policy deviation calculation writes a new log during each deviation calculation. This log also contains error messages and is stored in `ACInstallDir\data/devcalc/deviation.log`

Use this log when the deviations you see in your reports (that are retrieved from the DMS) are not gathered from the last time a deviation calculation should have run. It can help you diagnose why the deviation calculation results were not sent to the DMS.

### Example: Deviation log and error file

The following is an example deviation log and error file:

```
start time: Mon Jan 23 13:04:48 2006
WARNING:\failed to retrieve DH host name, deviation will be stored locally\
found deviation(s) for policy 'iis8#02'
end time: Mon Jan 23 13:05:04 2006
```

## Policy Deviation Data File

The policy deviation calculation writes a data file that contains a list of policies and their deviations. This data file is stored in *ACInstallDir/data/devcalc/deviation.dat*

**Note:** The list of policies included in the data file depends on the policies that a deviation is calculated for (by default, all the policies and all policy versions on the endpoint).

**Important!** The deviation calculation does not check whether native rules are applied. It also ignores rules that remove objects (user or object attributes, user or resource authorization, or actual users or resources) from the database. For example, the calculation cannot verify whether the following rule is applied:  
rr FILE /etc/passwd

The deviation status is sent (whether a deviation exists or not) to the DMS but the actual deviation is stored locally. When a report is created, the actual deviation results can be retrieved from this file and added to the report.

The following lines can appear in the policy deviation data file:

### Date

Displays a time stamp for the deviation calculation. A date line is always the first line in the deviation report.

**Format:** DATE, *DDD MMM DD hh:mm:ss YYYY*

### Strict

Specifies that the deviation calculation was run with the `-strict` option.

**Format:** STRICT, *DMS@hostname, policy\_name#xx, [1|0]*

[1|0] signifies whether a deviation was found (1) between the policies associated with the local HNODE object and the ones associated with the HNODE object on *DMS@hostname* (the first available DMS), or not (0).

### Policy Start

Starts a policy block, which defines the deviation for this policy version.

**Format:** POLICYSTART, *policy\_name#xx*

### Difference

Describes a deviation that was found for a policy. The name of the policy for which the deviation applies to is the nearest *policy line* above this line.

There are eight types of deviations, four showing missing elements and four showing added elements, which are described in the following table:

Deviation Type	Format
Class not found	DIFF, <i>-(class_name), (*), (*), (*)</i>
Object not found	DIFF, <i>(class_name), -(object_name), (*), (*)</i>
Object added	DIFF, <i>(class_name), +(object_name), (*), (*)</i>
Property not found	DIFF, <i>(class_name), (object_name), -(property_name), (*)</i>
Property added	DIFF, <i>(class_name), (object_name), +(property_name), (*)</i>
Property value missing	DIFF, <i>(class_name), (object_name), (property_name), -(expected_value)</i>
Property value added	DIFF, <i>(class_name), (object_name), (property_name), +(value)</i>

**Note:** When the deviation calculator detects a missing class, it also creates a deviation line for all missing objects, properties, and values.

### Policy End

Ends a policy block which defines the deviation for this policy.

**Format:** POLICYEND, *policy\_name#xx*, [1|0]

[1|0] signifies whether a deviation was found (1) or not (0).

### Warning

Describes a warning.

**Format:** WARNING, "*warning\_text*"

### Example: Deviation data file

The following example shows an excerpt from a deviation data file:

```
Date, Sun Mar 19 08:30:00 2006
WARNING, "failed to retrieve DH host name, deviation will be stored locally"
POLICYSTART, iis8#02
DIFF, (USER), (iispers), (*), (*)
POLICYEND, iis8#02, 1
```

## Deviations Showing Missing Elements

The deviation calculator differentiates between missing elements and additions of new elements. Missing elements refer to CA Access Control elements that are explicitly defined in a specified policy, but do not exist on the local host. These missing elements can be: classes, objects, properties, and values.

Any combination of missing elements defines a hierarchal requirement. For example, if Policy1 has the following rule:

```
eu mytestuser2 operator
```

The deviation calculator asserts that the following implicit requirements are met:

- Class USER must exist  
The rule defines a user, which belongs to the USER class.
- USER object mytestuser2 must exist  
The mytestuser2 object of the USER class is explicitly referred to by the rule.
- Property OBJ\_TYPE must exist  
The rule uses the operator parameter to set the OBJ\_TYPE parameter of the USER object.
- The value Operator is assigned to the OBJ\_TYPE property  
The rule explicitly sets this value.

## Deviations Showing Added Elements

The deviation calculator differentiates between missing elements and additions of new elements. Added elements refer to CA Access Control elements that are defined locally, but do not exist in the specified policies. These added elements can be: classes, objects, properties, and values.

An addition deviation will be included if a local exception has added a new:

- Value to a property of an object mentioned within a policy.
- Property to an object mentioned within a policy.

**Note:** New objectsâ€”those which are not mentioned within any policyâ€”will not be considered as an addition; this also applies to new classes.

## Deviations Showing Modified Elements

Deviations showing modified elements occur when no single deviation line in the deviation data file shows a modification. To identify a modification, you need to look for sequential removal and addition lines that apply to the same element. For example, in the following extract from a deviation data file, mytestuser has been modified from having the Operator value to having both the Auditor and Administrator values:

```
DIFF, (USER), (mytestuser2), (OBJ_TYPE), -(Operator)
DIFF, (USER), (mytestuser2), (OBJ_TYPE), +(Auditor)
DIFF, (USER), (mytestuser2), (OBJ_TYPE), +(Administrator)
```

# Chapter 5: Managing Privileged Accounts

---

This section contains the following topics:

[Privileged User Password Management](#) (see page 95)

[What Are Privileged Accounts?](#) (see page 95)

[Privileged Access Roles and Privileged Accounts](#) (see page 96)

[How to Set Up Privileged Accounts](#) (see page 102)

[Privileged Account Administration](#) (see page 123)

## Privileged User Password Management

Privileged User Password Management (PUPM) is the process through which an organization secures, manages, and tracks all activities associated with the most powerful accounts within the organization.

PUPM provides role-based access management for privileged accounts on target endpoints from a central location. PUPM provides secure storage of privileged accounts and application ID passwords and controls access to privileged accounts and passwords based on policies you define. Further, PUPM manages privileged accounts and application password lifecycle and lets you remove passwords from configuration files and scripts.

## What Are Privileged Accounts?

Privileged accounts are accounts that are not assigned to individual accounts and have access to mission critical data and processes. System Administrators use privileged accounts to perform administrative tasks on target endpoints and privileged accounts are also embedded in service files, scripts, and configuration files to facilitate unattended processing.

Privileged accounts are difficult to control because they are not assigned to an identifiable user, which renders auditing and tracing difficult. This is a vulnerability that exposes mission critical systems to accidental harm and malicious activities. Organizations must reduce the number of these privileged accounts to a minimum that satisfies operational needs.

Administrators can bypass most internal controls to access restrict information and cause denial of service (DOS) attacks by deleting or rendering applications inaccessible. Further, the activities performed using privileged accounts are difficult to correlate to an identifiable user account.

## Privileged Access Roles and Privileged Accounts

You use privileged access roles to specify the PUPM tasks that each user can perform in CA Access Control Enterprise Management and the privileged accounts that each user can check in and check out. CA Access Control Enterprise Management comes with predefined privileged access roles. You can modify the predefined roles to suit your enterprise, or create new roles entirely.

When a user logs in to CA Access Control Enterprise Management, they see only the tasks and privileged accounts that correspond to their role.

### **More information:**

[Privileged Access Roles](#) (see page 22)

## Using Privileged Access Roles

You should consider the following points before you set up PUPM for your enterprise:

- We recommend that you use Active Directory as your user store and modify the member policy for each role to point to a group in Active Directory. To add or remove users from a role that you set up in this manner, you add or remove users from the Active Directory group. This simplifies administrative overhead.
- If you use Active Directory as your user store, you cannot use CA Access Control Enterprise Management to create or delete users or groups. You can only create and delete users and groups in Active Directory.
- If a role has a member policy defined for it, and a PUPM User Manager assigns that specific role to a user but the user does not fit the scope of the member policy, then CA Access Control does not assign the role to the user. The rules defined in the member policy override the PUPM User Manager assignment.
- To respond to a privileged account request, a user must have the PUPM Approver role and be the requesting user's manager. You can specify a user's manager when you modify the user in CA Access Control Enterprise Management.
- Out-of-the-box, CA Access Control assigns the Break Glass, PUPM Approver, Privileged Account Request, and PUPM User roles to all users. To change this behavior, modify the member policy for each role.
- You can modify scope rules for a role to define the specific endpoints and privileged accounts that the role can access. Scope rules let you implement fine-grained access to privileged accounts across your enterprise. The scope rules are defined in the member policy of a role.

**More information:**

[Member Policies](#) (see page 27)

## How Privileged Access Roles Affect Check Out and Check In Tasks

You check out privileged accounts to perform administrative tasks on endpoints, and check in privileged accounts when you have finished working on the endpoint.

**Important!** A user must have an endpoint privileged access role to perform tasks on an endpoint type. Endpoint privileged access roles specify the types of endpoints on which a user can perform tasks using a privileged access account. For example, if you assign the Windows Agentless endpoint privileged access role to a user, the user can perform endpoint tasks on Windows endpoints that use privileged accounts. If you assign the Break Glass, Privileged Account Request, or PUPM User role to a user, you must also assign the user an endpoint privileged access role, or the user will not be able to complete any tasks.

The following process describes how privileged access roles affect the check out and check in tasks that users perform:

1. A user checks out a privileged account, using one of the following methods:
  - A user with the PUPM User role checks out a privileged account.
  - A user with the Break Glass role performs a break glass checkout.
  - An application on a CA Access Control endpoint checks out a privileged account.

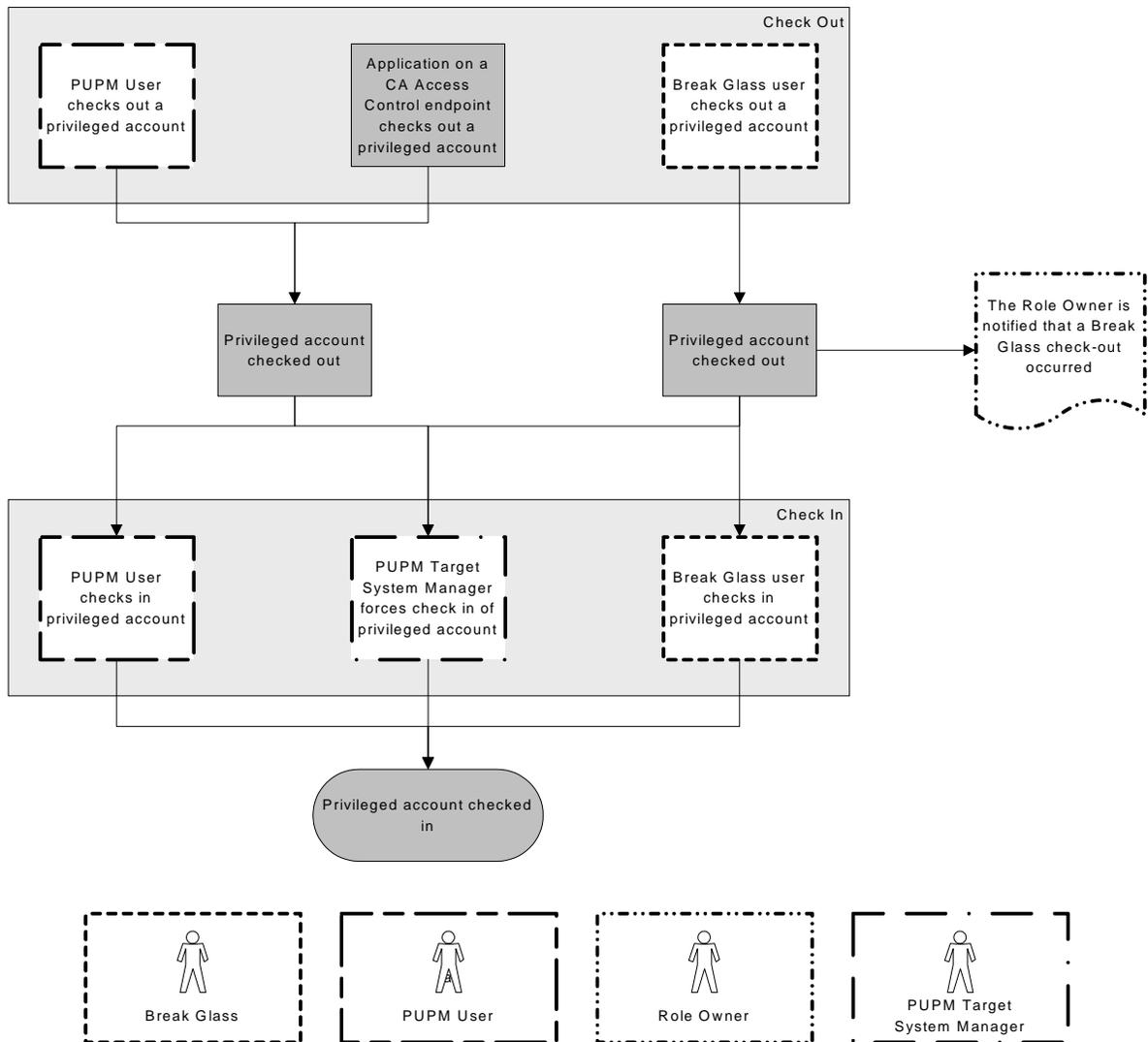
The privileged account is checked out.

**Note:** If a user performs a break glass checkout, CA Access Control sends the role owner a notification message. The role owner can choose to add information to this message for auditing purposes.

2. A user checks in a privileged account, using one of the following methods:
  - The user with the PUPM User role checks in the privileged account.
  - The user with the Break Glass role checks in the privileged account.
  - The application on the CA Access Control endpoint checks in the privileged account.
  - A user with the PUPM Target System Manager role forces the check in of the privileged account.

The privileged account is checked in.

The following diagram illustrates how privileged access roles affect the check in and check out tasks that users perform:



### Example: Check Out a Privileged Account

You have the System Manager role. You assign Joe the PUPM User role and the Windows Agentless Connection endpoint privileged access role. Joe logs in to CA Access Control Enterprise Management, and sees only the tasks that let him check out and check in privileged accounts on Windows endpoints.

### Example: Break Glass for a Privileged Account

You have the System Manager role. You assign Fiona the Break Glass role and the Oracle Server Connection endpoint privileged access role. Fiona needs immediate access to an Oracle endpoint. She logs in to CA Access Control Enterprise Management and sees only the tasks that let her perform a break glass check out for accounts on Oracle endpoints. Fiona performs a break glass check out for an Oracle privileged account, and CA Access Control sends a notification message to the Break Glass role owner.

**Note:** By default, the Break Glass role owner is the System Manager admin role.

## How Privileged Access Roles Affect Privileged Account Request Tasks

If a user cannot check out a privileged account and does not need immediate access to the account, the user can submit a privileged account request. The user's manager can approve or reject the privileged account request. This topic explains what privileged access roles a user needs to perform privileged account request tasks.

**Important!** A user must have an endpoint privileged access role to perform tasks on an endpoint type. Endpoint privileged access roles specify the types of endpoints on which a user can perform tasks using a privileged access account. For example, if you assign the Windows Agentless endpoint privileged access role to a user, the user can perform endpoint tasks on Windows endpoints that use privileged accounts. If you assign the Break Glass, Privileged Account Request, or PUPM User role to a user, you must also assign the user an endpoint privileged access role, or the user will not be able to complete any tasks.

The following process describes how privileged access roles affect the privileged account request tasks that a user can perform:

1. A user with the Privileged Account Request role requests access to a privileged account.
2. CA Access Control sends the privileged account request to the user's manager, who also has the PUPM Approver role.

**Note:** A user must have the PUPM Approver role *and* be the user's manager to receive the privileged account request.

3. The user with the PUPM Approver role responds to the privileged account request, and does *one* of the following:
  - Rejects the privileged account request.

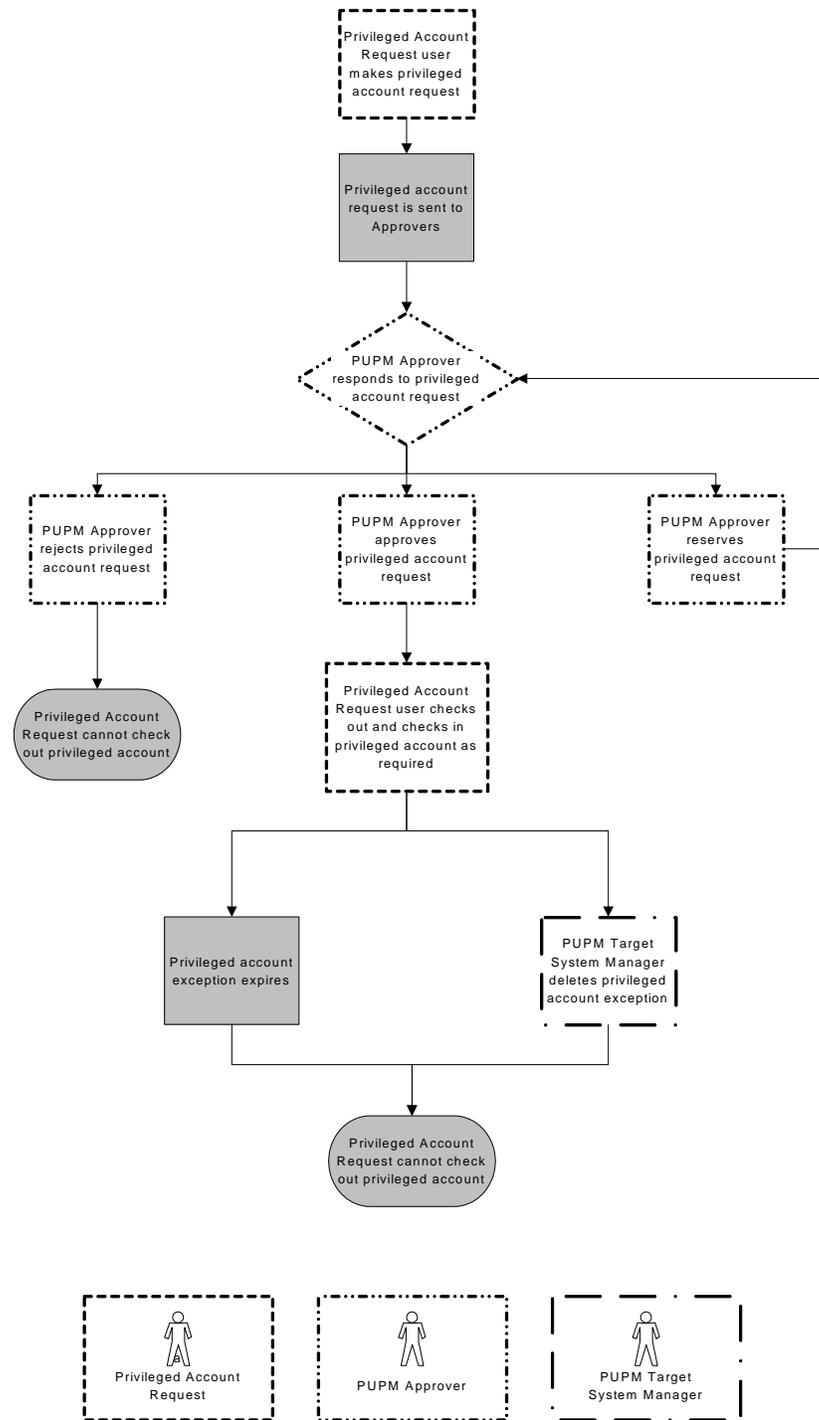
The user with the Privileged Account Request role cannot check out the privileged account.
  - Reserves the privileged account request.

No other user can approve or reject the privileged account request. The user with the Privileged Account Request role cannot check out the privileged account until the PUPM Approver chooses to approve the request.
  - Approves the privileged account request.

The user with the Privileged Account Request role is granted a privileged account exception, and can check out and check in the privileged account.
4. The privileged account exception expires, for one of the following reasons:
  - The expiration time specified in the privileged account exception is reached.
  - A user with the PUPM Target System Manager role deletes the privileged account exception.

The user with the Privileged Account Request role can no longer check out the privileged account.

The following diagram illustrates the how privileged access roles affect the privileged account request tasks that a user can perform:



### Example: Make and Respond to a Privileged Account Request

You have the System Manager role. You assign Alice the Privileged Account Request role and the SSH Device Connection endpoint privileged access role. Bob is Alice's manager, and you assign Bob the PUPM Approver role.

Alice logs in to CA Access Control Enterprise Management, and sees only the tasks that let her submit a privileged account request for accounts on UNIX endpoints. Alice submits a privileged account request for the example\_ux account on a UNIX endpoint.

Bob logs in to CA Access Control Enterprise Management, and sees only the tasks that let him respond to privileged account requests. Bob approves Alice's privileged access request and specifies that the privileged account exception is valid until 6pm. Alice can now check in and check out the example\_ux privileged account. At 6pm, the privileged account exception expires and Alice can no longer check out the example\_ux privileged account.

## How to Set Up Privileged Accounts

Privileged User Password Management (PUPM) is the process through which an organization secures, manages, and tracks all activities associated with the most powerful accounts within the organization. Before you can begin using privileged account passwords, you complete several steps that set up CA Access Control Enterprise Management for PUPM. Users can then start working with the privileged accounts that you define.

The following process explains the tasks that users in your enterprise must complete to set up privileged accounts. Users must have the specified role to complete each process step. A user with the System Manager admin role can perform every task in this process.

**Note:** Before you begin this process, verify that email notification is enabled in CA Access Control Enterprise Management. If CA Access Control Enterprise Management cannot display a password to a user, it emails the password to the user instead.

To set up privileged accounts, users do the following:

1. The PUPM Target System Manager creates password policies. Password policies set password rules and limitations for privileged accounts.
2. The PUPM Target System Manager creates endpoints in CA Access Control Enterprise Management. Endpoints are devices that are managed by privileged accounts. You can create endpoints in CA Access Control Enterprise Management or use the PUPM feeder to import endpoints.

**Note:** The CA Access Control Enterprise Management installation process installs and configures a default Java Connector Server (JCS) as part of the Distribution Server. An installed and configured Java Connector Server (JCS) must exist before you use PUPM for CA Access Control endpoint types. To work with CA Identity Manager connectors you need to create a Connector Server of type Identity Manager Provisioning.

3. The PUPM Target System Manager creates privileged accounts for each endpoint. Creating privileged accounts lets CA Access Control Enterprise Management manage the accounts. You can create privileged accounts in CA Access Control Enterprise Management or use the PUPM feeder to import privileged accounts.
4. (Optional) The System Manager creates applications for CA Access Control endpoints. Applications let you replace hard-coded passwords in scripts with privileged account passwords that the PUPM Agent obtains from CA Access Control Enterprise Management.
5. The PUPM Policy Manager modifies the member policies of privileged access roles. Member policies define the users that can carry out the tasks in a role.

**Note:** If you use Active Directory as your user store, we recommend that you modify each member policy to point to a corresponding Active Directory group. You can then add or remove users from a role by adding or removing them from the corresponding Active Directory group. This greatly simplifies administrative overhead.

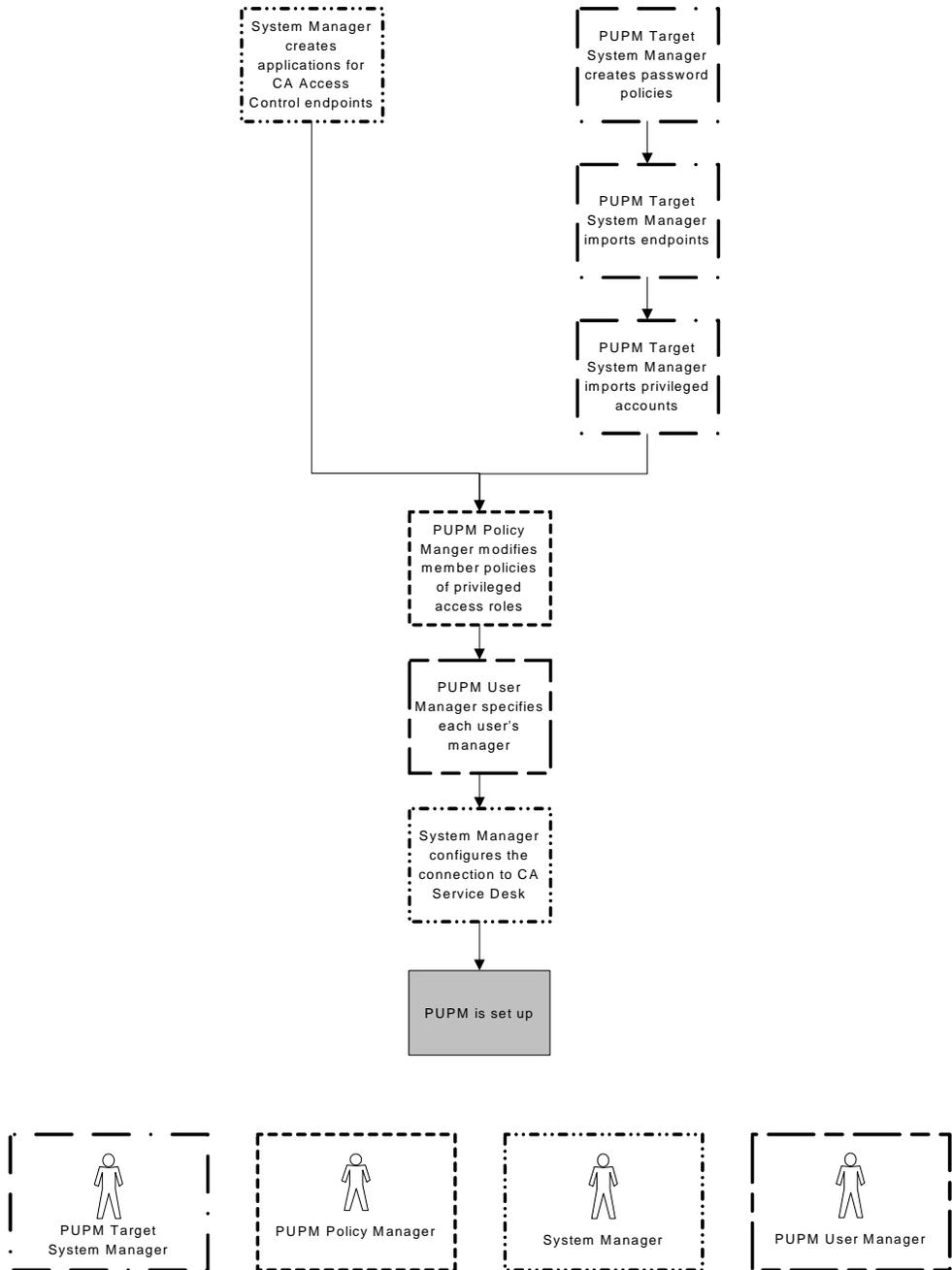
6. (Embedded user store) The PUPM User Manager specifies the manager of each user.

**Note:** Only a manager can approve privileged account requests that the user makes.

7. (Optional) The System Manager configures the connection to CA Service Desk Manager.

Integrating with CA Service Desk Manager lets you create multiple approval processes for privileged account requests.

The following diagram illustrates the privileged access role that performs each process step:



## Email Notification of Privileged Account Passwords

Occasionally, CA Access Control Enterprise Management may hang for longer than 20 seconds when a user tries to check out a password, for example, if the network is slow. If CA Access Control Enterprise Management hangs for longer than 20 seconds, the screen times out and the password is not displayed to the user. CA Access Control Enterprise Management emails the password to the user instead.

To help ensure that the user receives the password, do the following:

- Configure email notification settings for CA Access Control Enterprise Management.
- Verify that a valid email address is recorded in the user store for each PUPM user.

**Note:** For more information about configuring email notifications, see the *Implementation Guide*.

## Create a Password Policy

A password policy for privileged accounts is a set of rules and restrictions that determine permissible privileged account passwords. For example, you can configure the policy to mandate passwords that are at least eight characters long and contain a number and a letter. Password policies also determine an interval at which CA Access Control Enterprise Management automatically creates a new password for the account.

**Note:** CA Access Control Enterprise Management comes with a predefined password policy that you can use. We recommend that you define password policies that are appropriate for each of your endpoints and adhere to your security requirements.

### To create a password policy

1. In CA Access Control Enterprise Management, click Privileged Accounts, Password Policy, Create Password Policy.

The Create Password Policy: Configure Standard Search Screen page appears.

2. (Optional) Select an existing password policy to create the password policy as a copy of it, as follows:
  - a. Select Create a copy of an object of type Privileged Account, and click Search.

The list of password policies appears.

- b. Select the object you want to use as a basis for the new password policy.

3. Click OK.

The Create Password Policy task page appears. If you created the password policy from an existing object, the dialog fields are pre-populated with the values from the existing object.

4. Type a name and an optional description for the password policy.

5. (Optional) Clear Enabled.

By default, new password policies are enabled. If the policy you are creating is not approved yet, you can leave it disabled.

6. Define the password composition rules.

7. (Optional) Define a password expiration interval.

This is a regular interval at which CA Access Control Enterprise Management changes passwords automatically. By default, the expiration interval is disabled (set to zero).

8. Click Submit.

CA Access Control Enterprise Management creates the password policy.

**More Information:**

[Password Composition Rules](#) (see page 106)

## Password Composition Rules

When you create a password policy, you can define the content requirements for new passwords.

**Important!** When you configure password composition rules, consider the maximum password length when you determine values for character requirements. If the total number of required letters and or digits exceeds the maximum password length then all passwords are rejected.

CA Access Control Enterprise Management provides the following password composition rules for privileged accounts:

**Minimum password length**

Defines the minimum number of characters that passwords must contain.

**Maximum password length**

Defines the maximum number of characters that passwords can contain.

**Maximum repeating characters**

Defines the maximum number of repeating characters passwords can contain.

For example, if you set this value to 3, the string "aaaa" cannot appear in the password but "aaa" can.

**Upper case letters (u for pattern)**

Specifies whether passwords can contain uppercase letters and, if so, defines the minimum number of those that passwords must contain.

**Lower case letters (c for pattern)**

Specifies whether passwords can contain lowercase letters and, if so, defines the minimum number of those that passwords must contain.

**Letters (l for pattern)**

Specifies whether passwords can contain alphabetic characters and, if so, defines the minimum number of those that passwords must contain.

**Digits (d for pattern)**

Specifies whether passwords can contain digits and, if so, defines the minimum number of those that passwords must contain.

**Letters or digits (a for pattern)**

Specifies whether passwords can contain alphanumeric characters and, if so, defines the minimum number of those that passwords must contain.

**Punctuation (p for pattern)**

Specifies whether passwords can contain punctuation or special (non-alphanumeric) characters and, if so, defines the minimum number of those that passwords must contain.

**Any (\* for pattern)**

Specifies that passwords can contain any characters. If you select this option, CA Access Control Enterprise Management automatically selects all other character content definitions.

**Use Pattern**

Specifies that, instead of defining the character content definitions, you define a pattern that the password must use.

**Examples:**

- **uuuuu**—matches ASDKF or IUTYE
- **ucdddp**—matches Rv671\* or Uc194^

- \*\*\*\*\*—matches lkI&5Jj@ or sffIU\*&1
- IIIlaaaa—matches yuUI1Uo3 or qWcV1Er6

### Prohibited Characters

Defines the characters that cannot be used when creating or modifying a privileged account password.

## How the PUPM Feeder Works

The PUPM feeder lets you create or modify many PUPM endpoints or privileged accounts in a single step. Understanding how the PUPM feeder works helps you configure PUPM in the most suitable way for your enterprise, and helps you troubleshoot any problems that may occur.

The following process explains how the PUPM feeder works:

1. You, or an automated process, create and save one or more CSV files in the polling folder.

Each line in the CSV file represents a task to create or modify a PUPM endpoint or privileged account. You create separate CSV files for endpoints and for privileged accounts.

2. When the polling task starts, the PUPM feeder uploads the CSV files in the polling folder to CA Access Control Enterprise Management. You can configure the polling task to run at a specified time, or you can start the polling task manually.

**Note:** If the PUPM feeder cannot rename a file, the file cannot be processed. The unprocessed CSV file remains in the polling folder.

3. CA Access Control Enterprise Management renames the CSV file *original\_timestamp.csv*, and moves the file to the processed files folder.

**Note:** *original* is the name of the original CSV file, and *timestamp* is a timestamp that indicates when the file was processed. For example, if you name the original CSV file *endpoints.csv*, CA Access Control Enterprise Management names the file in the processed file folder *endpoints\_091209130256.csv*.

4. CA Access Control Enterprise Management processes each line in the CSV file in turn. For each line in the CSV file, the following happens:
  - If CA Access Control Enterprise Management can complete the task, it:
    - Completes the task, for example, creates an endpoint.
    - Creates an audit record for the task.
  - If CA Access Control Enterprise Management cannot complete the task, it:
    - Copies the line in the CSV file to a CSV file in the error files folder.
    - Adds a column named FAILURE\_REASON to the CSV file in the error files folder.
    - Adds the reason why the task failed to the FAILURE\_REASON column.
    - Creates an audit record for the task.

The CSV file in the error files folder provides an easy way for you to review failed tasks. The name of this file is also *original\_timestamp.csv*.

**Note:** The CSV file in the processed files folder lists all processed tasks but it does not specify the status of the task. That is, if the task is completed or failed.

5. CA Access Control Enterprise Management repeats Step 4 for each line in the CSV file.

**More information:**

[Configure the Feeder Properties File](#) (see page 110)

## How to Import PUPM Endpoints and Privileged Accounts

You use the PUPM feeder to import many PUPM endpoints and privileged accounts into CA Access Control Enterprise Management in a single step. You can also use the PUPM feeder to create or modify PUPM endpoints and privileged accounts.

**Note:** You cannot use the PUPM feeder to delete PUPM endpoints and privileged accounts.

To import PUPM endpoints and privileged accounts into CA Access Control Enterprise Management, do the following:

1. Configure the feeder properties file.

The feeder properties file specifies the polling interval and the name and location of the polling folder, processed file folder, and error file folder.

2. Do one or both of the following:

- Create an endpoint CSV file.
- Create a privileged account CSV file.

Each line in the CSV file represents a task to create or modify a PUPM endpoint or privileged account. You must create separate endpoint and privileged account CSV files.

**Note:** You can configure an automated process in another application to create the CSV file.

3. (Optional) Start the polling task.

When the polling task starts, the PUPM feeder uploads the CSV files in the polling folder to CA Access Control Enterprise Management, which then processes the CSV files.

**Note:** If you do not manually start the polling task, the PUPM feeder checks for files in the polling folder at the time specified in the feeder properties file.

4. When CA Access Control Enterprise Management completes processing the CSV file, review the CSV file in the error files folder for failed tasks.

This file lists tasks that failed and tasks that CA Access Control Enterprise Management could not process.

5. Correct the errors in the file and save the file to the polling folder.
6. Start the polling task.
7. Repeat Steps 4-6 until all managed objects are imported.

### Configure the Feeder Properties File

The feeder properties file specifies the polling interval and the name and location of the polling folder, processed file folder, and error file folder. JBoss reads the feeder properties file each time it starts.

#### To configure the feeder properties file

1. Stop JBoss Application Server if it is running.
2. Open the feeder properties file in a text-based editor. The file is located at the following location, where *JBoss\_home* is the location in which you installed JBoss:

*JBoss\_home*/server/default/deploy/IdentityMinder.ear/custom/ppm/default/feeder.properties

3. Edit *one* of the following parameters:

**FOLDER\_POLLING\_INTERVAL\_IN\_MINUTES**

Defines the interval, in minutes, at which the PUPM feeder polls the polling folder.

**Limits:** 1-60

**Default:** 60

**FOLDER\_POLLING\_CRON\_EXPR**

Defines the times at which the PUPM feeder polls the polling folder. Specify this parameter as a cron expression.

**Important!** If you use this parameter, remove the comment mark (#) from the FOLDER\_POLLING\_CRON\_EXPR line, and add a comment mark at the start of the FOLDER\_POLLING\_INTERVAL\_IN\_MINUTES line.

**Example:** FOLDER\_POLLING\_CRON\_EXPR=0 0 23 ? \* MON-FRI

This example specifies that the PUPM feeder polls the polling folder at 11 pm Monday through Friday.

The polling interval is configured.

4. (Optional) Edit the following parameters:

**FOLDER\_FOR\_POLLING**

Defines the polling folder—the folder that the PUPM feeder polls for CSV files.

**Default:**

*JBoss\_home/server/default/deploy/IdentityMinder.ear/custom/ppm/feeder/waitingToBeProcessed*

**Note:** This folder must be located on the Enterprise Management Server computer. You must specify the absolute file path to this folder.

**FOLDER\_FOR\_PROCESSED\_FILES**

Defines the processed files folder—the folder that the PUPM feeder moves CSV files to after it processes them.

**Default:**

*JBoss\_home/server/default/deploy/IdentityMinder.ear/custom/ppm/feeder/processed*

**Note:** This folder must be located on the Enterprise Management Server computer. You must specify the absolute file path to this folder.

### **FOLDER\_FOR\_ERROR\_FILES**

Defines the error files folder—the folder to which the PUPM feeder moves CSV files that it cannot process.

#### **Default:**

*JBoss\_home/server/default/deploy/IdentityMinder.ear/custom/ppm/feeder/failedToSubmit*

**Note:** This folder must be located on the Enterprise Management Server computer. You must specify the absolute file path to this folder.

The names of the polling folders are configured.

5. Save and close the file.

The feeder properties file is configured.

6. Restart JBoss Application Server.

### **Example: Feeder Properties File**

The following example configures the PUPM feeder to poll the polling folder every 30 minutes, and defines the location of the polling folder, processed files folder, and the error files folder:

```
# feeder folder polling job configuration
# folder specified as FOLDER_FOR_POLLING will be checked every
FOLDER_POLLING_INTERVAL_IN_MINUTES minutes e.g. 60 equals every 1 hour (max value is every hour)
FOLDER_POLLING_INTERVAL_IN_MINUTES=30
# if cron expression is supplied remark the FOLDER_POLLING_INTERVAL_IN_MINUTES key
# FOLDER_POLLING_CRON_EXPR=
FOLDER_FOR_POLLING=C:\feeder\waitingToBeProcessed
FOLDER_FOR_PROCESSED_FILES=C:\feeder\processed
FOLDER_FOR_ERROR_FILES=C:\feeder\failedToSubmit
```

### **Create an Endpoint CSV File**

Each line in the endpoint CSV file represents a task to create or modify an endpoint in CA Access Control Enterprise Management.

**Important!** When you create the CSV file, verify that no other application uses the file and that the file can be renamed. The PUPM feeder processes only CSV files that can be renamed.

#### **To create the endpoint CSV file**

1. Create a CSV file and give it an appropriate name.

**Note:** We recommend that you create a copy of a sample endpoint CSV file. The sample files are located in the following directory, where *ACServer* is the directory in which you installed the Enterprise Management Server:

*ACServer/IAMSuite/AccessControl/tools/samples/feeder*

2. Create a header row that specifies the names of the endpoint attributes.

The names of the endpoint attributes are as follows. Some endpoint attributes are valid only for certain endpoint types:

**OBJECT\_TYPE**

Specifies the type of the object to import.

**Value:** ENDPOINT

**%FRIENDLY\_NAME%**

Defines the name that you refer to this endpoint by in CA Access Control Enterprise Management.

**DESCRIPTION**

Defines any information that you want to record for this endpoint.

**ENDPOINT\_TYPE**

Specifies the type of the endpoint.

**Values:** MS SQL Server, Oracle Server, Windows Agentless, SSH Device, Access Control for PUPM

**Values (CA Identity Manager Provisioning):** ActiveDirectory, Access Control, RACF, ACF, CA-Top Secret, NDS Servers, Windows NT

**Note:** The CA Identity Manager Provisioning values are valid only if you use the CA Identity Manager Provisioning connector.

**HOST**

Defines the host name of the endpoint.

**LOGIN\_USER**

Defines the name of an administrative user of the endpoint. This attribute is *not* valid for any of the CA Identity Manager Provisioning endpoint types, but is valid for all other endpoint types.

**Note:** PUPM uses this account to manage the endpoint.

**PASSWORD**

Defines the password of the administrative user of the endpoint. This attribute is *not* valid for the CA Identity Manager Provisioning endpoint type, but is valid for all other endpoint types.

### URL

Defines the URL that CA Access Control Enterprise Management uses to connect to the endpoint. This attribute is valid for the MS SQL Server, OS400, and Oracle Server endpoint types.

**Format:** (MS SQL Server) `jdbc:microsoft:sqlserver://servername:port`

**Format:** (OS400) `jdbc:as400://host;proxy  
server=ServerName:proxyServerPort`

**Format:** (Oracle Server)  
`jdbc:oracle:drivertype:@hostname:port/service`

### HOST\_DOMAIN

Specifies the name of the domain of which this endpoint is a member. This attribute is valid for the Access Control and Windows Agentless endpoint types.

**Note:** For Windows Agentless endpoint types, specify the domain name with only the prefix. For example, if the full domain name is `company.com`, you enter only the prefix `company`.

### IS\_ACTIVE\_DIRECTORY

Specifies whether the user account is an Active Directory account. This attribute is valid for the Windows Agentless endpoint type only.

**Limits:** TRUE, FALSE

### USER\_DOMAIN

Specifies the name of the domain of which the user is a member. This attribute is valid for the Windows Agentless endpoint type.

**Note:** Specify the domain name with only the prefix. For example, if the full domain name is `company.com`, you enter only the prefix `company`.

### CONFIGURATION\_FILE

Specifies the name of the SSH Device XML configuration file that you are defining. This attribute is valid for the SSH Device endpoint type.

**Values:** `ssh_connector_conf.xml`, `sudo_connector_conf.xml`,  
`device_connector_conf.xml`, `nis_connector_conf.xml`

**Note:** If you do not specify a value for this attribute, CA Access Control Enterprise Management uses the default configuration file (`ssh_connector_conf.xml`).

### ENDPOINT

Defines the name of the endpoint, exactly as it is defined in CA Identity Manager Provisioning Server. This attribute is valid for the CA Identity Manager Provisioning endpoint type.

3. Add endpoint task lines to the CSV file.

Each line represents a task to create or modify an endpoint, and must have the same attributes as the header. The attributes must be in the same order as the header. If a line does not have a value for an attribute, leave the field empty.

4. Save the file to the polling folder.

The endpoint CSV file is created.

**Note:** The default polling folder is located as follows, where *JBoss\_home* is the directory in which you installed JBoss:

```
JBoss_home/server/default/deploy/IdentityMinder.ear/custom/ppm/feeder/waitingToBeProcessed
```

### Example: An Endpoint CSV File

The following is a sample endpoint CSV file. You can find more sample endpoint CSV files in the *ACServer/IAMSuite/AccessControl/tools/samples/Feeder* directory.

```
OBJECT_TYPE,%FRIENDLY_NAME%,DESCRIPTION,ENDPOINT_TYPE,HOST,LOGIN_USER,PASSWOR
D,URL,CONFIGURATION_FILE,DOMAIN,IS_ACTIVE_DIRECTORY,USER_DOMAIN,ENDPOINT
ENDPOINT,Oracle1,oracle 10g,Oracle
Server,TEST10,ORAADMIN1,ORAADMIN1,jdbc:oracle:thin:@TEST10:1521:RNSRV,,,,,
ENDPOINT,local MSSQL1,local SQL server,MS SQL
Server,localhost,testAdmin,Password1 @,jdbc:sqlserver://localhost:1433,,,,,
ENDPOINT,SSH_Device2,unix machine,SSH Device,TEST84,root,Password1 @,,,,,
ENDPOINT,IM_Access Control,Access Control via provisioning,Access Control,TEST1,,,,,,TEST1
```

### More information:

[Customize the SSH Device XML File](#) (see page 131)

## Create a Privileged Account CSV File

Each line in the privileged account CSV file represents a task to create or modify a privileged account in CA Access Control Enterprise Management.

**Important!** When you create the CSV file, verify that no other application uses the file and that the file can be renamed. The PUPM feeder processes only CSV files that can be renamed.

### To create the privileged account CSV file

1. Create a CSV file and give it an appropriate name.

**Note:** We recommend that you create a copy of the sample privileged account CSV file. The sample file is located as follows, where *ACServer* is the directory in which you installed the Enterprise Management Server:

```
ACServer/IAMSuite/AccessControl/tools/samples/feeder
```

2. Create a header row that specifies the names of the privileged account attributes.

The names of the privileged account attributes are as follows:

**OBJECT\_TYPE**

Specifies the type of the object to import.

**Values:** ACCOUNT\_PASSWORD

**ACCOUNT\_NAME**

Defines the name by which you want to refer to the privileged account on CA Access Control Enterprise Management.

**Note:** Mainframe systems, for example, RACF, ACF, and Top Secret, and SSH Device endpoint types use case-sensitive user names. Enter the account name in the correct case for these endpoint types. Enter the account name in capital letters for privileged accounts on mainframe systems and on Oracle Server endpoints.

**ENDPOINT\_NAME**

Specifies the name of the endpoint on which the privileged account resides. Define the endpoint in CA Access Control Enterprise Management before you can create privileged accounts on it.

**NAMESPACE**

Specifies the endpoint type of the specified endpoint.

**Values:** MS SQL Server, Oracle Server, Windows Agentless, SSH Device, Access Control for PUPM

**Values (CA Identity Manager Provisioning):** ActiveDirectory, Access Control, RACF, ACF, CA Top Secret, NDS Servers, Windows NT

**Note:** The CA Identity Manager Provisioning values are valid only if you use the CA Identity Manager Provisioning connector.

**CONTAINER**

Specifies the name of the container for the privileged account. A container is a class whose instances are collections of other objects. Containers are used to store objects in an organized way following specific access rules.

**Values:** (Windows Agentless and Oracle Server endpoints): Accounts  
(SSH Device endpoints): SSH Accounts  
(MS SQL Server endpoints): MS SQL Logins.

**DISCONNECTED\_SYSTEM**

Specifies if the privileged account originates from a disconnected system.

If you specify TRUE, PUPM does not manage the account. Instead, it acts only as a password vault for privileged accounts of the disconnected system. Every time you change the password in PUPM, also manually change the account password on the managed endpoint.

**Values:** TRUE, FALSE

**EXCLUSIVE\_ACCOUNT**

Specifies if only a single user can check out the account at any one time.

If you specify TRUE, PUPM lets only a single user check out the account at any one time.

**Values:** TRUE, FALSE

**NEW\_PASSWORD**

Defines the password for the privileged account. If you do not specify a value for this attribute, CA Access Control Enterprise Management generates a password that complies with the specified password policy.

**Note:** The password must comply with the password policy.

**PASSWORD\_POLICY**

Specifies the password policy for the privileged account.

**Note:** If you specify a password policy that does not exist, the task fails and CA Access Control Enterprise Management does not create the privileged account.

3. Add task lines to the CSV file.

Each line represents a task to create or modify a privileged account, and must have the same number of attribute values as the header. If a line does not have a value for an attribute, leave the field empty.

4. Save the file to the polling folder.

The privileged account CSV file is created.

**Note:** The default polling folder is located as follows, where *JBoss\_home* is the directory in which you installed JBoss:

*JBoss\_home/*server/default/deploy/IdentityMinder.ear/custom/ppm/feeder/waitingToBeProcessed

### Example: A Privileged Account CSV File

The following is a sample privileged account CSV file. You can find more sample privileged account CSV files in the *ACServer/IAMSuite/AccessControl/tools/samples/Feeder* directory.

```
OBJECT_TYPE,ACCOUNT_NAME,ENDPOINT_NAME,NAMESPACE,CONTAINER,DISCONNECTED_SYSTEM,EXCLUSIVE_ACCOUNT,NEW_PASSWORD,PASSWORD_POLICY
ACCOUNT_PASSWORD,demo1,local windows 2003,Windows
Agentless,Accounts,FALSE,FALSE>Password1 @,default password policy
ACCOUNT_PASSWORD,demo2,local windows 2003,Windows Agentless,Accounts,FALSE,FALSE,,default password policy
ACCOUNT_PASSWORD,disconnected1,local windows 2003,Windows
Agentless,Accounts,TRUE,FALSE>Password1 @,default password policy
```

### Manually Start the Polling Task

When the polling task starts, the PUPM feeder uploads the CSV files in the polling folder. CA Access Control Enterprise Management then processes each line in the CSV files.

**Note:** If you do not manually start the polling task, the PUPM feeder checks the polling folder at the time specified in the feeder properties file. You must have the System Manager or PUPM Target System Manager role to start the polling task.

#### To manually start the polling task

1. In CA Access Control Enterprise Management, do as follows:
  - a. Click Privileged Accounts.
  - b. Click the Accounts subtab.

The Feeder Folder Polling task appears in the list of available tasks.

2. Click Feeder Folder Polling.

The Feeder Folder Polling screen appears.

3. Click Submit.

The PUPM feeder polls the CSV files in the polling folder.

## PUPM Feeder Audit Records

The PUPM feeder performs the following tasks. CA Access Control Enterprise Management creates an audit record for each action that the PUPM feeder performs:

- **Feeder Folder Polling**—Specifies whether the PUPM feeder successfully uploaded the CSV files in the polling folder to CA Access Control Enterprise Management.
- **Feeder Process csv File**—Specifies whether CA Access Control Enterprise Management successfully processed the uploaded CSV file, and provides a progress indicator that tracks the number of lines CA Access Control Enterprise Management has processed in the CSV file.

In addition, CA Access Control Enterprise Management creates an audit record for each line in the imported CSV file. Each line represents a task to create or modify a PUPM endpoint or privileged account. The audit records track the status of each task. These tasks can have the following statuses:

- **Completed**—CA Access Control Enterprise Management completed the task, for example, created a privileged account.
- **Failed**—CA Access Control Enterprise Management processed the task but did not complete it, for example, could not create a privileged account on an endpoint that does not exist.
- **Audited**—CA Access Control Enterprise Management did not process or complete the task, for example, could not create a privileged account because the ACCOUNT\_NAME attribute is not specified.

A user with the System Manager role can use the View Submitted Tasks task to view the status of each task.

## Create an Application

Creating an application enables you to use the PUPM Agent to obtain privileged accounts from a CA Access Control endpoint by running a script that calls for the PUPM Agent. You can replace hard-coded passwords in scripts with privileged account passwords that the PUPM Agent obtains only when needed.

An application is the representation of a script that you run on the CA Access Control endpoint.

You create an application for every script that you want to use and assign a specific privileged account to that script.

### To create an application

1. In CA Access Control Enterprise Management, click Privileged Accounts, Applications, Create Application.

The Create Application: ApplicationSearchScreen page appears.

2. (Optional) Select an existing application to create the application as a copy of it, as follows:

- a. Select Create a copy of an object of type Application.
- b. Select an attribute for the search, type in the filter value, and click Search.

A list of applications that match the filter criteria appears.

- c. Select the object you want to use as a basis for the new application.
3. Click OK.

The Create Application task page appears. If you created the application from an existing object, the dialog fields are pre-populated with the values from the existing object.

4. Complete the following fields in the dialog:

#### **Name**

Defines the name you want to refer to this application by.

#### **Description**

(Optional) Defines the information you want to record for this application (free text).

#### **Application Path**

Defines the full pathname of the application.

**Example:** /opt/scripts/myscript.sh

#### **Host**

Defines the name of the host that you execute the script from.

**Example:** myhost.com

#### **Client Type**

Specifies the type of the PUPM Agent.

**Option:** CLI

#### **Identifier Host**

Defines the name of the host that you execute the script from.

**Example:** myhost.com

**Identifier Users**

Defines a comma-separated list of users that are permitted to execute the script.

**Example:** mydomain/user1,mydomain/user2

**Account**

Defines the privileged account that is associated with this application.

**Enabled**

Specifies whether this application is enabled.

Click Submit.

CA Access Control Enterprise Management creates the application settings.

## CA Service Desk Manager Integration

PUPM is able to communicate with CA Service Desk Manager to accept and validate tickets as part of the privileged account request and approval processes. When integrated with CA Service Desk Manager, PUPM validates each request for a privileged account password against an active ticket. Integrating PUPM with CA Service Desk Manager lets you create a validation process for privileged accounts requests that includes multiple approval processes.

### How to Integrate Privileged Account Requests with CA Service Desk Manager

Understanding how to integrate PUPM with CA Service Desk Manager helps you to set up the connection to CA Service Desk Manager and implement the validation process.

To integrate PUPM with CA Service Desk Manager, do the following:

1. Deploy and configure CA Service Desk Manager.
2. Configure the connection to CA Service Desk Manager from CA Access Control Enterprise Management.
3. Use CA Service Desk Manager to open a service desk ticket requesting access to a privileged account.
4. Approve the service desk request using CA Service Desk Manager.
5. Create a privileged account request in CA Access Control Enterprise Management and provide the CA Service Desk Manager ticket number.
6. Approve or deny the privileged account request.

## Configure the Connection to CA Service Desk Manager

You define the connection to CA Service Desk Manager from CA Access Control Enterprise Management to integrate PUPM with CA Service Desk Manager.

### To configure the connection to CA Service Desk Manager

1. In CA Access Control Enterprise Management, select System, Connection Management, CA Service Desk Manager, Managed CA Service Desk Manager Connection.

The Managed CA Service Desk Manager Connection window opens.

2. Complete the form using the following:

#### Connection Name

Defines the connection name.

**Default:** Primary CA Service Desk Manager Connection

#### Connection Type

Specifies the connection type.

**Default:** CA Service Desk Manager

#### Connection Description

Specifies a description for the connector server.

#### Host Name

Defines the CA Service Desk Manager Web Service URL.

**Default:**

`http://host_name:8080/axis/services/USD_R11_WebService?wsdl`

#### User ID

Defines the user ID used to connect to CA Service Desk Manager.

**Note:** The user must have privileges to query service desk tickets through the Web Service API.

#### Password

Defines the password to connect to CA Service Desk Manager.

#### Mandatory

Specifies whether a user must enter a ticket number when requesting access to a privileged account.

**Note:** If not selected, supplying a ticket number when requesting that access to a privileged account is not enforced.

**Enabled**

Specifies whether the connection is enabled.

**Note:** If not selected, the ticket number field is not displayed in the request privileged account task.

**Advanced**

Specifies whether you want to define advanced settings. If you select this option, the following fields appear:

**Ticket Type**

Defines the type of CA Service Desk Manager ticket that is used to request a privileged account password.

**Limits:** CR, Iss, Chg

**Default:** CR

**Ticket Query**

Defines a custom query used to validate the ticket. Specify any valid CA Service Desk Manager query.

**Example:** active=1 AND status='OP

**Note:** If this field is left empty, CA Access Control Enterprise Management enumerates all service desk tickets to validate the requestor ticket.

3. Select Submit to create the connection.

CA Access Control Enterprise Management validates the connection settings and creates the connector server.

## Privileged Account Administration

The following table describes the PUPM administration tasks and the roles that can perform each task:

<b>Task Name</b>	<b>Role</b>	<b>Task Description</b>
View endpoint types	System Manager	View the endpoint types that CA Access Control Enterprise Management supports.
Create an endpoint	System Manager	Create a single endpoint in CA Access Control Enterprise Management. <b>Note:</b> If you need to create many endpoints, we recommend that you use the PUPM feeder.
Discover	PUPM Target	Scan for new privileged accounts on an existing

<b>Task Name</b>	<b>Role</b>	<b>Task Description</b>
privileged accounts	System Manager	endpoint. <b>Note:</b> We recommend that you run the privileged accounts discovery process at fixed intervals to scan for new privileged accounts on the endpoints.
Create a privileged account	PUPM Target System Manager	Create a privileged account on an existing endpoint. <b>Note:</b> If you need to create many privileged accounts, we recommend that you use the PUPM feeder.
Extract passwords from the database	Not applicable	Extract privileged account passwords from the database if PUPM is unavailable.

In addition, role administrators receive a notification message each time a user performs a break glass checkout. A user performs a break glass checkout when they need immediate access to an account that they are not authorized to manage.

## View Endpoint Types

Endpoint types are existing definitions in CA Access Control Enterprise Management for supported managed systems. Each endpoint type specifies the type of system where your privileged accounts reside.

### To view endpoint types

1. In CA Access Control Enterprise Management, click Privileged Accounts, Endpoints, View Endpoint Type.  
The View Endpoint Type: Select Endpoint Type page appears.
2. Select an attribute for the search, type in the filter value, and click Search.  
A list of Endpoint Types that match the filter criteria appear. These are the endpoint types that CA Access Control Enterprise Management supports.

## Create an Endpoint

Creating endpoint definitions in CA Access Control Enterprise Management lets you manage endpoints and discover the privileged accounts on that endpoint.

### To create an endpoint

1. In CA Access Control Enterprise Management, click Privileged Accounts, Endpoints, Create Endpoint.

The Create Endpoint: Select Endpoint page appears.

2. (Optional) Select an existing endpoint to create the endpoint as a copy of it, as follows:

- a. Select Create a copy of an object of type Endpoint.
- b. Select an attribute for the search, type in the filter value, and click Search.

A list of endpoints that match the filter criteria appears.

- c. Select the object you want to use as a basis for the new endpoint.
3. Click OK.

The Create Endpoint task page appears. If you created the endpoint from an existing object, the dialog fields are pre-populated with the values from the existing object.

4. Complete the fields in the dialog. The following fields are not self-explanatory:

#### **Name**

Defines the name you want to refer to this endpoint by.

#### **Description**

(Optional) Defines the information you want to record for this endpoint (free text).

#### **Endpoint Type**

Specifies the type of endpoint where your privileged accounts reside.

**Note:** For each endpoint type you supply the credentials CA Access Control Enterprise Management requires to manage privileged accounts on that type of endpoint. The endpoint type you select affects the connection information you have to supply.

Click Submit.

CA Access Control Enterprise Management tries to connect to the endpoint using the credentials you provide. If the connection succeeds, the endpoint is created. Otherwise, you receive a connection error.

**More information:**

[Access Control for PUPM Connection Information](#) (see page 126)

[MS SQL Server Connection Information](#) (see page 127)

[Oracle Server Connection Information](#) (see page 127)

[Windows Agentless Connection Information](#) (see page 128)

[SSH Device Connection Information](#) (see page 129)

[Customize the SSH Device XML File](#) (see page 131)

[CA Identity Manager Provisioning Connection Information](#) (see page 135)

## Access Control for PUPM Connection Information

The Access Control for PUPM endpoint type lets you manage privileged Access Control accounts.

When you create endpoints of this type, provide the following information so that CA Access Control Enterprise Management can connect to the endpoint:

**User Login**

Defines the name of an administrative user of the endpoint.

**Password**

Defines the password of the administrative user of the endpoint.

**Host**

Defines the host name of the endpoint.

**Host Domain**

(Optional) Specifies the name of the domain that this host is a member of.

**Example:** Domain.com

**Advanced**

Specifies whether you want to use a different administrative account as the managed account for the endpoint.

If you specify this option, you define an account that CA Access Control Enterprise Management uses instead of the account information you provided for connecting to the endpoint.

## MS SQL Server Connection Information

The MS SQL Server endpoint type lets you manage privileged Microsoft SQL Server accounts.

When you create endpoints of this type, provide the following information so that CA Access Control Enterprise Management can connect to the endpoint:

### User Login

Defines the name of an administrative user of the endpoint.

### Password

Defines the password of the administrative user of the endpoint.

### URL

Defines the URL that CA Access Control Enterprise Management can use to connect to the endpoint. The URL specifies a particular type of database server.

**Format:** `jdbc:sqlserver://servername:port`

**Example:** `jdbc:sqlserver://localhost:1433`

**Note:** For more information on the format of the URL, see your endpoint documentation.

### Host

Defines the host name of the endpoint.

### Advanced

Specifies whether you want to use a different administrative account as the managed account for the endpoint.

If you specify this option, you define an account that CA Access Control Enterprise Management uses instead of the account information you provided for connecting to the endpoint.

## Oracle Server Connection Information

The Oracle Server endpoint type lets you manage privileged Oracle database accounts.

When you create endpoints of this type, provide the following information so that CA Access Control Enterprise Management can connect to the endpoint:

### User Login

Defines the name of an administrative user of the endpoint.

### Password

Defines the password of the administrative user of the endpoint.

### URL

Defines the URL that CA Access Control Enterprise Management can use to connect to the endpoint. The URL specifies a particular type of database server.

**Format:** jdbc:oracle:*drivertype*:@*hostname*:*port*/*service*

**Example:** jdbc:oracle:thin:@ora.comp.com:1521/orcl

**Note:** For more information on the format of the URL, see your endpoint documentation.

### Host

Defines the host name of the endpoint. This is the fully-qualified host name.

### Advanced

Specifies whether you want to use a different administrative account as the managed account for the endpoint.

If you specify this option, you define an account that CA Access Control Enterprise Management uses instead of the account information you provided for connecting to the endpoint.

## Windows Agentless Connection Information

The Windows Agentless endpoint type lets you manage privileged Windows accounts.

When you create endpoints of this type, provide the following information so that CA Access Control Enterprise Management can connect to the endpoint:

### User Login

Defines the name of an administrative user of the endpoint.

### Password

Defines the password of the administrative user of the endpoint.

### Host

Defines the host name of the endpoint.

**Example:** myhost-ac-1

**Host Domain**

Specifies the domain name that this host is a member of.

**Note:** Specify the host domain name with only the prefix. For example, if the full domain name is company.com, you enter only the prefix company.

**Is Active Directory**

Specifies whether the user account is an Active Directory account.

**Limits:** true, false

**User Domain**

Specifies the domain name that the user is a member of.

**Note:** Specify the user domain name with only the prefix. For example, if the full domain name is company.com, you enter only the prefix company.

**Advanced**

Specifies whether you want to use a different administrative account as the managed account for the endpoint.

If you specify this option, you define an account that CA Access Control Enterprise Management uses instead of the account information you provided for connecting to the endpoint.

**SSH Device Connection Information**

The SSH Device type lets you manage privileged UNIX accounts.

When you create devices of this type, provide the following information so that CA Access Control Enterprise Management can connect to the device:

**User Login**

Defines the name of an administrative user of the endpoint.

**Password**

Defines the password of the administrative user of the endpoint.

**Host**

Defines the host name of the endpoint.

### Configuration File

Specifies the name of the SSH Device XML configuration file that you are defining. CA Access Control provides the following SSH Device XML configuration files:

- **ssh\_connector\_conf.xml**—Use this file when you configure an SSH device that uses the `passwd` command to change account passwords.

**Note:** Specify a local user, for example, `root`, as the connected user.

- **sudo\_connector\_conf.xml**—Use this file when you configure an SSH device that uses the `sudo` and `passwd` commands.

**Note:** You can specify an NIS user account in an endpoint that is not a NIS server. Do the following:

- a. Create an endpoint using the `nis_connector_conf.xml` and specify the NIS user account details.
- b. Create a second endpoint and use the Advanced option to specify the NIS user account of the first endpoint.

- **device\_connector\_conf.xml**—Use this file when you configure a device, for example, a router.

- **nis\_connector\_conf.xml**—Use this file when you configure an SSH device that works with a NIS server.

**Note:** Use the local `root` account as the connected user. Do the following:

- a. Create a NIS endpoint (`nis_endpoint_1`) and define the root account using the default XML file. (`ssh_connector_conf.xml`)
- b. Create another NIS endpoint (`nis_endpoint_2`) and use the Advanced option to define root account of the first NIS endpoint.

You can customize the XML files according to your needs.

**Note:** If you do not specify a value for this field, CA Access Control Enterprise Management uses the `ssh_connector_conf.xml` file.

### Advanced

Specifies whether you want to use a different administrative account as the managed account for the endpoint.

If you specify this option, you define an account that CA Access Control Enterprise Management uses instead of the account information you provided for connecting to the endpoint.

## Customize the SSH Device XML File

If the default settings that PUPM uses to discover privileged accounts do not apply to the SSH device that you are using, for example a router, switch or firewall that use a non-standard method to discover user accounts and change privileged account password, customize the SSH Device XML file to specify the required settings..

### To customize the SSH Device XML file

1. On CA Access Control Enterprise Management, locate the XML file that you want to customize. By default the files are located in:

*AccessControlServerDir/Connector Server/conf/override/sshdyn*

2. Duplicate the file you want to customize and open it for editing.

**Note:** Keep the new file in the same directory that the original file is located in.

3. Modify the parameters according to your enterprise requirements and save the file.
4. [Create an SSH Device endpoint in CA Access Control Enterprise Management](#) (see page 125).
5. In the Configuration field, enter the name of the XML file you created.

The SSH Device endpoint is created using the custom settings.

6. Run the [privileged accounts discovery wizard](#) (see page 136) on the endpoint you created.

CA Access Control Enterprise Management searches the endpoint for privileged accounts using the parameters you defined in the XML file.

7. Review the JCS connector log file (*jcs\_stdout.log*) and JCS connector error file (*jcs\_sterr.log*). By default, the files are located in:

*AccessControlServerDir/Connector Server/logs*

8. If needed, modify the XML file to resolve the errors that appear in the log files.

### Example: The `ssh_connector_conf.xml` File

This example describes the `ssh_connector_conf.xml` file. The file sets the parameters for the commands that PUPM executes to connect to the endpoint, discover user accounts, and change passwords on endpoint.

The following section of the XML file configures the connection settings:

```
<param name="I_CONNECTIONS" value="10" />
  </class>
</package>

<package name="com.ca.sesame.conn.unix">
  <class name="CommandProcessor">
    <param name="bToLog" value="true" />
    <param name="sLogFileName" value="..\logs\uxlog.txt" />

<!-- param name="iPort" value="22" /-->
```

### **I\_CONNECTIONS**

Defines the number of concurrent connections to endpoints.

**Default:** 10

### **bToLog**

Specifies whether to write messages to the sLogFileName.

### **sLogFileName**

Defines the relative pathname to the log file.

**Default:** ..\logs\uxlog.txt

### **iPort**

Defines the SSH port number.

**Default:** 22

The following snippet of the `ssh_connector_conf.xml` file contains the endpoint-specific parameters for retrieving the list of users.

```
<class name="CommandSet">
  <instance name="ssh">
    <array name="oGetUsers">
      <item>
        <param name="sCommand" value="echo @LOGIN@" />
        <param name="sWaitForText" value="@LOGIN@" />
        <param name="iWait" value="1000" />
      </item>
      <item>
        <param name="sCommand" value="cat /etc/passwd | cut -d: -f1 |
grep -w [%%filter%%]; echo @SUCCESS@" />
        <param name="sWaitForText" value="@SUCCESS@" />
        <param name="iWait" value="2000" />
        <param name="sToFilterOut"
value="@LOGIN@;@SUCCESS@;/etc/passwd" />
      </item>
    </array>
  </instance>
</class>
```

#### **sCommand**

Defines the command that PUPM sends to the endpoint.

#### **sWaitForText**

Defines the text string that the endpoint returns in response to the command defined in the `sCommand` parameter.

#### **iWait**

Defines the interval for waiting for reply text string, in milliseconds.

**Default:** 1000

#### **sToFilterOut**

Defines a list of results status lines that are filtered out.

The following snippet of the `ssh_connector_conf.xml` file contains the endpoint-specific parameters for retrieving the passwords of users.

```
<array name="oChangePassword">
  <item>
    <param name="sCommand" value="passwd [%%user%%]" />
    <param name="iWait" value="500" />
    <param name="sWaitForText" value="word:" />
  </item>
  <item>
    <param name="sCommand" value="[%%password%%]" />
    <param name="bHideSentLog" value="true" />
    <param name="iWait" value="500" />
    <param name="sWaitForText" value="word:" />
  </item>
  <item>
    <param name="sCommand" value="echo $?" />
    <param name="iWait" value="500" />
    <param name="sTrueResultRegex" value="(s*|.)*(s*|.)*" />
  </item>
</array>
```

#### **bHideSentLog**

Specifies whether to write commands to the log file.

**Limits:** yes, no

**Default:** yes

#### **sTrueResultRegex**

Specifies to compare the command results with the specified string. If the result does not match the string, an error message is presented.

The following parameters are applicable to all the XML files.

```
<param name="iXMLVersion" value="0" />
<param name="ToReport" value="true"/>
<param name="FileIsLoaded" value="OK"/>
```

#### **iXMLVersion**

Indicates the XML file version. The XML version must not be later than the XML version that is defined in the SSL connector.

**Default:** 0

#### **ToReport**

Specifies whether XML processing data is logged to \$XML\_NAME..lodaing\_report.xml. The log file is located by default in the following directory:

*AccessControlServerDirectory/Connector Server/conf/override/sshdyn*

**Default:** true

#### **FileIsLoaded**

Indicates that the XML file was loaded successfully.

**Default:** OK

## CA Identity Manager Provisioning Connection Information

The CA Identity Manager provisioning connectors let you manage the CA Identity Manager endpoints you defined in your Provisioning Server.

**Note:** The CA Access Control Enterprise Management installation process installs and configures a default Java Connector Server (JCS) as part of the Distribution Server. An installed and configured Java Connector Server (JCS) must exist before you use PUPM for CA Access Control endpoint types. To work with CA Identity Manager connectors you need to create a Connector Server of type Identity Manager Provisioning. All CA Identity Manager endpoint types use the same connection information.

When you create endpoints of this type, provide the following information so that CA Access Control Enterprise Management can connect to the endpoint:

#### **Endpoint**

Defines the name of the endpoint exactly as you defined it in CA Identity Manager Provisioning Server. The following endpoint types are supported:

Active Directory, CA Access Control, CA-ACF2, CA-Top Secret, Windows NT, IBM RACF, NDS Servers

**Important!** CA Access Control Enterprise Management displays the CA Identity Manager endpoint types only after you configure the connection in the Provisioning Server.

### Host

Defines the host name of the endpoint. This is the logical name you want to assign to this endpoint. CA Access Control Enterprise Management uses this name represent the endpoint in World View.

**Important!** Provisioning domain names are case sensitive.

### Advanced

Specifies whether you want to use a different administrative account as the managed account for the endpoint.

If you specify this option, you define an account that CA Access Control Enterprise Management uses instead of the account information you provided for connecting to the endpoint.

**Important!** CA Identity Manager can enforce a password policy that is different from the one that is configured on the target system. If you enforce a password policy on the target system, PUPM changes the user password. However, the user cannot use the password on the endpoint. Verify that the password policy on the target system complies with that of PUPM. For more information about the CA Identity Manager password policy enforce option, see the *CA Identity Manager Administration Guide*.

## Discover Privileged Accounts

We recommend that you run the privileged accounts discovery process at fixed intervals to scan for new privileged accounts on the endpoints.

**Note:** The first time you discover privileged accounts on an endpoint type, CA Access Control Enterprise Management automatically creates an endpoint privileged access role for using privileged accounts on that endpoint type. For example, the first time you discover privileged accounts on a Windows endpoint, CA Access Control Enterprise Management automatically creates the Windows Agentless Connection endpoint privileged access role.

### To discover privileged accounts

1. In CA Access Control Enterprise Management, click Privileged Accounts, Accounts, Discover Privileged Accounts Wizard.

The Discover Privileged Accounts Wizard: Select Privileged Accounts page appears.

2. Select the Endpoint Type from the list.
3. Select an attribute for the search, type in the filter value, and click Search.

A list of endpoints that match the filter criteria appears.

4. Select the privileged accounts you want to manage.

The following table column headings are not self-explanatory:

**Discovered Account**

Specifies whether the account is already known to CA Access Control Enterprise Management. Known accounts include ones that CA Access Control Enterprise Management already manages and the administrator account CA Access Control Enterprise Management uses to manage the endpoint.

**Is Endpoint Administrator**

Specifies whether CA Access Control Enterprise Management uses the account to manage the endpoint.

**Important!** Do not select the endpoint administrator account. CA Access Control Enterprise Management automatically changes the password of privileged accounts it manages. If you select the endpoint administrator account, you lose the ability to log in and manage privileged accounts on the endpoint. For example, if you define a UNIX endpoint and specify the *root* account as the endpoint administrator account, do not make *root* a managed privileged account.

Click Next.

The Discover Privileged Accounts Wizard: General Account Details page appears.

5. Complete the fields in the dialog. The following fields are not self-explanatory:

**Disconnected System**

Specifies whether the account originates from a disconnected system.

If you select this option, PUPM does not manage the account. Instead, it acts only as a password vault for privileged accounts of the disconnected system. Every time you change the password, you also need to manually change the account password on the managed endpoint.

**Password Policy**

Specifies the password policy you want to apply to the privileged account.

**Check out Expiration**

Defines the duration, in minutes, before the checked out account expires.

**Exclusive Account**

Specifies whether only a single user can use the account at any one time. An *exclusive account* is a restriction imposed on a privileged account that limits use of the account to a single user at a time.

### **Change Password on Check Out**

Specifies whether you want CA Access Control Enterprise Management to change the password of the privileged account every time it is checked out.

### **Change Password on Check In**

Specifies whether you want CA Access Control Enterprise Management to change the password of the privileged account every time it is checked in by a user or a program, or when the checkout period expires.

**Note:** If the account is not exclusive, CA Access Control Enterprise Management generates a new privileged account password only when *all* users have checked in the account.

Click Finish.

CA Access Control Enterprise Management submit the task and creates the selected privileged accounts if there are no errors.

## **Create a Privileged Account**

Privileged accounts in CA Access Control Enterprise Management let you provide your users with access to privileged system accounts that have access to mission critical data and processes. System Administrators use privileged accounts to perform administrative tasks on target endpoints.

### **To create a privileged account**

1. In CA Access Control Enterprise Management, click Privileged Accounts, Accounts, Create Privileged Account.

The Create Privileged Account: Select Privileged Account page appears.

2. (Optional) Select an existing privileged account to create the privileged account as a copy of it, as follows:
  - a. Select Create a copy of an object of type Privileged Account.
  - b. Select an attribute for the search, type in the filter value, and click Search.

A list of Privileged Accounts that match the filter criteria appears.

- c. Select the object you want to use as a basis for the new privileged account.
3. Click OK.

The Create Privileged Account task page appears. If you created the privileged account from an existing object, the dialog fields are pre-populated with the values from the existing object.

4. Complete the following fields in the dialog:

**Disconnected System**

Specifies whether the account originates from a disconnected system.

If you select this option, PUPM does not manage the account. Instead, it acts only as a password vault for privileged accounts of the disconnected system. Every time you change the password, you also need to manually change the account password on the managed endpoint.

**Endpoint Type**

Specifies the type of endpoint where your privileged accounts reside.

**Endpoint Name**

Specifies the name of a defined endpoint where your privileged accounts reside. CA Access Control Enterprise Management lists only those endpoints that are of the type you specified.

**Container**

Specifies the name of the container for the privileged account. A *container* is a class whose instances are collections of other objects. Containers are used to store objects in an organized way following specific access rules.

**Account Name**

Defines the name you want to refer to this privileged account by.

**Note:** Mainframe systems such as RACF, ACF, and Top Secret, use case sensitive user names. Enter the account name in capital letters.

**Password**

Defines and verifies the password you want to use with the new privileged account.

**Note:** The new password must comply with the password policy you specify.

**Password Policy**

Specifies the password policy you want to apply to the privileged account.

**Check out Expiration**

Defines the duration, in minutes, before the checked out account expires.

**Exclusive Account**

Specifies whether only a single user can use the account at any one time. An *exclusive account* is a restriction imposed on a privileged account that limits use of the account to a single user at a time.

### Change Password on Check Out

Specifies whether you want CA Access Control Enterprise Management to change the password of the privileged account every time it is checked out.

### Change Password on Check In

Specifies whether you want CA Access Control Enterprise Management to change the password of the privileged account every time it is checked in by a user or a program, or when the checkout period expires.

**Note:** If the account is not exclusive, CA Access Control Enterprise Management generates a new privileged account password only when *all* users have checked in the account.

Click Submit.

CA Access Control Enterprise Management creates the new privileged account.

## Manual Password Extraction

If the application server is not running and PUPM is unavailable, you cannot use PUPM to check out privileged accounts. Instead, you can use pwextractor, the PUPM password extraction utility, to export privileged account passwords from the database. You can then use the passwords to log in to privileged accounts as usual or, for back up of privileged account passwords.

If you extract privileged account passwords from the database because PUPM is unavailable, you do not need to complete any post-recovery steps when PUPM is restored.

You install pwextractor when you install the Enterprise Management Server. By default, CA Access Control rules do not protect pwextractor, but you can write rules to protect it.

To use pwextractor, you must:

- Have access to the database tables
- Know the user name and password for the account that PUPM uses to access the database

**Note:** You provide these credentials when you install the Enterprise Management Server.

You can use pwextractor whether CA Access Control Enterprise Management is running or stopped, and whether the application server is running or stopped. You can also run pwextractor remotely.

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

### Example: Extract Privileged Account Passwords from an Oracle Database

The following example extracts the privileged account passwords from an Oracle database and writes the output to the file C:\tmp\pwd.txt. The schema name is orcl and the database is located on host myhost.example.com. The Enterprise Management Server is installed on a Windows computer:

```
pwextractor.bat -h myhost.example.com -d orcl -t oracle -l joesmith -p P@ssw0rd -f C:\tmp\pwd.txt  
-k C:\jboss-4.2.3.GA\server\default\deploy\IdentityMinder.ear\config\com\netegrity\config\keys\FipsKey.dat
```

## What Happens During the Break Glass Process

A user performs a break glass check out when they need immediate access to an account that they are not authorized to manage.

Break Glass accounts are privileged accounts that are not assigned to the user according to the user role. However, the user can obtain the account password if the need arises.

In a Break Glass check out process, a notification message is sent to the role administrator, informing the administrator that a Break Glass check-out process occurred, however, the administrator cannot approve nor stop the process.

The checked out Break Glass account is added to the user My Checked-out Privileged Accounts tab in the Break Glass option of the Home tab.

**Note:** Only users with the break glass privileged access role can perform the break glass process.



# Chapter 6: Using Privileged Accounts

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This section contains the following topics:

[Check Out a Privileged Account](#) (see page 143)

[Check In a Privileged Account](#) (see page 143)

[Request Access to a Privileged Account](#) (see page 144)

[Break Glass](#) (see page 145)

[Check In a Break Glass Privileged Account](#) (see page 145)

[Force Check In of a Privileged Account](#) (see page 145)

[Automatically Reset Privileged Account Passwords](#) (see page 146)

[Manually Reset a Privileged Account Password](#) (see page 147)

[Respond to a Privileged Account Request](#) (see page 148)

[Delete a Privileged Account Exception](#) (see page 149)

## Check Out a Privileged Account

You check out a privileged account to administer the endpoint that the account belongs to. When you check out a privileged account, CA Access Control Enterprise Management displays the password that you can then use to access the managed endpoint.

### To check out a privileged account password

1. Click Home, My Accounts, Check-Out Privileged Accounts tab.

The My Accounts page appears, displaying the accounts available for you to check out.

2. (Optional) Select an attribute for the search, type in the filter value, and click Search.

A refined list of privileged accounts that match the filter criteria appears.

3. Select the account that you want to check out and click Check-out.

CA Access Control Enterprise Management submits the task and, if successful, displays the account password in the confirmation message.

## Check In a Privileged Account

You check in privileged accounts after you have logged out of the managed endpoint. Once you check in the privileged account, CA Access Control Enterprise Management may change the password if it was configured to do so.

### **To check in a privileged account**

1. Click Home, My Accounts, My Checked-Out Privileged Accounts tab.

The My Accounts page appears, displaying the accounts available for you to check in.

2. (Optional) Select an attribute for the search, type in the filter value, and click Search.

A refined list of privileged accounts that match the filter criteria appears.

3. Select the accounts that you want to check in and click Check-in.

CA Access Control Enterprise Management submits the task to check in the account.

### **More Information:**

[Discover Privileged Accounts](#) (see page 136)

[Check Out a Privileged Account](#) (see page 143)

[Request Access to a Privileged Account](#) (see page 144)

## **Request Access to a Privileged Account**

If you need a privileged account password, but your user account does not have privileged access to check out the account, you can submit a request to check out that account. CA Access Control Enterprise Management forwards your request to an approver who can approve or deny your request. If approved, you can then check out the privileged account.

### **To request a password for a privileged account**

1. Click Home, My Accounts, Privileged Account Request.

The Privileged Account Request: Select Privileged Account page appears.

2. Select an attribute for the search, type in the filter value, and click Search.

A list of privileged accounts that match the filter criteria appears.

3. Select the privileged account you want to check out and click Select.

4. Complete the request and click Submit. You may also need to provide a CA Service Desk Manager ticket number.

A window opens informing you that the request was submitted.

The request is forwarded to the approver and remains pending until for approved or rejected. If the request is approved, you can check out the privileged account.

## Break Glass

Use the Break Glass task to gain *immediate* access to an endpoint that you do not have privileged access to.

**Note:** If you do not require immediate access to the endpoint, you can request access to the privileged account and wait for the request to be approved.

### To break glass

1. Click Home, My Accounts, Break Glass.  
The Break Glass page appears.
2. Select an attribute for the search, type in the filter value, and click Search.  
A refined list of privileged accounts that match the filter criteria appears.
3. Select the privileged account to check out, fill in the justification and click Check Out.  
CA Access Control Enterprise Management submits the task and, if successful, displays the account password in the confirmation message.

## Check In a Break Glass Privileged Account

You check in a Break Glass privileged account once you have logged out of the managed endpoint.

### To check in a break glass privileged account

1. Click Home, My Accounts, Break Glass, My Checked-Out Privileged Accounts tab.  
The Break Glass page appears, displaying the accounts available for you to check in.
2. (Optional) Select an attribute for the search, type in the filter value, and click Search.  
A refined list of privileged accounts that match the filter criteria appears.
3. Select the accounts that you want to check in and click Check-in.  
CA Access Control Enterprise Management submits the task to check in the account.

## Force Check In of a Privileged Account

You can force check in of a privileged account that is currently checked out by one or more users.

### To force check in a privileged account

1. Click Privileged Accounts, Accounts, Force Check-In.  
The Force Check-In: Select Privileged Account page appears.
2. Select an attribute for the search, type in the filter value, and click Search.  
A list of privileged accounts that match the filter criteria appears. The Checked Out By Users column lets you know whether the privileged account is checked out and by whom.
3. Select the privileged accounts to check in and click Select.  
A confirmation message appears.
4. Click Yes to confirm the changes.  
CA Access Control Enterprise Management submits the task to check in the account.

## Automatically Reset Privileged Account Passwords

Use the automatic password reset tasks to reset the password of selected privileged accounts. When initiated, CA Access Control Enterprise Management generates a new password for the selected accounts, based on the password policy assigned to the accounts.

**Important!** When you reset the password on an account, the previous password becomes obsolete. Any users that are using the previous password must check in the account and check out the account to continue to log in to the managed devices.

**Note:** This option is not valid for disconnected accounts.

### To automatically reset privileged account passwords

1. Click Privileged Accounts, Accounts, Automatic Account Reset.  
The Automatic Account Reset: Select Privileged Account page appears.
2. Select an attribute for the search, type in the filter value, and click Search.  
A list of privileged accounts that match the filter criteria appears.
3. Select the privileged accounts to reset and click Select.  
A confirmation message appears.
4. Click Yes to confirm the changes.  
CA Access Control Enterprise Management submits the task to reset the account password.

## Manually Reset a Privileged Account Password

Use the manual password reset task to reset an account password and manually generate a new password for the privileged account. The new password must comply with the password policy that is assigned to the selected privileged account.

**Important!** When you reset the password on an account, the previous password becomes obsolete. Any users that are using the previous password must check in the account and check out the account to continue to log in to the managed devices.

We strongly recommend that you use the manual password reset only when managing privileged accounts originating from disconnected endpoints. Change the password CA Access Control Enterprise Management stores each time you change the password on the disconnected endpoint.

### To manually reset a privileged account password

1. Click Privileged Accounts, Accounts, Manual Password Reset.  
The Manual Password Reset: Select Privileged Account page appears.
2. Select an attribute for the search, type in the filter value, and click Search.  
A list of privileged accounts that match the filter criteria appears.
3. Select the privileged account to change the password of and click Select.  
The Manual Password Reset page appears.
4. Type the new password and confirm it, then click Submit.  
CA Access Control Enterprise Management submits the task to change the account password.

## Respond to a Privileged Account Request

If you have the default PUPM Approver role or an equivalent role assigned, you can respond to pending privileged account access requests submitted by users. You can respond with *one* of the following actions:

- **Approve**—Approve the request and let the user check out the privileged account.
- **Reject**—Reject the privileged account request.
- **Reserve Item**—Reserve the request for later consideration. When you reserve a request, CA Access Control Enterprise Management removes this work item from work lists of other approvers. You can return to this item later and approve or reject it.
- **Release Item**—Release the request for others to respond to. You can only release an item that you previously reserved for yourself.

You can also add additional approvers and reassign the work item so that they too receive it in their pending approvals.

**Note:** Break Glass checkout requests are displayed in the Waiting For My Approval list of requests. However, you do not need to approve or reject these requests. These requests are displayed only as a notification that a user checked out a Break Glass account.

**Note:** To respond to a privileged account request, a user must have the PUPM Approver privileged access role and be the requesting user's manager.

### To respond to a privileged account request

1. Click Home, My Accounts, Waiting For My Approval.  
A list of pending privileged account requests appears.
2. Click the pending request that you want to consider.  
The Approve Privileged Account Request page appears.
3. (Optional) To add approvers for this request, follow these steps:
  - a. Click Add Assignees.  
The Select User search pane opens.
  - b. Select an attribute for the search, type in the filter value, and click Search.  
A list of users that match the filter criteria appears.
  - c. Select the users you want to add and click Select.  
The user is added to the approvers list.

4. (Optional) Review request details and modify required parameters, as follows:
  - a. Click the Privileged Account tab.

The Privileged Account tab appears, displaying the account and request details.
  - b. Use the Valid Until field to override the checkout expiration timeout.
  - c. Use the Ticket Number field to review the CA Service Desk Manager ticket.
  - d. Type a comment to explain your response to the request.
5. Do *one* of the following:
  - Click Approve.

The request is approved, removed from the list of pending requests, and the requester can now check out the privileged account.
  - Click Reject.

The request is rejected and removed from the list of pending requests.
  - Click Reserve Item.

The request is reserved for you and removed from the list of pending requests of other approvers.
  - Click Release Item.

The request is released to all other approvers. You can only release items that you reserved.

## Delete a Privileged Account Exception

A *privileged account exception* lets a user check out a privileged account that they are otherwise not authorized to check out. Once a PUPM Approver approves a privileged account access request, the requester can check out the privileged account during the period in which the request is valid. You can delete the privileged account exception to prevent the user from being able to check out the account the exception applies to. To delete privileged account exceptions your account must have the default Privileged Account Request or PUPM Target System Manager roles assigned, or an equivalent role that contains this task.

**To delete a privileged account request**

1. In CA Access Control Enterprise Management, click Privileged Accounts, Exceptions, Delete Privileged Account Exception.  
The Delete Privileged Account Exception: Select Privileged Account Exception page appears.
2. Select an attribute for the search, type in the filter value, and click Search.  
A list of privileged account exceptions that match the filter criteria appears.
3. Select the privileged account exceptions you want to delete and click Select.  
A confirmation message appears asking you if you want to delete the selected privileged account exceptions.
4. Click Yes.  
The privileged account request is deleted.

# Chapter 7: Working with Privileged Accounts from the Endpoint

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This section contains the following topics:

[How You Work with Privileged Accounts From the Endpoint](#) (see page 151)

[Check Out a Privileged Account Password from the Endpoint](#) (see page 152)

[Check In a Privileged Account Password from the Endpoint](#) (see page 152)

[Replace a Hard-coded Script Password with a Checked-Out Privileged Account Password](#) (see page 153)

## How You Work with Privileged Accounts From the Endpoint

CA Access Control lets you manage basic PUPM functionality from the endpoint using the PUPM Agent. The PUPM Agent works against CA Access Control Enterprise Management to obtain passwords for privileged accounts from CA Access Control Enterprise Management.

The PUPM Agent provides check out and check in functionality on the endpoint for a privileged account defined in CA Access Control Enterprise Management.

You can also use the PUPM Agent in a script to replace hard-coded passwords in scripts. When the script runs, the PUPM Agent sends the privileged account credentials to CA Access Control Enterprise Management. CA Access Control Enterprise Management validates the account settings and, if approved, returns the account password. You can define a list of users that are permitted to run the script and obtain the privileged account password.

**Note:** To use PUPM in a script, you must define the script as an application in CA Access Control Enterprise Management.

The process works as follows:

1. You run the PUPM Agent in one of the following methods:
  - a. From a command prompt window to check out or check in a privileged account password.
  - b. Through a script that calls for the PUPM Agent on the endpoint.
2. The PUPM Agent forwards the request to CA Access Control Enterprise Management for authorization.
3. CA Access Control Enterprise Management sends the privileged account password to the endpoint and the PUPM Agent displays the password and logs a confirmation message.

4. CA Access Control Enterprise Management checks in the account password back into the password vault and the PUPM Agent logs a confirmation message.
5. The PUPM Agent logs a confirmation message that the check-in was successful.

**More information:**

[Create an Application](#) (see page 119)

## Check Out a Privileged Account Password from the Endpoint

Use the PUPM Agent to check out a privileged account password directly from the CA Access Control endpoint. You can then use the password to log in to a managed device on the endpoint.

To check out a privileged account password from the endpoint, enter the following command

```
acpwd -checkout -account name -ep name -eptype type [-container name] [-nologo]
```

A confirmation message appears, indicating that the account password checked-out successfully.

**Note:** A confirmation message with the number zero (0) indicates a successful password check-out. For more information about the PUPM Agent syntax, see the *Reference Guide*.

## Check In a Privileged Account Password from the Endpoint

Use the PUPM Agent to check in a privileged account password directly from the CA Access Control endpoint when you no longer need the password to log in to a managed device on the endpoint.

To check in a privileged account password from the endpoint, enter the following command:

```
acpwd -checkin -account name -ep name -eptype type [-container name] [-nologo]
```

A confirmation message appears, indicating that the account password checked in successfully.

**Note:** A confirmation message with the number zero (0) indicates a successful password check in. For more information about the PUPM Agent syntax, see the *Reference Guide*.

## Replace a Hard-coded Script Password with a Checked-Out Privileged Account Password

You can use the PUPM Agent inside a script to replace hard-coded passwords with passwords that you check out from CA Access Control Enterprise Management. This lets you avoid having to include hard-coded passwords inside scripts.

**Note:** To use PUPM in a script, you must define the script as an application in CA Access Control Enterprise Management.

To replace a hard-coded script password with a checked-out privileged account password, add the following command to your script:

```
acpwd -checkout -account name -ep name -eptype type [-container name] -nologo
```

You need to also modify your script to use the output of the command (the checked-out privileged account password).

**Note:** For more information about the PUPM Agent syntax, see the *Reference Guide*.

### Example: A Script that Checks Out a Privileged Account Password Using the PUPM Agent on Windows

The following is an example script extract that calls for the PUPM Agent to check out a privileged account password on Windows. This example assumes that the PUPM Agent is installed on the CA Access Control endpoint and that you defined an application in CA Access Control Enterprise Management.

The script in this example attempts to add and delete an entry in the Windows registry using a privileged account password it obtains from CA Access Control Enterprise Management.

```
set AdminUser=PowerUser
FOR /F "tokens=*" %%i IN ("C:\Program Files\AccessControl\bin\acpwd.exe" -checkout -account PowerUser -ep
comp1_123 -eptype "Windows Agentless" -container "Windows Accounts" -nologo) DO SET
AdminPassword=%%i
set runasadmin="C:\utils\psexec.exe" -u %AdminUser% -p
%runasadmin% %AdminPassword% REG ADD "HKLM\SOFTWARE\PUPM Registry"
%runasadmin% %AdminPassword% REG DELETE "HKLM\SOFTWARE\PUPM Registry" /F
```

In this example, the script runs the PUPM Agent to check out a privileged account password. The script contains the account name (*PowerUser*), the endpoint name (*comp1\_123*), the endpoint type (*Windows Agentless*), the container name of the user (*Windows Accounts*). The script instructs the PUPM agent to display only the password, and uses the password to run the PsExec program as an administrative user to add and delete a registry entry.

**More information:**

[Create an Application](#) (see page 119)

# Chapter 8: Using UNAB

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This section contains the following topics:

[UNAB Components](#) (see page 155)

[How You Set Up UNAB](#) (see page 156)

[How UNAB Authenticates Users](#) (see page 156)

[How You Control Host Access and Configure UNAB](#) (see page 157)

[Stop UNAB](#) (see page 162)

[View UNAB Status](#) (see page 163)

[UNAB Debug Files](#) (see page 163)

## UNAB Components

The UNIX Authentication Broker (UNAB) consists of several components that manage and control access to the UNIX host by Active Directory users.

- **UNAB authentication agent**—The UNAB authentication agent (uxagent) daemon services the connection with Active Directory and is responsible for maintaining a secure connection with Active Directory for users authentication and authorization purposes, host registration with Active Directory, users and groups migration, administering the local access files and more.
- **uxconsole**—The uxconsole is the UNAB management console that you use to register the UNIX host with Active Directory, migrate users and groups and activate UNAB. The uxconsole allows you to manage users log in from every UNIX host that UNAB is installed on.
- **CA Access Control Enterprise Management UNAB**—CA Access Control Enterprise Management enables you to manage your UNAB hosts from a central location. Using CA Access Control Enterprise Management, you control Active Directory users and groups access to every UNAB host in the enterprise.

## How You Set Up UNAB

Understanding how the UNIX Authentication Broker (UNAB) controls access to the UNIX host provides you with information that will help you during the implementation and configuration process.

After you install UNAB on the UNIX host, you register UNAB with Active Directory and activate UNAB to enable authenticating enterprise users login. You can then begin the migration process to migrate local users and groups in to Active Directory.

1. Once UNAB is installed, you register the UNIX host with Active Directory.

At this stage UNAB does not intercept any login requests.

2. Define which enterprise users and groups are permitted or denied access to the UNIX host. You do so by creating login authorization policies from CA Access Control Enterprise Management.
3. Activate UNAB to enable enterprise users authentication to the UNIX host.
4. Add additional enterprise users and groups to the UNAB login authorization policies to enable new users to login.

At this stage login is permitted for users defined in local user store (e.g etc.passed) or in the UNAB login authorization policies.

5. After UNAB is activated you can begin migrating users and groups into Active Directory.

## How UNAB Authenticates Users

After you installed and configured UNAB on the UNIX host, users can login, with their Active Directory user account or their local user account, according to the integration mode you selected to use.

When a user attempts to log into a UNIX host that UNAB is running on, the following occurs:

1. The user is prompted for a valid Active Directory or local account user name and password.
2. UNAB authenticates the user credentials with Active Directory, with the login authorization policy and local host access files and checks for additional information that is taken from the user account.
3. If the user is authenticated, UNAB grants the user access to the UNIX host. If not, UNAB blocks the user access to the host.

## How You Control Host Access and Configure UNAB

You can control users and groups access to the UNIX hosts and configure your UNAB hosts all from CA Access Control Enterprise Management. You control users and groups access to the UNIX host by granting access to only those users and groups that are permitted to log into that host.

You configure your UNAB hosts in the same manner that you control access to the host. You use CA Access Control Enterprise Management to control the functionality of the UNAB hosts in the enterprise once and apply it to all the hosts.

After you assigned users and groups or defined the token values, CA Access Control Enterprise Management formulates the information into a policy and does the following:

1. CA Access Control Enterprise Management creates a deployment package containing the list of users and groups or the configuration parameters and assigns the package to the host or host group that the policy applies to.
2. CA Access Control Enterprise Management forwards the package to the distribution server for distribution on the host.
3. UNAB retrieves the package from the distribution server, installs the policy and sends a confirmation message back to CA Access Control Enterprise Management.

**Note:** If you deployed both an enterprise policy and a UNAB login policy to the host, then the enterprise policy takes precedence over the UNAB login policy.

### Manage UNAB Login Authorization

To control users' login to UNAB hosts or host groups, you create a list of the users or groups that you want to grant access to. The list is then formulated into a policy that CA Access Control Enterprise Management assigns and deploys to the selected host or host group. The login policy is named `login@hostName`.

**Note:** You can use the Deployment Audit task to view the deployment status of the policy.

#### To manage UNAB login authorization

1. In CA Access Control Enterprise Management, do as follows:
  - a. Click Policy Management.
  - b. Click UNIX Authentication subtab.A list of available tasks appears.

2. Do *one* of the following:
  - Click Manage Host Login Authorization.  
The Manage Host Login Authorization: Host Search screen appears.
  - Click Manage Host Group Login Authorization.  
The Manage Host Group Login Authorization: Host Group Search screen appears.
3. Type the name of the host or host group that you want to modify and click Search.  
A list of hosts or host groups that match the filter criteria appear.
4. Select the host or host group to modify and click Select.  
The Manage Host Login Authorization: *HostName* or Manage Host Group Login Authorization: *HostGroupName* page appears.
5. (Optional) Add a user, as follows:
  - a. Click Add a user.  
The Select User page appears.
  - b. Type the search parameters and click Search.  
A list of users that match the filter criteria appear.
  - c. Select the users that you want to grant access to and click Select.  
The users you selected appear in the Authorized users and groups list.
6. (Optional) Add a group, as follows:
  - a. Click Add a group.  
The Select Group page appears.
  - b. Type the search parameters and click Search.  
A list of groups that match the filter criteria appear.
  - c. Select the groups that you want to grant access to and click Select.  
The groups you selected appear in the Authorized users and groups list.
7. (Optional) Remove users and groups, as follows:
  - a. Select the users and groups to remove in the Authorized users and groups list.
  - b. Click Remove.  
The users and groups you selected are removed from the Authorized users and groups list.
8. Click Submit.  
CA Access Control Enterprise Management assigns the updated list of users and groups to the specified host or host group.

## Configure a UNAB Host or Host Group

You can define the configuration settings that govern UNAB hosts and host groups. CA Access Control Enterprise Management helps you set the value of the settings in the UNAB configuration file (`uxauth.ini`) or the CA Access Control configuration file (`accommon.ini`). After you finish assigning values to the configuration settings, CA Access Control Enterprise Management creates a configuration policy that contains the updated settings values and assigns it to the host or host group. The policy is named `config@hostName`.

**Note:** You can use the Deployment Audit task to view the deployment status of the policy.

### To configure a UNAB host or host group

1. In CA Access Control Enterprise Management, do as follows:
  - a. Click Policy Management.
  - b. Click UNIX Authentication subtab.  
A list of available tasks appears.
2. Do *one* of the following:
  - Click Configure a UNAB Host.  
The Configure a UNAB Host: Host Search screen appears.
  - Click Configure a UNAB Host Group.  
The Configure a UNAB Host Group: Host Group Search screen appears.
3. Type the name of the host or host group you want to modify and click Search.  
A list of hosts or host groups that match the filter criteria appear.
4. Select the host or host group to modify and click Select.  
The UNAB Configuration: *HostName* or UNAB Configuration: *HostGroupName* screen appears.
5. Select the section and token to modify and click Add token.  
The selected configuration tokens appear.
6. Modify the value of the configuration tokens.  
**Note:** For more information about the configuration tokens, see the *Reference Guide*.
7. (Optional) Select another section and token to modify, click Add token, and modify the value of the configuration tokens as required.
8. Click Submit.

CA Access Control Enterprise Management sets the values of the configuration tokens on the selected UNAB host or host group.

## Verify That CA Access Control Enterprise Management Committed the Policies to the Host

After you formulated the authorization and configuration lists, you can verify that CA Access Control Enterprise Management committed the changes to the UNAB host in the deployment audit option.

### To verify that CA Access Control Enterprise Management committed the policies to the host

1. In CA Access Control Enterprise Management select the Policy Management tab, Policy task and expand the Deployment option.

The deployment option menu opens.

2. Select the Deployment Audit option.

The deployment audit search screen opens.

3. Select the host and the policy to display and click GO.

The query displays the search results.

**Note:** Login policies contains the prefix **login@**

4. Click the results line to display the deployment status.

CA Access Control Enterprise Management displays the deployment task's status and output.

## Resolve Migration Conflicts

UNAB logs conflicts found during the migration process in the conflicts file. This file details the cause of the conflicts that prevented the migration of users and groups from the local host to Active Directory.

You export the conflicts file into a CSV file, download the spreadsheet to your computer, review, and resolve the conflicts. You can later upload the modified spreadsheet back into CA Access Control Enterprise Management, which sends it to the Message Queue server. UNAB retrieves the file and restarts the migration process to migrate the users and groups that were not previously migrated.

**Note:** If you migrate a host group, you cannot download the conflicts file. However, you can upload a corrected conflicts file to resolve conflicts in the migration process.

### To resolve migration conflicts

1. In CA Access Control Enterprise Management, do as follows:
  - a. Click Policy Management.
  - b. Click UNIX Authentication subtab.  
A list of available tasks appears.
2. Do *one* of the following:
  - Click Resolve Host Migration Conflicts.  
The Resolve Host Migration Conflicts: Host Search screen appears.
  - Click Resolve Host Group Migration Conflicts.  
The Resolve Host Group Migration Conflicts: Host Group Search screen appears.
3. Type in the name of the host or host group you want to resolve conflicts for and click Search.  
A list of hosts or host groups that match the filter criteria appear.
4. Select the host or host group to resolve conflicts for and click Select.  
The UNAB Migration: *HostName* or UNAB Migration: *HostGroupName* page appears.
5. (Optional) Download the conflicts file for a host migration and resolve the conflicts, as follows:
  - a. Select the Export and Download link in the Download UNAB Migration Conflicts Details section.  
A dialog window opens.
  - b. Navigate to the location to save the file and select Save.  
The CSV file downloads to the specified location.
  - c. Open the CSV file, resolve the conflicts that are reported in the file, and save and close the file.
6. (Optional) Create and save a CSV file that resolves the conflicts for a host group migration.
7. Upload a CSV file resolves the conflicts for a host or host group migration, as follows:
  - a. Select the Browse button in the Upload UNAB Migration Solution section.  
A dialog window opens.
  - b. Browse for the file and click Open.
  - c. Click Upload.  
The file is uploaded.

8. Click Submit.

CA Access Control Enterprise Management sends the file to the Message Queue sever. UNAB retrieves the file from the queue and restarts the migration process, attempting to migrate the resolved accounts and groups.

9. Review the conflicts file again after the migration ends to verify that the user accounts and groups that were previously reported in the file were successfully migrated.

**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.

### Example: The UNAB Conflicts File Output

The following example is an extract of the UNAB conflicts file output that was created during the migration process:

```
USER,john,MIGRATE,,NO AD,1354,/tmp,201,,,user for doall proc
```

In this example, UNAB reported that the user john was migrated (MIGRATE) to Active Directory and that no conflicts were discovered (NO). Further, the file states the user ID (1354), the home directory (/tmp), the group ID (201) and the GECOS information (user for doall proc).

**Note:** For more information about the UNAB conflicts file, see the *Reference Guide*.

## Stop UNAB

To deny access to the UNIX computer from Active Directory users, or when you install a new version of UNAB, you need to stop UNAB.

You stop UNAB by stopping the uxauthd daemon.

### To stop UNAB

1. Log in to the UNIX computer as a superuser.
2. Enter the following command:

```
./uxauthd -stop
```

The UNAB daemon stops.

A message informs you that the daemon stopped.

## View UNAB Status

Use this option to view the current status of UNAB.

### To view UNAB status

1. Log in to the UNIX computer as a user that has management privileges on that computer.
2. Run the `uxauthd` program with the following argument.

```
./uxauthd -status
```

A message informs you about the current status of UNAB.

## UNAB Debug Files

The agent section of the UNAB configuration file (in the `uxauth.ini` file) defines the debugging information collected by the agent at run time. By default, UNAB collects debug information in the following file:

```
<install dir>/log/debug/
```

```
/gent_debug
```

The agent logs debug messages in the debug file when it starts (with the `start` option), so long as the debug mechanism is enabled in the UNAB debug file.

When you use the `-debug` option to start the UNAB, a debug message appears in the user console.



# Chapter 9: Creating Reports

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This section contains the following topics:

[Security Standards](#) (see page 165)

[Report Types](#) (see page 166)

[Reporting Service](#) (see page 166)

[Standard Reports](#) (see page 171)

[BusinessObjects InfoView Report Portal](#) (see page 196)

[How to View Reports in CA Access Control Enterprise Management](#) (see page 200)

[Custom Reports](#) (see page 204)

## Security Standards

With the migration from a paper-based operational environment to one that focuses on electronic media, corporations have become significantly exposed to local and remote attacks on those data. To address these concerns, several security initiatives have been implemented in the areas of general global security, financial accuracy and reporting, the safe guarding of private monetary information and individual identities, the protection of health-care related information, and a US government-wide standardization of security best practices.

The following security standards, acts, and requirements provide a useful summary of the root of the best practice reporting that is being performed by CA Access Control reporting service:

### **Payment Card Industry Data Security Standards (PCI DSS)**

*PCI DSS* is an industry standard that was developed by the major credit card companies to help prevent security issues including fraud and hacking. Companies who accept, capture, store, transmit, or process credit and debit card data must comply with PCI DSS.

### **Health Insurance Portability and Accountability Act (HIPAA)**

*HIPAA* is a United States federal law that protects health insurance coverage when workers change or lose their jobs. HIPAA also addresses the security and privacy of health data.

### **Sarbanes-Oxley Act (SOX)**

*SOX* is a United States federal law that stipulates standards for financial reporting. It applies to the boards and management of all U.S. public companies.

## Report Types

You can view information about CA Access Control data and events in two different report types:

- CA Access Control reports—Describe who can do what.

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 policy deviations. You view CA Access Control reports in CA Business Intelligence and in CA Access Control Enterprise Management.

- Audit reports—Describe who did what.

Audit reports provide information about the data in the audit log file (seos.audit) on each endpoint, that is, information about which users performed what actions on the endpoint. You view audit reports in CA Enterprise Log Manager and in CA Access Control Enterprise Management.

**Note:** For more information about viewing audit reports in CA Enterprise Log Manager, see the *CA Enterprise Log Manager Overview Guide*.

**Note:** You must install and configure additional components to view CA Access Control reports and CA Access Control audit reports. For more information, see the *Implementation Guide*.

## Reporting Service

CA Access Control reporting service lets you view the security status of each endpoint (users, groups, and resources) in a central location. 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. CA Access Control reporting service, once set up, works independently to collect data from each endpoint and report it to a central server and continues to report endpoint status without the need for manual intervention. This means that each endpoint reports on its status whether the collection server is up or down.

CA Access Control reporting service is useful for BS 7799/ISO 17799, Sarbanes-Oxley (SOX), Payment Card Industry (PCI), Health Insurance Portability and Accountability Act (HIPAA), Federal Information Security Management Act (FISMA) environments, and others. It offers a solution wherever you must know the true endpoint status of users, groups, and resource access across thousands of endpoints.

The reporting service is structured to let you interrogate the data that is collected from each endpoint. You can build custom reports for a variety of purposes, or use the existing reports that CA Access Control provides out of the box. Because the reporting service is server-based, it lets you centralize report storage and management and provides secure access (SSL) to reports. The reporting service can be configured for high availability. You can install the reporting service components on a single server or in a distributed configuration.

**Note:** The reporting service components are external to the CA Access Control enforcement system and add value to an existing implementation without the need to reconfigure it.

## Reporting Service Components

The reporting service comprises the following core components:

- 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.
- 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 from 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.
- A *central database* is a Relational Database Management System (RDBMS) that holds information for CA Access Control Enterprise Management functionality, including reporting. You can use various tools to interrogate the data stored in the database about your CA Access Control implementation.
- A *Report Portal* is an application server that serves CA Access Control reports. The server uses BusinessObjects InfoView portal to let you interact with the reporting information that is stored on the central database.
- CA Access Control Enterprise Management Server is used to read reporting data from the Message Queue and store the data in the central database.
- Built-in reports are included to let you easily present data for common reporting scenarios.
- A computer on which you run the Web-based interface that lets you view and manage reports.

**Note:** For more information about CA Access Control reporting service implementation and architecture, see the *Implementation Guide*.

## How the Reporting Service Works

The reporting service lets you examine the data that is collected from each CA Access Control and UNAB endpoint, the user store, and the PUPM policy store. To set up the reporting service correctly, you need to know how it works to collect, store, and generate reports from the data.

The reporting service does the following:

- Collects data from each CA Access Control and UNAB endpoint.  
Each endpoint sends report data to the Message Queue on the Distribution Server.
- Stores the data on a central server.  
CA Access Control Enterprise Management retrieves the report data from the Message Queue and stores it in the central database.
- Captures snapshots of the report data in the central database.  
CA Access Control Enterprise Management captures PUPM report data as part of the snapshot.
- Generates reports from the stored data.  
Once there is data available in the central database, you use the Report Portal to generate reports and interrogate the stored data. The Report Portal is a CA version of the BusinessObjects InfoView portal, configured to connect to the central database, and bundled with the ready-made CA Access Control reports.

**Note:** For information about the reporting service architecture, see the *Implementation Guide*.

## How Data for Reporting Is Collected from Each Endpoint

To generate reports, data from each endpoint has to be collected. The reporting service uses a Report Agent, installed on each CA Access Control and UNAB endpoint, to collect data from that endpoint at scheduled times or on-demand.

**Note:** The Report Agent is also responsible for collecting and routing audit data for integration with CA Enterprise Log Manager. This process describes only those actions that the Report Agent takes for reporting on the endpoint.

The Report Agent performs the following actions on each endpoint:

1. Performs a deviation calculation and sends the results to the Distribution Server.

**Important!** If you have the Report Agent set to run regularly, and you do not need to have the DMS updated, you do not need to schedule a policy deviation calculation separately.

2. Creates a copy of the CA Access Control database (seosdb) and each Policy Model database (PMDb) on the CA Access Control endpoint, or creates a copy of the UNAB database on the UNAB endpoint.

This is a temporary copy that the Report Agent takes so that it can process data without affecting CA Access Control performance.

3. Dumps the data from each database into an XML structure.

This is a dump of all of the objects in the database, meaning that all data is captured, not just data that is visible through database interface utilities (such as selang).

4. Sends an XML version of the database to the Distribution Server.

The Report Agent sends the data to the reporting queue on the Distribution Server.

**Note:** Data for reporting is not collected from PUPM endpoints. CA Access Control Enterprise Management collects PUPM data when it captures a snapshot of the central database.

### How Data from Each Endpoint is Processed and Stored

When data is collected on each endpoint, it is sent for processing on the Distribution Server. The processed data is then sent for storage on the central database for report generation.

The Distribution Server performs the following actions:

1. Receives, from the Report Agent on each endpoint, an XML dump of the entire database of the endpoint.
2. Processes the XML dumps using a Message Driven Bean (MDB) according to the database schema.

Each incoming XML message file is transformed into Java objects for placement in a central database.

3. Inserts each Java object into the central database.

The data from each endpoint is now available for retrieval from the central database.

**Note:** Endpoint data must be retrieved by the Report Portal, that is, captured in a snapshot, before it is available for inclusion in reports.

## How CA Access Control Enterprise Management Captures Snapshots

CA Access Control Enterprise Management must capture report data, including endpoint dumps, in a snapshot before the data appears in a report. After CA Access Control Enterprise Management captures a snapshot, you can generate and view CA Access Control reports.

At the time specified in the snapshot definition, CA Access Control Enterprise Management performs the following actions to capture a snapshot:

- Extracts data from the user store into the central database.
- Extracts data from the PUPM policy store into the central database.
- Flags the latest endpoint snapshots that exist in the central database for inclusion in the snapshot.

## Send a Report Snapshot to the Distribution Server

When you configure an endpoint for reporting, you specify the times at which the Report Agent collects scheduled snapshots of the local CA Access Control database and any PMDBs on the endpoint and sends the snapshot to the reports queue on the Distribution Server. If you do not want to wait for the scheduled time, you can send a report snapshot to the Distribution Server immediately.

**Note:** You can change the Report Agent schedule by changing the schedule configuration setting in the ReportAgent section of the accommon.ini file or the CA Access Control registry key.

### To send a report snapshot to the Distribution Server

1. Open a command prompt window on an endpoint.
2. (UNIX) Navigate to the following directory:

```
ACSharedDirbin
```

**Note:** By default, the *ACSharedDir* directory is located at `/opt/CA/AccessControlShared`.

3. Run the Report Agent on the endpoint:

```
ReportAgent -report snapshot
```

The Report Agent sends a snapshot of the CA Access Control database and any local PMDBs to the report queue on the Distribution Server.

**Note:** For more information about configuring an endpoint for reporting, see the *Implementation Guide*. For more information about the ReportAgent section, see the *Reference Guide*.

## Standard Reports

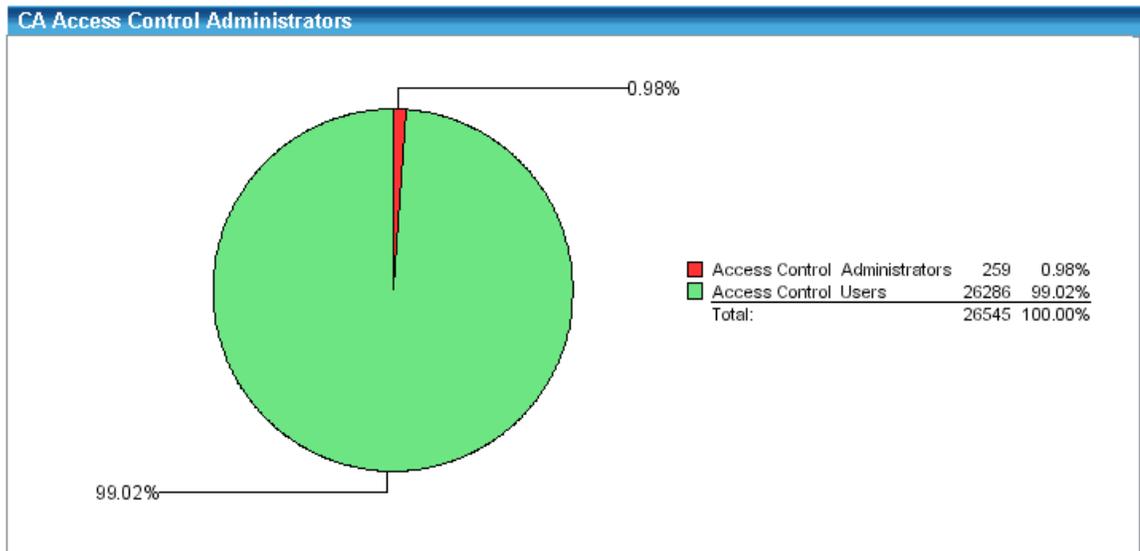
Out of the box, CA Access Control reporting service comes with standard reports as part of the default product installation. The reports are divided into the following categories:

- [Account management reports](#) (see page 173)
- [Entitlement reports](#) (see page 177)
- [Miscellaneous reports](#) (see page 178)
- [Policy management reports](#) (see page 181)
- [Password policies reports](#) (see page 184)
- [Privileged accounts management reports](#) (see page 185)
- [UNIX Authentication Broker reports](#) (see page 189)

In addition to the standard reports, you can augment the reports and make similar reports with different features, or generate completely new reports.

## What Reports Look Like

The reports output uses tables, and graphics when appropriate. For example, a pie chart graphic is presented to provide a quick reference visual aid to determine, at a glance, the vulnerability of a specific endpoint position. As shown in the figure below, the CA Access Control Administrators report provides a pie chart of how many endpoint users are CA Access Control administrators. A high ratio of administrators to normal users may pose as security risk, so the graphic quickly shows if there is a security exposure. In this example, a large red wedge in the chart is bad because it shows that almost 1% of the current enterprise user base can perform CA Access Control administration.



In addition to the graphic, each report has an associated listing of the actual endpoint values. The following is a sample of this table from the CA Access Control Administrators report:

CA Access Control Administrators					
User Name	Full Name	Host ID	Has Administrator Mode	Has Password Manager Mode	Has Operator Mode
_seagent					
		SYSTEMA	yes		
		SYSTEMB	yes		
		SYSTEMC	yes		

---

## Account Management Reports

The standard account management reports provide an overview of user accounts.

**Note:** The report title is the name as it appears in BusinessObjects InfoView.

Following is the list of standard account management reports:

- [CA Access Control Administrators](#) (see page 173)
- [CA Access Control Group User Membership](#) (see page 173)
- [CA Access Control Groups](#) (see page 174)
- [CA Access Control Inactivity Days](#) (see page 174)
- [CA Access Control Password Change](#) (see page 174)
- [CA Access Control Password Expiration](#) (see page 175)
- [CA Access Control Password Policy Compliance \(Accounts\)](#) (see page 175)
- [CA Access Control Password Policy Compliance \(Hosts\)](#) (see page 175)
- [CA Access Control Segregation of Duties](#) (see page 176)
- [CA Access Control User Group Membership](#) (see page 176)
- [CA Access Control Users Creation Date](#) (see page 176)
- [CA Access Control Users Suspend Date](#) (see page 176)
- [CA Access Control Users Update Date](#) (see page 177)

### CA Access Control Administrators

The CA Access Control Administrators report displays a list of all the users that have CA Access Control administrative privileges. These include users that have the ADMIN, PWMANAGER, or OPERATOR attribute. The report displays summary data in a pie chart and a detailed listing by user name in a tabular format.

If a large number of users can administer CA Access Control then this may expose the enterprise to a security risk. Of course, if the endpoints being evaluated are in a development or test environment then it may be perfectly normal for the majority of users on the systems to be CA Access Control administrators.

### CA Access Control Group User Membership

The CA Access Control Group User Membership report provides a view of user groups and their members. The report displays the details in a tabular format.

To simplify administration, each user in the CA Access Control environment can be included as a member of one or more currently defined CA Access Control groups. Additionally, you can permit resource access based on group definitions in addition to user definitions. Therefore, carefully reviewing your groups and their members is important to ensuring that group membership is not granting permissions to resources that you did not intend.

## CA Access Control Groups

The CA Access Control Groups report displays the defined hosts on which a group exists, the group's description, and whether it contains any child groups known as nested groups.

Understanding which groups exist on which hosts throughout your enterprise is useful in trying to manage administration. Additionally, knowing which groups contain other groups is useful in determining why a particular user or group can access a specific resource.

## CA Access Control Inactivity Days

The CA Access Control Inactivity Days report displays users that have not logged on during the specified period, such as 90 days. It also displays whether those users are suspended, or whether they are still able to access the system. The report includes a summary pie chart that highlights users whose accounts are inactive but suspended, and those that are inactive but not suspended.

A significant audit point in all enterprise environments is knowing what users have current access to the environment and when the last access was performed. In addition to showing when a user last accessed a resource, logging into an endpoint, for example, it is also required to show how long accounts have been inactive. This report is useful in proving the access regularity of service accounts and identifying accounts that are still open but have not been accessed in a specific time frame.

## CA Access Control Password Change

The CA Access Control Password Change report displays the list of user accounts who must change their password within a specified time period. The report provides a summary pie chart of the user accounts that do not need to change their password, those who need to update their password, and those whose passwords have expired. The report also provides details such as host ID and days remaining until passwords expiration for user accounts.

An audit requirement that is similar to knowing the state of stale passwords is the requirement to know the list of users who have pending password changes. Using this knowledge, you can determine the pending security exposure from accounts that may go stale soon.

## CA Access Control Password Expiration

The CA Access Control Password Expiration report displays the user accounts that have not updated their passwords within a specified number of days. The report provides a summary pie chart that identifies user accounts that have updated their passwords, those whose system access has been suspended due to an expired password, and those whose password has expired, but still have access to the system. The report provides details on user accounts that have not changed their passwords in the last x days including host ID, last password change date, and the reason the user account still has access to the system.

CA Access Control has the ability to enhance endpoint password security by providing additional quality checks, and maintaining a history of prior passwords to prevent frequent reuse. As part of this component, the password last change date is maintained. By using this component of the password quality model, CA Access Control can identify which users in the enterprise have not changed their password in a specified time period. The significance of this report is that you can use it to centrally determine possible weaknesses in the enterprise login environment due to stale passwords.

## CA Access Control Password Policy Compliance (Accounts)

The CA Access Control Password Policy Compliance (Accounts) report displays the user accounts whose passwords do not comply with your password policy, such as password length and minimum numeric and alphabetic characters. The report provides a summary pie chart that identifies the number of user accounts that comply with the policy and those that do not. The report also provides details on the user accounts that do not apply with the policy in tabular format.

## CA Access Control Password Policy Compliance (Hosts)

The CA Access Control Password Policy Compliance (Hosts) report displays the hosts on which the passwords for user accounts do not comply with your password policy, such as password length and minimum numeric and alphabetic characters. The report provides a summary pie chart that identifies the number of hosts that comply with the policy and those that do not. The report also provides details on the hosts that do not apply with the policy and the user accounts on those hosts in tabular format.

## CA Access Control Segregation of Duties

The CA Access Control Segregation of Duties report displays the user accounts that violate a segregation of duties policy such as users cannot be members of both the administrators and auditors user groups. The report provides a summary pie chart that compares the number of users that comply and do not comply with the policy. The report also includes details about the user accounts that do not comply with the policy and the host ID.

All endpoints in all enterprise environments require maintenance by users that must have access to OS and application components. Commonly, the system administrator maintains the computer from the OS viewpoint, and an application administrator maintains the computer from an application viewpoint. For example, a Solaris system administrator may update entries in the UNIX host file while an Oracle DBA may maintain tables in the Oracle database.

The advantage of this model is that the system administrator is limited in the ability to compromise an application, and the application administrator is limited in the ability to compromise the OS. It is generally not a good practice to have a system administrator that is also an application administrator.

This report helps identify users whose roles may not be properly scoped by identifying users that are in one group and another group. This group intersection detection and reporting is highly beneficial to satisfying one of the major audit points for ISO7799, SOX, PCI, HIPAA and the DoD.

## CA Access Control User Group Membership

CA Access Control User Group Membership report displays users and the user groups they belong to for each host in the deployment. The report provides details arranged by Host ID of the users and the groups to which they belong.

## CA Access Control Users Creation Date

The CA Access Control Users Creation Date reports displays the user accounts created within a specific time period on a specified host or all hosts in your deployment. The report provides details on the date the user account was created arranged by host ID and then user account.

## CA Access Control Users Suspend Date

The CA Access Control Users Suspend Date reports displays the user accounts suspended within a specific time period on a specified host or all hosts in your deployment. The report provides details on the date the user account was suspended arranged by host ID and then user account.

---

## CA Access Control Users Update Date

The CA Access Control Users Update Date reports displays the user accounts updated within a specific time period on a specified host or all hosts in your deployment. The report provides details on the date the user account was updated arranged by host ID and then user account.

## Entitlement Reports

The standard entitlement reports provide an overview of user and resource entitlements.

**Note:** The report title is the name as it appears in BusinessObjects InfoView.

Following is the list of standard entitlement reports:

[CA Access Control Baseline Resource Compliance \(Hosts\)](#) (see page 177)

[CA Access Control Group Privileges](#) (see page 177)

[CA Access Control Resource Access by Group](#) (see page 178)

[CA Access Control Resource Access by User](#) (see page 178)

[CA Access Control User Privileges](#) (see page 178)

## CA Access Control Baseline Resource Compliance (Hosts)

The CA Access Control Baseline Resource Compliance (Hosts) report displays the user accounts that have non-default access to a specified resource. The report provides a summary pie chart that displays a count of the hosts on which the non-default access is permitted and the total number of user accounts that have non-default access. The report also provides details by host of the access permissions for each of the user accounts with non-default access.

## CA Access Control Group Privileges

The CA Access Control Group Privileges report displays a list of all the resources that a user group can access. The report displays a detailed listing by resource name in a tabular format that identifies the following:

- Host ID
- Access privileges
- Whether access is granted by default or by using a program
- Any restrictions such as the name of an applicable calendar or other time restriction
- Whether the access is granted because the user group owns the resource

Using this report, you can determine which user groups have access to defined resources throughout your enterprise or for a particular host. After review, you may decide to change the access privileges to meet your security policy.

### CA Access Control Resource Access by Group

The CA Access Control Resource Access by Group report displays the access privileges granted to user groups for a specified resource. The report provides a detailed list of all the user groups that have access to the resource including Host ID, access privileges, whether default access is granted, and any other restrictions, such as day and time are specified.

### CA Access Control Resource Access by User

The CA Access Control Resource Access by User report displays the access privileges granted to user accounts for a specified resource. The report provides a detailed list of all the user accounts that have access to the resource including Host ID, access privileges, whether default access is granted, and any other restrictions, such as day and time are specified.

### CA Access Control User Privileges

The CA Access Control User Privileges report displays access permissions for a user, arranged by resource. For each resource that the user can access, the report provides the user's access types, default access, any programs the users can use to access the resource, and any time restrictions on the user's access to the resource. The report also specifies if the user is the resource owner.

## Miscellaneous Reports

The standard miscellaneous reports provide information about monitored files, monitored programs, and the readiness of UNIX hosts to unload the CA Access Control kernel without rebooting the system.

**Note:** The report title is the name as it appears in BusinessObjects InfoView.

Following is the list of standard miscellaneous reports:

[CA Access Control Monitored Files](#) (see page 179)

[CA Access Control Monitored Programs](#) (see page 179)

[CA Access Control UNIX Hosts with Unload Considerations](#) (see page 180)

[CA Access Control UNIX Unload Readiness](#) (see page 180)

### CA Access Control Monitored Files

The CA Access Control Monitored Files report displays the state of critical system files on hosts throughout the enterprise. The report provides a summary pie chart indicating on which hosts the file is not monitored, on which hosts the file is monitored but has been modified, and on which hosts the file is monitored and remains in a trusted state. The report also provides details on the file such as host ID so that you can review the policy for the file on that host or so you can review whether modifications to the file were made by authorized users.

Ensuring that critical system files are monitored is essential to protecting the integrity of your data. Knowing when changes are made to the files provides an audit trail so that you can verify that authorized users made the changes according to your security policy.

### CA Access Control Monitored Programs

The CA Access Control Monitored Programs report displays the state of critical programs on hosts throughout the enterprise. The report provides a summary pie chart indicating on which hosts the program is not monitored, on which hosts the program is monitored but has been modified, and on which hosts the program is monitored and remains in a trusted state. The report also provides details on the program such as host ID so that you can review the policy for the program on that host or so you can review whether modifications to the program were made by authorized users.

Ensuring that critical programs are monitored is essential to protecting the integrity of your data. Knowing when changes are made to the programs provides an audit trail so that you can verify that authorized users made the changes according to your security policy.

## CA Access Control UNIX Hosts with Unload Considerations

The CA Access Control UNIX Hosts with Unload Considerations report displays UNIX hosts that have intercepted system calls that may prevent you unloading the CA Access Control kernel. On these hosts, you need to reboot the computer before you can unload the kernel and upgrade CA Access Control.

The report lists the process and parent process IDs, the program name, blocking time, and threshold time for each host with unload considerations. The report also specifies if each system call is blocking or non-blocking.

The report groups hosts in the following categories:

- **Not ready (overflow)**—The system calls table exceeds its size, and a reboot is required to unload the kernel.
- **Not ready (blocking system calls)**—Blocking intercepted system calls exist, and a reboot is required to unload the kernel.
- **Probable (non-blocking system calls)**—Non-blocking intercepted system calls exist, and a reboot is probably not required to unload the kernel.

## CA Access Control UNIX Unload Readiness

The CA Access Control UNIX Unload Readiness report displays the readiness of UNIX hosts to unload the CA Access Control kernel and upgrade CA Access Control without rebooting the system.

The report provides a summary pie chart that shows the proportion of hosts that are ready for the kernel unload, probably ready for the kernel unload, and not ready for the kernel unload. The report also provides the number of intercepted and non-blocking system calls for each host.

The report groups hosts in the following categories:

- **Not ready (overflow)**—The system calls table exceeds its size, and a reboot is required to unload the kernel.
- **Not ready (blocking system calls)**—Blocking intercepted system calls exist, and a reboot is required to unload the kernel.
- **Probable (non-blocking system calls)**—Non-blocking intercepted system calls exist, and a reboot is probably not required to unload the kernel.
- **Ready**—No intercepted system calls exist, and a reboot is not required to unload the kernel.
- **Not applicable**—The host is not a UNIX host.
- **Unknown status**—No information is available for the host.

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## Policy Management Reports

The standard policy management reports provide information about your CA Access Control Enterprise Management policies.

**Note:** The report title is the name as it appears in BusinessObjects InfoView.

Following is the list of standard policy management reports:

- [CA Access Control Policy Assignment](#) (see page 181)
- [CA Access Control Policy Deployment Scorecard](#) (see page 181)
- [CA Access Control Policy Deployment Scorecard by Host](#) (see page 182)
- [CA Access Control Policy Deployment Scorecard by Host Group](#) (see page 182)
- [CA Access Control Policy Deployment Status by Host](#) (see page 182)
- [CA Access Control Policy Deployment Status by Host Group](#) (see page 183)
- [CA Access Control Policy Inventory](#) (see page 183)
- [CA Access Control Policy Rules](#) (see page 183)
- [CA Access Control Policy Versions](#) (see page 183)
- [CA Access Control Rule Deviations by Host](#) (see page 184)
- [CA Access Control Rule Deviations by Host Group](#) (see page 184)

### CA Access Control Policy Assignment

The CA Access Control Policy Assignment report displays assignment details for policies deployed on the hosts and host groups that are defined on a specified DMS. The report displays the following information:

- Policy name
- Assignment type (host or host group)
- The names of the hosts and host groups on which the policy is deployed

### CA Access Control Policy Deployment Scorecard

The CA Access Control Policy Deployment Scorecard report displays deployment information for a specified policy. The report provides a summary pie chart with the following information:

- The number of hosts on which the policy is correctly deployed.
- The number of hosts on which the policy is deployed with errors or deviations.
- The number of hosts that are At Risk (the policy is assigned to the host, but the policy is not deployed on the host).

The report also provides details of any problems with the policy deployment, arranged by host.

### CA Access Control Policy Deployment Scorecard by Host

The CA Access Control Policy Deployment Scorecard by Host report displays deployment information for policies, arranged by host. The report provides a summary pie chart with the following information:

- The number of hosts on which the policy is correctly deployed.
- The number of hosts on which the policy is deployed with errors or deviations.
- The number of hosts that are At Risk (the policy is assigned to the host or a host group of which the host is a member, but the policy is not deployed on the host).

The report also provides details of any problems with the policy deployment, arranged by host.

### CA Access Control Policy Deployment Scorecard by Host Group

The CA Access Control Policy Deployment Scorecard by Host Group report displays deployment information for policies, arranged by host group. The report provides a summary pie chart with the following information:

- The number of hosts in the host group on which the policy is correctly deployed.
- The number of hosts in the host group on which the policy is deployed with errors or deviations.
- The number of hosts in the host group that are At Risk (the policy is assigned to the host group, but the policy is not deployed on the hosts).

The report also provides details of any problems with the policy deployment, arranged by host group.

### CA Access Control Policy Deployment Status by Host

The CA Access Control Policy Deployment Status by Host report displays status information for policies, arranged by host. The report provides version information for each policy, including:

- Deviation status
- Deployment time
- The name of the user who deployed the policy

### CA Access Control Policy Deployment Status by Host Group

The CA Access Control Policy Deployment Status by Host Group report displays status information for policies, arranged by host group. The report provides version information for each policy, including:

- Deviation status
- Deployment time
- The name of the user who deployed the policy

The report also lists the hosts within the host group on which the policy is deployed.

### CA Access Control Policy Inventory

The CA Access Control Policy Inventory report displays a snapshot of the policies stored on a DMS, including:

- The time each policy was last updated
- The name of the user who last updated the policy
- The number of deployed versions of the policy
- The last finalized version of the policy
- The name of any policies that the policy is dependent on

**Note:** If a policy is dependent on another policy, it cannot be deployed until the policy that it depends on is deployed.

### CA Access Control Policy Rules

The CA Access Control Policy Rules report displays the deploy and undeploy scripts for each rule in a policy, arranged by policy name. The report provides the date the rules were last updated, and the name of the user who last updated the rules. The report also specifies if the policy is finalized and ready for deployment, and the policy version number.

### CA Access Control Policy Versions

The CA Access Control Policy Versions report displays version information for each policy, arranged by policy name. For each policy, the report provides:

- The current version number
- The date the version was deployed
- The name of the user who deployed the current version

The report also specifies if the current version is finalized.

### CA Access Control Rule Deviations by Host

The CA Access Control Rule Deviations by Host report displays policy status and rule deviations, arranged by host. The report provides a list of policies on each host, and the status, version, and deviation status of each policy. If a rule deviation exists for the policy, the report provides details of the deviation, that is, details of the resources and properties to which the deviation applies.

### CA Access Control Rule Deviations by Host Group

The CA Access Control Rule Deviations by Host Group report displays policy status and rule deviations, arranged by host group. The report provides a list of policies on each host group, and the status, version, and deviation status of each policy. If a rule deviation exists for the policy, the report provides details of the deviation for each host member of the host group, that is, details of the resources and properties to which the deviation applies.

## Password Policies Reports

The password policies reports provide information about the password policies defined in CA Access Control.

Following is the list of standard password policy reports:

[CA Access Control Privileged Accounts by Password Policy](#) (see page 184)

[CA Access Control PUPM Password Policy](#) (see page 185)

### CA Access Control Privileged Accounts by Password Policy

This report displays the list of all the privileged accounts in the system and their corresponding password policy. Using this report, you can determine which privileged accounts are associated with which password policy. After reviewing the report, you can decide if the current status meets your needs or should you re-assign the privileged accounts.

The report displays the following information:

- Snapshot time
- Password policy name
- Endpoint type and name
- Account name
- Last check out date
- Last password change

## CA Access Control PUPM Password Policy

This report displays the current password policies according to their complexity. Using this report you can determine if the existing password policy minimum and maximum length and other policy parameters meet your security standards.

This report displays the following information:

- Snapshot date
- Password policy name and description
- Maximum length
- Minimum length
- Password policy parameters

## Privileged Account Management Reports

The Privileged Account Management reports provide a detailed view of privileged accounts management.

Following is the list of standard privileged account management reports:

- [CA Access Control Privileged Accounts by Endpoint](#) (see page 185)
- [CA Access Control PUPM Roles and Privileged Accounts by User](#) (see page 186)
- [CA Access Control Privileged Accounts Requests by Endpoint](#) (see page 186)
- [CA Access Control Privileged Accounts Requests by Approver](#) (see page 187)
- [CA Access Control Privileged Accounts Requests by Requester](#) (see page 187)
- [CA Access Control PUPM Users by Privileged Accounts](#) (see page 188)
- [CA Access Control PUPM Users by Role](#) (see page 188)

## CA Access Control Privileged Accounts by Endpoint

This report displays lists the privileged accounts by endpoint type and endpoint Name. Using this report lets you see the privileged accounts according to their endpoint type and name. After you review the report, you can determine the number privileged accounts are associated with each endpoint.

This report displays the following information:

- Snapshot time
- Endpoint type and name
- Account name
- Last check out user
- Last check out
- Last password change

### CA Access Control PUPM Roles and Privileged Accounts by User

This report displays a list of privileged access roles and privileged accounts according to user account. Using this report, you can review the privileged accounts according to their associated roles and user accounts. After reviewing this report, you can determine which roles are associated with both the privileged accounts and the CA Access Control Enterprise Management user accounts.

This report displays the following information:

- Snapshot time
- User ID
- Endpoint time and name
- Roles name and description
- Account name
- Exception
- Last password change

### CA Access Control Privileged Accounts Requests by Endpoint

This report displays a list the privileged account requests by endpoint type and endpoint name. Using this report you can review the requests that were made for checking out privileged accounts and their corresponding endpoint type and name.

This report displays the following information:

- Snapshot time
- Endpoint type and name
- Account
- Requestor
- Request justification
- Valid until
- Approver
- Approver comments

### CA Access Control Privileged Accounts Requests by Approver

This report displays a list of the privileged accounts requests according to the approver. Using this report you can review the privileged account requests according to the user who approved the requests. After reviewing the report, you can change the approver role ,assign additional users or remove users from the role.

This report displays the following information:

- Snapshot time
- Approver user ID
- Endpoint type and name
- Account
- Requestor name and ID
- Request justification
- Valid until
- Approver comments

### CA Access Control Privileged Accounts Requests by Requester

This report displays the privileged accounts requests according to the user who requested the privileged account's password. Using this report you can review the requests the were made by users for checking out a privileged account. After reviewing this report you can determine how many check out requests were made and by which user.

This report has the following information:

- Snapshot name
- Approver user ID
- Endpoint type and name
- Account
- Request justification
- Valid until
- Approver
- Approver comments

### CA Access Control PUPM Users by Privileged Accounts

This report displays a list of users that have access to privileged accounts according to the endpoint type, endpoint name and the name. Using this report you can determine how user access privileged accounts and the endpoint type and name that each privileged account originated from.

This report displays the following information:

- Snapshot type
- Endpoint type and name
- Privileged accounts name
- User name
- User ID
- Request

### CA Access Control PUPM Users by Role

This report displays the list of users and their associated privileged accounts role. Using this report you can determine how users are associated to privileged accounts roles and decide whether the current status meets your security standards.

This report displays the following information:

- Snapshot time
- Role name
- Number of members
- User name
- User ID
- e-mail address

## UNIX Authentication Broker Reports

The UNAB reports provide a detailed view of UNAB management tasks.

Following is the list of standard UNIX Authentication Broker reports:

- [CA Access Control UNAB Enterprise User Access by Host](#) (see page 189)
- [CA Access Control UNAB Access to Hosts by Enterprise User](#) (see page 189)
- [CA Access Control UNAB Enterprise Users](#) (see page 189)
- [CA Access Control UNAB Enterprise Users Activity](#) (see page 190)
- [CA Access Control UNAB Enterprise Groups](#) (see page 190)
- [CA Access Control UNAB Group Migration Status by Host](#) (see page 190)
- [CA Access Control UNAB Group Migration Status by Group](#) (see page 190)
- [CA Access Control UNAB Hosts by Host Group](#) (see page 190)
- [CA Access Control UNAB Local Groups Migration Status](#) (see page 191)
- [CA Access Control UNAB Local Groups Summary](#) (see page 191)
- [CA Access Control UNAB Local Users](#) (see page 192)
- [CA Access Control UNAB Local Users Summary](#) (see page 193)
- [CA Access Control UNAB Nonstandard Local Users](#) (see page 193)
- [CA Access Control UNAB Nonstandard Local Groups](#) (see page 194)
- [CA Access Control UNAB User Access by Host](#) (see page 194)
- [CA Access Control UNAB User Migration Status by Host](#) (see page 195)
- [CA Access Control UNAB User Migration Status by User](#) (see page 195)

### CA Access Control UNAB Enterprise User Access by Host

This report displays a list of enterprise users that accessed UNAB hosts by host. The report provides you with information about the enterprise users that accessed each host, their last login attempts, and who was granted access to the host (user or group). After you review this report, you can change the access rights enterprise users have to hosts.

### CA Access Control UNAB Access to Hosts by Enterprise User

This report displays a list of enterprise users that accessed UNAB hosts by user. The report provides you with information about the enterprise users that accessed each host, their last login attempts, and who was granted access to the host (user or group). After you review this report, you can change the access rights enterprise users have to hosts.

### CA Access Control UNAB Enterprise Users

This report displays a list of enterprise users that are permitted to access the local host. The report displays the current enterprise user accounts, their ID, home directory, and shell type. After you review this report, you can change user parameters and add or remove enterprise users.

### **CA Access Control UNAB Enterprise Users Activity**

This report displays the activity list for migrated and partially migrated enterprise user accounts. Using this report you can review the activity of enterprise users on the UNIX hosts. The report provides you with information about the most recent successful and failed login attempts, the last successful password change done by the users, and more.

### **CA Access Control UNAB Enterprise Groups**

This report displays the attributes of the enterprise groups. The report provides you with the details (such as group IDs) of enterprise groups.

### **CA Access Control UNAB Group Migration Status by Host**

This report displays the status of the groups migration process by host. Use this report to review the state of every group on your local hosts. This report displays the migration status of the groups and information about conflicts that were discovered during migration, such as conflicting name, ID, and more.

### **CA Access Control UNAB Group Migration Status by Group**

This report displays the status of the groups migration process by group. Use this report to view the migration status of groups that you selected to migrate to Active Directory.

### **CA Access Control UNAB Hosts by Host Group**

This report displays the UNAB hosts groups by host groups. Using this report gives you an overview of the current grouping of the UNAB hosts.

This report contains the following parameters:

- Host group
- Host name
- Total number

### CA Access Control UNAB Local Groups Migration Status

This report displays the status of the migration process for every local group. Using this report lets you review the current status of the migration process on every host.

This report displays the following information:

- Host name
- Migration status
- Group name
- Group ID
- Name conflicting
- GID conflicting
- Members conflicting
- No Active Directory group conflict
- Number of entries

### CA Access Control UNAB Local Groups Summary

This report displays a summary of the local groups parameters. Using this report you gain an overview of how many instances the same group appears on each UNAB host. After reviewing this report you may choose to make changes to the groups parameters.

This report displays the following information:

- Number of hosts
- Group name
- Group ID
- Number of instances

## CA Access Control UNAB Local Users

This report displays the status of the users migration process. This report displays the migration status for the users, the local and Active Directory attributes and more. Reviewing this report gives an insight into the migration process status on every host and allows you to resolve conflicts that were identified during the migration process.

This report displays the following information:

- Host name
- Migration status
- Local user name
- Local user ID
- Enterprise user ID
- Primary local group ID
- Primary enterprise group ID
- Local home directory
- Active Directory home directory
- Local login shell
- Active Directory login shell
- Local GECOS
- Group conflicting
- Number of entries

### CA Access Control UNAB Local Users Summary

This report displays a summary of local user parameters. The information in this report displays the number of instances that a single user account appears on the UNIX hosts.

This report displays the following information:

- Number of hosts
- User name
- User ID
- Group ID
- Home directory
- Login shell
- Number of entries

### CA Access Control UNAB Nonstandard Local Users

This report displays a list of local users with attributes that do not match to accounts of enterprise users attributes. Use this report to inspect and correct any discrepancies between the local users properties and the enterprise account properties, that were discovered during the migration process. This report displays the user account information, as it appears on every host that this account was located on and highlights the discrepancy that were found.

This report displays the following information:

- User name
- Hostname
- User ID
- Group ID
- Home directory
- login shell

### CA Access Control UNAB Nonstandard Local Groups

This report displays the local groups attributes that do not match to those of enterprise groups attributes. Use this report to inspect and correct any discrepancies between the local groups properties and the enterprise groups properties that were discovered during the migration process. This report displays the local group information, as it appears on every host that this group was located on, and highlights the discrepancy that was found.

This report displays the following information:

- Group name
- Host name
- Group ID

### CA Access Control UNAB User Access by Host

This report displays a list of enterprise users that can access the UNIX hosts presented by hosts. Using this report lets you review each host according to the users that are granted or denied access to it, view a summary of their recent successful and failed logins and more . After reviewing the information in this report, you may choose to change users access to hosts.

**Note:** This report does not list users that have default access to hosts.

This report displays the following information:

- Snapshot time
- Host name
- Host group
- User name
- User group
- Access
- No successful login
- Last failed login
- Last failed login attempt
- Rule source
- Number of accounts

### CA Access Control UNAB User Migration Status by Host

This report displays the local users migration status by host. Using this report you can view the status of each user that you selected to migrate. This report displays the user migration status (Fully Migrated, Reserved Local, Partial Migration and Not Migrated) and conflicts that were discovered during the migration process.

This report displays the following information:

- Host name
- Local user name
- Mapped to
- Migration status
- Conflicts
- Total number

### CA Access Control UNAB User Migration Status by User

This report displays the status of the local users migration by user. Using this report you can view the status of each user that you selected to migrate. This report displays the a list of hosts that this account was located on, the migration status (Fully Migrated, Reserved Local, Partial Migration and Not Migrated) and conflicts that were discovered during the migration process.

This report displays the following information:

- Local user name
- Host name
- Mapped to
- Migration status
- Conflicts
- Total number

### CA Enterprise Log Manager Reports

The CA Enterprise Log Manager reports display detailed information about CA Access Control and UNAB accounts activity, resource management and more.

For more information about CA Enterprise Log Manager reports, refer to the CA Enterprise Log Manager documentation.

## BusinessObjects InfoView Report Portal

A *Report Portal* is an application server that serves CA Access Control reports. The server uses BusinessObjects InfoView portal to let you interact with the reporting information that is stored on the central database.

### Open InfoView for Working with Reports

You access CA Access Control reports using BusinessObjects InfoView. The following procedure describes how you access the reporting interface (BusinessObjects InfoView).

#### To open InfoView for working with reports

1. Launch InfoView in *one* of the following ways:

- On the computer where BusinessObjects InfoView is installed, select Start, Programs, BusinessObjects XI Release 2, BusinessObjects Enterprise, BusinessObjects Enterprise Java InfoView.
- From a browser on any computer, navigate to the following URL:

`http://ACRPTGUI_host.ACRPTGUI_port/businessobjects/enterprise115`

*ACRPTGUI\_host*—The name or IP address of the computer where the InfoView is installed (Report Portal).

*ACRPTGUI\_port*—The port number used to access InfoView, by default, 9085.

The InfoView Log On page appears.

2. Enter the credentials you set up when you installed InfoView, and click Log On.

The InfoView Home page appears.

**Note:** For more information about using BusinessObjects InfoView, see the *BusinessObjects Enterprise XI Release 2 InfoView User's Guide*.

## Run a Report

Once you open reporting interface (BusinessObjects InfoView), you can select a report, and run it.

### To run a report

1. Open InfoView.  
The InfoView Home page appears.
2. Expand Home, Public Folders, CA Reports, and click CA Access Control in the left-hand frame.  
The CA Access Control page appears.
3. Click the linked title of the report you want to view.  
The report's page appears, letting you enter additional values to define the scope of the report you want to view.
4. Fill the form fields to define the scope of the report you want to get, and then click OK.

The report's output page appears.

You can perform additional queries to affect report generation. For example, you can choose to include All or select hosts to generate a report from all known hosts or a single host. Additionally you can specify a date range to view all historical data or only data for a specific date range.

**Note:** You can use the % (percent) symbol to specify a wildcard value. The use of % is a standard SQL selection notation and does *not* represent a single character as it normally does in wildcard specifications.

**Note:** For more information about using BusinessObjects InfoView, see the *BusinessObjects Enterprise XI Release 2 InfoView User's Guide*.

## Schedule a Report

There are many ways to run a report. You can run a report by clicking the report title and specifying values, or you can choose from a variety of options to schedule the report.

### To schedule a report

1. Open InfoView.  
The InfoView Home page appears.
2. Expand Home, Public Folders, CA Reports, and click CA Access Control in the left-hand frame.  
The CA Access Control page appears.

3. Click Schedule under the title of the report you want to schedule.  
The Schedule page for the selected report appears.
4. Modify the Run object drop-down list selection to specify when you want the scheduled report to run.
5. Expand the Parameters section to specify values for the execution of the report:
  - a. Click Empty to define a value for each parameter.  
The Enter prompt values section fields appear.
  - b. Define the value as required, and click OK.  
The value you defined is saved for use in running the report.
6. Click Schedule to run the report according to the scheduling options you chose.  
The History page appears, confirming the instance of the report schedule you set.

**Note:** For more information about using BusinessObjects InfoView, see the *BusinessObjects Enterprise XI Release 2 InfoView User's Guide*.

## View a Generated Report

After a report is generated, you can view it by doing either of the following from the CA Access Control report list:

- Click View Latest Instance for the report you want to view.
- Click History, and then click the date and time to choose a report instance to view.

**Note:** For more information about using BusinessObjects InfoView, see the *BusinessObjects Enterprise XI Release 2 InfoView User's Guide*.

## View Report Status

You can find out whether a scheduled report has successfully run by checking its status.

### To view report status

1. Open InfoView.

The InfoView Home page appears.

2. Expand Home, Public Folders, CA Reports, and click CA Access Control in the left-hand frame.

The CA Access Control page appears.

3. Click the History link for the report that you want to view.

The report's History page appears letting you view the list of dates and times the reports were run.

Each entry in the list displays the following:

- Instance Time—Date and time the report was run
- Title—Report title
- Run By—Name of the user who ran the report
- Parameters—Parameters selected for that report run
- Format—Output format of the report
- Status—The current status of the report, such as Success
- Reschedule—A link that lets you run the report again

**Note:** For more information about using BusinessObjects InfoView, see the *BusinessObjects Enterprise XI Release 2 InfoView User's Guide*.

## How to View Reports in CA Access Control Enterprise Management

This process explains how to create and view CA Access Control reports, which provide information about PUPM, CA Access Control and UNAB endpoints, and the user store. You can also view CA Access Control reports in CA Business Intelligence.

To view reports in CA Access Control Enterprise Management, do the following:

1. Create a snapshot definition.

A snapshot definition specifies the report data that CA Access Control collects and defines the snapshot schedule.

2. Verify that you have configured the CA Access Control and UNAB endpoints for reporting.

3. (Optional) Capture snapshot data.

If you do not want to wait for the scheduled snapshot, you can use the Capture Snapshot Data task to collect a snapshot now.

4. Run a report.

The report is created.

5. View the report.

**Note:** For more information about creating a snapshot definition and configuring endpoints for reporting, see the *Implementation Guide*.

### Capture Snapshot Data

Typically, report data is captured in snapshots in scheduled intervals. If you want to capture snapshot data on demand, use the Capture Snapshot Data task to export the data immediately to the central database.

**Important!** Exporting snapshot data can take a long time if you have a large amount of data to export. When the reporting snapshot includes large amounts of data, we recommend that you create a snapshot definition to schedule your snapshots.

**Note:** By default, you must have the System Manager role to capture snapshot data.

### To capture snapshot data

1. In CA Access Control Enterprise Management, do as follows:
  - a. Click Reports.
  - b. Click the Tasks subtab.
  - c. Click Capture Snapshot Data.

The Capture Snapshot Data page appears.

2. Select the name of the snapshot definition to capture, and click Submit.

CA Access Control Enterprise Management exports snapshot data to the central database.

**Note:** You can use the View Submitted Tasks task to check the progress of the task. For more information about creating a snapshot definition, see the *Implementation Guide*.

## Run a Report

CA Access Control reports provide information about PUPM, CA Access Control and UNAB endpoints, and the data in the user store.

Reports consist of data that CA Access Control Enterprise Management captures in snapshots. After CA Access Control Enterprise Management captures a snapshot, the data in the snapshot is available for reports. You must run a report before you can view it. By default, you must have the System Manager or Reporting role to run a report; you must have the specific Reporting role for the report that you want to run.

**Note:** You cannot schedule recurring reports in CA Access Control Enterprise Management. However, you can schedule recurring reports in CA Business Intelligence. If you schedule a report in CA Business Intelligence, you cannot view it in CA Access Control Enterprise Management; however, if you run a report in CA Access Control Enterprise Management, you can view it in CA Business Intelligence.

### To run a report

1. In CA Access Control Enterprise Management, do as follows:

- a. Click Reports.
- b. Click the language subtab.

The language subtab is the name of the language in which you installed CA Access Control Enterprise Management. For example, if you installed CA Access Control Enterprise Management in English, the English subtab is displayed.

- c. Expand the tree for the report type that you want to run in the task menu on the left.

A list of reports appears.

2. Select the report that you want to run.

A parameters screen appears.

3. Provide any parameter information required.

Consider the following when you enter parameter information:

- If you specify a numeric parameter but enter a non-numeric value for that parameter, the report fails.
- If you specify a parameter and the central database does not have any values for that parameter, the report is empty.

For example, if you define a report on one or more users and the central database does not have any user data, the report is empty because there is no user data to report on.

**Note:** Press Ctrl+click to select multiple parameters.

4. Click Submit.

The report is submitted to the Report Server.

### More information:

[Schedule a Report](#) (see page 197)

## View a Report

CA Access Control reports provide information about PUPM, CA Access Control and UNAB endpoints, and the data in user store. You must run a CA Access Control report before you can view it.

**Note:** Enable third-party session cookies in your browser to view reports in CA Access Control Enterprise Management. By default, you must have the System Manager or Reporting role to view reports.

### To view a report

1. In CA Access Control Enterprise Management, do as follows:

- a. Click Reports.
- b. Click Tasks subtab.
- c. Click View My Reports.

The View My Reports: Configure Manage Reports Screen appears.

2. Search for the report that you want to view.

A list of reports matching the search criteria is displayed.

3. Select the report that you want to view.

The report is displayed.

4. (Optional) Click Export this report (top left corner) to export the report to the following formats:

- Crystal Reports
- Excel
- PDF
- Word
- RTF

The report is exported.

## Manage Snapshots

CA Access Control Enterprise Management lets you view, modify, and delete your snapshot definitions. When you view or modify a snapshot definition, the Profile, Recurrence, and Maintenance tabs are shown. The Maintenance tab will only appear after a snapshot has been captured once.

**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.

To view, modify, or delete a snapshot definition, go to Reports, Tasks, Manage Snapshot Definition and click the task that you want to execute.

**Note:** If a snapshot definition is being used to export data to the central database, you cannot delete the snapshot definition. When you delete a snapshot definition that is being used, the export of the data to the central database stops, but the snapshot definition is still available.

## Custom Reports

All of the CA Access Control reports were created using Crystal Reports Designer XI. These are then presented through BusinessObjects InfoView in a web-based format. To customize the provided reports, you must have Crystal Reports Designer XI.

**Note:** The instructions in this guide provide some hints to help you start with report customization. For more information about Crystal Reports Designer XI, see the *BusinessObjects Enterprise XI Release 2 Designer's Guide*.

### CA Access Control Universe for BusinessObjects

The CA Access Control Universe for BusinessObjects represents a simplified view of the CA Access Control reporting service central database. Universe is a semantic layer, which maps to data in the database. This layer isolates the end user from the complex structure of database. Universe is a collection of classes and objects.

Universes are created using BusinessObjects Enterprise Designer. The CA Access Control Universe is provided by CA to simplify the creation of reports from the CA Access Control reporting service central database. You should not modify the CA-developed CA Access Control Universe. If necessary, create a copy as a base for your own universe.

### View the CA Access Control Universe

You can view CA Access Control Universe using BusinessObjects Designer.

#### To view the CA Access Control Universe

1. Select Start, Programs, BusinessObjects XI Release 2, BusinessObjects Enterprise, Designer.

The User Identification dialog appears, letting you log in to BusinessObjects Designer.

2. Enter your credentials and click OK.

The welcome screen of the Quick Design wizard appears.

3. Clear the Run this Wizard at Startup check box, and click Cancel  
An empty Designer session opens. The user name and repository name appear in the title bar.
4. Click File, Open, browse to the directory that contains the CA Access Control Universe, select the *CA Access Control.unv* file, and click Open.  
The CA Access Control Universe opens in the current Designer window.  
**Note:** The CA Access Control Universe is stored under *CA Universe\CA Access Control* in the directory designated as the default universe file store.

## Customize the Standard Reports

You can customize any of the standard reports. For example, you can change titles, colors, logos and fonts to meet your needs. You must open a report in Crystal Reports Designer XI to make changes. Every report is has a corresponding .rpt file. You open this file to customize the report.

### To customize a standard report

1. Open the .rpt file you want to customize in Designer.  
The Design view of the report appears.
2. Do *any* of the following:
  - To change the report's title, click File, Summary Info and enter a title in the Title field.
  - To customize text, highlight the desired text in the Design view and double-click it to edit.
  - To change the way the text looks, right-click on the text in an open report, select Format text, and change the properties as desired.
3. Save the custom .rpt file.  
The new custom report is saved and ready to be published.

## Publish a Custom Report

You must publish custom reports using BusinessObjects InfoView.

### To publish a custom report

1. Open BusinessObjects InfoView and log in as Administrator.  
The InfoView Home page appears.
2. Click New, Folder and create a new folder under Public Folders.  
The Create A New Folder task page appears.

3. Enter a name and a description for the custom reports folder, and click OK.  
A new folder is created.
4. Click New, Document from local computer, Crystal Report in the new folder you created.  
The Add a document from your local computer task page appears.
5. Enter the report title and the path name to your customized rpt file, and click OK.  
The custom report is published and can be viewed from BusinessObjects InfoView now. It can be also scheduled like any other report.

# Chapter 10: Deploying Sample Policies

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This section contains the following topics:

[Sample Policies Out-Of-The-Box](#) (see page 207)

[Where Are Sample Policies Stored?](#) (see page 208)

[Sample Policy Scripts](#) (see page 209)

[Policy Deployment](#) (see page 212)

## Sample Policies Out-Of-The-Box

The sample policies that come with CA Access Control provide you with segregation of duties and best practices that we recommend for the protection of operating system and application resources. Each policy is a selang script that includes comments that explain the policy's purpose and the rules it contains.

The policies provide a baseline for securing your systems with CA Access Control. You should customize the sample policies for your security policies and environment (operating system policies depend on the actual OS packages you have installed). Using the sample policies as a basis for your own policies simplifies the process of creating policies for your organization.

Sample policies are available for the following common applications and operating systems:

- Applications:
  - Apache
  - JBoss application server
  - CA Access Control Web Service
  - Microsoft SQL Server
  - Oracle Database 10g
- Operating systems:
  - AIX
  - HP-UX
  - Red Hat Enterprise Linux
  - SuSe Linux Enterprise Server
  - Sun Solaris
  - Windows 2003

- Virtualization systems:
  - VMware ESX Server
  - Hyper-V
  - Solaris 10 Zones

## Where Are Sample Policies Stored?

CA Access Control installs sample policies into the following directory:

*ACInstallDir/samples/Policies/*

### **ACInstallDir**

Defines the directory where CA Access Control is installed.

There are three (3) subdirectories in this location:

- **Applications**—contains application servers policies.
- **OS**—contains operating systems policies.
- **Virtualization**—contains virtualization systems policies.

CA Access Control provides the policies as text files that contain the selang script that executes the policy. Each policy also has a matching policy that you can use to undeploy the protection policy.

Sample policies have the following naming convention: *OS\_ACTION*

### **OS**

Defines the operating system the policy is designed for.

### **ACTION**

Specifies the policy action the script takes.

**Values:** deploy and undeploy

For example, the following file contains the sample deployment policy for Red Hat Enterprise Linux 4.0: *\_LINUX40\_deploy.txt*

**Note:** Application policies do not have an undeployment script.

## Sample Policy Scripts

Each policy is a selang script that includes comments that explain the policy's purpose and the rules it contains. Sample policy scripts are written to demonstrate best practices:

- Comments

Sample policies are annotated to help you understand what each section of the sample policy is set to achieve.

- Containers

Sample policies group related resources into a single container resource. Using this method, a common policy is applied to all the related resources once. Policy rules (ACLs) do not need to be applied to individual resources. For example, a policy can use a container to group all of the system's configuration files.

Policy containers use the following naming convention:

*POL\_container\_name*. You can think of these containers as sub-policies. For example, OS sample policies use the *POL\_SYS\_CONF* container to protect OS configuration files.

- Roles

To simplify user management, sample policies apply ACLs to roles. Each role is uses a CA Access Control group of users that you can add real users to.

Policy roles use the following convention: *ROL\_role\_name*. For example, sample policies use the *ROL\_SYSTEM* group for built-in system users like *adm* and *lp*. Many policies assign these users with wide-ranging permissions (for proper system operation) but also expire them so that users cannot use them to log in.

- Variables

So that you have to apply minimum changes when you deploy them, sample policies make use of CA Access Control variables. Sample policies use built-in variables to protect local system resources, for example, a terminal rule for the local host. Sample policies also use user-defined variables to simplify policy changes. For example, a user-defined variable can contain the home directory of the administrative user. If the administrative user uses a different home directory, you only need to change it once for all affected rules to automatically change.

### Example: Policy Script Comments

The following snippet from the Solaris SPARC 9 sample policy illustrates how sample policies are annotated. Using selang syntax rules, the lines that begin with a hash symbol (#) are comments.

```
#
# * Home Directories Protection Policy *
# *****
#
# This policy uses the FILE class to protect the home
# directories of sensitive users so that only the owner
# of each directory can access it.
#
# Prerequisites:
#   None
#
# Roles:
#   None
#
# Containers:
#   POL_HOME_DIR    - home directories of sensitive users
#
# define container POL_HOME_DIR
# Protect home directories
editres CONTAINER POL_HOME_DIR audit(<!POLICY_AUDIT_MODE>) owner(+nobody) comment("AC
Sample - Protect home directories")
authorize CONTAINER POL_HOME_DIR uid(*_undefined) access(NONE)
editres ACVAR ("HOME_OS_ADMIN") value("/root") type(static)
editusr (<!USER_OS_ADMIN>)
# define specific FILE resources and connect them with POL_HOME_DIR
editres FILE ("<!HOME_OS_ADMIN>/*") audit(<!POLICY_AUDIT_MODE>) owner(+nobody) defaccess(NONE)
<!POLICY_WARNING_MODE> comment("AC Sample")
authorize FILE ("<!HOME_OS_ADMIN>/*") uid(<!USER_OS_ADMIN>) access(ALL)
chres CONTAINER POL_HOME_DIR mem+("<!HOME_OS_ADMIN>/*") of_class(FILE)
```

### Example: Containers in Sample Policies

The following selang output shows the properties of the POL\_SYS\_FILES. An AIX sample policy contains this sub-policy that protects system files.

```
AC> sr container POL_SYS_FILES
Data for CONTAINER 'POL_SYS_FILES'
-----
ACLS      :
  Accessor      Access
  ROL_SYSADMIN (GROUP ) All
  ROL_SYSTEM   (GROUP ) All
  *            (USER ) R, Chdir
  _undefined  (USER ) R, Chdir
Members   :
  /boot/*      (FILE )
  /dev/kmem    (FILE )
  /dev/mem     (FILE )
  /dev/port    (FILE )
Audit mode : Failure
Owner      : +nobody (USER )
Create time : 10-Dec-2008 10:32
Update time : 10-Dec-2008 10:35
Updated by  : root (USER )
Comment    : AC Sample - Protect OS system files
```

### Example: Variables in Sample Policies

The following snippet from the Red Hat Enterprise Linux 5 sample policy illustrates how sample policies use variables. In this snippet, the sample policy defines possible names for the local host and the home directory of the administrative user root.

```
#
# * AC Variables Definitions *
# *****
#
# The rules in this section define variables that policies use.
# Variables:
# LOCALHOST      : list of possible names for local host
# HOME_OS_ADMIN  : root's home directory
# POLICY_WARNING_MODE : set policies warning mode (set to WARNING or WARNING-)
# POLICY_AUDIT_MODE  : set policies audit mode
# POLICY_DEFACCESS  : set defaccess of policies` resources
#
```

```
editres ACVAR ("LOCALHOST") value("localhost") type(static)
editres ACVAR ("LOCALHOST") value+("127.0.0.1")
editres ACVAR ("LOCALHOST") value+("0.0.0.0")
editres ACVAR ("HOME_OS_ADMIN") value("/root") type(static)
editres ACVAR ("POLICY_WARNING_MODE") value("WARNING") type(static)
editres ACVAR ("POLICY_AUDIT_MODE") value("FAILURE") type(static)
editres ACVAR ("POLICY_DEFACCESS") value("ALL") type(static)
```

**More information:**

[User-Defined Variables](#) (see page 81)

[Built-In Variables](#) (see page 83)

[Guidelines for Using Variables](#) (see page 84)

[How an Endpoint Resolves Variables](#) (see page 85)

## Policy Deployment

When you deploy any CA Access Control policy, you should follow some common steps to ensure that the policy deploys and performs as expected and without errors. The following section describes the actions you should take before and after you deploy sample policies.

### How to Prepare an Endpoint for Policy Deployment

Before you implement any policy, you should prepare the endpoint for the policy. This lets you later isolate issues that are specifically related to this policy.

To prepare an endpoint for policy deployment:

- Use a fresh installation of the operating system or application

Use the latest available manufacture-supplied version and patch of the OS for OS policies. This lets you protect the system before a modification potentially compromises the system. After you apply the policy, you can apply patches and configure the system as required knowing that the policy protects the system from malicious or accidental changes. The same logic applies to applications.

- Implement separation of duties

Review the policy rules and add additional roles if required. Create your own policy that defines roles, users, and their relationship (role membership). You can then deploy this policy before or after the sample policy.

Make sure you do not give any single user too many privileges. For example, by default the superuser is added to ROL\_AC\_ADMIN, which provides CA Access Control administration privileges. However, the best practice is to remove this user and add security administrators to this group instead.

- Create a new CA Access Control database or back up your existing database  
Create a new database before you implement the policy. This ensures that policy rules are not going to conflict or otherwise change existing rules in the database. If you cannot create a new database, you should back up the database so that you can restore it to the state before you applied the policy.
- Use a new audit log file  
Back up the existing audit log file and then remove it. This ensures that CA Access Control will create a new audit log file when it logs new events. Having an audit log file that only contains events that relate to the policy you deploy can help you identify and isolate issues relating to the policy more quickly.
- Set CA Access Control user-defined variables  
Verify that the preset CA Access Control variable values ("AC Variables Definitions" section), match your environment and add or modify values as required.

## How to Deploy Policies in a Staged Manner

When you deploy your policy, there are several actions you can take to ensure that the policy deploys and performs as expected and without errors. After you have prepared your endpoint for policy deployment, we recommend that you proceed with a staged policy deployment.

To deploy policies in a staged manner:

1. Deploy the policy in Warning mode

The policy is now active but does not enforce its rules. You can then examine the audit log to preview the results of your intended policy before you put that policy into effect.

**Note:** By default, the sample policies' scripts set Warning mode for all policy rules.

2. Review the CA Access Control audit log for warning messages

After you deploy the policy, any policy breaches show up in the audit log as warnings (assuming your policy rules use Warning mode).

3. Use the system in real scenarios and analyze the audit log again

To test your policy effectively you can perform regular operating procedures on the computer (log in, start and stop services and applications, and so on). You can then analyze the audit log again to see if any new warnings appear.

4. Correct the policy as required

Using the information you gathered from the audit log, you can fix the policy to account for expected use in your environment.

5. Remove Warning mode to enable the policy

Once you are confident your policy is ready to enforce rules in your production environment, you can remove Warning mode to enable it.

The policy is now enforced.

**Note:** If you want to make changes to a policy, you should first disable policy enforcement (use Warning mode), make the changes to the policy and then reactivate it when you are confident the changes are working as desired.

### More information:

[Sample Policy Deployment](#) (see page 215)

[How to Customize the Sample Policies for Your Environment](#) (see page 215)

[Enable Sample Policy Enforcement](#) (see page 216)

## Sample Policy Deployment

Because sample policies contain CA Access Control variables, you must deploy them using the advanced policy management method.

**Note:** You cannot directly run the sample policy files in selang on the endpoint.

Use CA Access Control Enterprise Management to store the sample policy on the DMS and then assign it to multiple endpoints as required.

### More information:

[Advanced Policy Management](#) (see page 54)

[How to Create and Deploy a Policy](#) (see page 66)

## How to Customize the Sample Policies for Your Environment

The sample policies are provided as a basis for your own security policy. To deploy a sample policy, you should customize it for your environment.

To customize a sample policy for your environment:

- Review the CA Access Control and system log files.  
Look for and identify warnings or errors that occurred during the deployment process and modify the policy to account for these.
- Join users to policy roles.  
Sample policies use roles for authorization. You need to assign users in your organization to these roles.  
**Important!** When you undeploy a policy, do not delete the users or groups you created. This may affect the normal behavior of the ACL lists and accessor associations in other policies that use those same users and groups.
- (Windows only) Run the coexistence utility eACoexist.exe.  
This utility identifies conflicts between CA Access Control and other installed programs and resolves them by creating a bypass for that program.

## Enable Sample Policy Enforcement

By default, the sample policies' scripts set Warning mode for all policy rules using a variable. When you deploy the policy it is active but does not enforce its rules. After you familiarize yourself with the policy and customize it as required, you should be ready to enable the policy so that policy rules are enforced.

### To enable sample policy enforcement

1. Edit the policy script to change the value of the POLICY\_WARNING\_MODE variable to "WARNING-".

You should end up with the following script rule:

```
editres ACVAR ("POLICY_WARNING_MODE") value("WARNING-") type(static)
```

When you run a rule that sets warning- for a resource or accessor, CA Access Control removes Warning mode from the resource or accessor.

2. Deploy the edited policy.

Policy enforcement is enabled.

## Disable Sample Policy Enforcement

By default, the sample policies' scripts set Warning mode for all policy rules using a variable. When you enable policy enforcement, you remove Warning mode. To disable policy enforcement you should reintroduce Warning mode.

### To disable sample policy enforcement

Do *one* of the following:

- Redeploy the policy with Warning mode as follows:
  - a. Edit the policy script to change the value of the POLICY\_WARNING\_MODE variable to "WARNING".

You should end up with the following script rule:

```
editres ACVAR ("POLICY_WARNING_MODE") value("WARNING-") type(static)
```

When you run a rule that sets warning- for a resource or accessor, CA Access Control removes Warning mode from the resource or accessor.

- b. Deploy the edited policy.

Policy enforcement is enabled.

When you run a rule that sets warning for a resource or accessor, CA Access Control sets Warning mode for the resource or accessor.

- Review the policy to identify the affected classes and set Warning mode for those classes.

Policy enforcement is disabled.

## How to Perform System Maintenance When You Have Sample Policies Deployed

At certain times you may need to perform system maintenance to upgrade the system, install a new application, and so on. During system maintenance you should disable the policy to avoid errors during the procedure.

To perform system maintenance when you have sample policies deployed, do the following:

1. Disable policy enforcement.
2. Perform the maintenance.
3. Enable policy enforcement.
4. Review CA Access Control audit log files.

The audit log contains warnings for the files that were affected by the maintenance.