AUTHORIZED DOCUMENTATION

Extension for SAP* Environments Solutions Guide

Novell® Compliance Management Platform

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Contents

About This Guide

This guide provides example solutions that you can implement when using the Novell® Compliance Management Platform extension for SAP environments. The guide is organized as follows:

Audience

This guide is intended for partners, consultants, and customers who are extremely familiar with SAP and the Novell products in the Novell Compliance Management Platform.

Feedback

We want to hear your comments and suggestions about this manual and the other documentation included with this product. Please use the User Comments feature at the bottom of each page of the online documentation, or go to www.novell.com/documentation/feedback.html and enter your comments there.

Documentation Updates

For the most recent version of the *Novell Compliance Manage Platform Extension for SAP Environments Solutions Guide*, visit the Novell Compliance Management Platform Extension for SAP Environments Documentation Web site (http://www.novell.com/documentation/ncmp_sap10).

Additional Documentation

For documentation on the Novell Compliance Management Platform, see the Novell Compliance Management Platform Documentation Web site (http://www.novell.com/documentation/ncmp10/index.html).

For documentation on the Role Mapping Administrator, see the Novell Compliance Management Platform Documentation Web site (http://www.novell.com/documentation/ncmp_sap10).

For documentation on the Identity Manager Roles Based Provisioning Module, see the Identity Manager Roles Based Provisioning Module 3.6.1 Documentation Web site (http://www.novell.com/documentation/idmrbpm361/index.html).

For documentation on the SAP drivers, see the Identity Manager 3.6.1 Drivers Documentation Web site (http://www.novell.com/documentation/idm36drivers/index.html).

For documentation on Access Manager, see the Access Manager 3.1 Documentation Web site (http://www.novell.com/documentation/novellaccessmanager31/index.html).

For documentation on Sentinel™, see the Sentinel 6.1 Documentation Web site (http://www.novell.com/documentation/sentinel61/index.html).

For documentation on the SAP Connector, SAP Collector, and the SAP Solution Pack, see the Sentinel 6.1 download Web site (http://support.novell.com/products/sentinel/secure/sentinel61.html).

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When a single pathname can be written with a backslash for some platforms or a forward slash for other platforms, the pathname is presented with a backslash. Users of platforms that require a forward slash, such as Linux* or UNIX*, should use forward slashes as required by your software.

Overview

1

The extension for SAP environments contains business solutions that simplify the management of your SAP systems. These business solutions help mitigate risk, simplify business governance, and ensure compliance throughout the enterprise.

- Section 1.1, “Terminology,” on page 9
- Section 1.2, “Business Solutions for the Extension for SAP Environments,” on page 10

1.1 Terminology

This section gives you essential information about terminology used with SAP. If you need further help with SAP terminology, see the Glossary for the SAP Library (http://help.sap.com/saphelp_46c/helpdata/En/35/2cd77bd7705394e10000009b387c12/frameset.htm).

ABAP: Advanced Business Application Programming. A programming language designed for creating large-scale business applications.

ALE: Application Link Enabling. Technology that enables communication between SAP and external systems such as the Identity Vault.

BAPI: Business Application Programming Interface. SAP business APIs for the SAP business object types.

CCMS: Computer Center Management System. A set of tools to monitor, control, and configure an SAP system.

client: In an SAP system, a self-contained unit with its own set of users and data.

CUA: Central User Administration. The SAP tool used to centrally maintain user master records.

ERP: Enterprise resource planning. A software system for planning and automating enterprise-wide business processes.

GRC: Governance, risk, and compliance. Software or business processes that facilitate conformity to legal requirements.

IDocs: Intermediate document. A data exchange format used between SAP systems and between SAP systems and external applications.

JCo: SAP Java* Connector. A toolkit that allows Java applications to communicate with any SAP system.

SPML: Service Provisioning Markup Language. An XML-based framework for managing the provisioning and allocation of identity information and system resources within and between organizations.

SSCR: SAP Software Change Registration. A procedure for registering manual changes to SAP source code and dictionary object.s

UME: User Management Engine. Provides central user administration for Java applications.

XAL: External interface for alert management. Enables external system management software to read and set properties in order to integrate with SAP administration tools.

1.2 Business Solutions for the Extension for SAP Environments

You see some common business problems when managing your SAP systems.

- Section 1.2.1, "Managing Accounts," on page 10
- Section 1.2.2, "Managing Roles," on page 10
- Section 1.2.3, "Managing Passwords," on page 10
- Section 1.2.4, "Managing User Access," on page 11
- Section 1.2.5, "Auditing Real-Time Events," on page 11

1.2.1 Managing Accounts

Managing accounts in the different SAP systems is a very complex task. Trying to manually maintain account information in the SAP systems and then trying to synchronize that information with the other systems in your environment is very costly, time-consuming, and error-prone.

The extension for SAP environments contains provisioning solutions for the different SAP systems in your environment. The solutions allow you to provision users from the SAP GRC Access Control, the SAP Portal, and from traditional SAP application servers.

The provisioning solutions use the new and updated Identity Manager drivers to provision the SAP accounts. Identity Manager then provisions the SAP account information into any other system that you have connected through Identity Manager. These provisioning processes are automated to save time and money, and to reduce errors. For instructions on how to configure the provisioning solutions, see Chapter 2, "Managing User Accounts," on page 13.

1.2.2 Managing Roles

Typically, business managers do not have direct access to assign SAP roles or profiles to users. Instead, they must work through the SAP administrator to facilitate these assignments. The extension for SAP environments provides a solution that enables business managers to easily make role assignments. For instructions on how to configure the solutions for managing roles, see Chapter 3, "Managing Roles," on page 21.

1.2.3 Managing Passwords

One of the most common and expensive business problems is how to manage user passwords. SAP adds many complexities to password management because each user account in each system and child system has a password associated with it. The extension for SAP environments contains two solutions for managing passwords:

- The SAP Identity Manager driver automatically assigns passwords to users when they are provisioned in to the SAP systems and child systems.
- You can allow users to manage their own passwords.

For instructions on how to manage user passwords, see Chapter 4, “Managing Passwords,” on page 25.

1.2.4 Managing User Access

After users are provisioned, they need access to the resources to do their jobs. A common frustration for users is being required to authenticate each time they access a resource. The solution provided with the extension for SAP environments uses Access Manager to allow users to log into Windows* workstation and then have access to the SAP Portal, the Roles Based Provisioning Module, and the Role Mapping Administrator. When users launch a Web browser that is pointing at one of these resources, they are automatically authenticated to that resource through Access Manager. For instructions on how to configure the single sign-on solution, see Chapter 5, “Simplifying User Access,” on page 29.

1.2.5 Auditing Real-Time Events

The final part of any solution is to provide auditing and reporting capabilities for the solution. The extension for SAP environments provides real-time auditing and reporting capabilities for your SAP systems through Sentinel™. This allows you to provide automated reports that can prove compliance with the business policies implemented when users are provisioned and granted access to resources. For instructions on how to configure the auditing solution, see Chapter 6, “Auditing Real-Time Events,” on page 41.

2 Managing User Accounts

The extension for SAP environments provides multiple solutions that allow you to automate the management of user accounts in your SAP environment. These solutions automate the provisioning of user objects throughout SAP clients, CUA, NetWeaver*, ERP systems, and GRC systems. These provisioning solutions use one or more of the Identity Manager drivers to automate the managing of users accounts.

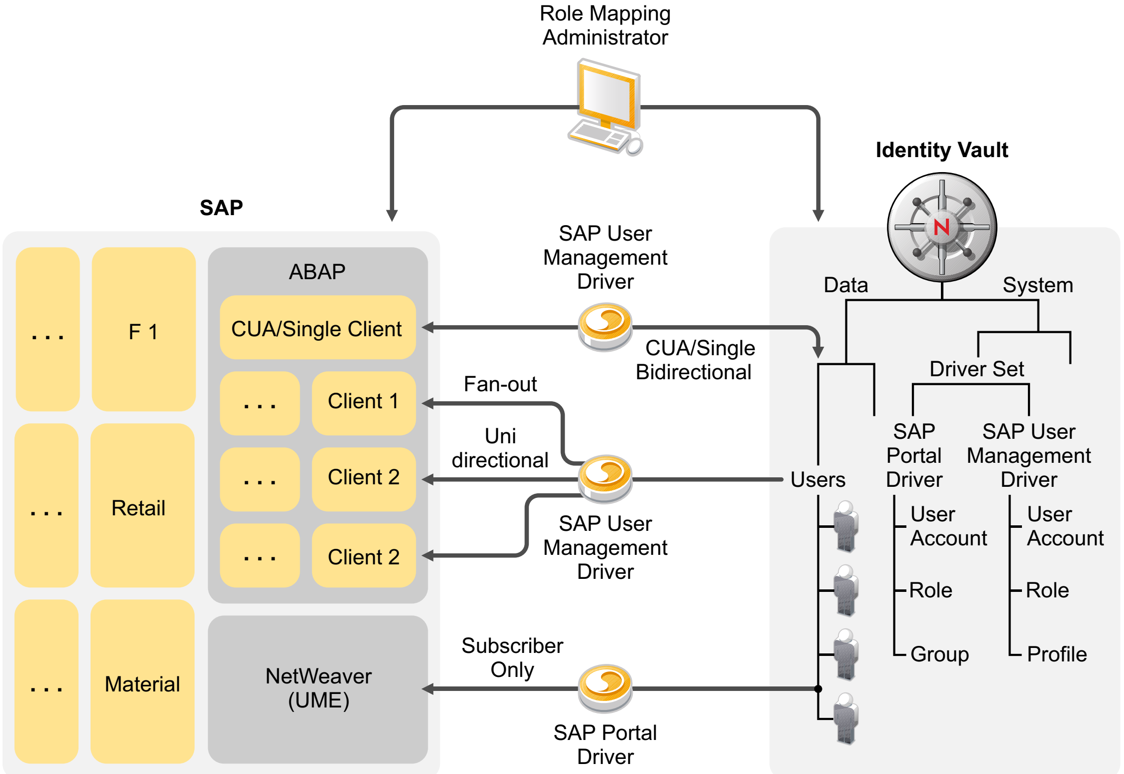
In an SAP landscape, a user has multiple accounts in multiple systems that are not connected. For example, when a new finance clerk is hired in a company, he or she needs access to the SAP finance system and to the SAP Portal. Without the provisioning solutions, an SAP administrator creates the user in the SAP HR system, in the SAP client that is running the SAP Finance application, and in the SAP Portal.

The manual process takes considerable time, because it is likely that a different people create each user account. The manual process is error-prone. It can also be expensive, because new employees can't work and be productive until they have access to the systems they need to do the job.

This solution explains how to take advantage of features in Identity Manager to simplify provisioning of user accounts. This solution uses dynamic groups and entitlements, and is based on the Roles Based Provisioning Module as the entitlement agent, as displayed in Figure 2-1.

The solution explains how to set up your environment so that a new user who is created as an active employee automatically receives the required accounts and resources.

Figure 2-1 *Provisioning Solution with Multiple SAP Systems*



Complete the following sections to implement the managing users solutions.

- Section 2.1, “Prerequisites,” on page 14
- Section 2.2, “Configuring the User Application Roles Based Provisioning Module to Consume Dynamic Groups,” on page 15
- Section 2.3, “Creating Dynamic Groups,” on page 15
- Section 2.4, “Creating Roles Based Provisioning Module Roles,” on page 17
- Section 2.5, “Assigning the Roles Based Provisioning Module Roles to the Dynamic Group,” on page 17
- Section 2.6, “Installing and Configuring the Identity Manager Drivers for SAP,” on page 18
- Section 2.7, “Mapping the SAP Authorizations to the Roles,” on page 19

2.1 Prerequisites

This solution assumes the following:

❑ Identity Manager 3.6 is installed. For more information, see “ Installing Identity Manager” in the *Identity Manager 3.6.1 Installation Guide*.

- ❑ The User Application Roles Based Provisioning Module 3.6.1 is installed and configured with the User Application driver and the Roles Service driver. For more information, see the *Identity Manager Roles Based Provisioning Module 3.6.1 User Application: Installation Guide* (http://www.novell.com/documentation/idmrbpm361/install/data/bookinfo.html)
- ❑ Your Identity Manager project is contained in Designer. For more information, see "Importing into Designer" in the *Designer 3.0.1 for Identity Manager 3.6 Administration Guide*.

2.2 Configuring the User Application Roles Based Provisioning Module to Consume Dynamic Groups

The User Application Roles Based Provisioning Module must be configured to consume dynamic groups.

1 Run the ConfigUpdate utility in the User Application installation directory by executing the following command:

   Linux: `configupdate.sh`

   Windows: `configupdate.bat`

2 Click *Show Advanced Options*.

3 Select the *Use Dynamic Groups* option in the Metadirectory User Groups section.

4 Click *OK* to save this selection.

5 Restart the User Application to apply the changes.

2.3 Creating Dynamic Groups

This solution uses dynamic groups to define the criteria required to receive a Roles Based Provisioning Module role. Dynamic groups allow you to specify the criteria used to evaluate membership in the group. For more information about dynamic groups, see the AppNote *How to Manage and Use Dynamic Groups* (http://support.novell.com/techcenter/articles/ana20020405.html)

To create a dynamic group for all active employees:

1 Log in to iManager as an administrative user.

2 Click *Directory Administration* > *Create Object* under Roles and Tasks.

3 Select *Dynamic Group* from the available object classes list, then click *OK*.

4 Use the following information to create the dynamic group:

   GroupName: Specify a unique name for the group. For example, Active Employees.

   Context: Browse to and select the container where you want to create the dynamic group.

   Dynamic Group: Select the option to create the dynamic group.

   Nested Group: For this solution, do not select this option.

   Set Owner: Select this option to set the logged-in user as the owner.

5 Click *OK*, then click *Modify*.

6 In the *Description* field, specify a description for this role.

IMPORTANT: The description is the value displayed for the group in the User Application. If there is no description value, the group is not displayed in the User Application.

7. Click the *Dynamic* tab.
8. Use the following information to define the criteria for membership in this dynamic group:

   Query: If you have more than one requirement for the dynamic group, click the plus icon to add another query.

   Start search at(Base DN): Specify the DN of the starting location to perform the search for members of the group.

   Search Scope: Specify a scope for the search. If you don't specify a scope, the base scope is assumed. The options are:

   - *Search Base DN* searches only the base object.
   - *Search One Level* searches the direct subordinates of the base object. The base object is not searched.
   - *Search Sub Containers* searches the base object and all objects in the subtree below it.

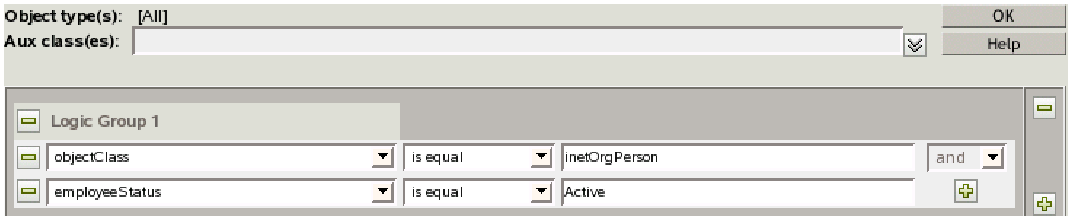
   Search Multiple Servers: Select whether the search should include multiple servers or only the server containing the dynamic group object. If you select *yes*, the server communicates with other servers while searching for dynamic members. If you select *no*, a local search is performed for dynamic members.

   NOTE: If you select to search multiple servers for dynamic members, it can take a long time for the results to be returned.

   Search Filter Read Write Replica: Select whether to search for dynamic members in the Filtered Read Write replica. This option is enabled only if you have selected *no* for *Search Multiple Servers*.

   Search Filter: Define the criteria for membership in the dynamic group.You can type the text if you know the proper syntax, or you can launch the Advance Selection Criterion Wizard to define the criteria.

   For an object to become of a member of the dynamic group, this solution requires that it must have an objectClass that is equal to inetOrgPerson and that the attribute of employeeStatus is equal to Active.



Object type(s): [All]
Aux class(es):

Logic Group 1

objectClass is equal inetOrgPerson and

employeeStatus is equal Active

9. Click *OK* to save the changes.
10. Create a second dynamic group where the objectClass is equal to inetOrgPerson and the Title attribute is equal to Finance Clerk.

2.4 Creating Roles Based Provisioning Module Roles

The Roles Based Provisioning Module role is used to assign privileges in the connected system. In our solution is it used to assign access to the SAP Portal as well as restrict access to finance resources. When a user requests access to the SAP Portal, they are granted access. When a user requests access to a finance resource, their manager has to approve the resource.

To create the SAP Self Service role:

1 Launch Designer, and verify that your project is current.

   To verify that your project is current, see "Using the Compare Feature When Importing" in the *Designer 3.0.1 for Identity Manager 3.6 Administration Guide*.

2 In the Designer toolbar, click *Window* > *Show View* > *Provisioning* to display the *Provisioning* view.

   By default, the Provisioning view is displayed in the lower left corner of Designer.

3 In the *Provisioning* view, click *User Application* > *Role Catalog* > *Roles* > *Business Role*.

4 Right-click the *Business Role*, then click *New*.

5 Use the following information to create the role:

   Identifier: Specify a unique name for the role. In this example, the role name is SAP Self Service. The *Display Name* and *Description* are populated with this name.

   Category: Select the *Default* category.

   Trustees: Add the container that holds your user objects as a trustee of this role. When a user logs in to the Roles Based Provisioning Module, this role is displayed for them to access.

6 Click *Finish* to create the role.

7 Click the *Advanced Options* tab at the bottom of the new role.

8 Select *None* under the Approval Details section.

   When a user logs in to the Roles Based Provisioning Module and requests the SAP Portal resource, it is automatically granted to them.

9 Click the *Save* icon in the toolbar to save the change.

10 Right-click the User Application driver in the *Provisioning* view, then click *Live* > *Deploy* to deploy the new role to the Identity Vault.

To create a finance role that requires a manager approval, see Section 3.3, "Implementing Approval Policies on Roles that Grant SAP Authorizations," on page 23. Create the role with the name of SAP Finance instead of SAP Restricted Resource.

2.5 Assigning the Roles Based Provisioning Module Roles to the Dynamic Group

The Roles Service driver evaluates the dynamic group membership for Roles Based Provisioning Module updates to the associated role. When a user meets the dynamic group criteria for membership, the users inherit role assignments and are assigned the Roles Based Provisioning Module role.

To assign the role to the dynamic group:

1. Log in to the User Application as an administrative user.
2. Click *Roles* > *Role Assignments* > *Role Assignments*.
3. Click the *Role* icon, then click the *Search* 🔍 icon.
4. Specify the role name of SAP Self Service, then click the Search 🔍 icon.
5. Click the name of the role.
6. Click *New Assignment*.
7. Use the following information to make the assignment:

   Initial Request Description: Specify a description that is displayed when the initial request occurs.

   Type of Assignment: Select *Group* for the type of assignment.

   Select Groups: Browse to and select the dynamic group created in Section 2.3, "Creating Dynamic Groups," on page 15.

   Effective Date: Specify a date for this assignment to occur. If not date is specified, the effective date is immediately.
8. Click *Submit* to make the assignment.
9. Repeat the process for the finance group and SAP Finance role create in Section 2.4, "Creating Roles Based Provisioning Module Roles," on page 17.

2.6 Installing and Configuring the Identity Manager Drivers for SAP

You can install and configure any of the Identity Manager drivers for SAP to work with this solution if the driver uses entitlements and can work with the Role Mapping Administrator.

□ Install the extension for SAP environments Identity Manager drivers. For installation instructions, see "Installing the Identity Manager Drivers for the extension for SAP environments" in the *Novell Compliance Management Platform Extension for SAP Environments 1.0 SP 1 Overview*.

□ Create new driver object. For instructions, see:

- "Creating a New Driver" in the *Identity Manager 3.6.1 Driver for SAP GRC Access Control Implementation Guide*.
- "Creating a New Driver" in the *Identity Manager 3.6.1 Driver for SAP Portal Implementation Guide*.
- "Creating a New Driver" in the *Identity Manager 3.6.1 Driver for SAP User Managment (JCo 3) Implementation Guide*.

□ Verify that the *Use User Account Entitlement* GCV is set to *True* in the properties of each driver used in this solution.

□ Very that the *Enable role mapping* GCV is set to *Yes* in the properties of each driver used in this solution.

2.7 Mapping the SAP Authorizations to the Roles

With the roles created for active employees and the finance clerk, you can use the Role Mapping Administrator to map the corresponding roles from SAP to these role. For instructions, see Chapter 3, “Managing Roles,” on page 21.

With the mapping in place when a user object is created and the employStatus attribute equals Active, the user is provisioned to the SAP Portal environment the SAP client that contains the finance application. When users log into the User Application, they can request access to the SAP Portal and it is automatically granted. They can also request access to the finance group. The manager receives notification of this request and either grants or denies the request.

Managing Roles

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Typically, business managers do not have direct access to assign SAP roles or profiles to users. Instead, they must work through the SAP administrator to facilitate these assignments.

The extension for SAP environments provides a solution that enables business managers to easily make the role assignments. The solution utilizes the Roles Based Provisioning Module, Identity Manager drivers, and the Roles Mapping Administrator.

The Roles Mapping Administrator lets you map SAP roles, composite roles, and profiles (collectively referred to as *SAP authorizations*) to Identity Manager roles. When a user is assigned a role through the Identity Manager User Application, he or she receives all SAP authorizations mapped to that role. Or, when a role is removed from a user, all SAP authorizations that were granted through that role are removed.

The following are solutions that can be implemented in your environment to simplify business processes.

- Section 3.1, “Prerequisites,” on page 21
- Section 3.2, “Implementing User Self Service for SAP Authorization Requests,” on page 22
- Section 3.3, “Implementing Approval Policies on Roles that Grant SAP Authorizations,” on page 23

3.1 Prerequisites

The steps for these solutions assume the following:

❑ Identity Manager 3.6 is installed with the User Application Roles Based Provisioning Module 3.6.1. This includes the User Application driver and Roles Service driver. For more information, see *Identity Manager Roles Based Provisioning Module 3.6.1 User Application: Installation Guide* (http://www.novell.com/documentation/idmrbpm361/install/data/bookinfo.html).

❑ The User Application Roles Based Provisioning system is configured with the roles to which the SAP authorizations will be mapped. If the roles do not exist, they can be created in the User Application or in the Role Mapping Administrator after it is installed. For more information, see “Configuring Roles” (http://www.novell.com/documentation/idmrbpm361/dgpro/data/roleschapter.html) in the *User Application: Design Guide* (http://www.novell.com/documentation/idmrbpm361/dgpro/dgpro/data/bookinfo.html).

❑ One or more of the following Identity Manager drivers for SAP are installed and connected to the SAP systems.

  - SAP GRC Access Control driver. For more information, see the *Identity Manager 3.6.1 Driver for SAP GRC Access Control Implementation Guide*.
  - SAP Portal driver. For more information, see the *Identity Manager 3.6.1 Driver for SAP Portal Implementation Guide*.
  - SAP User Management driver. For more information, see the *Identity Manager 3.6.1 Driver for SAP User Managment (JCo 3) Implementation Guide*.

❑ The Role Mapping Administrator is installed and configured. See the *Identity Manager Role Mapping Administrator 1.0 Installation and Configuration Guide*.

❑ Your Identity Manager project is contained in Designer. For more information, see "Importing into Designer" in the *Designer 3.0.1 for Identity Manager 3.6 Administration Guide*.

3.2 Implementing User Self Service for SAP Authorization Requests

To reduce help desk calls and the amount of time required to grant resources, you can use the Role Mapping Administrator and the Roles Based Provisioning Module to allow users to request access to certain SAP authorizations.

After the following procedures are completed, users can log into the Roles Based Provisioning Module and request access to the SAP Portal, then automatically receive access after the request is issued.

To create a SAP Self Service role:

1. Launch Designer, and verify that your project is current.

   To verify that your project is current, see "Using the Compare Feature When Importing" in the *Designer 3.0.1 for Identity Manager 3.6 Administration Guide*.

2. In the Designer toolbar, click *Window* > *Show View* > *Provisioning* to display the Provisioning view.

   By default, the Provisioning view is displayed in the lower left corner of Designer.

3. In the Provisioning view, click *User Application* > *Role Catalog* > *Roles* > *Business Role*.
4. Right-click the *Business Role*, then click *New*.
5. Use the following information to create the role:

   Identifier: Specify a unique name for the role. In this example the role name is SAP Self Service. The *Display Name* and *Description* are populated with this name.

   Category: Select the *Default* category.

   Trustees: Add the container that holds your user objects as a trustee of this role. When a user logs in to the Roles Based Provisioning Module, this role is displayed for them to access.

6. Click *Finish* to create the role.
7. Click the *Advanced Options* tab at the bottom of the new role.
8. Select *None* under the Approval Details section.

   When a user logs in to the Roles Based Provisioning Module and requests the SAP Portal resource, it is automatically granted to them.

9. Click the *Save* icon in the toolbar to save the change.
10. Right-click the User Application driver in the Provisioning view, then click *Live* > *Deploy* to deploy the new role to the Identity Vault.

To map the Self Service role to the SAP Portal Access:

1. Log in to the Role Mapping Administrator.
2. Select the SAP Self Service role.
3. Access the SAP Portal System in the Authorizations panel.

4 Select the roles in the SAP Portal that grant a user access to the resource and drag and drop them into the Mapping panel.

5 Click *Apply* to save and deploy the changes.

The Self Service role is mapped to the SAP Portal authorization, which is now available for users to request through the Roles Based Provisioning Module. When the users request this access, they are automatically granted access to the SAP Portal because of the role mapping.

3.3 Implementing Approval Policies on Roles that Grant SAP Authorizations

To make sure the correct people are granted access to powerful SAP authorizations, you can define a role that requires a manager's approval for all access requests to those authorizations.

To create a restricted SAP Access role:

1 Launch Designer, and verify that your project is current.

To verify that your project is current, see "Using the Compare Feature When Importing" in the *Designer 3.0.1 for Identity Manager 3.6 Administration Guide*.

2 In the Designer toolbar, click *Window* > *Show View* > *Provisioning* to display the Provisioning view.

3 In the Provisioning view, click *User Application* > *Role Catalog* > *Roles* > *Business Role*.

4 Right-click the *Business Role*, then click *New*.

5 Use the following information to create the role:

Identifier: Specify a unique name for the role. In this example, it is Restrict SAP Access. The *Display Name* and *Description* are populated with this name.

Category: Select the *Default* category.

Trustees: Add the container that holds your user objects as a trustee of this role. When a user logs in to the Roles Based Provisioning Module, this role is displayed for them to access.

6 Click *Finish* to create the role.

7 Click the *Advanced Options* tab at the bottom of the new role.

8 Select *Standard* to determine the type of approval process for granting access to the SAP resource.

9 Select the approval type of *Serial*.

When you select *Serial*, the request is sent to the approvers and the approvers must approve the request before it is granted. In this use case the approver is the users' manager.

10 Click the plus icon to add the approvers for the request. You can have one or more approvers.

To map the Restricted SAP Access role to the SAP resource:

1 Log in to the Role Mapping Administrator.

2 Select the Restricted SAP Access role.

3 Access the SAP system that you want to restrict access to in the Authorizations panel.

4 Select the roles in the SAP system that grant a user access to the resource and drag and drop them into the Mapping panel.

5 Click *Apply* to save and deploy the changes.

The Restricted SAP access role is mapped to the SAP role, which is now available for the users to request through the Roles Based Provisioning Module. When the users request this resource, the manager is notified. The manager either approves or denies the request.

Managing Passwords

4

An important part of mitigating risks and reducing complexities is managing user passwords. SAP adds many complexities to password management because each user account in each system and child system has a password associated with it. The extension for SAP environments contains two solutions for managing user passwords:

- The SAP Identity Manager driver automatically assigns passwords to users when they are provisioned in to the SAP systems and child systems.
- You can allow users to manage their own passwords.

The following sections contain the details required to create these solutions in your SAP environment.

- Section 4.1, "Prerequisites," on page 25
- Section 4.2, "Enabling Universal Password in the Identity Vault," on page 25
- Section 4.3, "Configuring the Identity Manager Drivers to Provision Passwords," on page 27
- Section 4.4, "Configuring the Password Self-Service Feature," on page 28

4.1 Prerequisites

The steps for these solutions assume the following:

- ☐ Identity Manager 3.6 is installed and there are Identity Manager drivers that are installed and configured. For more information, see " Installing Identity Manager" in the *Identity Manager 3.6.1 Installation Guide*.
- ☐ The User Application Roles Based Provisioning Module is installed and configured. For more information, see the *Identity Manager Roles Based Provisioning Module 3.6.1 User Application: Installation Guide* (http://www.novell.com/documentation/idmrbpm361/install/data/bookinfo.html).

4.2 Enabling Universal Password in the Identity Vault

Identity Manager requires Universal Password for both password synchronization and password self-service. Universal Password synchronizes the various passwords (Universal, NDS®, Simple and Distribution) stored in the Identity Vault and provide password policies that define the rules for creating and replicating passwords in the Identity Vault.

To enable Universal Password in the Identity Vault, you must create a Universal Password policy in iManager, then assign it to a container to apply the password policy to the users.

Complete the following tasks to enable Universal Password in the Identity Vault:

- Section 4.2.1, "Creating the Password Policy," on page 26
- Section 4.2.2, "Configuring the Password Policy for Universal Password," on page 26
- Section 4.2.3, "Assigning the Password Policy," on page 27

4.2.1 Creating the Password Policy

1. In iManager, click *Roles and Task* > *Passwords* > *Password Policies*.
2. Click *New* to create the new policy.
3. Specify the following information to create the policy:

   Container to create the policy in: Accept the default location where the password policy is created in the Password Policies container in the Security container.

   Policy Name: Specify a name for the password policy.

   Description: Specify a description of the policy.

   Password Change Message: Specify a message that the users see when changing their password through the password self-service option in the Roles Based Provisioning Module.
4. Select *Create a new Password Policy based on the default settings*.
5. Click *Next*.
6. Click *Finish* on the summary page.
7. Click *Close*.

4.2.2 Configuring the Password Policy for Universal Password

After the password policy is created, you must configure the password for your environment.

1. In iManager, click *Roles and Tasks* > *Passwords* > *Password Policies*.
2. Click the name of the password policy you created in Section 4.2.1, "Creating the Password Policy," on page 26.
3. Click *Universal Password* > *Configuration Options*.
4. Use the following information to configure Universal Password:

   Configuration Options: Select both *Enable Universal Password* and *Enable the Advanced Password Rules*.

   Universal Password Synchronization: These options determine how Universal Password is synchronized within the Identity Vault and with other connected systems. The following options are the best to use when synchronizing passwords with SAP systems:

   - *Remove the NDS password when setting Universal Password*
   - *Synchronize NDS password when setting Universal Password*
   - *Synchronize Simple Password when setting Universal Password*
   - *Synchronize Distribution Password when setting Universal Password*

   Universal Password Retrieval: Select whether you want other agents to retrieve passwords:

   - **Allow user to retrieve password:** This option determines whether the Forgotten Password Self-Service feature can retrieve a password on behalf of a user, so that the password can be e-mailed to the user. If you don't select this option, the corresponding feature is dimmed on the *Forgotten Password* tab in the password policy.
   - **Allow admin to retrieve password:** Select this box only if you have a particular service that needs it. Identity Manager does not have a need for administrators to retrieve passwords. However, some third-party services (for example, the Samba server and FreeRADIUS server that ship with Novell® Open Enterprise Server) might take advantage of this option.

- **Allow the following to retrieve passwords:** If you have another service or agent that requires the ability to retrieve passwords, you can define those services or agents here.

Authentication: You can verify whether existing passwords comply with the password policy by selecting this option. It is useful if you are deploying a new password policy or changing the Advanced Password Rules for an existing policy, and you want to verify that existing passwords comply with the new or changed rules.

5. Click *Apply* to save the changes.
6. Click the *Advanced Password Rules* option under the *Universal Password* tab.
7. Define the password rules for your environment. This is how you control the types of passwords that users can set.
8. Click *OK* to save the changes.

4.2.3 Assigning the Password Policy

After the password policy is configured, you must assign the policy for it to take affect. You can assign the password policy to a user, a container, or a container that is the root of a partition in the Identity Vault.

If you assign the policy to a container that is the root of a partition, the policy assignment is inherited by all users in that partition, including subcontainers. iManager displays whether a container is the root of a partition or not when you browse to it.

If you assign the policy to a container that is not the root of a partition, the policy assignment is inherited only by users in that specific container. It is not inherited by users that are in subcontainers. If you want the policy to apply to all users below a container that is not the root of a partition, you must assign the policy to each subcontainer individually.

To assign the policy:

1. In iManager, click *Roles and Task* > *Password* > *Password Policies*.
2. Click the name of the password policy you created in Section 4.2.1, "Creating the Password Policy," on page 26.
3. Click the *Policy Assignment* tab.
4. Browse to and select the containers where you want the password policy applied.
5. Click *OK*.

4.3 Configuring the Identity Manager Drivers to Provision Passwords

The SAP User Management driver and the SAP Portal driver can synchronize passwords. This allows you to manage the user's passwords through Identity Manager. The default driver configurations contain the required policies to synchronize passwords.

4.4 Configuring the Password Self-Service Feature

The User Application Roles Based Provisioning Modules comes with a feature that allows users to change a password that was forgotten. This reduces the number of help desk calls and frees time and resources to be used on other tasks.

Password self-service is installed when the User Application Roles Based Provisioning Module is installed. However, you must configure the password policy to use a challenge set of questions for a user when he or she needs to change a password.

1. In iManager, click *Roles and Tasks* > *Passwords* > *Password Policies*.
2. To edit the policy, click the name of the password policy you created in Section 4.2.1, "Creating the Password Policy," on page 26.
3. Click the *Forgotten Password* tab.
4. Select *Enable Forgotten Password*.
5. Select *Require a challenge set*.
6. Click *Challenge Sets* to create a new challenge set.
7. Click *New*, then use the following information to create a challenge set:

   Challenge set name: Specify a name for the challenge set.

   Create in container: Accept the default location where the challenge set is created in the Password Policy container in the Security container.

   Required Questions: Select which questions a user is required to answer when changing a password. You can have required questions and random questions that are presented to the user.

   You can change whether a question is a required question or a random question by clicking on the question, then changing the question type. You can define your own questions or use one of the default questions. The default questions are:

   - What is your mother's maiden name?
   - What is your User ID?
   - What is your PIN?
   - What is your childhood pet's name?

   Number of random questions to ask user when password is forgotten: Specify the number of random questions presented to a user.
8. Click *OK*.
9. Click *Close*.
10. Browse to and select the new challenge set you created.
11. Select *Allow user to reset password* (Requires a challenge set and the Universal Password option).
12. Select *Force user to configure Challenge Questions and/or Hint upon authentication*.
13. Click *OK*.
14. Verify that the password policy is assigned to the container where the user objects reside.

    The password policy is not enforced unless it is assigned. For more information, see Section 4.2.3, "Assigning the Password Policy," on page 27.

Simplifying User Access

5

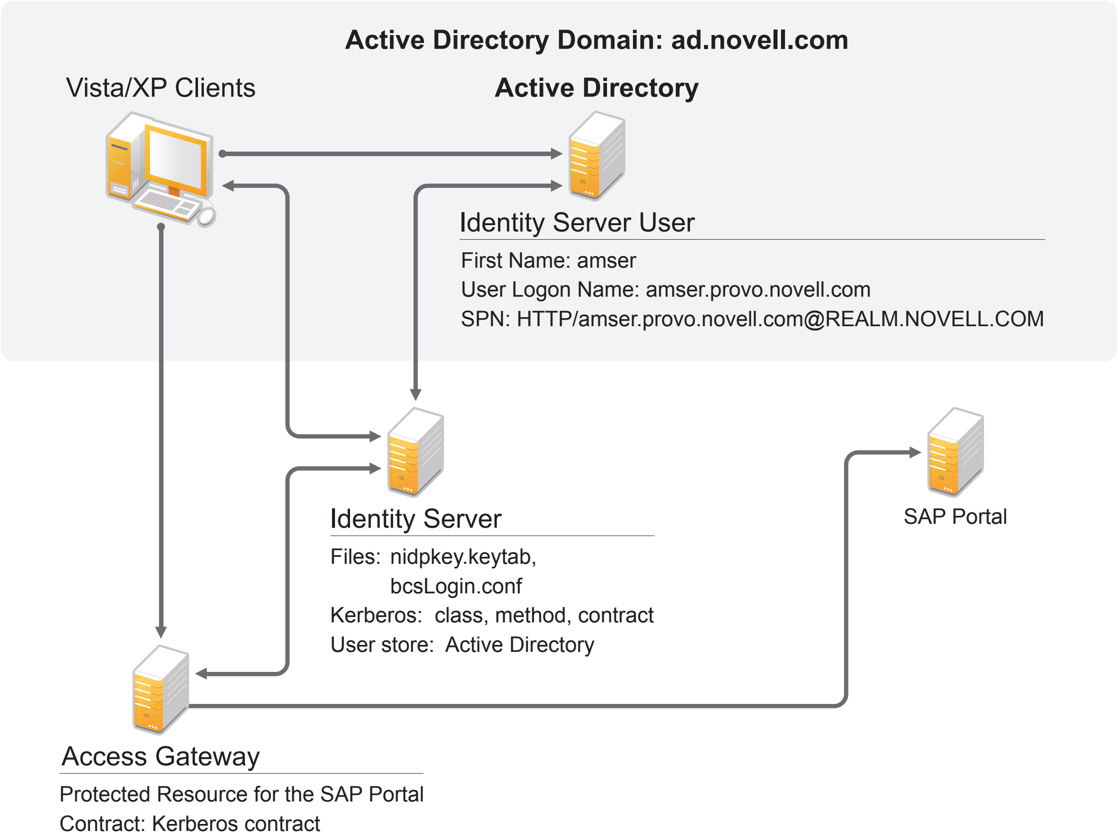
The desired user experience is to log in to a system once and then have access to the applications and information required to do a job.

It frustrates a user, when they access resources and are required to authenticate each time. It takes time, and users must keep track of multiple passwords. This ultimately increases calls to the help desk for users who have forgotten their passwords, and it also reduces security because users keep their passwords on a note by the computer.

This solution simplifies a user's experience. The user logs in to Active Directory* and launches a Web browser to access the SAP Portal. When users access the SAP Portal, they are automatically authenticated and can access any resources assigned to them.

This solution uses Kerberos* tickets from Active Directory and Access Manager. When a user logs into the Active Directory domain, he or she is issued a Kerberos ticket. The user launches a Web browser and accesses the SAP Portal, Access Manager is able to use the Kerberos ticket for authentication, and the user does not have to authenticate to the SAP Portal.

Figure 5-1 *Kerberos Authentication*


Active Directory Domain: ad.novell.com
Vista/XP Clients
Active Directory
Identity Server User
First Name: amser
User Logon Name: amser.provo.novell.com
SPN: HTTP/amser.provo.novell.com@REALM.NOVELL.COM
Identity Server
Files: nidpkey.keytab,
bcsLogin.conf
Kerberos: class, method, contract
User store: Active Directory
SAP Portal
Access Gateway
Protected Resource for the SAP Portal
Contract: Kerberos contract

After this authentication method is configured, you can leverage the Kerberos desktop login for single sign-on into all of your other non-SAP Web applications. This simplifies the user experience.

The following sections must be completed in the order listed to enable single sign-on.

- Section 5.1, "Prerequisites," on page 30
- Section 5.2, "Configuring Active Directory to Assign Kerberos Tickets," on page 30
- Section 5.3, "Configuring the Access Manager Identity Server to Consume the Kerberos Tickets," on page 32
- Section 5.4, "Configuring the User's Web Browser," on page 37
- Section 5.5, "Adding the SAP Portal as a Protected Resource in Access Manager," on page 38
- Section 5.6, "Configuring the SAP Portal for Kerberos Authentication," on page 39

5.1 Prerequisites

This solution assumes the following:

- ❑ Access Manager is installed and configured. For more information see the *Novell Access Manager 3.1 SP1 Installation Guide*.
- ❑ The Active Directory domain contains entries for both the users and their machines.
- ❑ Active Directory and the Identity Server must be configured to use a Network Time Protocol server. If time is not synchronized, authentication fails.
- ❑ The Access Manager prerequisites have been met for Kerberos authentication. For a list, see "Prerequisites" in the "Configuring Advanced Local Authentication Procedures" chapter of the *Novell Access Manager 3.1 SP1 Identity Server Guide*.
- ❑ A properly configured DNS server is available to provide DNS names for the Identity Server, the Access Gateway, and the SAP Portal server. Access Manager uses the DNS names to handle requests so that authentication is seamless to the user.

5.2 Configuring Active Directory to Assign Kerberos Tickets

Complete the following sections to enable Active Directory to assign Kerberos tickets. When a user logs in to Active Directory, he or she is automatically issued a Kerberos ticket.

- Section 5.2.1, "Installing the spn and ktpass Utilities," on page 30
- Section 5.2.2, "Creating a User Account in Active Directory for the Identity Server," on page 31
- Section 5.2.3, "Creating a Keytab File," on page 31

5.2.1 Installing the spn and ktpass Utilities

The spn and ktpass utilities must be installed on the Active Directory domain controller. These utilities are not installed by default. You need both of these utilities to configure the Access Manager Identity Server for Kerberos authentication.

1. Insert the Windows 2003 disk into the CD drive.
2. To install the utilities, run `\SUPPORT\TOOLS\SUPTOOLS.MSI` on the CD.

   The utilities are installed in `C:\Program Files\Support Tools`.

5.2.2 Creating a User Account in Active Directory for the Identity Server

Creating this account allows the Identity Server from Access Manager to run as a service.

1 In the user management tool, using the following information to create the user account:

firstname: Specify a name for the Identity Server.

lastname: Specify a name for the Identity Server.

userPrincipalName: Specify the userPrincipalName. The format is HTTP/your.idp.fqdn@YOUR.DOMAIN.

For example: HTTP/amser.provo.novell.com@AD.NOVELL.COM

samAccountName: Specify the samAccountName for the user. It consists of the firstname-lastname (required for the setspn utility).

password: Specify a password for this user account.

Deselect the option *User must change password at next logon* and select the option *Password never expires*. The user account needs a password, but it must never expire or be changed.

2 Set the servicePrinicpalNames on the user object.

2a From a command line, enter:

```
setspn -a HTTP/amserv.provo.novell.com@AD.NOVELL.COM samAccountName
```

2b From a command line, enter:

```
setspn -a HTTP/amserv.provo.novell.com samAccountName
```

3 Use the ktpass utility to export the keytab file. This sends the Kerberos token to the Identity Server instead of directly to the SAP Portal, to allow the single sign-on to occur.

```
ktpass /out nidp.keytab /princ HTTP:///
amserv.provo.novell.com@AD.NOVELL.COM /mapuser
samAccountName@AD.NOVELL.COM /pass secret +DesOnly /crypto DES-CBC-MD5 /
ptype KRB5_NT_PRINCIPAL
```

4 Copy the keytab file to `jre` directory on the Identity Server.

- **Linux:** `/opt/novell/java/jre/lib/security`
- **Windows:** `C:\Program Files\Novell\jre\lib\security`

5.2.3 Creating a Keytab File

The keytab file contains the secret encryption key that is used to decrypt the Kerberos ticket. You need to generate the keytab file and copy it to the Identity Server.

1 On the Active Directory server, open a command window and enter a `ktpass` command with the following parameters:

```
ktpass /out value /princ value /mapuser value /pass value
```

The command parameters require the following values:

Parameter	Value	Description
/out	<outputFilename>	Specify a name for the file, with `.keytab` as the extension. For example: `nidpkey.keytab`

Parameter	Value	Description
/princ	<servicePrincipalName> @<KERBEROS_REALM>	Specify the service principal name for the Identity Server, then @, followed by Kerberos realm. The default value for the Kerberos realm is the Active Directory domain name in all capitals. The Kerberos realm value is case sensitive.
/mapuser	<identityServerUser>@<AD_DOMAIN>	Specify the username of the Identity Server user and the Active Directory domain to which the user belongs.
/pass	<userPassword>	Specify the password for this user.

For this configuration example, you would enter the following command to create a keytab file named `nidkey`:

```
ktpass /out nidkey.keytab /princ HTTP/amser.provo.novell.com@AD.NOVELL.COM
/mapuser/ amser@AD.NOVELL /pass novell
```

2 Copy the keytab file to the Identity Server.

The default location for the keytab file on the Identity Server is:

- **Linux:** `/opt/novell/java/jre/lib/security`
- **Windows:** `C:\Program Files\Novell\jre\lib\security`

5.3 Configuring the Access Manager Identity Server to Consume the Kerberos Tickets

You must configure Access Manager to consume the Kerberos tickets from Active Directory. Access Manager can use the authentication information in the Kerberos tickets to enable single sign-on for the SAP Portal.

- Section 5.3.1, “Enabling Logging for Kerberos Transactions,” on page 32
- Section 5.3.2, “Creating the bcsLogin.conf File,” on page 33
- Section 5.3.3, “Creating a User Store for the Active Directory Domain,” on page 34
- Section 5.3.4, “Creating a Kerberos Authentication Class for the Identity Server,” on page 34
- Section 5.3.5, “Creating a Kerberos Method for the Identity Server,” on page 35
- Section 5.3.6, “Creating a Kerberos Contract for the Identity Server,” on page 35
- Section 5.3.7, “Verifying the Kerberos Configuration,” on page 35
- Section 5.3.8, “Creating a SAML Identity Injection Policy,” on page 36
- Section 5.3.9, “Refreshing the Identity Server,” on page 37

5.3.1 Enabling Logging for Kerberos Transactions

This helps to troubleshoot authentication issues.

1 In the Access Manager Administration Console, click *Devices* > *Identity Server* > *Edit* > *Logging*.

2 Select the *File Logging* and *Echo to Console* options to enable these options.

3 Under the *Component File Loggers Levels* heading, set the *Application* option to *debug*.

4 Enable *Trace Logging*, then select *Application*, *Configuration*, and *User Store* as *Component Content Filters*.

5 Click *OK*, then refresh the Identity Server.

5.3.2 Creating the bcsLogin.conf File

The `bcsLogin.conf` file is an authentication file for the Java* authentication and authorization service (JAAS).

1 In an text editor, enter the following lines:

```
com.sun.security.jgss.accept {
com.sun.security.auth.module.Krb5LoginModule required
debug="true"
useTicketCache="true"
ticketCache="/opt/novell/java/jre/lib/security/spnegoTicket.cache"
doNotPrompt="true"
principal="HTTP/amser.provo.novell.com@AD.NOVELL.COM"
useKeyTab="true"
keyTab="/opt/novell/java/jre/lib/security/nidpkey.keytab"
storeKey="true";
};
```

The file cannot contain any white space, only end-of-line characters.

ticketCache: The location of the cache file where the Kerberos ticket is stored. In the example, this is the default location on SUSE® Linux Enterprise Server (SLES) 10. If you are using Windows for the cache, the default location is:

```
C:\\Program Files\\Novell\\jre\\lib\\security\\spnegoTicket.cache
```

The path must contain double slashes.

principal: Specify the service principal name for the Access Manager Identity Server. This value is unique to your configuration.

keyTab: Specify the location of the keytab you created in "Creating a Keytab File" on page 31. This value is unique to your configuration. In the example, this is the default location on SLES 10. If you are using Windows for the cache, the default location is:

```
C:\\Program Files\\Novell\\jre\\lib\\security\\nidpkey.keytab
```

The path must contain double slashes.

2 Save this file with the name `bcsLogin.conf`.

3 Copy this file to the same directory as where the keytab file is stored.

4 Make sure that the permissions are set correctly. The permissions are set to 644.

5 Restart Tomcat.

Linux: `/etc/init.d/novell-tomcat5 restart`

Windows: Stop and start the Tomcat service from the control panel.

When a change is made to the `bcsLogin.conf` file, Tomcat must be restarted.

5.3.3 Creating a User Store for the Active Directory Domain

You need to either configure your Identity Server to use Active Directory as a user store or verify your existing configuration for your Active Directory user store.

1. In the Administration Console, click *Devices* > *Identity Servers* > *Edit*.
2. Click *Local* to view your user stores.

   If you have already configured your Identity Server to use the Active Directory server, click its name.

   If you haven't configured a user store for the Active Directory server, click *New*.
3. For a new user store, fill in the following fields. For an existing Active Directory user store, verify the values.

   Name: Specify a name for the user store for reference.

   Admin name: Specify the name of the administrator of the Active Directory server. Administrator-level rights are required for setting up a user store. This ensures read/write access to all objects used by Access Manager.

   Directory Type: Select *Active Directory*.

   Server replica: (Conditional) For a new Active Directory user store, click *New* to add a replica. Fill in the following fields:

   - **Name:** Specify a name of the replica for reference. This can be the name of the Active Directory server.
   - **IP Address:** Specify the IP address of the Active Directory server and the port you want the Identity Server to use when communicating with the Active Directory server.
   - **Port:** Specify the port that the Active Directory server uses to communicate to the Identity Server. This communication occurs over LDAP. The default non-secure port is 389. The default secure port is 636.

   Search Context: For a new user store, click *New* and specify the context of the administrator of the Active Directory server. For an existing user store, verify that you have an entry for the context of the administrator. Add a context if it is missing.
4. Click *OK* to save the changes.

5.3.4 Creating a Kerberos Authentication Class for the Identity Server

1. In the *Local* tab of the Identity Server, click *Classes* > *New*.
2. Fill in the following fields:

   Display name: Specify a name to identify this class.

   Java Class: Select *KerberosClass*.
3. Click *Next*.
4. Fill in the following fields:

   Service Principal Name: Specify the value of the servicePrincipalName attribute of the Identity Server user. This is the user created in "Creating a User Account in Active Directory for the Identity Server" on page 31.

Kerberos Realm: Specify the name of the Kerberos realm. The default value for this realm is the domain name of the Active Directory server, entered in all capitals. The value in this field is case sensitive.

JAAS config file for Kerberos: Specify the path to the `bcsLogin.conf` file. This is the created in "Creating the bcsLogin.conf File" on page 33.

Kerberos KDC: Specify the IP address of the Active Directory server.

User Attribute: Specify the attribute in the Identity Vault that contains the userPrincipalName from Active Directory. For example, the mail attribute in the Identity Vault can store the userPrincipalName from Active Directory.

If this attribute does not contain the userPrincipalName from Active Directory, the authentication into the SAP Portal fails.

5 Click *Finish* to save the authentication class.

5.3.5 Creating a Kerberos Method for the Identity Server

1 In the *Local* tab of the Identity Server, click *Method* > *New*.

2 Fill in the following fields:

Display name: Specify a name to identify this method.

Class: Select the Kerberos class created in "Creating a Kerberos Authentication Class for the Identity Server" on page 34.

User stores: Move the user store for the Identity Vault to the list of *User stores*. This must be the Identity Vault user store, not the Active Directory user store.

3 Click *Finish* to save the method.

5.3.6 Creating a Kerberos Contract for the Identity Server

1 In the *Local* tab of the Identity Server, click *Contract* > *New*.

2 Fill in the following fields:

Display name: Specify a name to identify this contract.

URI: Specify a value that uniquely identifies the contract from all other contracts.

The URI cannot begin with a slash, and it must uniquely identify the contract. For example: `kerberos/contract`.

Methods: From the list of available methods, move the Kerberos method, created in "Creating a Kerberos Method for the Identity Server" on page 35, to the *Methods* list.

3 Click *Finish* to save the contract.

5.3.7 Verifying the Kerberos Configuration

To view the `catalina.out` (Linux) or the `stdout.log` (Windows) file of the Identity Server:

1 In the Administration Console, click *Auditing* > *General Logging*.

2 In the Identity Servers section, select the `catalina.out` or `stdout.log` file.

3 Download the file and open it in a text editor.

4 Search for Kerberos and verify that a subsequent line contains a `Commit Succeeded phrase`. For the configuration example, the lines look similar to the following:

```
principal's key obtained from the keytab
principal is HTTP/amser.provo.novell.com@AD.NOVELL.COM
Added server's keyKerberos Principal HTTP/
amser.provo.novell.com@AD.NOVELL.COMKey Version 3key EncryptionKey:
keyType=3 keyBytes (hex dump)=0000: CB 0E 91 FB 7A 4C 64 FE

[Krb5LoginModule] added Krb5Principal HTTP/
amser.provo.novell.com@AD.NOVELL.COM to Subject
Commit Succeeded
```

5 If the file does not contain any lines similar to these, verify that you have enabled logging. See "Enabling Logging for Kerberos Transactions" on page 32.

6 If the commit did not succeed, search backward in the file and verify the following values:

- Service Principal Name
- Name of keytab file

For the example configuration, the file contains lines with text similar to the following:

```
Principal is HTTP/amser.provo.novell.com

KeyTab is /usr/lib/java/jre/lib/security/nidpkey.keytab
```

7 (Conditional) If you make any modifications to the configuration, either in the Administration Console or to the bcsLogin file, restart Tomcat on the Identity Server.

5.3.8 Creating a SAML Identity Injection Policy

You must create a SAML identity injection policy for Access Manager to use. This allows the authentication information in the Kerberos tickets to be passed to the Role Mapping Application.

1 In the Administration Console, click *Policies* > *Policies* > *Master_Container*.

The policy must reside in the master container.

2 Click *New* to create a new policy.

3 Specify a name to identify the policy.

4 For the policy type, select *Access Gateway: Identity Injection*.

5 Click *OK*.

6 Fill in the following fields to define the policy:

Description: Specify a description for the policy.

Priority: Leave the priority at the default level of 1.

Actions: Click *New* > *Inject into Authentication Header*.

- **User Name:** Select *Credential Profile*, then select *LDAP Credentials:LDAP User Name* for the username.
- **Password:** Select Credential Profile, then select SAML Credentials:SAML Assertion
- **Multi-Value Separator:** Leave the default separator as a comma.
- **DN Format:** Leave the default DN format as LDAP.

7 Click *OK* twice to save the policy.

5.3.9 Refreshing the Identity Server

In order for the changes to the Identity Server to take affect, you must refresh the Identity Server.

1. In the Administration Console, select *Devices* > *Identity Servers*.
2. Select your Identity Server, then click *Refresh*.
3. Click *Close*.

5.4 Configuring the User's Web Browser

Each user's Web browser must be configured to trust the Access Manager Identity Server.

1. Add the computers of the users to the Active Directory domain.

   For instructions, see your Active Directory documentation.
2. Log in to the Active Directory domain, rather than the machine.
3. Configure the Web browser to trust the Identity Server:

   Internet Explorer: For version 7, click *Tools* > *Internet Options* > *Security* > *Local intranet* > *Sites* > *Advanced*. (For Internet Explorer version 6, click *Tools* > *Internet Options* > *Security* > *Trusted sites* > *Sites*.)

   In the *Add this website to the zone* text box, enter the Base URL for the Identity Server, then click *Add*.

   In the configuration example, this is `http://amser.provo.novell.com`.

   Click *Close*.

   Firefox: In the URL field, specify `about:config`. In the *Filter* field, specify *network.n*. Double-click `network.negotiate-auth.trusted-uris`.

   For this example configuration, you would add `http://amser.provo.novell.com` to the list.

   This preference lists the sites that are permitted to engage in SPNEGO Authentication with the browser. Specify a comma-delimited list of trusted domains or URLs.

   If the deployed SPNEGO solution is using the advanced Kerberos feature of Credential Delegation, double-click `network.negotiate-auth.delegation-uris`. This preference lists the sites for which the browser can delegate user authorization to the server. Specify a comma-delimited list of trusted domains or URLs.

   For this example configuration, you would add `http://amser.provo.novell.com` to the list.
4. Click *OK*. The configuration appears as updated.

   Restart your browser to activate this configuration.
5. In the URL field, enter the base URL of the Identity Server with port and application. For this example configuration:

   ```
   http://amser.provo.novell.com:8080/nidp
   ```

   The Identity Server authenticates the user without prompting the user for authentication information.

5.5 Adding the SAP Portal as a Protected Resource in Access Manager

You must configure the SAP Portal as a protected resource in the Access Gateway.

1 In the Administration Console, click *Devices* > *Access Gateways*, then click the name of your Access Gateway.

2 (Conditional) If you have a Proxy Service defined for the SAP Portal, skip to Step 3. Otherwise, complete the following steps to create the Proxy Service for the SAP Portal:

   2a Click *New* in the Proxy Service List.

   2b Fill in the following fields:

   Proxy Service Name: Specify a name to identify the SAP Portal as a Proxy Service.

   Multi-Homing Type: Select *Domain-Based*.

   Published DNS Name: Specify the DNS name for the SAP Portal server.

   Path: Specify the SAP Portal's application context.

   Web Server IP Address: Specify the IP address of the Web server.

   Host Header: Select *Web Server Host Name* to publish the DNS name that the user sent in the request to be replaced by the DNS name of the Web server.

   Web Server Host Name: Specify the DNS name of the Web server.

   2c Click *OK* to create the Proxy Service for the SAP Portal.

3 Click the display name of the SAP Portal Proxy Service.

4 Click the *Protected Resources* tab, then click *New*.

5 Specify the name of the protected resource, then click *OK*.

6 Fill in the following fields on the *Overview* tab:

   Description: Specify a description for the protected resource.

   Contract: Select the Kerberos contract created in "Creating a Kerberos Contract for the Identity Server" on page 35.

   URL Path: Click the /* path, then define the application context for the SAP Portal.The default application context is `/irj/portal`. You need to have two entries. For example:

   `/*`

   `/irj/portal.`

7 Click the *Identity Injection* tab, then click *Manage Policies*.

8 Select the policy created in "Creating a SAML Identity Injection Policy" on page 36, then click *Apply Changes*.

9 Click *Close* to close the policies window.

10 Click *OK* twice to save the changes to the protect resource.

5.5.1 Refreshing the Access Gateway

In order for the changes for the protect resource to take effect, you must refresh the Access Gateway.

1 In the Administration Console, select *Devices* > *Access Gateways*.

2 Select your Access Gateway, then select *Refresh*.

3 Click *Close*.

5.6 Configuring the SAP Portal for Kerberos Authentication

1 Add the following attributes to the default read-only datasourceConfiguration file:

- kbr5principalname
- kpnprefix
- dn added to the user definition and mapped to the ADS attributes

The SAP Portal UME Identity Store must be configured as an Active Directory Server (ADS) with Kerberos attributes added. For more information, see SAP Note 994791 (https://service.sap.com/sap/support/notes/994791).

2 Run the SPNego Wizard on the portal:

2a For the *Kerberos Principal Name*, select *Enter Principal*.

2b Specify the samAccountName of the user created for the Identity Server in Section 5.3.3, “Creating a User Store for the Active Directory Domain,” on page 34.

2c Specify the password for this user.

2d Deselect *Basic Password Fallback*.

2e Complete the wizard.

3 Restart the J2EE* SAP server.

4 Assign the SPNego Authentication Template to the Security Provider > ticket component through the J2EE Visual Admin Tool on the portal J2EE server.

5 Restart the portal J2EE server.

Auditing Real-Time Events

6

The final part of any solution is to provide auditing and reporting capabilities for the solution. The extension for SAP environments provides real-time auditing and reporting capabilities for your SAP systems. This allows you to provide automated reports that can prove compliance with the business policies implemented when users are provisioned and granted access to resources.

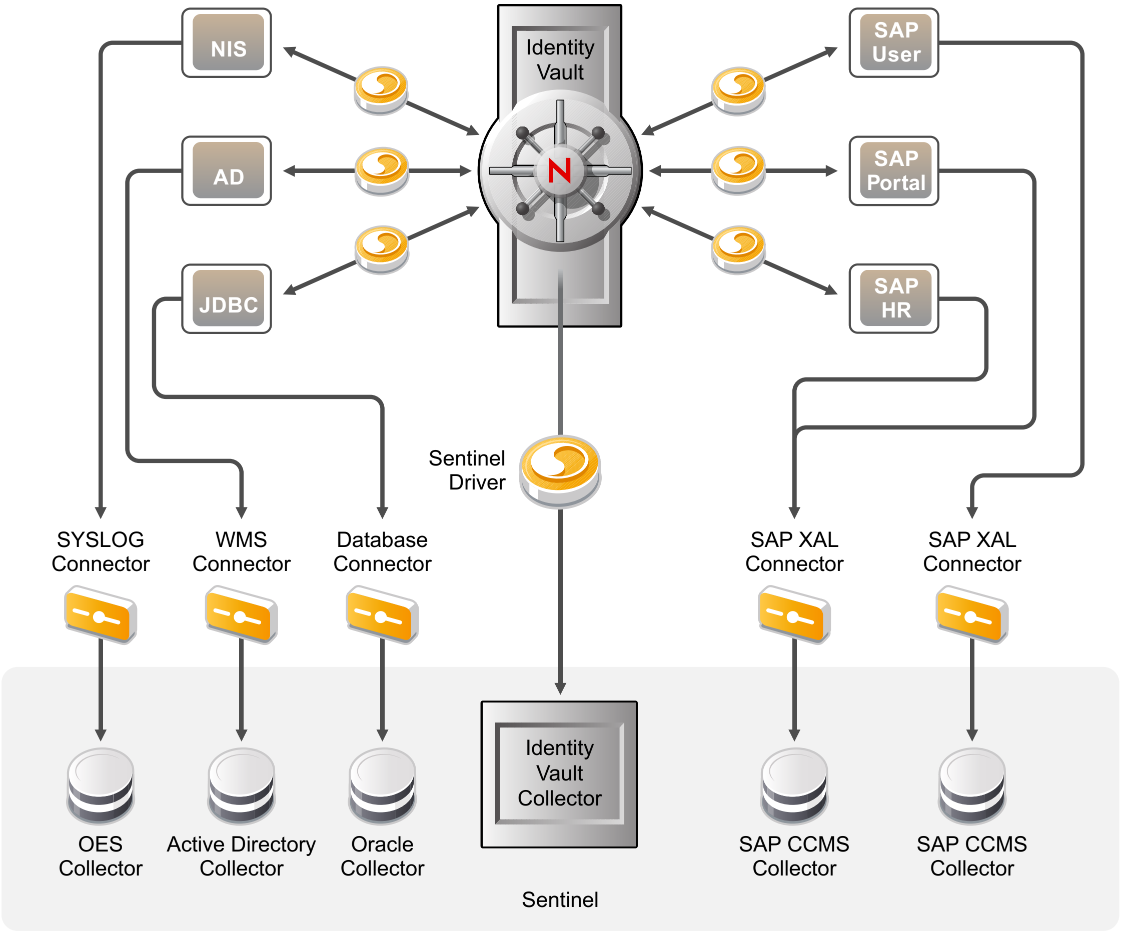
In order to provide reports that contain value, the solution must be able to correlate each account and identity a user has. Each user account can have one or more identities for the account. For example, in Active Directory a user account is identified by sAMAccountName, DN, userPrincipalName, and an association. In Sentinel™, a user's identity is tracked through Connectors. There are Connectors for each system. They send the events to a Sentinel Collectors that gather the information. The events for the users are stored in an accounts table in Sentinel. Reports are run against this data.

The problem at this point is that Sentinel is not aware that John Smith in Active Directory is the same account as jsmith in SAP. The Account Tracking feature of the Novell® Compliance Management Platform (CMP) can to track each account and identity.

Account tracking adds a Sentinel driver and an Identity Vault collector to the solution. The Sentinel driver synchronizes all accounts and identities from each system to Sentinel. The information is stored in an identity table. The Sentinel reports and the identity browser display the accounts and identities for each user. The reports also contains a list of all events for the user in each system. This provides a complete picture of what each user is doing in your environment.

The following figure shows how the solution works. Identity Manager provisions accounts for the connected systems and databases. Sentinel tracks each account and identity individually. Account Tracking connects the two features to provided real-time tracking of events for each account and identity.

Figure 6-1 *Auditing User Accounts and Identities*



The auditing solution for SAP consists of the following components:

- **SAP XAL Connector:** Connects the SAP application with Sentinel.
- **SAP CCMS Collector:** Collects all of the events from the SAP application and parses the data.
- **SAP Solution Pack:** A set of predefined reports to use the parsed data from the SAP CCMS Collector.
- **Sentinel Driver:** Tracks the identities of each user account throughout your environment.
- **Identity Vault Collector:** Correlates the data sent from the Sentinel driver and other collectors to track the users' accounts.

The following sections explain how to enable auditing for you SAP system, and document use cases for real-world scenarios that use auditing.

- Section 6.1, "Enabling Auditing," on page 43
- Section 6.2, "Enabling Account Tracking," on page 49
- Section 6.3, "Sending Alerts when Rogue Administration Occurs," on page 50

6.1 Enabling Auditing

Completing the following procedures allows you to audit the events that occur in the SAP system. These events can be security events, or provisioning events that are a result of the Identity Manager drivers.

Each of the use cases requires that auditing be enabled. Use the following procedures to enable auditing for your SAP environment.

- Section 6.1.1, "Prerequisites," on page 43
- Section 6.1.2, "Configuring the SAP Servers for Auditing," on page 43
- Section 6.1.3, "Importing the SAP CCMS Collector and the SAP XAL Connector," on page 45
- Section 6.1.4, "Adding Auxiliary Files for the SAP XAL Connector," on page 46
- Section 6.1.5, "Configuring the SAP CCMS Collector," on page 46
- Section 6.1.6, "Configuring the SAP XAL Connector," on page 47
- Section 6.1.7, "Configuring the SAP Event Source," on page 48

6.1.1 Prerequisites

The procedures assume the following items have been completed:

- ❑ Sentinel 6.1 is installed and configured. For more information, see the *Sentinel 6.1 Installation Guide* (http://www.novell.com/documentation/sentinel61/pdfdoc/sentinel_61_installation_guide.pdf).
- ❑ Identity Manager 3.6 is installed and configured. For more information, see the *Identity Manager 3.6.1 Installation Guide*.

6.1.2 Configuring the SAP Servers for Auditing

Complete the following steps to enable the SAP server for auditing. These steps must be completed on each server you want to audit.

1 Shut down the SAP instance through the SAPMMC.

2 Edit the SAP profile `<SID>_<INSTANCE_NAME>_<SERVER_NAME>`.

For example: `DMO_DVEBMGS01_sapserver`

UNIX System: `/usr/sap/<SID>/SYS/profile`

Windows NT System: `X:\usr\sap\<SID>\SYS\profile`

Do not modify a SAP profile file with a .1 or .2 extension. These are the backup files.

3 Add the following parameters to the SAP profile file:

Parameter	Description
`rsau/enable = 1`	Enables the Security Audit Log
`rsau/max_diskspace/local = 2147483647`	Maximum space to allocate for the audit files

Parameter	Description
`rsau/selection_slots = 10`	Number of filters to allow for the security audit log
`rsau/max_diskspace/per_file = 2147483647`	Maximum space to allocate for the audit files
`rsau/max_diskspace/per_day = 21474836470`	Maximum space to allocate for the audit files

4 (Conditional) Modify the following parameters to the SAP profile if you are using the SAP ABAP trial version to increase memory allocation to the CCMS alert system. The CCMS alert system is disabled by default.

Parameter	Description
`alert/MONI_SEGM_SIZE = 40000000`	Allocates memory space for the alert system
`rdisp/autoabaptime = 300`	Parameter for the background job scheduler

5 Start the SAP instance through the SAPMMC.

6 Log in to SAP.

7 Specify the SAP transaction SM19, then select *Environment* > *Profile Parameter* from the toolbar.

7a In transaction SM19, click the *Dynamic Configuration* tab.

7b Click the *Display* <-> *Change* icon ✎ to add additional events to Filter 1.

7c Select *Filter Active* to activate the filter.

7d Select all event types, such as logon and master record change.

By default, only System events are selected.

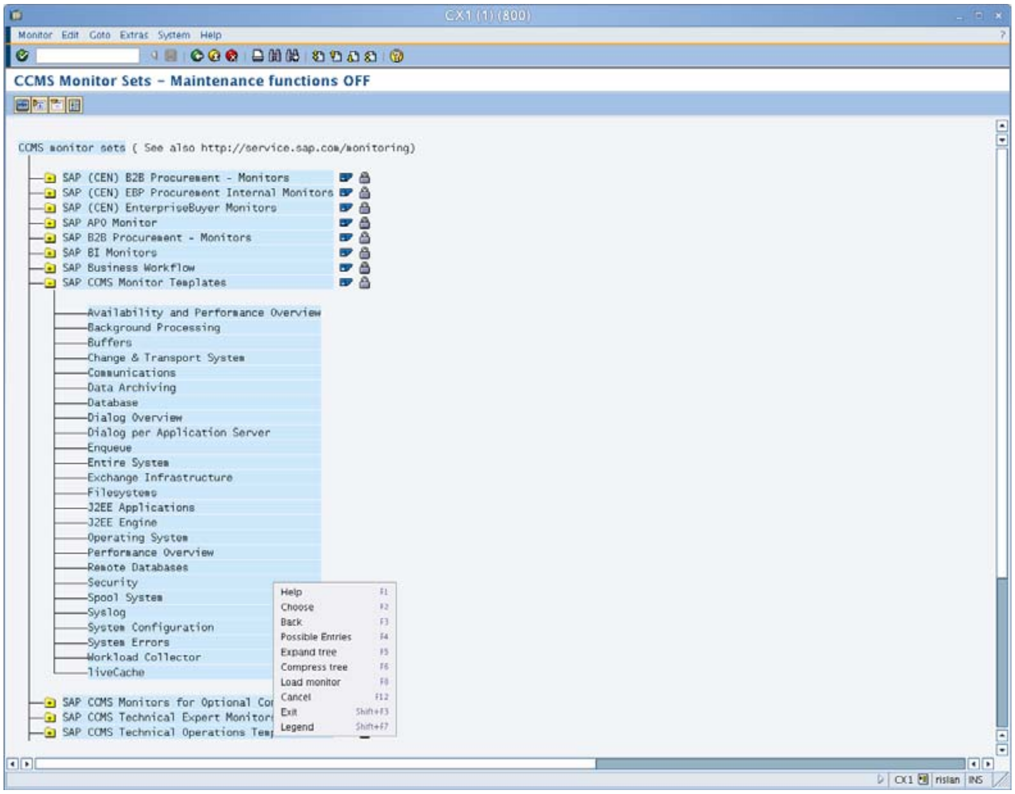
7e Click the *Display* <-> *Change* icon ✎ to save and distribute the changes to your SAP servers.

8 Load the *SAP CCMS Monitor Templates* > *Security* monitor via transaction RZ20:

8a Run transaction RZ20.

8b Expand the SAP CCMS Monitor Templates node, then select the Security Monitor set.

8c Right-click the Security Monitor set, then click *Load monitor*.



CCMS Monitor Sets – Maintenance functions OFF

```
CCMS monitor sets ( See also http://service.sap.com/monitoring)
 ├─ SAP (CEN) B2B Procurement - Monitors
 ├─ SAP (CEN) EBP Procurement Internal Monitors
 ├─ SAP (CEN) EnterpriseBuyer Monitors
 ├─ SAP APO Monitor
 ├─ SAP B2B Procurement - Monitors
 ├─ SAP BI Monitors
 ├─ SAP Business Workflow
 ├─ SAP CCMS Monitor Templates
 │    ├── Availability and Performance Overview
 │    ├── Background Processing
 │    ├── Buffers
 │    ├── Change & Transport System
 │    ├── Communications
 │    ├── Data Archiving
 │    ├── Database
 │    ├── Dialog Overview
 │    ├── Dialog per Application Server
 │    ├── Enqueue
 │    ├── Entire System
 │    ├── Exchange Infrastructure
 │    ├── Filesystems
 │    ├── J2EE Applications
 │    ├── J2EE Engine
 │    ├── Operating System
 │    ├── Performance Overview
 │    ├── Remote Databases
 │    ├── Security
 │    ├── Spool System
 │    ├── Syslog
 │    ├── System Configuration
 │    ├── System Errors
 │    ├── Workload Collector
 │    └── liveCache
 ├─ SAP CCMS Monitors for Optional Co
 ├─ SAP CCMS Technical Expert Monitor
 └─ SAP CCMS Technical Operations Tem
```

9 Repeat Step 1 through Step 8 for each SAP server that you want to enable auditing for.

6.1.3 Importing the SAP CCMS Collector and the SAP XAL Connector

The SAP CCMS Collector and the SAP XAL Connector need to be added to the Event Source Manager once. The SAP CCMS Collector and the SAP XAL Connector are then displayed as options to select during the configuration procedures.

To import the SAP CCMS Collector and the SAP XAL Connector:

1 Download the SAP CCMS Collector (`SAP_CCMS_6.1r1.clz.zip`) from the Sentinel 6.1 download Web site (http://support.novell.com/products/sentinel/secure/sentinel61.html) to the server where the Sentinel Control Center is running.

2 Download the SAP XAL Connector (`sap_connector.zip`)from the Sentinel 6.1 download Web site (http://support.novell.com/products/sentinel/secure/sentinel61.html) to the server where the Sentinel Control Center is running.

3 Log in to the Sentinel Control Center.

4 Select *Event Source Management* > *Live View*, then select *Tools* > *Import plugin*.

5 Browse to and select the SAP CCMS Collector `SAP_CCMS_6.1r1.clz.zip` file, then click *Next*.

6. Follow the remaining prompts, then click *Finish*.
7. Repeat steps Step 4 through Step 6, except browse to and select the SAP XAL Connector `sap_connector.zip` file.

6.1.4 Adding Auxiliary Files for the SAP XAL Connector

The SAP Java Connector 3 (JCO) library files must be added to the Sentinel server for the SAP XAL Connector to work.

1. Download the SAP JCO3 library files from the SAP Service Market Place Web site (http://www.sap.com/services/index.epx).

   The SAP XAL Connector only supports version 3 of the JCO library files. These files are:

   - `sapjco3.jar`
   - Native libraries:
     - **Linux/UNIX:** `libsapjco3.so`
     - **Windows:** `sapjco3.dll`
2. Log in to the Sentinel Control Center.
3. (Conditional) If you have more than one Connector, select the Connector, then proceed to the next step.
4. Select *Event Source Management* > *Live View*, then select the *Add Auxiliary File* icon.
5. Browse to and select the native library file for your platform.
6. Repeat Step 4 for the `sapjco3.jar` file.

6.1.5 Configuring the SAP CCMS Collector

For each SAP XAL Connector, you must have one SAP CCMS Collector.

1. In the Event Source Management live view, right-click the Collection Manager, then click *Add Collector*.
2. Select *Novell* in the vendor column.
3. Select *SAP CCMS Alerts 6r1* in the *Name* column, then click *Next*.
4. Select *Novell Engineering* and *SAP_CCMS_6.1r1* for the Collector script, then click *Next*.
5. Configure the SAP CCMS Collector for your needs by using the following information:

Configuration Parameter	Default Value	Description
Event Source Time Zone	+0000	Sets the time zone offset UTC (+0000) of the event source data time stamps. This is used if the source data is reported only in local time with no time zone indicated. The format is + or - followed by a two-digit hour and minute offset.

Configuration Parameter	Default Value	Description
Execution Mode	release	Sets the execution mode for the collector. There are three options: ◆ **release:** Use this mode for normal operation. ◆ **custom:** Use this mode if the Identity Manager Collector is customized. ◆ **debug:** Use this mode when troubleshooting. It generates debug trace files.
MSSP Customer Name		
Script Error Severity	5 Severe (5)	Sets the severity for a script error event.
Send Script Error Message	yes	Sends a script error event when there is an error with the Collector script.
Sentinel Driver Instance ID		Enables multiple Sentinel drivers. Each Sentinel driver is paired with a specific Identity Vault Collector. This instance ID is synchronized between the Sentinel driver and the Identity Vault Collector. By default, there is no value. Use letters and numbers only.
iSCALE Connection URL	localhost:10012	The URL that the Identity Vault Collector uses to retrieve identity events stored in the SonicMQ* message queue.

6 Click *Next*.

7 Complete the configuration of the SAP CCMS Collector with the following information:

Name: Specify a name for this Collector.

Run: Select whether the Collector is started whenever the Collector Manager is started.

Alert if no data received in specified time period: (Optional) Select this option to send the No Data Alert event to Sentinel if data is not received by the collector in the specified time period.

Limit Data Rate: (Optional) Select this option to set a maximum limit on the rate of data the collector sends to Sentinel. If the data rate limit is reached, Sentinel throttles back on the source in order to limit the flow of data.

Set Filter: (Optional) Specify a filter on the raw data passing through the collector.

Trust Event Source Time: (Optional) Select this option if you trust the Event Source server’s time.

8 Click *Finish* to save the Collector.

6.1.6 Configuring the SAP XAL Connector

The SAP XAL Connector can connect to more than one SAP Application.

1 In the Event Source Management live view, right-click the SAP CCMS Collector, then select *Add Connector*.

2 Select *SAP* from the list of installed Connectors, then click *Next*.

3 Configure the Connector by specifying the following information:

Name: Specify the name of the Connector to display.

Run: (Optional) Select this option to start the Connector when the Collector Manager starts.

Alert if no data received in specified time period: (Optional) Select this option to send a No Data Alert event to Sentinel if no data is received by the Connector in the specified time period. There is also an option to resend the alert if multiple time periods pass without receiving data from the Connector.

Limit Data Rate: (Optional) Specify the maximum limit on the rate of data this connector can send to Sentinel. If the data limit is reached, Sentinel begins to throttle back on the source in order to limit the flow of data.

Set Filter: (Optional) Specify a filter on the raw data passing through this connector.

Save Raw Data to a file: (Optional) Saves the raw data passing through the Connector to a file for further analysis.

4 Click *Finish* to save the configuration.

6.1.7 Configuring the SAP Event Source

You must configure one or more event sources for the SAP XAL Connector to poll for SAP system alerts.

1 In the Event Source Management live view, right-click the SAP XAL Connector, then select *Add Event Source*.

2 Specify the Connector parameters for the desired SAP server.

Host Name: Specify the DNS name or IP address of the SAP server that is polled for SAP system alerts.

System Number: Specify the system number of the SAP server.

Client Number: Specify the client number of the SAP server.

User Name: Specify the username of a user with sufficient authorization to perform CCMS administration. This involves the collection and completion of system alerts. It is recommended that a Communication (CPIC) User account be utilized.

Password: Specify the password of the CCMS administrative user.

Language: Specify the two-letter language code. The default is EN for English.

3 Click *Next*.

4 Specify a monitor set followed by the forward-slash-separated path to the desired monitor object. The default monitor set and object are *SAP CCMS Monitor Templates/Security*.

The default monitor path is the most commonly used for system alerts that are related to system auditing.

5 Click *Next*.

6 Specify a name for the SAP server to be displayed as an event source in the Event Source Manager.

This allows you to identify each SAP server in the Event Source Manager.

7 Click *Next*.

8 Click *Finish* to save the configuration for the new event source object.

9 Right-click the new SAP event source object, then click *Start* to start the event source object.

10 Repeat Step 1 through Step 8 for each SAP server you want to monitor through the same connector.

6.2 Enabling Account Tracking

Account tracking is the ability to track each user's accounts and identities in your system. This solution tracks the user accounts in your SAP system.

Complete the following sections to enable account tracking for your SAP system. The items in the prerequisites section must be completed before the other section.

After the sections are complete, you can track the accounts through Sentinel reports included in the Sentinel Solution Pack for SAP or in the identity browser in Sentinel.

- Section 6.2.1, "Prerequisites," on page 49
- Section 6.2.2, "Enabling Account Tracking on the SAP Drivers," on page 49

6.2.1 Prerequisites

The steps for the solution assume the following:

❑ All of the procedures in Section 6.1, "Enabling Auditing," on page 43 are complete.

❑ You have installed and configure the Sentinel driver and the Identity Vault Collector. For more information, see "Checklist for Enabling Account Tracking" in the *Identity Manager 3.6.1 Driver for Sentinel 6.1 and the Identity Vault Collector Implementation Guide*.

6.2.2 Enabling Account Tracking on the SAP Drivers

Complete the following tasks to enable Account Tracking for each SAP Portal and SAP User Management driver you have installed and configured in your environment. The SAP HR driver and the SAP Business Logic drivers are not enabled for Account Tracking.

1 Access the Account Tracking GCV on the SAP driver:

In Designer: Right-click the driver icon, then select *Properties* > *GCVs*.

In iManager: Edit the driver properties, then click the *Global Config Values* tab.

2 Set the *Account Tracking* > *Show Account Tracking Configuration* option to *show*.

3 Use the following information to enable account tracking:

Enable account tracking: Select *true* to enable the policies in the driver to use the DirXML-Accounts attribute.

Realm: Specify the name of your realm, security domain, or namespace where the account name is unique.

Object Class: Specify the object classes to track with account tracking. The class name must be in the application namespace.

Identifiers: Each driver has different account identifier attribute. By default the attributes are prepopulated for each driver.

- **SAP User Management:** association, USERNAME:BAPIBNAME

- **SAP Portal:** association, logonname

Status attribute: Specify the name of the attribute in the application namespace that represents the account status. By default the attributes are:

- **SAP User Management:** LOCKUSER
- **SAP Portal:** isLocked

Status active attribute: The value of the status attribute that represents an active state. By default, the value is *false*.

Status inactive attribute: The value of the status attribute that represents an inactive state. By default, the value is *true*.

Subscription default status: The default status the policies assume when an object is subscribed to the application and the status attribute is not set in the Identity Vault. By default, the status is *Active*.

Publication default status: The default status the policies assume when an object is published to the Identity Vault and the status attribute is not set in the application. By default, the status is *Uninitialized*.

4 Click *OK* to save the changes.

If the driver is running, it must be restarted for the changes to take effect.

5 Repeat Step 1 through Step 4 for each SAP driver in your environment.

6.3 Sending Alerts when Rogue Administration Occurs

When an identity attribute is changed by an administrator, not by Identity Manager, Sentinel logs the event and then takes the appropriate action. This solution is included with NCMP. If you have implemented this solution with NCMP, there are no additional steps required for this solution to work for your SAP systems. If you have not implemented this solution, follow the instructions in the *Novell Compliance Management Platform 1.0 SP1 Integration Guide* for "Sending Alerts when Rogue Administration Occurs".