Novell Access Manager

3.0

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INSTALLATION GUIDE

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Novell®

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Contents

About This Guide

The purpose of this guide is to provide an introduction to Novell® Access Manager and to describe the installation procedures.

Audience

This guide is intended for Access Manager administrators. It is assumed that you have knowledge of evolving Internet protocols, such as:

- Extensible Markup Language (XML)
- Simple Object Access Protocol (SOAP)
- Security Assertion Markup Language (SAML)
- Public Key Infrastructure (PKI) digital signature concepts and Internet security
- Secure Socket Layer/Transport Layer Security (SSL/TSL)
- Hypertext Transfer Protocol (HTTP and HTTPS)
- Uniform Resource Identifiers (URIs)
- Domain Name System (DNS)
- Web Services Description Language (WSDL)

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Additional Documentation

- *Novell Access Manager 3.0 Setup Guide*
- *Novell Access Manager 3.0 Administration Guide*

- *Novell Access Manager 3.0 Digital Airlines Example Documentation*
- *Novell Access Manager 3.0 J2EE Agent Guide*

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In Novell documentation, a greater-than symbol (>) is used to separate actions within a step and items in a cross-reference path.

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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.

Introduction to Novell Access Manager 3

1

Novell® Access Manager 3 is a comprehensive access management solution that provides secure access to Web and enterprise applications. Access Manager also provides seamless single sign-on across technical and organizational boundaries, based on industry standards including SAML (Secure Assertions Markup Language) and Liberty Alliance protocols. Access Manager combines simplified deployment and administration with advanced capabilities, such as multi-factor authentication, role-based access control, Web single sign-on, data encryption, and SSL VPN, to provide secure access from any location.

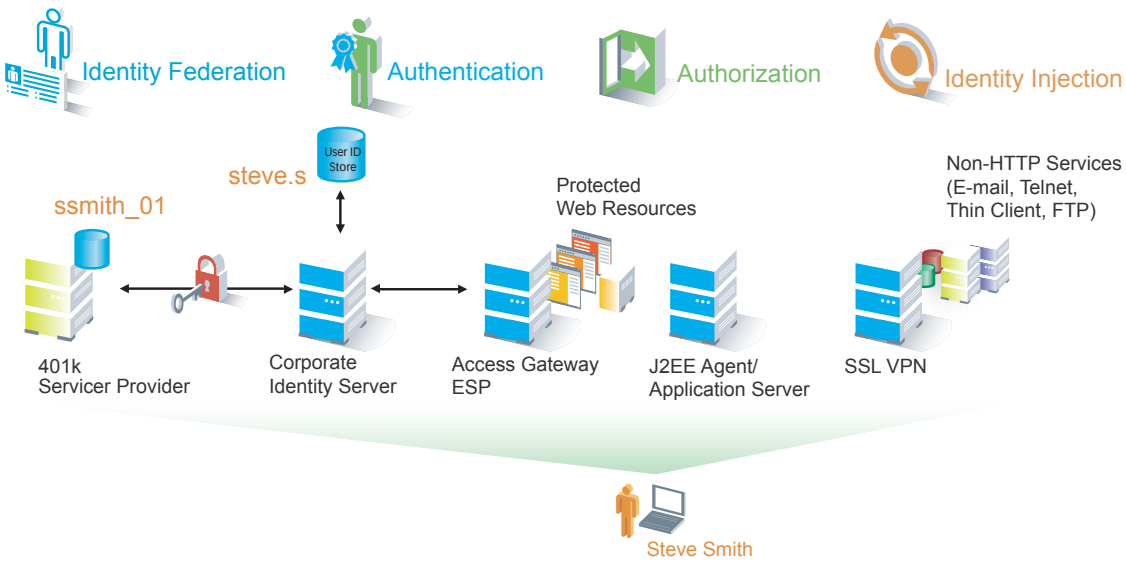
This section discusses the following topics:

1.1 How Access Manager Works

Access Manager deployments typically use Identity Servers and Access Gateways to provide policy-driven access control for HTTP services. For non-HTTP services, Access Manager provides secure VPN and J2EE Agent components. You can use the Access Gateway on both NetWare® (soft appliance) or Linux.

Figure 1-1 illustrates the primary purposes of Access Manager: authentication, identity federation, authorization, and identity injection.

Figure 1-1 *Access Manager*



Authentication

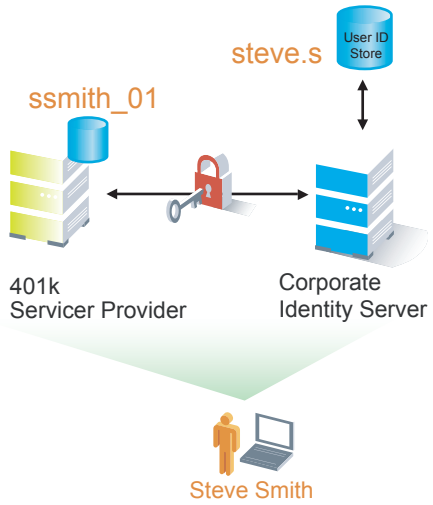
The Identity Server facilitates authentication for all Access Manager components. This authentication is shared with internal or external service providers on behalf of the user, by means of assertions. Access Manager supports a number of authentication methods, such as name/password, RADIUS token-based authentication, and X.509 digital certificates. You specify authentication methods in the contracts that you want to make available to the other components of Access Manager, such as the Access Gateway.

User data is stored in user stores. User stores are LDAP directory servers to which end users authenticate. You can configure a user store with more than one replica to provide load balancing and failover capability.

Identity Federation

Identity federation is the association of accounts between an identity provider and a service provider. As shown in Figure 1-2, an employee named Steve is known as steve.s at his corporate identity provider. He has an account at a work-related service provider called 401k, which has set up a trust relationship with his company. At 401k he is known as ssmith_01.

Figure 1-2 *Identity Federation*



As a service provider, 401k can be configured to trust the authentication from the corporate identity provider. Steve can enable single sign-on and single logout by federating, or linking, his two accounts.

From an administrative perspective, this type of sharing reduces identity management costs, because multiple organizations do not need to independently collect and maintain identity-related data, such as passwords. From the end user's perspective, this results in an enhanced experience by requiring fewer sign-ons.

Authorization

Authentication is the process of determining who a user is. Authorization is the process of determining what a user is allowed to do. Access Manager allows you to configure Identity Server roles and authorization policies, based on criteria other than authentication, to protect a resource.

Authorization policies are dynamically applied after authentication and are enforced when a user attempts to access a protected resource.

Identity Injection

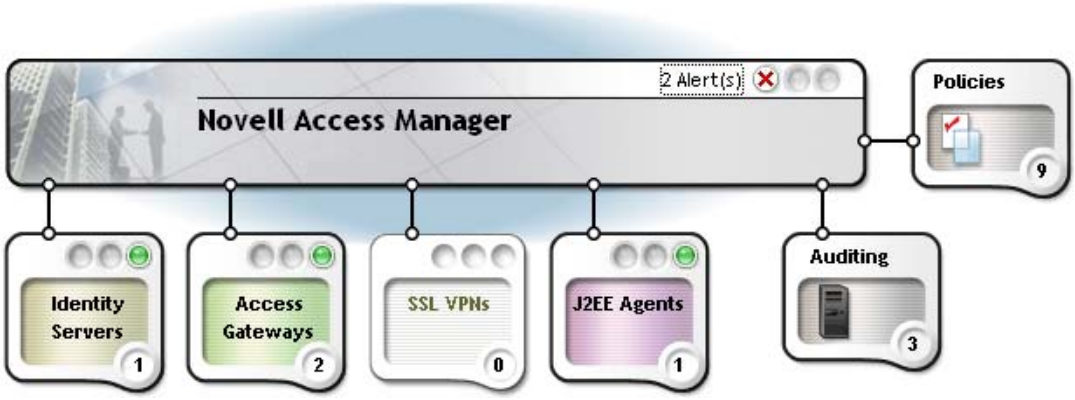
An Access Gateway lets you retrieve information from your LDAP directory, use it to inject information into HTML headers, query strings, or basic authentication headers, and send this information to the back-end Web servers. Access Manager calls this technology *identity injection* (iChain® calls it object level access control). The Web server uses this information to personalize content, or can use it for additional authorization decisions. Where Web servers require additional authentication, Identity injection can also provide the necessary credentials to perform a single sign-on.

1.2 Access Manager Features and Components

This section describes the following Access Manager features:

1.2.1 The Administration Console

The Administration Console is the central configuration and management tool for the product. It is a modified version of iManager that can be used only to manage the Access Manager components. It contains an Overview option, which allows you to assess the health of all Access Manager components.



It also allows you to configure and manage each component, and allows you to centrally manage resources, such as policies, hardware, and certificates, which are used by multiple components.

1.2.2 Identity Servers

The Identity Server is the central authentication and identity access point for all other services. It is responsible for authenticating users and distributing role information to facilitate authorization decisions. It also provides the Liberty Alliance Web Service Framework to distribute identity information.

An Identity Server always operates as an identity provider and can optionally be configured to run as an identity consumer (also known as a service provider), using either Liberty, SAML 1.1, or SAML 2.0 protocols. As an identity provider, the Identity Server validates authentications against the supported identity store, and is the heart of the user's identity federations or account linkage information.

In an Access Manager configuration, the Identity Server is responsible for managing:

- **Authentication:** Verifies user identities through various forms of authentication, both local (user supplied) and indirect (supplied by external providers). The identity information can be some characteristic attribute of the user, such as a role, e-mail address, name, or job description.
- **Identity Stores:** Links to user identities stored in eDirectory™, Microsoft* Active Directory*, or Sun ONE* Directory Server.
- **Identity Federation:** Enables user identity federation and provides access to Liberty-enabled services.
- **Account Provisioning:** Enables service provider account provisioning, which automatically creates user accounts during a federation request.
- **Custom Attribute Mapping:** Allows you to define custom attributes by mapping Liberty Alliance keywords to LDAP-accessible data, in addition to the available Liberty Alliance Employee and Person profiles.
- **SAML Assertions:** Processes and generates SAML assertions. Using SAML assertions in each Access Manager component protects confidential information by removing the need to pass user credentials between the components to handle session management.
- **Single Sign-on and Logout:** Enables users to log in only once to gain access to multiple applications and platforms. Single sign-on and single logout are primary features of Access Manager and are achieved after the federation and trust model is configured among trusted providers and the components of Access Manager.
- **Access Gateway Integration:** Provides authentication and identity services to Access Gateways that are configured to protect Web servers, Java applications, and SSL VPN. The Access Gateway and other Access Manager components include an embedded service provider that is trusted by Novell Access Manager Identity Servers.
- **Roles:** Provides RBAC (role-based access control) management. RBAC is used to provide a convenient way to assign a user to a particular job function or set of permissions within an enterprise, in order to control access. The identity provider service establishes the active set of roles for a user session each time the user is authenticated. Roles can be assigned to particular subsets of users based on constraints outlined in a role policy. The established roles can then be used in authorization policies and J2EE permissions, to form the basis for granting and restricting access to particular Web resources.

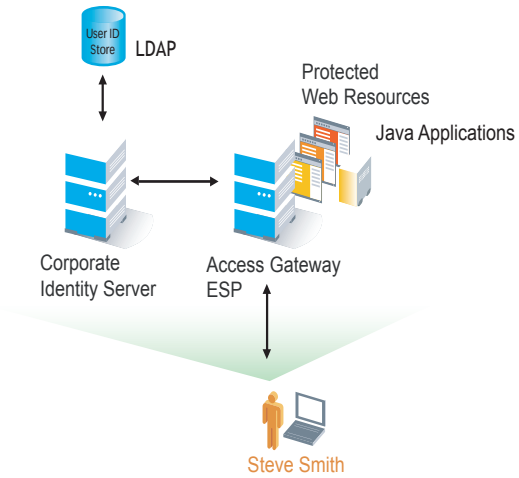
- **Clustering:** Adds capacity and failover management. An Identity Server can be a member of a cluster of Identity Servers, and the cluster is configured to act as a single server. An Access Gateway can be a member of a group of Access Gateways, and the group is configured to act as a single server.

For an overview of Liberty and SAML 2.0, see "About Liberty and SAML 2.0" in the *Novell Access Manager 3.0 Administration Guide*.

1.2.3 Access Gateways

An Access Gateway provides secure access to existing HTTP-based Web servers. It provides the typical security services (authorization, single sign-on, and data encryption) previously provided by Novell iChain, and is integrated with the new identity and policy services of Access Manager.

Figure 1-3 *Access Gateway Component*



The Access Gateway is designed to work with the Identity Server to enable existing Web services for Liberty and SAML. In addition to using identity injection, the Access Gateway can be configured so that it automatically fills in requested form information (called form fill). If your Web servers have not been configured to enforce authentication and authorization, you can configure the Access Gateway to provide these services. Authentication contracts and authorization policies can be assigned so that they protect the entire Web server, a single page, or somewhere in between.

The Access Gateway can also be configured so that it caches requested pages. When the user meets the authentication and authorization requirements, the user is sent the page from cache rather than requesting it from the Web server, which can increase content delivery performance.

Access Manager provides both a NetWare and Linux version of the Access Gateway. Both the NetWare Access Gateway and Linux Access Gateway are soft appliances, which simplifies installation and configuration. For more information, see "Access Gateway Configuration" in the *Novell Access Manager 3.0 Administration Guide*.

1.2.4 SSL VPN

The SSL VPN component provides secure access to non-HTTP based applications, such as e-mail servers, FTP services, or Telnet services. SSL VPN is a Linux-based service, which is actually accelerated by (and shares session information with) the Access Gateway.

An ActiveX plug-in or Java applet is delivered to the client on successful authentication. Roles and policies determine authorization decisions for back-end applications. Client integrity checking is available to ensure the existence of approved firewall and virus scanning software, before the SSL VPN session is established.

1.2.5 J2EE Agents

You install and configure the J2EE Agent components only when you need fine-grained access control to Java applications. Access Manager provides JBoss and IBM* WebSphere* server agents for Java 2 Enterprise Edition (J2EE) application servers.

These agents leverage the Java Authentication and Authorization Service (JAAS) and Java Authorization Contract for Containers (JACC) standards for Access Manager-controlled authentication and authorization to Java Web applications and Enterprise JavaBeans*. For more information about these Java authentication and authorization standards, see the JAAS Authentication Tutorial (http://java.sun.com/j2se/1.4.2/docs/guide/security/jaas/tutorials/GeneralAcnOnly.html) and Java Authorization Contract for Containers (http://java.sun.com/j2ee/javaacc/index.html).

Like the Access Gateway, J2EE Agents are federation-enabled and therefore operate as service provider agents. As such, they redirect all authentication requests to the Identity Server, which returns a SAML assertion to the component. This process has the added security benefit of removing the need to pass user credentials between the components to handle session management.

1.2.6 Policies

Policies provide the authorization component of Access Manager. Using policies, the administrator of the Identity Server defines how properties of a user's authenticated identity map to the set of active roles for the user. This role definition serves as the starting point for role-based authorization policies of the Access Gateway and J2EE components. Additionally, authorization policies can be defined that control access to protected resources based on user and system attributes other than assigned roles.

The flexibility built into the policy component is nearly unlimited. You can, for example, set up a URL-based policy that permits or denies access to a protected Web site, depending on user roles, such as employee or manager.

Each Access Gateway and J2EE component includes an embedded service provider agent that interacts with the Identity Server to provide authentication, policy decision and enforcement. For the Java application servers, the agent also provides role pass-through to allow integration with the Java Application server's authorization processes. For Web application servers, the Access Gateway provides the ability to inject the user's roles into HTTP headers to allow integration with the Web server's authorization processes

1.2.7 Certificate Management

Access Manager includes a certificate management service, which allows you to manage centrally-stored certificates used for digital signatures and data encryption. You can create locally signed

certificates and import externally signed certificates and assign these certificates to the trust stores of the following components:

- **Identity Server:** Certificates allow you to provide secure authentication to the Identity Server and enable encrypted content from the Identity Server portal, via HTTPS. They also provide secure communications between trusted Identity Servers and user stores.
- **Access Gateway:** Uses server certificates and trusted roots to protect Web servers, provide single sign-on, and enable the product's data confidentiality features, such as encryption.
- **SSL VPN:** Uses server certificates and trusted roots to secure access to non-HTTP applications.
- **J2EE Agents:** The embedded service providers that Novell provides for the J2EE Agents use signing and SSL certificates. Access Manager's certificate management features can manage certificates for your J2EE application servers if the application server uses one of the supported key store types: Java Key Store (JKS) eDirectory, PKCS12 (or `.pfx`), DER (`.cer`).

You can install and distribute certificates to the Access Manager components and configure how the components use certificates. This includes central storage, distribution, and expired certificate renewal.

1.2.8 Auditing and Logging

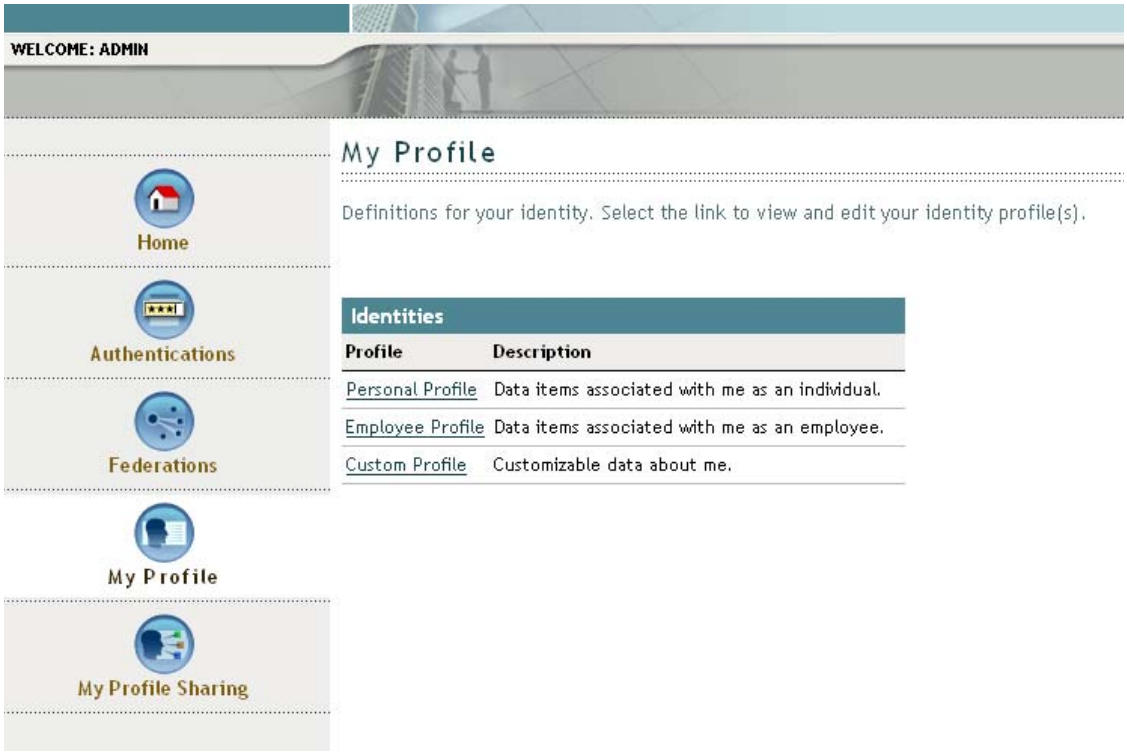
Access Manager supports audit logging and file logging at the component level. A licensed version of Novell Audit™ is included to provide compliance assurance logging and to maintain audit log entries that can be subsequently included in reports. Each component creates assurance log entries to show the effect of each policy statement on each access control decision. Log entries include events such as notifications pertaining to the operational state of Access Manager components, the results of administrator and user requests, and policy actions invoked in determining request results.

1.2.9 Embedded Service Provider

The Access Gateway and J2EE Agent use an Embedded Service Provider to redirect authentication requests to the Identity Server. The Identity Server requires requests to be digitally signed and encrypted and allows only trusted devices to participate. To be come trusted, devices must exchange metadata. The Embedded Service Provider performs this task automatically for the Access Gateway and J2EE Agent.

1.2.10 The User Portal Application

The Access Manager User Portal is a customizable application where end users can access and manage their authentications, federations, and profile data. The authentication methods you create in the Administration Console are reflected in the Portal.



Help information for the end users is provided in the user interface. If you know how to customize JSP pages, you can customize the portal for rebranding purposes and for creating custom login pages.

Installation Requirements

2

This section explains the requirements for installing the Novell® Access Manager. The product includes the following files:

- `AM_30_IdentityServer.iso` (CD 1): Identity Server, Access Manager Administration Console (with eDirectory™ and Novell Audit components), and SSL VPN

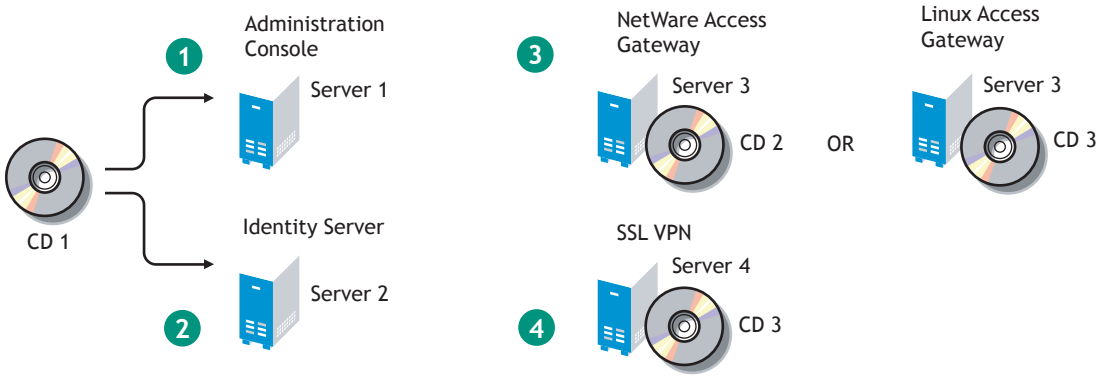
  You can also choose to use `AM_30_IdentityServer.tar.gz`, which includes the same components listed above.
- `AM_30_Netware_AccessGateway.iso` (CD 2): NetWare® Access Gateway
- `AM_30_Linux_AccessGateway.iso` (CD 3): Linux Access Gateway and SSL VPN
- `AM_30_ApplicationServerAgents_Linux.tar.gz`

  This file is for the J2EE Agent. It is available as a download from Novell (http://www.novell.com/products). It is available for WebSphere* and JBoss* servers running on Linux.

Recommended Installation Scenario

For a minimal Access Manager installation, you can install the Identity Server and the Access Manager Administration Console on one machine, and the Access Gateway on another machine. For best performance and easier server management, however, we strongly recommend using the following scenario:

Figure 2-1 *Recommended Installation Scenario*



1. Install the Administration Console (CD 1) on Server 1.
2. Run the installation again (CD 1) and install the Identity Server on server 2.

   Log in to the Administration Console and verify that the Identity Server installation was successful.
3. Install the Access Gateway. You can install either the NetWare or Linux version.

   Log in to the Administration Console and verify that the installation was successful.
4. Configure the Identity Server and the Access Gateway. See "Setting Up a Basic Access Manager Configuration" in the *Novell Access Manager 3.0 Setup Guide*.

5 Install SSL VPN on its own server.

   If you install a Linux Access Gateway, you can install the SSL VPN on that machine or the Identity Server machine. If you install a NetWare Access Gateway, you can install the SSL VPN on the Identity Server machine.

The J2EE Agent software cannot be installed on the same machine as any of the other Access Manager components, so if your network requires the J2EE Agent, you need another machine for the J2EE server and agent.

If you are planning a fault tolerant site, you'll need additional machines for the redundant Identity Servers, Access Gateways, and Administration Consoles that you install.

Because all of the components can be installed on separate machines, the following sections describe the software and hardware requirements of each component. They also indicate which other components can be installed on the machine.

2.1 Hardware Platform Requirements

For a list of hardware platforms on which the Access Manager components have been tested, see Novell Access Manager (http://www.novell.com/products/accessmanager/). Other platforms that are supported by SLES 9 SP3 might work for the Linux Access Manager components, and other platforms that are supported by NetWare 6.5 might work for the NetWare Access Gateway, but these platforms have not been tested.

For the hard disk, RAM, and CPU requirements, see the requirements for the individual components.

2.2 Network Requirements

In addition to the servers on which software is installed, your network environment needs to have the following:

- ❑ A server configured with an LDAP directory (eDirectory™ 8.7 or higher, Sun ONE, or Active Directory) that contains your system users. The Identity Server uses the LDAP directory to authenticate users to the system.
- ❑ Web servers with content or applications that need protection.
- ❑ Clients with an Internet browser. For the Administration Console, the browser should be either Internet Explorer 6 SP1 or higher or Mozilla* Firefox* 1.5 or higher.

IMPORTANT: Browser pop-ups must be enabled to use the Administration Console.

- An L4 switch if you are going to configure load balancing. This can be hardware or software (for example, a Linux machine running Linux Virtual Services).
- Static IP addresses for each machine used for an Access Manager component. If the IP address of the machine changes, the Access Manager component or components on that machine cannot start.
- Domain name server, which resolves DNS names to IP addresses.
- Network time protocol server, which provides accurate time to the machines on your network. Time must be synchronized within one minute among the components, or the security features of the product disrupt the communication processes. You can install your own or use a publicly available server such as pool.ntp.org.

  WARNING: If time is not synchronized, users cannot authenticate and access resources.

Novell Access Manager does not work in a NAT (Network Address Translation) environment unless all the Access Manager devices are on the same side of the NAT. Clients can be on the other side.

2.3 Access Manager Administration Console Requirements

The Access Manager Administration Console, which you install on Linux, is a modified version of iManager. After you have installed the Administration Console, the installation scripts for the other components (Identity Server, Access Gateway, SSL VPN, and J2EE Agents) auto-import their configurations into the Administration Console.

IMPORTANT: The Administration Console is the first component you install. If you have iManager installed for other products, you still need to install this version on a separate machine. You also cannot add other iManager product plug-ins to this Administration Console.

Requirements

The Access Manager Administration Console has the same hardware requirements as the SLES 9 operation system with one exception. It requires a minimum of 1 GB of RAM. Because the Administration Console is installed with an embedded version of eDirectory, which is used as the configuration store for Access Manager, the machine has the following software and hardware requirements:

- SLES 9, SP3 (x86-32 and x86-64 platforms)
- 1 GB RAM minimum requirement.
- 100 GB hard disk (30 GB minimum)

  This amount is recommended to ensure ample space for logging in a production environment.
- OpenLDAP must be uninstalled.
- The following packages must be installed:
  - gettext: The required library and tools to create and maintain message catalogs.
  - python (interpreter): The basic Python object-oriented programming package.
  - compat: Libraries to address compatibility issues
- No LDAP software, such as eDirectory, can be installed.

- ❑ No other version of iManager can be installed.
- ❑ Static IP address (if the IP address changes after devices have been imported, these devices can no longer communicate with the Administration Console.)

The Administration Console can be installed on the same machine as the Identity Server. If you are planning to install an L4 switch on a SLES 9 machine, using the Linux Virtual Services software, you can also install the Administration Console on this machine.

To access the Administration Console after it has been installed, you need a workstation with a browser on which you have disabled the pop-up blocker. Supported browsers included Microsoft* Internet Explorer 6 SP1 or higher and Mozilla Firefox 1.5 or higher.

For installation instructions, see "Installing the Access Manager Administration Console" on page 25.

2.4 Identity Server Requirements

The Identity Server is the second component you install. It requires the following hardware:

- ❑ 100 GB hard disk (30 GB minimum)

  This amount is recommended to ensure ample space for logging in a production environment.
- ❑ 2 GB RAM recommended with 1 GB as the minimum
- ❑ 2.0 GHz processor or better

The Identity Server must be installed on a Linux operating system and requires the following software:

- ❑ SLES 9, SP3 (x86-32 and x86-64 platforms)
- ❑ gettext
- ❑ python (interpreter)
- ❑ compat: Libraries to address compatibility issues

Also for SLES 9:

- ❑ Configure SLES 9 for a static IP address.
- ❑ Uninstall Open LDAP. (A default installation of SLES 9 installs and enables Open LDAP.)

For installation instructions, see Chapter 4, "Installing the Novell Identity Server," on page 29.

2.5 Access Gateway Requirements

The Access Gateway runs on both NetWare® and Linux. It has the same features on both platforms. Select one or the other based on your network preferences. You install the Access Gateway on a separate machine because it clears the hard drive and sets up a soft appliance environment.

The Access Gateway requires the following hardware:

- ❑ 100 GB of disk space recommended, with 20 GB as the minimum
- ❑ 3 GB RAM recommended, with 2 GB as the minimum
- ❑ 3.0 GHz processor or better recommended, with 2.0 GHz as the minimum

- ❑ (NetWare Access Gateway) If your machine has hyper-threading (or logical processor) technology, you should use the computer's setup program to turn it off. The NetWare Access Gateway shows a significant increase in performance and stability when this feature is turned off.
- ❑ (Linux Access Gateway) supports x86-32 only

The Access Gateway has no software requirements. The installation program for the Access Gateway re-images the hard drive, embeds the operating system (either NetWare or Linux), then configures the embedded operating system for optimal performance.

Before proceeding with the Access Gateway installation, make sure you have a static IP address for your Access Gateway server and an assigned DNS name (host name and domain name). You need to know the following about your network:

- ❑ The subnet mask that corresponds to the IP address of the Access Gateway
- ❑ The IP address of the default gateway
- ❑ The IP addresses of the DNS servers on your network. These DNS servers need to be configured to resolve the DNS name of the Access Gateway to the IP address that you assign to it.
- ❑ The IP address or DNS name of a NTP server, if you have one in your local environment.

You will be prompted to enter this information during the install. For installation instructions, see

- Chapter 5, "Installing the Linux Access Gateway," on page 31
- Chapter 6, "Installing the NetWare Access Gateway," on page 51

2.6 SSL VPN Requirements

The SSL VPN server requires the following software and hardware:

- ❑ 100 MB of disk space
- ❑ Two or more network interface cards
- ❑ SLES 9, SP3 (x86-32 platform only)
- ❑ gettext package
- ❑ Tomcat and Java installed and running
- ❑ TCP port 7777 opened

2.6.1 SSL VPN Client on Windows

The SSL VPN client on Windows has the following software requirements:

- ❑ Windows 2000/XP
- ❑ JRE 1.4.1 or later (to download, see http://java.sun.com/j2se/)
- ❑ Internet Explorer 6.0 SP2

2.6.2 SSL VPN Client on Linux

The SSL VPN client on Linux has the following software requirements:

- ❑ SUSE Linux, Red Hat* Linux, or Novell Linux Desktop
- ❑ OpenSSL 0.9
- ❑ Shells: bash and xterm
- ❑ Firefox 1.5 or later
- ❑ JRE 1.4.1 or later (to download, see http://java.sun.com/j2se/)

2.6.3 SSL VPN Client on Macintosh

The SSL VPN client on Macintosh has the following software requirements:

- ❑ Macintosh Tiger OS
- ❑ OpenSSL 0.9
- ❑ bash shell
- ❑ Macintosh Safari browser
- ❑ JRE 1.4.1 or later (to download, see http://java.sun.com/j2se/)

2.7 VMware ESX Requirements

The VMWare ESX Server version 2.5.3 and higher is a supported platform for Access Manager, but your VMware machine must have enough resources. You need to dedicate the minimum requirements that a physical machine would require for the Access Manager component. To have performance comparable to a physical machine, you need to increase the memory and CPU requirements.

For the hard disk, RAM, and CPU requirements, see the requirements for the individual components:

- Section 2.3, “Access Manager Administration Console Requirements,” on page 21
- Section 2.4, “Identity Server Requirements,” on page 22
- Section 2.6, “SSL VPN Requirements,” on page 23

Installing the Access Manager Administration Console

3

For a functioning system, you need an Administration Console, an Identity Server, and an Access Gateway or a J2EE server and agent. The Administration Console needs to be installed before you install the Identity Server, Access Gateway, or J2EE Agent.

3.1 Installation Procedures

Installation time: about 15 minutes.

1. If you have Red Carpet* or auto update running, stop these programs before you install Access Manager Administration Console.
2. Verify that the machine meets the minimum requirements. See Section 2.3, "Access Manager Administration Console Requirements," on page 21.
3. Open a terminal window.
4. Log in as the `root` user.
5. Insert CD 1 into the drive, then navigate to the device. Enter the following:

   ```
   cd /media
   ```

   Change to your CD-ROM drive, which is usually `cdrom` but can be something else such as `cdrecorder` or `dvdrecorder`, depending on your hardware.

   If you downloaded the `tar.gz` file, unpack the file using the following command:

   ```
   tar -xzvf [filename]
   ```
6. At the command prompt, enter the following:

   ```
   ./install.sh
   ```
7. When prompted to install a product, type 1 for *Install Novell Access Manager Administration*, then press the Enter key.
8. (Conditional) If the install does not detect a static IP address that Access Manager requires on your machine, you receive an advisory message asking whether or not you want to continue the installation. At this point, stop the installation and configure your machine for a static IP address.

   Record Static IP Address here: _____
9. (Conditional) If the install detects a version of LDAP on your machine, enter *Y* to continue the installation.

   If requested during installation, make certain the uninstall option for Open LDAP is checked. Later in the installation, you are prompted to uninstall LDAP and replace it with the required Access Manager configuration store components.
10. Review and accept the License Agreement.

11 Specify whether this is the primary Access Manager Administration Console in a failover group. The first Administration Console installed becomes the primary console.

You can install up to three Administration Consoles, for replication and failover purposes. If this is not the primary console, you must enter the IP address for the primary Administration Console.

12 Specify the administration username.

Press Enter to use *admin* as the default admin username, or change this to a username of your choice.

Record the admin *username* here: _____

13 Specify the administration password.

Use alphanumeric characters only. You must remember this password because it gives rights to the administrator, the configuration store, and subsequent logins to the Administration Console.

Record admin *Password* here: _____

14 Confirm the password, then wait as the system installs the components.

This can take several minutes, depending upon the speed of your hardware. The following components are installed:

- **Novell® Audit Platform Agent:** Responsible for packaging and forwarding the audit log entries to the configured Novell Audit Server. For more information, see Audit Logging on <Admin Guide>.
- **Tomcat for Novell:** The Novell packaging of the Java-based Tomcat Web server used to run Servlets and JavaServer Pages (JSP) associated with Novell Access Manager Web applications.
- **Novell Access Manager Configuration Store (embedded version of eDirectory™):** An embedded version of eDirectory™ used to store user-defined server configurations (user stores), LDAP attributes, Certificate Authority keys, certificates, and other Access Manager attributes that must be securely stored. For more information, see Configuration Store in the Novell Access Manager 3.0 Administration Guide.
- **Novell iManager:** The Web-based administration console that provides customized, secure access to server administration utilities. It is a modified version and cannot be used to manage other eDirectory trees.
- **Novell Audit Server:** The server bundled as part of the Administration Console to monitor and log all enabled Access Manager components. For more information, see "Enabling Auditing" in the *Novell Access Manager 3.0 Administration Guide*.
- **Novell Device Manager (an Access Manager modification to iManager):** The modifications to Novell iManager that enables management of all aspects of Access Manager. This component is not a standard iManager plug-in. It significantly modifies the tasks that iManager can perform.
- **Novell Identity Server Administration Plug-in:** Works in conjunction with the Novell Device Manager to specifically manage the Novell Identity Server.

15 Record the login URL.

When the installation completes, the login URL is displayed. It looks similar to the following:

`http://10.10.10.50:8080/nps`

Record your login URL here: _____

This is the URL you enter into a browser to configure the Access Manager components. If you log in now with the username and password you entered during the installation, you have an empty system with no components installed.

16 To verify that the console is running, log in to the console from a workstation (a machine other than where Administration Console is located).

Continue with Section 3.2, "Logging in to the Administration Console," on page 27.

If the configuration store (eDirectory) does not install correctly and you are instructed to view the edir install log, you need to uninstall the Administration Console and start over. See Section 9.3, "Uninstalling the Administration Console," on page 74 and use option 3.

3.2 Logging in to the Administration Console

The Administration Console supports the following Web browsers:

- Microsoft Internet Explorer 6 SP1 or higher
- Mozilla Firefox 1.5 or higher

WARNING: The Administration Console is a combination of iManager and a device manager. It has been customized for Access Manager so that it can manage the Access Manager components.

You cannot use it to log into other eDirectory trees and manage them.

You should not download and add iManager plug-ins to this customized version. If you do, you can destroy the Access Manager schema, which can prevent you from managing the Access Manager components. This can also destroy the communication among the modules.

You should not start multiple sessions of the Administration Console on the same machine using the same browser. Because the browser shares session information, this can cause unpredictable results in the Administration Console.

To log in:

1 Enable browser pop-ups.

2 From a client machine external to your Administration Console server, launch your preferred browser and enter the URL for the Administration Console.

Use the IP address established when you installed the Administration Console. It should include the port 8080 and the application nps. If the IP address of your Administration Console is 10.10.10.50, you would enter the following:

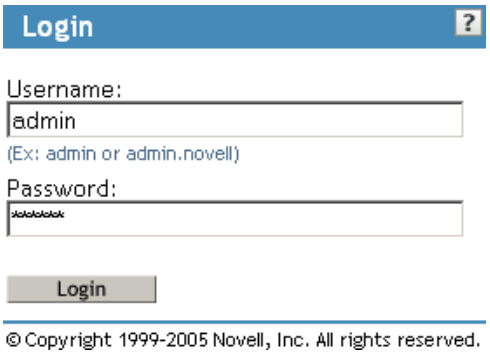
```
http://10.10.10.50:8080/nps
```

IMPORTANT: If you enter `https` instead of `http`, you receive the following error message: `The connection was interrupted`.

---

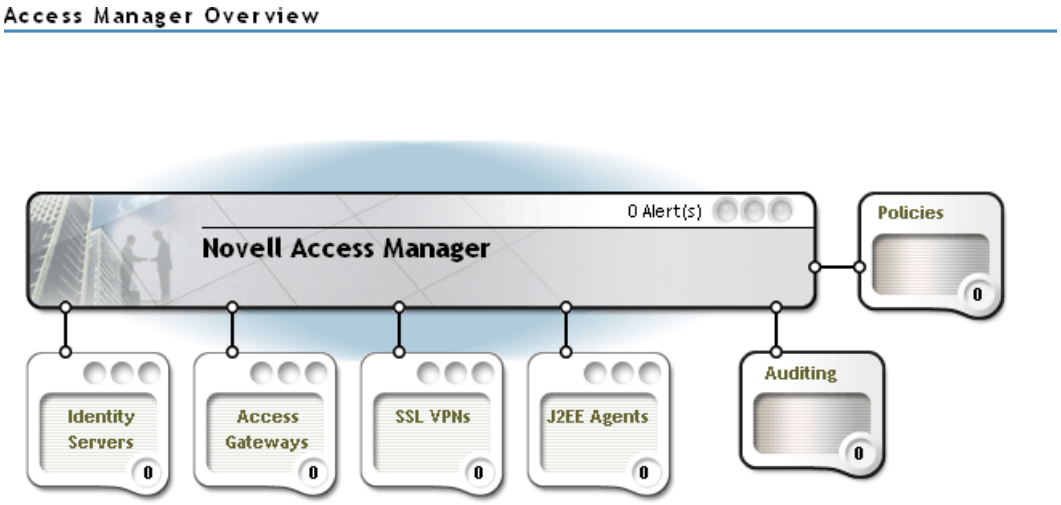
3 Click *OK* to accept the certificate. You can select either the permanent or temporary session certificate option.

4 On the Login page, specify the administrator name and password that you defined during the Administration Console installation.



As you log in, your browser creates a secure connection with your Identity Server and the various installed Access Manager components, which are displayed in the left navigation panel of the Administration Console.

5 In the left navigation panel of the console, click *Access Manager*, then click *Overview*.



Before you can configure the system, you need to install some of the other Access Manager components. You need to install at least one Identity Server and one Access Gateway or J2EE Agent.

IMPORTANT: All of the configuration and management tasks in the Access Manager documentation assume that you have logged in to the Administration Console and have opened this *Overview* page.

6 Continue with "Installing the Novell Identity Server" on page 29.

Installing the Novell Identity Server

4

Installation time: about 10 minutes.

IMPORTANT: Make sure to complete the following before you begin:

- If you are installing the Access Manager components on multiple machines, ensure that time and date are synchronized on all machines.
- Make sure that the Access Manager Administration Console is running. (See "Installing the Access Manager Administration Console" on page 25.) However, you must not perform any configuration tasks in the Administration Console during an Identity Server installation.
- If you are installing the Administration Console on a separate machine, ensure that the DNS names resolve between the Identity Server and the Administration Console.
- If you are installing the Identity Server on the same machine as the Administration Console, do not run simultaneous external installations of the Identity Server, Access Gateway, J2EE Agent, or SSL VPN. These installations must communicate with the Administration Console. During installation, Tomcat is restarted, which can disrupt the component import process.

1. Verify that the machine meets the minimum requirements. See Section 2.4, "Identity Server Requirements," on page 22.
2. Open a terminal window.
3. Log in to SLES 9 as the `root` user.
4. If you are installing from CD or DVD, insert the disc into the drive, then navigate to the device. The location might be `/media/cdrom`, `/media/cdrecorder`, or `/media/dvdrecorder`, depending on your hardware.

   If you downloaded the `tar.gz` file, unpack the file using the following command:

   ```
   tar -xzvf [filename]
   ```
5. At the command prompt, run the following install script:

   ```
   ./install.sh
   ```
6. When prompted to install a product, type 2, *Install Novell Identity Server*, then press the Enter key.

   This selection is also used for installing additional Identity Servers for clustering behind an L4 switch. You need to run this install for each Identity Server you add to the cluster.
7. If prompted, decide whether or not you want to continue the installation without a static IP address. Under most production environments, you must establish a static IP address for your Identity Server to reliably connect with other Access Manager components.
8. Review and accept the License Agreement.
9. Specify the IP address of the Administration Console, if you are not installing this Identity Server on the same machine where you installed the Administration Console.
10. Specify the name of the administrator for the Administration Console.
11. Specify the administration password.

12 Confirm the password, then wait as the system installs the components. (This will take several minutes.)

The following components are installed:

- **Novell Access Manager Server Communications:** The components necessary to enable network communications, including identifying devices, finding services, moving data packets, and maintaining data integrity.
- **Novell Identity Server:** The component of Novell Access Manager that provides authentication and identity services for the other Access Manager components and third-party service providers.
- **Novell Identity Server Configuration:** The configuration that allows the Identity Server to be securely configured by the Administration Console.

  If the installation process terminates at this step, the probable cause is a failure to communicate with the Administration Console. Ensure that you entered the correct IP address.
- **Novell Access Manager Server Communications Configuration:** The communication configuration that enables the Identity Server to auto-import itself into the Administration Console.

This completes the Novell Identity Server installation. The install logs are located in `/tmp/novell_access_manager`. These logs are all dated and time-stamped.

13 (Optional) To verify that the Identity Server installation was successful, log in to the Administration Console (see Section 3.2, "Logging in to the Administration Console," on page 27), then click *Access Manager* > *Identity Server*s.

The IP address of your Identity Server should appear in the list as the server name. The Server Status should be yellow, because you haven't configured it.

14 Continue with one of the following:

- To install an Access Gateway, see Chapter 5, "Installing the Linux Access Gateway," on page 31 or Chapter 6, "Installing the NetWare Access Gateway," on page 51.
- To configure the Identity Server, see "Setting Up a Basic Access Manager Configuration" in the *Novell Access Manager 3.0 Setup Guide*.

Installing the Linux Access Gateway

5

Installation time: 15 to 30 minutes, depending upon the hardware.

The Access Gateway runs on NetWare® 6.5 (included in the installation) or Linux (included in the installation). If you intend to install the NetWare Access Gateway, skip this section and go to "Installing the NetWare Access Gateway" on page 51.

You have the following options for installing the Linux Access Gateway, depending on whether you want to do an advanced installation or accept the default settings:

- **Standard Installation:** A standard installation can be done with minimal user intervention. Use this method if you want to use the default installation settings. This is the recommended installation method for a machine that meets but doesn't exceed the minimum hardware requirements. See Section 5.3, "Using a Standard Linux Installation with the Default Settings," on page 32.
- **Advanced Installation:** An advanced installation allows you to customize the machine. The standard installation creates a 1 GB swap partition and a 6 GB root partition for logging and Access Gateway files. If you are going to turn on logging, you need to increase the size of the logging partition. See Section 5.4, "Using the Advanced Installation Option," on page 38.
- **Manual Installation:** Manual installation is similar to the advanced installation in that you can customize the machine. If the automatic loading of drivers causes problems with the advanced installation, you can perform a manual installation and manually select the drivers.

This section provides the following information on how to install the Linux Access Gateway:

5.1 Prerequisites: Linux Install

- ❑ Ensure that you have backed up all data and software on the disk to another machine. The Linux Access Gateway installation completely erases all the data on your hard disk.
- ❑ An Administration Console must be installed before you can install the Access Gateway. See "Installing the Access Manager Administration Console" on page 25.

5.2 Boot Screen Function Keys

You can use the function key options in the boot screen to change installation settings as desired.

- **F1:** Lets you access the context-sensitive help for the currently active screen element of the boot screen.
- **F2:** Lets you select different graphical display modes for the installation. Also included is an entry to select the text mode. This helps you if there are issues with installation in the graphical mode.
- **F3:** Lets you choose the installation media if you want to use a different source, for example, FTP or NFS, instead of the installation disk. The SLP (Service Location Protocol) entry allows you to access an SLP server on the network, which in turn gives access to a selection of installation media provided by that server.
- **F4:** Lets you select the display language for the installation.
- **F5:** Lets you access the diagnostic messages. By default, these messages from the Linux kernel are not displayed during system startup; only a progress bar is displayed. To display the messages, select *Native*. For information in verbose mode, select *Verbose*.
- **F6:** Lets you communicate to your system that you have an optional disk with a driver update. At the prompt, insert the update disk. A few seconds after starting the installation, a minimal Linux system is loaded to run the installation procedure.

5.3 Using a Standard Linux Installation with the Default Settings

This is the recommended installation method for a machine that meets, but doesn't exceed the minimal hardware requirements. Use this method if you want to use the default installation settings, as described in the following table.

Default Settings	Description
Partitions	Four partitions are created with the following default specifications: ◆ **root:** The default size of this partition is 6 GB and the mount point is `/`. ◆ **swap:** The default size is 512 MB and mount point is `swap`. ◆ **/boot:** The default size is 70.5 MB and the mount point is `/boot`. ◆ **COS:** This partition is created with the remaining free space on the disk.
User/Password	Two users are created: ◆ `root` with password `novell` and login shell as `bash` ◆ `config` with password `novell` and login shell as `nash` **NOTE:** Make sure you change the passwords after installation.

A standard installation does not support configuring multiple interfaces. Only the eth0 interface can be configured during installation. However, you can configure multiple interfaces through the Administration Console after installation.

1 Insert the Linux Access Gateway (CD 3) into the CD drive.

The boot screen appears.

2 By default, the *Boot From Hard Disk* option is selected in the boot screen. Using the Down-arrow key, select *Standard Installation*.

3 Use the function key options to change installation settings as desired. For more information on these function keys, see Section 5.2, "Boot Screen Function Keys," on page 32.

4 After you have completed any changes to the installation options, press Enter.

5 Review the agreement on the License Agreement page, then click *I Agree* to accept the agreement.

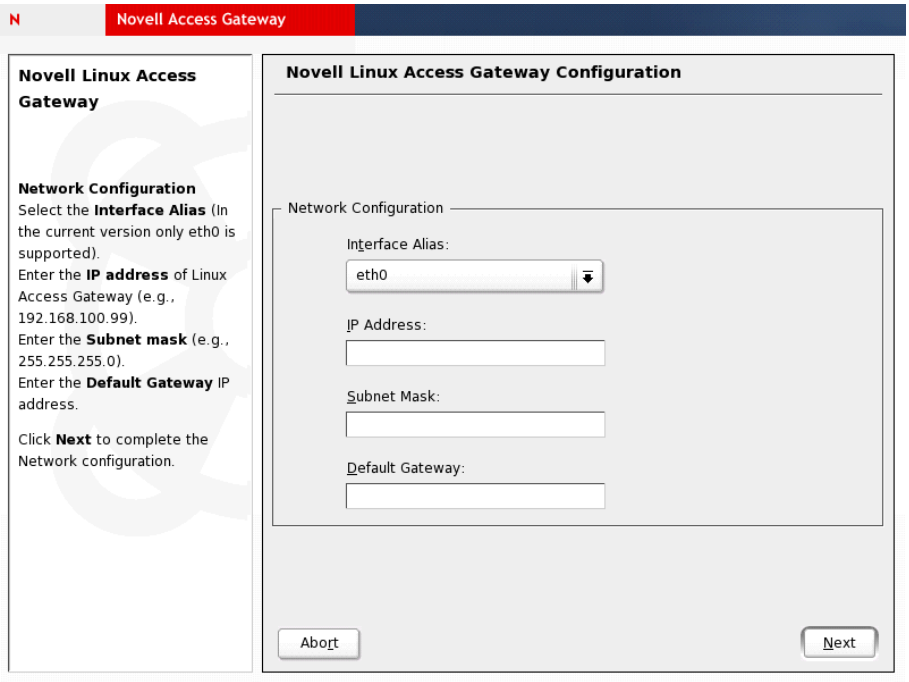
6 Select *English (US)* on the Language Selection page, then click *Accept*.

The current version of the product is an English only version.

7 Select a keyboard layout on the Keyboard Configuration page, then click *Accept*.

8 Configure values for region and time zone, change the date and time setting on the Clock and Time Zone Configuration page, then click *Next*.

The Network Configuration page appears.



Interface Alias: This option displays the eth0 interface that is configured by default. The Standard Installation does not support configuring multiple interfaces. Only the eth0 interface can be configured during the install. You can configure multiple interfaces by using the Administration Console after installation. For more information, see Section A.2.2, “Manually Configuring a Network Interface,” on page 124.

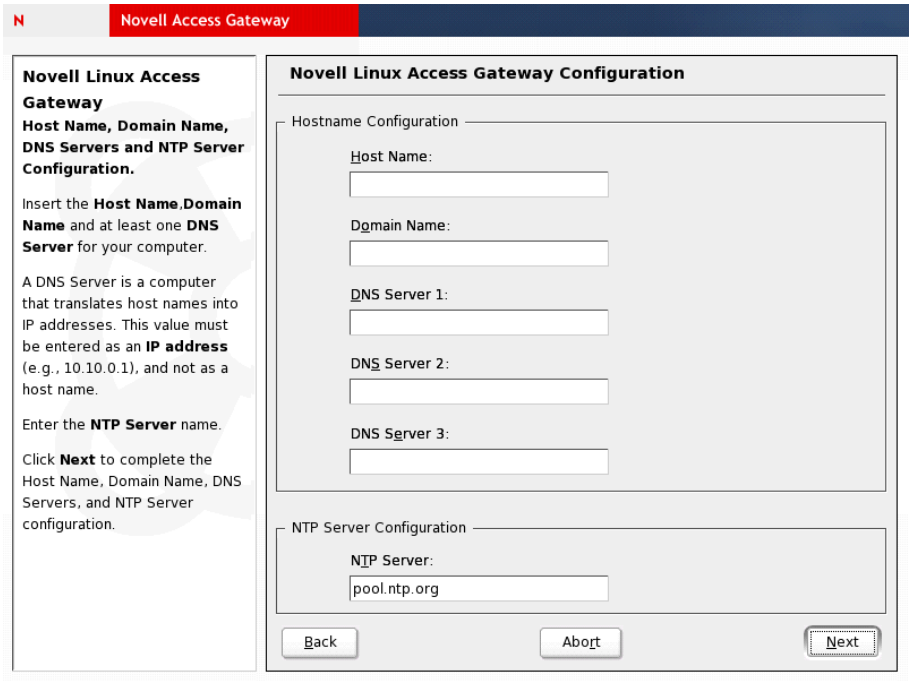
9 Configure the following in the *Network Configuration* section:

IP Address: Specify the IP address of the Access Gateway.

Subnet Mask: Specify the subnet mask of the Linux Access Gateway network.

Default Gateway: Specify the default gateway.

10 Click *Next*. The *Hostname Configuration* section appears.



Configure the following:

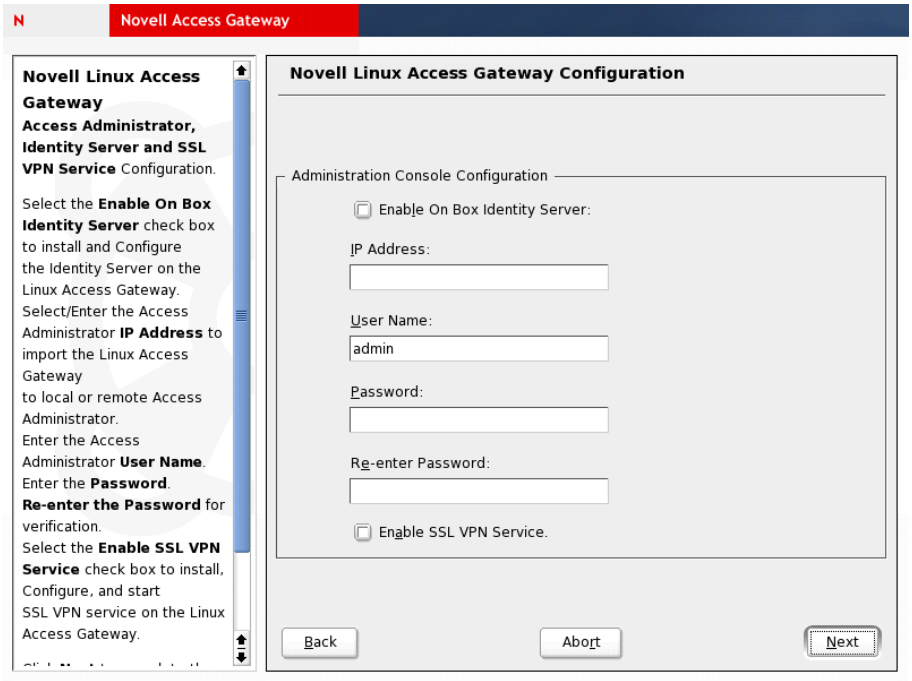
Host Name: Specify the hostname for the Linux Access Gateway machine.

Domain Name: Specify the domain name for your network.

DNS Server 1: Specify the IP address of your DNS server. You can configure a maximum of three DNS servers. It is mandatory to configure at least one DNS server.

NTP Server: Specify the name of the NTP server.

11 Click *Next*. The *Administration Console Configuration* section appears.



Configure the following:

Enable On Box Identity Server: Select this check box to install and configure Identity Server on the Linux Access Gateway.

IMPORTANT: Selecting this option installs both the Identity Server and the Administration Console on the Linux Access Gateway machine. This option is not currently supported for production environments.

IP Address: Specify the IP address of the Administration Console. The Linux Access Gateway is imported into this Administration Console. If you have selected the *Enable On Box Identity Server* option, the IP address is populated in this field by default. Do not modify this IP address.

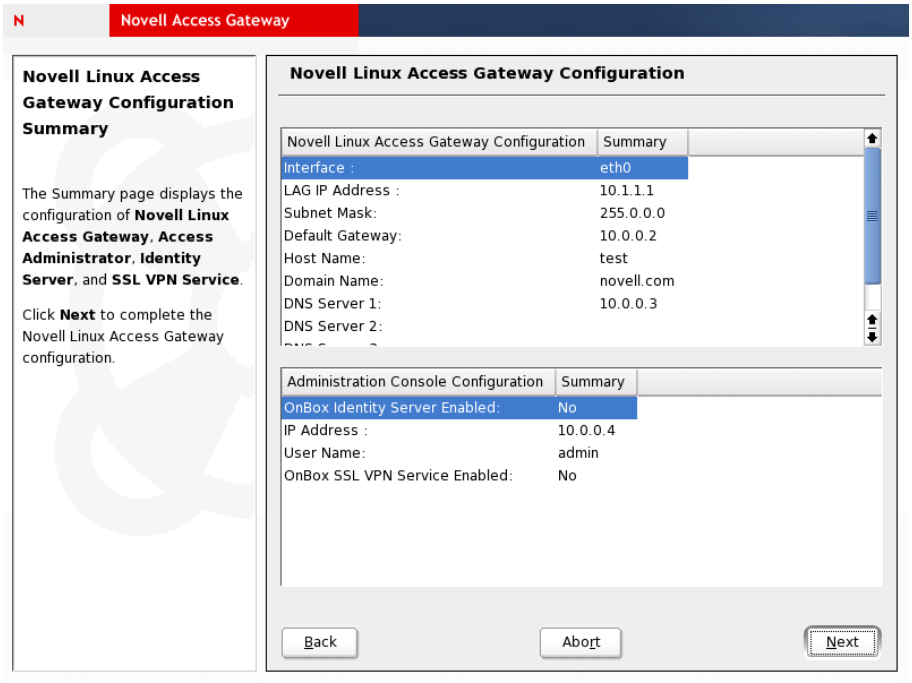
Username: Specify the name of the Administration Console user.

Password: Specify the password for the user.

Reenter Password: Re-enter the password for verification.

Enable SSL VPN Service: Select this check box to install and configure SSL VPN service on the Linux Access Gateway. If selected, the SSL VPN is imported into the Administration Console specified in the *IP Address* option.

12 Click *Next*. The Novell Linux Access Gateway Configuration Summary page appears.



This page summarizes the configuration that you have selected. If you want to change any configuration, click *Back*.

13 Click *Next*, then click *Yes, install* to start the installation process.

This process might take 15 to 30 minutes, depending on the configuration and hardware.

The machine reboots after the installation is completed and the Linux Access Gateway is imported to the Administration console.

Ignore the warning about `failed services in runlevel3` for `novell-jcc`.

14 Log in as `root` and change the password.

14a At the login prompt, enter `root`.

14b At the password prompt, enter `novell`.

14c To change the password, enter `passwd`.

14d Enter a password.

14e Confirm the password by entering it again.

15 To change the password for the `config` user, enter the following commands:

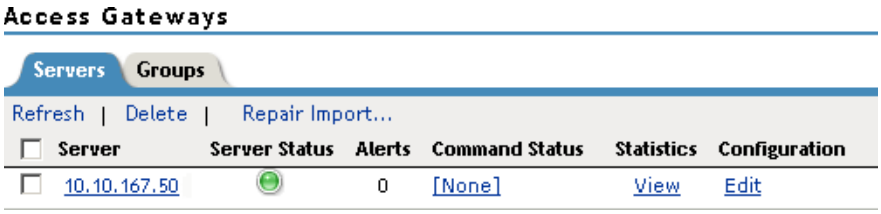
15a Enter `passwd config`.

15b Enter a new password.

15c Confirm the password by entering it again.

16 (Optional) To verify the installation of the Access Gateway, log in to Administration Console (see Section 3.2, “Logging in to the Administration Console,” on page 27), then click *Access Manager* > *Access Gateways*.

If the installation was successful, the IP address of your Access Gateway appears in the Server list.



The import into Administration Console can take a few minutes, so if your Access Gateway does not appear in the list, wait a few minutes and refresh the screen.

The Server Status indicator is green after the Access Gateway is imported and registers with the Administration Console, which can take up to 5 minutes. If the indicator fails to register green, click the *Server Status* icon. Verify that your IP address and DNS settings are correct, then click *Servers* > *Refresh*.

If the server IP address still does not appear in the Access Gateways Server list, click *Repair Import*. For additional help, see Appendix A.1, "Troubleshooting the Access Gateway Import," on page 117.

17 This completes the installation of the Linux Access Gateway. Continue with the one of the following:

- "Setting Up a Basic Access Manager Configuration" in the *Novell Access Manager 3.0 Setup Guide*
- Section 5.5, "Viewing the Linux Installation Log," on page 49
- Section 5.6, "Installing the Latest Linux Patches," on page 49

5.4 Using the Advanced Installation Option

An advanced installation allows you to customize the default settings. This section describes how to run the advanced installation and customize the partitions.

5.4.1 Planning Your Partition Strategy

Linux allows you to have four primary partitions per hard disk. The Linux Access Gateway requires a swap partition, a COS partition, and a root partition. For a machine with only one large hard disk (100 GB or larger), we recommend creating the following partitions:

Partition Type	Requirements
root	This partition contains the boot files, the system files, and the log files (if you don't create a var partition). You should assign 25% of available disk space to this partition.
swap	This is a mandatory partition. Because the advanced installation option assumes that you have a large hard disk, we recommend that you create a swap partition that is twice the size of the RAM installed on the machine.
var	This partition is optional, but highly recommended if you turn on logging. The var partition should take about 25% of available disk space.
COS	This is a mandatory partition. It should be as large as possible. This is the partition that holds the caching objects of the Access Gateway.

Other configurations are possible if you know Linux and the Access Gateway.

When the machine has an array of disks, we recommend that you configure the first hard disk with the following partitions:

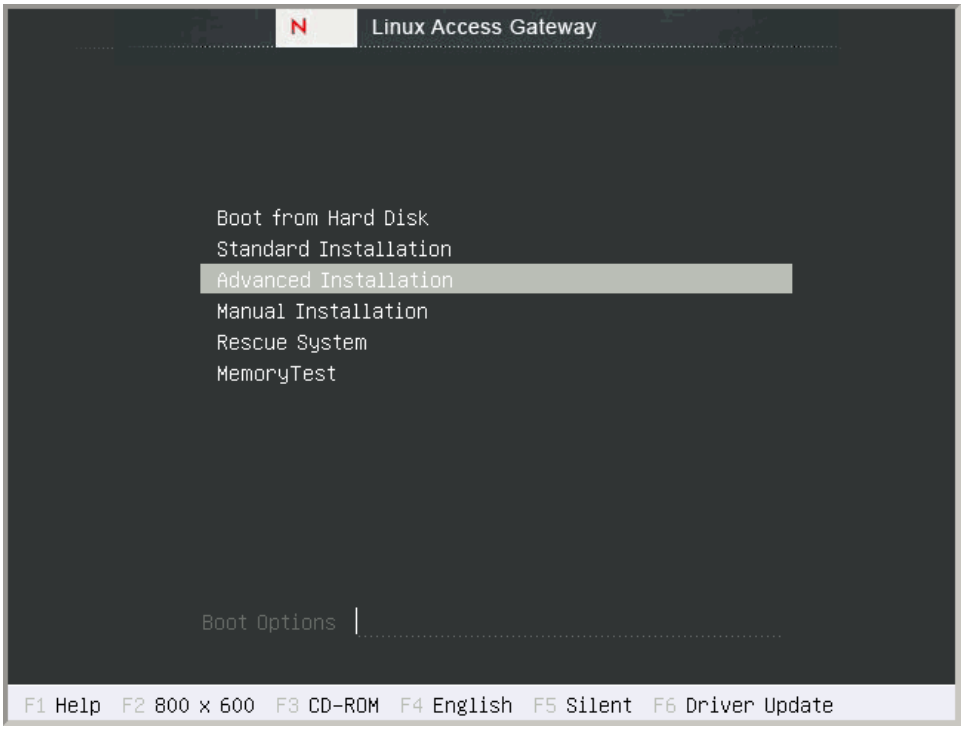
Partition Type	Requirements
boot	This partition contains the boot files. It should be 500 MB.
swap	This is a mandatory partition on the first hard disk. Because the advanced installation option assumes that you have a large hard disk, we recommend that you create a swap partition that is twice the size of the RAM installed on the machine.
var	The var partition should take about 40% of available disk space.
root	This partition contains the system and application files. It should take about 40% of available disk space.

These partitions can be imaged on a pair of disks so that disk failover is supported. The remaining disks in the array can have one large COS partition. You can also divide them into multiple COS partitions so you can configure multiple virtual machines. The COS partitions need to be the same size for all virtual machines.

5.4.2 Starting the Installation

1 Insert the Linux Access Gateway (CD 3) into the CD drive.

The boot screen appears.



2 Use the Down-arrow key to select *Advanced Installation.*

3 Use the function key options to change installation settings as desired.

For more information on these function keys, see Section 5.2, “Boot Screen Function Keys,” on page 32.

4 After you have completed any changes to the installation options, press Enter.

The Linux kernel loads, and the advanced installation starts and displays the Linux Access Gateway splash screen followed by the License Agreement section.

5 Read the agreement, then select *I Agree* to proceed.

6 Select *English (US)* on the Language selection page, then click *Accept.*

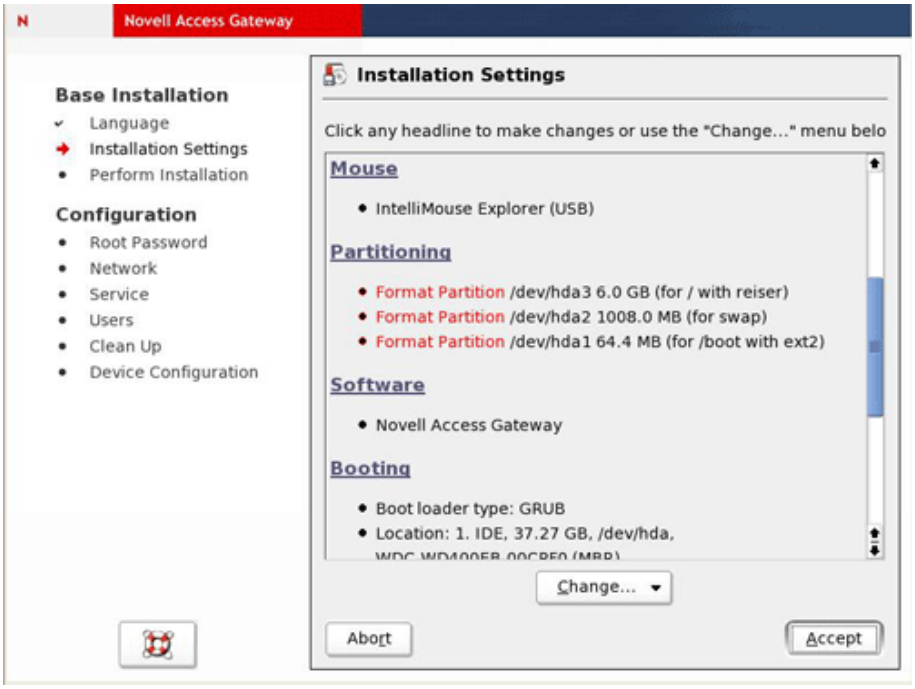
The current version is an English only version.

7 (Conditional) If you are prompted to load the hardware drivers, follow the prompts.

8 (Conditional) If you have previously installed a version of Linux on the machine, make sure that *New installation* is selected, then click *OK*.

The other options are not supported for this release.

The Installation Settings page appears.



Before you click *Accept* on the Installation Settings page, you must complete the following tasks:

- Create custom partitions. See Section 5.4.3, “Customizing the Partitions,” on page 41.
- Modify the time zone. See Section 5.4.4, “Configuring Date and Time Values,” on page 44.

Other modifications, explained in Section 5.4.5, “Customizing Optional Settings,” on page 45, are optional.

5.4.3 Customizing the Partitions

1. To create a custom partition, click *Change*, then select *Partitioning*.

   This page lists the partition settings as currently proposed.

2. Select *Create custom partition setup*.

   The other options are not recommended.

3. Select *Custom partitioning -- for experts*, then click *Next*.

4. (Conditional) If the installation program discovers any existing partitions, select the hard disk, click *Delete*, then confirm the deletion of the partitions.

   - If your machine has one hard disk, continue with Step 5.
   - If your machine has two hard disks, continue with Step 10.

5. For a machine with one hard disk, create a root partition that uses 25% of the disk space. The following values assume a machine with a 100 GB hard drive and 4 GB of RAM. If your machine has a different configuration, adjust the values as you create the partitions.

   5a Click *Create*, select *Primary partition*, then click *OK*.

5b Fill in the following fields:

Format: Make sure *Format* is selected.

File system: Select either *Reiser* or *Ext3* for the type.

Size: Specify `+25GB` for the *End* cylinder value.

Mount Point: Select */*.

5c Click *OK*.

6 Create a swap partition that is double the size of the RAM in the machine.

6a Select the hard drive, click *Create*, select *Primary partition*, then click *OK*.

6b Fill in the following fields:

Format: Make sure *Format* is selected.

File system: Select *Swap* for the type.

Size: Specify `+8GB` for the *End* cylinder value.

Mount Point: Leave the default value of *swap*.

6c Click *OK*.

7 Create a var partition that uses 25% of the disk space on the hard disk.

7a Select the hard drive, click *Create*, select *Primary partition*, then click *OK*.

7b Fill in the following fields:

Format: Make sure *Format* is selected.

File system: Select either *Reiser* or *Ext3* for the type.

Size: Specify `+25GB` for the *End* cylinder value.

Mount Point: Select */var*.

7c Click *OK*.

8 Create a COS partition that uses the remaining space on the hard disk:

8a Select the hard drive, click *Create*, select *Primary partition*, then click *OK*.

8b Fill in the following fields:

Format: Select *Do not format*.

File system ID: Select *0x68 Novell COS* for the ID.

Size: Accept the default value for the *End* cylinder value.

Mount Point: Make sure the *Mount Point* has no value.

8c Click *OK*.

9 Click *Next*, then continue with Section 5.4.4, “Configuring Date and Time Values,” on page 44.

10 For a machine with a disk array, create a boot partition on the first hard drive. The following values assume that the machine has 100 GB hard drives and 4 GB of RAM. If your machine has a different configuration, adjust the values as you create the partitions.

10a Select the first hard drive, click *Create*, select *Primary partition*, then click *OK*.

10b Fill in the following fields:

Format: Make sure *Format* is selected.

File system: Select either *Reiser* or *Ext3* for the type.

Size: Specify `+500MB` for the *End* cylinder value.

Mount Point: Specify */boot*.

10c Click *OK*.

11 Create a swap partition that is double the size of the RAM in the machine on the first hard disk.

11a Select the first hard drive, click *Create*, select *Primary partition*, then click *OK*.

11b Fill in the following fields:

Format: Make sure *Format* is selected.

File system: Select *Swap* for the type.

Size: Specify `+8GB` for the *End* cylinder value.

Mount Point: Leave the default value of *swap*.

11c Click *OK*.

12 Create a var partition that uses 25% of the disk space on the first hard disk.

12a Select the first hard drive, click *Create*, select *Primary partition*, then click *OK*.

12b Fill in the following fields:

Format: Make sure *Format* is selected.

File system: Select either *Reiser* or *Ext3* for the type.

Size: Specify `+25GB` for the *End* cylinder value.

Mount Point: Select */var*.

12c Click *OK*.

13 Create a root partition that uses the rest of the space on the first disk.

The installation program creates this partition into a COS partition.

13a Click *Create*, select *Primary partition*, then click *OK*.

13b Fill in the following fields:

Format: Make sure *Format* is selected.

File system: Select either *Reiser* or *Ext3* for the type.

Size: Accept the default value for the *End* cylinder value.

Mount Point: Select */*.

13c Click *OK*.

14 Create a COS partition. The partition can consume all the space on the hard disk or a part. The following values assume you are going to create two 50 GB partitions on a 100 GB hard disk.

14a Select a hard drive from the array, click *Create*, select *Primary partition*, then click *OK*.

14b Fill in the following fields:

Format: Select *Do not format*.

File system ID: Select *0x68 Novell COS* for the ID.

Size: Specify `+50GB` for the *End* cylinder value.

Mount Point: Make sure the *Mount Point* has no value.

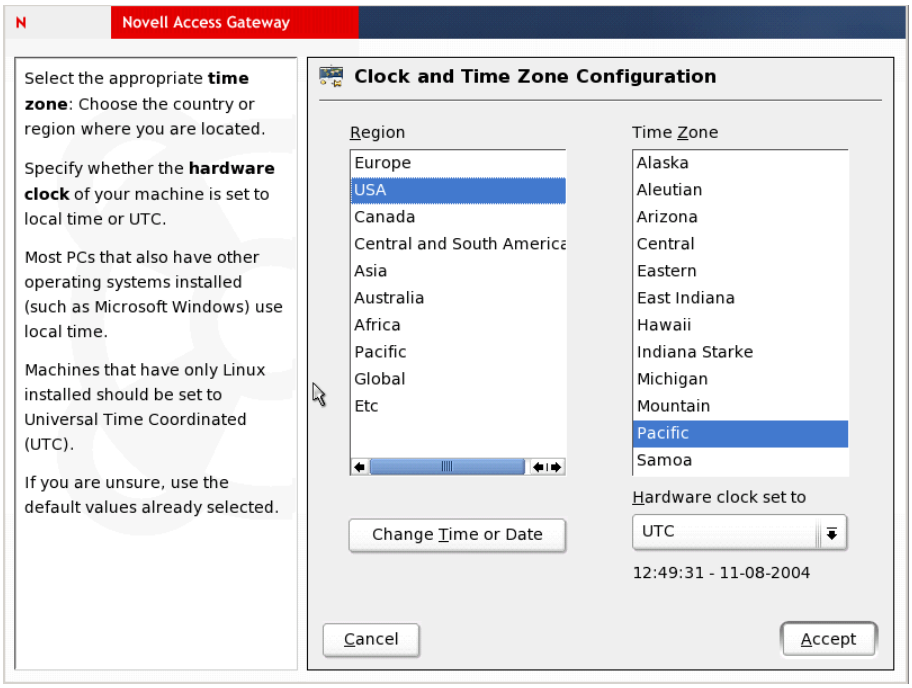
14c Click *OK*.

14d Repeat these steps to create additional COS partitions.

15 Click *Next*, then continue with Section 5.4.4, “Configuring Date and Time Values,” on page 44.

5.4.4 Configuring Date and Time Values

1 To change the time zone, click *Change*, then select *Time Zone*.



2 Configure values for the region and time zone.

3 Use the *Hardware clock set to* drop-down list to select between local time and UTC.

The selection depends on how the hardware (BIOS) clock is set on your machine. If it is set to GMT, which corresponds to UTC, your system can automatically switch from standard time to daylight saving time.

4 Click *Change Time or Date* to correct the current time or date.

IMPORTANT: Make sure that the time is synchronized on the Linux Access Gateway, Identity Server, and Administration Console.

---

5 Click *Accept*.

6 Continue with Section 5.4.5, “Customizing Optional Settings,” on page 45 or Section 5.4.6, “Configuring Hardware and System Services,” on page 46.

5.4.5 Customizing Optional Settings

Use the *Change* button on the Installation Settings page to change the following settings. These changes are optional. If you do not want to change the installation settings, continue with Section 5.4.6, “Configuring Hardware and System Services,” on page 46.

1 Click *Software* to select software packages to be installed with the Linux Access Gateway installation. By default, the Novell Identity Server package is not installed on the Linux Access Gateway.

IMPORTANT: Selecting this option installs both the Novell Identity Server and the Administration Console on the Linux Access Gateway machine. This option is not currently supported for production environments.

During installation, YaST checks whether the disk space is sufficient for the software selection you made. If not, YaST automatically removes parts from the software selection as needed. The suggestion window then includes a notice to inform you about this. As long as there is sufficient disk space available, YaST accepts your settings and partitions the hard disk accordingly.

2 Click *System* to detect the hardware components on your system. The components are detected and listed in the *Detected Hardware* section. You can save this information to a file or floppy disk.

3 Click *Mode* to see details of the installation mode.

4 Click *Run Level* to see the default run level.

5 Skip the *Mouse* configuration option.

The installation program disables the mouse.

6 If you have not yet selected a language for installation, click *Language*, then select *English (US)*.

7 During installation, YaST proposes a boot configuration for your system. Unless you require a custom setup, leave these settings unchanged.

For a custom setup, modify the proposal for your system by choosing either of the following options:

- Configure the boot mechanism to rely on a special boot floppy.

  Although this has the disadvantage of requiring the floppy to be in the drive when booting, it leaves an existing boot mechanism untouched. However, in most cases this should not be necessary, because YaST can configure the boot loader to boot existing operating systems.

- Change the location of the boot mechanism on the hard disk.

To change the boot configuration proposed by YaST, select *Booting* to modify the boot mechanism details.

After you finish modifying the settings, click *Next* to return to the Installation Settings page.

8 Click *Reset Defaults* to revert to the default configuration. At the prompt, click *Continue*. The changes you made to the installation settings are ignored.

IMPORTANT: Do not select this option. It overwrites the changes you have configured for Date and Time and for partitions.

9 Continue with Section 5.4.6, “Configuring Hardware and System Services,” on page 46.

5.4.6 Configuring Hardware and System Services

1 On the Installation Settings page, click *Accept* after you have finished customizing the settings.

You are prompted to start the installation.

2 Click *Yes, install* to start the installation.

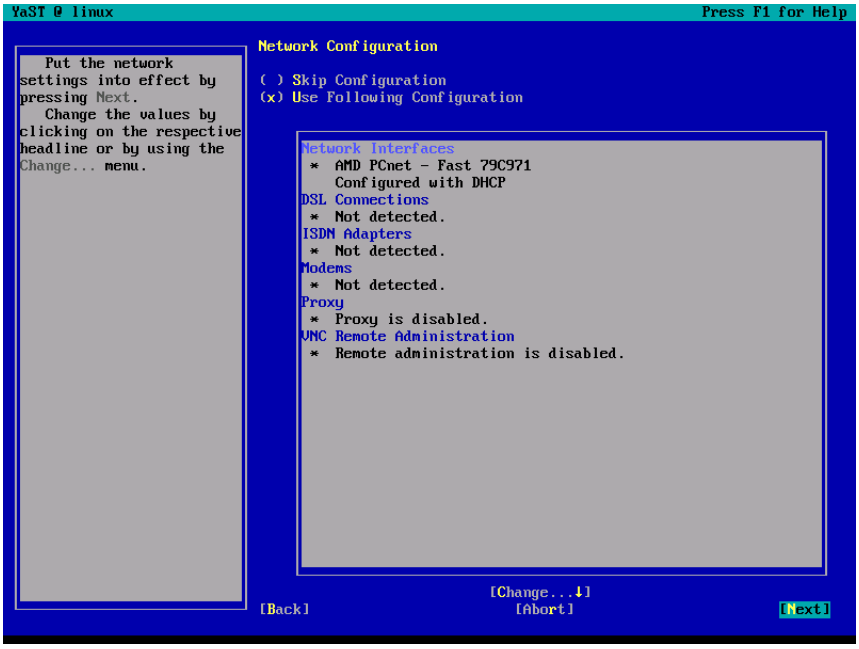
The hard disk is formatted, destroying all data, and the partitions are created. After all the packages are installed, the system reboots.

3 To clear the message about why the graphical interface cannot be started, press Enter.

The `root` user password screen appears.

4 Specify the password for `root`, re-type it, tab to *Next*, then press Enter.

The *Network Configuration* screen appears.



5 Tab to *Network Interfaces*, then press Enter.

You must complete the network interface configuration. If you do not configure the network interface, the Linux Access Gateway setup fails.

The Access Gateway must not use DHCP; it must be assigned a static IP address. To configure a static IP address:

5a Tab to *Change*, then press Enter.

5b Tab to *Edit*, press Enter, and fill in the following fields:

Static address setup: Select this option, which allows you to enter a static IP address.

IP address: Specify the IP address assigned to the Access Gateway.

Subnet mask: Specify the subnet mask for your network.

5c Tab to *Select Hostname and server*, press Enter, and fill in the following fields:

Host Name: Change the hostname to a unique name for the Access Gateway machine.

Domain Name: Change the domain name to the domain name for your network.

Name Server 1: Specify the IP address of your DNS server. If you have more than one DNS server, enter their IP addresses in the *Name Server 2* and *Name Server 3* fields. You do not need to configure a domain search.

5d Tab to *OK*, then press Enter.

5e Tab to *Routing*, then press Enter.

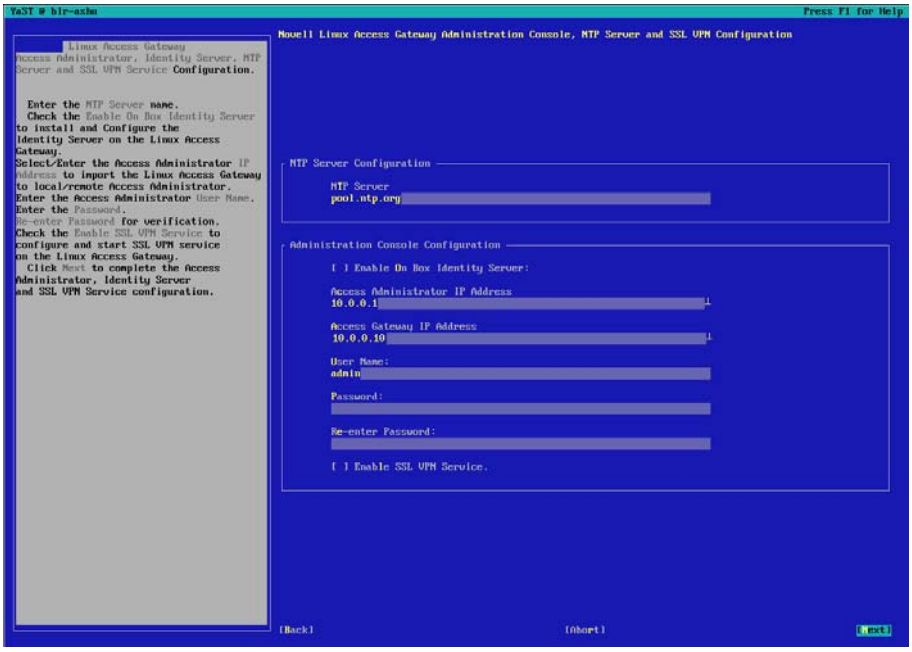
5f Specify the gateway for your network, tab to *OK*, then press Enter.

5g Tab to *Next*, then press Enter.

5h Tab to *Finish*, then press Enter.

For more information on this process, refer to the relevant parts of "Network Devices" in the *Novell SUSE Linux Administration Guide* (http://www.novell.com/documentation/sles9/pdfdoc/sles_9_admin_guide/sles_9_admin_guide.pdf).

6 Tab to *Next*, then press Enter. The *Access Administrator Configuration* screen appears.



Fill in the following fields:

NTP Server: Specify the name of the NTP server.

Enable On Box Identity Server: Select this check box to install and configure the Identity Server on the Linux Access Gateway. If you did not select the Novell Identity Server packages to be installed on Linux Access Gateway, you are prompted to install these packages.

NOTE: Installing the Novell Identity Server and the Novell Linux Access Gateway on the same machine is not currently supported for production environments.

Access Administrator IP Address: Specify the address of the Administration Console.

Access Gateway IP Address: Specify the IP address of the Access Gateway.

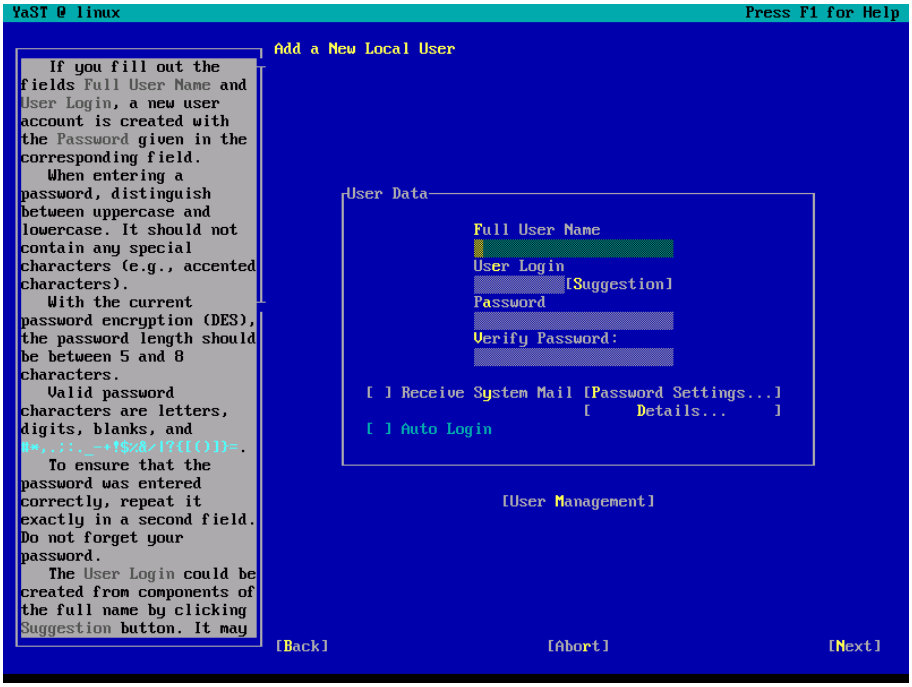
Username: Specify the name of the Administration Console user.

Password: Specify the password for the user.

Reenter Password: Re-type the password for the user.

Enable SSL VPN Service: Select this check box to configure the SSL VPN service on the Linux Access Gateway. If you did not select the SSL VPN packages to be installed, you are prompted to install these packages.

7 Tab to *Next*, then press Enter.



8 To set a secure password for the `config` user, tab to *User Management*, then press Enter.

The `config` user should be highlighted.

9 Press Enter and change the following fields:

Password: Delete the displayed password and specify a new one.

Verify Password: Delete the displayed password and specify a new one.

10 Tab to *Next*, then press Enter.

11 Tab to *Next*, then press Enter.

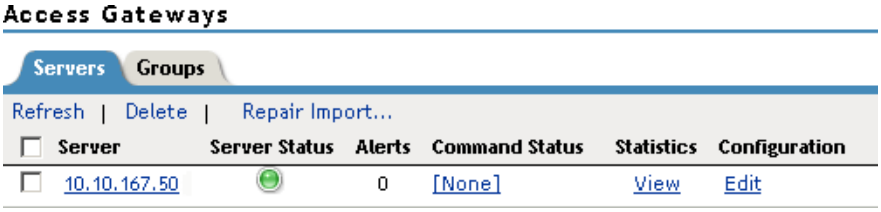
The system configuration is written.

12 Tab to *Next*, then press Enter.

The final configuration and auto-import into the Administration Console is started. This might take 10 to 15 minutes, depending on the configuration and hardware.

13 (Optional) To verify the installation of the Access Gateway, log in to Administration Console (see Section 3.2, “Logging in to the Administration Console,” on page 27), then click *Access Manager* > *Access Gateways*.

If the installation was successful, the IP address of your Access Gateway appears in the Server list.



The import into Administration Console can take a few minutes, so if your Access Gateway does not appear in the list, wait a few minutes and refresh the screen.

The Server Status indicator is green after the Access Gateway is imported and registers with the Administration Console, which can take up to 5 minutes. If the indicator fails to register green, click the *Server Status* icon. Verify that your IP address and DNS settings are correct, then click *Servers* > *Refresh*.

If the server IP address still does not appear in the Access Gateways Server list, click *Repair Import*. For additional help, see Appendix A.1, "Troubleshooting the Access Gateway Import," on page 117.

14 This completes the installation of the Linux Access Gateway. Continue with the one of the following:

- "Setting Up a Basic Access Manager Configuration" in the *Novell Access Manager 3.0 Setup Guide*
- Section 5.5, "Viewing the Linux Installation Log," on page 49
- Section 5.6, "Installing the Latest Linux Patches," on page 49

5.5 Viewing the Linux Installation Log

While installing, the Linux Access Gateway generates a log file detailing the installation progress. The install log is available at `/var/log/YaST2/y2logRPM`.

IMPORTANT: Log in as `root` to view the logs.

The log has the following format:

```
'date' 'time' 'versioned rpm-name' 'status'
```

The log also provides some additional information generated from the pre-script and the post-script of the RPM package.

5.6 Installing the Latest Linux Patches

Novell Linux Access Gateway installs a customized version of SLES 9 SP 3. If you want to install the latest patches as they become available, you must have a Novell user account for receiving Linux updates. Use the Linux operating system of your Identity Server or Administration Console to set up this account.

To install the latest patches, you must first import the Novell/SUSE public key from a trusted media. You can then install the patches using `yast`. This section describes these tasks:

- Section 5.6.1, "Importing the Novell/SUSE Public Key," on page 50
- Section 5.6.2, "Installing the Patches," on page 50

5.6.1 Importing the Novell/SUSE Public Key

The Novell/SUSE public key is included on the Linux Access Gateway (CD3). To import this key from a trusted media:

1 Log in as `root`.

2 Insert the Linux Access Gateway (CD3), then enter the following command to mount the CD under `/mnt`:

```
mount /dev/cdrom /mnt/
```

3 Run the following commands to import the public keys:

```
rpm --import /mnt/gpg-pubkey-3d25d3d9-36e12d04.asc
rpm --import /mnt/gpg-pubkey-9c800aca-39eef481.asc
```

4 To check if the RPM has imported the keys, enter the following command:

```
rpm -qa 'gpg-pubkey*' | sort
```

Search for the following lines:

```
gpg-pubkey-3d25d3d9-36e12d04
gpg-pubkey-9c800aca-40d8063e
```

5 If the above lines are not displayed, enter the following command:

```
rpm --rebuilddb
```

6 Repeat Step 3 to import keys and Step 4 to check if the keys are imported.

5.6.2 Installing the Patches

To install the latest available Linux patches:

1 Log in as `root`.

2 Enter the following command to launch yast:

```
yast
```

3 Select *Software* > *Online Update*, then press Enter.

4 In the *Installation source* option, select *Novell Accounts Only*, then tab to *Next* and press Enter.

5 Enter your credentials.

You must have a registered Novell user account.

6 Select the required patch and press *OK*.

The patch is installed.

Installing the NetWare Access Gateway

6

Installation time: about 15 minutes

The Access Gateway runs on NetWare® 6.5 (included in the installation) or Linux (included in the installation). If you intend to install the Linux Access Gateway, skip this section and go to "Installing the Linux Access Gateway" on page 31.

6.1 Running the NetWare Installation Program

WARNING: This installation re-images your machine. Remember to remove the Installation CD when prompted to do so at the end of the Access Gateway installation, because the system reinstalls the product if the CD remains in the drive when you reboot.

You must install the NetWare Access Gateway on a separate machine because it re-images the hard drive and sets up a soft appliance environment.

1. Ensure you have installed the Administration Console, and that it is and running before you proceed. See "Installing the Access Manager Administration Console" on page 25.
2. Verify that the machine meets the minimum requirements. See Section 2.5, "Access Gateway Requirements," on page 22.
3. Insert the NetWare Access Gateway CD into the CD drive of your Access Gateway machine.
4. Boot to the CD drive.
5. Select the language for the License Agreement.
6. Review the License Agreement, then press F10 to accept it and proceed with the installation.
7. Specify the following network configuration information for `eth0`, then select *Continue*:

   IP Address: Specify the static IP address for the Access Gateway machine.

   Subnet Mask: Specify the subnet mask for your network. The default value is 255.255.0.0.

   Default Gateway: Specify the IP address of the gateway (IP router) for your network.
8. Specify the following DNS information, then select *Continue*:

   DNS Servers: Specify the IP address of your DNS server. You can provide up to three addresses.

   You must specify the IP address of at least one DNS server.

   Hostname: Specify a unique host, or computer name, for the Access Gateway machine.

   Domain: Specify the domain name for your network. Your DNS server must be configured to resolve the combination of the hostname and the domain name to the Access Gateway machine.
9. Specify the following date and time information, then select *Continue*.

   Timezone: From the drop-down list, select the time zone for the machine.

   Date: Inspect the date information and correct it if it is inaccurate.

   Time: Inspect the time information and correct it if it is inaccurate.

IMPORTANT: This time must match the time on the Administration Console and the Identity Server machines. If the time is not synchronized within one minute of each other, they cannot communicate with each other.

Network Time Protocol (NTP): Specify a server for the network time synchronization protocol. The `pool.ntp.org` (http://www.pool.ntp.org/) server is entered by default.

10 Specify the following Administration Console information, then select *Continue*.

Username: Specify the name of the administrator that you set up with Administration Console.

Password and Reenter Password: Specify the password for the Administration Console administrator.

IP Address: Specify the IP address of the Administration Console server.

11 Specify whether you have custom drivers that you need to load during the installation process.

- If your machine is using standard hardware, you can select *No*.
- If you are in doubt or you know you are using hardware components that are not popular items, select *Yes*. During the installation, you are prompted to accept the drivers for the various hardware devices in the machine. If the OS can find a driver for the device, you are prompted to accept it or load a custom driver. Custom drivers can be loaded from either a floppy drive or a flash drive.

12 Review the selected configuration. If it is accurate, select *Continue*. If it is inaccurate, select *Back* and fix the problem.

When you select *Continue*, all data currently on the machine is erased.

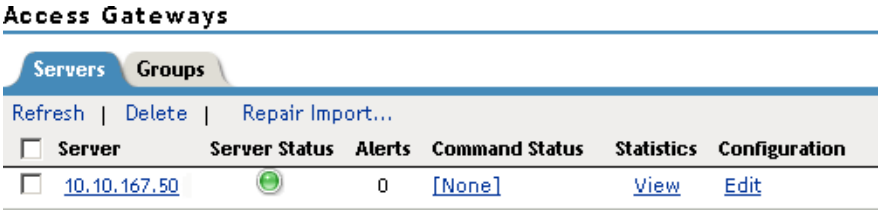
About 230 modules are installed, depending upon your hardware.

13 When prompted, remove the Access Gateway Installation CD and press Enter to reboot.

This completes the installation.

14 (Optional) To verify the installation of the Access Gateway, log in to Administration Console (see Section 3.2, "Logging in to the Administration Console," on page 27), then click *Access Manager* > *Access Gateways*.

If the installation was successful, the IP address of your Access Gateway appears in the Server list.



The import into Administration Console can take a few minutes, so if your Access Gateway does not appear in the list, wait a few minutes and refresh the screen.

The Server Status indicator appears green after the Access Gateway is imported and registers with the Administration Console, which can take up to 5 minutes. If the indicator fails to register green, click on the Server Status icon. Verify that your IP Address and DNS settings are correct, then click *Servers* > *Refresh*.

If the server IP address still does not appear in the Access Gateways Server list, click *Repair Import*. For additional help, see Appendix A.1, "Troubleshooting the Access Gateway Import," on page 117.

15 This completes the installation of the NetWare Access Gateway. Continue with one of the following:

- "Setting Up a Basic Access Manager Configuration" in the *Novell Access Manager 3.0 Setup Guide*.
- Section 6.2, "Configuring the Log Partition on the NetWare Access Gateway," on page 53.

  This is highly recommended if you plan to enabling the logging of transactions. The installation program limits the log: volume to 2 GB.
- Section 6.3, "Customizing Error Pages," on page 53.

6.2 Configuring the Log Partition on the NetWare Access Gateway

When the NetWare Access Gateway is installed, the log: volume is configured to share a 4 GB partition with the sys: volume. The log: volume is limited to 2 GB. You can change these limits, if you have the disk space to create a larger log: volume, but the change must be made at the NetWare Access Gateway console and not from the Administration Console. It also requires a reboot of the NetWare Access Gateway to allow access to the NetWare operating system.

1 Boot the NetWare Access Gateway with the *-NetWareOnly* option. See "Additional Options during the Boot Process" in the *Novell Access Manager 3.0 Administration Guide*.

2 At the NetWare command prompt, unload `autovol`.

3 Load `nssmu`.

  For more information about this console utility, see NSSMU (http://www.novell.com/documentation/nw65/nss_enu/data/boswzl1.html).

4 In nssmu, delete the log: volume.

  Note the drive (device) of the log: volume.

5 Delete the FastCache partition on same drive (device) as the log: volume you deleted.

6 Create a partition for the log: volume.

  Make it as large as you want the log: volume, but no larger. This partition should not take all the space on the drive. On reboot, the FastCache partition for the log: volume is automatically created for you on the same device as the log: volume. You want to reserve as much space as possible for the FastCache partition.

7 Create a log: volume on the newly created partition.

  Ignore the error on creation.

8 Reboot the NetWare Access Gateway.

6.3 Customizing Error Pages

The error messages are in the `sys:\etc\proxy\data\errpage\english\messages.cfg` file. To customize these messages for another language, create a language directory, for example `spanish` in the `errpage` directory and copy the `messages.cfg` file to this directory. Follow the instructions in the `message.cfg` file to localize the error page.

IMPORTANT: When customizing the messages, do not use a semi-colon (;) in the message. If you do, the message truncates at the semi-colon and only the portion of the message before the semi-colon is displayed.

You need to enable FTP or SHH to copy this file, edit it, and return it to the NetWare Access Gateway. See "Configuring Console Access" in the *Novell Access Manager 3.0 Administration Guide*.

After you have created the file, you need to select the language. See "Configuring Error Page Presentation" in the *Novell Access Manager 3.0 Administration Guide*.

Installing SSL VPN

7

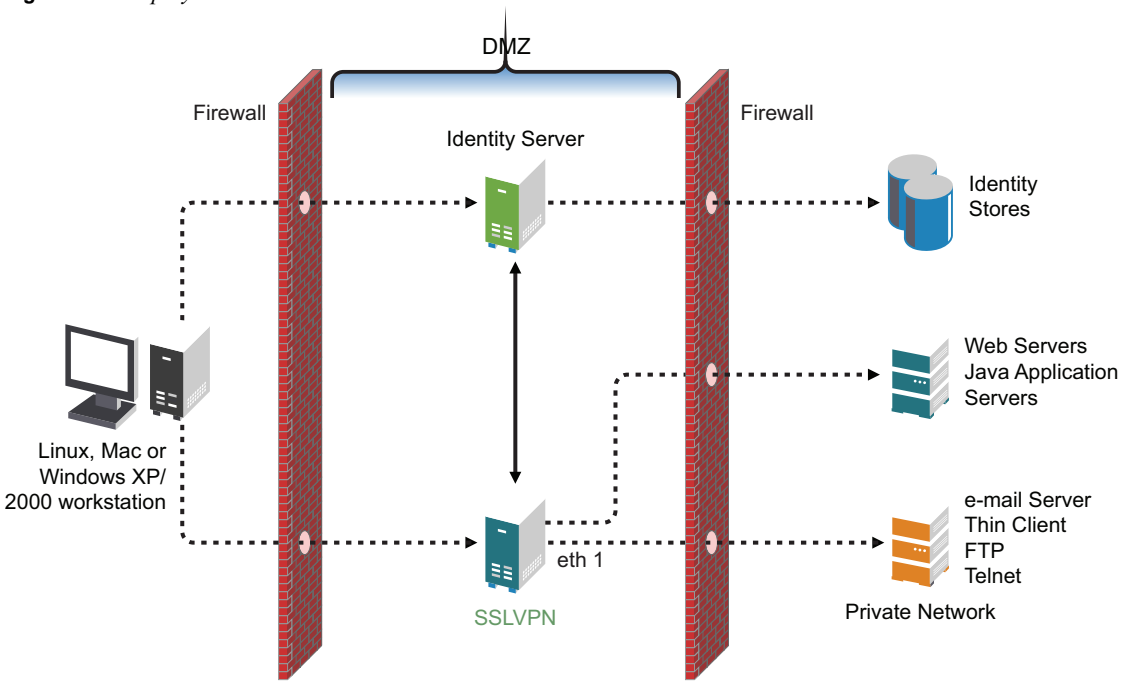
You can deploy SSL VPN to inter-operate with the Access Gateway in different ways. This section describes three deployment scenarios and then describes how to install them.

7.1 Identifying the Installation You Should Use

This section provides detailed information about the three possible deployment scenarios for SSL VPN. After you determine the deployment scenario, refer to the relevant installation instructions.

7.1.1 Deployment Scenario 1: Linux Access Gateway and SSL VPN on the Same Server

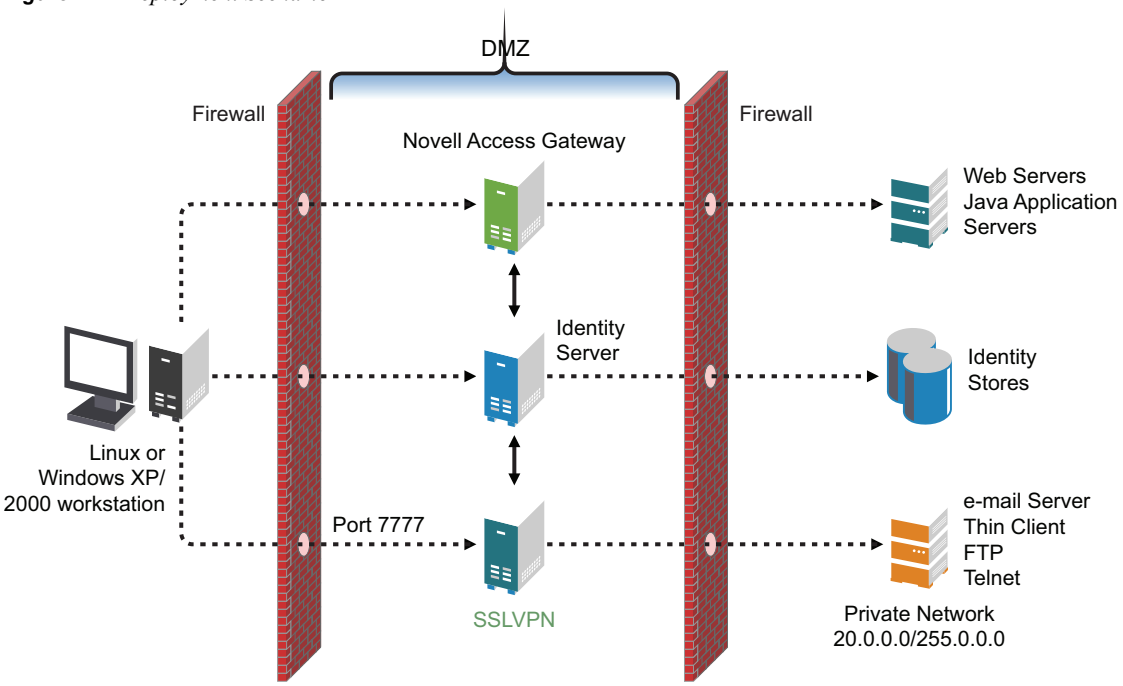
Figure 7-1 *Deployment Scenario 1*



This deployment scenario consists of a demilitarized zone, where the Linux Access Gateway and SSL VPN are on the same server and the Identity Server is deployed separately. For installation instructions for this scenario, see Section 7.3.2, “Deployment Scenario 1: Installing SSL VPN on the Linux Access Gateway,” on page 58.

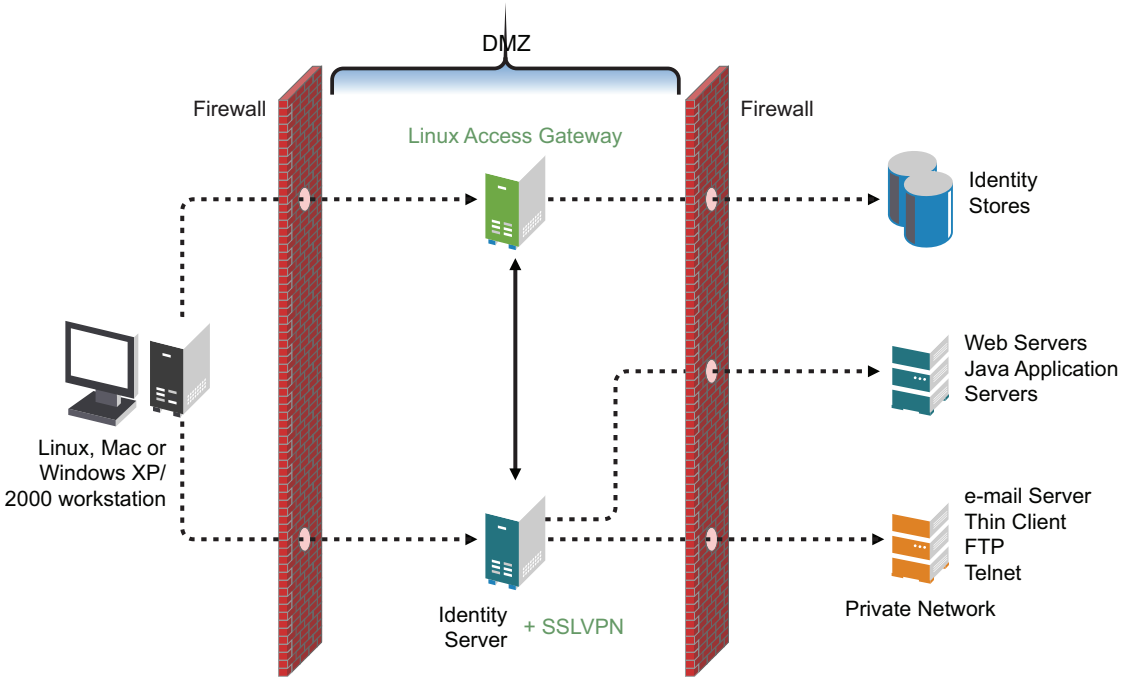
7.1.2 Deployment Scenario 2: Access Gateway and SSL VPN on Different Servers

Figure 7-2 *Deployment Scenario 2*



This deployment scenario consists of a demilitarized zone, where the Access Gateway, Identity Server and SSL VPN are deployed separately. For installation instructions for this scenario, see Section 7.3.3, “Deployment Scenario 2: Installing SSL VPN on a Separate Machine,” on page 59.

7.1.3 Deployment Scenario 3: Novell Identity Server and SSL VPN on the Same Server



This deployment scenario consists of a demilitarized zone, where the Identity Server and SSL VPN are on one machine and the Access Gateway is deployed separately. For installation instructions for this scenario, see Section 7.3.4, “Deployment Scenario 3: Installing Identity Server and SSL VPN on the same Machine,” on page 59.

7.2 SSL VPN and the Access Gateway

When used in conjunction with the Novell Access Gateway, the SSLVPN server provides access to non-Web resources. SSL VPN is deployed differently depending on which Access Gateway you are using.

SSL VPN and the Linux Access Gateway

If you are using the Linux Access Gateway, you can use Deployment Scenario 1: Linux Access Gateway and SSL VPN on the Same Server, Deployment Scenario 2: Access Gateway and SSL VPN on Different Servers, or Section 7.1.3, “Deployment Scenario 3: Novell Identity Server and SSL VPN on the Same Server,” on page 57.

SSL VPN and the NetWare® Access Gateway

If you are using the NetWare Access Gateway, you can use Deployment Scenario 2: Access Gateway and SSL VPN on Different Servers, or Section 7.1.3, “Deployment Scenario 3: Novell Identity Server and SSL VPN on the Same Server,” on page 57. In other words, you cannot have a deployment scenario where SSL VPN and the NetWare Access Gateway are on the same server.

7.3 Installing SSL VPN Services

Your installation depends on the preferred deployment scenario explained in Section 7.1, “Identifying the Installation You Should Use,” on page 55. Decide which scenario to use, make sure you have filled the prerequisites, then install SSL VPN.

7.3.1 Prerequisites

- ❑ You have root privileges.
- ❑ You have the following information:
  - IP address of the SSL VPN server
  - Name of the internal interface
  - IP address of Administration Console installed on the Identity Server

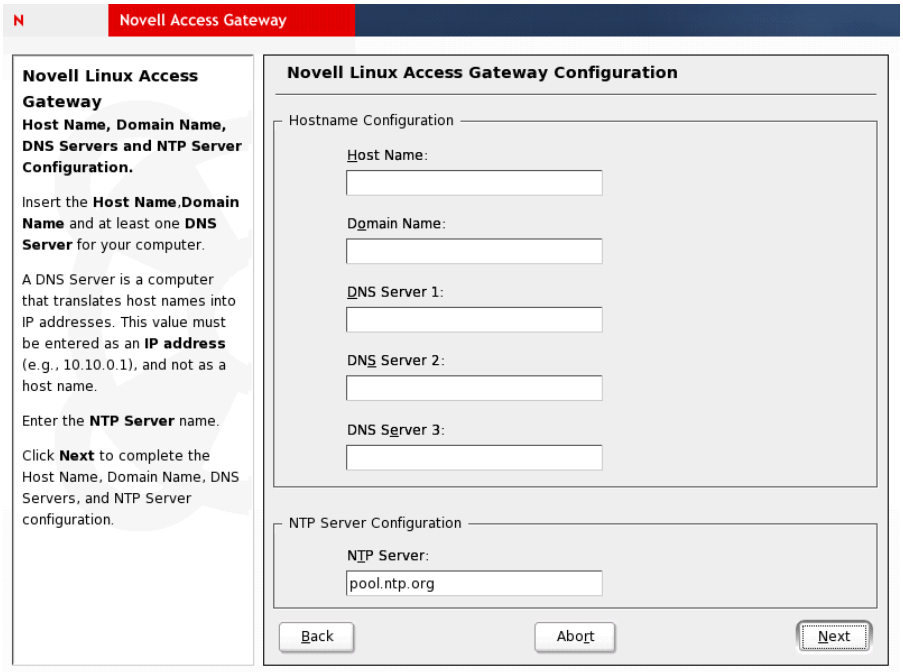
7.3.2 Deployment Scenario 1: Installing SSL VPN on the Linux Access Gateway

Standard Installation

In a standard installation of the Linux Access Gateway, SSL VPN is installed automatically. This is the preferred method of installation.

For information on a standard installation of the Linux Access Gateway, refer to Section 5.3, “Using a Standard Linux Installation with the Default Settings,” on page 32.

In the Access Administrator Configuration section in the Novell Linux Access Gateway Configuration page, select the *Enable SSL VPN Service* check box to install and configure SSL VPN on the Linux Access Gateway.



Advanced Installation

For an advanced installation of Linux Access Gateway, use the following steps to install SSL VPN:

1. Start the advanced installation of the Linux Access Gateway. For details, refer to Chapter 5, "Installing the Linux Access Gateway," on page 31.
2. On the Access Administrator Configuration page, select *Enable SSL VPN Service*. This installs SSL VPN along with the Linux Access Gateway.
3. Click *Accept*.

   The Installation Settings page is displayed. If the installation is successful, SSL VPN is displayed in the Software section.
4. Follow the on-screen instructions to continue with the Linux Access Gateway installation.

7.3.3 Deployment Scenario 2: Installing SSL VPN on a Separate Machine

1. Insert the CD into the CD drive, then browse and locate the install script.
2. At the command prompt, enter the following install script command:

   ```
   ./install.sh
   ```

   You are prompted to select an installation.
3. Type 3 to install Novell SSL VPN Agent.

   The license agreement is displayed.
4. Review and accept the License Agreement.
5. Specify the name of the administrator for the Administration Console.
6. Specify the administration password.
7. Confirm the password.
8. (Conditional) If you are installing the SSL VPN server on the same machine as the Administration Console, you are not prompted for the IP address of the Administration Console. If the Administration Console is on a different machine, you are prompted for its IP address.
9. (Conditional) If the SSL VPN machine has been configured with multiple IP address, you are prompted to select an IP address for the SSL VPN server.
10. Wait while the SSL VPN server is installed on your system and imported into the Administration Console, which takes about 2 minutes.

    The installation ends with the following message: `Installation complete.`
11. To verify the installation of the Access Gateway, continue with Section 7.3.5, "Verifying that Your SSL VPN Service Is Installed," on page 60.

7.3.4 Deployment Scenario 3: Installing Identity Server and SSL VPN on the same Machine

1. Insert the CD into the CD drive, then browse and locate the install script.
2. At the command prompt, enter the following install script command:

   ```
   ./install.sh
   ```

You are prompted to select an installation.

3 When prompted to install a product, type 3 to install the Novell SSL VPN Agent, then press Enter key to begin.

The license agreement is displayed.

4 Review and accept the License Agreement.

5 Specify the name of the administrator for the Administration Console.

6 Specify the administration password.

7 Confirm the password.

8 (Conditional) If you are installing the SSL VPN server on the same machine as the Administration Console, you are not prompted for the IP address of the Administration Console. If the Administration Console is on a different machine, you are prompted for its IP address.

9 (Conditional) If the SSL VPN machine has been configured with multiple IP address, you are prompted to select an IP address for the SSL VPN server.

10 Wait while the SSL VPN server is installed on your system and imported into the Administration Console, which takes about 2 minutes.

The installation ends with the following message: `Installation complete.`

11 To verify the installation of the Access Gateway, continue with Section 7.3.5, "Verifying that Your SSL VPN Service Is Installed," on page 60.

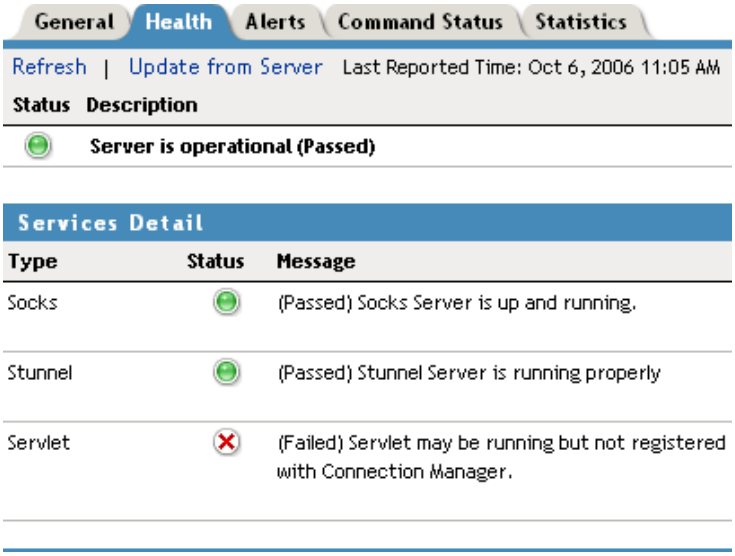
7.3.5 Verifying that Your SSL VPN Service Is Installed

You can check the status of the SSL VPN server in the Administration Console:

1 In the Administration Console, click *Access Manager* > *SSL VPNs*.

A list of SSL VPN servers appears and displays their status under the Server Status icon.

2 Click the *Server Status* icon to display the health of the SSL VPN server.



The Socks and Stunnel server connections should display green and report Passed. The Servlet status might report Failed until the connection is configured later. This should not impact server functionality.

3 Continue with see “Configuring SSL VPN to Protect an Application” in the *Novell Access Manager 3.0 Setup Guide*.

For more information, see “Configuring the SSL VPN Servers” in the *Novell Access Manager 3.0 Administration Guide*

Upgrading Access Manager Components

8

This section discusses the procedures for upgrading Novell® Access Manager components.

8.1 Upgrading the Administration Console

Upgrade running time: about three minutes.

1. If you have Red Carpet® or auto update running, stop these programs before you upgrade the Access Manager Administration Console.
2. Open a terminal window.
3. Log in as the `root` user.
4. Download the upgrade file from Novell (http://support.novell.com/patches.html) and extract the file.
5. After downloading the upgrade, unpack the `tar.gz` file using the following command:

   ```
   tar -xzvf [filename]
   ```

   You might need to unpack this file into various `tar.gz` files. For this installation, you need to unpack the Identity Server `.tar.gz` file.
6. Open the unpacked Identity Server file, and enter the following at the terminal window:

   ```
   ./install.sh
   ```
7. When prompted to install a product, type 1 for *Install Novell Access Manager Administration*, then press the Enter key.

   The system detects whether the Administration Console is installed, and prompts you whether to upgrade.
8. (Conditional) If the install does not detect a static IP address that Access Manager requires on your machine, you receive an advisory message asking whether or not you want to continue the installation.

   Type *Y*, then press *Enter*.
9. Type *Y* when the system detects the previous version of the Administration Console, then press *Enter*.
10. Review and accept the License Agreement.
11. Specify the administration username.

Press Enter to use *admin* as the default admin username, or change this to a username of your choice.

12 Specify the administration password.

Use alphanumeric characters only. You must remember this password because it gives rights to the administrator, the configuration store, and subsequent logins to the Administration Console.

13 Confirm the password, then wait as the system upgrades the components.

14 To verify that the console is running, log in to the console from a workstation (a machine other than where Administration Console is located).

8.2 Upgrading the Identity Server

Upgrade running time: about three minutes.

IMPORTANT: Make sure to complete the following before you begin:

- If you are upgrading the Access Manager components on multiple machines, ensure that time and date are synchronized on all machines.
- Make sure that the Access Manager Administration Console is running. However, you must not perform any configuration tasks in the Administration Console during an Identity Server upgrade.

---

1 Verify that the machine meets the minimum requirements. See Section 2.4, "Identity Server Requirements," on page 22.

2 Open a terminal window.

3 Log in as the `root` user.

4 Download the upgrade file from Novell (http://support.novell.com/patches.html) and extract the file.

5 After downloading the upgrade, unpack the `tar.gz` file using the following command:

```
tar -xzvf [filename]
```

You might need to unpack this file into various `tar.gz` files. For this installation, you need to unpack the Identity Server `.tar.gz` file.

6 Open the unpacked Identity Server file, and enter the following at the terminal window:

```
./install.sh
```

7 When prompted to install a product, type 2 to select *Install Novell Identity Server*, then press the Enter key.

The system detects whether an Identity Server is installed, and prompts you whether to upgrade.

8 Type *Y*, then press the Enter key.

9 Review and accept the License Agreement.

10 Press Enter to accept the current Administration Console IP address.

11 Specify the name of the administrator for the Administration Console.

12 Specify the administration password.

13 Confirm the password, then wait as the system installs the components. (This will take several minutes.)

The following components are installed:

- **Novell Access Manager Server Communications:** The components necessary to enable network communications, including identifying devices, finding services, moving data packets, and maintaining data integrity.
- **Novell Identity Server:** The component of Novell Access Manager that provides authentication and identity services for the other Access Manager components and third-party service providers.
- **Novell Identity Server Configuration:** The configuration that allows the Identity Server to be securely configured by the Administration Console.

  If the installation process terminates at this step, the probable cause is a failure to communicate with the Administration Console. Ensure that you entered the correct IP address.
- **Novell Access Manager Server Communications Configuration:** The communication configuration that enables the Identity Server to auto-import itself into the Administration Console.

This completes the Novell Identity Server upgrade. The install logs are located in `/tmp/novell_access_manager`. These logs are all dated and time-stamped.

8.3 Upgrading the Linux Access Gateway

Upgrade running time: about three minutes.

You use the `lagupgrade.sh` script to upgrade from one release to another, without affecting the installation settings. This script downloads the Linux Access Gateway RPM package from the specified server address through either the HTTP or FTP protocol, and then upgrades the Access Gateway modules.This script does not upgrade the SUSE® Linux RPMs or install modules. For this process, see Section 5.6, “Installing the Latest Linux Patches,” on page 49.

This section contains the following information:

8.3.1 Upgrading from the FCS Build to the IR Builds

To upgrade the Linux Access Gateway from the FCS build to the IR1 or IR 2 build:

1. Download the upgrade file from Novell (http://support.novell.com/patches.html) and extract the file.
2. Copy the Linux Access Gateway upgrade file to a server accessible by the gateway.
3. Rename the `.tar.gz` file to `lagrpms.tar.gz`.

   The file posted for download needs a specific name that reflects the version of the upgrade. The upgrade script requires that the file have a generic name: `lagrpms.tar.gz`
4. Log in as `root`.
5. Enter the following command:

   ```
   bash
   ```
6. Enter the following command to start the upgrade script:

```
/chroot/lag/opt/novell/bin/lagupgrade.sh
```

7 Specify the protocol to use when downloading the RPM packages. Enter 1 to use HTTP, 2 to use FTP, and q to quit the upgrade process.

8 (Optional) If you selected FTP, you are prompted to specify following information:

8a Specify the FTP username.

8b Specify the FTP password.

9 Specify the address of the server where the RPM packages are located.

Use either the IP address or the DNS hostname of the server.

10 Specify the path to the RPM packages. The path cannot begin with a /, but it must end with a /. For example:

```
publish/upgrades/accessgateway/05072006/
```

Make sure that the path does not contain the package name.

11 Enter the RPM package name.

The RPM package is downloaded to your system and the upgrade begins.

By default, the Linux Access Gateway RPM package is named `lagrpms.tar.gz`.

The RPMs are packaged with the directory name `lagrpms` for the `lagrpms.tar.gz` file. If you have downloaded and repackaged the RPMs with a different package name or directory name, make sure that the directory name matches the package name. For example, if the package name is `final.tar.gz`, make sure that the directory name is also `final`.

12 View the `/var/log/lagupgrade.log` file to verify the results of the upgrade process.

8.3.2 Upgrading from the IR1 Build to the IR2 Build

There are two ways to upgrade the Linux Access Gateway from the IR1 build to the IR2 build. The first approach is to follow the steps given in Section 8.3.1, "Upgrading from the FCS Build to the IR Builds," on page 65. Specify the name of the RPM package along with the path, for example, `publish/upgrades/accessgateway/05072006/lagrpms.tar.gz`. The RPM package is downloaded to your system and the upgrade begins. To verify the results of the upgrade process, view the `/var/log/lagupgrade.log` file.

The other method is to follow the steps given below.

1 Download the upgrade file from Novell (http://support.novell.com/patches.html) and extract the file.

2 Copy the Linux Access Gateway upgrade file to a server accessible by the gateway.

3 Rename the `.tar.gz` file to `lagrpms.tar.gz`.

The file posted for download needs a specific name that reflects the version of the upgrade. The upgrade script requires that the file have a generic name: `lagrpms.tar.gz`

4 Log in as `root`.

5 Enter the following command:

```
bash
```

6 Enter the following command to upgrade to the IR2 build:

```
/chroot/lag/opt/novell/bin/lagupgrade.sh --url <protocol>://
<hostname>/<path>/<packageName>"
```

<*protocol*> refers to the protocol to use when downloading the RPM packages. It can be HTTP or FTP.

<*hostname*> refers to the address of the server from where the RPM packages can be downloaded. Enter either the IP address or the DNS hostname of the server at the prompt.

<*path*> refers to the path to the RPM packages.

<*packageName*> refers to the RPM package name.

For example:

```
/chroot/lag/opt/novell/bin/lagupgrade.sh --url http://
10.10.10.1/publish/upgrades/accessgateway/05072006/
lagrpms.tar.gz.
```

NOTE: By default, the Linux Access Gateway RPM package is named `lagrpms.tar.gz`. The RPMs are packaged with the directory name `lagrpms` for the `lagrpms.tar.gz` file. If you have downloaded and repackaged the RPMs with a different package name or directory name, make sure that the directory name matches the package name. For example, if the package name is `final.tar.gz`, make sure that the directory name is also `final`.

---

7. The RPM package is downloaded to your system and the upgrade begins.
8. View the `/var/log/lagupgrade.log` file to verify the results of the upgrade process.

8.4 Upgrading SSL VPN and Linux Access Gateway Installed on the Same Machine

You use the `lagupgrade.sh` script to upgrade the Linux Access Gateway and SSL VPN, installed on the same machine, without affecting the installation settings. This script downloads the Linux Access Gateway RPM package from the specified server address through either the HTTP or FTP protocol, and then upgrades the Access Gateway modules. You can upgrade both Linux Access Gateway as well as SSL VPN using the `lagupgrade.sh` file.

To upgrade the Linux Access Gateway and SSL VPN installed on the same machine:

1. Download the upgrade file from Novell (http://support.novell.com/patches.html) and extract the file.
2. Copy the SSL VPN upgrade file to a server accessible by the gateway.
3. Rename the `.tar.gz` file to `lagrpms.tar.gz`.

   The file posted for download needs a specific name that reflects the version of the upgrade. The upgrade script requires that the file have a generic name: `lagrpms.tar.gz`
4. Log in as `root`.
5. Enter the following command:

   ```
   bash
   ```
6. Enter the following command to start the upgrade script:

   ```
   /chroot/lag/opt/novell/bin/lagupgrade.sh
   ```
7. Specify option 1 to upgrade both Linux Access Gateway and SSL VPN.
   - For information on option 2, upgrading only the Linux Access Gateway, see Section 8.3, "Upgrading the Linux Access Gateway," on page 65.

- For information on upgrading SSL VPN only, see Section 8.6, "Upgrading the SSL VPN Server," on page 70.

8 Specify the protocol to use when downloading the RPM packages. Enter 1 to use HTTP, 2 to use FTP, and q to quit the upgrade process.

9 (Optional) If you selected FTP, you are prompted to specify following information:

9a Specify the FTP username.

9b Specify the FTP password.

10 Specify the address of the server where the RPM packages are located.

Use either the IP address or the DNS hostname of the server.

11 Specify the path to the RPM packages. The path cannot begin with a /, but it must end with a /. For example:

```
publish/upgrades/accessgateway/05072006/
```

Make sure that the path does not contain the package name.

12 Enter the RPM package name.

The RPM package is downloaded to your system and the upgrade begins.

By default, the Linux Access Gateway RPM package is named `lagrpms.tar.gz`.

The RPMs are packaged with the directory name `lagrpms` for the `lagrpms.tar.gz` file. If you have downloaded and repackaged the RPMs with a different package name or directory name, make sure that the directory name matches the package name. For example, if the package name is `final.tar.gz`, make sure that the directory name is also `final`.

13 View the `/var/log/lagupgrade.log` file to verify the results of the upgrade process.

Alternatively, you can also follow Step 1 to Step 8 in Section 8.3.2, "Upgrading from the IR1 Build to the IR2 Build," on page 66. This upgrades both the Linux Access Gateway as well as the SSL VPN, by default.

8.5 Upgrading the NetWare Access Gateway

Upgrade running time: about three minutes.

The NetWare® Access Gateway is upgraded by applying over-the-wire upgrades. It is a quick and easy method to install patches and fixes from Novell. This process has the following features:

- Preserves your current configuration.
- Saves your current software version so you can revert to it if there are any problems with the newest version you have upgraded to.
- Any connections to the Access Gateway are dropped and cannot be established again until the upgrade process has finished.

To upgrade your NetWare Access Gateway:

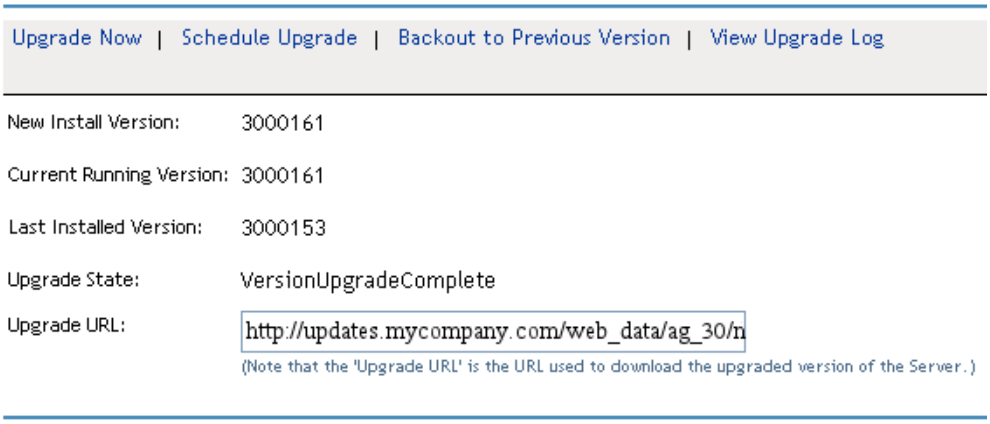
1 Download the upgrade file from Novell (http://support.novell.com/patches.html) and extract the file.

2 Copy the NetWare Access Gateway text and the zip file to a Web server.

3 Open the text file, edit the URL line, and specify the URL to the zip file on your Web server. For example:

```
url=http://updates.company.com/accessgateway/otwug/AM_NetWare.zip
```

4 In the Administration Console, click *Access Manager* > *Access Gateways* > *[Name of Server]* > *Actions* > *Upgrade*.



There is an option under *Groups* to upgrade an entire group. If you upgrade a group, the entire site goes down until the upgrade has finished.

5 In the *Upgrade URL* field, specify the URL to the upgrade text file, starting with the scheme and ending with the text filename. For example:

```
http://updates.company.com/accessgateway/otwug/ag_30162.txt
```

6 Select either *Upgrade Now* and continue with Step 7 or select *Schedule Upgrade* and skip to Step 9.

7 Confirm the action.

The upgrade starts.

8 Click *Command Status*, then select the command to view more information about the upgrade.

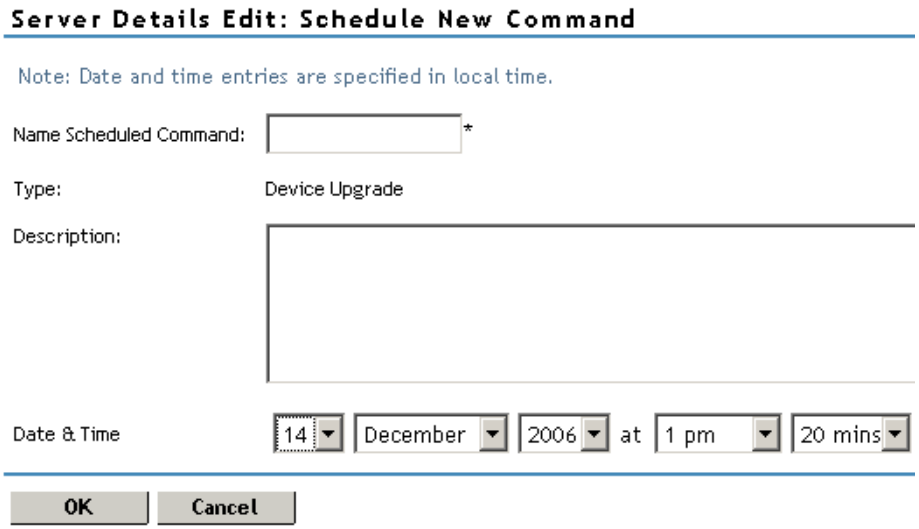
When the upgrade is finished, a command to restart the Embedded Service Provider is issued. When that command succeeds, the Access Gateway is ready to process requests again.

You can also click *Access Gateways* > *[Name of Server]* > *Actions* > *Upgrade* and view the following fields:

Current Running Version: The version that is currently running on the Access Gateway. If the upgrade has completed, the current running version is the upgrade version you downloaded.

Upgrade State: The current state of the upgrade process. This state displays *Complete* when the upgrade has finished. If an error occurs, this field displays an error message.

9 Confirm the action.



10 Fill in the following fields:

Name Scheduled Command: A descriptive name for the command. Specify a name that you can use to identify the command on the Command Status page and in log files.

Description: A place to enter additional information about the command. This field is optional.

Date & Time: The date and time the upgrade command executes. From the drop-down lists, select the day, month, year, and the hour and minute when the command executes.

11 Click *OK*.

12 Click the *Command Status* of the Access Gateway to view more information about the command.

When the status of your scheduled command changes from pending to executing, the upgrade starts. When the upgrade is finished, a command to restart the Embedded Service Provider is issued. When that command succeeds, the Access Gateway is ready to process requests again.

8.6 Upgrading the SSL VPN Server

Upgrade running time: about three minutes.

IMPORTANT: Make sure to complete the following before you begin:

- Make sure that the Access Manager Administration Console is running. However, you must not perform any configuration tasks in the Administration Console during an SSL VPN Server upgrade.

---

1 Download the upgrade file from Novell (http://support.novell.com/patches.html) and extract the file.

2 After downloading the upgrade file, unpack the `tar.gz` file using the following command:

```
tar -xzvf [filename]
```

You might need to unpack this file into various `tar.gz` files. For this installation, you need to unpack the Identity Server `.tar.gz` file which contains the SSL VPN files.

3 Log in as the `root` user.

4 Open the unpacked Identity Server file, and enter the following at the terminal window:
`./install.sh`

5 When prompted to install a product, type 3 to select SSL VPN, then press the Enter key.

The system detects whether an SSL VPN Server is installed, and prompts you whether to upgrade.

6 Type *Y*, then press the Enter key.

7 Review and type *Y* to accept the License Agreement.

8 Press Enter to accept the current Administration Console IP address.

9 Specify the name of the administrator for the Administration Console.

10 Specify the administration password.

11 Confirm the password, then wait as the system installs the components. (This will take several minutes.)

12 View the files in the `/tmp/novell_access_manager` directory to verify the results of the upgrade process.

These log files are all dated and time-stamped.

Removing Components

9

This section discusses the following topics related to installation:

9.1 Uninstalling the Identity Server

Uninstalling the Novell Identity Server (NIDS) on your Linux box is a two-step process:

1. Uninstall NIDS from your host Linux box using the `uninstall.sh` script included with the Novell Access Manager installation program.
2. Delete references to NIDS reporting on the Administration Console.

9.1.1 Uninstalling NIDS

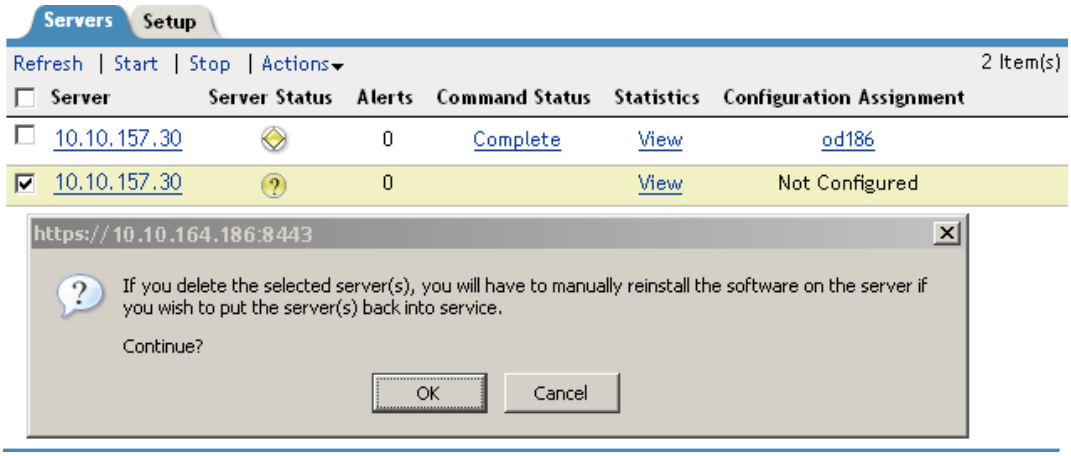
1. On your NIDS box, insert the Access Manager installation CD.
2. Navigate to the `novell-access-manager-3.`*x* directory.
3. Enter `./uninstall.sh` to initiate the uninstallation script.
4. Enter *1* to uninstall all Novell Access Manager components.

   All NIDS components will be removed from the server, rendering in a non-reporting state to the device manager.
5. Delete all NIDS references from the device manager, as described in Section 9.1.2, “Deleting NIDS References,” on page 74.

9.1.2 Deleting NIDS References

As part of the full NIDS uninstallation process, you must also delete the server configuration that have been previously created and assigned on your device manager server.

1 In the Access Manager console, click *Identity Servers* > select the server IP address of the identity server that you uninstalled on your NIDS box > click the *Actions* drop-down menu under the Servers tab > click *Delete*.



You now can install a clean version of NIDS on your Linux machine. For more information, see "Installing the Novell Identity Server" in the *Novell Access Manager 3.0 Installation Guide*.

9.2 Reinstalling an Identity Sever onto a New Hard Drive

If your Identity Server hard drive fails, you must reinstall the Identity Server (see "Installing the Novell Identity Server") and leave the Identity Server configuration intact in the Administration Console. Perform the following steps before installing the Identity Server on the new hard drive, in order to preserve the existing keystores.

1 Stop the server.

In the Administration Console, click *Access Manager* > *Identity Servers*. Select the server and click *Stop*. (Allow a few seconds for the server to stop.)

2 Remove the server from the configuration.

Select the server, then click *Actions* > *Remove from configuration*.

3 Delete the server.

Select the server, then click *Actions* > *Delete*.

4 Reinstall the Identity Server. (See "Installing the Novell Identity Server".)

5 Assign the installed Identity Server to the configuration.

9.3 Uninstalling the Administration Console

Only the primary version of the Administration Console contains the Certificate Authority. If you uninstall this version, you can no longer use Access Manager for certificate management. You will

need to prompt a secondary console to be the primary console. See "Installing Secondary Versions of the Administration Console" in the *Novell Access Manager 3.0 Administration Guide*.

To uninstall the Administration Console:

1. Insert CD 1 into the drive.
2. Log in as the `root` user or equivalent.
3. At the command prompt of the Novell Access Manager directory, enter the following:
   `./uninstall.sh`
4. Select one of the following options:

Option	Description
1	All Access Manager components (including the config store and iManager)
2	Select specific components to uninstall
3	Forcefully uninstall all components (not recommended) Use this option after a failed installation; otherwise use 1 or 2 to uninstall Access Manager components.
4	Quit without uninstalling

9.4 Uninstalling the NetWare Access Gateway

1. In the Administration Console, click *Access Gateways*.
2. If the Access Gateway belongs to a group, you need to remove it from the group.
   - **2a** Click *Groups* > *[Group Name]*.
   - **2b** Select the IP address of the server, then click *Delete* > *OK*.
3. On the Servers page, select the IP address of the server, then click *Delete* > *OK*.

   This removes the configuration object for the Access Gateway from the Administration Console.
4. On the Access Gateway machine, re-image the machine by booting to a CD containing the desired operating system software.

9.5 Uninstalling the SSL VPN

1. To uninstall, browse and locate the uninstall script.
2. At the command prompt, run the following command:
   `./uninstall.sh`
3. Select the individual components or all the components.

NOTE: If you have installed SSL VPN with Linux Access Gateway, you cannot uninstall it.

Migrating from iChain to Access Manager

10

One migration strategy cannot fit all iChain® deployments. The goal of this section is to describe several possible configurations, with the idea that you can pick and choose the elements that fit your deployment and design your own migration strategy.

10.1 Planning the Migration

Planning the migration is a two step process. The first is identifying the type of iChain configuration you currently have deployed and then deciding the type of migrating strategy that fits the needs of your environment. The second step is understanding how you are currently protecting each resource in your iChain deployment so you can identify the migration requirements of these resources. The following sections provide some guidance in discovering these needs:

10.1.1 Possible Migration Strategies

The following sections describe several types of iChain configurations and propose a migration strategy for each. These configurations build upon each other. They assume that you will first set up Access Manager independent of your iChain installation and then progressively configure Access Manager to assume responsibility for protecting iChain resources. Such a configuration requires the users to authenticate to both iChain and to Access Manager while the process takes place. If you need to preserve single sign-on while resources are migrated to Access Manager, you can use the phased migration strategy before migrating any important protected resources. If your iChain configuration includes L4 switches for fault tolerance and load balancing, you need to consider the third configuration, which describes how to cluster the various Access Manager components behind an L4 switch. You might also need to set up Access Manager in a staging environment, and when everything is working, transition the machines into your production environment. The staged migration describes some of the issues with this approach.

A Simple Migration

A simple migration works well in the following network environment:

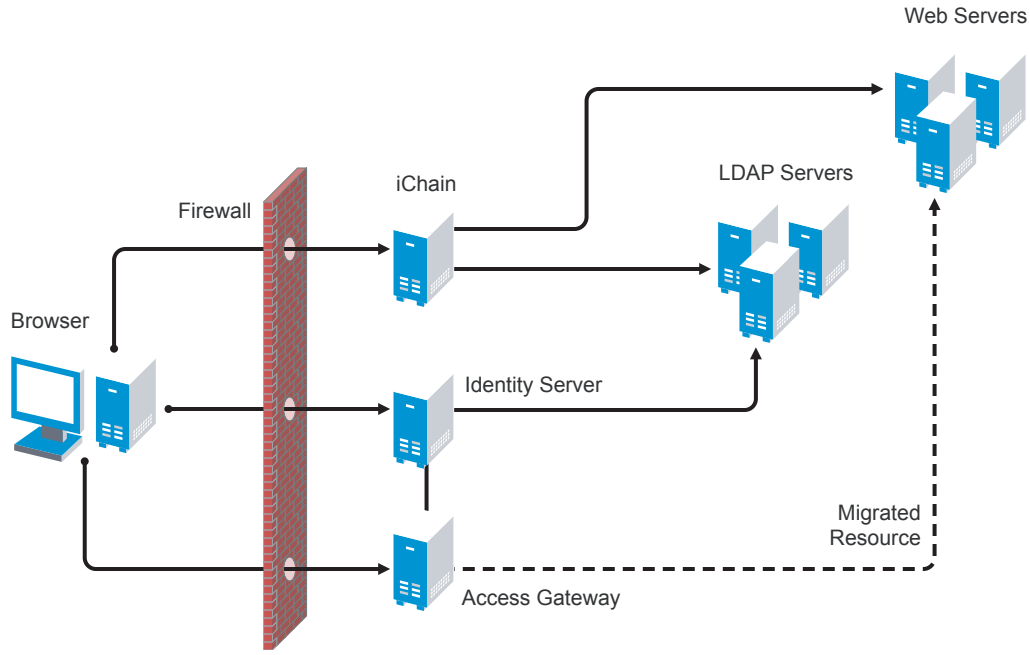
- You use iChain to protect a few Web servers with only one or two applications each.

- The policies that control single sign-on and access are simple.
- If all resources cannot be moved at the same time, you have no problems with requiring your users to authenticate to both iChain and Access Manager:
  - They can log in to iChain for the resources you haven't migrated.
  - They can log in to Access Manager for the resources you have migrated.

You might also use this type of migration when you want to use Access Manager to protect new resources and applications and to use iChain to protect already configured resources. Older resources can be migrated, as time permits, from iChain to Access Manager.

In this type of migration, you set up the Access Gateway independent of iChain. Your network configuration would look similar to the following:

Figure 10-1 *Network Setup for a Simple Migration*



In this scenario, when a user requests a resource that has not been migrated, the user is prompted to log in to iChain. When a user requests a resource that has been migrated to Access Gateway, the user is prompted to log in to the Identity Server. Both logins are required until all resources have been migrated and iChain has been removed.

Requirements

The following requirements assume that you have users outside your firewall that need access to the protected Web servers.

- ❑ The Access Gateway needs its own public IP address and DNS name, and the Access Gateway needs to be accessible through your firewall.
- ❑ The Identity Server needs its own public IP address and DNS name, and it needs to be accessible through your firewall.
- ❑ You need new hardware for the Access Gateway machine and the Identity Server. For more details, see "Installation Requirements" on page 19.

- ❑ You need to configure your firewall to allow access to the Access Manager components. See "Setting Up Firewalls" in the *Novell Access Manager 3.0 Setup Guide*.

Major Tasks

- ❑ Install the software. You need an Administration Console (the Access Manager version of iManager), an Identity Server, and an Access Gateway.
- ❑ Set up a basic configuration. For instructions, see "Setting Up a Basic Access Manager Configuration" in the *Novell Access Manager 3.0 Setup Guide*.
- ❑ Set up the Identity Server to use the same LDAP directories and authentication methods as iChain. See Section 10.2.2, "Configuring the Identity Server for Authentication," on page 86.
- ❑ Configure the Access Gateway to have the same device settings as iChain. See Section 10.2.3, "Configuring System and Network Settings," on page 89
- ❑ Migrate an accelerator with its resources from iChain to the Access Gateway. See Section 10.2.4, "Migrating the First Accelerator," on page 92.

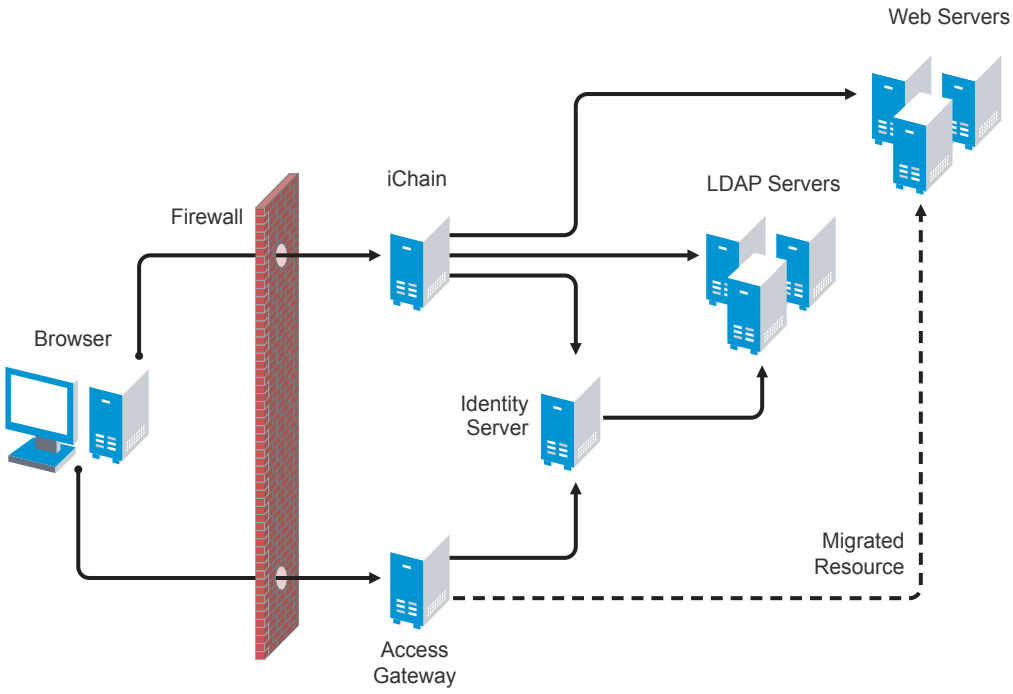
A Phased Migration

You can use a phased migration if iChain is protecting multiple resources that require Form Fill policies, SSL methods, and access control methods. While migrating these more complex resources, we recommend that you set up both iChain and Access Manager on your network. This allows an incremental migration of your resources. When your users access a migrated resource, they are directed to the Access Gateway, and they shouldn't notice any difference.

Your users will have the same iChain experience with your resources until you have successfully migrated all of them to Access Manager. You can then disable the iChain system. The only differences users should experience are Access Manager login and error pages rather than iChain login page and error pages.

Figure 10-2 illustrates the network layout for this type of migration.

Figure 10-2 *Network Setup for a Phased Migration*



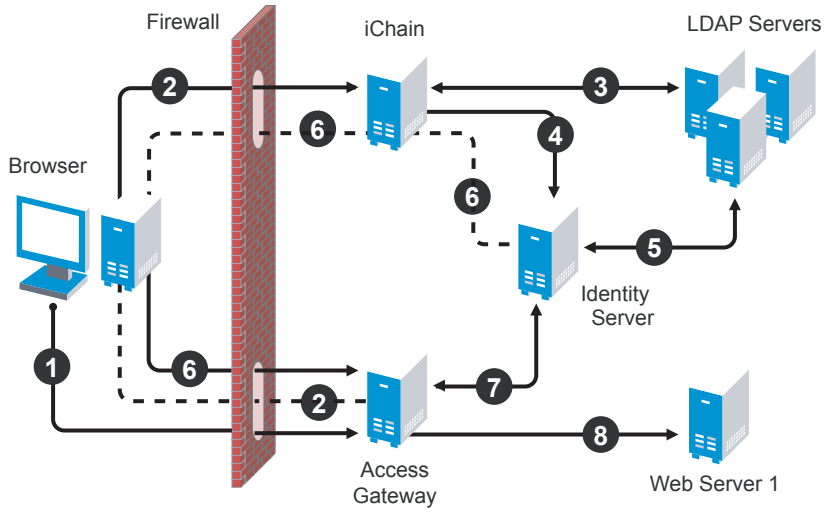
The phased migration uses iChain for authentication and single sign-on to the Identity Server. To do this, you configure the Identity Server to be a restricted resource of iChain, and you configure the Access Gateway to trust the Identity Server as its identity provider. The Access Gateway communicates with the Identity Server to obtain authentication credentials before allowing access to any resources it is protecting.

For resources that haven't been migrated, the browsers are directed to iChain to fulfill the Web resource requests. iChain prompts the user for login credentials, validates them, and if valid, grants access to the requested resource.

As you migrate resources, the Access Gateway is configured to use the same DNS names as you used for the iChain accelerators. As long as your DNS server is configured to resolve these DNS names to the iChain machine, your users access the resources through iChain. When you have completed the migration for one DNS name and have tested the results, you modify the record on the DNS server to resolve the DNS name to the IP address of the Access Gateway, rather than

iChain. Your users are redirected to Access Gateway, and they shouldn't notice any differences. Figure 10-3 illustrates this flow. The dotted lines represent redirected requests.

Figure 10-3 *The Flow of a Client Request to a Migrated Resource*



1. The user sends a request for a protected resource that has been migrated to the Access Gateway. The DNS server directs the request to the Access Gateway.
2. The Access Gateway determines that the user needs to be authenticated and directs the request to the Identity Server. Because the Identity Server is a restricted resource of iChain, the request is redirected to iChain
3. iChain prompts the user for login information and validates the user's login credentials with the LDAP user store.
4. To enable single sign-on, iChain uses OLAC to forward a basic authentication header to the Identity Server, and the Identity Server is configured to accept the basic authentication header instead of a name and password for authentication. (Form fill could be used instead of OLAC and basic authentication.)
5. The Identity Server validates the name and password with the LDAP user store.
6. The Access Gateway is sent the credential artifact.
7. The Access Gateway sends the artifact to the Identity Server and uses it to retrieve the authentication information and policy information specific to that user.
8. If the user's credentials match the requirements, the Access Gateway grants the user access to the protected resource.

Requirements and Restrictions

Hardware: This migration strategy has the following minimum hardware requirements:

- ❑ Identity Server machine
- ❑ Access Gateway machine
- ❑ Administration Console machine (unless installed with the Identity Server)

The Identity Server and the Access Gateway can be installed on the same machine if you select to use Linux. However, if you are protecting as many resources as this phased migration is planned for, we recommend that they be installed on separate machines.

IP Addresses: This migration strategy has the following IP address requirements:

- A new public DNS name and IP address for the iChain accelerator that is protecting the Identity Server.
- A DNS name and IP address for the Identity Server. During migration, the IP address and DNS name could be an internal address and name, accessible only behind your firewall.
- One new public IP address for the Access Gateway.

With this type of configuration, you can test your migrated resources, change the DNS name of the migrated resources to resolve to the Access Gateway, and not modify your iChain configuration. As soon as the DNS name change is propagated, users start accessing the resource through the Access Gateway. If you encounter problems, you can change the record on the DNS server to resolve to the iChain machine while you fix the problems.

Restrictions: This migration strategy has the following restrictions:

- If you are using path-based multi-homing, you must migrate all accelerators for a specified DNS name at the same time (the parent and the child). If you have multiple accelerators that use different DNS names, the migration can be done one accelerator at a time.
- You cannot use any external identity providers for authentication until iChain is removed from the configuration.

If you need fault tolerance, you can set up clustering any time during the migration process.You can wait until you have migrated a few resources, or you can set up fault tolerance before migrating any resources. See "A Phased Migration with an L4 Switch" on page 83.

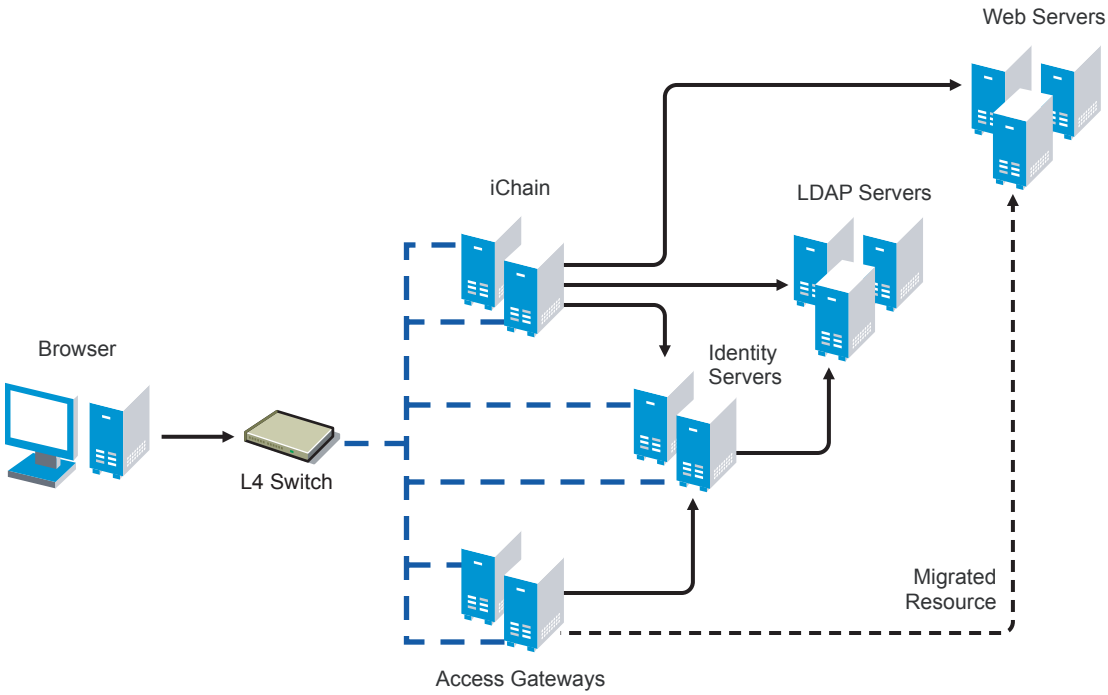
Major Tasks

- Install the software. You need an Administration Console (the Access Manager version of iManager), an Identity Server, and an Access Gateway.
- Set up a basic configuration. For instructions, see "Setting Up a Basic Access Manager Configuration" in the *Novell Access Manager 3.0 Setup Guide*.
- Set up the Identity Server to use the same LDAP directories and authentication methods as iChain. See Section 10.2.2, "Configuring the Identity Server for Authentication," on page 86.
- Configure the Access Gateway to have the same device settings as iChain. See Section 10.2.3, "Configuring System and Network Settings," on page 89.
- Migrate an accelerator with its resources from iChain to the Access Gateway. See Section 10.2.4, "Migrating the First Accelerator," on page 92.
- Configure iChain and the Identity Server so that the user can log in to iChain and access both iChain resources and Access Gateway resources. See Section 10.2.5, "Enabling Single Sign-On between iChain and Access Manager," on page 99.

A Phased Migration with an L4 Switch

If you have configured iChain behind an L4 switch, you need to set up a similar configuration for your Identity Server and Access Gateway machines. This can be done before you migrate any resources from iChain to the Access Gateway or after you have migrated some.

Figure 10-4 *Network Setup for a Migration with an L4 Switch*



The L4 switch determines which iChain, Identity Server, or Access Gateway machine the user accesses. After you have set up this type of configuration, you then migrate your resources using the same processes as you would use if the servers were not grouped or clustered.

Major Tasks

- ❑ Set up a cluster of Identity Servers. See "Clustering Identity Servers" in the *Novell Access Manager 3.0 Administration Guide*.
- ❑ Set up a group of Access Gateways. See "Configuring Access Gateways for Fault Tolerance" in the *Novell Access Manager 3.0 Setup Guide*.
- ❑ Configure the L4 switch for the servers in the Identity Server cluster and the Access Gateway group. See your L4 switch documentation.
- ❑ Migrate a resource. See Section 10.1.2, "Outlining the Migration Requirements for Each Resource," on page 84

A Staged Migration

Many companies have a staging area for deploying new products. The new products are configured and tested in this controlled environment. When the configuration meets the required needs, the machines are moved into the production environment and assigned new IP addresses. You can create such an environment for all components of the Access Manager except for the Access Manager Administration Console. It must be installed where it is going to be used; its IP address cannot

change, because that is what all the other components use to trigger auto import and to establish communications with the Administration Console.

If staging is a requirement, you should not install the Administration Console and the Identity Server on the same machine. The Identity Server can be set up in a staged environment and then moved to a production environment and assigned a new IP address. For these same reasons, the Administration Console and the Linux Access Gateway should not be installed on the same machine.

NOTE: By adding a second Administration Console with the IP address you want to use in a production environment, making it the primary Administration Console, then removing the first Administration Console, you can overcome the IP address limitation. You can then perform a reinstall on the first Administration Console and change its IP address. Rather than performing these steps, we highly recommend that you install your Administration Console using the IP address that it needs in a production environment.

10.1.2 Outlining the Migration Requirements for Each Resource

Before you migrate your resources from iChain to Access Gateway, you need to know exactly how iChain was configured to protect your resources. You should export and have available the following iChain files:

- `.nas` file
- Any custom rewriter files
- XML files for Form Fill policies and the source code of the associated HTML pages
- Certificates used for SSL

With the aid of these files, list how you have configured the proxy server for the following features:

- Time zone
- Caching (pin lists and purge lists)
- Log pushing
- Alerts (system and Novell® auditing)
- Tunneling
- FTP
- Telnet
- Custom login, logout, and error pages
- Network settings: IP addresses of DNS servers and the gateway (router)

For each accelerator, list how you have configured it for the following features:

- SSL or mutual SSL and the certificates used
- DNS name and IP address
- Logging
- If you use path-base multi-homing in iChain, list the child accelerators for each parent.

Then make a list of the resources the accelerator protects, and by each resource, list how the resource is being protected and how communication between the accelerator and the resource is enabled. List how you have configured it for the following features:

- DNS name. All protected resources which share the same DNS name must be migrated at the same time.
- Whether the hostname was forwarded
- Login required (authentication) or public
- URLs
- OLAC
- ACLCheck
- Form fill
- SSL or mutual SSL (and the certificates used)
- Custom HTML rewriter
- `rewriter.cfg` entries

You might want to use an LDAP browser to view the ACL objects in your directory. If you do not have an LDAP browser, free ones are available for download from the Internet.

For each protected application, determine the following:

- For applications residing on J2EE servers, investigate the J2EE Agent and determine if you want to use the J2EE Agent to protect these applications. See the *Novell Access Manager 3.0 J2EE Agent Guide*.
- For non-HTTP applications, investigate SSL VPN and determine if you want to use the SSL VPN server to protect these applications. See "Configuring the SSL VPN Gateway " in the *Novell Access Manager 3.0 Administration Guide*.

IMPORTANT: Support for NetIdentity authentication has been removed from Access Gateway. If your iChain environment uses NetIdentity authentication to support Zen for Desktops or simple background authentication for proxy login, you'll need to remove the NetIdentity dependencies before migrating to Access Gateway. If you are using NetIdentity only for background authentication to a back-end NetStorage server, this functionality will continue to work.

10.2 Migrating Components

This section describes the tasks you must complete to migrate iChain resources to Access Manager:

10.2.1 Setting Up the Hardware and Installing the Software

For details on hardware requirements and possible software configurations, see "Installation Requirements" on page 19.

For installation instructions, see

- "Installing the Access Manager Administration Console" on page 25
- "Installing the Novell Identity Server" on page 29
- "Installing the NetWare Access Gateway" on page 51
- "Installing the Linux Access Gateway" on page 31

If you are new to Access Manager, we suggest you set up a basic configuration before starting your migration strategy. See "Setting Up a Basic Access Manager Configuration" in the *Novell Access Manager 3.0 Setup Guide*.

If you are going to use SSL, these steps also assume that you have either created the required certificates or imported your third-party certificates.

- For information on how to configure Access Manager for SSL using certificates created by the the Access Manager CA, see "Enabling SSL Communication" in the *Novell Access Manager 3.0 Setup Guide*.
- For information on how to use certificates generated by external CAs, see "Replacing Identity Server SSL Certificates" and "Configuring the Access Gateway for SSL " in the *Novell Access Manager 3.0 Administration Guide*.

10.2.2 Configuring the Identity Server for Authentication

Before migrating resources, you need to configure the Identity Server to use the same LDAP user stores that iChain is using and configure the authentication profiles that you use for your iChain accelerators. The following sections describe these procedures:

- "Migrating Your Authentication Profiles" on page 86
- "Migrating the User Store Configuration" on page 87
- "Enabling the User Stores for Authentication Methods" on page 88
- "Migrating Custom Login Pages" on page 88

Migrating Your Authentication Profiles

You need to migrate authentication profiles that you set up in iChain. If you only set up one LDAP profile for secure name and password, this method is set up by default and you can continue with "Migrating the User Store Configuration" on page 87. If you set up multiple LDAP profiles, Radius (tokens), mutual SSL (X509 certificates), or NMAS™, you need to migrate these profiles.

iChain supports the ORing of profiles; a user can authenticate using one of two methods. The Identity Server does not support ORing of profiles. When you examine your iChain profiles, you need to decide whether to change the ORing to ANDing or to use just one method.

LDAP Authentication Profiles

Examine your iChain LDAP profiles (*Web App > Configure > Authentication > [Name of LDAP Profile] > Modify*). If you created multiple iChain authentication profiles for the same LDAP store using a different LDAP context or LDAP search base, you need to decide how you are going to migrate these profiles. Select one of the following methods:

- You can create multiple Identity Server user stores, one for each LDAP context or search base. To create multiple user stores, repeat the procedure described in "Migrating the User Store Configuration" on page 87. In Step 3, specify a different LDAP context or search base for each user store.
- You can create authorization policies that restrict access according to the context of the user. To create this type of policy, see "LDAP Context Policies" in the *Novell Access Manager 3.0 Administration Guide*.
- You can create Identity Server roles that match an LDAP context, then create authorization policies that restrict access based on the user's current roles. For information on creating such a role, see "Managing Policies" in the *Novell Access Manager 3.0 Administration Guide*.

SSL Mutual Authentication

If you used SSL mutual authentication in iChain, you need to configure the Identity Server for this method. Examine your SSL authentication profiles in iChain (*Web App > Configure > Authentication > [Name of SSL Profile] > Modify)*.

To migrate this configuration to the Identity Server, see "Creating an X.509 Authentication Class" in the *Novell Access Manager 3.0 Administration Guide*.

Radius (Token) Authentication

If you used Radius authentication in iChain, you need to configure a contract for this method. Examine your Radius authentication profile in iChain (*Web App > Configure > Authentication > [Name of Radius Profile] > Modify)*.

For Identity Server configuration information, see "Creating a RADIUS Authentication Class" in the *Novell Access Manager 3.0 Administration Guide*.

Migrating the User Store Configuration

1. In the Administration Console, create an Identity Server User Store for each unique iChain LDAP Store.
   - **1a** Click *Identity Servers > [Configuration] > Local > New*.
   - **1b** Specify the DN of the user and the user's password that you want the Identity Server to use when logging into the LDAP server.
   - **1c** Select the type of directory that matches your LDAP server.
2. Add a replica to the user store for each LDAP server address in the iChain LDAP store configuration. In the *Server replicas* section, click *New* and specify the required information.

   You must enter at least one IP address for your LDAP server. If the LDAP directory has been replicated to other servers, enter their IP address information.
3. Add a search context.
   - Use a scope of *Subtree* for an iChain LDAP search base.

- Use a scope of *One Level* for an iChain LDAP context.

4. To save the configuration, click *Finish*.
5. If you used more than one LDAP directory in iChain, repeat these steps and create a user store for each LDAP directory.
6. Continue with "Enabling the User Stores for Authentication Methods" on page 88.

Enabling the User Stores for Authentication Methods

1. Click *Identity Servers* > *[Configuration]* > *Local* > *Methods*.
2. Select the *Identifies User* option.
3. Click the name of the method you want to enable.
4. Select the user stores in the list of available stores and use the left-arrow to move them to the list of user stores.
5. In the list of *User stores*, use the up-arrow and the down-arrow to arrange the order in which the user stores are searched.
6. Click *Apply*.
7. Repeat Step 3 through Step 6 for any other authentication methods you want to enable for login.
8. If you used custom login pages in iChain, continue with "Migrating Custom Login Pages" on page 88. Otherwise, continue with Section 10.2.3, "Configuring System and Network Settings," on page 89.

Migrating Custom Login Pages

If you used custom login pages in iChain, you need to convert the HTML login page to a JSP page, then associate the JSP page with a class or method that is used to create a contract. You then select this contract for a protected resource, and on first access to that resource, the custom login page is displayed to the user.

Custom Login Page: iChain uses HTML for its login page. Access Manager uses JSP. The default login page for Access Manager is the `login.jsp` file, located in the `/var/opt/novell/tomcat/webapps/nidp` directory. The easiest way to create a new login page is to copy this default page, rename it, then modify it to match your requirements. This page has been designed for the Basic and Protected classes.

Class or Method Properties: The authentication classes and methods support properties. The Radius and Protected classes support a JSP property. You can use other classes, but if you want to create a custom login page, you must select a class that supports the JSP property.

You add this property to either the class, or to the method derived from the class. For its value you use the filename of the custom login page you created. If you set the property on the class, you need to create a method that uses the class, then a contract that uses the method.

Contract: In iChain, the custom login page was associated with an accelerator and its location was specified in the *Custom login page location* option on the Web Server Accelerator page. In Access Gateway, the login page is associated with a protected resource, which opens the possibility of having a different login page for each protected resource. You select the login page for the resource by selecting the contract.

For more information, see "Creating Custom Login Pages" in the *Novell Access Manager 3.0 Administration Guide*.

10.2.3 Configuring System and Network Settings

To configure the Access Gateway to match the system and network settings you have set up in iChain, you can either manually look at your iChain settings or export and print the `.nas` file and use it as a guide.

We suggest that you set up the Access Gateway to behave in a manner similar to iChain before you begin to migrate resources. However, this is optional. If the default system and network settings in Access Gateway are acceptable, you can skip these steps until later in your migration process except for Date & Time. If you have installed the Identity Server and the Access Gateway on separate machines, authentication requests fail if time is not configured accurately and synchronized.

- To configure the time for the Access Gateway, see Date & Time.
- To configure the time for the Identity Server, use the YAST utility.

Network Settings

This section describes the differences between network settings for iChain and Access Gateway and the paths to access the following settings:

- "DNS Servers" on page 89
- "Gateways" on page 89
- "Telnet" on page 90
- "IP Addresses" on page 90

DNS Servers

iChain Path	Access Gateway Path
Web App > Network > DNS	Access Gateways > [Edit] > DNS

Both products have the same options. You can add up to three DNS servers that the machine can use to resolve names. You can also configure the same advanced options that control the caching of DNS names.

Gateways

iChain Path	Access Gateway Path
Web App > Network > Gateways / Firewalls	Access Gateways > [Edit] > Gateways

Both products have the same gateway options. The NetWare® Access Gateway does not support SOCKS clients. The Linux Access Gateway does.

Telnet

iChain Path	Access Gateway Path
Must be enabled from the command line: `set listener telnet enable=yes`	Access Gateways > [Edit] > Console Access

Telnet is inherently non-secure because everything is transmitted in clear text. If you have enabled Telnet in iChain, we recommend that you disable it in Access Gateway and use SSH instead, which supports data encryption. You enable SSH on the Console Access page of the NetWare Access Gateway. The Linux Access Gateway does not support the Telnet and SSH options.

IP Addresses

iChain Path	Access Gateway Path
Web App > Network > IP Addresses	Access Gateways > [Edit] > Adapter List

Both products allow you to add IP addresses to existing adapters and configure their subnet masks and options for speed and duplexing. The biggest difference is in how the TCP options are configured.

- In iChain, the TCP options are associated with an adapter.
- In Access Gateway, TCP Options are associated with a reverse proxy. See *Access Gateways > Edit > [Name of Reverse Proxy] > Listen Options*.

System Settings

In iChain, you could configure the following settings from system settings: Timezone, Date/Time, Actions, SNMP, Import/Export, Upgrade, Alerts, and Admin ACL. The Access Gateway does not support the Import/Export option or the Admin ACL option. Access Manager does allow you to backup the complete configuration and restore it. See "Backing Up and Restoring the Configuration Store" in the *Novell Access Manager 3.0 Administration Guide*.

Both products allow you to configure the following system settings:

- Date & Time (includes time zone)
- Upgrade
- Actions
- Alerts
- SNMP

Date & Time

iChain Path	Access Gateway Path
Web App > System > Date / Time Web App > System > Timezone	Access Gateways > [Edit] > Date & Time

Both products allow you to set the date and time, set up an NTP server, and configure the time zone. Time synchronization is critical if you have installed the Identity Server and the Access Gateway on separate machines. The authentication process, which relies on the exchange of credentials and authentication assertions, fails when the two have a time discrepancy of more than one minute. We recommend that you set up both machines to use NTP and that you verify the time zone of each.

Upgrade

iChain Path	Access Gateway Path
Web App > System > Upgrade	Access Gateways > [Server Name] > Actions > Upgrade

Both iChain and the NetWare Access Gateway have the same options. You can enter the URL where the upgrade files are located and then select to upgrade immediately or schedule the upgrade for a later date. You can also back up to the previous version.

The Linux Access Gateway uses a script to download the upgrade RPMs from a server and upgrade the gateway. See Section 8.3, “Upgrading the Linux Access Gateway,” on page 65.

Actions

iChain Path	Access Gateway Path
Web App > System > Actions	Access Gateways > [Server Name] > Actions

Both products support actions that purge the cache and restart or shutdown the machine. Most of these options are not configurable; you just need to learn the new location and the new names.

Alerts

iChain Path	Access Gateway Path
Web App > System > Alerts	Access Gateways > [Edit] > Legacy Alerts or Alerts

Both products have the same options. You can configure Access Gateway to use a Syslog server, send e-mail notifications to a specified list of users, and select the same types of alerts.

SNMP

iChain Path	Access Gateway Path
Web App > System > SNMP	Access Gateways > [Edit] > SNMP

Both products have the same options. You can allow the community Read access to monitor the state of the Access Gateway, allow the community Write access to the control states of the Access Gateway, and allow traps to be sent.

10.2.4 Migrating the First Accelerator

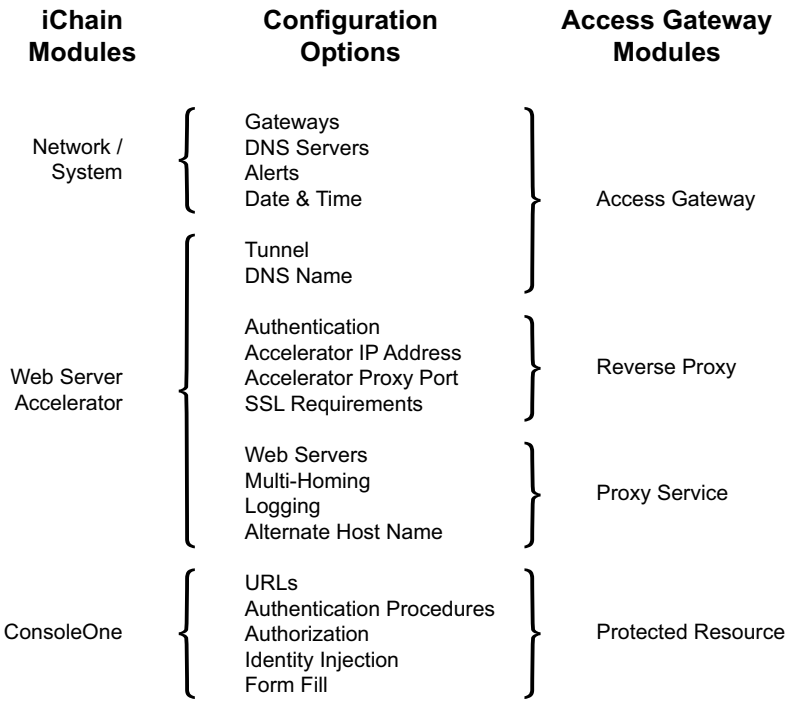
For your first accelerator, we suggest that you select the one with the fewest configuration requirements. If possible, select one that has only a few child accelerators (path-based or domain-based multi-homing accelerators) and does not require Form Fill or have complex access control policies.

IMPORTANT: All accelerators that use the same DNS name must be migrated at the same time.

The first migration task is to create a reverse proxy on your Access Gateway machine that mirrors the accelerator on your iChain machine. In the beginning, you can set it up to require only authentication because only you will know the URL of this migrated resource. When you know that this works, you can configure its protected resources to use the more advanced access control policies.

As you are configuring the reverse proxy, one of the big differences you'll notice between Access Gateway and iChain is the number of components. In iChain, you have a Web accelerator with protected resources. In Access Gateway, you have a reverse proxy with proxy services that have protected resources. Figure 10-5 illustrates the configuration differences between iChain and Access Gateway.

Figure 10-5 *Configuration Options for iChain and Access Gateway*



Because of these differences, migrating your iChain configuration can involve modifying the Access Gateway, reverse proxy, proxy services, and protected resource configurations. The following sections describe the required tasks:

- "Setting Up Certificates" on page 93
- "Migrating the Parent Accelerator" on page 93
- "Migrating the Path-Based Multi-Homing Accelerators" on page 96

- "Migrating the Protected Resources" on page 97
- "Testing the Migrated Resources" on page 99
- "Enabling User Access to the Migrated Resources" on page 99

Setting Up Certificates

To enable SSL for Access Gateway connections (from the browser to Access Gateway and from Access Gateway to the Web servers), you need to provide certificates:

- If you are using third-party certificates in iChain, you can import these certificates into Access Gateway. You can import all the certificates at once or you can import a certificate as you migrate a specific accelerator and its children. For information on importing certificates into Access Gateway, see "Importing a Private/Public Key Pair" in the *Novell Access Manager 3.0 Administration Guide*.
- You can use the certificate authority in Access Gateway to create the certificates. For instructions, see "Creating Certificates" in the *Novell Access Manager 3.0 Administration Guide*. When you are done with the migration process, you can upgrade these certificates to a higher grade certificate.

Migrating the Parent Accelerator

A parent accelerator is an accelerator in iChain that has a unique DNS name:

- If you used domain-based multi-homing in iChain, the parent accelerator is the first accelerator that you created with a host name prepended to the common domain name (test prepended to mycompany.com to create test.mycompany.com for the DNS name of the accelerator). The child accelerators are those that use the common domain name and prepended other host names such as sales.mycompany.com and dev.mycompany.com.
- If you used path-based multi-homing in iChain, the parent accelerator is the accelerator that defines the DNS name (for example, www.acme.com), and the child accelerators are those that use the DNS name with an appended path (for example, www.acme.com/sales and www.acme.com/products).

To migrate a parent accelerator:

1. In the Administration Console, click *Access Gateways* > *[Edit]* > *Reverse Proxy / Authentication.*
2. For the Trusted Identity Configuration, select the configuration you set up in Section 10.2.2, "Configuring the Identity Server for Authentication," on page 86.
3. The *Logout URL* is empty until you create a reverse proxy. If you have multiple reverse proxies, the URL corresponds to the reverse proxy that you have selected for authentication.
4. Click *New*, specify a display name for the reverse proxy, then click *OK*. There is no equivalent field in iChain.
5. To configure the reverse proxy communications between the browsers and the Access Gateway, fill in the following fields. (For iChain values, in the Web App click *Configure* > *Web Server Accelerator* > *[Name of Accelerator]* > *Modify*).

iChain Accelerator Parameter	Reverse Proxy Parameter
Accelerator IP addresses	*Listening Address(es)*: If the Access Gateway is a member of a group, you need to select each group member and configure a listening address. *Use SSL for Authentication*: This option is available only for the first reverse proxy created for an Access Gateway.
Enable Secure Exchange	*Enable SSL between Browser and Access Gateway* *Auto-generated key*: This option is not available in iChain. You can use this option to automatically generate a certificate.
Certificate	*Key with the Select Certificate* icon: Click the icon and select the certificate that you have set up for the proxy service.
SSL listening port	*Secure Port*
Accelerator proxy port	*Non-Secure Port*

The TCP Listen Options cannot be configured until after you have created a proxy service.

6 To create a proxy service with the accelerator values, click *New* and fill in the following fields:

iChain Accelerator Parameter	Reverse Proxy Parameter
Name	*Proxy Service Name*: In iChain, the accelerator name can only be 8 characters. In Access Gateway, the name can be up to 32 characters.
DNS Name	*Published DNS Name*: These instructions assume that you specify the same name as the value in iChain.
Web server addresses	*Web Server IP Address*
Alternate host name: selected	*Host Header: Web Server Host Name*
Alternate host name: deselected	*Host Header: Forward Received Host Name*
Alternate host name text box	*Web Server Host Name*

7 Click *OK* and configure the proxy service.

iChain Accelerator Parameter	Proxy Service Parameter
DNS Name	*Published DNS Name* *Description*
Cookie domain	*Cookie Domain*

8 Click HTTP Options and configure the following fields:

iChain Accelerator Parameter	HTTP Options Parameter
Allow Pages to Be Cached at the Browser	*Allow Pages to Be Cached by the Browser*
Forward Browser IP address in Request Header [X-Forwarded-For]	*Enable X-Forwarded-For*
	Enable Custom Cache Control Header: iChain does not support this feature, which allows you to add custom headers to your HTML pages and specify a caching policy.

9 Click *Global Cache Options* and configure the following fields. (For iChain values, click *Configure* > *Tuning* or *Configure* > *Management* in the Web App.)

iChain Accelerator Parameter	Web Servers Parameter
Do not cache objects with ? in the URL	*Enable Caching of Objects with a Question Mark*
Do not cache objects with /cgi in the path	*Enable Caching of Objects with CGI in The Path*
Ignore Refresh Requests from Browser	*Refresh Request from Browser*
	Enable Filter Cookies
Enable Initial Splash Screen	*Enable Initial Splash Screen*
Act as a Single User (Private) Cache	*Act as Single User (private) Cache*
Enable Read-Ahead Images Embedded in the Page	*Enable Read-Ahead Images Embedded in the Page*
	Maximum Number of Concurrent Read-Ahead Requests
Configure > Tuning > Cache Freshness	*Cache Freshness*: The options are identical except that for iChain they apply to all accelerators and for the Access Gateway they can be set for each proxy service.

10 Click *OK* > *Web Servers,* and configure the following fields:

iChain Accelerator Parameter	Web Servers Parameter
Return Error if Host Name Sent by Browser Does Not Match above DNS Name	*Error on DNS Mismatch*
Insert button for Web server addresses	*New* in the *Web Server List* table
Secure Exchange Options > Enable secure access between the iChain Proxy and the Origin Web Server	*Connect Using SSL*
Secure Exchange Options > Port (field between the iChain proxy and the Origin Web Server)	*Connect Port*
	Web Server Trusted Root

iChain Accelerator Parameter	Web Servers Parameter
Authentication Options > [Name of Profile] > Modify	*SSL Mutual Certificate*: In iChain, the certificate is part of the authentication profile.

11 Click *TCP Listen Options* and configure the fields.

iChain supports these same options. To view how you configured them in iChain, click *Network > IP Addresses > TCP Options* in the Web App.

12 To save these changes, click *Configuration Panel > Apply Changes*.

13 If this accelerator has child accelerators, continue with "Migrating the Path-Based Multi-Homing Accelerators" on page 96. If doesn't have any child accelerators, continue with "Migrating the Protected Resources" on page 97.

Migrating the Path-Based Multi-Homing Accelerators

Path-based multi-homing accelerators are migrated as proxy services of the reverse proxy that specifies their DNS name.

1 In the Administration Console, click *Access Gateways > Edit > [Name of Reverse Proxy]*.

The Proxy Service List should display the name of the parent accelerator as its first proxy service.

2 Click *New* and fill in the following fields. (For iChain values, click *Configure > Web Server Accelerator > [Name of Accelerator] > Modify* in the Web App.)

iChain Accelerator Parameter	Reverse Proxy Parameter
Name	*Proxy Service Name:* In iChain, the accelerator name can only be 8 characters. In Access Gateway, the name can be up to 32 characters.
Multi-homing Options > Path-based multi-homing	*Multi-Homing Type > Path-Based*
Multi-homing Options > Sub-path match string	*Path*
Web server addresses	*Web Server IP Address*
Alternate host name: checked	*Host Header: Web Server Host Name*
Alternate host name: unchecked	*Host Header: Forward Received Host Name*
Alternate host name text box	*Web Server Host Name*

3 Click OK and fill in the following fields:

iChain Accelerator Parameter	Reverse Proxy Parameter
Multi-homing Options > Remove sub-path from URL	*Remove Path on Fill* *Reinsert Path in "set-cookie" Header*

4 To save these changes, click *Configuration Panel > Apply Changes*.

5 Continue with "Migrating the Protected Resources" on page 97.

Migrating the Protected Resources

In iChain, the ISO object holds the protected resources. You use ConsoleOne® to manage the ISO object. You can configure each protected resource to be public, restricted, or secure. iChain could additionally use LDAP information to authorize access.

In Access Gateway, protected resources are not global like iChain; they are assigned to a specific proxy service (which is like an iChain accelerator). Novell Access Manager centralizes the authorization policies and authentication procedures, which can then be assigned to specific protected resources. These policies are greatly expanded and can do much more than the iChain policies. In addition, you do not need to change tools. You configure everything in Novell Access Manager with the Administration Console. In particular, you configure both the protected resources and the policies in the Administration Console.

Because iChain protected resources are global and associated with a DNS name, you need to migrate all the protected resources associated with a DNS name at the same time. The following sections describe how to migrate the protected resources:

- "Migrating a Public Resource" on page 97
- "Migrating a Restricted Resource" on page 98
- "Migrating a Secure Resource" on page 98

Examine your iChain protected resources, and then select the appropriate migration strategy for that resource. If possible, we suggest you migrate a public resource, then a restricted resource. After you have seen the process work for these types of resources, you can migrate your secure resources. The policies that make these resources secure must be re-created in the Administration Console.

Migrating a Public Resource

A public resource is a resource that requires no login procedures or authorization policies.

To migrate these protected resources:

1. In the Administration Console, select the Access Gateway, then click *[Edit] > [Name of Reverse Proxy] > [Name of Proxy Service] > Protected Resources > New*.
2. Specify a display name for the resource. This can be the same name you used for the resource in iChain.
3. (Optional) Specify a description for the protected resource.
4. In the Contract field, select *None*.

   The *Contact* field must be set to *None*. This is what makes this resource a public resource.
5. Configure the URL Path List.

   The default path is `/*`, which allows access to everything on the Web server. Modify this to match your iChain value.
6. Click *OK* twice.
7. In the *Protected Resource List*, verify that the resource you created is enabled.
8. At the bottom of the page, select *Configuration Panel*, then click *OK*.
9. On the Server Configuration page, select *Apply Changes*, then click *OK*.

10 Continue with "Migrating a Restricted Resource" on page 98, or to test the resource you have migrated, continue with "Testing the Migrated Resources" on page 99.

Migrating a Restricted Resource

A restricted resource is a resource that requires a login procedure but not an authorization policy. In iChain, these are the resources you configured with ConsoleOne.

To migrate these protected resources:

1 In the Administration Console, select the Access Gateway, then click *[Edit] > [Name of Reverse Proxy] > [Name of Proxy Service] > Protected Resources > New*.

2 Specify a display name for the resource. This can be the same name you used for the resource in iChain.

3 (Optional) Specify a description for the protected resource.

4 Select the type of contract, which determines the information a user must supply for authentication. During installation, the following contracts and options are set up:

- **None:** If you want to allow public access to the resource and not require authentication, select *None* as the contract.
- **Any Contract:** If the user has authenticated, allows any contract defined for the Identity Server to be valid, or if the user has not authenticated, prompts the user to authenticate using the default contract assigned to the Identity Server configuration.
- **Name/Password - Basic:** Specifies basic authentication over HTTP using a standard login pop-up screen provided by the Web browser.
- **Name/Password - Form:** Specifies a form-based authentication over HTTP using the Access Manager login form.
- **Secure Name/Password - Basic:** Specifies basic authentication over HTTPS using a standard login pop-up screen provided by the Web browser.
- **Secure Name/Password - Form:** Specifies a form-based authentication over HTTPS using the Access Manager login form.

If you have created others, they appear in the list. If the type of contract you require is not displayed in the list, see "Migrating Your Authentication Profiles" on page 86.

5 Configure the *URL Path List*. Add the path or the paths you want protected by this contract.

6 Click *OK* twice.

7 In the *Protected Resource List*, verify that the resource you created is enabled.

8 At the bottom of the page, select *Configuration Panel*, then click *OK*.

9 On the Server Configuration page, select *Apply Changes*, then click *OK*.

10 Continue with "Migrating a Secure Resource" on page 98, or to test the resource you have migrated, continue with "Testing the Migrated Resources" on page 99.

Migrating a Secure Resource

A secure resource is a resource that requires a login procedure and an authorization policy. The authorization policy can specify Form Fill parameters, information to be injected into the HTML header (called OLAC in iChain), or additional criteria the user must match to access the resource (called ACLCheck in iChain). See Section 10.2.6, "Migrating Resources with Special Configurations," on page 102.

Testing the Migrated Resources

1. On the workstation where you are going to test the migrated resources, edit the `hosts` file so that the DNS name you have migrated resolves to the IP address of the Access Gateway:
   - If you are using a Windows workstation, the `hosts` file is located in `C:\Windows\System32\drivers\etc\hosts`.
   - If you are using a Linux workstation, the `hosts` file is located in `/etc/hosts`.
2. From this workstation, request access to all the resources you have migrated.

   If you have various login profiles for your users, log in with each profile to ensure that you have access to the correct resources.

Enabling User Access to the Migrated Resources

If you want to create a single sign-on environment, you need to create an accelerator in iChain that protects the Identity Server. See Section 10.2.5, "Enabling Single Sign-On between iChain and Access Manager," on page 99.

If you are going to install an L4 switch so you can create a cluster of Access Gateways, you might want to install it before allowing public access to the migrated resource. You can use the L4 switch to determine which IP address the DNS name resolves to. The public DNS server resolves the DNS name of the migrated resource to the L4 switch, and the L4 switch determines whether that DNS name is sent to iChain or to the Access Gateway.

If it is acceptable for your users to authenticate to iChain for iChain resources and to use a separate authentication to access the resources migrated to the Access Gateway, complete the following steps:

1. Change how the migrated resources are resolved:
   - If you are using an L4 switch, change the VIP for the migrated resource so that it points to the Access Gateway.
   - If you aren't using an L4 switch, change the entry on your DNS server so that the DNS name you have migrated points to the IP address of the Access Gateway.
2. Monitor your users and see if they have any problems.
   - If they experience problems that you can't fix immediately, you can change the entry on the DNS server to again point to iChain and do more testing before enabling Access Gateway authentication.
   - If your users do not experience problems, use the Web application for iChain to disable the accelerator and child accelerators that you have migrated.

10.2.5 Enabling Single Sign-On between iChain and Access Manager

To enable single sign-on between iChain and Access Manager, you need to create an accelerator in iChain that protects the Identity Server. You also need to create a policy that supplies the authentication information. The following steps use OLAC, which is sufficient if your back-end Web servers are using basic authentication. You can also use Form Fill. If you prefer to use Form Fill, skip Step 7 and see "Using Form Fill instead of OLAC for Single Sign-On" on page 101.

1. In the iChain Web application, click *Configure* > *Web Server Accelerator* > *New*.

2 Configure the following fields:

DNS name: Set this to the DNS name specified for the domain name in the Base URL configuration for the Identity Server.

IMPORTANT: The Base URL for the Identity Server must be configured to use a domain name. If you used an IP address for the domain name when you configured the Identity Server, you must modify the Base URL configuration to use a domain name.

Alternate host name: Set this to the DNS name specified for the domain name in the Base URL configuration for the Identity Server.

Return error if host name sent by browser does not match above DNS name: Select this option.

Web server addresses: Set this to the IP address of your Identity Server.

Accelerator proxy port: Set this to the HTTP or HTTPS port value you specified in the Base URL configuration for the Identity Server. The default value is 8080 for HTTP and 8443 for HTTPS.

Enable authentication: Select this option to enable authentication between iChain and the Identity Server.

Enable Secure Exchange: Select this option to enable SSL between the browsers and iChain.

SSL listening port: Set this to the HTTPS port value you are going to use for this accelerator. The default value is 443.

3 Click *Secure Exchange Options* and make sure the protocol (HTTP or HTTPS) and port match the Base URL protocol specified in the Base URL configuration for the Identity Server.

4 Click *Authentication Options* and set the *Maximum idle time before requiring a new login*.

Set this idle time to the same value you set the Session timeout for the Identity Server.

To verify the Identity Server value, in the Administration Console, click *Access Manager > Identity Servers > Setup > [Configuration]* and view the value for the *Session timeout* field.

5 Enable *Forward authentication information to web server*, and add the LDAP profile to the *Service profiles* list.

If you want to AND any other profiles with LDAP, add them to the *Service profiles* list, then click *OK*.

This enables the Identity Server to use the iChain authentication credentials for Identity Server authentication. This only works if you are using an LDAP profile or an LDAP profile ANDed with another profile. For more information, see "Limitations of the Forward Authentication Method" on page 102.

6 To save the configuration, click *OK*.

7 In iChain ConsoleOne, create a protected resource for the Identity Server accelerator.

7a Select the ISO object and access the *Protected Resources* page.

7b Add a protected resource. For the URL, use the domain name that you specified for the Base URL of the Identity Server followed by a /*. For example if your domain name for the Identity Server is users.acme.com, you would enter

```
users.acme.com/*
```

7c Mark the protected resource as restricted.

7d Add an OLAC parameter with the following values:

Name: ICHAIN_UID

Data Source: ldap

Value: cn

This enables basic authentication for single sign-on.

7e Save the configuration.

8 In the iChain Web application, enable OLAC. Click *Configure* > *Access Control*, then select *Enable Object Level Access Control* (OLAC).

9 On your DNS server, add an entry so that the domain name specified in the Base URL for the Identity Server resolves to the iChain accelerator IP address.

The domain name in the Base URL for the Identity Server needs to resolve to the iChain accelerator IP address until the migration is completed and iChain is removed. When iChain is removed, the domain name of the Base URL for the Identity Server needs to resolve to the IP address of the Identity Server.

10 On your Access Gateway machine, modify the hosts file (found in the `etc` directory). Add an entry so that the Access Gateway can resolve to the DNS name of the Identity Server directly.

This allows the Access Gateway to resolve the DNS name of the Base URL of the Identity Server.

Using Form Fill instead of OLAC for Single Sign-On

You can use Form Fill instead of OLAC to provide the authentication information. Your Form Fill policy should look similar to the following:

```
<urlPolicy>
   <name>Identity Provider login</name>
   <url>ncsles9.suse.de/nidp/idff/sso</url>
   <formCriteria>
      <title>Access Manager 3.0 Login</title>
   </formCriteria>
   <javaScript></javaScript>
   <scriptForPost></scriptForPost>
   <actions>
      <fill>
         <input name="Ecom_User_ID" value="~cn">
         <input name="Ecom_Password" value="~password">
     </fill>
     <post/>
   </actions>
</urlPolicy>
```

You need to modify the domain name (ncsles9.suse.de) of the `<url>` element to match the domain name of your Identity Server.

In addition to the Form Fill policy, you need a Login Failure policy. The Login Failure policy should precede the Form Fill policy in the XML file.

```
<urlPolicy>
   <name>IDP Failure</name>
   <url>ncsles9.suse.de/nidp/idff/sso</url>
   <formCriteria>Login failed, please try again. If you continue
      to be unable to login, please contact your system
      administrator.</formCriteria>
```

```
   <actions>
      <deleteRembered>Identity Provider login</deleteRembered>
      <redirect>ncsles9.suse.de/nidp/idff/sso</redirect>
   </actions>
</urlPolicy>
```

The <deleteRembered> element should only be used if you are using shared secrets. The value of this element is the name of the Form Fill policy (in this example, Identity Provider login). If you are using some other mechanism such as LDAP attributes instead of shared secrets, the <redirect> element should be used to redirect your users to your password management URL.

The domain name of the Identity Server (ncsles9.suse.de) needs to be replaced and match the domain name of your Identity Server in the <url> and <redirect> elements.

Limitations of the Forward Authentication Method

Enabling the *Forward authentication information to web server* option has the following limitations:

- All authentication to the iChain accelerator for the Identity Server must be the same.
- Single sign-on to the Identity Server is done through Name/Password - Basic contract and no other credentials if you are using OLAC. If you are using Form Fill, other options are available.

These limitations, if your iChain resources use other authentication methods, impose the following restrictions on your migration plans.

- Single sign-on is not possible with Token (Radius) authentication unless you AND it with LDAP authentication.
- Single sign-on is not possible with X509 (SSL Mutual) authentication unless you AND it with LDAP authentication.
- Single sign-on is not possible with multiple accelerators using dissimilar authentication configurations.

  The workaround is to choose the most common authentication configuration and migrate all accelerators using that configuration. All other accelerators must be migrated at the same time that iChain is removed from the environment, or if you select to move them one at a time, there is no single sign-on for those accelerators until iChain is removed.

10.2.6 Migrating Resources with Special Configurations

The following sections describe how to configure resources which require such features as Form Fill and ACLCheck.

- “URLs Requiring Form Fill” on page 103
- “URLs Requiring OLAC” on page 105
- “URLs Requiring ACLCheck” on page 108
- “URLs Requiring HTML Rewriting” on page 111
- “Migrating Citrix Clients” on page 112
- “Migrating Protected Resources for J2EE Servers” on page 112
- “Migrating Protected Non-HTTP Applications” on page 113
- “Migrating Custom OLAC Drivers” on page 113

URLs Requiring Form Fill

There is no tool to convert the XML files for iChain Form Fill policies to Access Gateway policies. The tables below explain where the information in the iChain policy should be entered in the Access Gateway policy.

Table 10-1 *Form Fill Policy Tags*

Tag or Tag/Attribute	Access Gateway Field
`<formName>`	In the *Form Selection* section, select *Form Name* and specify the value in the text box.
`<formNum>`	In the *Form Selection* section, select *Form Number* and specify the number in the text box
`<cgiCriteria>`	In the *Form Selection* section, select the *CGI Matching Criteria* field. Copy the text between the `<cgiCriteria>` and the `</cgiCriteria>` tags into the text box.
`<formCriteria>`	In the *Form Selection* section, select the *Form Matching Criteria* field. Copy the text between the `<formCriteria>` and the `</formCriteria>` tags into the text box.
`<input name="">`	Specify the value in the *Input Field Name* of the *Fill Options* section.
`<select name="">`	Specify the value in the *Input Field Name* of the *Fill Options* section.
`<input type="">`	Select the type in the *Input Field Type* field of the *Fill Options* section. For an `<input>` tag, select *Text, Password, Checkbox*, or *Radio Button*.
`<select type="">`	Select the type in the *Input Field Type* field of the *Fill Options* section. For a `<select>` tag, select *Select*.
`<input value="">` or `<select value="">`	To specify a value, use the *Input Field Value* field of the *Fill Options* section. You can select one of the following value types: ◆ **Credential Profile:** If you select this type, you must select either LDAP or X509 credentials, then select the credential. ◆ **LDAP Attribute:** If you select this type, you must specify the attribute that contains the value. ◆ **Liberty User Profile:** If you select this type, you must specify the Liberty attribute that contains the value. ◆ **Shared Secret:** If you select this type, you must also specify a shared secret store that is used to store the name-value pair. If you haven't created a shared secret store, you can create one. The user is prompt to supply the value on first access; thereafter the shared secret supplies the value.
`<input ff_lower_upper ="">` `<select ff_lower_upper ="">`	To modify the case of an entered value, use the *Data Conversion* field of the *Fill Options* section. Select the appropriate value from the drop-down list.

Tag or Tag/Attribute	Access Gateway Field
<injectStaticValue>	To inject a static value, select *Insert Text in Header* in the *Submit Options* section.
<debugPost/>	To enabled a debug post, select the *Debug Mode* field in the *Submit Options* section.
<maskedPost/>	To mask the post data, select the *Mask Data* field in the *Submit Options* section.
<javaScript>	To retain Java script from the original page, select the *Functions to Keep* field in the *Submit Options* section. The *Enable JavaScript Handling* field must be enabled to modify the *Functions to Keep* field. Copy the text between the <javaScript> and the </javaScript> tags into the text box of the *Functions to Keep* field.
<scriptForPost>	To specify additional functions to be executed prior to the posting of the form, select the *Statements to Execute on Submit* field of the *Submit Options* section. The *Enable JavaScript Handling* option must be enabled to modify the *Statements to Execute on Submit* field. Copy the text between the <scriptForPost> and the </scriptForPost> tags into the text box.
<errorRedirect>	To redirect the user when an LDAP or NSSS error occurs, select the *Redirect to URL* field of the *Error Handling* section. Copy the text between the <errorRedirect> and </errorRedirect> tags to the text box of the *Redirect to URL* field.
<urlPolicy>	This is the Form Fill policy.
<url>	You assign the Form Fill policy to a protected resource. The protected resource page has a *URL Path List* where you specify the URL.

Table 10-2 *Form Login Failure Policy Tags*

Tag or Tag/Attribute	Access Gateway Field
<formName>	In the *Form Selection* section, select *Form Name* and specify the value in the text box.
<formNum>	In the *Form Selection* section, select *Form Number* and specify the number in the text box
<cgiCriteria>	In the *Form Selection* section, select the *CGI Matching Criteria* field. Copy the text between the <cgiCriteria> and the </cgiCriteria> tags into the text box.
<formCriteria>	In the *Form Selection* section, select the *Form Matching Criteria* field. Copy the text between the <formCriteria> and the </formCriteria> tags into the text box.

Tag or Tag/Attribute	Access Gateway Field
`<redirect>`	To redirect the user on login failure, select the *Redirect to URL* field in the *Login Failure Processing* section. Copy the URL between the `<redirect>` and `</redirect>` tags to the text box of the *Redirect to URL* field.
`<deleteRemembered>`	To delete the user's stored data for a Form Fill policy, select the *Clear Shared Secret Data Values from Policy* in the *Login Failure Processing* section.
`<urlPolicy>`	This is the Form Fill policy.
`<url>`	You assign the Form Fill policy to a protected resource. The protected resource page has a URL Path List where you specify the URL of the page containing the form.

For more information, see "Creating Form Fill Policies" in the *Novell Access Manager 3.0 Administration Guide*.

NOTE: Do not migrate your Form Fill policy for Citrix* clients. The Access Gateway uses a different process for enabling single sign-on for Citrix clients. For more information, see "Migrating Citrix Clients" on page 112.

URLs Requiring OLAC

OLAC is called *identity injection* in Novell Access Manager. Information can be injected in one of several ways: authorization header, custom header (name-value pairs), custom headers with tags (tag name-value pairs), or query strings. iChain has the ability to inject constants and authentication profiles from the authenticated directory user. Access Gateway has the ability to inject these and other new types of data.

Identity injection allows you to add information to the HTML header or to the query string of the URL before the request is sent to the Web server. The Web server can use this information to create dynamic pages customized to the user or to determine whether the user should have access to the resource. The Web server determines the information that you need to inject. The following sections provide the information you need to migrate your OLAC policies to Access Manager.

Policy Comparison between iChain and Access Gateway

The following table lists the iChain feature and the equivalent Access Gateway feature.

Table 10-3 *Policy Comparison*

iChain Feature	Access Gateway Feature
Forward Authentication Information (accelerator properties)	Inject into Authorization Header
OLAC HTTP Header	Inject into Custom Header
OLAC Query String	Inject into Query String
N/A	Inject into Custom Header with Tags

As you can see from the table, Access Gateway supports all the iChain OLAC policies. However, the table doesn't show you all of the new types of data you can inject into the authentication header, the HTTP header, or the URL query string. You can also inject the following types of information:

- Authentication Contract
- Client IP
- Credential Profile (includes both LDAP and X509 credentials)
- LDAP Attribute
- Liberty User Profile
- Proxy Session Cookie
- Roles for Current User
- Shared Secret
- String Constant
- Java Data Injection Module

For more information, see "Creating Identity Injection Policies" in the *Novell Access Manager 3.0 Administration Guide*.

Migrating a Policy for the Authorization Header

1. In the Administration Console, click *Policies* > *New*.
2. Specify a name for the policy, select *Access Gateway: Identity Injection* as the type, then click OK.
3. (Optional) Specify a description for the injection policy. This is useful if you plan to create multiple authorization policies to be used for multiple resources.
4. In the Actions section, click *New*, then select *Inject into Authentication Header*.
5. Configure the *User Name* and *Password* fields.

   The following table lists the possible iChain values and indicates the Access Gateway values you need to select.

iChain Value	Access Gateway Value
Default authorization policy	User Name: Credential Profile > LDAP Credentials: LDAP User DN Password: Credential Profile > LDAP Credentials: LDAP Password
ICHAIN_UID=CN	User Name: Credential Profile > LDAP Credentials: LDAP User Name
ICHAIN_PWD=SSN	Password: LDAP Attribute > SSN

6 Click *OK* twice, then click *Apply Changes*.

7 (Optional) To create other types of OLAC policies, see

- "Migrating a Policy for Custom Header Variables" on page 107
- "Migrating a Policy for a Query String" on page 107

8 To assign this policy to a protected resource, see "Configuring a Resource to Use an Identity Injection Policy" on page 108.

Migrating a Policy for Custom Header Variables

In iChain, an automatic X- prefix was added to all custom header variables. Some Web servers do not require the X- prefix to identify custom header variables. To accommodate these servers, Access Gateway does not add a X- prefix to the custom names. If your Web server requires the prefix, you need to add the prefix when you define the name in the Access Gateway policy.

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

2 Specify a name for the policy, select *Access Gateway: Identity Injection* as the type, then click *OK*.

3 (Optional) Specify a description for the injection policy. This is useful if you plan to create multiple custom header policies to be used for multiple resources.

4 In the *Actions* section, click *New*, then select *Inject into Custom Header*.

5 Fill in the following fields:

Custom Header Name: Specifies the name to be inserted into the custom header. If your Web server requires the X- prefix, make sure you include the prefix in this field.

Value: Specifies the value required by the custom header name.

6 Repeat Step 4 and Step 5 to add other name-value pairs.

7 Click *OK* twice, then click *Apply Changes*.

8 To assign this policy to a protected resource, see "Configuring a Resource to Use an Identity Injection Policy" on page 108.

Migrating a Policy for a Query String

Some Web servers require custom information in a query string of the URL. The *Inject into Query String* option allows you to inject this information without prompting the user for it.

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

2 Specify a name for the policy, select *Access Gateway: Identity Injection* as the type, then click OK.

3 (Optional) Specify a description for the injection policy. This is useful if you plan to create multiple custom header policies to be used for multiple resources.

4 In the *Actions* section, click *New*, then select *Inject into Query String*.

5 Fill in the following fields:

Tag Name: Specifies the name to be inserted into the query string of the URL.

Tag Value: Specifies the value required by the tag name.

6 Repeat Step 4 and Step 5 to add other name-value pairs.

7 Click *OK* twice, then click *Apply Changes*.

8 To assign this policy to a protected resource, see "Configuring a Resource to Use an Identity Injection Policy" on page 108.

Configuring a Resource to Use an Identity Injection Policy

Policies are independent of resources. After a policy is created, it can be assigned to multiple protected resources.

1 In the Administration Console, select the Access Gateway, then click *Edit > [Name of Reverse Proxy] > [Name of Proxy Service] > Protected Resources > New*.

2 Specify a display name for the resource. This can be the same name you used for the resource in iChain.

3 In the *Contract* field, select the type of contract you want the user to use for authentication.

4 In the *URL Path List*, click on the default path (/*) and modify it so that it references the resource you want to protect.

5 Click *Identity Injection*.

6 From the list of policies, select the policies you want to processed for this protected resource, then click *Enable*.

7 To save your changes, click *Configuration Panel > OK*, then click *Apply Changes*.

URLs Requiring ACLCheck

In iChain, you set up an ACLCheck rule based on the user's LDAP attributes, objects in the user's dn, and group memberships, and you then assigned the rule to a protected resource. The Access Manager policies are more flexible, and each rule can be implemented in multiple ways. The following migration instructions explain how to use role policies to implement the same functionality you had with ACLCheck. Creating a role policy adds another configuration task, but it also exposes some of the power available in the Access Manager policy engine. After you have created a role and enabled it on the Identity Server, you can use the role in multiple authorization and identity injection policies.

Another option is to create an authorization policy using the LDAP attributes that you specified in the ACLCheck rule as the conditions of the authorization policy. See "LDAP Context Policies" in the *Novell Access Manager 3.0 Administration Guide*. For other methods, see "Creating Access Gateway Authorization Policies" in the *Novell Access Manager 3.0 Administration Guide*.

To migrate an ACLCheck rule using Access Manager roles, you first create a role policy based on the LDAP attributes you specified in the ACLCheck rule. This role policy is then used to create an

authorization policy, which specifies the credentials the user requires to gain access to the resource. This authorization policy is then assigned to the protected resource.

This process is described in the following sections:

- "Migrating an ACLCheck Rule to a Role Policy" on page 109
- "Creating an Authorization Policy with an Allow and a Deny Rule" on page 109
- "Protecting the Resource with the Authorization Policy" on page 111

Migrating an ACLCheck Rule to a Role Policy

To use roles in migrating existing ACLCheck rules:

1. In the Administration Console, click *Policies* > *New*.
2. Specify a name for the role, select *Identity Server: Roles* as the type, then click *OK*.
3. (Optional) Specify a description for the role.
4. In Condition Group 1, click *New*, then select a condition.
   - For a container rule, select *LDAP OU*, then *Current*.
   - For a group rule, select *LDAP Group*, then *Current*.
   - For an LDAP attribute rule, select *LDAP Attribute*, then the name of the attribute.
5. For the *Value* field, select the value the user must match to be granted the role.

   For example, to create a role for all the users whose DN contained the following objects (ou=provo,ou=sales,o=novell), you would select LDAP OU, the user store, then the DN of the OU.

   For an LDAP group, select *LDAP Group*, the user store, then the DN of the group.

   For an LDAP attribute, select the value type that matches the attribute's value. To specify a value, select *Data Entry Field*.
6. In the Actions section, select *New* > *Add Role*.
7. In the text box, specify the name for the role.

   When users log in to Access Manager and if they match the conditions for the role, they are assigned the role. You can then use these role assignments for authorization. See "Creating an Authorization Policy with an Allow and a Deny Rule" on page 109.
8. To save the role, click *OK* twice, then click *Apply Changes*.
9. Repeat these steps to add other roles for ACLCheck rules.
10. Enable the role or roles you have created. Click *Identity Servers* > *[Configuration]* > *Roles*. Select the roles you have created, click *Enable*, then click *Apply*.
11. Update the Identity Server configuration. Click *Identity Servers* > *Setup* > *Update Servers*.

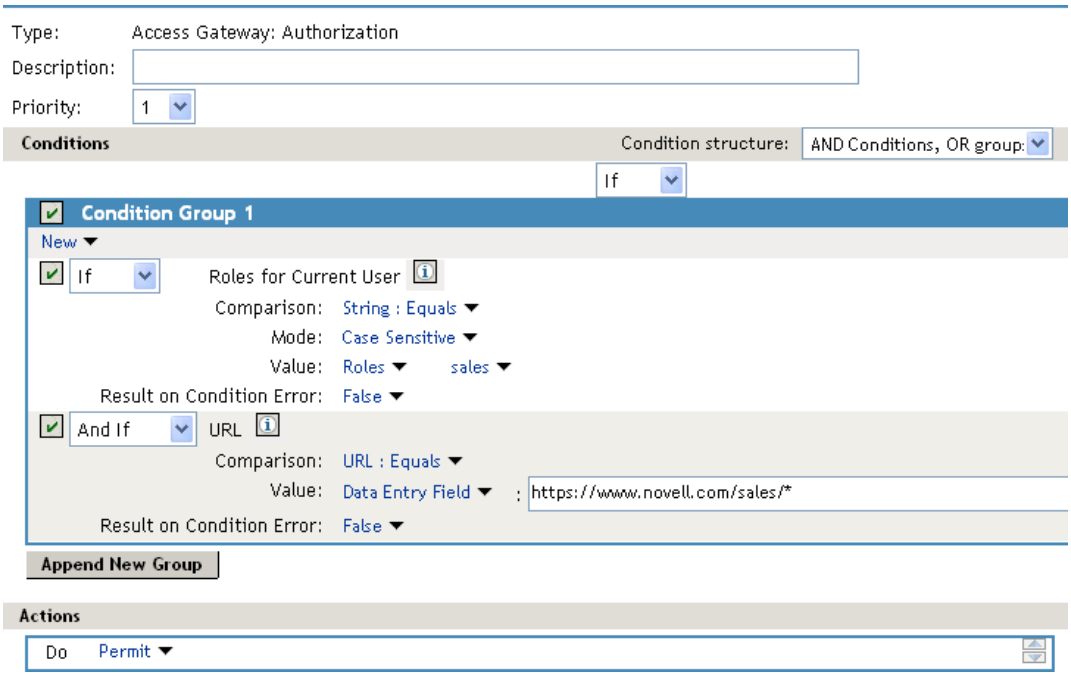
Creating an Authorization Policy with an Allow and a Deny Rule

If you want to allow access to a resource when users meet a certain condition, and deny access to all users who do not meet that condition, one method is to create a policy with an Allow rule and a Deny rule. The policy engine in Access Gateway is flexible enough to allow many designs for a policy. The instructions in this section describe how to create a policy with an Allow rule and a Deny rule. For other ideas see "Creating Access Gateway Authorization Policies" in the *Novell Access Manager 3.0 Administration Guide*.

In iChain, the default behavior for secure resources was to deny access unless an ACLCheck rule allowed access. The behavior is different in Access Gateway. After a user has authenticated, the default behavior is to allow access to resources. Therefore, to restrict access to a resource, you need to create a policy that allows access to the users who meet the conditions and denies access to everyone else.

The following instructions explain how to create a rule that grants access to a URL when the user matches the sales role condition and denies access when the user doesn't match the condition.

1. In the Administration Console, click *Policies* > *New*.
2. Specify a name for the policy, such as *deny_all_but_sales*.
3. Select *Access Gateway: Authorization* from the menu, then click *OK*.



4. (Optional) Specify a description for the rule.
5. Select the Condition structure.

   Select *AND Conditions, OR Groups*, which is the default value.
6. In *Condition Group 1*, select *New*, then *Roles for Current User*.

   This sets up a condition where the roles that are assigned to the user making the request are compared to the content of the *Value* field.
7. Fill in the following fields:

   If/If Not: Select *If*. This selection allows you to include or exclude certain roles. In this example, the rule is being configured to allow users with the sales role to access the resource.

   Comparison: Select *String*, then select *Equals*.

   Mode: Select *Case Sensitive*.

   Value: Select *Roles*, then select *sales*.

Result on Condition Error: Select *False*. Because this condition evaluates to False when the user doesn't have the sales role, you want the result to be False when an error occurs during the evaluation of the condition.

8. To add a second condition to *Condition Group 1*, click *New*, then select *URL*.
9. Fill in the following fields:

   If/If Not: Select *If*. This rule is being configured to allow users with the sales role to access the requested URL. The first rule for roles is ANDed with this rule for URLs.

   Comparison: Select *URL: Equals*.

   Value: Select *Data Entry Field*, then specify the URL in the text box. To allow access to all pages at a location, end the URL with a /*. For example:

   ```
   https://www.novell.com/sales/*
   ```

   Result on Condition Error: Select *False*. Because this condition evaluates to False when the requested URL doesn't match, you want the result to be False when an error occurs during the evaluation of the condition.
10. Under *Actions*, select *Permit*.
11. Click *OK*.
12. In the *Rule List*, click *New*.

    Rule 2 is for denying access to everyone who does not match the conditions in Rule 1.
13. Set the *Priority* to be 2 or greater.

    You want the Allow rule to be processed first, so it should have a priority of 1. The Deny rule needs to be processed last, so it needs a lower priority than the Allow rule.
14. Leave the *Condition Group 1* empty.
15. In the *Actions* section, select *Deny* and either accept the default action or select one of the other actions.
16. Click *OK* twice.
17. Click *Apply Changes* on the Policies page.
18. Repeat this process for any other authorization policies you need to create for roles.

Protecting the Resource with the Authorization Policy

To apply the authorization policy to a protected resource:

1. In the Administration Console, click *Access Gateways > [Edit] > [Name of Reverse Proxy] > [Name of Proxy Service] > Protected Resources > [Name of Protected Resource] > Authorization*.
2. Select the authorization policy from the list, then click *Enable*.
3. Click *Configuration Panel*, then click *OK*.
4. Click *Apply Changes*.

URLs Requiring HTML Rewriting

If you created custom rewriter files for iChain or modified the configuration for the internal rewriter (the `sys:/etc/proxy/rewriter.cfg` file), you must enter the data from such files into an Access Gateway rewriter profile. You can create such a profile for each proxy service you configure.

To access the HTML rewriting policy page in the Administration Console, click *Access Gateways > [Edit] > [Name of Reverse Proxy] > [Name of Proxy Service] > HTML Rewriting*.

Table 10-4 shows where to place the information from the iChain file in the Access Gateway profile.

Table 10-4 *Converting an iChain Rewriter File to an Access Gateway Profile*

iChain File Section	Access Gateway Profile Location
`[Name]`	Name specified for the HTML rewriter profile
`[Extension]`	N/A
`[Alias Host Names]—internal rewriter only`	*Additional URL List* An additional section, *Exclude URL List*, allows you to list the URLs that you do not want rewritten.
`[URL]`	*[Profile Name] > If Requested URL Is*
`[Exclude]`	*[Profile Name] > And Requested URL Is Not*
`[Mime Content-type]`	*[Profile Name] > And Document Content-Type Header Is*
`[Javascript Variables]`	*[Profile Name] > Then Variable or Attribute Name to Search for Is* This option is available only for a Word profile.
`[Javascript Calls]`	*[Profile Name] > And JavaScript Method to Search for Is* This option is available only for a Word profile.
`[Replace]`	*[Profile Name] > Additional Strings to Replace*

Migrating Citrix Clients

The Access Gateway can be configured to provide single sign-on for Citrix clients. The iChain configuration for accommodating the Citrix clients cannot be migrated, because the Access Gateway uses an entirely different process and requires a different type of Form Fill policy. See "Configuring Access Manager for Citrix Clients" in the *Novell Access Manager 3.0 Administration Guide*.

Migrating Protected Resources for J2EE Servers

If you have created protected resources in iChain for J2EE servers, you should use the J2EE Agent which hooks into JACC and JAAS rather than migrating these resources to the Access Gateway as protected Web servers. The J2EE Agent allows you to protect specific Web application pages and Java Enterprise Bean interfaces and methods, and you can create a customized authorization policy for each resource.

The J2EE Agent uses the Identity Server for authentication, so single sign-on is enabled between the Access Gateway protected resources and the J2EE Agent protected resources.

For more information, see the *Novell Access Manager 3.0 J2EE Agent Guide*.

Migrating Protected Non-HTTP Applications

If you have created protected resources in iChain for non-HTTP applications, you should use the SSL VPN server rather than migrating these resources to the Access Gateway as protected resources.

The SSL VPN server uses the Identity Server for authentication, so single sign-on is enabled between the Access Gateway protected resources and the SSL VPN protected resources.

For more information, see "Configuring the SSL VPN Gateway " in the *Novell Access Manager 3.0 Administration Guide*.

Migrating Custom OLAC Drivers

Instead of migrating custom OLAC drivers, you can create the functionality of these drivers with Access Manager policies. For example, the LDAP OLAC driver could retrieve an LDAP attribute, such as employeeID, from eDirectory and inject the attribute and its value into the HTTP header or query string for the Web server requiring it. In Access Manager, you can accomplish all of this with an identity injection policy. For more information, see "Creating Identity Injection Policies" in the *Novell Access Manager 3.0 Administration Guide*.

If the user values you need to inject are not stored in an LDAP directory, you can create a secret store, prompt the users to enter the required values the first time they access the Web server requiring the values, store them in the secret store, and then inject the values when the user accesses the page requiring them. For more information, see "Creating and Managing Shared Secrets", "Creating Form Fill Policies", and "Creating Identity Injection Policies" in the *Novell Access Manager 3.0 Administration Guide*.

10.2.7 Moving Staged Components

The IP address of the Administration Console cannot be changed without requiring you to reinstall all components that were auto-imported into the Administration Console or installing a second Administration Console.

NOTE: By adding a second Administration Console with the IP address you want to use in a production environment, making it the primary Administration Console, then removing the first Administration Console, you can overcome the IP address limitation. You can then perform a reinstall on the first Administration Console and change its IP address. Rather than performing these steps, we highly recommend that you install your Administration Console using the IP address that it needs in a production environment.

The other Access Manager components, the Access Gateway, the Identity Server, J2EE Agent, and the SSL VPN server, can change their IP address.

- "Changing the Address of an Identity Server, J2EE Agent, or SSL VPN Server" on page 113
- "Changing the IP Address of an Access Gateway" on page 114

Changing the Address of an Identity Server, J2EE Agent, or SSL VPN Server

1. At the console of the machine, start the YaST utility.
2. Change the static IP address, shutdown the machine, move the machine to its new location, and start it.

3 In the Administration Console, change the IP address of the Management IP address to match this new IP address. Select one of the following:

- For an Identity Server, click *Identity Servers > [Name of Server]*, then click on the *Management IP Address* link.
- For an SSL VPN, click *SSL VPNs > [Name of Server]*, then click on the *Management IP Address* link.
- For a J2EE Agent, click *J2EE Agents > [Name of Server]*, then click on the *Management IP Address* link.

4 Specify the new address, then click OK to save your changes.

Changing the IP Address of an Access Gateway

If the new IP address is in the same subnet, see "Changing the IP Address of the Access Gateway" in the *Novell Access Manager 3.0 Administration Guide* for instructions.

If the new IP address is in a different subnet:

1 In the Administration Console, click *Access Gateways > [Edit] > Adapter List*.

2 If the machine belongs to a group, select the Access Gateway from the *Group Member* list.

3 In the *Adapter eth0* section, select the subnet mask that contains the old IP address.

4 Set the Subnet Mask to 0.0.0.0, then click *OK*.

5 Select the 0.0.0.0 subnet mask.

6 Select the old IP address, click *Change IP Address*, specify the new IP address, then click *OK*

This option changes all configuration instances of the old IP address to the new IP address. For example, any reverse proxies that have been assigned the old IP address as a listening address are modified to use the new IP address as the listening address.

7 To save these changes, click *Configuration Panel*, then click *Apply Changes*.

The configuration changes are applied to the Access Gateway machine.

8 If you are physically moving the machine, move it before completing the rest of these steps.

9 Check the IP address that the Administration Console uses for managing the Access Gateway. Click *Access Gateways > [Name of Access Gateway] > Edit*.

10 If the old IP address is listed as the *Management IP Address*, select the new IP address. If your Access Gateway has multiple IP addresses, select the one that you want the Administration Console to use for communication with the Access Gateway.

The port should only be modified if there is another device on the Access Gateway that is using the default port of 1443.

11 If the name of the Access Gateway is the old IP address, modify the *Name* option.

12 Click *OK*.

The Administration Console uses the configured IP address to find the Access Gateway.

10.2.8 Removing iChain

When you have migrated all your resources to the Access Gateway and the only DNS name that resolves to the iChain machine is the DNS name for the Identity Server accelerator, you are ready to remove the iChain machine from your production environment.

1. Reconfigure your DNS server (or L4 switch) so that the DNS name of Identity Server accelerator resolves to the IP address of the Identity Server rather than to the iChain machine.
2. The Identity Server uses ports 8080 and 8443. If you have not opened these ports in your firewall, you need to configure iptables on your Identity Server. See "Translating the Identity Server Configuration Port" in the *Novell Access Manager 3.0 Administration Guide*.
3. When the new configuration has had time to propagate through out your network, remove the network cables from the iChain machine.
4. Continue testing the configuration.
5. If everything is working as expected, physically remove the iChain machine from your network.

Troubleshooting Installation

A

A.1 Troubleshooting the Access Gateway Import

When you install the NetWare® Access Gateway or the Linux Access Gateway, it should automatically be imported into the Administration Console you specified during installation. If the Access Gateway does not appear in the server list, you need to repair the import.

If the repair option does not correct the problem, the following section explains what should happen and how you can discover what went wrong. This information can be used to accurately report the problem to Novell® Technical Support.

A.1.1 Repairing an Import

If the Access Gateway does not appear in the Administration Console within ten minutes of installing an Access Gateway, complete the following steps:

1. In the Administration Console, click *Access Gateways* > *Repair Import*.
2. Wait a few minutes, then click *Refresh*.
3. If the device still does not appear, continue with Section A.1.2, “Triggering an Import Retry,” on page 117.
4. If triggering an import retry does not solve the problem, reinstall the device.
5. If reinstalling the device does not correct the problem, continue with Section , “Understanding the Import Process,” on page 119 and report the problem to Novell Support.

A.1.2 Triggering an Import Retry

If the import process failed to start (see Step 3 on page 120), you can manually trigger the import process. These steps explain how to set the IP address of the Administration Console to an incorrect address and then back to the correct address, which triggers the import process. Select the procedure that matches your Access Gateway platform.

For the NetWare Access Gateway:

1. Unlock the console (see “Unlocking the NetWare Access Gateway Console” on page 124).
2. Press Ctrl+Escape and select the Novell Access Gateway Console screen.

NOTE: If you are in debug mode, first enter *0* to go to the next page and then enter *4*.

3. Verify that the Access Gateway can communicate with the Administration Console. From the Novell Access Gateway Console screen, enter a `ping` command with the IP address of the Administration Console.

   If the `ping` command successfully returns, continue with the following steps. If it is unsuccessful, fix the network communication problem before continuing.

4. From the Novell Access Gateway Console screen, enter the following two commands

   ```
   clear devicemanager serveraddress
   apply
   ```

   These commands return you to the system console screen.

5. Press Ctrl+Escape and select the Novell Access Gateway Console screen.

6. To set the IP address, enter the following command:

   ```
   set devicemanager serveraddress=[AC_address]
   ```

   Replace *[AC_address]* with the address of the Administration Console.

7. When prompted, enter the name of the admin user.

8. Enter the password for the admin user and verify it.

9. To trigger the import process, enter

   ```
   Apply
   ```

   The system retries to import the device.

10. Wait 30 seconds, then log in to the Administration Console.

11. If these steps do not work, reinstall the device.

For the Linux Access Gateway:

1. Verify that you can communicate with the Administration Console. From the command line of the Access Gateway machine, enter a ping command with the IP address of the Administration Console.

   If the `ping` command successfully returns, continue with the following steps. If it is unsuccessful, fix the network communication problem before continuing.

2. Log in as `root`, enter `nash`.

3. To remove the IP address of the Administration Console, enter the following commands:

   ```
   configure
   deviceManager no server-address [AC_address]
   ```

   Replace *[AC_address]* with the IP address of the Administration Console.

4. To save this configuration, enter

   ```
   save .current
   ```

5. To apply the configuration, enter

   ```
   apply
   ```

   JCC retries to import the device and fails because the IP address is incorrect.

6. To configure JCC for the correct IP address, enter the following command:

   ```
   deviceManager server-address [AC_address]
   ```

   Replace *[AC_address]* with the correct IP address of the Administration Console.

This might take some time.

7 When prompted, enter the name of the admin user.

8 Enter the password for the admin user and verify it.

9 When prompted for the configuration to use, enter *C* for current configuration.

JCC retries to import the device.

10 Wait 30 seconds, then log in to the Administration Console.

11 If these steps do not work, reinstall the device.

A.1.3 Troubleshooting the Import Process

If a step does not complete successfully, the device does not show up in the Access Gateway list. The sections below describe the import process, where to find the log files, and how to use them to determine where the failure occurred so you can accurately report the problem.

- "Understanding the Import Process" on page 119
- "Locating the Log Files" on page 120
- "Determining Where the Error Occurred" on page 120

Understanding the Import Process

The following operations are performed during the import process:

1. A user specifies the IP address for the Administration Console during installation.
2. A Java process called "JCC" (Java Communication Channel) detects that the Administration Console IP address/port has changed between its own configuration in `SYS:\jcc\conf\settings.properties` and the CLI-updated settings in `SYS:\etc\proxy\ecc.cfg` on NetWare or `/opt/novell/devman/jcc/conf/settings.properties` and `/var/novell/cfgdb/.current/config.xml` on Linux.
3. An import message is sent to Administration Console notifying it of the IP, port, and ID of the Access Gateway device.
4. The Administration Console then connects to the Access Gateway device asking for its configuration and version information. The Access Gateway portion of the import process is now complete.
5. As a separate asynchronous operation, the Access Gateway embedded service provider (ESP), running in Tomcat, connects and registers itself with the JCC.
6. When the ESP connects to the JCC, a similar import message is sent to the Administration Console notifying it to import into the system.
7. The Administration Console connects to the JCC asking for the ESP configuration and version information. On the Administration Console, an LDIF (Lightweight Directory Interchange Format) file containing the default configuration for the ESP is applied on the local eDirectory™ configuration store.
8. The Administration Console then makes a link between the ESP and its configuration.
9. If the entire process completed properly, the Access Gateway device appears in the list of Access Gateways in the UI.

Locating the Log Files

Various Access Manager components produce log files. You use the following logs located on either the Administration Console or the Access Gateway.

- **Administration Console Log:** `/opt/novell/devman/share/logs/app_sc.0.log`
- **Tomcat Log on the Administration Console:** `/var/opt/novell/tomcat4/logs/catalina.out`
- **JCC Log on the Access Gateway:** For the NetWare Access Gateway, the JCC events are logged to the `SYS:\jcc\logs\jcc-0.log.0` file. They are also logged to the NetWare Logger Screen (screen #3).

  For the Linux Access Gateway, the messages are logged in the `/opt/novell/devman/jcc/logs/jcc-0.log.0` file.

Determining Where the Error Occurred

If the device does not show up in the list of Access Gateways in the UI after about 30 seconds, you can look for the following entries, determine which ones are not successful, and put the unsuccessful event messages in any bugs submitted.

1. From the Access Gateway console, verify the IP addresses.
   - On NetWare, unlock the console (see Section A.1.4, "Unlocking the NetWare Access Gateway Console," on page 124). Enter `get devicemanager`. Verify that the *bindaddress* field is set to a bound address on the server. Verify that the *serveraddress* field is set to the correct address of the Administration Console.
   - On Linux, log in as `root`, start `nash`, and enter `show deviceManager`. Verify that the *bind-address* field is set to a bound address on the server. Verify that the *server-address* field is set to the correct address of the Administration Console.
2. Verify that the configuration file contains the correct information:.
   - On NetWare, verify that the `SYS:\etc\proxy\ecc.cfg` file contains the correct information set from the CLI. Open the `SYS:\jcc\conf\settings.properties` file and verify that the information matches that in `ecc.cfg` file:
   - On Linux, verify that the `/var/novell/cfgdb/.current/config.xml` file contains the correct information set from the CLI. Open the `/opt/novell/devman/jcc/conf/lag-settings.properties` file and verify that the information matches that in the `config.xml` file.
3. In the JCC log, an entry for a successful Access Gateway import should look similar to the following:

```
Jan 30, 2006 3:19:34 PM com.novell.jcc.server.JCCServerImpl
   register
INFO: Registering Proxy client "ag-AEF62A32"
   com.novell.jcc.proxy.AGProxy$AGJCCClient@19113f8
Jan 30, 2006 3:19:34 PM com.novell.jcc.server.ClientRegistry
   register
INFO: registering ag-AEF62A32 in client registry
Jan 30, 2006 3:19:34 PM com.novell.jcc.server.JCCServerImpl
   processRegisterAlerts
INFO: Sending new device alert to Device Manager for ag-AEF62A32
Jan 30, 2006 3:19:34 PM com.novell.jcc.client.AlertDispatcher
   sendAlert
```

```
INFO: alerts in send queue: 1
INFO: alert sent successfully
```

Look for an error message such as `sendAlert: IOException connection timed out`. This means the Access Gateway device could not connect to the Admin server. The operation will retry until it is successful. To trigger a retry, see Section A.1.2, "Triggering an Import Retry," on page 117.

4 In the JCC log, an entry for a successful Access Gateway configuration import should look similar to the following:

```
Jan 30, 2006 3:21:34 PM com.novell.jcc.handler.ProxyHandler
   handleRequest
INFO: This is a request from Device Manager.
Jan 30, 2006 3:21:34 PM com.novell.jcc.handler.ProxyHandler
   proxyHttpURLConnection
INFO: Setting request method: GET for http://127.0.0.1:101
   /Ex?Config:/appliance?Config:/appliance
Jan 30, 2006 3:21:34 PM com.novell.jcc.handler.ProxyHandler
   proxyHttpURLConnection
INFO: Adding request headers:
X-Roma-Username: config.ics.ics_tree
X-Roma-Password:
X-Roma-Frequency: 0
X-Roma-Schedule-Id: 248237e8e9bc131da1bf7b23a1091ce91d43aa7c4a
X-Roma-Appliance-Id: ag-AEF62A32
Host: 10.155.164.14
X-Roma-Xml-Length: 0
Content-Length: 0
Pragma: no-cache
Cache-Control: max-age=0
X-Roma-Version: 1.0
User-Agent: Java1.3.0
Accept: text/html, text/plain, image/*, */*
Content-Type: text/plain
Connection: close
Jan 30, 2006 3:21:34 PM com.novell.jcc.handler.ProxyHandler
   proxyHttpURLConnection
INFO: Connecting to http://127.0.0.1:101/Ex?Config:/appliance
   method GET
Jan 30, 2006 3:21:34 PM com.novell.jcc.handler.ProxyHandler
   proxyHttpURLConnection
INFO: Response code: 200 OK
Jan 30, 2006 3:21:34 PM com.novell.jcc.handler.ProxyHandler
   proxyHttpURLConnection
INFO: reponse body size: 5958 bytes
Jan 30, 2006 3:21:34 PM com.novell.jcc.handler.ProxyHandler
   proxyHttpURLConnection
INFO: disconnecting client.
```

5 In the JCC log, a log entry for a successful ESP connection to the ESP should look similar to the following:

```
Jan 30, 2006 1:54:46 PM com.novell.jcc.client.JCCClientImpl <init>
INFO: Starting client esp-AEF62A32 of type idp
Jan 30, 2006 1:54:46 PM com.novell.jcc.sockets.CipherSocketUtils
   getKey
```

```
INFO: loading the secret key from /jcc/conf/jcc.keystore
Jan 30, 2006 1:54:47 PM com.novell.jcc.client.JCCClientImpl$
   ServerConnectionThread run
INFO: server connection thread started
Jan 30, 2006 1:54:47 PM com.novell.jcc.client.JCCClientImpl$
   ServerConnectionThread establishServerConnection
INFO: attempting to contact RMI server on 127.0.0.1:1197
INFO: Registering RMI client "idp-esp-AEF62A32" com.novell.jcc.
   client.JCCClientImpl$JCCRMIClient_Stub[RemoteStub [ref:
   [endpoint:[10.155.164.14:1029,com.novell.jcc.sockets.
   CipherSocketFactory@6a3960]remote),objID:[134ce4a:1091d189f37
   :-8000, 1]]]]
Jan 30, 2006 3:19:37 PM com.novell.jcc.server.ClientRegistry
   register
INFO: registering idp-esp-AEF62A32 in client registry
Jan 30, 2006 3:19:37 PM com.novell.jcc.server.JCCServerImpl
   processRegisterAlerts
INFO: Sending new device alert to Device Manager for
   idp-esp-AEF62A32
Jan 30, 2006 3:21:34 PM com.novell.jcc.client.AlertDispatcher$
   AlertQueueThreads
endAlert
INFO: alert sent successfully
```

6 In the JCC log, a successful logging of events for the ESP import should look similar to the following:

```
INFO: Sending new device alert to Device Manager for
   idp-esp-AEF62A32
Jan 30, 2006 3:21:34 PM com.novell.jcc.client.AlertDispatcher
   $AlertQueueThread sendAlert
INFO: alert sent successfully
Jan 30, 2006 3:21:34 PM com.novell.jcc.client.AlertDispatcher
   sendAlert
INFO: alerts in send queue: 2INFO: Received GET: /Ex?Config:
   /appliance from 10.155.165.108:33812
Jan 30, 2006 3:21:34 PM com.novell.jcc.servlet.DispatchServlet
   dispatchHandler
INFO: looking up handler: Config
Jan 30, 2006 3:21:34 PM com.novell.jcc.handler.HandlerUtils
   verifyCredentials
INFO: login successful
Jan 30, 2006 3:21:34 PM com.novell.jcc.handler.ConfigHandler
   handleRequest
INFO: <romaIDPConfiguration/>
Jan 30, 2006 3:21:34 PM com.novell.jcc.server.ClientRegistry
   setClientImported
INFO: setting client idp-esp-AEF62A32 as imported: true
```

7 When the LDIF file is successfully imported, the `app_sc.0.log` file contains an entry similar to the following. The example below contains an add entry for one schema definition; the ellipsis (...) indicates that the other definitions have not been included.

```
528(D)Mon Jan 30 15:21:37 MST 2006(L)application.sc.alert(T)43
   (C)com.volera.vcdn.application.sc.alert.AlertCommandHandler$
   CommandThread(M)importDevice(Msg)Creating matching IDP server
```

```
   object for idp-esp-AEF62A32
529(D)Mon Jan 30 15:21:37 MST 2006(L)application.sc.alert(T)43
   (C)com.volera.vcdn.application.sc.alert.AlertCommandHandler$
   CommandThread(M)importDevice(Msg)Successfully created
   cn=idp-esp-AEF62A32,cn=server,cn=nids,
   ou=accessManagerContainer,o=novell
530(D)Mon Jan 30 15:21:37 MST 2006(L)application.sc.alert(T)43
   (C)com.volera.vcdn.application.sc.alert.AlertCommandHandler
   $CommandThread(M)importDevice(Msg)
   dn: cn=SCCAEF62A32, cn=cluster, cn=nids,
   ou=accessManagerContainer,o=novell
   changetype: add
   nidsSignAuthnRequests: TRUE
   nidsIsConsumer: TRUE
   nidsSessionTimeout: 900
   nidsServerType: 3
   objectClass: nidsServerClusterConfiguration
   objectClass: Top
   nidsDisplayName: 10.155.164.14
   nidsServerConfigModified: FALSE
   nidsBaseURL: http://10.155.164.14/nidp
   nidsAssertionTimeToLive: 0
   cn: SCCAEF62A32
   nidsIsProvider: TRUE

[...]

531(D)Mon Jan 30 15:21:37 MST 2006(L)application.sc.alert(T)43
   (C)com.volera.vcdn.application.sc.alert.AlertCommandHandler
   (M)execute(Msg)Executing opt/novell/eDirectory/bin/ice
532(D)Mon Jan 30 15:21:37 MST 2006(L)System Controller(T)33
   (C)com.volera.vcdn.application.sc.core.DeviceManager
   (M)setHealthCheck(Msg)Setting the health attributes for nids
    to: 1
533(D)Mon Jan 30 15:21:37 MST 2006(L)application.sc.alert(T)43
   (C)com.volera.vcdn.application.sc.alert.AlertCommandHandler
   (M)execute(Msg)Success, return code: 0
```

8 In the `app_sc.0.log` file, the record of a successful linking of the LDIF configuration to the ESP looks similar to the following:

```
534(D)Mon Jan 30 15:21:37 MST 2006(L)application.sc.alert(T)43
   (C)com.volera.vcdn.application.sc.alert.AlertCommandHandler
   $CommandThread(M)importDevice(Msg)S Searching for AEF62A32 in
   cn=cluster,cn=nids,ou=accessManagerContainer,o=novell
535(D)Mon Jan 30 15:21:37 MST 2006(L)application.sc.alert(T)43(
   C)com.volera.vcdn.application.sc.alert.AlertCommandHandler
   $CommandThread(M)importDevice(Msg)Checking configuration:
   cn=SCCAEF62A32,cn=cluster,cn=nids,
   ou=accessManagerContainer,o=novell with AEF62A32
536(D)Mon Jan 30 15:21:37 MST 2006(L)application.sc.alert(T)43
   (C)com.volera.vcdn.application.sc.alert.AlertCommandHandler
   $CommandThread(M)importDevice(Msg)Linking esp config to
   cn=SCCAEF62A32,cn=cluster,cn=nids,
   ou=accessManagerContainer,o=novell
```

A.1.4 Unlocking the NetWare Access Gateway Console

Before you can enter NetWare commands or view the logger screen, you must unlock the console.

1. To unlock the console, enter
   `unlock`
2. When prompted for a password, press Enter.

   The console is now unlocked and the active screen is the device manager screen. From this screen you can enter device manager commands.
3. To switch to the logger screen or other NetWare screens, enter
   `debug`
4. When prompted for a password, enter
   `proxydebug`
5. To switch from the device manager screen, press Ctrl+Escape and enter the screen number.

A.2 Troubleshooting Linux Access Gateway Installation

This section contains the following trouble shooting scenarios for Linux Access Gateway:

A.2.1 Troubleshooting Failed Linux Access Gateway Configuration

If the IP address and other network configurations are not reflected in the installed Linux Access Gateway, log in as a root user and run the following commands:

```
rm /opt/novell/legacy/etc/proxy/.novell_lag_lock

/etc/init.d/novell-vmc stop

/etc/init.d/novell-vmc start
```

A.2.2 Manually Configuring a Network Interface

If you have configured a network interface during install and it is not showing up, or if you want to change the configuration, you can do it by using the nash shell, which is a command line interface (CLI) infrastructure.

NOTE: If Linux Access Gateway is not imported, modifications to the Linux Access Gateway configuration should be done using nash.

Before you begin, make sure you have done the following:

- You have rebooted the system after installation.
- You have logged in as root.

1. At the command prompt, enter the following shell command:

   `nash`

2. At the nash shell prompt, run the following command to enter the configuration mode:

   `configure .current`

3. To display the current IP address for the eth0 network card, enter the following:

   `show interface eth0`

4. To change the IP address of eth0, enter the following:

   `interface eth0`

5. To replace the IP address of eth0, enter the following command:

   `replace` *`<current IP address/netmask>`* `with` *`IP address/netmask`*

   Replace *IP address/netmask* with the IP address of the network interface card and the subnet mask. For example:

   `replace 10.0.0.1 with 12.1.1.1/23`

   IMPORTANT: Do not use the `interface eth0 no` *ip_address* command to remove the IP address. Always use the above command.

6. To save the configuration, enter the following command:

   `save .current`

7. For the configuration to take effect, enter the following command:

   `apply`

8. To exit from the configuration mode, enter the following command:

   `exit`

9. To exit from the nash shell, enter the following command:

   `exit`

A.2.3 Manually Setting and Deleting the Default Gateway

1. Log in as `root`.
2. At the command prompt, enter the following shell command:

   `nash`

3. At the nash shell prompt, run the following command to enter the configuration mode:
   `configure .current`
4. To set up the default gateway IP address, enter the following command:

   `ip route 0.0.0.0/0` *gateway_IP_address* `1`

   Replace *gateway_IP_address* with the IP address of your gateway server.

5. To delete the default gateway IP address, enter the following command:

`no ip route 0.0.0.0/0` *gateway_IP_address* `1`

Replace *gateway_IP_address* with the IP address of your gateway server.

6 To save the configuration, enter the following command:

```
save .current
```

7 For the configuration to take effect, enter the following command:

```
apply
```

8 To exit from the configuration mode, enter the following command:

```
exit
```

9 To exit from the nash shell, enter the following command:

```
exit
```

A.2.4 Troubleshooting Import Failure

There are several possible reasons for auto-import failure:

- “Manually Importing the Device to Administration Console” on page 126
- “Hostname Is Not Configured Properly” on page 127
- “Hostname Is Not Resolvable” on page 128
- “Some of the Components Failed to Install” on page 129
- “Unable to Connect to the Administration Console” on page 129

Manually Importing the Device to Administration Console

If the Linux Access Gateway failed to import during installation, follow the steps given below:

1 Log in as `root`.

2 Configure the network interface. For information on configuring network interface, see Section A.2.2, “Manually Configuring a Network Interface,” on page 124.

3 At the command prompt, enter the following shell command:

```
nash
```

4 At the nash shell prompt, run the following command to enter the configuration mode:

```
configure .current
```

5 Configure the domain name and hostname.

5a To set up the domain name, enter the following command:

`ip domain-name` *domain_name*

Replace *domain name* with the domain name for this network interface card.

5b To set up the host name, enter the following command:

`hostname` *host_name*

Replace *host_name* with the host name of the Linux Access Gateway machine.

5c If the host name is not resolvable using an external DNS server, do the following to add the host name and IP address mapping:

hosts *ip-address host-name*

hosts *ip-address host-name.domainname*

Replace *ip_address* with the IP address of this Access Gateway machine. Replace *[host_name]* with the computer name for this Access Gateway machine.

5d To set up the DNS server, enter the following command:

`ip name-server` *DNS_IP_address*

Replace *DNS_IP_address* with the IP address of your DNS server.

6 Configure the default gateway.

6a To set up the default gateway IP address, enter the following command:

`ip route 0.0.0.0/0` *gateway_IP_address* `1`

Replace *gateway_IP_address* with the IP address of your gateway server.

6b To save the configuration, enter the following command:

```
save .current
```

6c For the configuration to take effect, enter the following command:

```
apply
```

7 To exit from the configuration mode, enter the following command:

```
exit
```

8 To exit from the nash shell, enter the following command:

```
exit
```

9 To manually import the Linux Access Gateway to the Administration Console, enter the following command:

```
/chroot/lag/opt/novell/bin/lagconfigure.sh
```

Hostname Is Not Configured Properly

If you have not configured the hostname properly, the following error messages are displayed:

- `Hostname is not set. Please set the hostname in nash and run /chroot/lag/opt/novell/bin/lagconfigure.sh with option 1 to trigger the configuration steps again.`
- `Default Hostname set. Please set the hostname in nash and run /chroot/lag/opt/novell/bin/lagconfigure.sh with option 1 to trigger the configuration steps again.`

Use the following procedure to resolve the problem:

1 At the command prompt, enter the following shell command:

```
nash
```

2 At the nash shell prompt, run the following command to enter the configuration mode:
`configure .current`

3 To set up the hostname, enter the following command:

`hostname` *host_name*

Replace *host_name* with the hostname of the Linux Access Gateway machine.

4 To save the configuration, enter the following command:

```
save .current
```

5 To apply the configuration changes, enter the following command:

```
apply
```

6 To exit from the configuration mode, enter the following command:

```
exit
```

7 To exit from the nash shell, enter the following command:

```
exit
```

8 Run the following command to display the Linux Access Gateway status:

```
/etc/init.d/novell-vmc status
```

9 (Conditional) If the status is Failed, run the following commands to restart Linux Access Gateway:

```
/etc/init.d/novell-vmc stop
```

```
/etc/init.d/novell-vmc start
```

10 Enter the following command from the bash shell:

```
/chroot/lag/opt/novell/bin/lagconfigure.sh
```

11 Select option 1.

Hostname Is Not Resolvable

When host name is not resolvable, the following error message is displayed:

```
Hostname cannot be resolved. Please set host entry in nash and run
/chroot/lag/opt/novell/bin/lagconfigure.sh with option 1 to trigger
the configuration steps again.
```

Use the following procedure to resolve the problem:

1 At the command prompt, enter the following shell command:

```
nash
```

2 At the nash shell prompt, run the following command to enter the configuration mode:
`configure .current`

3 To add a static DNS mapping for the IP address hostname combination, enter the following commands:

```
hosts ip-address host-name
```

```
hosts ip-address host-name.domainname
```

Replace *ip-address* with the IP address and *host-name* with the hostname of the Linux Access Gateway machine.

4 To save the configuration, enter the following command:

```
save .current
```

5 To apply the configuration changes, enter the following command:

```
apply
```

6 To exit from the configuration mode, enter the following command:

```
exit
```

7 To exit from the nash shell, enter the following command:

```
exit
```

8 Run the following command to display the Linux Access Gateway status:

```
/etc/init.d/novell-vmc status
```

9 (Conditional) If the status is Failed, run the following command to restart Linux Access Gateway:

```
/etc/init.d/novell-vmc stop
/etc/init.d/novell-vmc start
```

10 Enter the following command from the bash shell:

```
/chroot/lag/opt/novell/bin/lagconfigure.sh
```

11 Select option 1.

Some of the Components Failed to Install

1 Check the install logs at the following location:

```
/tmp/novell_access_manager
```

This directory has the install logs in the following format:

inst_*component-name_date_time*.log

2 Send the log to Novell Technical Support.

Unable to Connect to the Administration Console

1 Run the following command to check if the listener is up:

```
netstat -nap | grep 8080
```

2 If the listener is not up, run the following command to view the log:

```
tailf /var/opt/novell/tomcat4/logs/catalina.out
```

3 Look for the following error in the logs:

```
Error connecting to the datastore
```

4 If you discover the error, run the following commands:

```
/etc/init.d/ndsd stop
/etc/init.d/ndsd start
/etc/init.d/novell.tomcat4 stop
/etc/init.d/novell.tomcat4 start
```

A.3 Troubleshooting SSL VPN Device Import

If you do not see the SSL VPN device after installation, follow the steps given below:

1 At command prompt, enter the following command:

```
sslvpnc --configure
```

2 Enter the following configuration details:

- SSL VPN server IP address
- Administration Console IP address
- SSL VPN server internal interface name, for example eth0

3 At the command prompt, enter the following command:

```
/etc/init.d/novell-sslvpn start
```

The SSL VPN server is auto-imported into the Administration Console.